

This PDF file contains the appendixes to U.S. Geological Survey Water-Resources Investigations Report 99-4045

Relations of Surface-Water Quality to Streamflow in the Raritan River Basin, New Jersey, Water Years 1976-93



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RELATIONS OF SURFACE-WATER QUALITY TO STREAMFLOW IN THE RARITAN RIVER BASIN, NEW JERSEY, WATER YEARS 1976-93

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U.S. Geological Survey

Water-Resources Investigations Report 99-4045

APPENDIXES

Prepared in cooperation with the NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

West Trenton, New Jersey 1999



Description of Appendixes

Appendixes 1-18 illustrate the relations of surface-water quality to streamflow by constituent for each station with three graphs. The first graph shows the relation of concentration to streamflow. Plots of concentration to streamflow indicate how instream constituent concentrations vary with streamflow, but do not indicate the relative contributions of constant and intermittent sources. Data for stations on streams that drain developed areas show greater scatter, especially for inorganic constituents such as sodium, chloride, and hardness. Relations between concentration and streamflow were developed by using (1) all measurements, (2) only measurements collected during the growing season, and (3) only measurements collected during the nongrowing season. Growing-season measurements are shown with open symbols, and nongrowing-season measurements are shown with shaded symbols. Different symbols are used to show uncensored and censored values. For each group of measurements, the number of observations and values of slope and intercept are listed, and a regression line is shown when the slope of concentration to streamflow is different from zero at the 0.05 significance level. A seasonal dependency is indicated when the relations of concentration to streamflow for the growing- and nongrowing-season measurements are different. The 75th and 25th percentiles of the flow duration also are indicated.

The second graph shows the relation of load to streamflow. The regression slope of load to streamflow indicates the relative contributions of constant and intermittent sources to the instream load. The steeper the slope, the greater the contribution during increased streamflow from storm runoff (intermittent sources). Relations between load and streamflow were developed using all measurements. Different symbols are used to show uncensored and censored values. The number of observations and values of slope and intercept are shown, and a regression line is drawn when the slope is different from zero at the 0.05 significance level. A smoothed relation between load and streamflow is shown when there are 10 or more observations. The 75th and 25th percentiles of the flow duration also are indicated. The relations of load to streamflow for dissolved oxygen at saturation and fecal coliform bacteria are not shown because loads are not calculated for these constituents.

The third graph shows the trends in concentrations during high and low flows. Trends in constituent concentrations during high and low flows can indicate changes over time in the contributions from intermittent and constant sources, respectively. Positive trends during high flows indicate an increase in the storm runoff contributions over time, whereas negative trends indicate a decrease in the storm runoff contributions. Positive trends during low flows indicate an increase in the contributions from point sources and ground water over time, whereas negative trends indicate a decrease in the contributions from point sources and ground water. Measurements during low flows are shown with open symbols, and measurements during high flows are shown with shaded symbols. Different symbols are used to show uncensored and censored values. The numbers of observations and water years during which at least one measurement was made are shown for each group of measurements. Trends are indicated by regression lines and slope values when the seasonal Kendall tau value is significant.

Navigation Tips

1. Start at page 5 of the PDF file. This page lists the appendixes and the constituents they describe.

Appendixes–Relation concentration and load trends in concentra

Appendix 1 ------ Alkalinity

Appendix 2 ----- Hardness

Appendix 3 ----- Total organic carbon

Appendix 4 ----- Suspended sediment

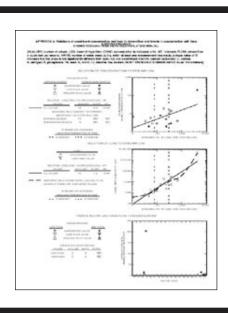
Appendix 5 ----- Dissolved solids

2. Move the cursor to the name of the desired constituent and click the mouse button to jump to the selected appendix. A list of stations will appear.

Appendix 1 - Alkalinity

Station number O1396280 SB Raritan River at Middle O1396535 SB Raritan River at Arch O1396588 Spruce Run near Glen GO1396660 Mulhockaway Creek at VO1397000 SB Raritan River at Three O1397400 SB Raritan River at Three

3. At the station list, select the desired station, move the cursor to the station, and click the mouse button to jump to the data.



Appendixes–Relations of constituent concentration and load to streamflow and trends in concentration with time

Appendix 1 Alkalinity
Appendix 2Hardness
Appendix 3Total organic carbon
Appendix 4 Suspended sediment
Appendix 5 Dissolved solids
Appendix 6Dissolved sodium
Appendix 7 Dissolved chloride
Appendix 8 Dissolved oxygen
Appendix 9Fraction of dissolved oxygen at saturation
Appendix 10 Total phosphorus
Appendix 11 Total nitrogen
Appendix 12 Total nitrate plus nitrite
Appendix 13 Total nitrite
Appendix 14 Total ammonia plus organic nitrogen
Appendix 15 Total ammonia
Appendix 16Total boron
Appendix 17 Total lead
Appendix 18 Fecal coliform bacteria

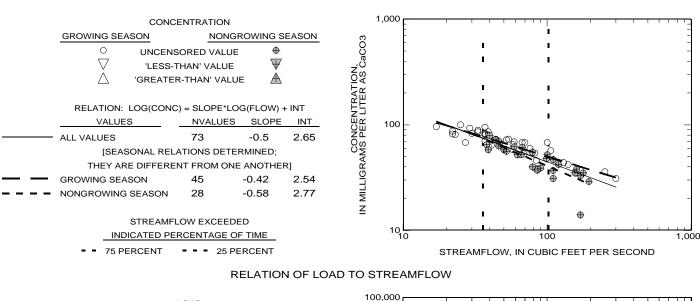
Appendix 1 - Alkalinity

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Blackwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

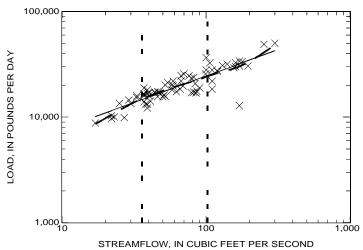
APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01396280 SB RARITAN RIVER AT MIDDLE VALLEY, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



_	LOAD				100,000	
	× UNCENSORED VLESS-THAN' V			}	-	
RELATION VALU	N: LOG(LOAD) = SLOPE*L	OG(FLOW) SLOPE	+ INT INT	PER D,	-	
ALL VALUES	73	0.5	3.39	OUNDS	10,000 –	×××
	RELATION BETWEEN LOA HERE ARE 10 OR MORE \		W	<u>Z</u>	[* * * *
	STREAMFLOW EXCEE	OF TIME		LOAD	-	
- 7 5	PERCENT = = = 25	PERCENT				



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

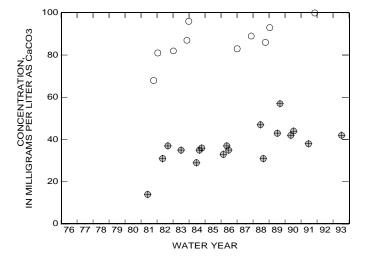
CONCENTRATION				
LOW FLOW			HIGH FLOW	
Ο υ	NCENSORE	O VALUE	⊕	
\triangle	LESS-THAN'	VALUE	$\overline{\Psi}$	
△ 'GI	REATER-THA	N' VALUE	■ 🛦	
TREN	IDS IN CONC	ENTRATI	ON	
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	10	7	ND	

10

ND

18

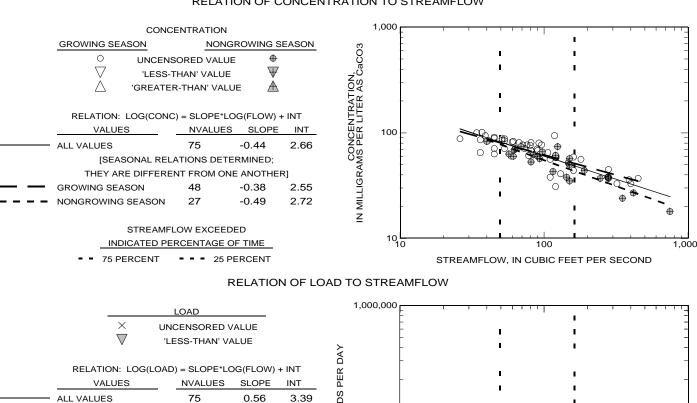
HIGH FLOW



APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01396535 SB RARITAN RIVER AT ARCH ST, AT HIGH BRIDGE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

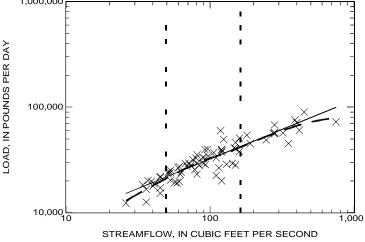


SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

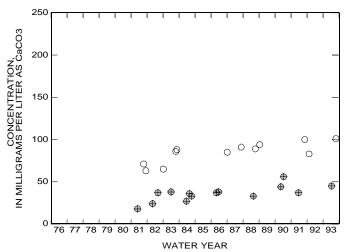
INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT



	CONCENTRATION	
LOW FLOW	I	HIGH FLOW
0	UNCENSORED VALUE	+
∇	'LESS-THAN' VALUE	$\overline{\Psi}$
\triangle	'GREATER-THAN' VALU	E A

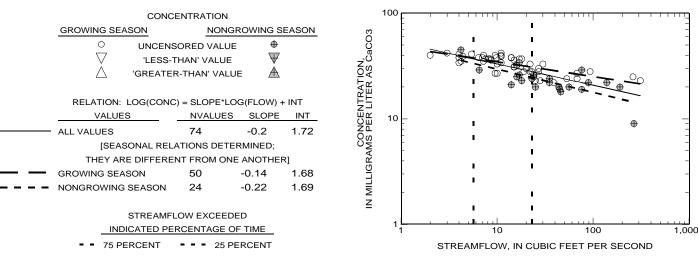
TREINDS IN CONCENTRATION			
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	12	8	ND
HIGH FLOW	14	9	ND



APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01396588 SPRUCE RUN NEAR GLEN GARDNER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	1,000
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	
	100 1 10 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

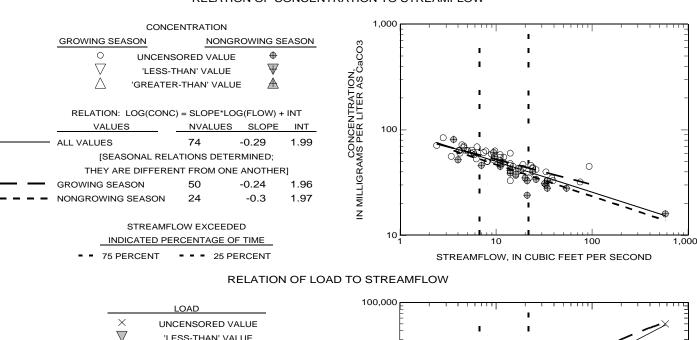
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		
LOW FLOW HIGH FLOW		0
O UNCENSORED VALUE ⊕ V 'LESS-THAN' VALUE ∴ 'GREATER-THAN' VALUE ∴ 'GREATER-THAN' VALUE	40	
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE LOW FLOW 9 6 ND ON ON ON ON ON ON ON ON ON	30	
LOW FLOW 9 6 ND OWN PLOW PLOW 9 13 ND PARTIES OF THE PROPERTY	20	
\overline{\bar{Z}}{Z}		Φ

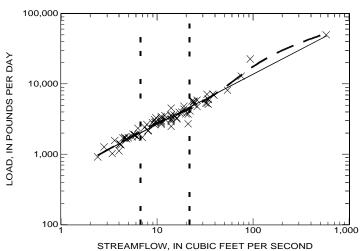
APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01396660 MULHOCKAWAY CREEK AT VAN SYCKEL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



		LOAD		
	$\overset{ imes}{ riangledown}$	UNCENSORED V 'LESS-THAN' VA		
RELA	ATION: LOG(LO	AD) = SLOPE*LC	G(FLOW)	+ INT
	VALUES	NVALUES	SLOPE	INT
ALL VAL	UES	74	0.71	2.72
		BETWEEN LOAD		W
	STREAM	MFLOW EXCEED	ED	
	INDICATED	PERCENTAGE C	F TIME	
	75 PERCENT	25 P	ERCENT	



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
0	UNCENSORE	VALUE	⊕
∇	'LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'o	GREATER-THA	N' VALUE	_ ▲
TRE	NDS IN CONC	ENTRATI	ON
VALUES	NVALUES	NWYS	SLOPE

10

10

ND

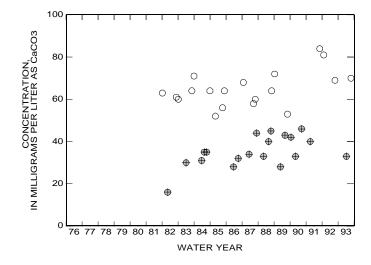
ND

19

19

LOW FLOW

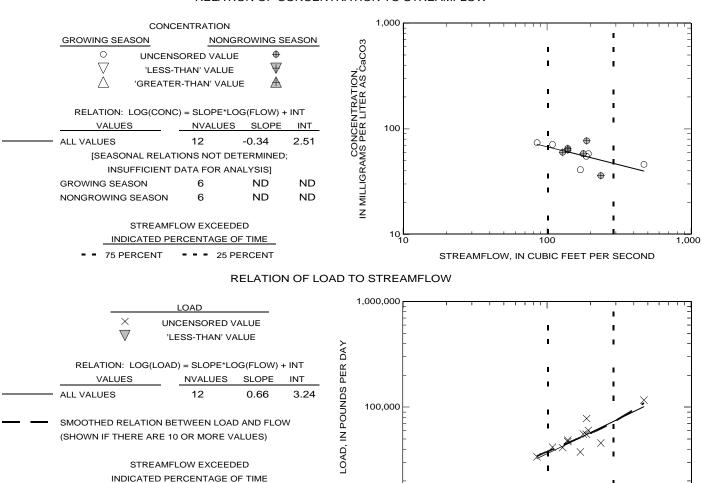
HIGH FLOW



APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01397000 SB RARITAN RIVER AT STANTON STATION, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



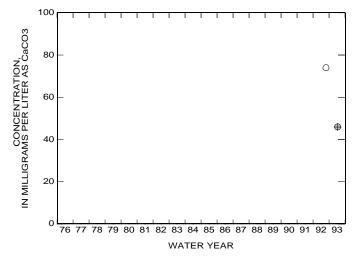
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

10,000 L

	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	⊕
\triangle	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GI	REATER-THA	N' VALUE	A
TREN	IDS IN CONC	ENTRATI	ON
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	1	1	ND
HIGH FLOW	1	1	ND

- - 25 PERCENT

75 PERCENT



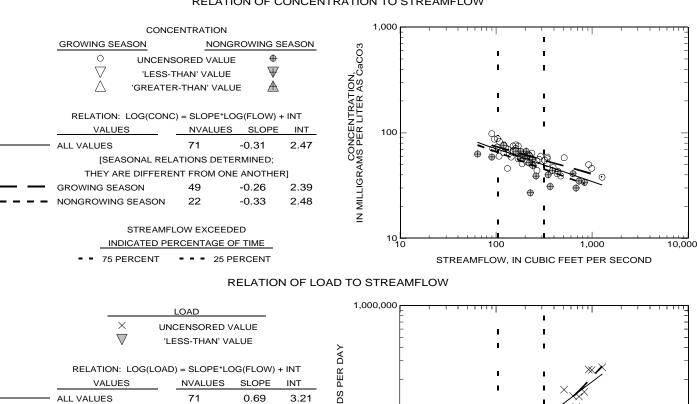
STREAMFLOW, IN CUBIC FEET PER SECOND

1,000

APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01397400 SB RARITAN RIVER AT THREE BRIDGES, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

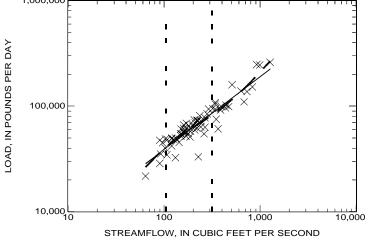


SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

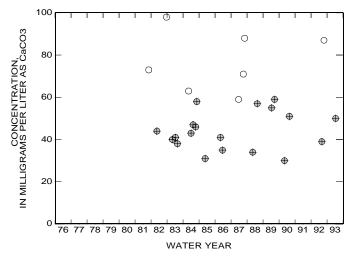
INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT



	CONCENTRATION	
LOW FLOW		HIGH FLOW
0 \(\tau \)	UNCENSORED VALUE	⊕ ₩
$\stackrel{V}{\triangle}$	'LESS-THAN' VALUE 'GREATER-THAN' VALUE	■
TR	ENDS IN CONCENTRAT	ION

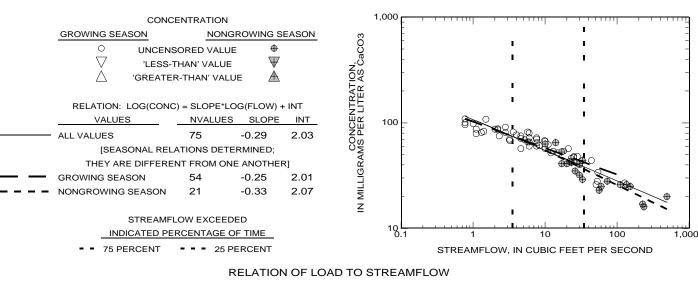
TRENDS IN CONCENTRATION										
VALUES	NVALUES	NWYS	SLOPE							
LOW FLOW	7	5	ND							
HIGH FLOW	19	10	ND							



APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01398000 NESHANIC RIVER AT REAVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



×	LOAD UNCENSORED VALU		100,000		· · · · · · · · · · · · · · · · · · ·	·······	
RELATION: LOG(VALUES ALL VALUES		FLOW) + INT LOPE INT 1.71 2.76	10,000 PER DA		1		- - - -
	ON BETWEEN LOAD AN RE 10 OR MORE VALU		1,000 =	× ×			-
	:AMFLOW EXCEEDED	IME_	LOAD		1		-
75 PERCE	NT = = = 25 PER(CENT	100	1	10	100	1,000
				STREAMFLOV	V, IN CUBIC FEET	PER SECONI	D

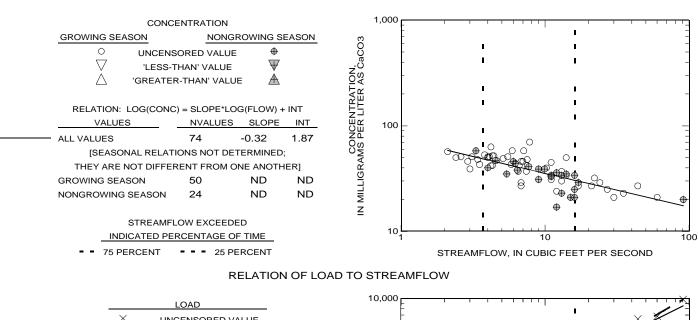
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION	
\bigvee_{Λ}	INCENSOREI	VALUE	$\overline{\Psi}$
TREN	IDS IN CONC	ENTRAT	ION
LOW FLOW HIGH FLOW	NVALUES 17 14	11 8	SLOPE ND ND

APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01398260 NB RARITAN RIVER NEAR CHESTER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD	10,000
$ imes$ uncensored value $ ilde{ textsf{\pi}}$ 'less-than' value	>
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	E E E E E E E E E E E E E E E E E E E
ALL VALUES 74 0.68 2.6	5 1,000 × × × × -
SMOOTHED RELATION BETWEEN LOAD AND FLOW	
(SHOWN IF THERE ARE 10 OR MORE VALUES)	Ξ
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	POPO
75 PERCENT 25 PERCENT	100
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		1 ' '	 				1
LOW FLOW HIGH FLOW	03						
O UNCENSORED VALUE ♥ VILESS-THAN' VALUE OF GREATER-THAN' VALUE	ATION, R AS CaCO3)				-	_
	天二 60) —				0 7	
TRENDS IN CONCENTRATION	Ä R L		0	0 .		0	
VALUES NVALUES NWYS SLOPE LOW FLOW 9 4 ND HIGH FLOW 11 7 ND	CONCENT MS PER LI) -	00	- 0		-	-
HIGH FLOW TT 7 ND	IN MILLIGRA) –	+ +		* • •	⊕⊕ ⊕⊕	+
		.1	 				п

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

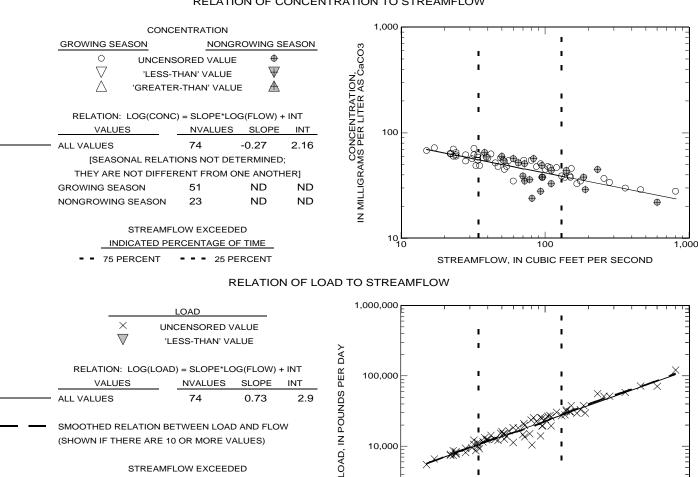
WATER YEAR

100 -

APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time 01399120 NB RARITAN RIVER AT BURNT MILLS, N.J.

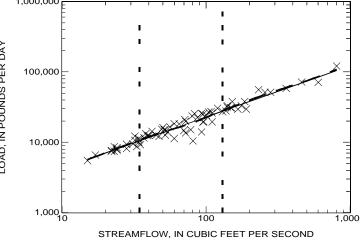
[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



(SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 25 PERCENT 75 PERCENT

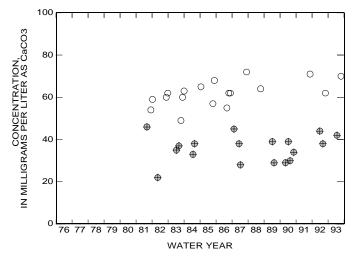


TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION												
LOW FLOW			HIGH FLOW									
Ο υ	⊕											
\triangle	$\overline{\Psi}$											
△ 'G	■ ▲											
TRENDS IN CONCENTRATION												
VALUES	NVALUES	NWYS	SLOPE									
LOW FLOW	18	10	ND									

ND

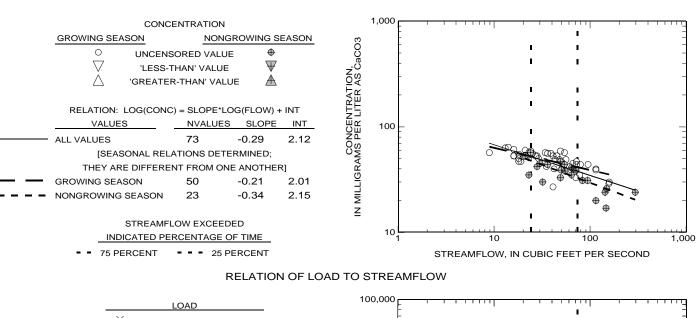
HIGH FLOW



APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01399500 LAMINGTON (BLACK) RIVER NEAR POTTERSVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD	100,000
× uncensored value ▼ 'LESS-THAN' VALUE	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT C C C C C C C C C	10,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED	
INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	1,000 1 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

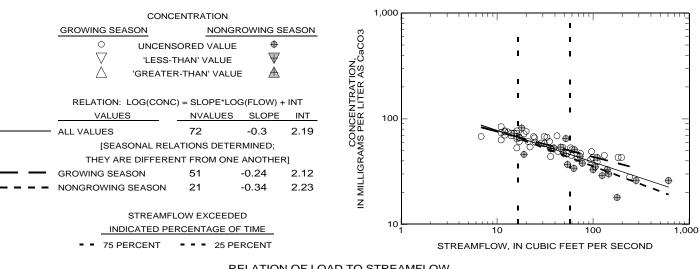
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

					100		_	 	_	_				_
	CONCENTR	ATION				1	'	 '	1	1 1	'		'	
LOW FLOW			HIGH FLOW	03										
О U	NCENSOREI	D VALUE	⊕	ION, AS CaCO3	80	_								
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$	Šα	00									
△ 'GF	REATER-THA	N' VALUE	A	ATIC R A										
				~ ~	60	_			(0 _		0		
TREN	DS IN CONC	ENTRAT	ON	ΕΞ				(0	0	С	λa ^c	0	
VALUES	NVALUES	NWYS	SLOPE	2,5				,	_	С)	00		
LOW FLOW	21	11	ND	CONCENT AMS PER LIT	40	_				⊕	₩			
HIGH FLOW	14	9	ND										Φ.	
				GR						⊕		•	0	_
				MILLIGR	20	_		⊕						(
				Z										

APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time 01399700 ROCKAWAY CREEK AT WHITEHOUSE, N.J.

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD	100,000
 X UNCENSORED VALUE √ 'LESS-THAN' VALUE 	
	a a a a a a a a a a a a a a a a a a a
	10,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	ŭ Z
STREAMFLOW EXCEEDED (
- 75 PERCENT 25 PERCENT	
	1,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

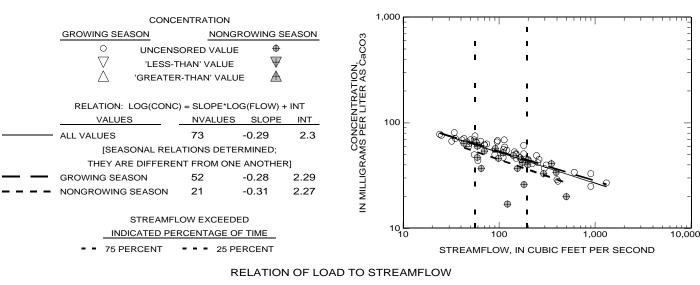
CONCENTRATION LOW FLOW O UNCENSORED VALUE VILESS-THAN' VALUE O 'GREATER-THAN' VALUE TRENDS IN CONCENTRATION VALUES NVALUES NVALUE						100 i							_	
Z GVEYLEK-MAY AFOE Z		CONCENTR	ATION			100		1	ľ		-			ſ
AREA ENTRY VALUE AREA ENTRY OF THE PROPERTY OF	LOW FLOW			HIGH FLOW	03									
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE LOW FLOW 16 10 ND HIGH FLOW 27 12 ND **TRENDS IN CONCENTRATION UND VALUES NVALUES NWYS SLOPE UND VALUES NVALUES NWYS SLOPE LOW FLOW 16 10 ND HIGH FLOW 27 12 ND **TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE LOW FLOW 16 10 ND HIGH FLOW 27 12 ND **TRENDS IN CONCENTRATION **TRENDS	Ž	'LESS-THAN'	VALUE	#	ATION, R AS CaC	80	_		(0	00	0	(600
VALUES NVALUES NWYS SLOPE LOW FLOW 16 10 ND 90 40 HIGH FLOW 27 12 ND	TRE	NDS IN CONC	ENTRAT	ION	ENTR/	60	_					()
LOW FLOW 16 10 ND 00 40 HIGH FLOW 27 12 ND 40 0	VALUES	NVALUES	NWYS	SLOPE	2,5				Φ	h .			_	_
HIGH FLOW 27 12 ND	LOW FLOW	16	10	ND	SS	40	_		4	₽	⊕ ,	₽		
	HIGH FLOW	27	12	ND	GRAM					+	₽₩	₽ ∉	>	•
					Z									

(1)

APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01399780 LAMINGTON RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



	DRED VALUE HAN' VALUE	1,000,000	1 I		-
RELATION: LOG(LOAD) = SL VALUES NVA	ロロス	-	1 1	×	
ALL VALUES 73		100,000 —	1 1		
SMOOTHED RELATION BETWEE (SHOWN IF THERE ARE 10 OR M	<u>"</u>	100,000			-
STREAMFLOW E INDICATED PERCENT - 75 PERCENT		-			-
		10,000	100 STREAMFLOW, IN C	1,000	10,000 SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		100	ı	ı	1	1 1	- 1	- 1	- 1	1	ı	1	I	ı	ı	-	1	1
LOW FLOW HIGH FLOW	Ö																	
O UNCENSORED VALUE	CONCENTRATION, AMS PER LITER AS CaCO3	80	_								0					0	-	4
'LESS-THAN' VALUE	NO VS/								0			_	0					
	R/T								0	(О,)	U			Oq	{	3
	온밑	60	_				С))					Ч) -	4
TRENDS IN CONCENTRATION	ZZ.						_											
VALUES NVALUES NWYS SLOPE	SE						0	Φ.	vfh.	⊕							⊕	•
LOW FLOW 15 10 ND	<u> </u>	40	_					Ψ.	⊕ ∉	₽				_ €	•)	-	4
HIGH FLOW 19 8 ND	Σχ									₽		\oplus		+			⊕	
	GF								\oplus			\oplus			$\bigoplus_{i=1}^{n}$			
	IN MILLIG	20	_				4	⊕							Ψ		-	4
	Σ																	
	≥																	
		0	70	77 70	70		04	00	00 0	4 05	- 00	. 07	00	00	00 0	4 0		Ļ
			16	77 78	5 79	80	81	82	83 8	4 85	86	8/	88	89	90 9	1 9	2 93	5

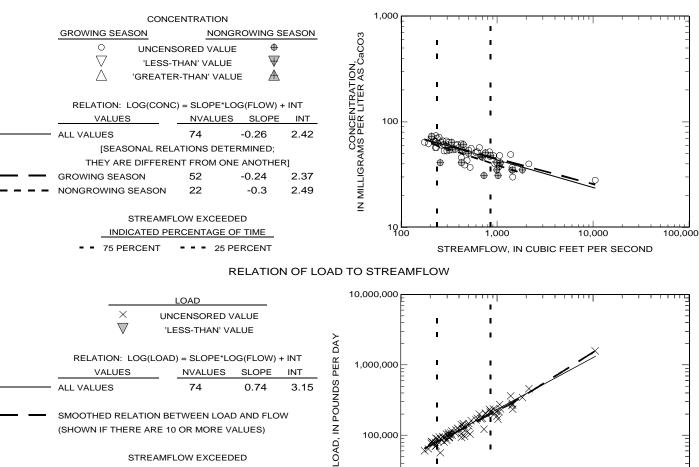
WATER YEAR

100 -

APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time 01400500 RARITAN RIVER AT MANVILLE, N.J.

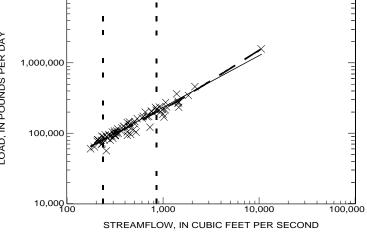
[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



(SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 25 PERCENT 75 PERCENT



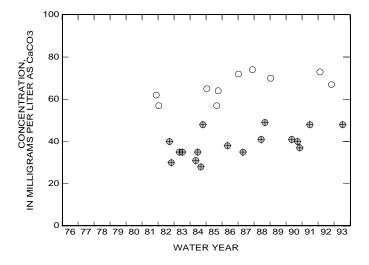
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION								
LOW FLOW			HIGH FLOW					
○ UNCENSORED VALUE								
abla 'LESS-THAN' VALUE $ abla$								
△ 'GREATER-THAN' VALUE A A A A A B A A B A B A B B								
TRENDS IN CONCENTRATION								
VALUES	NVALUES	NWYS	SLOPE					
LOW FLOW	10	6	ND					

ND

17

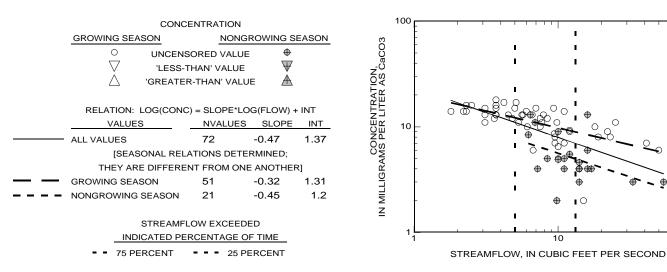
HIGH FLOW



APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01400540 MILLSTONE RIVER NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

100

LOAD		10,000 E	
× UNCENSORED VALUE VLESS-THAN' VALUE	>	Ė	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + VALUES NVALUES SLOPE	PER TAI	-	- - - -
ALL VALUES 72 0.53	2.1	1,000 —	' × × × ×
— SMOOTHED RELATION BETWEEN LOAD AND FLOW	Pol	Ē	' ×× × =
(SHOWN IF THERE ARE 10 OR MORE VALUES)	č Ž	- -	×
STREAMFLOW EXCEEDED	-0A	-	
INDICATED PERCENTAGE OF TIME	_	-	××*××
75 PERCENT 25 PERCENT			* ^ , × ,×
		100	10 100
			STREAMFLOW, IN CUBIC FEET PER SECOND

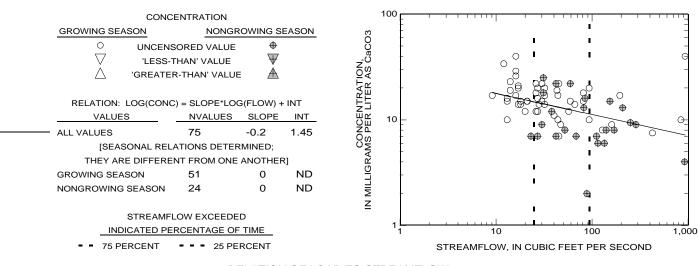
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		25		1 1	1 1	1			1 1		ı	ı	
LOW FLOW	HIGH FLOW												
O UNCENSORED VALUE	aC ⊕	20	_										_
V 'LESS-THAN' VALUE	₩ XX					(`						
△ 'GREATER-THAN' VALUE	₩ ₩ ₩					_	_		_ 0				
	7.5	15	_		0	. 0	0	•	0 0 '	0			_
TRENDS IN CONCENTRATION	ON E_							0) (10			
VALUES NVALUES NWYS	SLOPE 9				00			00		Ψ			9
LOW FLOW 18 10	DN OO	10	_		0						⊕	•	_
HIGH FLOW 18 12	ND S					0				\oplus	•		⊕
	Ω π					Ψ	+		_		_		Ψ
	Ξ	5	_						0		\oplus	Φ.	_
	IN MILLIGR					+ + +	Φ ,	∌ ⊕	\oplus			⊕	
	Z					₩	,	₽₩		\oplus			

APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01400650 MILLSTONE RIVER AT GROVERS MILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

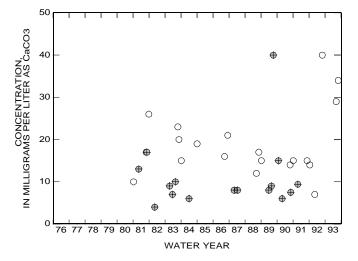
RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

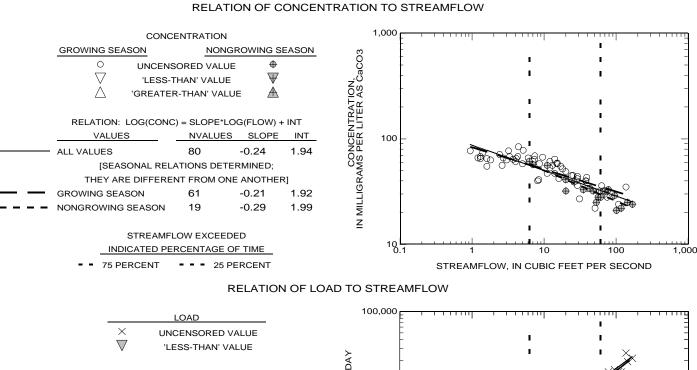
LOAD		1,000,000			
$ imes$ uncensored value $ ilde{\mathbb{V}}$ 'LESS-THAN' VALUE		<u>-</u>		: :	= *
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW VALUES NVALUES SLOPE		100,000 P		1 1	
ALL VALUES 75 0.8		0 N N N N N N N N N N N N N N N N N N N			X
SMOOTHED RELATION BETWEEN LOAD AND FL (SHOWN IF THERE ARE 10 OR MORE VALUES)	.OW	O Z	×		
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	_	1,000			
75 PERCENT 25 PERCENT		100	10	I I) 1,000
			STREAMFLOW,	IN CUBIC FEET PE	R SECOND

	CONCENTR	ATION			
LOW FLOW			HIGH FLOW		
Ο υ	NCENSORE	D VALUE	+		
▽ ,	$\overline{\Psi}$				
TREN	DS IN CONC	ENTRATI	ION		
VALUES	NVALUES	NWYS	SLOPE		
LOW FLOW	20	10	ND		
HIGH FLOW	16	8	ND		



APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01401000 STONY BROOK AT PRINCETON, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

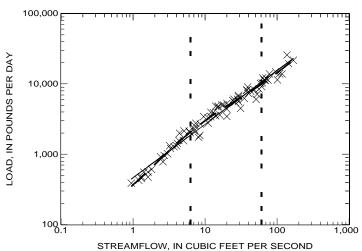


SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

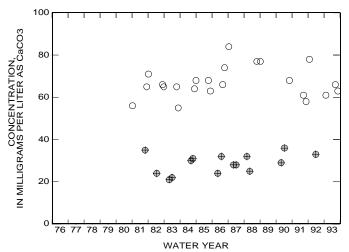
INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT



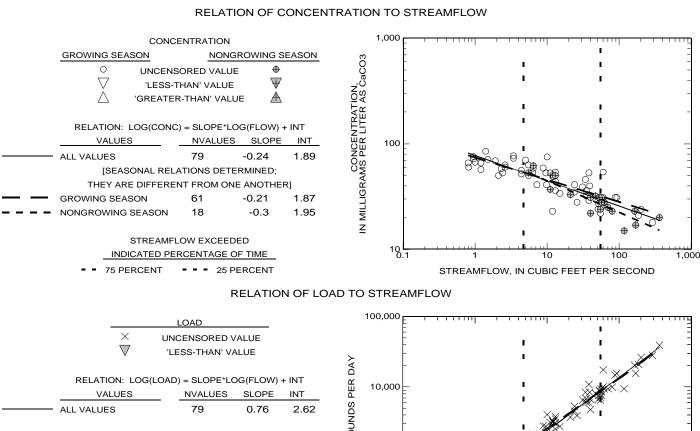
CONCENTRATION									
LOW FLOW		HIGH FLOW							
0	UNCENSORED VALUE	⊕							
∇	'LESS-THAN' VALUE	$\overline{\Psi}$							
\triangle	'GREATER-THAN' VALUI	e A							

TRENDS IN CONCENTRATION									
VALUES	NVALUES	NWYS	SLOPE						
LOW FLOW	23	13	ND						
HIGH FLOW	15	9	ND						



APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01401600 BEDEN BROOK NEAR ROCKY HILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

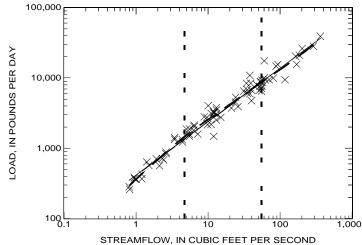


SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

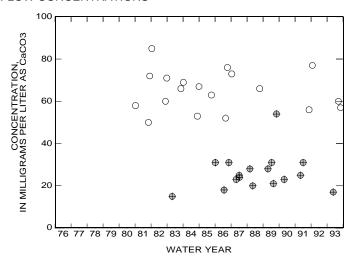
INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT



CONCENTRATION								
LOW FLOW	<u>'</u>	HIGH FLOW						
0	UNCENSORED VALUE	+						
∇	'LESS-THAN' VALUE	$\overline{\Psi}$						
\triangle	'GREATER-THAN' VALUE	\triangle						
TC	PENIDS IN CONCENTRATION	ON.						

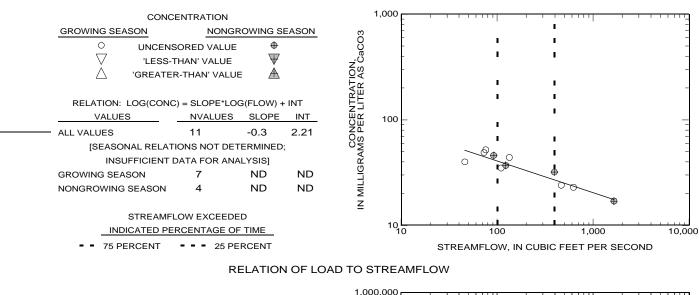
TRENDS IN CONCENTRATION								
VALUES	NVALUES	NWYS	SLOPE					
LOW FLOW	19	11	ND					
HIGH FLOW	17	8	ND					



APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD	1,000,000		 	
X UNCENSORED VALUE		1	1 1 1	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	100,000			_
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	10,000		1 1 1	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	-	1	1	= - -
	1,000 L 10 STRE	100 EAMFLOW, IN CUBIC	1,000 C FEET PER SECONE	10,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

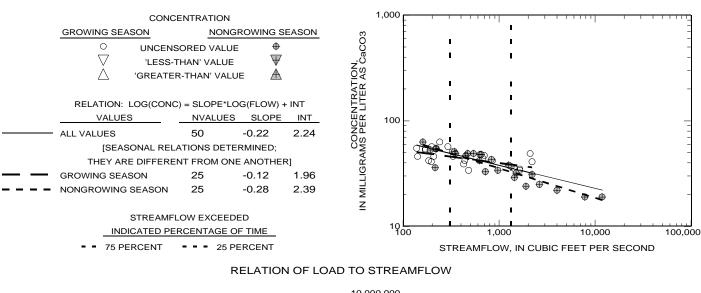
CONCENTRATION	IC	
LOW FLOW HIGH FLOW ○ UNCENSORED VALUE ⊕ ○ 'LESS-THAN' VALUE ₩ △ 'GREATER-THAN' VALUE ★	CONCENTRATION, MS PER LITER AS CaCO3	80 –
TRENDS IN CONCENTRATION	TR.	60 -
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	ACEN PER I	00
LOW FLOW 4 2 ND	700 18 F	40 –
HIGH FLOW 3 2 ND	Æ	
	LIG	⊕ ⊕
	Σ	20
	Z	
		76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01403300 RARITAN RIVER AT QUEENS BRIDGE, AT BOUND BROOK, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



	LOAD NCENSORED V LESS-THAN' V			>	10,000,000	I I	1 1 1		
RELATION: LOG(LOAI VALUES ALL VALUES	D) = SLOPE*L0 NVALUES 50	OG(FLOW) SLOPE 0.78	+ INT INT 2.97	NDS PER DA	1,000,000	1			
SMOOTHED RELATION B (SHOWN IF THERE ARE 1 STREAMF INDICATED PI	10 OR MORE V	ALUES)	w	LOAD, IN POUN	100,000		 - - -		-
75 PERCENT		PERCENT			10,000		1,000	10,000 CUBIC FEET PER :	100,000

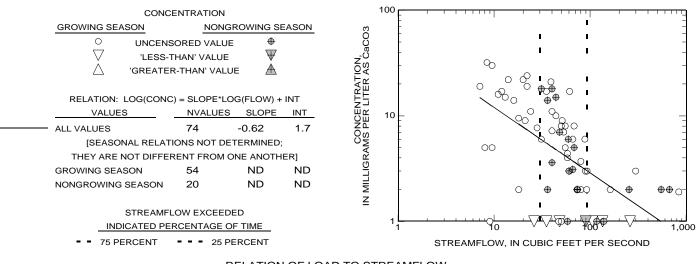
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		100	1 1		1 1		1 1		- 1		1	1	Т
CONCENTRATION													
LOW FLOW HIGH FLOW	Ö												
○ UNCENSORED VALUE ♥ ▽ 'LESS-THAN' VALUE ▼ △ 'GREATER-THAN' VALUE ★	rTION, R AS CaCO3	80 –											
TRENDS IN CONCENTRATION	ENTRA R LITEI	60 –			0	8	0		0			0)
VALUES NVALUES NWYS SLOPE LOW FLOW 15 9 ND HIGH FLOW 14 9 ND	CONCENTRAT IN MILLIGRAMS PER LITER	40 – 20 –		0	○ • •	Φ	⊕ ∉	○ ⊕	4	+ + +			

APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01405302 MATCHAPONIX BROOK AT MUNDY AVE, AT SPOTSWOOD, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	10,000 × 1
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	100 ×× × × × × × × × × × × × × × × × × ×
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	× ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;
	10 100 1,000 STREAMELOW IN CUBIC FEET PER SECOND

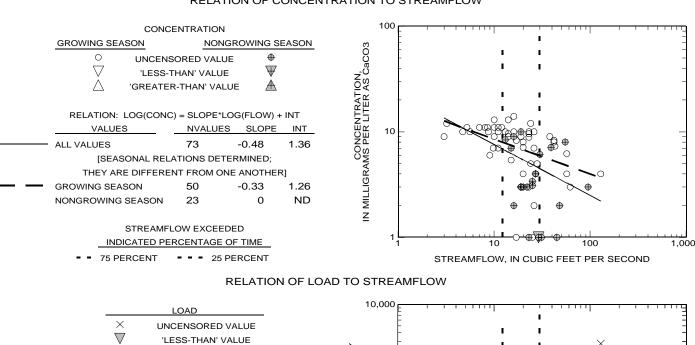
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION			
LOW FLOW	HIGH FLOW 0		
 UNCENSORED VALUE 	ф Ф	8 40	
Carrell (LESS-THAN) VALUE	HIGH FLOW WOOD AS OF THE PROPERTY OF THE PRO		
△ 'GREATER-THAN' VALUI			
	TRA TEI	30	0 0
TRENDS IN CONCENTRAT	ION		Č
VALUES NVALUES NWYS	ND ON	i	d
LOW FLOW 20 12	ND So	20 –	° ° • • • • • • • • • • • • • • • • • •
HIGH FLOW 12 8	ND Š		0 ^
	<u>6</u>	5	8 0
	3	10	0 0 -
			0
	≥		•
	Z		0 0
		1	

APPENDIX 1. Relations of constituent concentration and load to streamflow and trends in concentration with time ALKALINITY 01405340 MANALAPAN BROOK AT FEDERAL RD, NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

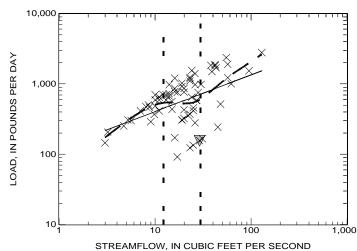


SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT



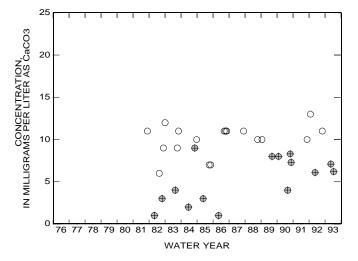
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION						
LOW FLOW			HIGH FLOW			
Ο υ	NCENSORE	D VALUE	+			
∇	LESS-THAN'	VALUE	$\overline{\Psi}$			
△ 'GF	REATER-THA	N' VALUE	\blacksquare			
TRENDS IN CONCENTRATION						
VALUES	NVALUES	NWYS	SLOPE			
LOW FLOW	18	11	ND			

9

ND

HIGH FLOW



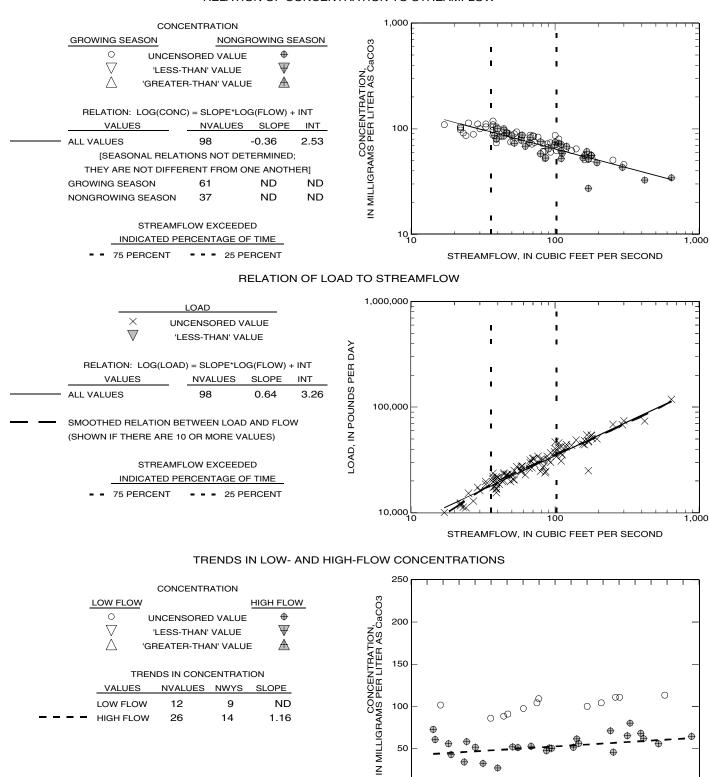
Appendix 2 - Hardness

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Blackwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01396280 SB RARITAN RIVER AT MIDDLE VALLEY, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



VALUES

LOW FLOW

HIGH FLOW

NVALUES NWYS

9

14

12

26

SI OPE

ND

1.16

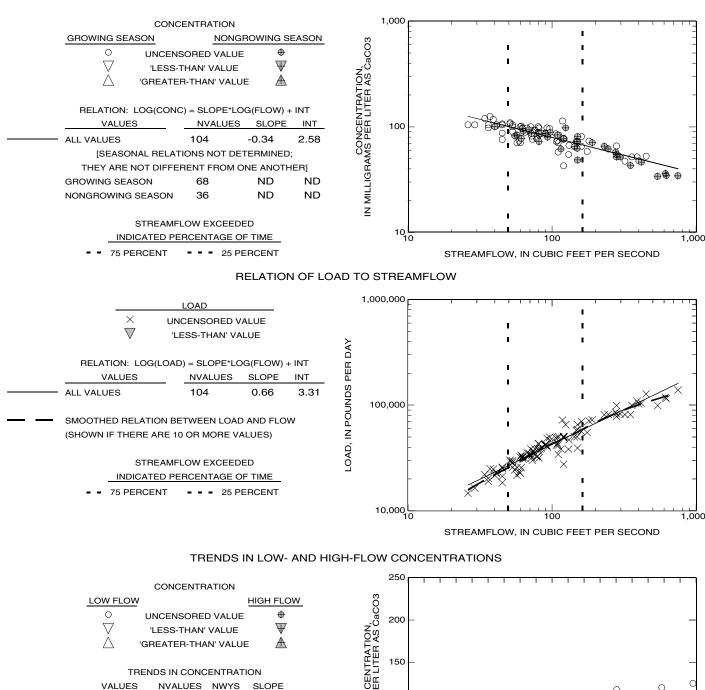
100

50

APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01396535 SB RARITAN RIVER AT ARCH ST, AT HIGH BRIDGE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



9

13

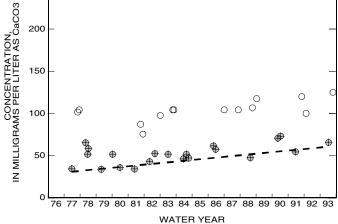
LOW FLOW

HIGH FLOW

21

ND

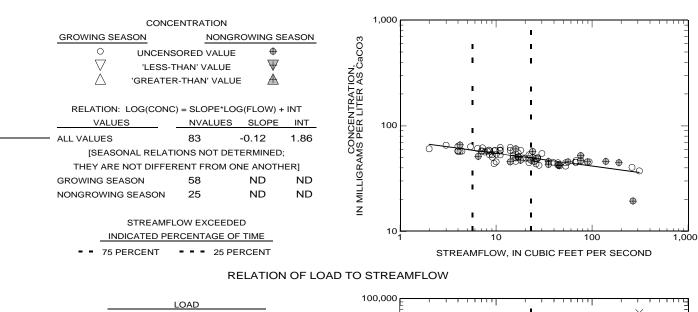
1.85



APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01396588 SPRUCE RUN NEAR GLEN GARDNER, N.J.

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



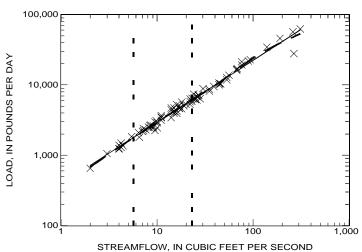
UNCENSORED VALUE

'LESS-THAN' VALUE

RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT NVALUES **VALUES** SLOPE ALL VALUES

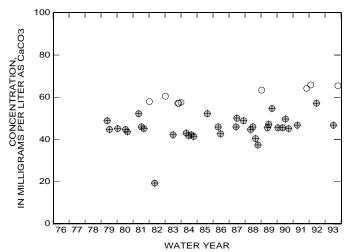
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

> STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 25 PERCENT 75 PERCENT



CONCENTRATION						
LOW FLOW		HIGH FLOW				
0	UNCENSORED VALUE	+				
∇	'LESS-THAN' VALUE	$\overline{\Psi}$				
	GREATER-THAN' VALU	e 🕭				

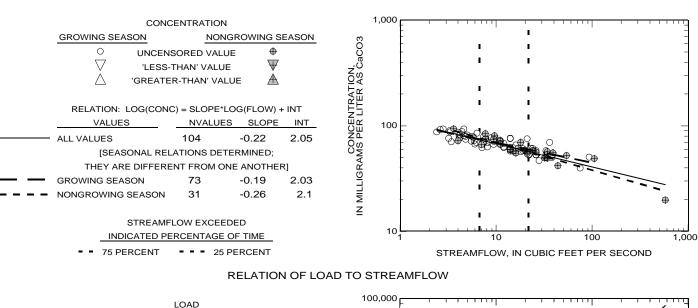
TRENDS IN CONCENTRATION						
VALUES	NVALUES	NWYS	SLOPE			
LOW FLOW	9	6	ND			
HIGH FLOW	34	15	ND			



APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01396660 MULHOCKAWAY CREEK AT VAN SYCKEL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	100,000
	10,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	DO N I I I I I I I I I I I I I I I I I I
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	i !
751 ENGLINE ZOT ENGLINE	1,000 1 10 100 1,0 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

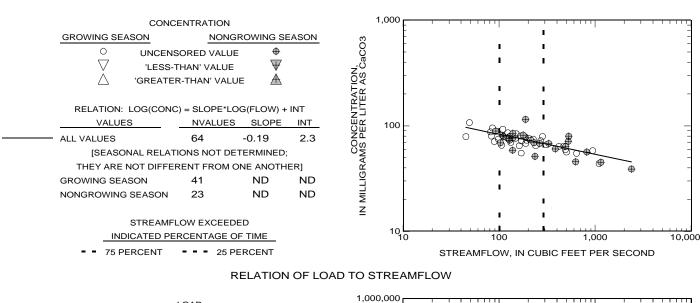
CONCENTRATION LOW FLOW UNCENSORED VALUE VIESS-THAN' VALUE OGREATER-THAN' VALUE	03	80 - 0 0 0 0 0
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	CENTR/ ER LITE	
LOW FLOW 26 13 ND HIGH FLOW 29 14 0	α.	40 - + +
	IN MILLIG	20 − ⊕
		76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01397000 SB RARITAN RIVER AT STANTON STATION, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD

X UNCENSORED VALUE

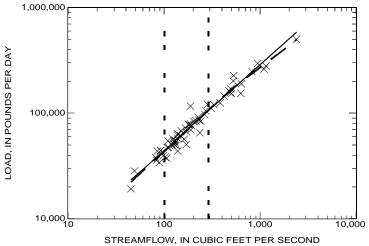
▼ 'LESS-THAN' VALUE

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

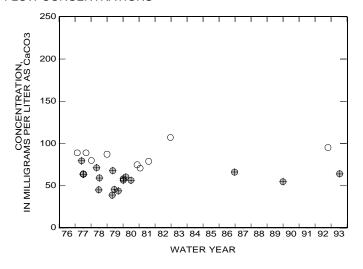
INDICATED PERCENTAGE OF TIME

75 PERCENT - 25 PERCENT



CONCENTRATION							
LOW FLOW		HIGH FLOW					
0	UNCENSORED VALUE	⊕					
∇	'LESS-THAN' VALUE	$\overline{\Psi}$					
	GREATER-THAN' VALU	e 🛦					

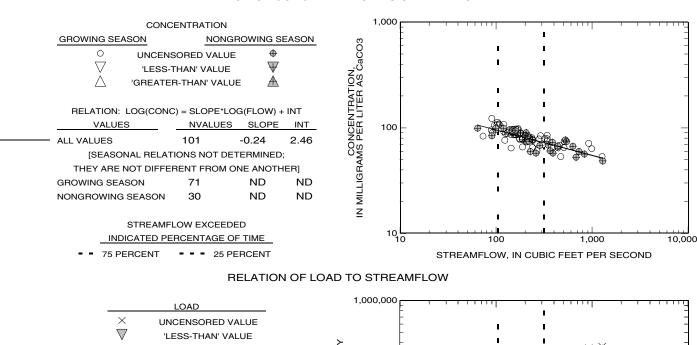
TRENDS IN CONCENTRATION					
VALUES	NVALUES	NWYS	SLOPE		
LOW FLOW	9	6	ND		
HIGH FLOW	17	7	ND		



APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01397400 SB RARITAN RIVER AT THREE BRIDGES, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



 RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT

 VALUES
 NVALUES
 SLOPE
 INT

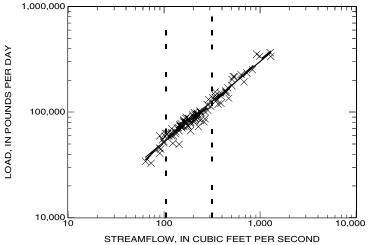
 ALL VALUES
 101
 0.76
 3.2

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

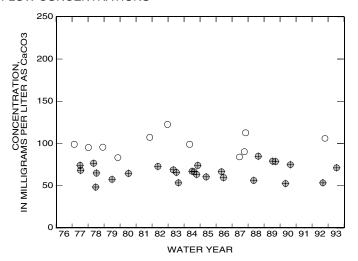
INDICATED PERCENTAGE OF TIME

- 75 PERCENT - 25 PERCENT



CONCENTRATION						
LOW FLOW		HIGH FLOW				
0	UNCENSORED VALUE	⊕				
∇	'LESS-THAN' VALUE	$\overline{\Psi}$				
	GREATER-THAN' VALUE	A				
TRI	ENDS IN CONCENTRATI	ON				

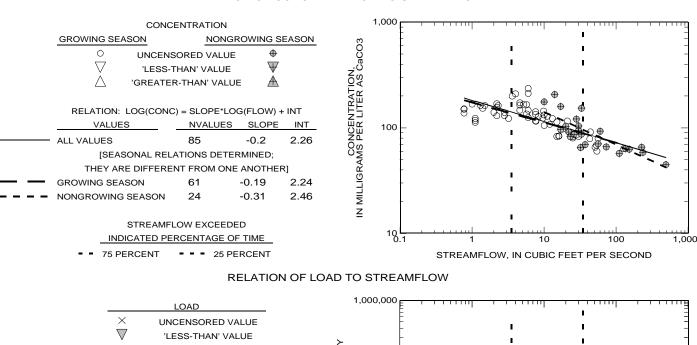
	TRENDS IN CONCENTRATION									
	VALUES	NVALUES	NWYS	SLOPE						
LOW FLOW		11	8	ND						
	HIGH FLOW	26	14	0						



APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01398000 NESHANIC RIVER AT REAVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



 RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT

 VALUES
 NVALUES
 SLOPE
 INT

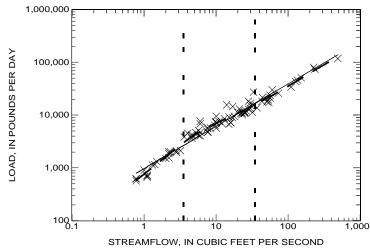
 ALL VALUES
 85
 0.8
 2.99

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

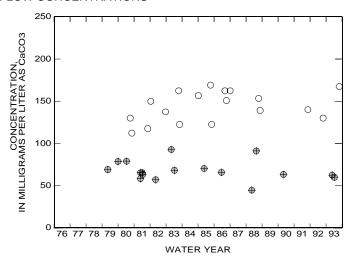
INDICATED PERCENTAGE OF TIME

75 PERCENT - 25 PERCENT



CONCENTRATION									
LOW FLOW		HIGH FLOW							
0	UNCENSORED VALUE	+							
∇	'LESS-THAN' VALUE	$\overline{\Psi}$							
\triangle	'GREATER-THAN' VALU	E A							
T D	SENDO IN CONCENTRA	-101							

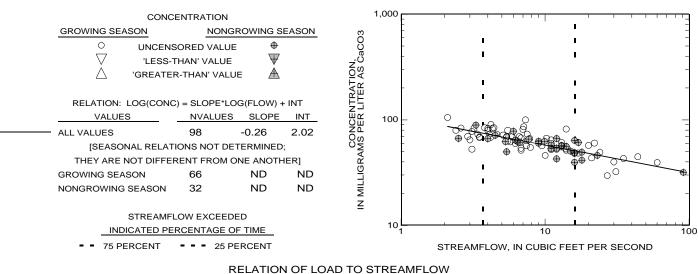
TRENDS IN CONCENTRATION									
VALUES	NVALUES	NWYS	SLOPE						
LOW FLOW	18	11	ND						
HIGH FLOW	17	10	ND						



APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01398260 NB RARITAN RIVER NEAR CHESTER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD	100	,000		
× UNCENSORED VALUE		Ē	I	i 3
V 'LESS-THAN' VALUE	¥	-	ı	_
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	. Q Y 10,	0,000	I	
VALUES NVALUES SLOPE INT		E	· ×	
ALL VALUES 98 0.74 2.	75	-	× ×	*** × × =
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	IN POUR	-		^ = - -
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	LOAD, I	,000	*** 	
75 PERCENT 25 PERCENT		İ	Î.	-
		100	10	100
			STREAMFLOW, IN CUBIC FE	ET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

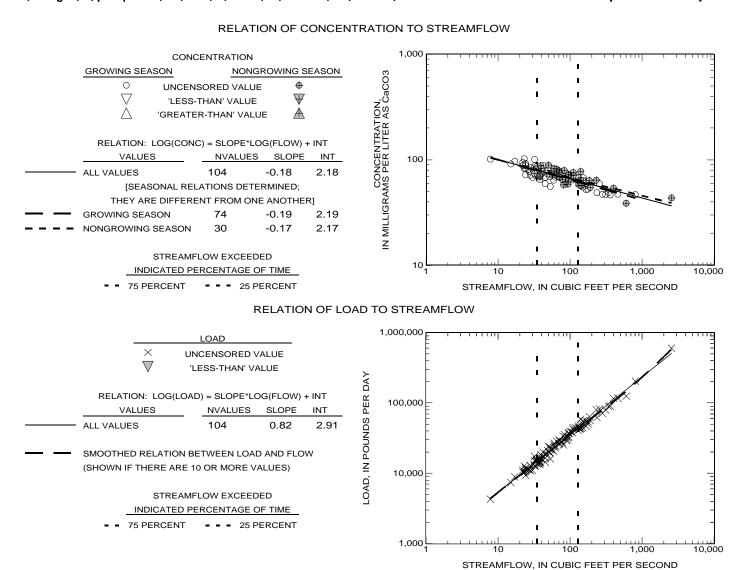
CONCENTRATION						' '						
LOW FLOW			HIGH FLOW		S							
Ο υ	NCENSORE	D VALUE	+	- NOI	200 ·	_						_
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$	Ž,	מ בפט							
△ 'GF	REATER-THA	N' VALUI	■ ▲	Ę,	⊄ Y							
				<u></u>	150	_						
TREN	IDS IN CONC	ENTRAT	ION	Z.								
VALUES	NVALUES	NWYS	SLOPE	CONCENTRAL	Į.							
LOW FLOW	13	6	ND	Ō.	2 100	_						<u>0</u>
HIGH FLOW	16	10	ND		AN	0		0	0			00
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					50	_	• •	Φ.			$\oplus^{\bigoplus \bigoplus}$	*
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				=	Z					- Ψ		

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

250 -

APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01399120 NB RARITAN RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]



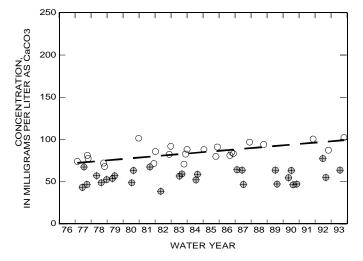
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

HIGH FLOW

Ο υ	⊕						
∇ ,	√ 'LESS-THAN' VALUE						
△ 'GF	REATER-THA	N' VALUE	\blacksquare				
TREN	DS IN CONC	ENTRATI	ON				
VALUES	NVALUES	NWYS	SLOPE				
 LOW FLOW	24	13	1.61				
HIGH FLOW	28	13	0				

LOW FLOW

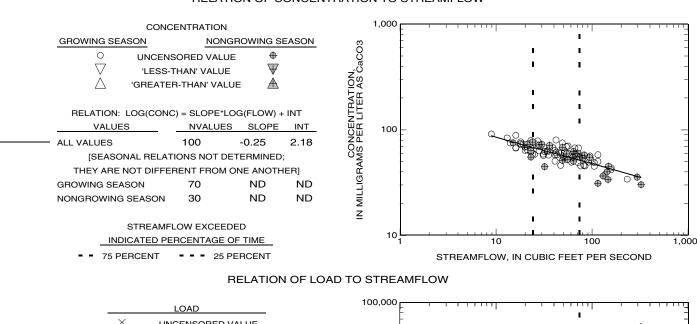
CONCENTRATION



APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01399500 LAMINGTON (BLACK) RIVER NEAR POTTERSVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

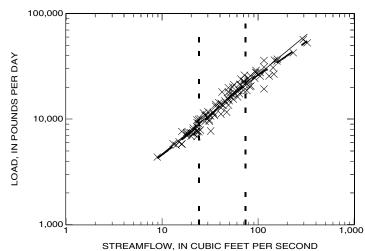


	LOAD
\times	UNCENSORED VALUE
∇	IL ECC THANKINAL HE

RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES **NVALUES** SLOPE ALL VALUES

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

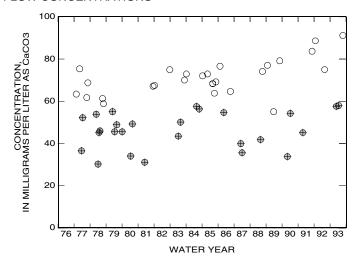
> STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - - 25 PERCENT 75 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTRATION	
LOW FLOW	<i>l</i>	HIGH FLOW
0	UNCENSORED VALUE	⊕
∇	'LESS-THAN' VALUE	$\overline{\Psi}$
\triangle	'GREATER-THAN' VALUE	\triangle
	RENDS IN CONCENTRATION	

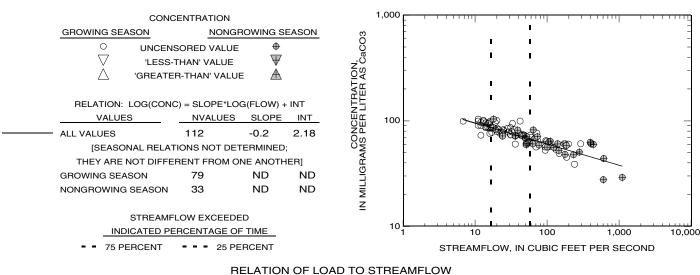
TRENDS IN CONCENTRATION						
VALUES	NVALUES	NWYS	SLOPE			
LOW FLOW	27	13	ND			
HIGH FLOW	26	13	0			



APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01399700 ROCKAWAY CREEK AT WHITEHOUSE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



$oxed{ imes}$ UNCENSORED VALUE $oxed{\mathbb{V}}$ 'LESS-THAN' VALUE	1,000,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	00,000 H 100,000 H 1 H 1 H 1 H 1 H 1 H 1 H 1 H 1 H 1
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED	DO 10,000 IN 10,
INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	1,000 1 10 100 1,000 10,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION				1
LOW FLOW	HIGH FLOW 0			
O UNCENSORED VALUE	AS CaCO	200	- -	_
'LESS-THAN' VALUE	₩ NO NO NO			
	TA A H			
	F-	150		4
TRENDS IN CONCENTRATION	ON Z			
VALUES NVALUES NWYS	SLOPE O			
LOW FLOW 20 12	SLOPE OU ND OS	100		2
HIGH FLOW 48 16	O SAN			
	1 <u>G</u> F			
		50		4
			. •	
	2		Ψ Ψ	l
HIGH FLOW 46 10	IN MILLIGRA	50		•

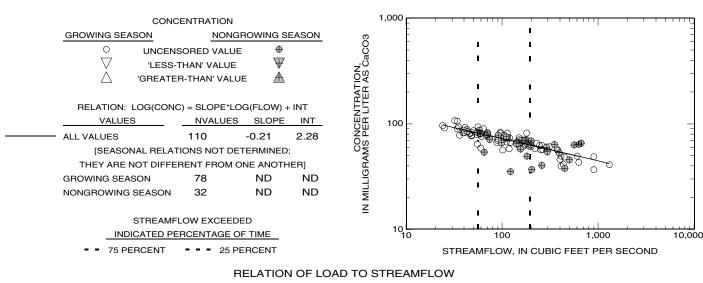
76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

250

APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01399780 LAMINGTON RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD		1,000,000		 	
× UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	} ∀	- - -	1	! ! !	=
RELATION: LOG(LOAD) = SLOPE*LOG(FLOV	INT E	-	1	<u> </u>	- -
ALL VALUES 110 0.79	3.01	100,000 —		I	_
— SMOOTHED RELATION BETWEEN LOAD AND F	ow 2	- -	i		=
(SHOWN IF THERE ARE 10 OR MORE VALUES)	, d F		1	1 ^ *	- -
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	6		×		-
= 75 PERCENT = = 25 PERCENT	-		*	! !]
		10,000 10	100 STREAMELOW IN	1,000 CUBIC FEET PER S	10,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION			' '	1 1		1 1	' '		1 1	1 1	' '	
LOW FLOW HIGH FLOW	Ö											
○ UNCENSORED VALUE ⊕	TION, RAS CaCO3	200	_									
'LESS-THAN' VALUE	NO. (S)											
$ riangle$ 'GREATER-THAN' VALUE $ extcal{\#}$	TA A											
	CONCENTRAT	150	_									_
TRENDS IN CONCENTRATION	E Z											
VALUES NVALUES NWYS SLOPE	SE										~	
LOW FLOW 22 11 ND	9 V	100	-			0	С)	0		0	-
HIGH FLOW 34 12 0	ZA.		୍ଦିଞ୍ଜ		0	_	0	. 0	0		\odot	8
	<u> </u>		⊕ ⊕	. ф ф ф	0 .	++++++++++++++++++++++++++++++++++++++	₽		4	Φ Φ		₩
	IN MILLIG	50	- 🙌	• • •	⊕	⊕ ₫	,	⊕	, ₹	•		-
	Z		₩.	Φ Ψ				Ψ		•		
	_											
		01	76 77 78	3 79 80	81 82	83 84	85	86 87	7 88 89	90 9	1 92	93

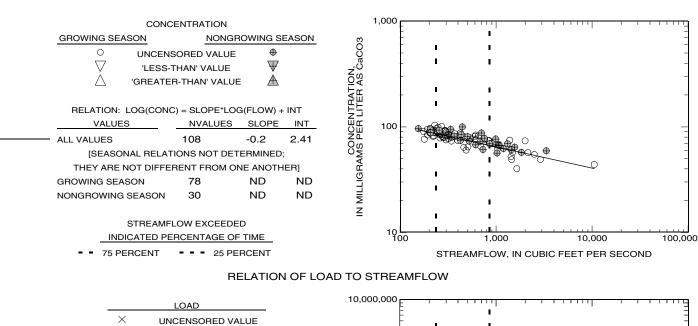
WATER YEAR

250 -

APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01400500 RARITAN RIVER AT MANVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



X UNCENSORED VALUE

▼ 'LESS-THAN' VALUE

RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT

VALUES NVALUES SLOPE INT

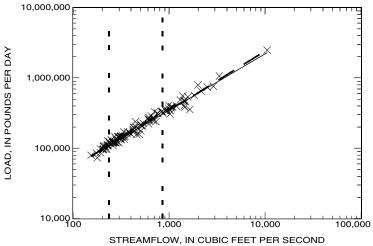
ALL VALUES 108 0.8 3.14

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

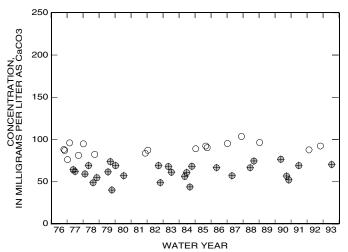
75 PERCENT - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTRATION	
LOW FLOW		HIGH FLOW
0	UNCENSORED VALUE	⊕
∇	'LESS-THAN' VALUE	$\overline{\Psi}$
	GREATER-THAN' VALUI	E A

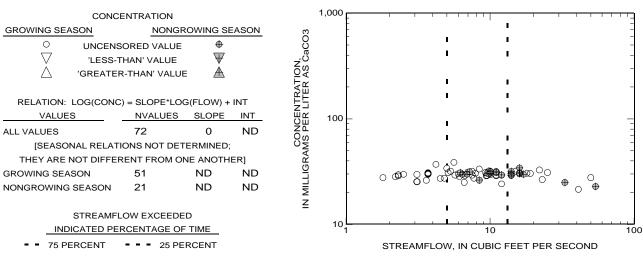
TRENDS IN CONCENTRATION						
VALUES	NVALUES	NWYS	SLOPE			
LOW FLOW	17	9	ND			
HIGH FLOW	28	13	0			



APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01400540 MILLSTONE RIVER NEAR MANALAPAN, N.J.

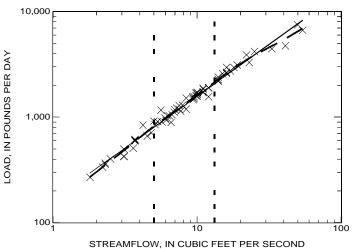
[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



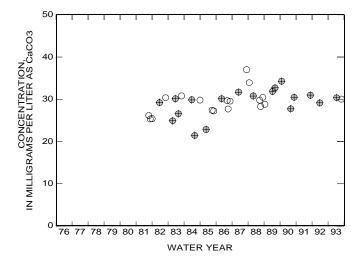
RELATION OF LOAD TO STREAMFLOW

			>	10,000	- 1 1
ON: LOG(LOAD) = SLOPE*LOPE*LOPE*LOPE*LOPE*LOPE*LOPE*LOPE*	OG(FLOW) SLOPE	+ INT INT	PER DA	-	
72	0.98	2.22	NDS	1.000	
		W	O, IN POL	- - - - -	
INDICATED PERCENTAGE	OF TIME		LOAE	-	
E ::	X UNCENSORED N VIESS-THAN' V. DN: LOG(LOAD) = SLOPE*LO LUES NVALUES TO RELATION BETWEEN LOA THERE ARE 10 OR MORE V STREAMFLOW EXCEED INDICATED PERCENTAGE (X UNCENSORED VALUE	X UNCENSORED VALUE VIESS-THAN' VALUE ON: LOG(LOAD) = SLOPE*LOG(FLOW) + INT LUES NVALUES SLOPE INT TO 0.98 2.22 O RELATION BETWEEN LOAD AND FLOW THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	X UNCENSORED VALUE VILESS-THAN' VALUE DN: LOG(LOAD) = SLOPE*LOG(FLOW) + INT LUES NVALUES SLOPE INT TO 0.98 2.22 D RELATION BETWEEN LOAD AND FLOW THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	UNCENSORED VALUE VIESS-THAN' VALUE ON: LOG(LOAD) = SLOPE*LOG(FLOW) + INT LUES NVALUES STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME VIESS-THAN' VALUE VACUES 1,000 1,000 0 0 0 0 0 0 0 0 0 0 0 0



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

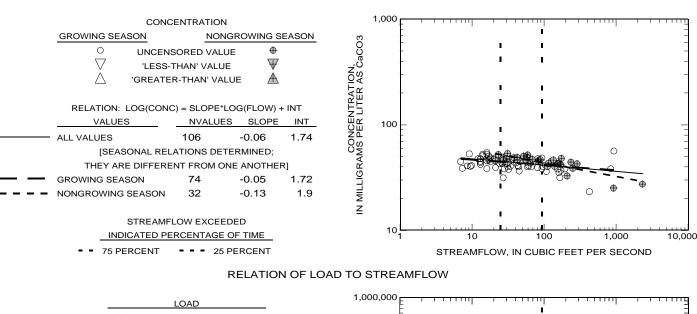
CONCENTRATION						
CONCENTRATION						
LOW FLOW			HIGH FLOW			
O U	NCENSOREI	D VALUE	⊕			
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$			
TREN	DS IN CONC	ENTRAT	ION			
VALUES	NVALUES	NWYS	SLOPE			
LOW FLOW	18	10	ND			
HIGH FLOW	18	12	ND			



APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01400650 MILLSTONE RIVER AT GROVERS MILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



$oxed{ imes} oxed{ imes} oxed{ imes}$ Uncensor $oxed{ imes}$ 'Less-th/		1,000,000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	×/×
RELATION: LOG(LOAD) = SLOI VALUES NVALU	, ,	100,000	! !	×
ALL VALUES 106	0.94 2.48	CND	· · · · · · · · · · · · · · · · · · ·	×
SMOOTHED RELATION BETWEEN		0	·	-
(SHOWN IF THERE ARE 10 OR MO STREAMFLOW EX INDICATED PERCENT/ 75 PERCENT	CEEDED	10,000 F		
		1,000	10 10	00 1,000 10,000
			STREAMFLOW, IN CUB	IC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		
LOW FLOW HIGH FLOW	03	
○ UNCENSORED VALUE ♥ ∨ 'LESS-THAN' VALUE ♥	ION, AS CaCO3	80 –
△ 'GREATER-THAN' VALUE 🛦	TER	60 –
TRENDS IN CONCENTRATION	CONCENT MS PER LI	80 000
VALUES NVALUES NWYS SLOPE	SE E	
LOW FLOW 30 14 ND	98	
HIGH FLOW 26 12 ND	ZA.	* • • •
	IN MILLIGF	20 -
	≥	

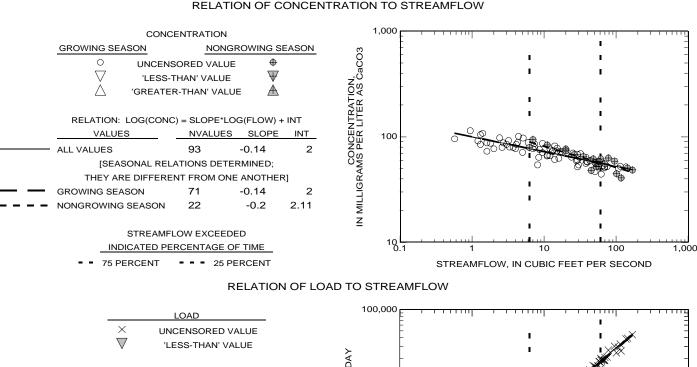
76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

100 -

APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01401000 STONY BROOK AT PRINCETON, N.J.

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

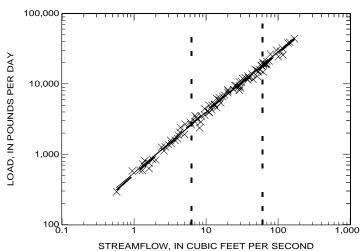
RELATION OF CONCENTRATION TO STREAMFLOW



RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT NVALUES **VALUES** SLOPE ALL VALUES

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

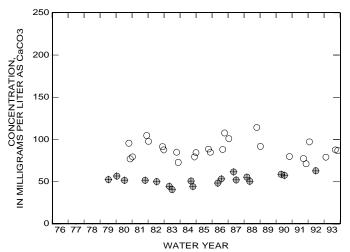
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME **75 PERCENT** 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTRATION	
LOW FLOW		HIGH FLOW
0	UNCENSORED VALUE	+
∇	'LESS-THAN' VALUE	$\overline{\Psi}$
	GREATER-THAN' VALU	e 🛦

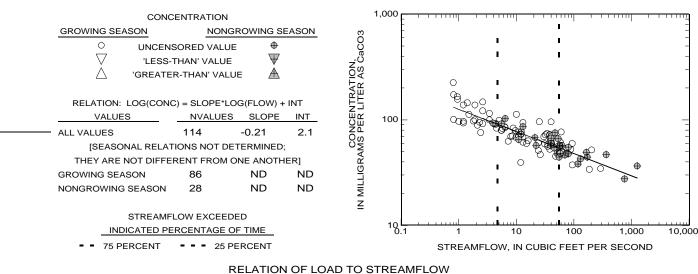
TRENDS IN CONCENTRATION											
VALUES	NVALUES	NWYS	SLOPE								
LOW FLOW	25	14	ND								
HIGH FLOW	18	11	ND								



APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01401600 BEDEN BROOK NEAR ROCKY HILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD		1,000,000	 		 	門里
$\stackrel{ imes}{ abla}$ uncensored value $\stackrel{ imes}{ abla}$ 'less-than' value		<u>}</u>	1 1	; 1 1	×	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW VALUES NVALUES SLOPE	INT	100,000 Y	ı	ı		
ALL VALUES 114 0.79	2.83	10,000	·			
SMOOTHED RELATION BETWEEN LOAD AND FL (SHOWN IF THERE ARE 10 OR MORE VALUES)	.OW	N O	1	1 1 -		=
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	_	1,000		i		
75 PERCENT 25 PERCENT		100	1 10	100		10,000
			STREAMFLOW, IN	CUBIC FEET PE	R SECOND	

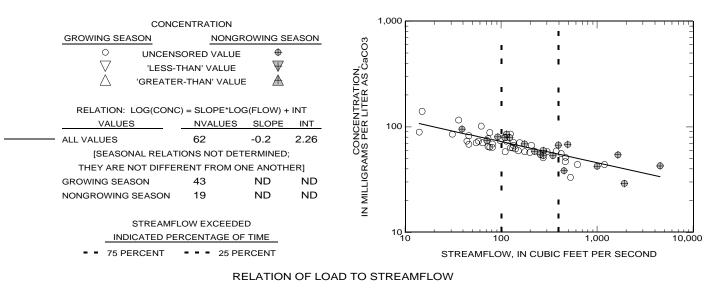
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

		250								-	-	$\overline{}$		_
CONCEN	ITRATION	200	'	1 1	1 1	- 1	1 1	1	1 1	1 1	'	1 1	- 1	
LOW FLOW	HIGH FLOW	03								0				
$\overline{}$	RED VALUE	AS CaC AS CaC	_										-	_
△ 'GREATER-	THAN' VALUE ل	SATIC ER A	0			_			0					
TRENDS IN CO	DNCENTRATION	원을 150	- 0		0	0							-	_
VALUES NVALUE		ICE ER			0		_					0		C
LOW FLOW 27	14 0	CONCE MS PER 100	- 90 c	¬	0		ر ک	0 0	, 00			^	-	_
HIGH FLOW 27	11 ND	₽	0	J	Ü	0		0				O		
		50 NILLIG	_	#	**		⊕	•	⊕ ⊕ ∉	*	⊕ ⊕ ⊕	#	⊕	

APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	4 1,000,000 W 1
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	NOO 100,000
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	10,000
	1,000 100 1,000 10,000 STREAMELOW IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

C	CONCENTR	ATION			250	- 1	1 1	ı	1 1	1	ı	I		- 1	ı	1	1 1	'	
LOW FLOW			HIGH FLOW	. 80															
<u> </u>	CENSORE	D VALUE	<u>+</u>	CaC	200	_													_
,'L	ESS-THAN'	VALUE	\overline{\pi}	NON															
△ 'GRE	EATER-THA	'N' VALUE	A	CONCENTRATION,															
				5月	150	_			_										-
TREND	S IN CONC	ENTRATI	ON	Z Z				()										
VALUES	NVALUES	NWYS	SLOPE	ΔË)									
LOW FLOW	22	12	ND	50	100	_			_	0									_
HIGH FLOW	12	6	ND	A V		0		Ó) (5 d
				<u>6</u>		8	80	U			0 () C	0					0	
				IN MILLIG	50	_	ф.	*								\oplus		Φ.	
				Σ			*	D P										•	Ψ
				≥			*												
					0														الي
						76 77	78 7	9 80	81	82 83	3 84	85	86	87 8	88 89	90	91	92	93

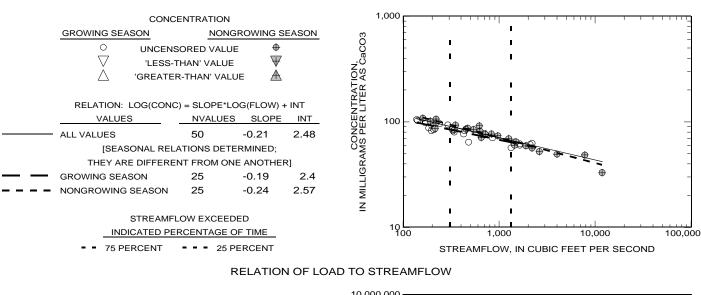
WATER YEAR

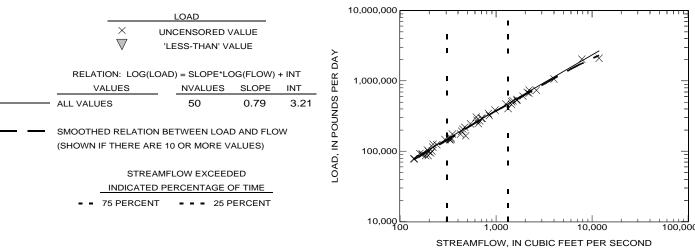
250 -

APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01403300 RARITAN RIVER AT QUEENS BRIDGE, AT BOUND BROOK, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW





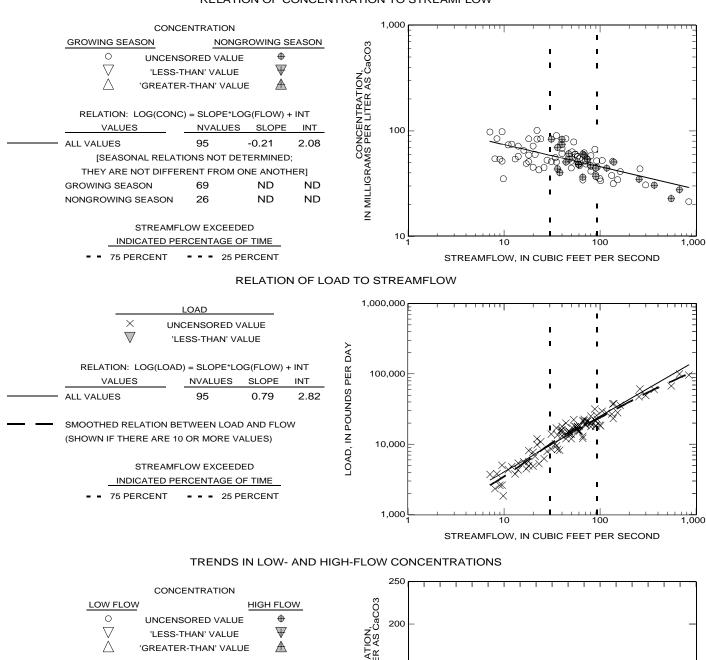
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	2:		1 1		1	ı	1	ı	ı	ı	ı	ı	ı	ı			ı	
LOW FLOW O UNCENSORED VALUE O 'LESS-THAN' VALUE O 'GREATER-THAN' VALUE TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE LOW FLOW 15 9 ND HIGH FLOW 14 9 ND	R AS CaCO3	00 –																_
T	쁜 15	50 –																_
	r	00 —					0	4	○ •••	0	(D)	○ •	o (• •	•	· •	0	Ф
	IN MILLIGI	50 -		ı	1			´ +	, •	1	•	+		ı	V	Ψ.	ı	_

APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01405302 MATCHAPONIX BROOK AT MUNDY AVE, AT SPOTSWOOD, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



TRENDS IN CONCENTRATION

26

17

NVALUES NWYS

15

11

SLOPE

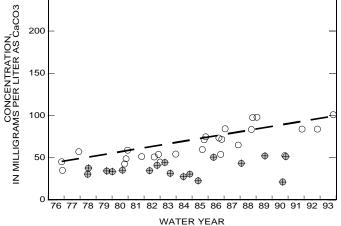
3.17

ND

VALUES

LOW FLOW

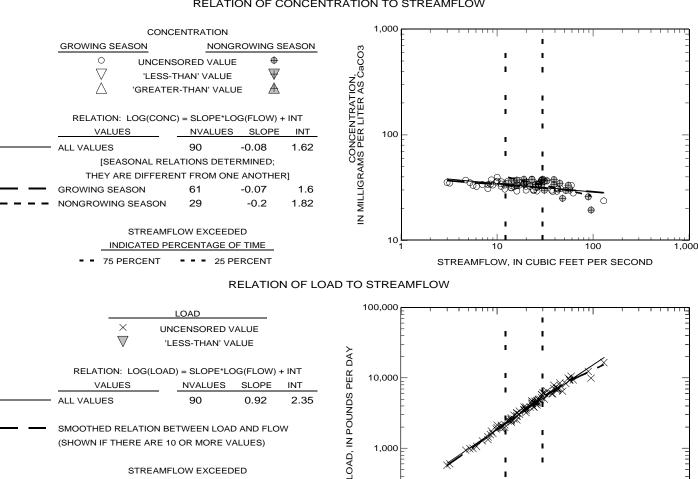
HIGH FLOW



APPENDIX 2. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL HARDNESS 01405340 MANALAPAN BROOK AT FEDERAL RD, NEAR MANALAPAN, N.J.

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



100

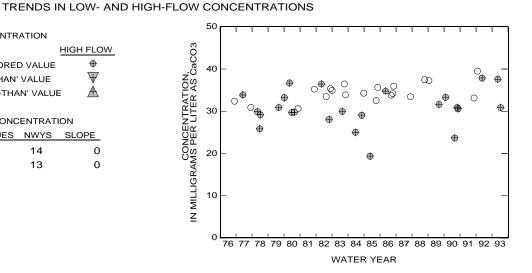
CONCENTRATION LOW FLOW HIGH FLOW 0 UNCENSORED VALUE ∇ Ψ 'LESS-THAN' VALUE Δ \mathbb{A} 'GREATER-THAN' VALUE

STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME

- - 25 PERCENT

75 PERCENT

TRENDS IN CONCENTRATION										
VALUES	SLOPE									
LOW FLOW	20	14	0							
HIGH FLOW	24	13	0							



STREAMFLOW, IN CUBIC FEET PER SECOND

1,000

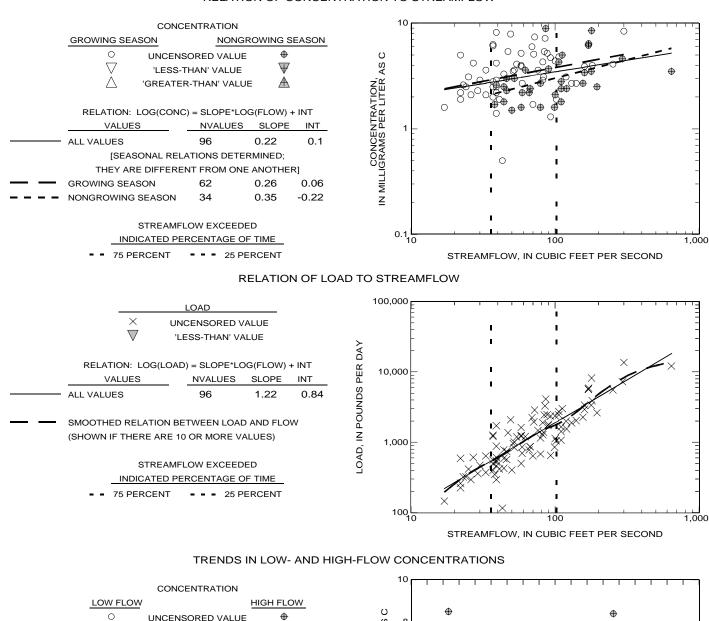
Appendix 3 - Total organic carbon

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Blackwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

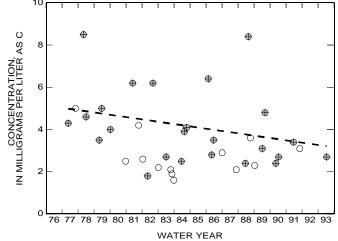
APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01396280 SB RARITAN RIVER AT MIDDLE VALLEY, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



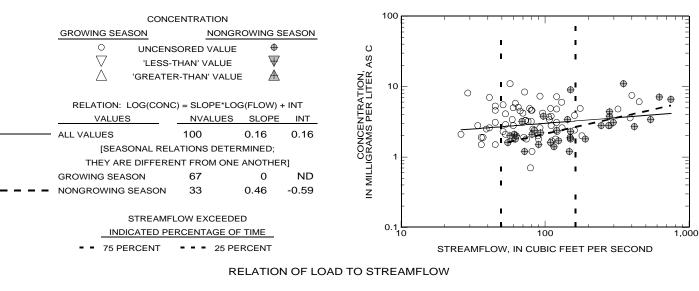
- 0	SHOEMOOKED WESE									
▽ ,	V 'LESS-THAN' VALUE									
△ 'GF	'GREATER-THAN' VALUE									
TREN	DS IN CONC	ENTRAT	ION							
VALUES	S NVALUES NWYS SLO									
LOW FLOW	13	9	ND							
 HIGH FLOW	24	14	-0.11							



APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01396535 SB RARITAN RIVER AT ARCH ST, AT HIGH BRIDGE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD	100,000
 X UNCENSORED VALUE [']LESS-THAN' VALUE [']S 	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	·
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	1,000
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	
	100 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

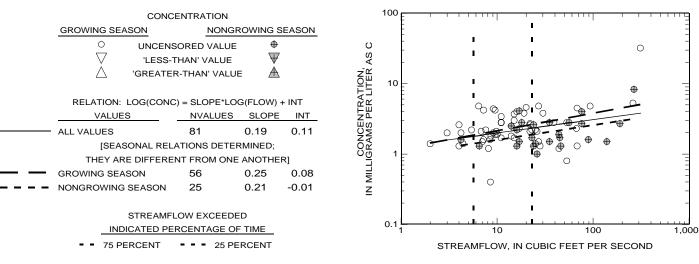
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		1	
LOW FLOW	HIGH FLOW		
○ UNCENSORED VALUE VLESS-THAN' VALUE GREATER-THAN' VALUE	O SCONCENTRATION. O STODE NO O O O O O O O O O O O O O O O O O O		-
TRENDS IN CONCENTRAT	ION KRÎ 12		
VALUES NVALUES NWYS	SLOPE HØ		
LOW FLOW 13 8	ND SE 10	⊕	_
HIGH FLOW 18 12	O OOO		•

APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01396588 SPRUCE RUN NEAR GLEN GARDNER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	100,000 X =
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT SLOPE SLOPE SLOPE INT SLOPE SLOPE INT SLOPE I	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	100 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

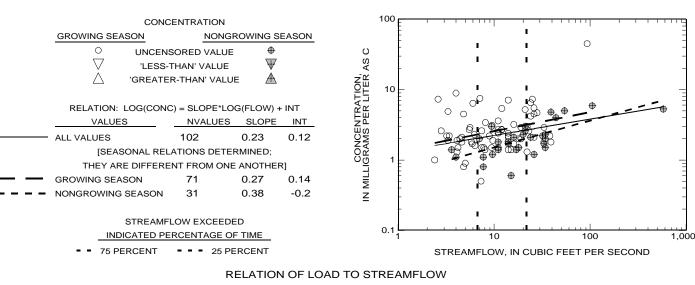
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		
LOW FLOW HIGH FLOW		
UNCENSORED VALUE	GRAMS PER LITER AS C 00 00 00 00 00 00 00 00 00 00 00 00 00	⊕
VALUES NVALUES NWYS SLOPE LOW FLOW 8 5 ND	N N N	
HIGH FLOW 34 15 ND	LIGRAI 20	
	⊒ ¥ 10 Z	- ⊕

APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01396660 MULHOCKAWAY CREEK AT VAN SYCKEL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD X UNCENSORED VALUE VLESS-THAN' VALUE >	100,000 × × ×
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 102 1.23 0.86 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	1,000
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	100 100 100 100 100 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01397000 SB RARITAN RIVER AT STANTON STATION, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONCI	ENTRATION			10	00 F			
GROWING SEASON	NONGRO	WING SEA	ASON		F	, i		
O UNCENS	ORED VALUE 'HAN' VALUE R-THAN' VALUE	⊕ ₩ A		AATION, R LITER AS C	10 _			
VALUES		SLOPE	INT	ÄÄ	F			
ALL VALUES	30	0	ND	CONCE N MILLIGRAMS	F		*	
[SEASONAL RELATI	ONS NOT DETE	RMINED;		Z A A		Y	0	
THEY ARE NOT DIFFER	RENT FROM ONE	ANOTHE	R]		`E	. +		
GROWING SEASON	19	ND	ND	∦	ŧ			
NONGROWING SEASON	11	ND	ND	Z	F	•		
	OW EXCEEDED			C	0.1	I I	· · · · · · · · · · · · · · · · · · ·	
	RCENTAGE OF 1				10	100	1,000	10
■ ■ 75 PERCENT	25 PER	CENT				STREAMFLOW, IN CU	BIC FEET PER	SECOND

RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 30 0.99 1.36 SIND SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	
75 PERCENT 25 PERCENT	100 10 100 1,000 10,000 STREAMELOW IN CUBIC FEET PER SECOND

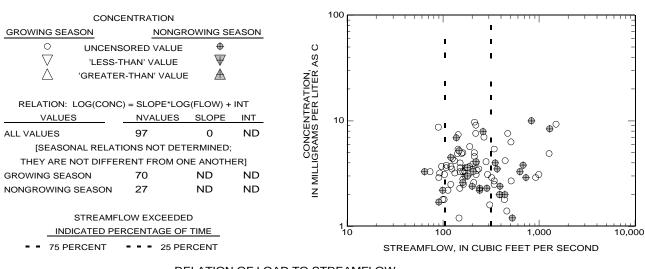
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

		10 —							
CONCENTRATION		10	1 1 1		1 - 1	ı	T	1 1	
LOW FLOW	GH FLOW		0						
UNCENSORED VALUE	φ	8 –							
'LESS-THAN' VALUE	₩ Ğ								
	ATION.								
	ZAT L	6 –							
TRENDS IN CONCENTRATION			•						
	ELOPE WS		○ ⊕						
LOW FLOW 5 3	ND NA	4 –							
HIGH FLOW 6 3	ND SE		⊕ ○						0
	글		\oplus						+
	DZ Z GPS CONCENTRA	2 –	0						
	=		+						

 \oplus

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

-	LOAD X UNCENSORED V 'LESS-THAN' V.			47	100,000		1 ×		
ALL VALUES — SMOOTHED		SLOPE 1.08 D AND FLO	1.09	, IN POUNDS PER DA	10,000	, , , , , , , , , , , , , , , , , , ,		×	111111111111111111111111111111111111111
_	STREAMFLOW EXCEED NDICATED PERCENT = 25 F			LOAD	100	I I 100	1 1 1 1,	,000	10,000

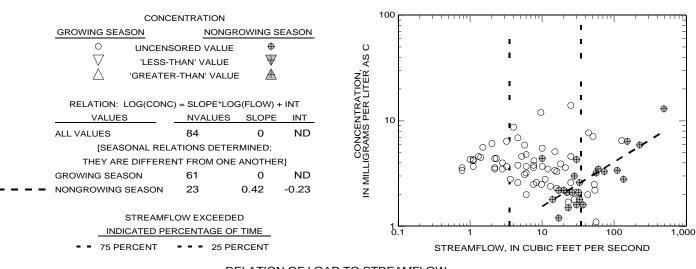
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION						' '
LOW FLOW	HIGH FLOW		0	Ψ		
 UNCENSORED VALUE 	<u>Ф</u> О	8				
√ 'LESS-THAN' VALUE	\forall	O				⊕
△ 'GREATER-THAN' VALU	E Æ SË					
	<u> </u>	6	_			
TRENDS IN CONCENTRAT	ION 5E	Ů			⊕	
VALUES NVALUES NWYS	SLOPE W			⊕	*	
LOW FLOW 11 8	O O DI DE	4	_	⊕		_
HIGH FLOW 26 14	၀ ဗိုက်		0	0. •	+	0
	コ					⊕
	N MIL	2	_ 0 _ ⊕	○	₩ ⊕	
	Z	_	• •	O	0	
			₩ ₩			

APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01398000 NESHANIC RIVER AT REAVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 84 0.96 1.32 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	×	LOAD UNCENSORED \ 'LESS-THAN' V/			DAY	100,000	 	1 1	1 1	
	 VALUES ALL VALUES SMOOTHED RELATI (SHOWN IF THERE A STR INDICAT	NVALUES 84 ON BETWEEN LOAI ARE 10 OR MORE V EAMFLOW EXCEED ED PERCENTAGE OF	SLOPE 0.96 D AND FLO ALUES) DED DET TIME	1.32	PER	1,000	1			1

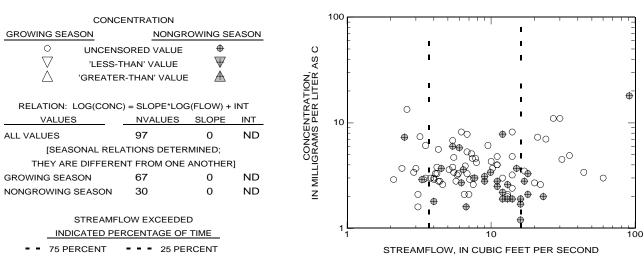
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		
LOW FLOW HIGH FLOW		
O UNCENSORED VALUE ♥ VLESS-THAN' VALUE ▼ OFFICIAL OFFICI	CONCENTRATION, GRAMS PER LITER AS C 01 91 07	_
VALUES NVALUES NWYS SLOPE	F.2	⊕
LOW FLOW 18 12 ND HIGH FLOW 16 10 ND	CONCE IN MILLIGRAMS	

APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01398260 NB RARITAN RIVER NEAR CHESTER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

		LOAD NCENSORED V LESS-THAN' VA			۸	10,000	I I	I I
	ON: LOG(LOA	.D) = SLOPE*LC	OG(FLOW) SLOPE	+ INT INT	PER D,	1,000		
ALL VALUE	S	97	1.06	1.23	JNDS	-	. × ×	××I
		BETWEEN LOAD		W	N PO	-	×××××××××××××××××××××××××××××××××××××××	
-	STREAM	FLOW EXCEED ERCENTAGE C	ED		LOAD, I	100	1 10	· · · · · · · · · · · · · · · · · · ·

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		
LOW FLOW HIGH FLOW		
O UNCENSORED VALUE ♥ SON	20	<u></u>
GREATER-THAN' VALUE TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE LOW FLOW 13 6 ND HIGH FLOW 16 10 ND	15	 ○
LOW FLOW 13 6 ND Σ_{Δ}	10	
HIGH FLOW 16 10 ND SUBJECT STATES AND SUBJECT STATES AND SUBJECT STATES AND SUBJECT SU		00
<u>z</u>	5	

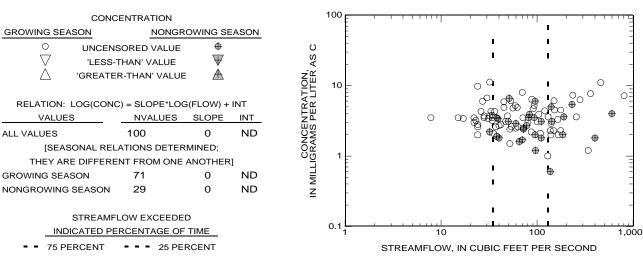
100

STREAMFLOW, IN CUBIC FEET PER SECOND

APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01399120 NB RARITAN RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	> 4	100,000		1 I	× ×-
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW VALUES NVALUES SLOPE	NT TINI + (10,000		! !	×
ALL VALUES 100 1.01	1.23	- - -			×
SMOOTHED RELATION BETWEEN LOAD AND FL	ow 👨	-		i X	× × -
(SHOWN IF THERE ARE 10 OR MORE VALUES)	AD, IN	1,000		× × ×	_
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	ľó,	-		XXXXXXXX	=
75 PERCENT 25 PERCENT		-		· · · · · ·	-
		100	10	100	1,000
			STREAMFLOW,	IN CUBIC FEET PER S	SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

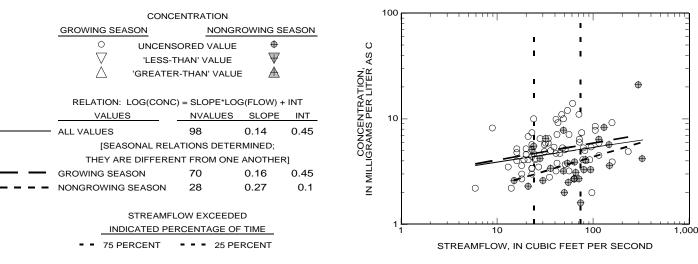
	CONCENTE	RATION														
LOW FLOW			HIGH FLOW													
O UI	NCENSORE	D VALUE	⊕	O Ø	20	_										
∨ ′'	LESS-THAN	' VALUE	$\overline{\Psi}$, AS												
△ 'GF	REATER-TH	AN' VALUE	Ξ Α	TO TER,												
				<u> ラ</u> コ	15	_										
TREN	DS IN CON	CENTRATI	ION	TRA												
VALUES	NVALUES	NWYS	SLOPE	Πα Σσ												
LOW FLOW	23	13	0	CONCER	10	_	0						+	₽		
HIGH FLOW	26	12	0	90 80			U									
				ㅋ			. 🕏					+		4		
				Z Z	5	_	0					⊕			+	
				Z	Ů		0 🕈	фО [']	Ф ДФ	& .(0	(A)	0	(#)		0
						0	Ф Ф	Ψ.	~ 8,	⊕ ′		Φ	€			

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APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01399500 LAMINGTON (BLACK) RIVER NEAR POTTERSVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	1,000 Land
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	100 100 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

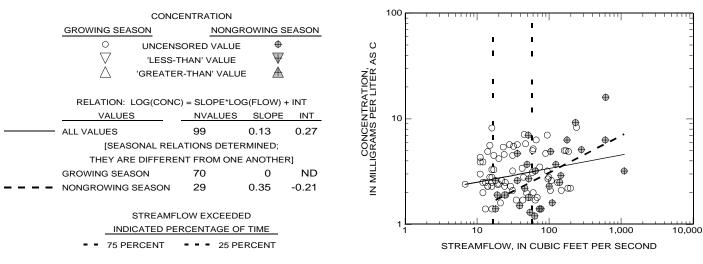
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

					25							
	CONCENTR	RATION			25	- 1	ı	1	1	1	1	_
LOW FLOW			HIGH FLOW									
Ο υ	NCENSORE	D VALUE	⊕	AS C	20							
▽ ,	LESS-THAN	VALUE	$\overline{\Psi}$	~~ -~								
△ 'GF	REATER-THA	N' VALUE	\blacksquare	台灣								
				Ę:	15							
TREN	IDS IN CONC	CENTRAT	ION	TR/								
VALUES	NVALUES	NWYS	SLOPE	Äα								
LOW FLOW	27	14	0	CONCER	10	_		0				
HIGH FLOW	25	13	0	00			⊕ €	₽ ,	Φ.			
				⋾				0 '	₩	Ф		
				M	5		8 ,	₽ .	Ф)	\cap	•
				Z			4	₹ 4	€ ₹	€	Ŏ	#

APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01399700 ROCKAWAY CREEK AT WHITEHOUSE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD × UNCENSORED VALUE VESS-THAN' VALUE	100,000
വ RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	10,000
VALUES NVALUES SLOPE INT	
ALL VALUES 99 1.13 1 $\overset{\circ}{\Omega}$	
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) Z	1,000
STREAMFLOW EXCEEDED O	100
INDICATED PERCENTAGE OF TIME	ļ
75 PERCENT 25 PERCENT	
	10 100 1,000 10,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

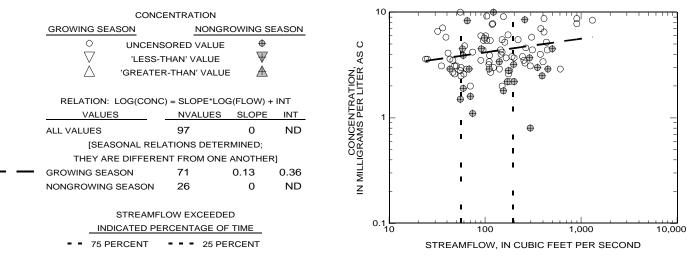
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	
LOW FLOW HIGH FLOW	
○ UNCENSORED VALUE ⊕	0 9 20 –
√ 'LESS-THAN' VALUE Ψ	₹
riangle 'GREATER-THAN' VALUE $ extcircle$	RATION. 12 —
	⊕ ∀:: 15 –
TRENDS IN CONCENTRATION	KH KH
VALUES NVALUES NWYS SLOPE	πα Σσ
LOW FLOW 20 12 ND	QΣ 10 −
HIGH FLOW 39 16 0	CONCENTION 10 - + OIL MARKET BEING B
	# # # # # ## ### ### #### ############
	≥ 5

APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01399780 LAMINGTON RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD	TO STREAMFLOW
LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 97 1.1 1.11 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT - 25 PERCENT	1,000 I I I I I I I I I I I I I I I I I I
	STREAMFLOW, IN CUBIC FEET PER SECOND

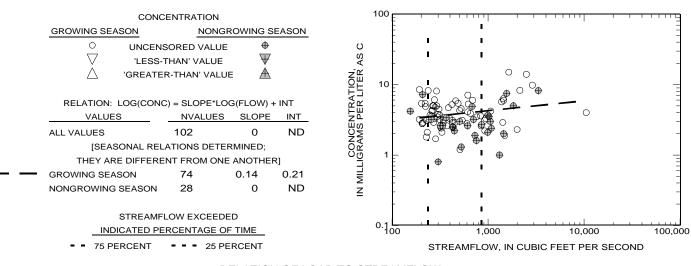
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		1		
LOW FLOW HIGH FLOW				\$\$
○ UNCENSORED VALUE	ပ ဖ 8	Φ	•	
abla 'LESS-THAN' VALUE $ abla$	< -			⊕
$ riangle$ 'GREATER-THAN' VALUE $ extcal{A}$	NΕ	○ ⊕		
	<u></u>	_ ⊕		0
TRENDS IN CONCENTRATION	FR o	0 🖶		⊕
VALUES NVALUES NWYS SLOPE	⊞Ω -⊠⊄	+		·
LOW FLOW 17 11 ND	CONCENTRATION. GRAMS PER LITER 5	L # #	₩ ₩	_
HIGH FLOW 29 12 0	00 02	1		
		+	→ → → → → → → → → →	
	₩ ₂		•	_
	<u>z</u>	0		
		⊕		
		1		

APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01400500 RARITAN RIVER AT MANVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

- 	LOAD		1,000,000			
$\stackrel{\times}{ riangledown}$	UNCENSORED VALUE 'LESS-THAN' VALUE	>	;	1 1 1 1	. 17	= = = = = = = = = = = = = = = = = = = =
RELATION: LOG VALUES	G(LOAD) = SLOPE*LOG(FLOW NVALUES SLOPE	INT		· · ×	7/	
ALL VALUES	102 1.1	1.02		· · · · · · · · · · · · · · · · · · ·		=
SMOOTHED RELAT	ION BETWEEN LOAD AND FL	ow G	-	**************************************		_
(SHOWN IF THERE	ARE 10 OR MORE VALUES)	2	10,000			
	REAMFLOW EXCEEDED FED PERCENTAGE OF TIME	-		× .		=
= = 75 PERCE	ENT = = = 25 PERCENT		1,000	1,000	10,000	100,00
			100	1,000 STREAMFLOW, IN C	10,000 UBIC FEET PER S	

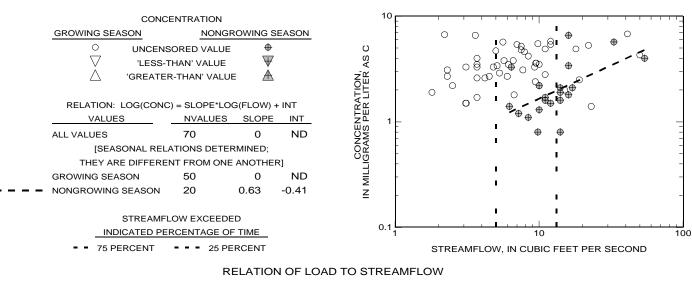
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCEN	TRATION				I						
LOW FLOW		HIGH FLOW									
\circ UNCENSOF \bigvee 'LESS-THA \triangle 'GREATER-T	N' VALUE	⊕₩≜	ION, TER AS C	20	_						-
TRENDS IN CO	NCENTRATI	ON	TRAT FR LI	15	- ⊕	⊕					_
VALUES NVALUE	S NWYS	SLOPE	ÄΩ Zσ								
LOW FLOW 13	9	ND	AMO	10	- ф						_
HIGH FLOW 26	13	0	SS		, (a)					⊕	
			CONCE	5	•		⊕	. •	⊕	• 0	_
			Ξ		0	⊕⊕	${\displaystyle \mathop{\circ}_{\bigcirc}} \oplus {\displaystyle \mathop{\oplus}_{\bigcirc}}$		Ф ⁰	*	⊕

APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01400540 MILLSTONE RIVER NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD		10,000		Ē
$ imes$ uncensored value $ ilde{\mathbb{V}}$ 'less-than' value	≻		i i	
	NT N	1,000		ļii i i i i
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	AD, IN POU	100	× × × × × × × × × × × × × × × × × × ×	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	LOA	10	× × × × × × × × × × × × × × × × × × ×	100
			STREAMFLOW, IN CUBIC FEET PER SECOND	

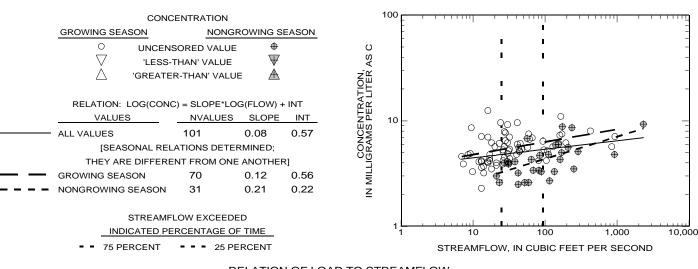
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION							
LOW FLOW	HIGH FLOW						
○ UNCENSORED VALUE VLESS-THAN' VALUE	AS C	8 –					
△ 'GREATER-THAN' VALUE	, 7ºC		C)	⊕	O ⊕	
TRENDS IN CONCENTRATION		6 –		⊕		•	
VALUES NVALUES NWYS	SLOPE HO					0	₽
LOW FLOW 18 10	ND SA	4 –			⊕	○ ●)
HIGH FLOW 17 11	ND SSE			$\circ_{ \oplus}$	· 0 0	0	
	MILLIGRAMS PER MILLIG	2-			\oplus \ominus \ominus	0 0 # # #	•
	Z		(D 🗬	0	₩ ⊕ Ψ	⊕
				\oplus			

APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01400650 MILLSTONE RIVER AT GROVERS MILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

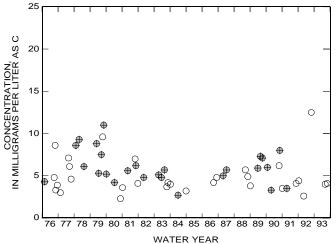


RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE		<u> </u>	1,000,000		1 I		-
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) VALUES NVALUES SLOPE 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	INT	OS PER DA	100,000		1 I		
ALL VALUES 101 1.08 SMOOTHED RELATION BETWEEN LOAD AND FLO (SHOWN IF THERE ARE 10 OR MORE VALUES)	1.3 W	IN POUND	10,000		 		
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT		LOAD,	1,000	××××××××××××××××××××××××××××××××××××××	100	1,000	10,000
				STREAMFI	LOW, IN CUBIC I	FEET PER SEC	OND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

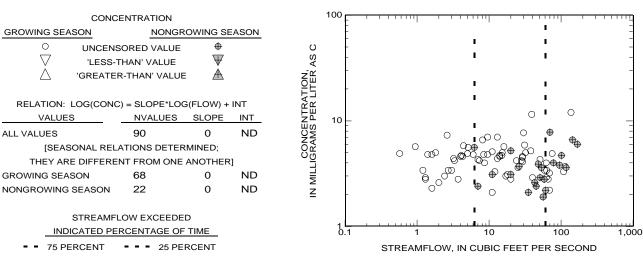
	CONCENTR	ATION		
LOW FLOW			HIGH FLOW	
Ο υ	NCENSORE	D VALUE	⊕	
∇	LESS-THAN	VALUE	$\overline{\Psi}$	
△ 'GF	REATER-THA	N' VALUE	■ ▲	Z
				ΔT
TREN	IDS IN CONC	ENTRAT	ION	CONCENTRATION
VALUES	NVALUES	NWYS	SLOPE	Z W
LOW FLOW	30	14	ND	Š
HIGH FLOW	26	12	ND	00



APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01401000 STONY BROOK AT PRINCETON, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 90 1 1.35 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT - 25 PERCENT	1,000 B B B B B B B B B B B B B B B B B B
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

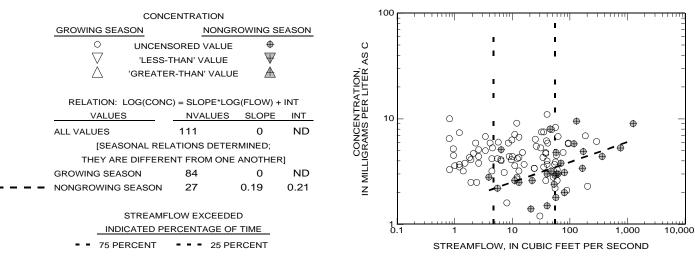
CONCENTRATION		25	
LOW FLOW HIGH FLOW			
○ UNCENSORED VALUE ⊕	AS C	20 -	_
'LESS-THAN' VALUE			
△ 'GREATER-THAN' VALUE	ÓΈ		
	CONCENTRATION, IN MILLIGRAMS PER LITER	15	_
TRENDS IN CONCENTRATION	崑		
VALUES NVALUES NWYS SLOPE	Äδ		⊕
LOW FLOW 25 14 ND	Ž₹	10 -	_
HIGH FLOW 18 11 ND	었땹		•
	⊒		→ → →
	Σ	5	
	=		
			Ψ ~ ~ Ψ

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APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01401600 BEDEN BROOK NEAR ROCKY HILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	M 10,000
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	100 100 100 100 100 100 1000 1000 1000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRA	TION			Ч	Φ '	1 1	1	1 1	'			'	1 1
LOW FLOW	HIGH	I FLOW			\oplus								
O UNCENSORED	VALUE	— Ф	8	_						\oplus			
CLESS-THAN' V	/ALUE	₩	_	0									
△ 'GREATER-THAN	N' VALUE	₩ NEW				⊕					0	\oplus	0
TRENDS IN CONCE		DX O DE	6	ا ص	○ ⊕	. +		⊕	•	⊕ ⊕ ~			
	NWYS SLC					Φ (8	0	C		Ф		0
LOW FLOW 27	14	NO ON O	4	_		Ū		0 0	0	⊕			⊕ ്
HIGH FLOW 27	11	ND Ω		_		⊕	0	0 0	O	○ Ф	4	*	
		MIL		0		•			0	+		•	\oplus
		≥ Z	2	_	+	⊕ ⊕				Ψ		⊕	
		=											

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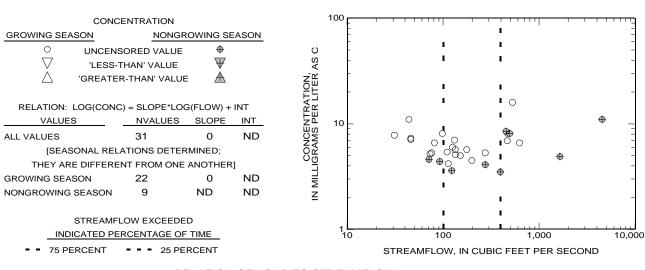
76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

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APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

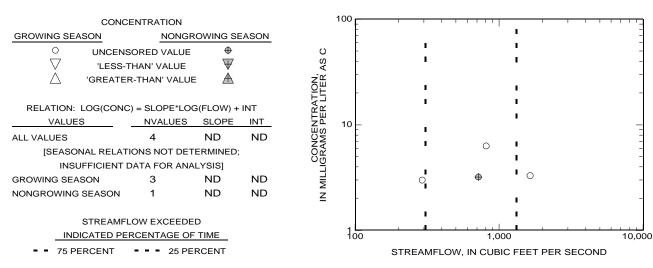
	KLLATION	TOT LOAD	10 STREAM	I LOW		
	LOAD		1,000,000	- 	 	
$\stackrel{ imes}{ riangledown}$	UNCENSORED VALUE 'LESS-THAN' VALUE	DAY	E -	1	1 1	×
RELATION: LOG	(LOAD) = SLOPE*LOG(FLOW) + NVALUES SLOPE		100,000	1	!×	×
ALL VALUES	31 1.06	1.39	10,000			-
	ON BETWEEN LOAD AND FLOW RE 10 OR MORE VALUES)	v Od N			^	
	EAMFLOW EXCEEDED ED PERCENTAGE OF TIME NT 25 PERCENT	LOAD	1,000	1	1	
			100	100 STREAMFLOW, IN 0	1,000 CUBIC FEET PER	10,000 SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CO	NCENTRATION			1		
LOW FLOW		HIGH FLOW				
, LES	ENSORED VALUE SS-THAN' VALUE .TER-THAN' VALUI	$\overline{\Psi}$	TION, LITER AS C	20	-	_
	IN CONCENTRAT	ION SLOPE	ENTRA S PER I	15		
LOW FLOW	10 4	ND	ANG	10	_ ○ •	_
HIGH FLOW	8 4	ND	CONCENTRAIN MILLIGRAMS PER		○	⊕ ∳
				J		

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

		LOAD				100,000	1 1			
	$\stackrel{\times}{ riangledown}$	UNCENSORED \ 'LESS-THAN' V			ΑY	-	1		! !	
RELATIO	ON: LOG(L	OAD) = SLOPE*L0	OG(FLOW)	+ INT	Z D	-	•	×	. ×	1
VAI	LUES	NVALUES	SLOPE	INT	PE	-				-
ALL VALUE	S	4	ND	ND	DS		•	×	- I	
	THERE AR	N BETWEEN LOA E 10 OR MORE V	ALUES)	»W	OAD, IN POUN	10,000	: : : :		1 1 1	
_	INDICATED	PERCENTAGE (OF TIME		_	_			ı	_
7	5 PERCEN	Γ 25 F	PERCENT				1		ı	
						1,000		1,000	<u> </u>	10,000
							STREAM	FLOW, IN CUBIC	FEET PEF	R SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

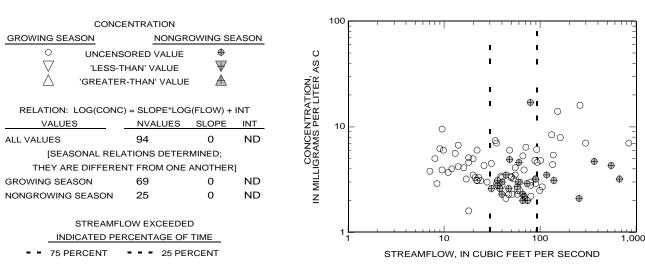
CONCENTRATION	
LOW FLOW HIGH FLOW	
○ UNCENSORED VALUE ♥ (O Ø 4.0
☐ 'GREATER-THAN' VALUE ☐ ☐	# ⊢
TAT TAT	[→] 3.0 –
TRENDS IN CONCENTRATION	
TRENDS IN CONCENTRATION % m VALUES NVALUES NWYS SLOPE LOW FLOW 1 1 ND ZVALUES HIGH FLOW 1 1 ND ND	<u>ν</u>
LOW FLOW 1 1 ND	≥ 2.0
HIGH FLOW 1 1 ND	<u>Θ</u>
	⊒
2	⊒ 1.0
2	<u> </u>
	0.0 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

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[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



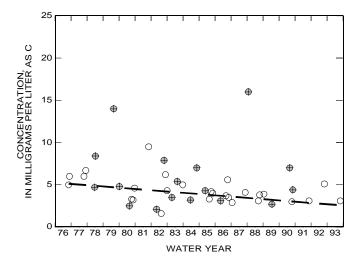
RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 94 1.04 1.25 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT - 25 PERCENT	1000 1000 100 1,000
	STREAMELOW IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

<u>L</u>	OW FLOW			HIGH FLOW
	Ο υ	NCENSORE	D VALUE	⊕
	abla ,	LESS-THAN'	VALUE	$\overline{\Psi}$
	△ 'GF	REATER-THA	N' VALUE	■ ▲
	TREN	DS IN CONC	ENTRAT	ION
	VALUES	NVALUES	NWYS	SLOPE
— —	LOW FLOW	27	15	-0.15
	HIGH FLOW	17	11	ND

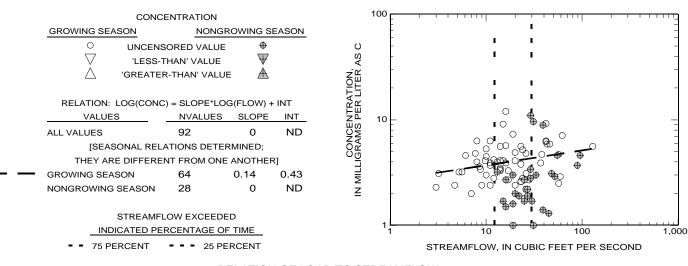
CONCENTRATION



APPENDIX 3. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL ORGANIC CARBON 01405340 MANALAPAN BROOK AT FEDERAL RD, NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD	10,000	•
× UNCENSORED VALUE	Ę.	· · · · · · · · · · · · · · · · · · ·
'LESS-THAN' VALUE	> - I	·××
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	1,000	× × × × × × × × × × × × × × × × × × ×
VALUES NVALUES SLOPE INT	_	××××××××××××××××××××××××××××××××××××××
ALL VALUES 92 1.06 1.19	<u>s</u>	×× *
	3 - × × × ×	*** ** -
SMOOTHED RELATION BETWEEN LOAD AND FLOW		
(SHOWN IF THERE ARE 10 OR MORE VALUES)	Z 100 -	× î
	ý [×] × ,	^ .
STREAMFLOW EXCEEDED	, j	3
INDICATED PERCENTAGE OF TIME	- ×	
75 PERCENT 25 PERCENT	<u> </u>	-
	10 1 10	100 1,000
	STREAMFLOW,	IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		•
LOW FLOW HIGH FLOW		•
O UNCENSORED VALUE	ITRATION, PER LITER AS C 9 8	+
VALUES NVALUES NWYS SLOPE	CEN MS F	8 • • •
LOW FLOW 23 14 0	Z\$ 4	·
HIGH FLOW 24 13 0	CONCENIN MILLIGRAMS P	

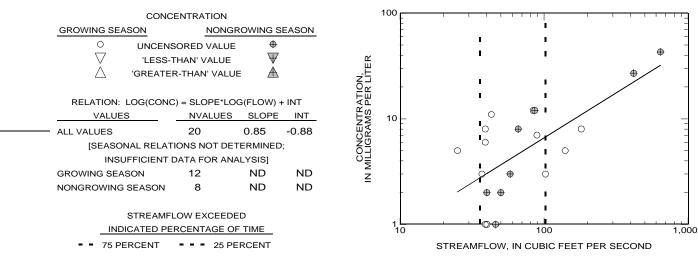
Appendix 4 - Suspended sediment

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Blackwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01396280 SB RARITAN RIVER AT MIDDLE VALLEY, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD		1,000,000		
\bigvee	UNCENSORED VALUE	>	:	1 1 1 1 1	× =
RELATION: LOG VALUES ALL VALUES	G(LOAD) = SLOPE*LOG(FLOW) NVALUES SLOPE 20 1.85	+ INT		: :	
	ION BETWEEN LOAD AND FLO	N N	10,000	× × ,	×
	REAMFLOW EXCEEDED TED PERCENTAGE OF TIME ENT 25 PERCENT	LOAD	1,000	×	
			10	100 STREAMFLOW, IN CUBIC	1,000 FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		00	1 '	'	,	1 1	- 1	1	1	1	1	1	1	1	ı	1	1	1	1
LOW FLOW	HIGH FLOW				⊕														
 UNCENSORED VALUE 	Φ ~	40	_		Ψ														4
C 'LESS-THAN' VALUE	₩ Έ																		
△ 'GREATER-THAN' VALUE	Æ ž5																		
	E H	30	L																4
TRENDS IN CONCENTRATION	NO A A P					⊕													
VALUES NVALUES NWYS	SLOPE ZŽ																		
LOW FLOW 1 1	DN DISTRIBUTED ON THE MILITER ON CENTRATION.	20	_																4
HIGH FLOW 4 3	EŠ DN																		
	∪ ∑																		
	Z	10	-																4
					•	₽											_		
																()	€	P
		0	<u></u>														1		لِ
			76	77 78	3 79	80 8	31 8	32 8	3 84	85	86	5 87	/ 88	3 89	90	91	92	2 93	3

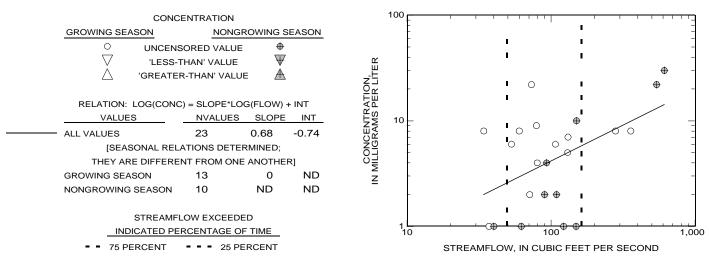
WATER YEAR

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APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01396535 SB RARITAN RIVER AT ARCH ST, AT HIGH BRIDGE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	100,000
	10,000 X X X X X X X X X X X X X X X X X
SMOOTHED RELATION BETWEEN LOAD AND FLOW	9 1,000 × × × × 1
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	9
	310 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		
LOW FLOW HIGH	f FLOW_	
○ UNCENSORED VALUE □ 'LESS-THAN' VALUE □ 'GREATER-THAN' VALUE	⊕ ₩ 40 × 11 × 12 × 13 × 14 × 14 × 14 × 14 × 14 × 14 × 14	0 – –
TRENDS IN CONCENTRATION	S PER LIN.	0 - +
VALUES NVALUES NWYS SLC	DPE LW	
LOW FLOW 3 3	ND 50 20	o –
HIGH FLOW 4 3	OD DE OD	
	≥ Z 10	0 - •

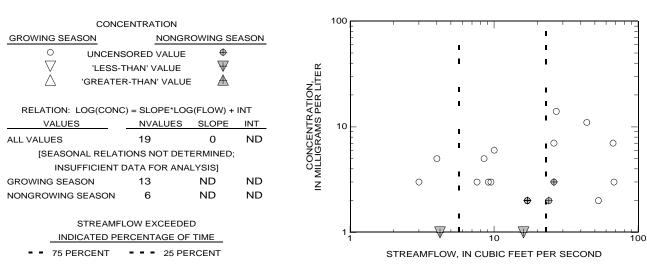
76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01396588 SPRUCE RUN NEAR GLEN GARDNER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

$\overline{\hspace{1em}}^{ imes}_{\hspace{1em}}$	LOAD UNCENSORED VA 'LESS-THAN' VAL			10,000	i 1	, , , , , , , , , , , , , , , , , , ,
RELATION: LOG(L VALUES	LOAD) = SLOPE*LOG NVALUES	G(FLOW)	+ INT INT	1,000 E	1	× //× -
ALL VALUES	19	1.23	0.98	4 SQ2	I	×
SMOOTHED RELATIO			w	100 =	×	×
	AMFLOW EXCEEDE D PERCENTAGE OF			LOAD,	×	
				10	10	1

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION				ı		1	' '	- 1	'	'	1		'	'	1	ı	1
LOW FLOW			HIGH FLOW																
<u>○</u> u	NCENSORE	D VALUE	<u>+</u>	٣	20	_													_
,	'LESS-THAN'	VALUE	À	Ē															
△ 'GI	REATER-THA	an' value	≣ Æ	CONCENTRATION,															
				E F	15	_													_
TREN	IDS IN CONC	ENTRAT	ION	S.F.				⊕											
VALUES	NVALUES	NWYS	SLOPE	μŞ				Φ.											
LOW FLOW	3	3	ND	250	10	_		⊕											_
HIGH FLOW	8	4	ND	ĖŖ															
				≥				$\oplus \oplus$											
				Z	5	_												0	_
							•	₽											⊕ ⊃
							•	⊕										\forall	
					0	76 77	78 7	79 80	81	82 8	3 84	85	86	87	88 8	9 9	0 9	1 92	93

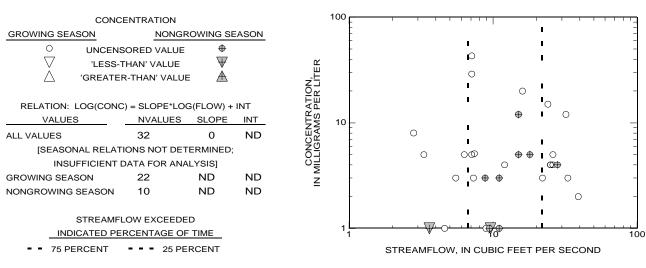
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STREAMFLOW, IN CUBIC FEET PER SECOND

APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01396660 MULHOCKAWAY CREEK AT VAN SYCKEL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

× und	LOAD CENSORED VALUE ESS-THAN' VALUE	<u>></u>	10,000	1 1	1	-
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) NVALUES SLOPE	+ INT	1,000	× × ×	× × × × × × × × × × × × × × × × × × ×	
ALL VALUES	32 1.19	1.13 👸	- - -		XX.XX	=
- SMOOTHED RELATION BE	TWEEN LOAD AND FLO	ow §	-	×	t I	-
(SHOWN IF THERE ARE 10	OR MORE VALUES)	<u>z</u>	100	××××××	I I	_
STREAMFL	LOW EXCEEDED	Q	Ė		•	3
INDICATED PEI	RCENTAGE OF TIME	_	-	_ ×	1	-
 75 PERCENT 	25 PERCENT		-	∇ \wedge 1	1	-
			10	10	<u> </u>	100
				STREAMFLOW, IN CUBIC	FEET PER SECON	D

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION				'		 		' '
LOW FLOW			HIGH FLOW							
∇	JNCENSOREI 'LESS-THAN' REATER-THA	VALUE	$\overline{\Psi}$	ON, LITER	20	-				-
TRE	NDS IN CONC	:FNTRAT	ION	RATION,	15	_	⊕			_
VALUES	NVALUES	NWYS	SLOPE	AMS			⊕			
LOW FLOW	6	5	ND	S S	10	_				_
HIGH FLOW	10	3	ND	CONCENIN MILLIGRAN					(
				Z	5	_	• •			o -
							○ ●			√ . ♥

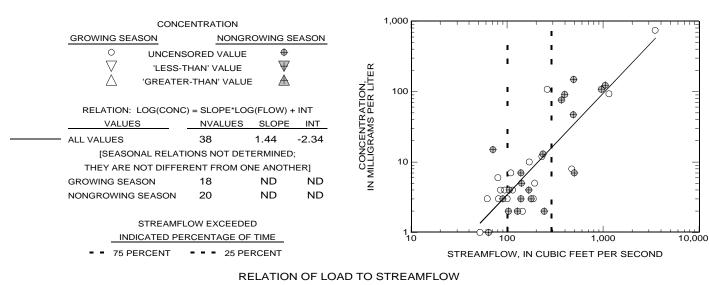
76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01397000 SB RARITAN RIVER AT STANTON STATION, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



	LOAD				100,000,000	 	 	
$\overline{\mathbb{X}}$	UNCENSORED \			٨٨	10,000,000	1	! ! !	
RELATION: LO VALUES	G(LOAD) = SLOPE*LONICATION	OG(FLOW) SLOPE	+ INT INT	PER D	1,000,000	1	I I × ×	
ALL VALUES	38	2.44	-1.61	UNDS	100,000	•	×××	
	TION BETWEEN LOA ARE 10 OR MORE V)W	O, IN PO	10,000	· •	* * * * * * * * * * * * * * * * * * *	= - -
INDICA	REAMFLOW EXCEED	OF TIME		LOAI	1,000		* *×'	
75 PERC	ENI 25 F	PERCENT			100	XX I 100	1,000	0 10,000
						STREAMFLOW	, IN CUBIC FEET PEI	R SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION

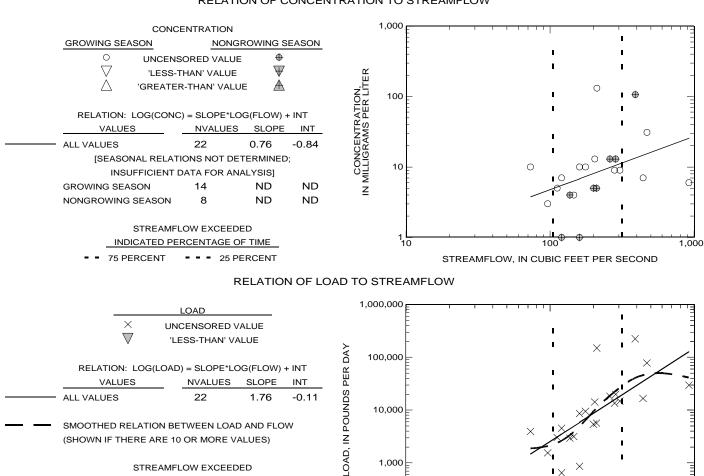
LOW FLOW			HIGH FLOW			
<u> </u>	NCENSORE	VALUE	<u>+</u>	~	800	_
,	'LESS-THAN'	VALUE	$\stackrel{\circ}{ ightarrow}$	TER		⊕
∐ 'GF	REATER-THA	N' VALUE	≣ Æ	NO ~		
				ATION, PER LIT	600	_
	IDS IN CONC			꼰		
VALUES	NVALUES	NWYS	SLOPE	ÄŠ		
LOW FLOW	10	3	ND	2 2 3 3	400	_
HIGH FLOW	10	3	ND	CONCEN [:] MILLIGRAN		
				Z	200	_
						*
						

79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01397400 SB RARITAN RIVER AT THREE BRIDGES, N.J.

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

1,000

100 L 10

CONCENTRATION										
LOW FLOW HIGH FLOW										
Ο υ	NCENSORE	O VALUE	⊕							
$\overline{}$	LESS-THAN'	VALUE	$\overline{\Psi}$							
△ 'GI	REATER-THA	N' VALUE	■ ▲							
TREN	ION									
VALUES	NVALUES	NWYS	SLOPE							
LOW FLOW 2 2 ND										

4

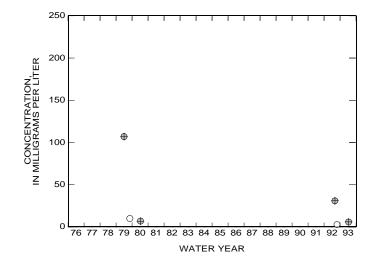
ND

STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME

- - 25 PERCENT

75 PERCENT

HIGH FLOW



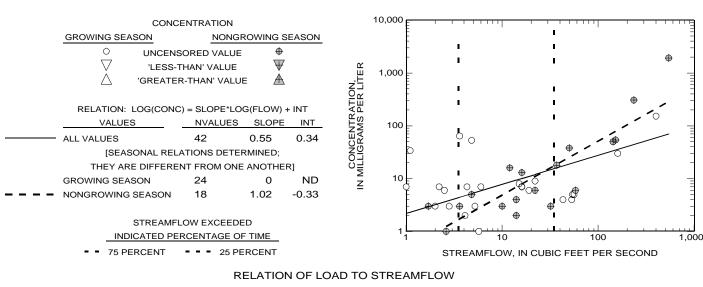
STREAMFLOW, IN CUBIC FEET PER SECOND

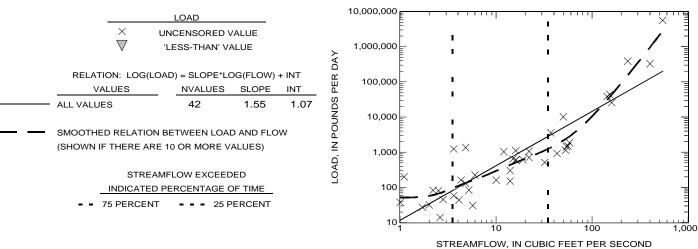
1,000

APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01398000 NESHANIC RIVER AT REAVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW





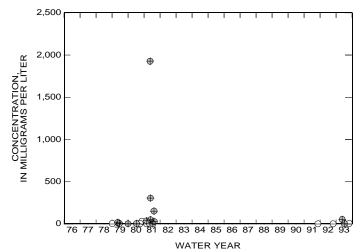
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

HIGH FLOW

, i	NCENSOREI LESS-THAN' REATER-THA	VALUE	⊕ ₩ Æ				
TREN	DS IN CONC	ENTRAT	ION				
VALUES	NVALUES	NWYS	SLOPE				
LOW FLOW	8	6	ND				
HIGH FLOW 13 4 ND							

CONCENTRATION

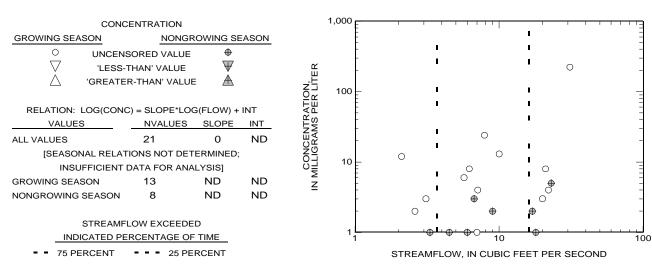
LOW FLOW



APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01398260 NB RARITAN RIVER NEAR CHESTER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	DAY	100,000	1 1	. ×	- - -
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW)	+ INT	10,000	•		3
VALUES NVALUES SLOPE	INT H	Ē.		1	=
ALL VALUES 21 1.52	0.86	-	•	/	-
SMOOTHED RELATION BETWEEN LOAD AND FLO (SHOWN IF THERE ARE 10 OR MORE VALUES)	\sim	1,000	: ××	¥ Y	
STREAMFLOW EXCEEDED	LOAI	100	\sim \times	" ×	
INDICATED PERCENTAGE OF TIME	_	Ė	××××	I	=
75 PERCENT 25 PERCENT		-	$\sim \times	1	-
		10	10		100
			STREAMFLOW, IN CUBIC F	EET PER SECOND	

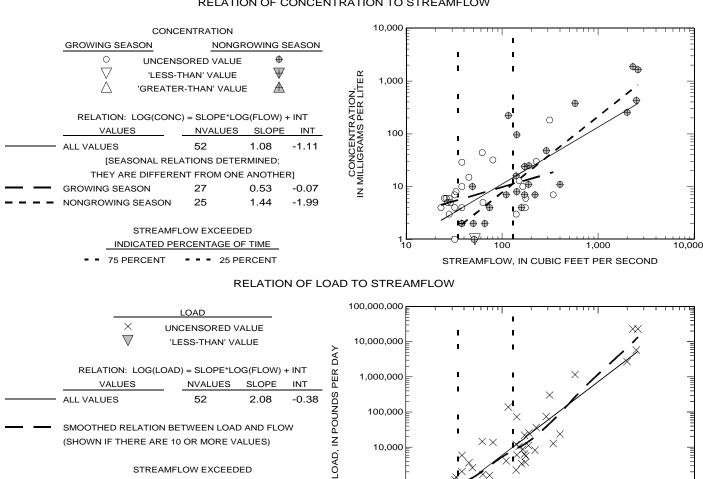
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

						250				1				_		-	_	_	_	
	CONCENTR	ATION																		
LOW FLOW			HIGH FLOW	_					#	•										
O U	NCENSORE	D VALUE	+		~	200	_													_
abla	LESS-THAN	VALUE	$\overline{\Psi}$		JER.															
△ 'GI	REATER-THA	N' VALUI	■ ▲		ATION, PER LIT															
					ĘÄ	150	_													_
TREN	IDS IN CONC	ENTRAT	ION																	
VALUES	NVALUES	NWYS	SLOPE		Ξ₹															
LOW FLOW	4	3	ND		CONCENTE IN MILLIGRAMS	100	_													_
HIGH FLOW	7	4	ND		ĖŚ															
					ັ≣															
					Z	50	_													_
									_										Φ.	0
						0	76.7	7 78	79 80) 81	82	83 8	4 85	5 86	87	88 8	9 9	0 91	92	93
						0	76 7	7 78	7 9 80	0 81	82	33 8	4 85	5 86	87	88 8	89 9	0 91	⊖ 92	93

APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01399120 NB RARITAN RIVER AT BURNT MILLS, N.J.

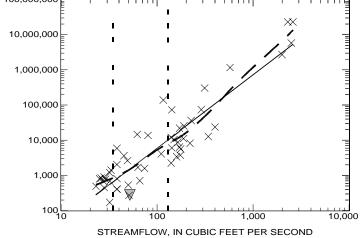
[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

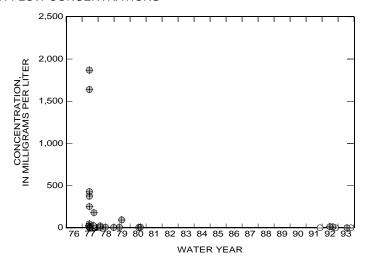
> STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME **75 PERCENT** 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW
Ο υ	⊕		
∇ ,	$\overline{\Psi}$		
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	IDS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	11	4	ND
HIGH FLOW	24	6	ND

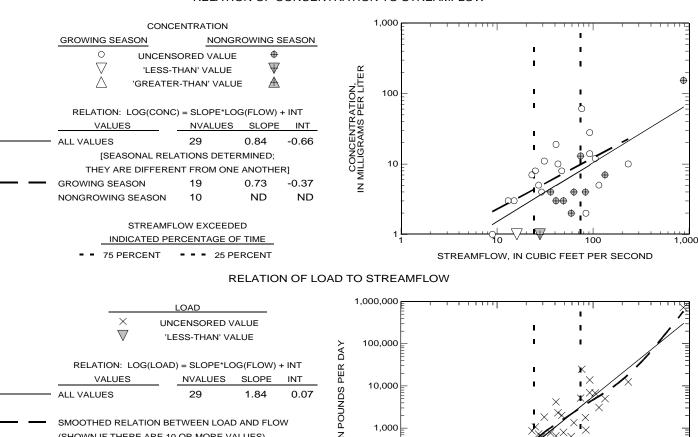
CONCENTRATION



APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01399500 LAMINGTON (BLACK) RIVER NEAR POTTERSVILLE, N.J.

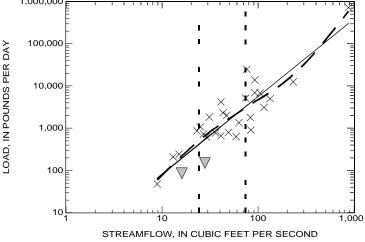
[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



(SHOWN IF THERE ARE 10 OR MORE VALUES)

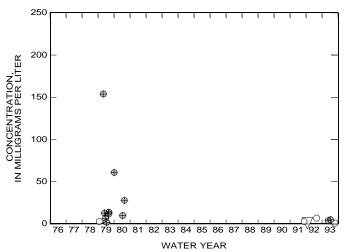
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME **75 PERCENT** 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CON	ICENTRATION
LOW FLOW	HIGH FLOW
O UNCE	NSORED VALUE #
√ 'LESS	S-THAN' VALUE \
△ 'GREAT	ER-THAN' VALUE
TDENIDO II	N CONCENTRATION
IKENDSI	N CONCENTRATION

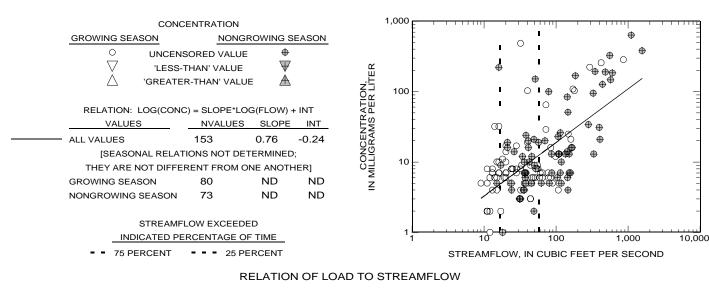
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	5	4	ND
HIGH FLOW	11	3	ND

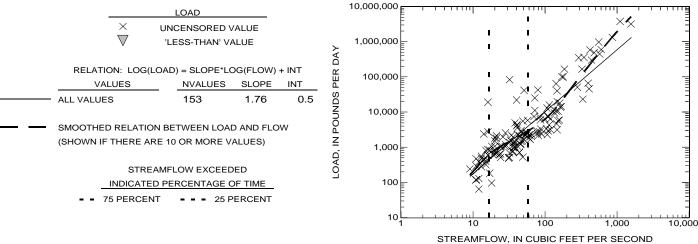


APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01399700 ROCKAWAY CREEK AT WHITEHOUSE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW





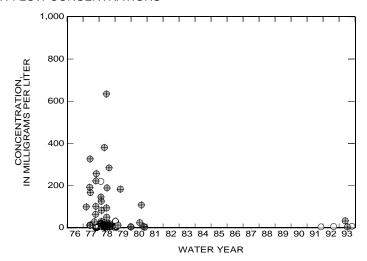
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

, ,	NCENSOREI LESS-THAN' REATER-THA	VALUE	⊕ ₩ Æ
TREN	DS IN CONC	ENTRAT	ON
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	24	6	ND
HIGH FLOW	61	5	ND

HIGH FLOW

CONCENTRATION

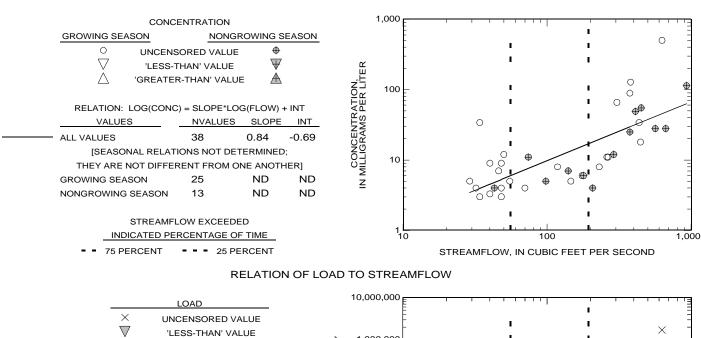
LOW FLOW



APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01399780 LAMINGTON RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

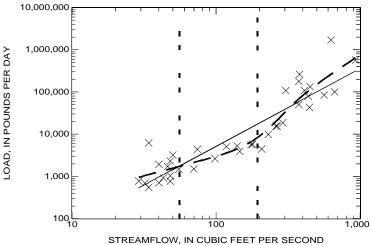


SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - 25 PERCENT



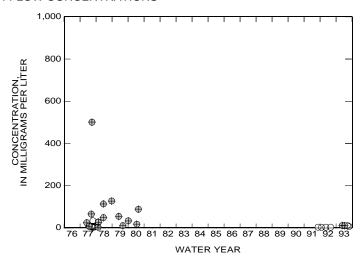
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

HIGH ELOW

LOW FLOW			HIGH FLOW
Ο υ	NCENSOREI	D VALUE	⊕
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	13	4	ND
HIGH FLOW	17	5	ND

CONCENTRATION

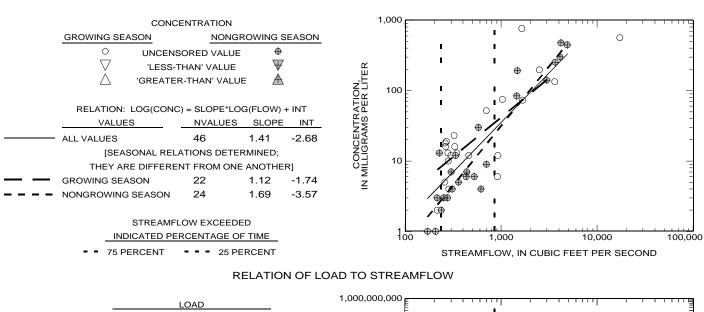
LOW ELOW

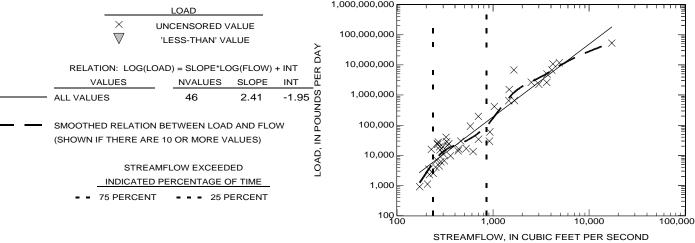


APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01400500 RARITAN RIVER AT MANVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW





TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

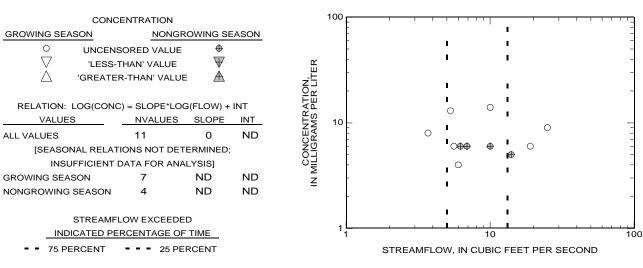
CONCENTRATION		1,000			ı	ı	ı	1	1	1	-	-	-	1	1	-	
LOW FLOW HIGH FLOW																	
\circ uncensored value \oplus \forall 'Less-than' value \oplus \Diamond 'Greater-than' value \oplus	ON, LITER	800	-	⊕													
TRENDS IN CONCENTRATION	CONCENTRATION, MILLIGRAMS PER LIT	600	_			\oplus											
VALUES NVALUES NWYS SLOPE	ÄΑ				5	₿											
LOW FLOW 5 2 ND	O'S G'R	400	_		`	•											
HIGH FLOW 15 5 ND	IN MILLI	200	_	⊕	€ €												

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01400540 MILLSTONE RIVER NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	DO DE NO DE
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	5 1,000
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

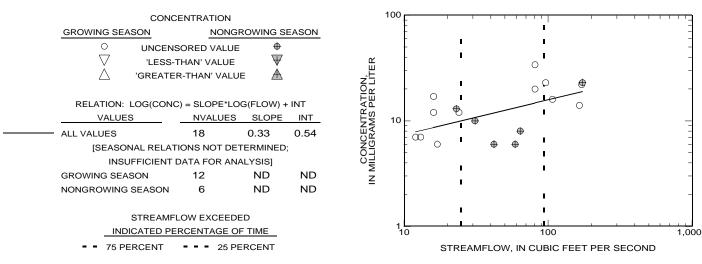
	CONCENTR	ATION			10		ı	1	1	1	1	1	ı	1	1	1	1	1	Т	Τ
LOW FLOW		ļ	HIGH FLOW																	
Ο υ	NCENSORE	D VALUE	⊕		~ 8	3 —														
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$		ËR															
△ 'GF	REATER-THA	N' VALUE	\triangle	-	ž5															
				Ī		3 —														
TREN	DS IN CONC	ENTRATIO	NC	ģ	Ας P															
VALUES	NVALUES	NWYS	SLOPE	<u>!</u>	CONCENTRATION, MILLIGRAMS PER LI															
LOW FLOW	1	1	ND	Ç	3.5. 7.5.	1														
HIGH FLOW	3	3	ND	ġ	ξĂ															
					Σ															
					\geq 2	2 _														

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01400650 MILLSTONE RIVER AT GROVERS MILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE	100,000
Value Yess-than' Value Y	10,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED	1,000 × × × 1
INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	100
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION			' '		 	' '	'	' '
LOW FLOW			HIGH FLOW			⊕ ⊕				
ן,	NCENSOREI LESS-THAN' REATER-THA	VALUE	⊕ ₩ ±	20 PN NO NO NO NO		.			C	_
TREN	DS IN CONC	ENTRATI	ION SLOPE	CONCENTRATION, MILLIGRAMS PER LIT		⊕			0	0
LOW FLOW HIGH FLOW	7 5	4 2	ND ND	CONC LLIGR	-					-
				Z ,	; <u> </u>				00	O -
					1		 			

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

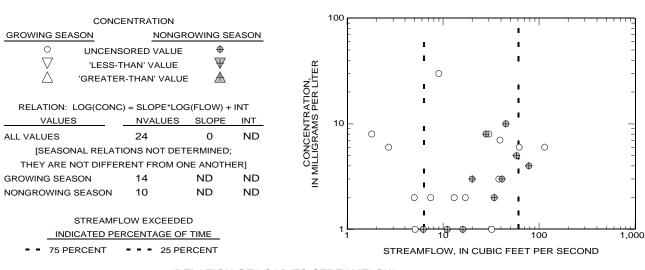
WATER YEAR

25

APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01401000 STONY BROOK AT PRINCETON, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT W	
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) Z	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	10 X
	10 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	RATION			10	- 1	1	1 1	ı	ı	1	1	1	1	ı	1	ı	1	1	1 1	
LOW FLOW		<u> </u>	HIGH FLOW																		
\bigvee_{Λ}	INCENSORE 'LESS-THAN' REATER-THA	VALUE	⊕ ₩ Æ	TION, ER LITER	8	_		+ +													
TREN VALUES	NDS IN CONC		ON SLOPE	CONCENTRATION, MILLIGRAMS PER LIT	J			ΨΨ													
LOW FLOW	5	3	ND	25.0	4	_														•	
HIGH FLOW	3	3	ND																		
				Z	2	_														0	
																				0 ((

0

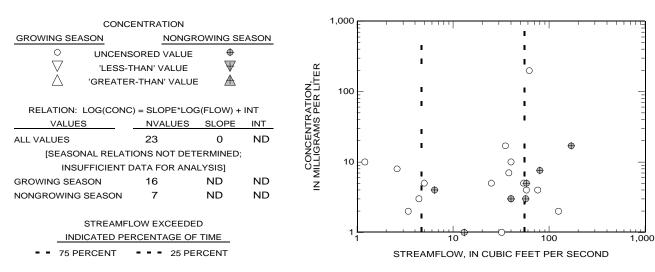
76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

10 -

APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01401600 BEDEN BROOK NEAR ROCKY HILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	100,000 × × × × × × × × × × × × × × × × ×
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	¥ × 1×
ALL VALUES 23 1.11 1.29 — SMOOTHED RELATION BETWEEN LOAD AND FLOW	00 NOO 1,000 X X X
(SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED	Z Y X X X X X X X X X X X X X X X X X X
INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	10 1 100 1,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

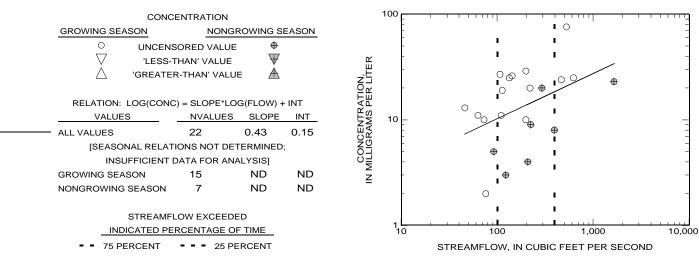
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION			250		ı	1 1	ı	1	1	ı		ı	ı	ı	ı	ı	I	
LOW FLOW			HIGH FLOW																	
	INCENSOREI 'LESS-THAN' REATER-THA	VALUE	⊕ ₩ Æ			_		⊕												_
TREA	IDS IN CONC	·ENTRAT	ION	KATION, PER LIT		H														-
VALUES	NVALUES	NWYS	SLOPE	CONCENTR																
LOW FLOW	4	3	ND	NCE GRV	100	_														_
HIGH FLOW	8	3	ND	Ő																
				Σ																
				Z	50	F														_
								- Carlot											~	. 0
					0	76 7	7 78	79 8		1 82	83	84	85	86 8	37 8	8 89	90	91	<u>ں</u> 92	

APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD		1,000,000			
×	UNCENSORED VALUE 'LESS-THAN' VALUE	>	- - -	1 1		*
VALUES		<u>,, </u>	100,000	1		
	22 1.43 TION BETWEEN LOAD AND FLOW ARE 10 OR MORE VALUES)	0.88 SOUNDS N POUNDS	10,000	· ***	× 1	
	REAMFLOW EXCEEDED TED PERCENTAGE OF TIME ENT 25 PERCENT	LOAD,	1,000	× 1 100	I I I 1,000	10,000
					IN CUBIC FEET PER	•

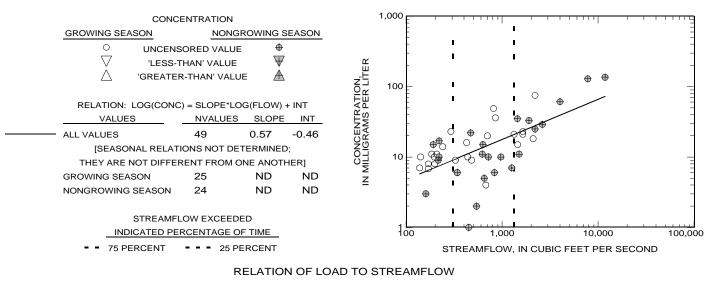
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ΑΤΙΟΝ			100			1		ı	ı	1 1		ı	1	ı	1	
LOW FLOW	CONCENT	ATION	HIGH FLOW															
∇	JNCENSORE 'LESS-THAN' REATER-TH <i>E</i>	VALUE		ATION, PER LITER	80	_	0											_
TRE	NDS IN CONC	ENTRAT	ION	RATIC S PER	60	_												_
VALUES	NVALUES	NWYS	SLOPE	Z A														
LOW FLOW	5	3	ND	JCE 3R	40	_												_
HIGH FLOW	4	3	ND	CONCENTR														
				≥ <u>Z</u>	20	_											•	⊕ ∯_
							0											0 0
					0												0	\circ
						76 77	78 7	' 9 80	81 8	2 83	3 84	85	86 8	37 8	89	90 9	91 9	2 93

APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01403300 RARITAN RIVER AT QUEENS BRIDGE, AT BOUND BROOK, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



$\overline{\hspace{1cm}}^{ imes}$	LOAD UNCENSORED V 'LESS-THAN' VA			>:	10,000,000	1 1			
RELATION: LOG VALUES	G(LOAD) = SLOPE*LC NVALUES	G(FLOW) SLOPE	+ INT INT	PER DA	1,000,000		1	×//	
ALL VALUES	49	1.57	0.28	UNDS	100,000		×)	=
SMOOTHED RELAT			W), IN PO	E - - -	* * *	××××		= - - -
	EAMFLOW EXCEED			LOAD	10,000	X I	× ,		
75 PERCE	ENT 25 P	ERCENT			1,000	× , >	1,000	10,000	100,000
						STRE	•	IN CUBIC FEET PER SECON	,

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTRATION				230	
LOW FLOW			HIGH FLOW	<u>V</u>		
\bigvee_{\wedge}	INCENSOREI 'LESS-THAN' REATER-TH <i>A</i>	VALUE	⊕ ₩ ≞ <u>A</u>	ATION, PER LITER	200	0 – –
TDEN	IDS IN CONC	CNITOAT	ION	ATIC	150	
VALUES	NDS IN CONC NVALUES	NWYS	SLOPE	AS T		⊕ ⊕
				ZEN RAI		
LOW FLOW	15	9	ND	25	100	0 ├
HIGH FLOW	14	9	ND			
				CONCENTR IN MILLIGRAMS	50	+
					0	0 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

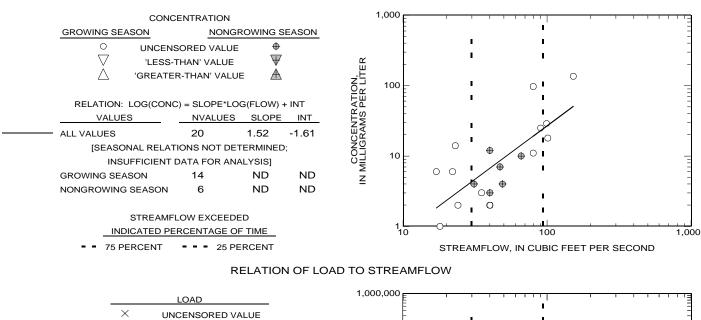
WATER YEAR

250 -

APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01405302 MATCHAPONIX BROOK AT MUNDY AVE, AT SPOTSWOOD, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



 RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT

 VALUES
 NVALUES
 SLOPE
 INT

 ALL VALUES
 20
 2.52
 -0.88

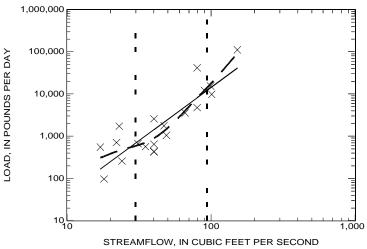
'LESS-THAN' VALUE

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

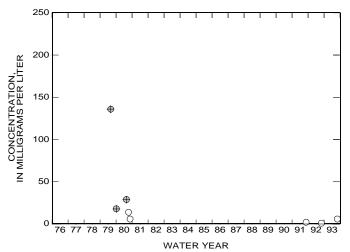
75 PERCENT - - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTRATION	
LOW FLOW		HIGH FLOW
	UNCENSORED VALUE 'LESS-THAN' VALUE 'GREATER-THAN' VALUE	⊕ ₩ Æ
TR	ENDS IN CONCENTRATI	ON

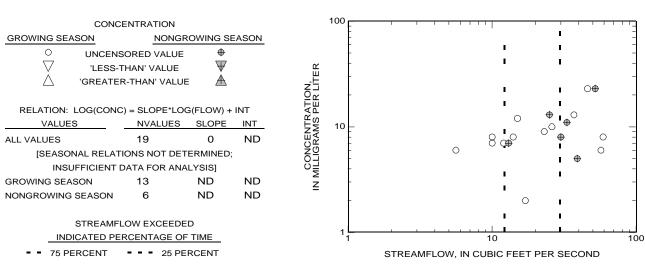
TREINDS IN CONCENTRATION										
VALUES	NVALUES	NWYS	SLOPE							
LOW FLOW	5	4	ND							
HIGH FLOW	3	2	ND							



APPENDIX 4. Relations of constituent concentration and load to streamflow and trends in concentration with time SUSPENDED SEDIMENT 01405340 MANALAPAN BROOK AT FEDERAL RD, NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD	10,000
$ imes$ uncensored value $ ilde{\mathbb{V}}$ 'Less-Than' value	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	7 1,000 X X X X X X X X X X X X X X X X X X
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	
	100 1 10 100 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

C	CONCENTRATION				
LOW FLOW		HIGH FLOW		⊕ ⊕	
O UN	CENSORED VALUE	⊕	_r 20		
'LI	ESS-THAN' VALUE	$\overline{\Psi}$	描		
△ 'GRE	EATER-THAN' VALU	E 🏝	PET 12 PER LIT		
			으요 두발 15	_	
TREND	S IN CONCENTRAT	ION	A A		
VALUES	NVALUES NWYS	SLOPE	ZŠ	•	
LOW FLOW	4 3	ND	CONCENTR MILLIGRAMS 01	+	
HIGH FLOW	8 4	ND	E E		•
			o≣	• 0	⊕ ○ ○
			Z 5	=	0 €
			ŭ		•
				l	

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

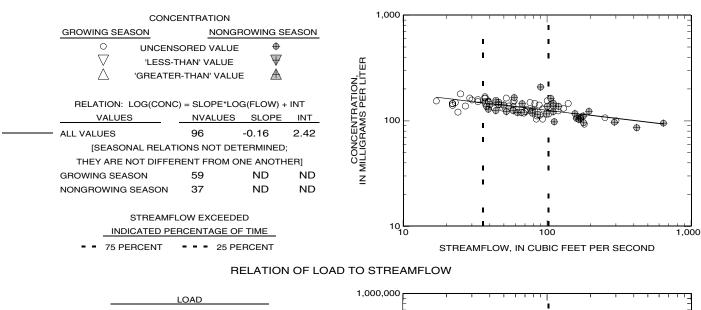
Appendix 5 - Dissolved solids

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Blackwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01396280 SB RARITAN RIVER AT MIDDLE VALLEY, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



X UNCENSORED VALUE

▼ 'LESS-THAN' VALUE

RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT

 VALUES
 NVALUES
 SLOPE INT

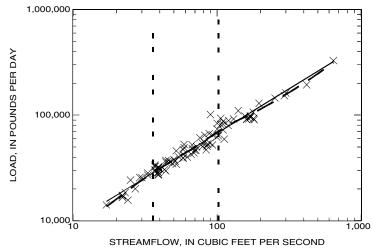
 ALL VALUES
 96
 0.84
 3.15

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

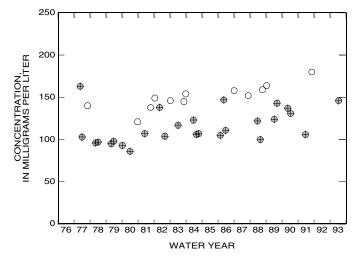
75 PERCENT - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTRATION	
LOW FLOW		HIGH FLOW
0	UNCENSORED VALUE	+
∇	'LESS-THAN' VALUE	$\overline{\Psi}$
\triangle '	GREATER-THAN' VALU	e 🛦
TRI	ENDS IN CONCENTRAT	ION.

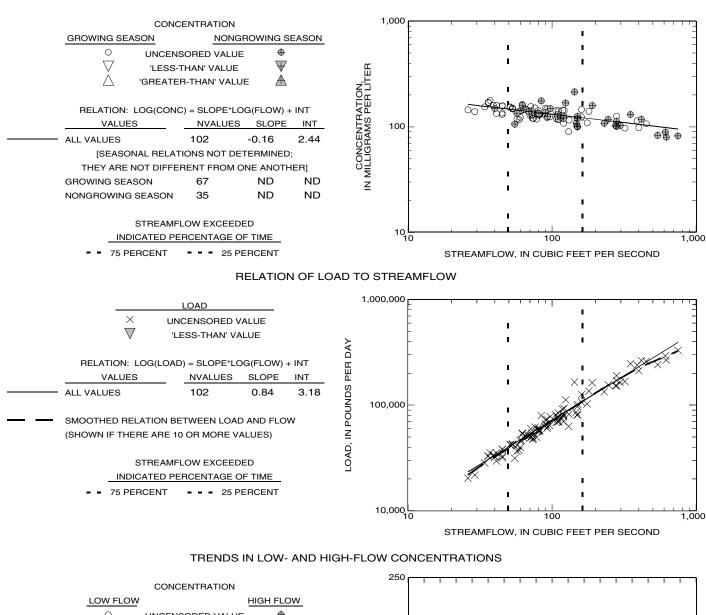
THEINDS IN CONCENTRATION										
VALUES	NVALUES	NWYS	SLOPE							
LOW FLOW	12	9	ND							
HIGH FLOW	26	14	0							



APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01396535 SB RARITAN RIVER AT ARCH ST, AT HIGH BRIDGE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



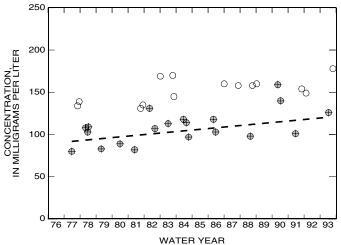
LOW FLOW O UNCENSORED VALUE ✓ 'LESS-THAN' VALUE ✓ 'GREATER-THAN' VALUE

TRENDS IN CONCENTRATION

VALUES NVALUES NWYS SLOPE

LOW FLOW 14 9 ND

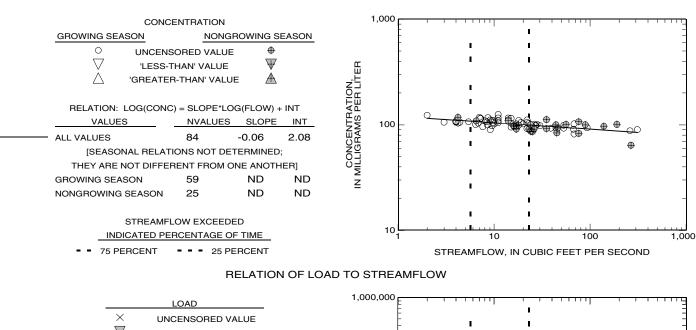
— — HIGH FLOW 20 13 1.78



APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01396588 SPRUCE RUN NEAR GLEN GARDNER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



$\frac{}{\mathbb{V}}$	LOAD UNCENSORED \ 'LESS-THAN' V/			ΑΥ	1,000,000	1 1	1 1 1		<u> </u>
RELATION: LOG(L VALUES	LOAD) = SLOPE*LO NVALUES	OG(FLOW) SLOPE	+ INT INT	PER D	100,000	1	1	-	
ALL VALUES	84	0.94	2.81	JNDS	Ė	•	i		
- SMOOTHED RELATIO	N BETWEEN LOA	D AND FLC	w	POI	-	i i			-
(SHOWN IF THERE AF	RE 10 OR MORE V	ALUES)		Ď,	10,000			-	
STRE	AMFLOW EXCEED	DED		LOA	Ē	i Mili			=
INDICATE	D PERCENTAGE (OF TIME			-		ı		-
= = 75 PERCEN	IT = = = 25 F	PERCENT				/ `` ı	1		
					1,000	10	100	0 1,0	000
						STREAMFLOW	, IN CUBIC FEET PE	R SECOND	

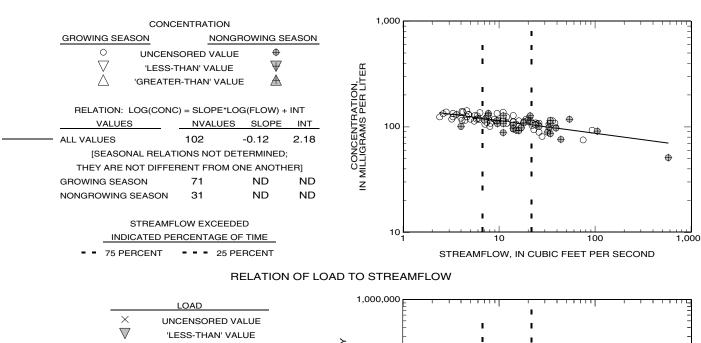
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTE	RATION			250		ı	-	1			1	-	ı	ı	1	1 1	1	ı	
LOW FLOW			HIGH FLOW	-																
∇	INCENSORE 'LESS-THAN' REATER-THA	VALUE	⊕ ₩ ± <u>A</u>	CONCENTRATION, MILLIGRAMS PER LITER	200	_														_
TREN	IDS IN CONC	SENTRAT	ION	ATIC PEF	150	_														_
VALUES	NVALUES	NWYS	SLOPE	NTA AMS							0								0	
LOW FLOW	9	6	ND	ACE GR/G	100	L		4	•	⊕ C)		₽ €	₽	Ф:	⊕⊕_	0	(D)	0	, ₩2
HIGH FLOW	34	15	ND	Ë				(3)	ΦΨ	₩		#	,	•	Ť	***	₽₩₽	, ⊕¢	,	
				ž																
				Z	50	-														-
					0	76 7	7 7	8 79	80	81	82 8	33 8	4 85	5 86	87	88	89	90 9	1 92	2 93

APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01396660 MULHOCKAWAY CREEK AT VAN SYCKEL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

VALUES

ALL VALUES

RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT

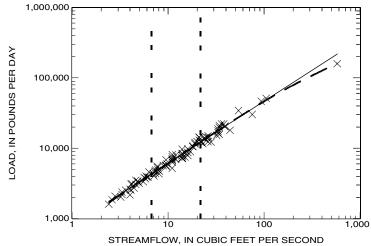
NVALUES

SLOPE

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

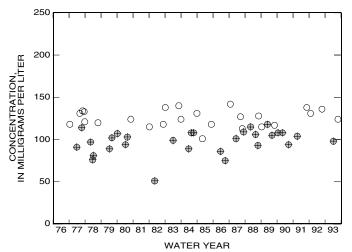
75 PERCENT - - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTRATION	
LOW FLOW	1	HIGH FLOW
0	UNCENSORED VALUE	+
∇	'LESS-THAN' VALUE	$\overline{\Psi}$
\triangle	'GREATER-THAN' VALU	E A
		TON

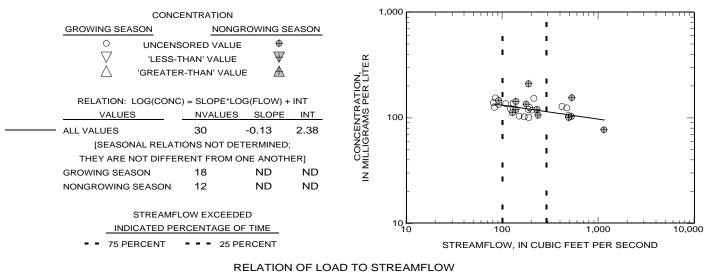
TRENDS IN CONCENTRATION										
VALUES	NVALUES	NWYS	SLOPE							
LOW FLOW	25	13	ND							
HIGH FLOW	29	14	0							



APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01397000 SB RARITAN RIVER AT STANTON STATION, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD	1,000,000
➤ UNCENSORED VALUE	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT Mark Mar	100,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) G	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	
	10,000 100 1,000 10,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION			230		1 1	-	1	1		-	- 1	- 1	1	1	1	1 1	- 1	- 1	
LOW FLOW			HIGH FLOW	<u>/</u>																	
\bigvee_{\wedge}	INCENSOREI 'LESS-THAN' REATER-THA	VALUE	⊕ ₩ ± <u>A</u>	ATION.	200	_															_
TDEA	IDS IN CONC	·ENTDAT	ION	At Fr	L 150	F	$_{\circ}^{\oplus}$	0												0	-
	NDS IN CONC			CONCENTR	<u>0</u>		₽0	O													⊕
VALUES	NVALUES	NWYS	SLOPE	Z.	Ś		_														Ψ
LOW FLOW	5	3	ND	Δ,	100	\vdash	⊕ €	₽													-
HIGH FLOW	7	3	ND	Ő.	}			•													
				U	2		•	₽													
					= 50																
					30	Г															
					0	76	77 7	78 7	9 80	81	82	83 8	84 8	35 8	6 8	7 88	89	90	91	92 9	93
						. •			- 00	٠.				0	- 0		-	- 0		'	

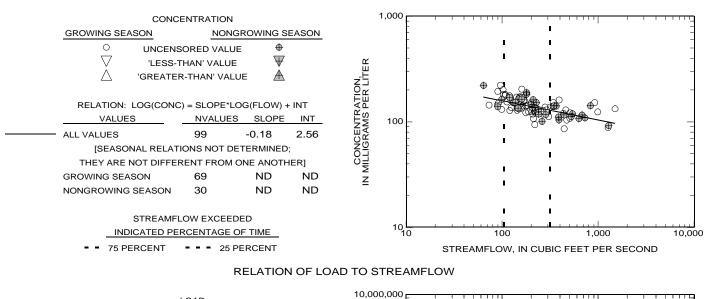
WATER YEAR

250 -

APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01397400 SB RARITAN RIVER AT THREE BRIDGES, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



	LOAD				10,000,000	- 		
$\overset{\times}{\triangledown}$	UNCENSORED ' 'LESS-THAN' V			Α	- - -	1	i	
RELATION: LOG(LO VALUES	DAD) = SLOPE*L NVALUES	OG(FLOW) SLOPE	+ INT INT	PER D	1,000,000	ı		<u> </u>
ALL VALUES	99	0.82	3.3	JNDS	<u>-</u>	•		
— SMOOTHED RELATION (SHOWN IF THERE AR			W	N PO	-	· •		-
·	MFLOW EXCEE	ŕ		JAD, I	100,000		I I	
INDICATED	PERCENTAGE	OF TIME		7	-	I	1	- -
= = 75 PERCENT	- = = 25 F	PERCENT			10,000	1 100	1,000	10,000
					10		IN CUBIC FEET PER	•

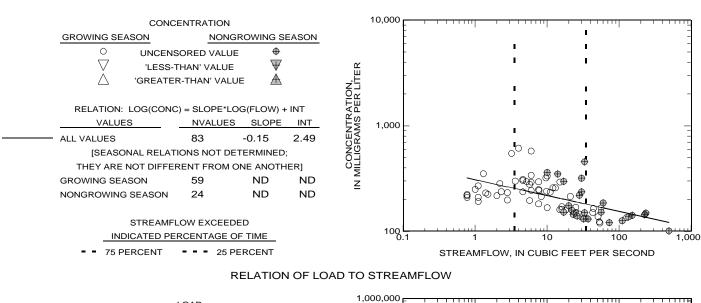
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	250	
LOW FLOW HIGH FLOW	0	0
○ UNCENSORED VALUE ♥ ▽ 'LESS-THAN' VALUE ▼ △ 'GREATER-THAN' VALUE ★	Y 200 - O O O O O O O O O O O O O O O O O O	_
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE		-
LOW FLOW 11 8 ND	ON 100 H	Φ _
HIGH FLOW 27 14 0	CONCENTAL CONCEN	_
	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 9	91 92 93

APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01398000 NESHANIC RIVER AT REAVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD

X UNCENSORED VALUE

√ 'LESS-THAN' VALUE

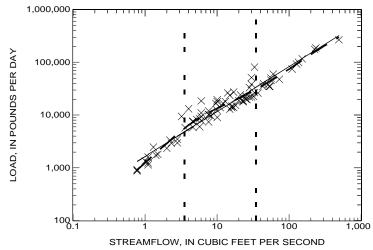
 $\begin{tabular}{lllll} RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT \\ \hline VALUES & NVALUES & SLOPE & INT \\ \hline ALL VALUES & 83 & 0.85 & 3.22 \\ \hline \end{tabular}$

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

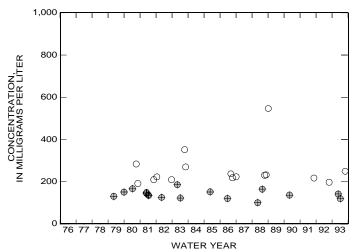
	CONCENTRATION	
LOW FLOW		HIGH FLOW
0	UNCENSORED VALUE	+
∇	'LESS-THAN' VALUE	$\overline{\Psi}$
<u> </u>	GREATER-THAN' VALU	e 🕭

 TRENDS IN CONCENTRATION

 VALUES
 NVALUES
 NWYS
 SLOPE

 LOW FLOW
 16
 11
 ND

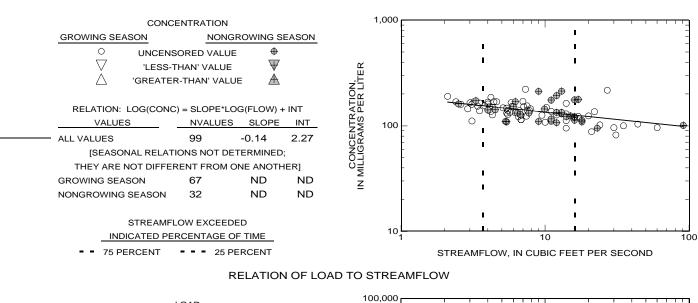
 HIGH FLOW
 17
 10
 ND



APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01398260 NB RARITAN RIVER NEAR CHESTER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	- - - -	100,000	I I	
RELATION: LOG(LOAD) = SLOPE*LOG(FL0 VALUES NVALUES SLO	· · · · · · · · · · · · · · · · · · ·	-		
ALL VALUES 99 0.8		10,000 —	×	
SMOOTHED RELATION BETWEEN LOAD AND (SHOWN IF THERE ARE 10 OR MORE VALUES)	FLOW 0			
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIM - 75 PERCENT 25 PERCE		-		
		1,000	10 STREAMFLOW, IN CUBIC FE	100 EET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

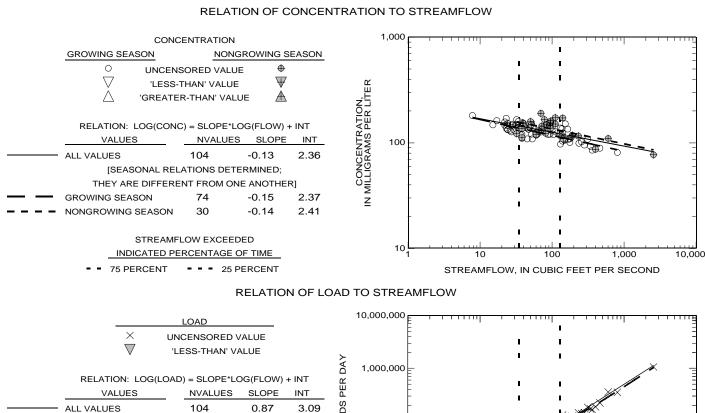
CONCENTRATION			'		'	'			ı	'	ı	'	'	1	'			
LOW FLOW HIGH FLOW													+					
O UNCENSORED VALUE	CONCENTRATION, IN MILLIGRAMS PER LITER	200 150		₀ 8	,	•	(^ට 0		0	0		-		•		0	10
LOW FLOW 13 6 ND	JCEN 3RA	100	_			•			#			0		. •	⊕			_
HIGH FLOW 16 10 ND	ES				#	, +			Ψ				Ψ	, -			⊕	
	Z	50	=															
		0	١.															
		U	76	77	78 7	9 80	81	82 8	33 8	4 8	5 8	6 87	88	89	90	91	92	93

WATER YEAR

250 -

APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01399120 NB RARITAN RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]



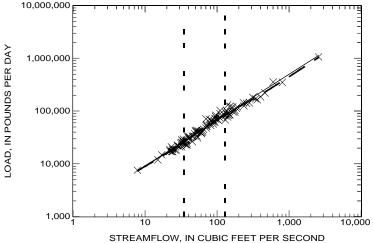
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT

CONCENTRATION

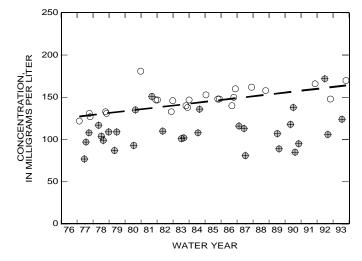


TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

HIGH FLOW

	O U	UNCENSORED VALUE								
		'LESS-THAN' VALUE								
	△ 'GI	REATER-THA	■ ▲							
	TREN	IDS IN CONC	ENTRAT	ION						
	VALUES	NVALUES	NWYS	SLOPE						
 _	LOW FLOW	24	13	2.2						
	HIGH FLOW	29	13	0						

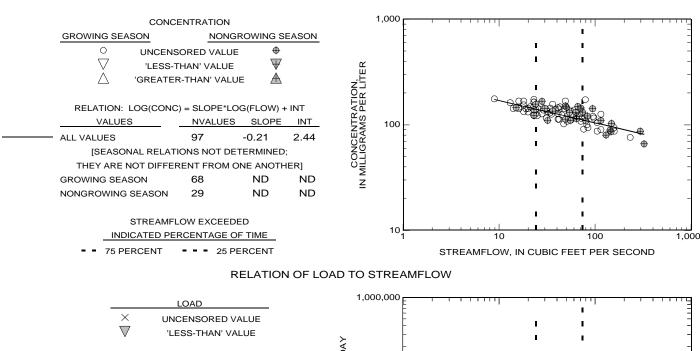
LOW FLOW



APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01399500 LAMINGTON (BLACK) RIVER NEAR POTTERSVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

VALUES

ALL VALUES

RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT

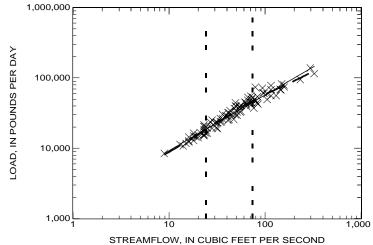
NVALUES

SLOPE

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

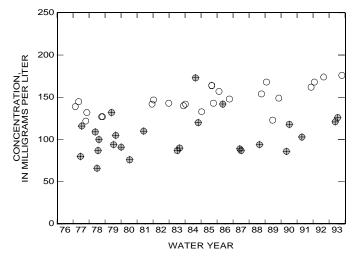
75 PERCENT - - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION									
LOW FLOW	<i>!</i>	HIGH FLOW							
0	UNCENSORED VALUE	+							
∇	'LESS-THAN' VALUE	$\overline{\Psi}$							
\triangle	'GREATER-THAN' VALUE	■ ▲							
TF	RENDS IN CONCENTRAT	ION							

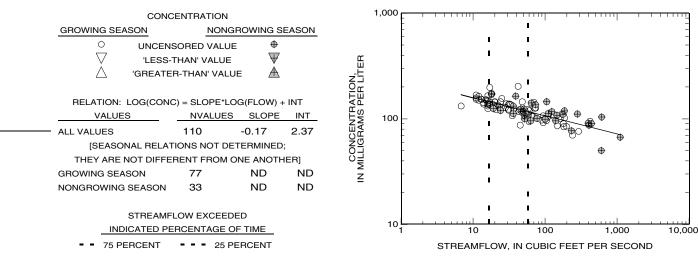
TRENDS IN CONCENTRATION										
VALUES	NVALUES	NWYS	SLOPE							
LOW FLOW	25	13	ND							
HIGH FLOW	25	13	0							



APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01399700 ROCKAWAY CREEK AT WHITEHOUSE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD CENSORED V			AY	1,000,000	- , , , , , , , , , , , , , , , , , , ,	1 1 1 1	<u> </u>	-
RELATION: LOG(LOAI	•	, ,		ER D	100,000				_
VALUES	NVALUES	SLOPE	INT	PE	· F			XX **^	3
ALL VALUES	110	0.83	3.1	NDS	F				=
SMOOTHED RELATION BI (SHOWN IF THERE ARE 1			W	IN POU	10,000				
STREAMF INDICATED PE	LOW EXCEED			LOAD,	10,000		I I		
							ı		
= = 75 PERCENT	25 F	ERCENT			Γ		1 1		
					1,000	10	10	00 1,000	0 10,000
						STREAM	FLOW, IN CUE	BIC FEET PER SE	COND

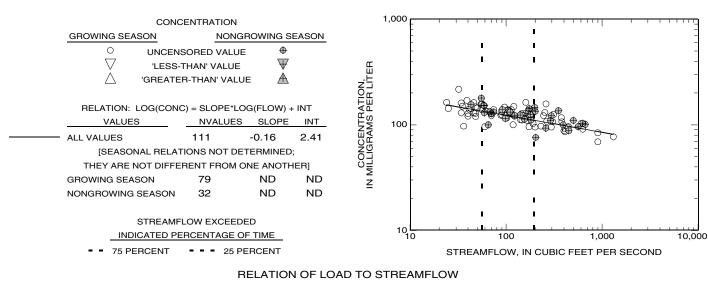
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTE	RATION				250		1	1	T		ı	T	T	-	1	-	ı	ı	1 1	T	
LOW FLOW			HIGH FLOW	_																		
Ο υ	NCENSORE	D VALUE	+			200																
∇	LESS-THAN	VALUE	$\overline{\Psi}$		E	200																
, \ 'G	REATER-THA	ΔN' VΔI I II	± Å	-	ŗς																	
Δ α.	12,11211111	11 V/1LO		2	2 2				_				0			_		0			0	9
TDEA	IDO INI OONI	CNITOAT	ION	F	- 2	150	-	₩ (P						0	$\mathcal{O}_{\mathbf{A}}$	•0	•		С		-
	IDS IN CONC			<u> </u>	<u> </u>						4)	₩0	0	_	4	, ,		_			
VALUES	NVALUES	NWYS	SLOPE	Ż	25			\oplus^{\oplus}		_	Ψ			•	₽			. 4	€			_
LOW FLOW	18	12	ND	2	IN MILLIGRAMS PER LITER	100	_	⊕ \$	÷	Φ.	•	-	₩		4	-	0	+ +	+	₩	+	
HIGH FLOW	48	16	0	ć	5 🗕			₩4)	Ψ.	F	₩	Ψ.		4	7						
				C	\ إ			₩ ⊕				•							•	Þ		
					z			Ψ											•			
					_	50			\oplus													
						0	76	77 70	70		01	90	00 1	24 6) E 0	6 0	7 0	2 00	. 00	01	00 (
							76	77 78	5 /5	9 80	81	82	83 8	54 b	55 8	80 8	7 8	88	90	91	92	93

APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01399780 LAMINGTON RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



	LOAD		1,000,000		<u> </u>	
$\stackrel{ imes}{ riangledown}$	UNCENSORED VALUE		- - -	!		= = = = = = = = = = = = = = = = = = = =
RELATION: LOG(I VALUES	LOAD) = SLOPE*LOG(FLOW) NVALUES SLOPE		- -	I		1
ALL VALUES	111 0.84		2 2 100,000	I		
	ON BETWEEN LOAD AND FLORE RE 10 OR MORE VALUES)	OW	2			= = = = = = = = = = = = = = = = = = = =
·	EAMFLOW EXCEEDED		OAD.	×	1	-
	D PERCENTAGE OF TIME NT = = 25 PERCENT		-	** '	1	-
76.7 2.162.	2012.102.11		10,000	100	1,000	10,000
				STREAMFLOW,	IN CUBIC FEET PER	SECOND

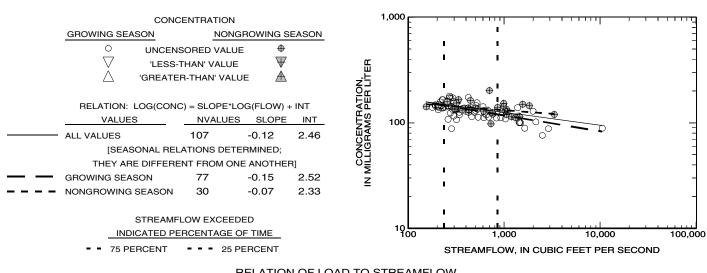
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	2	50	٦
DOW FLOW	AMS PER LITER 1		
LOW FLOW 22 11 ND Ö HIGH FLOW 34 12 0 Ö	N MILLIGR	00	

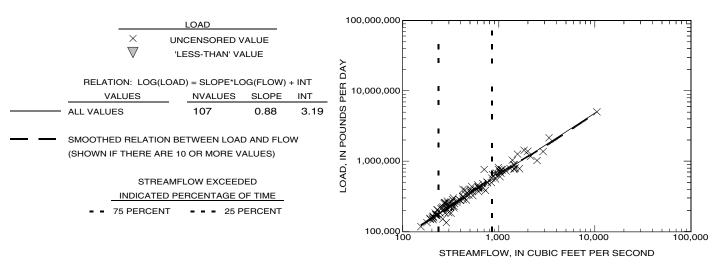
APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01400500 RARITAN RIVER AT MANVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

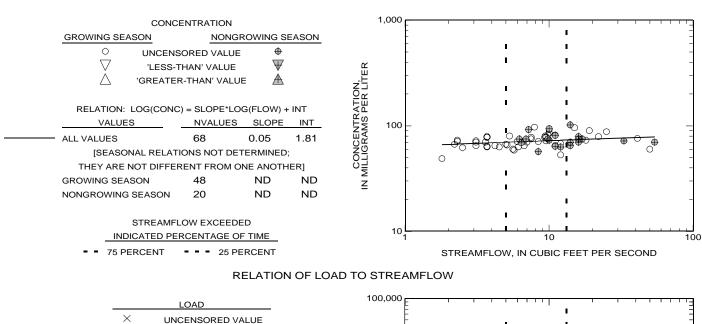
	0011051170				250			1	1		1	1 1	1	1				
	CONCENTR	ATION																
LOW FLOW			HIGH FLOW															
Ο υ	NCENSORE	VALUE	⊕	~	200	_												_
∇	LESS-THAN'	VALUE	$\overline{\Psi}$	Ä														
△ 'GF	REATER-THA	N' VALUE	■ ▲	ATION, PER LITI								0		0				
				E	150	- _@	0) _		Ŭ	Φ.	_	٠.	⊕	0	° _
TREN	IDS IN CONC	ENTRAT	ION	SPA		Som.		⊕	(5 + +	⊕	9	o o) 	,	•	⊕ ○	⊕
VALUES	NVALUES	NWYS	SLOPE	Z.\ 		⊕ ⊕		•		4	Ψ		\oplus	₩				·
LOW FLOW	16	9	ND	CONCENT	100		₽ €	⊕ [⊕]		Φ .	Ψ					(_
HIGH FLOW	28	13	0	ĔŖ			⊕				0							
				5			⊕											
				Z	50	_												_
					0	1 1		-1			1							1

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

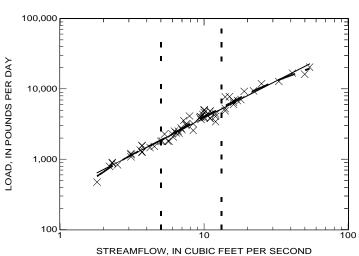
APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01400540 MILLSTONE RIVER NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

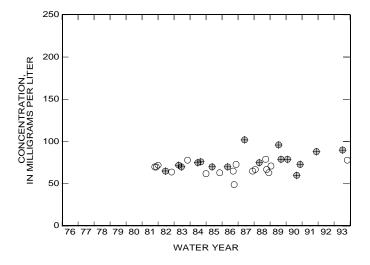


		LOAD								
× UNCENSORED VALUE										
	ا' ا	LESS-THAN	l' VALUE							
RELATI	ON: LOG(LOA	D) = SLOPE	*LOG(FLOW)	+ INT						
VA	LUES	NVALUE	S SLOPE	INT						
 ALL VALUE	S	68	1.05	2.54						
 SMOOTHE	O RELATION B	ETWEEN L	OAD AND FLC	W						
(SHOWN IF	THERE ARE 1	0 OR MOR	E VALUES)							
	STREAM	FLOW EXC	EEDED							
_	INDICATED P	ERCENTAG	SE OF TIME							
7	5 PERCENT	2	25 PERCENT							



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

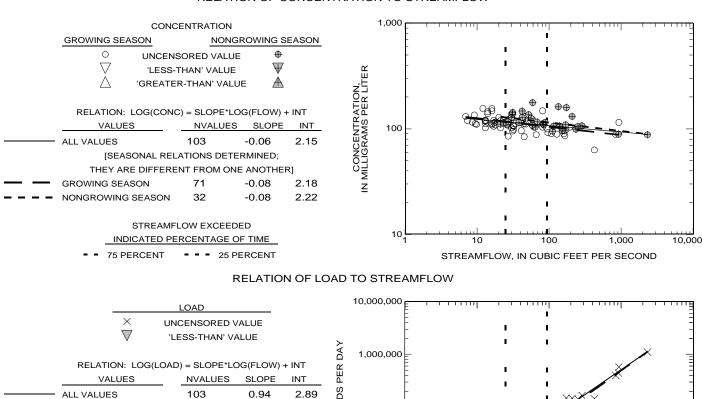
	CONCENTR	ATION				
LOW FLOW			HIGH FLOW			
О U	NCENSORE	O VALUE	+			
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$			
TREN	DS IN CONC	ENTRATI	ON			
VALUES	NVALUES	NWYS	SLOPE			
LOW FLOW	17	10	ND			
HIGH FLOW	16	11	ND			



APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01400650 MILLSTONE RIVER AT GROVERS MILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

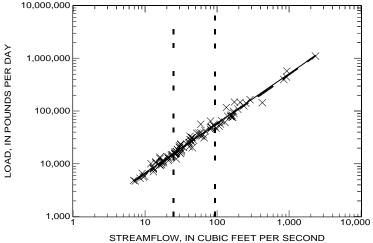


SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

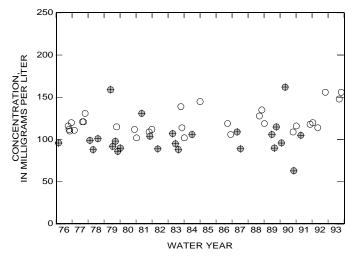
75 PERCENT - - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

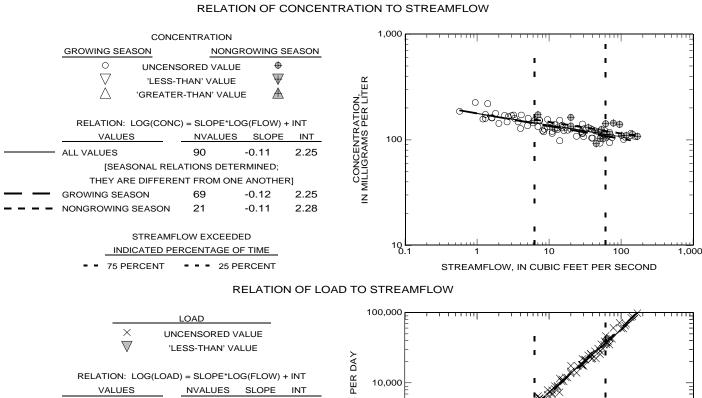
	CONCENTRATION	
LOW FLOW		HIGH FLOW
0	UNCENSORED VALUE	+
∇	'LESS-THAN' VALUE	$\overline{\Psi}$
\triangle ,	GREATER-THAN' VALUI	e A
TR	ENDS IN CONCENTRAT	ION

TRENDS IN CONCENTRATION						
VALUES	NVALUES	NWYS	SLOPE			
LOW FLO	w 30	14	ND			
HIGH FLO	w 25	12	ND			



APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01401000 STONY BROOK AT PRINCETON, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]



SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

ALL VALUES

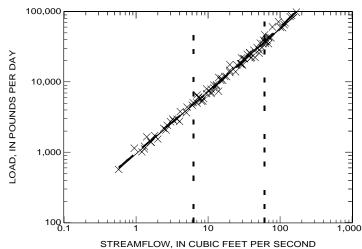
LOW FLOW

HIGH FLOW

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
٥ ر	JNCENSOREI	VALUE	+
∇	'LESS-THAN'	VALUE	$\overline{\Psi}$
	REATER-THA	N' VALUE	■ ▲
TRE	NDS IN CONC	ENTRATI	ON
VALUES	NVALUES	NWYS	SLOPE

13

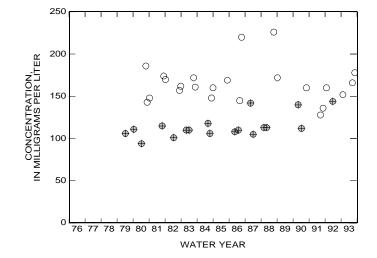
11

ND

ND

23

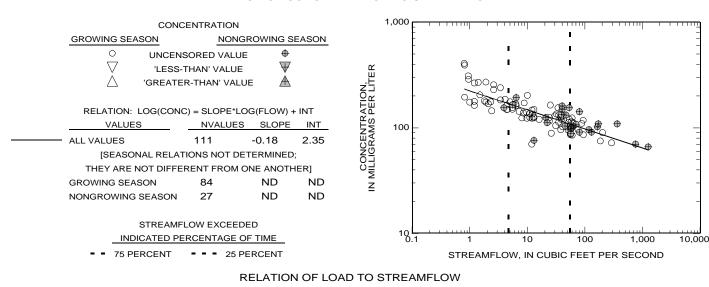
18



APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01401600 BEDEN BROOK NEAR ROCKY HILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



	LOAD				1,000,000		- 			
$\overset{\times}{\triangledown}$	UNCENSORED VAL			>	-		1 1	1 1 1	<i>y</i> /	=
RELATION: LOG	G(LOAD) = SLOPE*LOG(. ,	INT INT	PER DA	100,000		1		*	-
- ALL VALUES	111	0.82	3.09	SONDS	10,000		- I			-
	TION BETWEEN LOAD A ARE 10 OR MORE VALU		1), IN PC	-	××		1		= = = = = = = = = = = = = = = = = = = =
INDICA	REAMFLOW EXCEEDED	TIME		LOAD	1,000		^	1		_
= = 75 PERC	ENT = = = 25 PER	RCENT			100	1	10	100	1,000	10,000
						STREA	MFLOW, IN	CUBIC FEET	PER SECOND	

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		
LOW FLOW HIGH FLOW		
\circ uncensored value \oplus \forall 'Less-than' value \oplus \Diamond 'Greater-than' value \oplus	ATION PER LITER 1009	0 0
	F 300	o -
TRENDS IN CONCENTRATION	μν	
VALUES NVALUES NWYS SLOPE	ÄΣ	
LOW FLOW 26 13 0	3 2 200	0 - 8
HIGH FLOW 27 11 ND	CONCENT MILLIGRAM	
	Z 100	

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

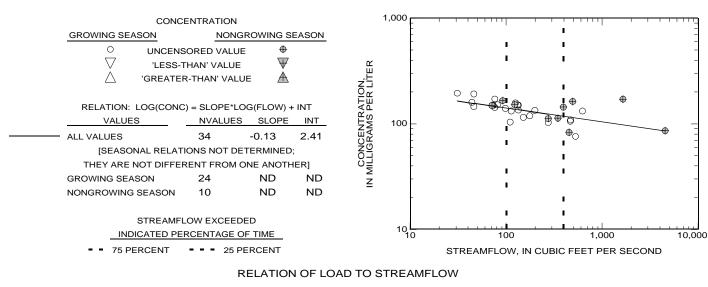
WATER YEAR

500 **-**

APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



×	LOAD JNCENSORED 'LESS-THAN' V			>	10,000,000	1 1	1 1 1	-
RELATION: LOG(LO VALUES ALL VALUES	AD) = SLOPE*L NVALUES 34	OG(FLOW) SLOPE 0.87	+ INT INT 3.14	DS PER DA	1,000,000	1	1	
SMOOTHED RELATION (SHOWN IF THERE ARE	BETWEEN LOA 10 OR MORE \	D AND FLC /ALUES) DED		LOAD, IN POUND	100,000			-
INDICATED - 75 PERCENT	PERCENTAGE	OF TIME PERCENT			10,000		1,000 1,000 , IN CUBIC FEET PE	, i

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		
LOW FLOW HIGH FLOW		
○ UNCENSORED VALUE	v 200 – o	
abla 'Less-than' value $ abla$	<u> </u>	
△ 'GREATER-THAN' VALUE A A A A A B A A B A B B A B B	PATOL 150 - 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O &
	150 - OO	0
TRENDS IN CONCENTRATION	₹ <mark>0</mark> ○ ♥	
VALUES NVALUES NWYS SLOPE	ZZ	
LOW FLOW 12 5 ND	₩ 100 - + + + + + + + + + + + + + + + + + +	•
HIGH FLOW 8 4 ND	CONCENTR MILLIGRAMS 001 001 001	
	[™]	
	Z 50 −	

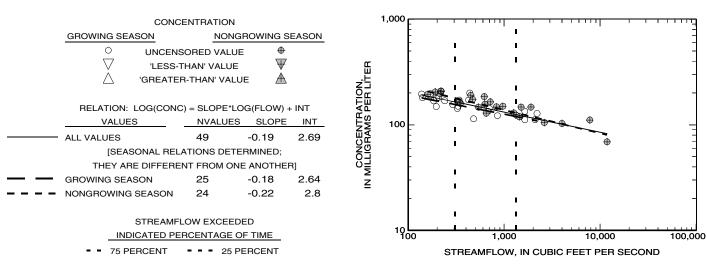
250 -

○ -⊕

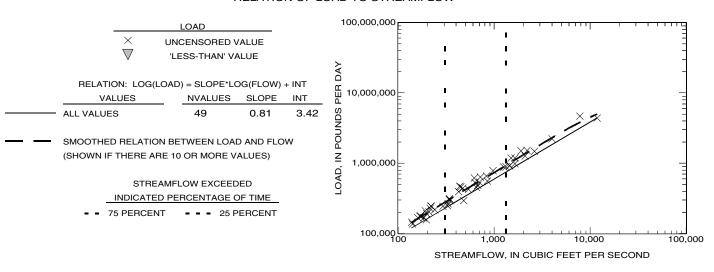
APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01403300 RARITAN RIVER AT QUEENS BRIDGE, AT BOUND BROOK, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW



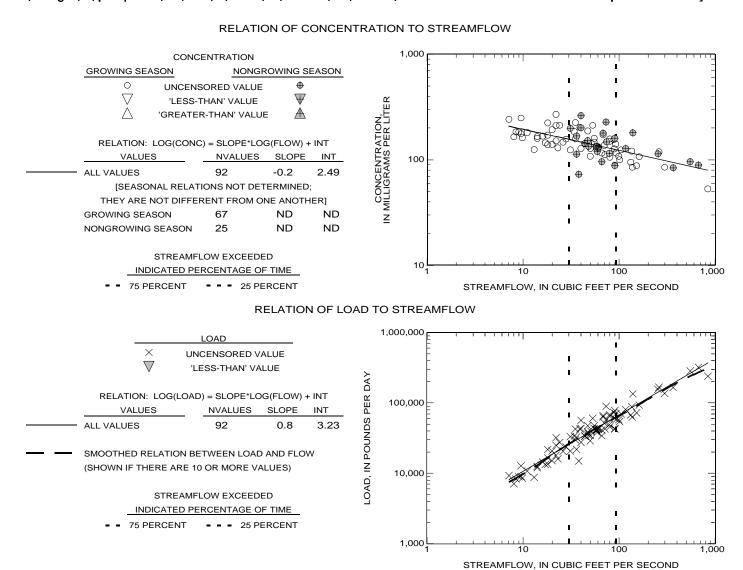
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

(CONCENTR	ATION			250				ı	ı	1	I			-	1	1		
LOW FLOW			HIGH FLOW																
$\overline{}$	NCENSOREI LESS-THAN'		₩	E.	200	_			0	0		0	0		0			00	-
Ň	EATER-THA		A	CONCENTRATION, MILLIGRAMS PER LITER								Q	D 0	0	_				0
TDENE	OS IN CONC	ENTRATI	ON	PER	150				•	₽	0 '	0				⊕			_
	NVALUES	NWYS	SLOPE	R N N N N N N N N N N N N N N N N N N N							⊕ ⊕)			€	•			0
LOW FLOW	15	9	ND	ACE GRVE	100	_				4	•		⊕	⊕		•	⊕		_
HIGH FLOW	13	8	ND	ĖŠ															
				Σ <u>Z</u>									•	₽					
				=	50	_													_
					0	76 77	78 79	9 80 8	31 8	32 8	3 84	85	86	87 8	8 8	9 90	91	92	93

WATER YEAR

APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01405302 MATCHAPONIX BROOK AT MUNDY AVE, AT SPOTSWOOD, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]



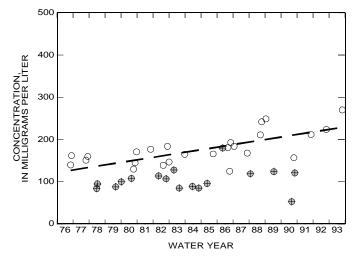
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

HIGH FLOW

O U	NCENSORE	D VALUE					
\triangle ,	LESS-THAN'	VALUE	$\overline{\Psi}$				
△ 'GF							
TREN	DS IN CONC	ENTRAT	ION				
VALUES	NVALUES	NWYS	SLOPE				
 LOW FLOW	25	15	6				
HIGH FLOW	17	11	ND				

LOW FLOW

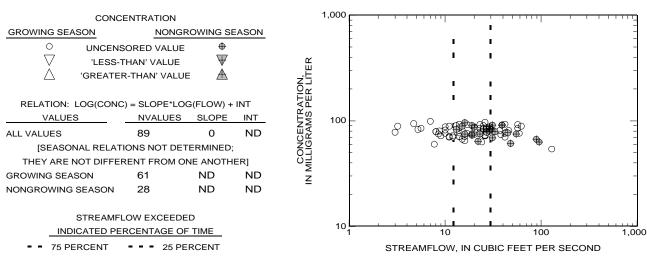
CONCENTRATION



APPENDIX 5. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SOLIDS 01405340 MANALAPAN BROOK AT FEDERAL RD, NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	>	100,000	1 1		-
RELATION: LOG(LOAD) = SLOPE*LOG(FLOV VALUES NVALUES SLOPE	·	-		:	1
ALL VALUES 89 0.97	2.67	10,000 _	·		_
 SMOOTHED RELATION BETWEEN LOAD AND FI (SHOWN IF THERE ARE 10 OR MORE VALUES) 	.ow O	Ē		1	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	ГОАБ	-	× × 1	ı	-
75 PERCENT 25 PERCENT		1,000	10	100	1,000
			STREAMFLOW,	IN CUBIC FEET PER	SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION			٦
LOW FLOW HIGH FLOW			₽
○ UNCENSORED VALUE ✓ 'LESS-THAN' VALUE ✓	TER	80 - 0 + 0 0 + 0 0 + 0	_
☐ 'LESS-THAN' VALUE ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	ĒR LI	60 - 0	
TRENDS IN CONCENTRATION YALUES NVALUES NWYS SLOPE Z	MS P	Φ	
LOW FLOW 20 14 0 Z	IN MILLIGRAMS	40 –	_
HIGH FLOW 23 13 0 Ō	MILL		
	Z	20 –	_
		76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92	3

WATER YEAR

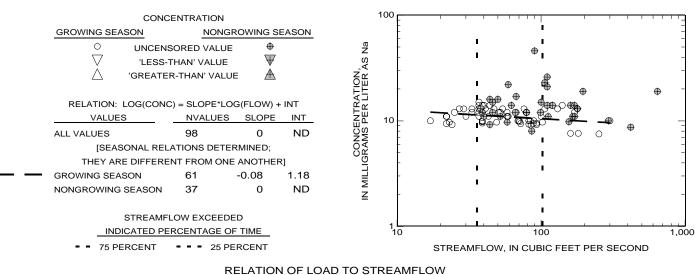
Appendix 6 - Dissolved sodium

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Blackwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01396280 SB RARITAN RIVER AT MIDDLE VALLEY, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



	1045			100,000		1 1 1 1 1 1 1	
$\stackrel{\times}{\mathbb{V}}$	LOAD UNCENSORED VAI 'LESS-THAN' VAL		<u>}</u>	- - -		'i I I I × ^I	×
RELATION: LOG VALUES	G(LOAD) = SLOPE*LOG NVALUES	(FLOW) + INT	PER D/	10,000		1	×××
ALL VALUES	98	1.02 1.7	- SON	E			` = =
	ION BETWEEN LOAD A		I POU			,	-
(SHOWN IF THERE	ARE 10 OR MORE VAL	.UES)	AD, IN	1,000	/ *	1 1	
	EAMFLOW EXCEEDER ED PERCENTAGE OF		ľ	Ė		1	=
= = 75 PERCE	ENT = = = 25 PEI	RCENT					-
				100		100	1,000
					STREAM	FLOW, IN CUBIC FEET	PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

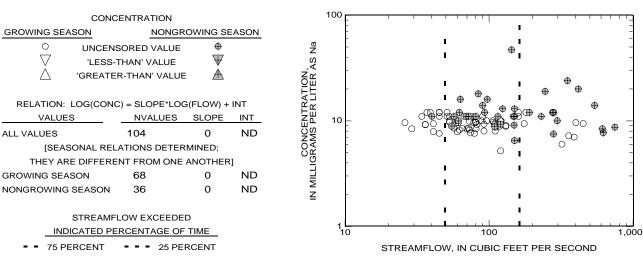
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	CONCENTR	ATION			50	-	- 1	1 1	ı	ı	1	. 1	- 1	
LOW FLOW			HIGH FLOW	ď										
0 UI	NCENSORE	D VALUE	+	Na	40 -	_								
ار 🗸	LESS-THAN'	VALUE	$\overline{\Psi}$, A9										
△ 'GR	EATER-THA	N' VALUI	e A	ER ER										
				RATION, R LITER AS	30	-								
TREN	DS IN CONC	ENTRAT	ION	岸品						⊕				
VALUES	NVALUES	NWYS	SLOPE	S PENT		4	_			Ψ				
LOW FLOW	12	9	ND	CONCE	20 -	-		⊕				Φ.	€	
HIGH FLOW	26	14	0	28				Ψ				⊕		
				Ĭ			⊕		⊕(•	í
				MILLI	10	- •	₽ ○ ⊕	. •	ФΩ	0	<i>₽</i> ₽6	3	0	
				Z			-	0	⊕ O			⊕		

APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01396535 SB RARITAN RIVER AT ARCH ST, AT HIGH BRIDGE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	ΑΥ	100,000		
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + II VALUES NVALUES SLOPE I	LY TAI	-		_
ALL VALUES 104 1.02	1.69	10,000 —	****	
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED	$\overline{\sim}$	- - - - -		-
INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT		1,000	100 1,0	0000
			STREAMFLOW, IN CUBIC FEET PER SECOND	

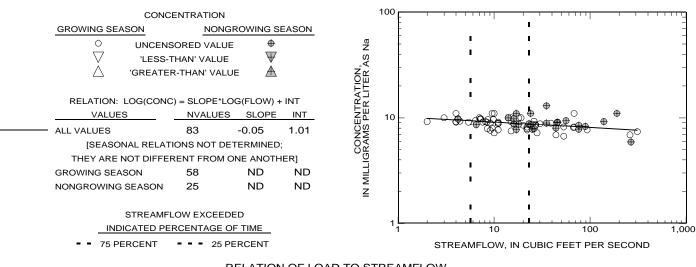
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		 	
LOW FLOW	HIGH FLOW		
○ UNCENSORED VALUE VESS-THAN' VALUE GREATER-THAN' VALUE	O O O O O O O O O O O O O O O O O O O	⊕	_
TRENDS IN CONCENTRAT VALUES NVALUES NWYS	SLODE STODE 12	- ⊕ ○ •	
LOW FLOW 14 9 HIGH FLOW 21 13	ND OO 10 STAND 10 STAND 10 STAND 5	⊕	○

APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01396588 SPRUCE RUN NEAR GLEN GARDNER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD		100,000			
×	UNCENSORED VALUE		E	ī	ī	3
V	'LESS-THAN' VALUE	>		Ī	ı	-
RELATION: VALUES	LOG(LOAD) = SLOPE*LOG(FLOW NVALUES SLOPE	´	_	1	1	
ALL VALUES	83 0.95		F	į		=
	LATION BETWEEN LOAD AND FL RE ARE 10 OR MORE VALUES)	1.74 0 N OW 0 2	1,000		I I	
	STREAMFLOW EXCEEDED CATED PERCENTAGE OF TIME	LOAI	100			
	RCENT 25 PERCENT	•	-	ı	ı	-
			10	10	100	1,000
				STREAMFLOW,	N CUBIC FEET PER	SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION			1					1
LOW FLOW	HIGH FLOW							
O UNCENSORED VALUE	<u>+</u>	CONCENTRATION, 3RAMS PER LITER AS Na 0 5 0 0	_					
LESS-THAN' VALUE	\forall	_,č						
△ 'GREATER-THAN' VALUE	■ ▲	БЩ						
		∑ 5 15	_					-
TRENDS IN CONCENTRAT	ION	岸监			⊕			
VALUES NVALUES NWYS	SLOPE				Ψ			
LOW FLOW 9 6	ND	O₩ Z 10	_	Φ	Q	•	O ⊕ O	\oplus
HIGH FLOW 34 15	ND	ဂ္ဂန္ဟိ	<u> </u>	♥ ♥			4	
		Ė	4	⊕	* \$ *	# "	,	
		<u>¥</u> 5	_	•				_
		Z						

APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01396660 MULHOCKAWAY CREEK AT VAN SYCKEL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

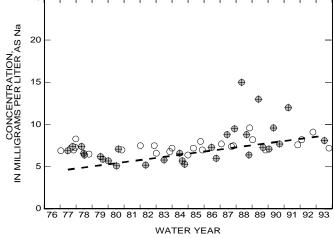
	CONC	ENTRATION		
GROWING SEAS			OWING SE	EASON
	'LESS-T	ORED VALUE 'HAN' VALUE R-THAN' VALUE	⊕₩★	
RELATION: L	OG(CONC) = SLOPE*LOG	(FLOW) +	INT
VALUES		NVALUES	SLOPE	INT
-		104 ATIONS DETER NT FROM ONE		ND
GROWING SEAS	ON	73	0	ND
NONGROWING S	EASON	31	0	ND
S	TREAMFL	OW EXCEEDE	D	
INDIC	ATED PER	RCENTAGE OF	TIME	
= = 75 PER	RCENT	25 PEI	RCENT	

RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 104 0.99 1.62 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	1,000
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	100 100 1,000 STREAMELOW IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

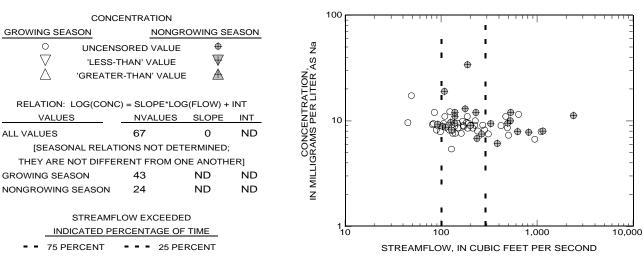
	CONCENTR	RATION			25
LOW FLOW			HIGH FLOW	æ	
\bigvee_{Λ}	JNCENSORE 'LESS-THAN' REATER-THA	VALUE	⊕ ₩ = A	ON, ER AS Na	20 -
TRE	NDS IN CONC	CENTRAT	ION	ITRATIO	15
VALUES	NVALUES	NWYS	SLOPE	SPI	
LOW FLOW	26	13	ND	AMS	10
— — — HIGH FLOW	29	14	0.25	OC MILLIGR,	5.



APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01397000 SB RARITAN RIVER AT STANTON STATION, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMELOW

	LOAD				1,000,000		-	 	1 1 1	
	ICENSORED V ESS-THAN' VA			Α	- - -	1	! !			= = = = = = = = = = = = = = = = = = = =
RELATION: LOG(LOAI	D) = SLOPE*LO NVALUES	OG(FLOW) SLOPE	+ INT INT	PER D	100,000		1		ž	_
ALL VALUESSMOOTHED RELATION BI	67 ETWEEN LOAI	0.94	1.84 w	SOUNDS	- - -	:	×			= - -
(SHOWN IF THERE ARE 1		,		AD, IN	10,000	×.		×		=
STREAMF <u>INDICATED PE</u> - 75 PERCENT				9	-	× × × × × × × × × × × × × × × × × × ×	`` `			= = = = = = = = = = = = = = = = = = = =
					1,000	100		1,000		10,000
						STREAMFLOW	, IN CUE	BIC FEET PER	SECOND	

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION				1 1	1	1 1	- 1	- 1	1	1	1	ı	ı	1				
LOW FLOW	HIGH FLOW	æ																
O UNCENSORED VALU	JE $igoplus$	ž " 20) –															
Carrell (LESS-THAN) VALUE	■ ₩	., AS																
△ 'GREATER-THAN' VAL	.UE 🛕							0										
	ļ.	<u></u>	5 –															
TRENDS IN CONCENTRA	ATION	ZK																
VALUES NVALUES NWYS	S SLOPE	PEN		\oplus										•	Д		0	
LOW FLOW 9 6	ND S	CONCENTRATION, GRAMS PER LITER AS Na	o –	-A	+		0								ν			+
HIGH FLOW 17 7	ND (5 <u>%</u>				•	5											
		コ		`	দ কৰ		~				•	₽						
		¥ 5	5 –			₩												
		Z																
		(<u>، لـــــ</u>															
			76	77 7	8 79	80	81	82 8	3 84	85	86	87	88	89	90	91	92	93

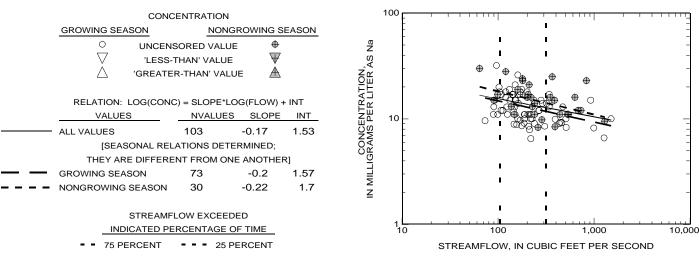
WATER YEAR

25 -

APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01397400 SB RARITAN RIVER AT THREE BRIDGES, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD	1,000,000
$ imes$ uncensored value $ ilde{f V}$ 'Less-Than' value	1
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	0 100,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	2 10,000 × 10,000
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	
	1,000 100 1,000 10,000 10,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	00		
LOW FLOW	ď		
○ UNCENSORED VALUE	ž 0 40		
abla 'LESS-THAN' VALUE $ abla$	-, A		
riangle 'GREATER-THAN' VALUE $ riangle$	ON		
	RATION, R LITER AS Na 05		0
TRENDS IN CONCENTRATION	F.H.		Č
VALUES NVALUES NWYS SLOPE	ENT S PENT		•
LOW FLOW 11 8 ND	CONCE GRAMS 02		*
HIGH FLOW 27 14 0	0% 		О ф
	ā		
	⊒ ∑ 10		⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕
	Z	□ ♥ ♥ ⊕○ ⊕	•
			•

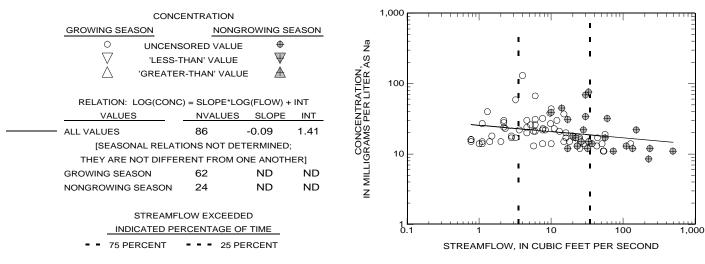
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APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01398000 NESHANIC RIVER AT REAVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 86 0.91 2.14	Y 10,000 Y X X X X Y X X X X X X X X X X X X
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED	04 NI
 INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT 	10.1 1 10 100 1,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

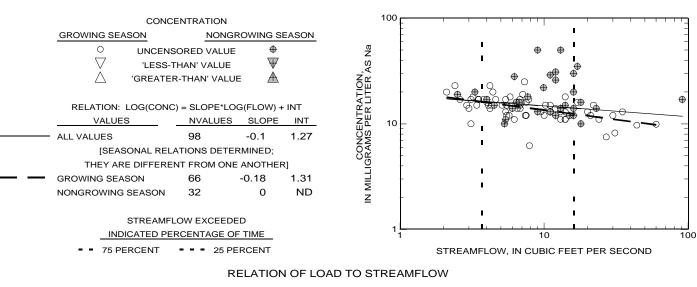
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		100		1	1	Т	I	I	1	T	1	1		_				
LOW FLOW HIGH FLOW	æ																	
○ UNCENSORED VALUE ⊕	ž	80	_															
abla 'LESS-THAN' VALUE $ abla$, A																	
$ riangle$ 'GREATER-THAN' VALUE $ extcal{A}$	OH																	
	CONCENTRATION, GRAMS PER LITER AS Na	60	_												0			
TRENDS IN CONCENTRATION	훉삈														_			
VALUES NVALUES NWYS SLOPE	SP																	
LOW FLOW 19 12 ND	N A S	40	-						C)								
HIGH FLOW 17 10 ND	28					_			\oplus									
	Ė					0	,		. ()) \	_					
	MILL	20	-						_		⊕ (\ \) D	4	₩			0
	Z				Φ,	⊕ C) ₽ 3	D	∪ ⊕		Ψ) (J.	Ф.	\sim		0	4
							⊕		-			-		-				

APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01398260 NB RARITAN RIVER NEAR CHESTER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	
ALL VALUES 98 0.9 2.01	1,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	Z O
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	Š × ×
75 PERCENT 25 PERCENT	100 ₁
	STREAMFLOW, IN CUBIC FEET PER SECOND

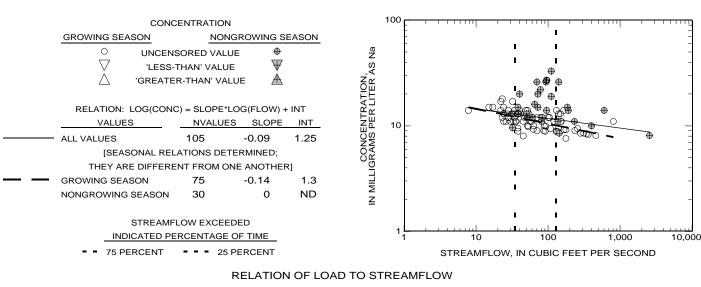
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONOTA	TDATION			50		1 1			\neg			
CONCEN	TRATION											
LOW FLOW	!	HIGH FLOW		п								
O UNCENSO	RED VALUE	⊕	2		L							
√ 'LESS-TH	N' VALUE	$\overline{\Psi}$, ,,								
△ 'GREATER-1	HAN' VALUE	\triangle	89	ĺ								
			RATION,	30								
TRENDS IN CC	NCENTRATIO	ON										
VALUES NVALUE	S NWYS	SLOPE	EN TO	_					0			
LOW FLOW 13	6	ND	CONC	20	L	_			0			
HIGH FLOW 16	10	ND	Ö	<u> </u>		~8 ₄	4		0		0	
			=	į		4	´ ⊕		8			0
			2	10	L		⊕0			(D)		
			2					⊕		-		

APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01399120 NB RARITAN RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



	$\stackrel{\times}{\triangledown}$	LOAD UNCENSORED V			٨	1,000,000		1 I		
	RELATION: LOG(L	OAD) = SLOPE*LO	OG(FLOW)	+ INT	R D	100,000			\/\	
<u>-</u>	VALUES	NVALUES	SLOPE	INT	PE	-				=
A	ALL VALUES	105	0.91	1.98	SON	-		×XX		-
	SMOOTHED RELATIO SHOWN IF THERE AF			W), IN POUR	10,000				
	STRE	AMFLOW EXCEED	ED		OAE	1,000		//×1 1		
	INDICATE	D PERCENTAGE C	F TIME		_	F	×	- I		=
	75 PERCEN	IT 25 P	ERCENT			F		1 1		-
						100	10	100	1,000	10,000
							STREAMF	LOW, IN CUBIC F	EET PER SEC	OND

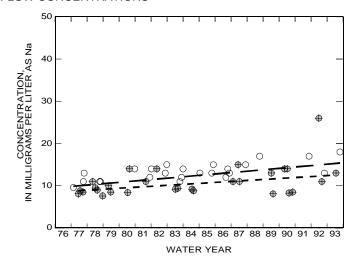
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

HIGH FLOW

О U	NCENSORE	D VALUE	+								
√ 'LESS-THAN' VALUE √											
△ 'GF	GREATER-THAN' VALUE										
TREN	IDS IN CONC	ENTRAT	ION								
VALUES	NVALUES	NWYS	SLOPE								
 LOW FLOW	24	13	0.33								
 HIGH FLOW	29	13	0.23								

CONCENTRATION

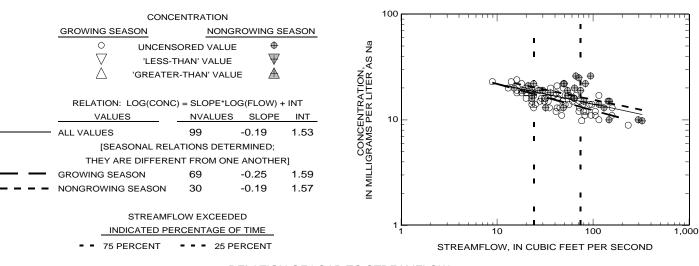
LOW FLOW



APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01399500 LAMINGTON (BLACK) RIVER NEAR POTTERSVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

×	LOAD UNCENSORED V			ΑY	100,000		1 1 1 1		<u> </u>
RELATION: LOG(L VALUES	OAD) = SLOPE*LO NVALUES	OG(FLOW) SLOPE	+ INT INT	PER D	-		1 1	<i>K</i> /	_
ALL VALUES	99	0.81	2.26	NDS	10,000 —		1 1 1× ×	*/×	
SMOOTHED RELATIO (SHOWN IF THERE AR			W), IN POL				×	
	AMFLOW EXCEED O PERCENTAGE O T = 25 P			LOAD	-	<u>></u>			-
					1,000	10	100		,000
						STREAMFLOW,	IN CUBIC FEET PER	K SECOND	

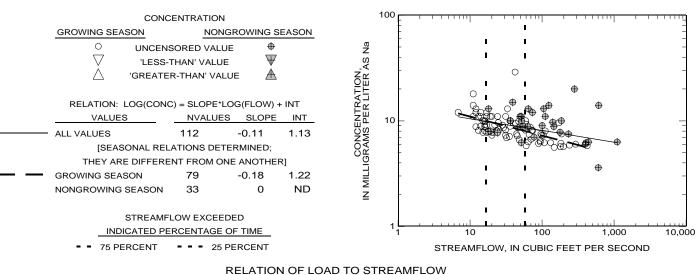
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	5	٦	-	1	ı	1	1	1	ı	1	1	1	1		7	1		7	
LOW FLOW HIGH FLOW	۲																		
○ UNCENSORED VALUE ♥ Ž	4	0	-																_
O UNCENSORED VALUE ♥ ZØ VLESS-THAN' VALUE ▼ ZØ A 'GREATER-THAN' VALUE ★ OUT	i																		
Y ~	3	0	-																-
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	i											0						0	
)		_						0		0	Θ,	_		0			0	Φ_{C}
HIGH FLOW 26 13 0		0 -	- 0	<u> </u>	⊕			8		00	0) (C	J .	(0 0	p			⊃ -
LOW FLOW 27 13 ND ZAW OF COMMENT	<u>,</u>		#	P+	3 4		•		0	•	₽		0		•	#	• •		
		0	-			Φ⊕	+		4	• 1	₩		0	•	₽	⊕			_
<u>=</u>	•																		

APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01399700 ROCKAWAY CREEK AT WHITEHOUSE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	10,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) Z	1,000
STREAMFLOW EXCEEDED SINDICATED PERCENTAGE OF TIME	
75 PERCENT 25 PERCENT	100 100 1,000 10,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

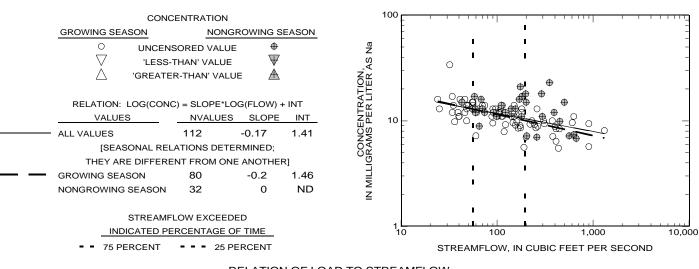
	CONCENT	RATION	
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	⊕
∇	LESS-THAN	l' VALUE	$\overline{\Psi}$
△ 'GF	REATER-TH	AN' VALUI	e A
TREN	IDS IN CON	CENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	20	12	ND
 - HIGH FLOW	48	16	0.36

(

APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01399780 LAMINGTON RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

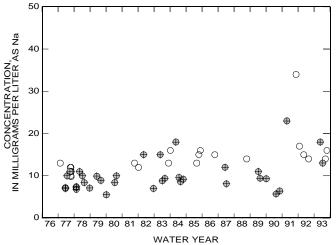


RELATION OF LOAD TO STREAMFLOW

$\overline{\mathbb{X}}$	LOAD UNCENSORED VALUE 'LESS-THAN' VALUE	<u> </u>	>	100,000	I	1 1 1 ×××××××××××××××××××××××××××××××××	-
ALL VALUES ———————————————————————————————————	LOG(LOAD) = SLOPE*LOG(FL NVALUES SLO 112 0.8 LATION BETWEEN LOAD AND RE ARE 10 OR MORE VALUE	DPE INT 33 2.15 D FLOW	IN POUNDS PER DAY	10,000	· · · · · · · · · · · · · · · · · · ·		-
INDI	STREAMFLOW EXCEEDED CATED PERCENTAGE OF TIN RCENT 25 PERCE		LOAD,	1,000	100	1,000	10,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

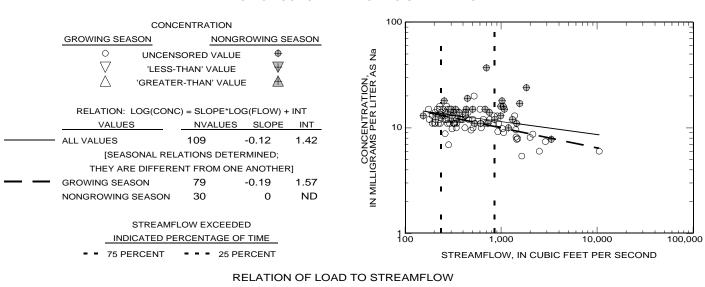
	CONCENTR	ATION			,
LOW FLOW			HIGH FLOW	m.	
Ο υ	NCENSORE	D VALUE	+	N N	_
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$, AS	
△ 'GF	REATER-THA	N' VALUE	■ ▲	ER ER	
				TA T	3
TREN	DS IN CONC	ENTRAT	ION	E.R.	
VALUES	NVALUES	NWYS	SLOPE	EN SER	
LOW FLOW	22	11	ND	NO NO NO NO	2
HIGH FLOW	35	12	0	SCC *R/	



APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01400500 RARITAN RIVER AT MANVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



$\overline{\mathbb{V}}$	LOAD UNCENSORED ' 'LESS-THAN' V			АУ	1,000,000	1 I	, , , , , , , , , , , , , , , , , , , 		1 1 1 1	 - - - - -
RELATION: LOG(Le	OAD) = SLOPE*L	OG(FLOW)	+ INT	ä.		1 1	× /			1
VALUES	NVALUES	SLOPE	INT	В	ļ l			/		-
ALL VALUES	109	0.88	2.15	NDS	100,000 —	×	×			
	E 10 OR MORE V	ALUES) DED	w	LOAD, IN POU	-		*** **			-
					10,000	1,0	000	10,000		100,000
						STREAMFLO	DW, IN CUBIC F	EET PER	SECOND	

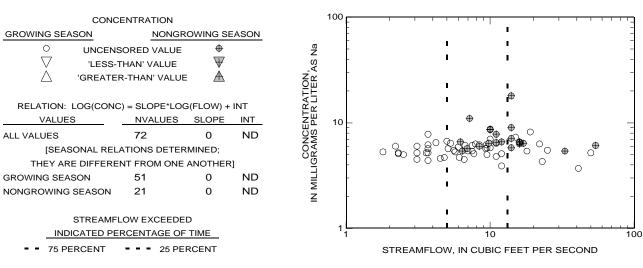
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION					' '⊕ ' '	
LOW FLOW	HIGH FLOW					
○ UNCENSORED VALU VLESS-THAN' VALUE	<u></u> σ	20	_			_
△ 'GREATER-THAN' VAL	JE \(\frac{\Pi}{N}\)		+		Ф Ф	•
TRENDS IN CONCENTRA	TION NO.	15	_		∞	° -
TRENDS IN CONCENTRA	LION PÜ		000	⊕	0 ⊕	⊕
VALUES NVALUES NWYS	SLOPE SLOPE		○ ⊕	•	0	⊕ ○
LOW FLOW 17 9	ND NA	10		Ф	+	_
HIGH FLOW 28 13	o Sign		Φ.	Φ Ψ	⊕	₩
	⊒		Φ	*	⊕	
	Z M	5	_			-
	₹					

APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01400540 MILLSTONE RIVER NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

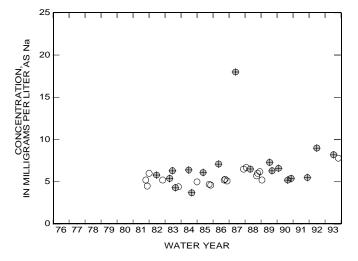


RELATION OF LOAD TO STREAMFLOW

	LOAD		10,000	1 1 1	
<u>×</u>	JNCENSORED VALUE		ţ		1 1
V	'LESS-THAN' VALUE)AY		1 1
RELATION: LOG(LO	AD) = SLOPE*LOG(FLOW)	+ INT	1,000		×
VALUES	NVALUES SLOPE	INT	ш 1,000 Е		
ALL VALUES	72 1.04	1.47	SUND		×
- SMOOTHED RELATION	BETWEEN LOAD AND FLO	W	<u> </u>	V/ /	
(SHOWN IF THERE ARE	10 OR MORE VALUES)		<u>Z</u> 100		
STREAM	MFLOW EXCEEDED		0.	* ``	ī
INDICATED	PERCENTAGE OF TIME		- F		
75 PERCENT	25 PERCENT		-		1 1
			10		

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	⊕
∇ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	\blacksquare
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	18	10	ND
HIGH FLOW	18	12	ND



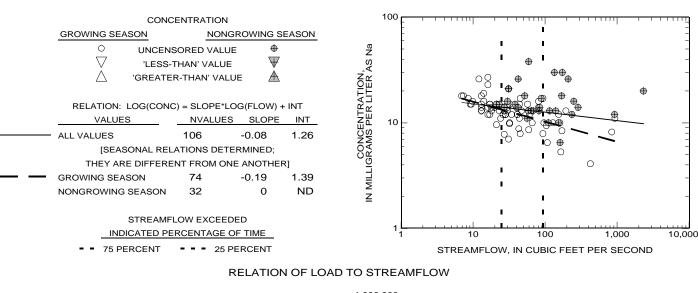
STREAMFLOW, IN CUBIC FEET PER SECOND

100

APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01400650 MILLSTONE RIVER AT GROVERS MILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	1,000,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT 106 0.92 1.99	10,000 III DOUNDS PER III III III III III III III III III I
	10 100 1,000 10,000 STREAMFLOW, IN CUBIC FEET PER SECOND

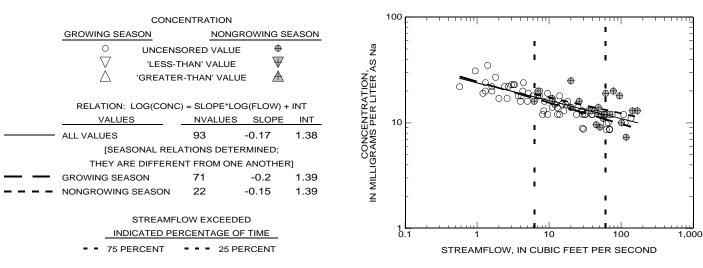
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION									
LOW FLOW			HIGH FLOV	<u>v</u>							
$\overline{}$	NCENSORE		⊕ ₩	ຜູ	40	_					_
	LESS-THAN' REATER-THA		V	ENTRATION. PER LITER AS Na							
				XAT	30	_	⊕			⊕	_
TREN	DS IN CONC	ENTRAT	ION	F.E.			⊕				0 0
VALUES	NVALUES	NWYS	SLOPE	E C			Ψ				0
LOW FLOW	30	14	ND	CONCE	20	- +		0			_
HIGH FLOW	26	12	ND	S		998 (9		Q	+		
						∞ ₀ ⊕⊕	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~		0	~	$_{\circ}^{\infty}$
				2			•	\bigoplus_{Φ} \bigcirc	•	\$	_
				Z	4	₽	*	Ψ			
							*			⊕	

APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01401000 STONY BROOK AT PRINCETON, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD		100,000	 		· · · · · · · · · · · · · · · · · · ·
× UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	>	E -		, , , , ,	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW VALUES NVALUES SLOPE ALL VALUES 93 0.83	·	10,000		1	
SMOOTHED RELATION BETWEEN LOAD AND FL (SHOWN IF THERE ARE 10 OR MORE VALUES)	Ž	1,000			
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	. LOAE	100		I I I I I I I I I I I I I I I I I I I I	0 1,000
			STREAMFLOW, IN	CUBIC FEET PER SE	COND

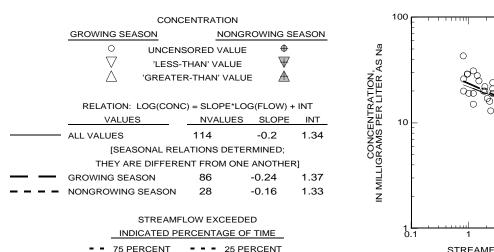
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

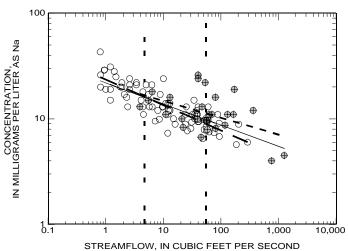
CONCENTRATION	
LOW FLOW HIGH FLOW	m.
○ UNCENSORED VALUE ♥ Z ○ 'LESS-THAN' VALUE ♥	Ž 40 − 40 −
☐ 'GREATER-THAN' VALUE ⚠ ☐ ☐	<u>ж</u> (
KA LTI	30
TRENDS IN CONCENTRATION	π χ
VALUES NVALUES NWYS SLOPE	
LOW FLOW 25 14 ND $\Sigma \Sigma$	20 -
HIGH FLOW 18 11 ND ဝိဗ္ဗ	
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE LOW FLOW 25 14 ND HIGH FLOW 18 11 ND VALUES NVALUES ND CONCENTRATION VALUES NVALUES NWYS SLOPE LOW FLOW 25 14 ND HIGH FLOW 18 11 ND Z	

APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01401600 BEDEN BROOK NEAR ROCKY HILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

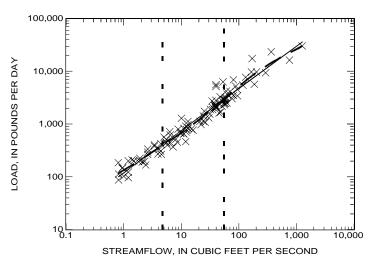
RELATION OF CONCENTRATION TO STREAMFLOW





RELATION OF LOAD TO STREAMFLOW

	_		LOAD		
			NCENSORED V LESS-THAN' VA		
	RELATIO	N: LOG(LOA	.D) = SLOPE*LO	OG(FLOW)	+ INT
_	VAL	UES	NVALUES	SLOPE	INT
	ALL VALUES		114	0.8	2.08
;	SMOOTHED	RELATION E	BETWEEN LOAI	O AND FLO	W
((SHOWN IF 1	THERE ARE	10 OR MORE V	ALUES)	
		STREAM	FLOW EXCEED	DED	
		NDICATED P	ERCENTAGE C	OF TIME	
	= = 75	PERCENT	25 P	ERCENT	



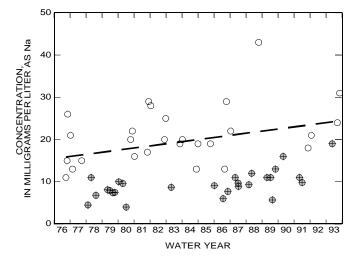
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

HIGH FLOW

		U	INCENSOREI	VALUE	Ψ
		\triangle ,	LESS-THAN'	VALUE	$\overline{\Psi}$
		△ 'GF	REATER-THA	N' VALUE	■ 🛦
		TREN	DS IN CONC	ENTRATI	ON
		VALUES	NVALUES	NWYS	SLOPE
_	—	LOW FLOW	27	14	0.5
		HIGH FLOW	27	11	ND

LOW FLOW

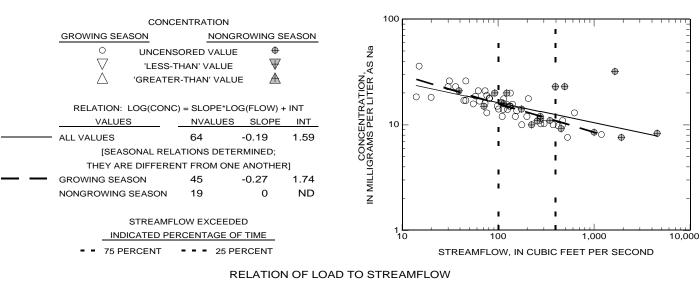
CONCENTRATION



APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



	LOAD		1,000,000			
×	UNCENSORED VALUE			1	i	=
V	'LESS-THAN' VALUE	ΑΥ	-	1		× / 1
RELATION: LOG((LOAD) = SLOPE*LOG(FLOW)	+ INT	100,000	ī	Ī	//
VALUES	NVALUES SLOPE			- I	. iv //	<
ALL VALUES	64 0.81	2.33	Į Ę		*^*	=
SMOOTHED RELATION	ON BETWEEN LOAD AND FLO	ow of	-	I I		- -
(SHOWN IF THERE A	RE 10 OR MORE VALUES)	<u>z</u>	10,000		×*` ,	
STRE	EAMFLOW EXCEEDED	Q Q	E		•	3
INDICATE	ED PERCENTAGE OF TIME	_	' + ×	<i></i>	ı	-
75 PERCE	NT = = = 25 PERCENT			×	1	-
			1,000	100	1,000	10,000
				STREAMFLOW, IN	CUBIC FEET PER S	SECOND

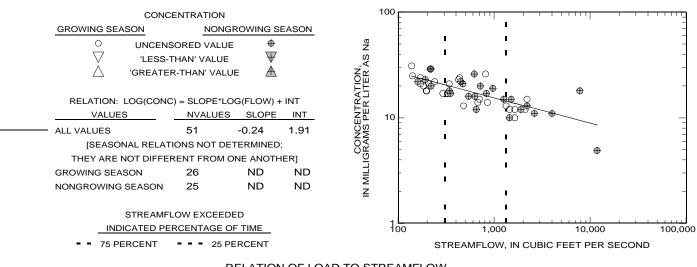
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION			
LOW FLOW HIGH FLOW	ď		
○ UNCENSORED VALUE ♥ ▽ 'LESS-THAN' VALUE ▼ △ 'GREATER-THAN' VALUE ★	ATION, LITER AS Na 05	0	-
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	ENTR	0 0 0	<u>*</u> _
LOW FLOW 24 12 ND	NA 20	0 0	~ %-
HIGH FLOW 12 6 ND	989 989	880000	O
	CONC MILLIGRAMS	0	⊕
	∑ 10 Z		+ + -
	=	***	

APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01403300 RARITAN RIVER AT QUEENS BRIDGE, AT BOUND BROOK, N.J.

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD				1,000,000	1 1	- 	1 1 1	· · · · · · · · · · · · · · · · · · ·		
$\stackrel{ imes}{ riangledown}$	UNCENSORED V			≻	-	1	!				- - -
RELATION: LOG(I	LOAD) = SLOPE*LC	G(FLOW)	+ INT	RD	=	ı	i	1	// ×		=
VALUES	NVALUES	SLOPE	INT	PE				×//			-
ALL VALUES	51	0.75	2.64	NDS				× X			
SMOOTHED RELATIONSHOWN IF THERE A			w	J, IN POU	100,000	į		×			
STRE	AMFLOW EXCEED	ED		OAI	-	×	《 × '				-
INDICATE	D PERCENTAGE C	FTIME			l ×						_
75 PERCEN	NT 25 P	ERCENT			"	*^\ ^ I	į				
					10,000		1,000		10,000		100,000
						ST	REAMFLOW,	IN CUBIC F	EET PER	SECOND	ı

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

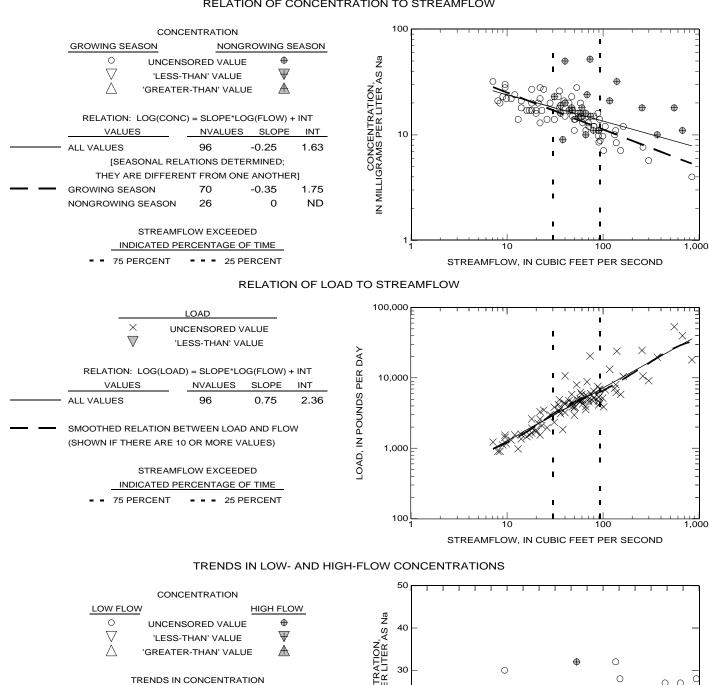
CONCENTRATION		00		1 1	1 1	ı	1 1	1 1	1	1 1	1 1	- 1		
LOW FLOW	H FLOW_													
 UNCENSORED VALUE 	⊕ ž	40	_											
√ 'LESS-THAN' VALUE	₩													
riangle 'GREATER-THAN' VALUE	₩ ₩													
	TAT!	30	_				2							
TRENDS IN CONCENTRATION	E R	00				0	0							
VALUES NVALUES NWYS SL	OPE Zi							0					0	
LOW FLOW 15 9	Z Z dO DO DO DO DO DO DO DO	20						00	(0		0		0
HIGH FLOW 14 9	ND SX						\sim	o) (-				
	Ä										*	4		0
	\{ \	10				⊕	⊕ ♣	,	0		P P	. •		
	_ 						**							
									\oplus					
		0												┙
		_	76 77	78 7	9 80 8	31 82	83 84	85 8	6 87	88 8	9 90	91 9	2 9	3

WATER YEAR

50 -

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



VALUES

LOW FLOW

HIGH FLOW

NVALUES NWYS

15

11

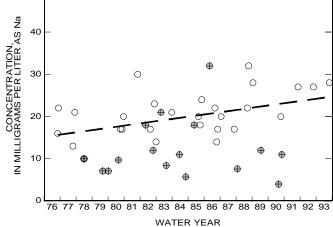
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0.53

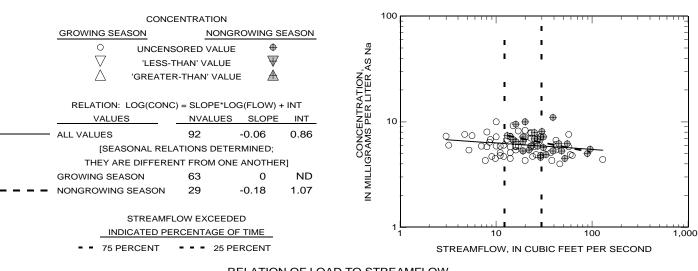
ND



APPENDIX 6. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED SODIUM 01405340 MANALAPAN BROOK AT FEDERAL RD, NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



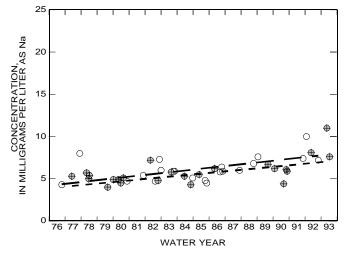
RELATION OF LOAD TO STREAMFLOW

	LOAD	_	10,000		 	
$\stackrel{ imes}{ riangledown}$	UNCENSORED VALUE		∀	1	1 1	
,	LOAD) = SLOPE*LOG(FLO	•	A	1	$-1 \times \times \nearrow \times$	
VALUES	NVALUES SLO		<u>С</u>	I	I ×	
ALL VALUES	92 0.9	4 1.6	S 1,000 –	>		_
— SMOOTHED RELATIO	N BETWEEN LOAD AND	FLOW	Pol	' ×		=
(SHOWN IF THERE A	RE 10 OR MORE VALUES	5)	Z -	×	/* 	-
STRE	AMFLOW EXCEEDED		OAD		ı	
INDICATE	D PERCENTAGE OF TIM	<u>E_</u>	_	XX.		
75 PERCEN	NT = = = 25 PERCEI	NT		××	- I	
			100	10	100	1,000
				STREAMFLOW, IN		ŕ

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

<u>.</u>	LOW FLOW		HIGH FLOW					
	O UI	NCENSORE	RED VALUE					
	71	LESS-THAN'	N' VALUE ₩					
	△ 'GF	REATER-THA	N' VALUE	<u> </u>				
	TREN	DS IN CONC	ENTRATI	ON				
	VALUES	NVALUES	NWYS	SLOPE				
	LOW FLOW	21	14	0.21				
	HIGH FLOW	24	13	0.18				

CONCENTRATION



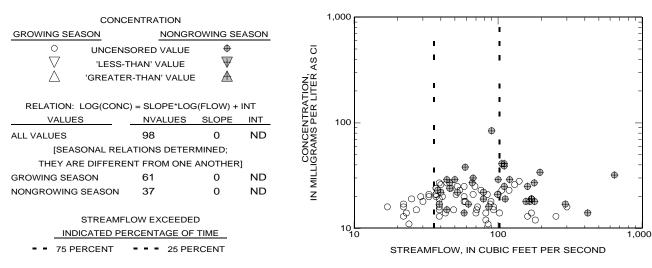
Appendix 7 - Dissolved chloride

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Blackwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01396280 SB RARITAN RIVER AT MIDDLE VALLEY, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	DRED VALUE HAN' VALUE	1,000,000	1 1 1 1	
RELATION: LOG(LOAD) = SL VALUES NVA ALL VALUES 98	LUES SLOPE INT	100,000 - 00	1 1 1 1 ×1	×
SMOOTHED RELATION BETWEE (SHOWN IF THERE ARE 10 OR N	ORE VALUES)	10,000 -		
INDICATED PERCEN 75 PERCENT	TAGE OF TIME 25 PERCENT	1,000	100 STREAMFLOW, IN CUBIC FEI	1,000

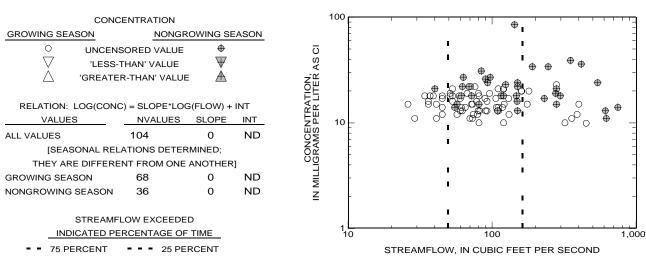
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

					50 •										_		
(CONCENTRATI	ON			50			ı		- 1	- 1	ı	1	1 1	- 1	1	ı
LOW FLOW			HIGH FLOW	_													
O UN	CENSORED V	ALUE	⊕	SCI	40		⊕			4	€						
√ 'L	.ESS-THAN' VA	LUE	$\overline{\Psi}$	<										•			
△ 'GR	EATER-THAN'	VALUE	\triangle	S.H.									€				
				<u> </u>	30			\oplus									
TREN	OS IN CONCEN	TRATIO	NC	동문										⊕			₽
VALUES	NVALUES N	WYS	SLOPE	CONCENTRATION, MILLIGRAMS PER LITER											4	⊕ €	
LOW FLOW	12	9	ND	AZ SZ	20	_		Φ.						Φ.	0	8	,
HIGH FLOW	26	14	0	OG OG			⊕ ⊕	•	,	₩	_	P _Q		Ф C)	\oplus	
							0		⊕	S	Φ	· ·	(1)			Ψ	
					10		Ŭ	•	0			`	-				
				Z													

APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01396535 SB RARITAN RIVER AT ARCH ST, AT HIGH BRIDGE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	100,000 × × × × × = = = = = = = = = = = = =
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	Ä į
ALL VALUES 104 1.05 1.86	9 10,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	NO NE CONTRACTOR NE CONTRAC
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	
	1,000 10 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

C	CONCENTRATION	ON											'	' 1
LOW FLOW		HIG	3H FLOW	_										
, 'L	ICENSORED VA ESS-THAN' VAI EATER-THAN' \	LUE	⊕ ₩ Æ	ITTER A	40 – 30 –			⊕	⊕	⊕		⊕		_
	OS IN CONCENT NVALUES NV		I LOPE	PER		4	₽							
LOW FLOW HIGH FLOW	14	9	ND 0	CO IILLIGR,	20 -	# + + 0	-	⊕ ○ ○•	\$ ∂ ⊕ ⊕	•	° &	+	⊕ ○ ○	⊕ ○

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

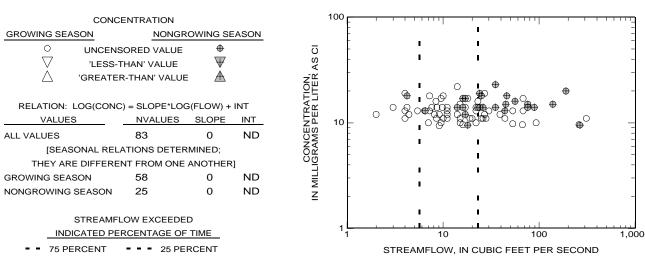
WATER YEAR

50 **-**

APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01396588 SPRUCE RUN NEAR GLEN GARDNER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	×	100,000	1 1	1 1	× ×
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	ш	10,000	1		
ALL VALUES 83 0.99 1.	.87 SQN.	- - -		1 × 1 × 1 × 1 × 1 × 1 × 1 × 1 × 1 × 1 ×	=
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	O, IN PO	1,000	I >		
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	LOAE	- - -		// I	
75 PERCENT 25 PERCENT		100	10	100	1,000
			STREAMFLOW,	IN CUBIC FEET PER	SECOND

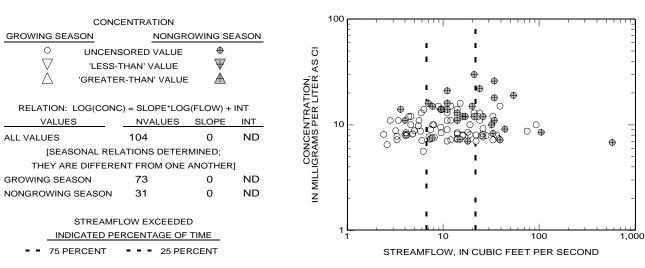
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION] ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '
LOW FLOW HIGH FLOW	⊕
O UNCENSORED VALUE	⊕ ⊕ ⊕ ⊕ ⊕
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	
GREATER-THAN' VALUE	
SIT NOT SELECT TO SELECT T	_

APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01396660 MULHOCKAWAY CREEK AT VAN SYCKEL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	DA∀	100,000	1 1	1 1	×
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	PER	10,000	1		
ALL VALUES 104 1.03 1. — SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	71 SQNDOA NI '	1,000		1	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	ГОАБ	100	1 10	100	1,000
			STREAMFLOW,	IN CUBIC FEET PER	SECOND

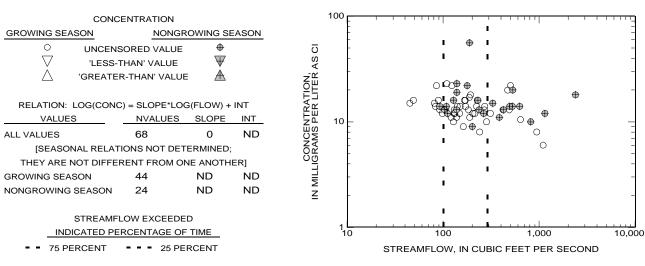
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

		CONCENTR	RATION	
_!	LOW FLOW			HIGH FLOW
	<u> </u>	JNCENSORE	D VALUE	
	^	'LESS-THAN		$\overline{\Psi}$
	∠ 'G	REATER-THA	AN' VALU	E A
	TRE	NDS IN CONC	CENTRAT	ION
	VALUES	NVALUES	NWYS	SLOPE
	LOW FLOW	26	13	ND
	HIGH FLOW	29	14	0.58

APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01397000 SB RARITAN RIVER AT STANTON STATION, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMELOW

	LOAD				1,000,000				1 1 1	
$\stackrel{ imes}{ riangledown}$	UNCENSORED V			Α	-	!	i 1		×	=
RELATION: LOG	(LOAD) = SLOPE*LC NVALUES	OG(FLOW) SLOPE	+ INT INT	PER D,	100,000		1	. /		_
ALL VALUES SMOOTHED RELATION	68 ON BETWEEN LOAI	0.92 D AND FLO	2.06 w	SOUNDS	-					-
(SHOWN IF THERE A		,		AD, IN	10,000		î.			
INDICATI	EAMFLOW EXCEED ED PERCENTAGE C	F TIME		9	Ē	* '	1			=
= = 75 PERCE	NI = = = 25 P	ERCENT			1,000	100	, <u>k</u>	1,000		10,000
						STREAMFLOW	IN CUBIC F	FEET PER	SECOND	

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		20		1 1	1 1	ı	1 1	ı	1 1	ı		- 1	ı	ı	- 1	- 1	
LOW FLOW HIG	H FLOW _				⊕											0	
O UNCENSORED VALUE	⊕ AS C	20	_	\oplus													Φ-
'LESS-THAN' VALUE	· ·				⊕												
	DX DA				•	0	0										
	R LT	15			₩	0	0										-
TRENDS IN CONCENTRATION	ĘÜ			**	Ψ									(₽		
VALUES NVALUES NWYS SL	OPE Substitution of the contract of the contra			(4)		0				•	€				•		
LOW FLOW 9 6	ND ÖŽ	10	L		⊕	₽							4	€			-
HIGH FLOW 18 8	ND OR				⊕												
	3				Φ												
	Σ	5	-		Ψ												-
	Z																
		0	느	77 70	70.0	0 04	00 0	2 04	05		07	00		00	04	00	
			76	77 78	79 8	SU 81	82 8	3 84	85	86	87	88	89	90	91	92	13

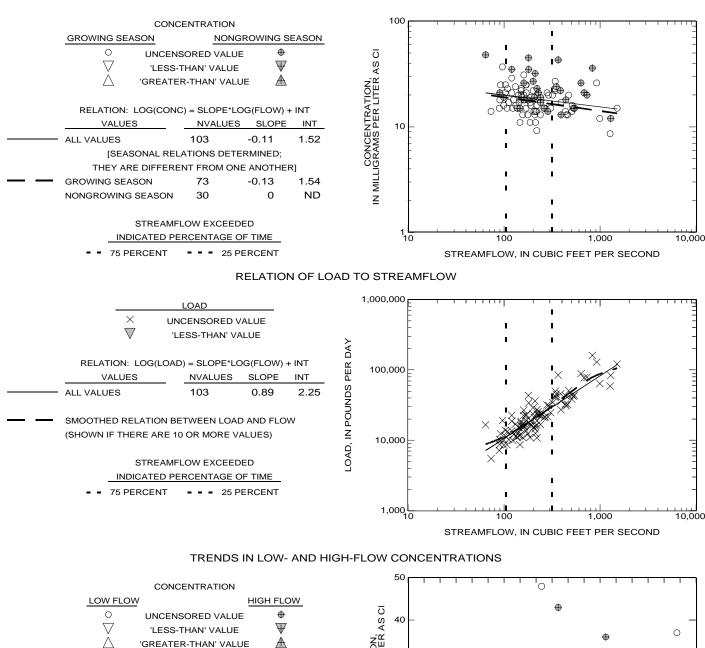
WATER YEAR

25 -

APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01397400 SB RARITAN RIVER AT THREE BRIDGES, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



TRENDS IN CONCENTRATION

11

27

NVALUES NWYS

8

14

SLOPE

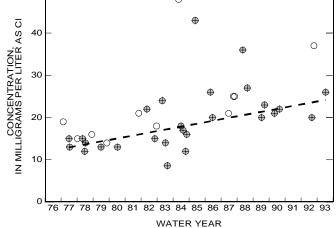
ND

0.7

VALUES

LOW FLOW

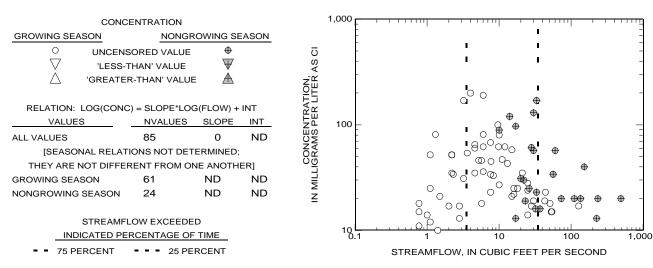
HIGH FLOW



APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01398000 NESHANIC RIVER AT REAVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 85 0.95 2.31	Se Per
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	NOO 1,000
75 PERCENT 25 PERCENT	10 1 1 10 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION			250	'	1	1 1	'		1	1	1 1	1	1	1		ı	
LOW FLOW			HIGH FLOW																
	NCENSORE		₩	- OS	200	_													+
△ 'GI	REATER-THA	N' VALUI	■ ▲	ON											0				
				TATI	150	_													_
TREN	IDS IN CONC	CENTRAT	ION	Ę															
VALUES	NVALUES	NWYS	SLOPE	Ω N O															
LOW FLOW	19	12	ND	Z Z Z Z	100	L													_
HIGH FLOW	17	10	ND	CONCENTRATION							0								
					50				0		Φ ₀	_							
				Z		T					O	\sim	, _					4	Φ_
				_					Ф ОДЬ	Ф		⊕ (4			_	_	
								$\oplus \oplus$	**	Page C	+		₩	#	9	Ψ	0	0	₩
					0	76 7	77 78	79 8	30 81	82	83 8	4 85	86 8			90	91	92	93

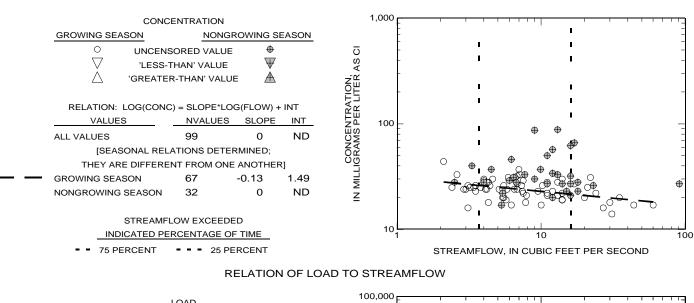
WATER YEAR

250 -

APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01398260 NB RARITAN RIVER NEAR CHESTER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD

X UNCENSORED VALUE

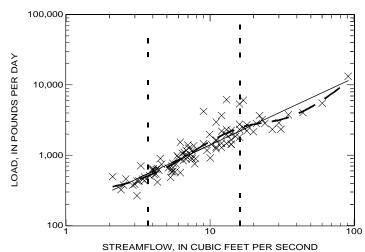
▼ 'LESS-THAN' VALUE

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

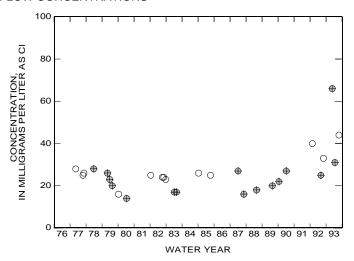
75 PERCENT - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTRATION	
LOW FLOW		HIGH FLOW
0	UNCENSORED VALUE	•
\vee	'LESS-THAN' VALUE	\forall
\triangle	'GREATER-THAN' VALU	E A

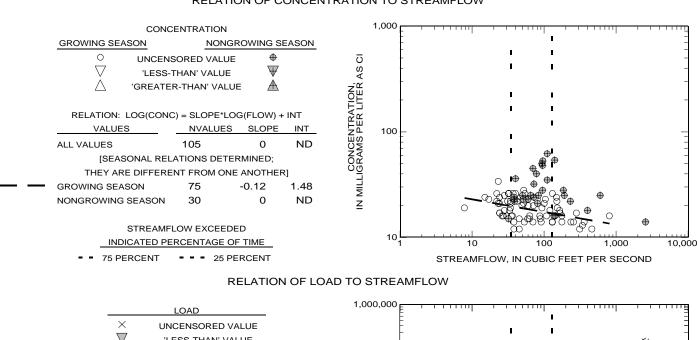
TRENDS IN CONCENTRATION										
VALUES	NVALUES	NWYS	SLOPE							
LOW FLOW	13	6	ND							
HIGH FLOW	16	10	ND							



APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01399120 NB RARITAN RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



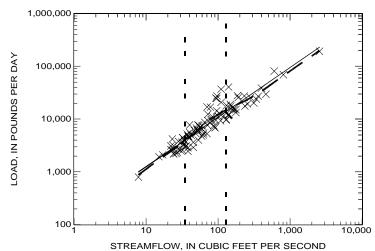
'LESS-THAN' VALUE

RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT NVALUES SLOPE **VALUES** 105 0.94 ALL VALUES

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME **75 PERCENT** 25 PERCENT

CONCENTRATION

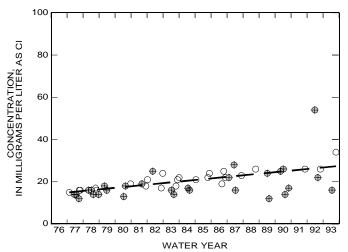


TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

HIGH FLOW

, ,	NCENSOREI LESS-THAN' REATER-THA	⊕ ₩ Æ	
TREN	IDS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
 LOW FLOW	24	13	0.74
HIGH FLOW	29	13	0

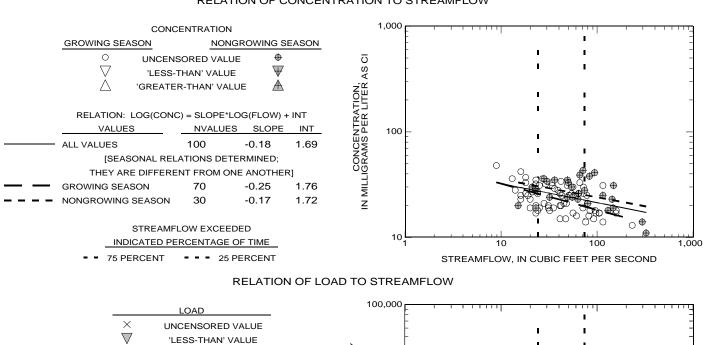
LOW FLOW



APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01399500 LAMINGTON (BLACK) RIVER NEAR POTTERSVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

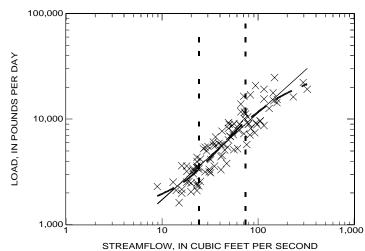


SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

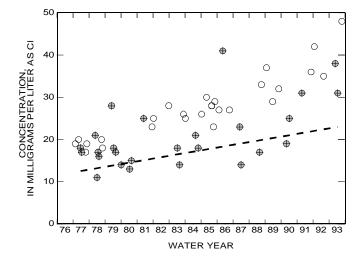
INDICATED PERCENTAGE OF TIME

75 PERCENT - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

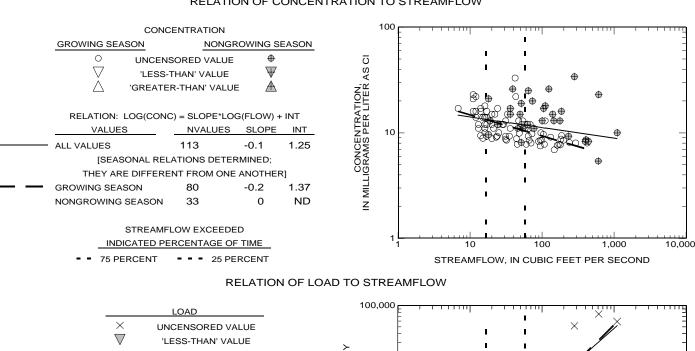
		CONCENTR	ATION	
LO	W FLOW			HIGH FLOW
	O U1	O VALUE	+	
	ןי √	VALUE	$\overline{\Psi}$	
	△ 'GR	N' VALUE	■ ▲	
	TREN	DS IN CONC	ENTRATI	ON
	VALUES	NWYS	SLOPE	
LC	OW FLOW	13	ND	
н	GH FLOW	26	13	0.65



APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01399700 ROCKAWAY CREEK AT WHITEHOUSE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



 RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT

 VALUES
 NVALUES
 SLOPE
 INT

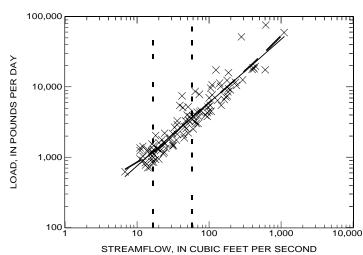
 ALL VALUES
 113
 0.9
 1.98

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION	
LOW FLC	<u>)W</u>	1	HIGH FLOW
0	UNCENSORE	O VALUE	⊕
∇	'LESS-THAN'	VALUE	$\overline{\Psi}$
\triangle	'GREATER-THA	N' VALUE	<u> </u>
	TRENDS IN CONC	ENTRATI	ON
VALUE	S NVALUES	NWYS	SLOPE

20

49

12

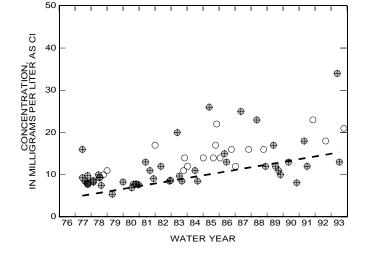
16

ND

0.64

LOW FLOW

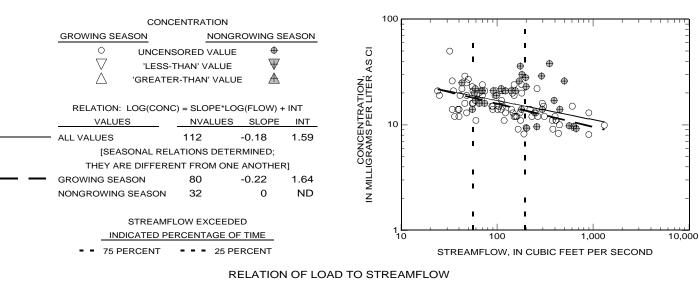
HIGH FLOW



APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01399780 LAMINGTON RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD X UNCENSORED VALUE VLESS-THAN' VALUE >	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 112 0.82 2.32	
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) Z Q	10,000
STREAMFLOW EXCEEDED SINDICATED PERCENTAGE OF TIME	
75 PERCENT 25 PERCENT	1,000 10 100 1,000 10,000 STREAMFLOW, IN CUBIC FEET PER SECOND

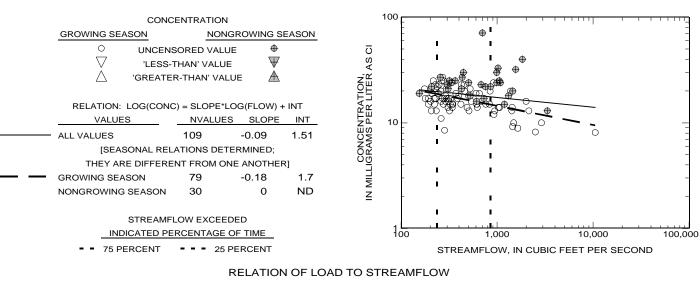
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	RATION			30	- 1 1	ı	1	1			1	1 1			
LOW FLOW			HIGH FLOW	_												
٥ ر	JNCENSORE	D VALUE		S	40	_										
∇	'LESS-THAN	' VALUE	$\overline{\Psi}$	Ä												
∆ 'G	REATER-THA	AN' VALU	E A	TION	30											
TRE	NDS IN CONC	CENTRAT	ION	TRAT ER LI	30	-				⊕	0)				
VALUES	NVALUES	NWYS	SLOPE	N P P							Ф	(2 0			
LOW FLOW	22	11	ND	CONCE	20	_					•	Č	0		0	
 HIGH FLOW	35	12	0.5	00 5					a	n	0		,	⊕		4
						္စစ္အ	₩ 4)	G	0	→ (***		. –	- }	•
				IN MIL	10	— (11)	*	** <u>-</u>			-			\oplus		
				Z			ΨΨ	⊕		Ψ						

APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01400500 RARITAN RIVER AT MANVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



	LOAD		1,000,000			
$\overline{\hspace{1em}}^{ imes}$	UNCENSORED VALUE		<u> </u>	1 1 1 ×	/×	
RELATION: LOG((LOAD) = SLOPE*LOG(FLOW) + INT	7 N	\times	/ </th <th>=</th>	=
VALUES	NVALUES SLOPE	INT	PER -			=
ALL VALUES	109 0.91	2.24	Ø Ω Z 100.000	XXXX	×	
(SHOWN IF THERE A	ON BETWEEN LOAD AND FL RE 10 OR MORE VALUES) EAMFLOW EXCEEDED	OW	100,000 L			-
INDICATE	ED PERCENTAGE OF TIME	-	_	//		-
75 PERCE	NT 25 PERCENT			* 1		
			10,000	1,000	10,000	100,000
				STREAMFLOW, IN CL	IBIC FEET PER	SECOND

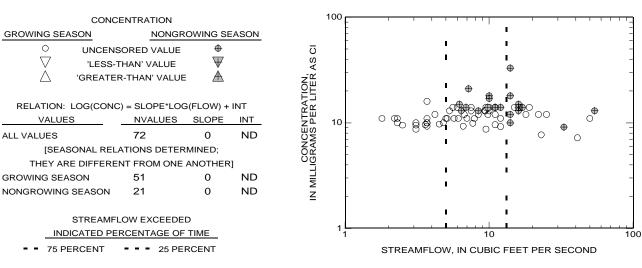
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		50	1 1		1 1	1 1	1 1	1 1	1	1	ı	
LOW FLOW O UNCENSORED VALUE O	HIGH FLOW	40	_				•	∌				_
√ 'LESS-THAN' VALUE △ 'GREATER-THAN' VALUE			⊕			⊕			•)		
TRENDS IN CONCENTRA VALUES NVALUES NWYS LOW FLOW 17 9	E#	20			⊕	•	*	•)	0	.0	•
HIGH FLOW 28 13			0 0 0 0	•	O O ⊕ ⊕	0	С	, Ψ		₩		
	W Z	10	- +	• •	⊕	⊕						_
		0	1 1	1 1 1	1 1	1 1	1 1	1 1		1	1	

APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01400540 MILLSTONE RIVER NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

×	LOAD UNCENSORED \ 'LESS-THAN' V			10,	,000	1 1 1	1 1 1 1	
RELATION: LOG(I	LOAD) = SLOPE*LO	SLOPE	INT	3 PER DA	-		, ×	
— ALL VALUES — SMOOTHED RELATIO	72	1.05	1.76	SONDO 1,	,000		' × 💥	×
(SHOWN IF THERE AF			ΣVV	Ö. R P	-			
INDICATE	AMFLOW EXCEED D PERCENTAGE (OF TIME		ГОА	-		·××	
75 PERCEN	IT = = = 25 F	PERCENT			100		10	

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

		CONCENTR	RATION	
LOW FLC	WC			HIGH FLOW
0	U	NCENSORE	D VALUE	
×		LESS-THAN		- \
\triangle	'GF	REATER-THA	AN' VALUI	E A
	TREN	DS IN CONC	CENTRAT	ION
VALUE	ES	NVALUES	NWYS	SLOPE
LOW FL		18	10	ND
HIGH FL	LOW	18	12	ND

50 **-**

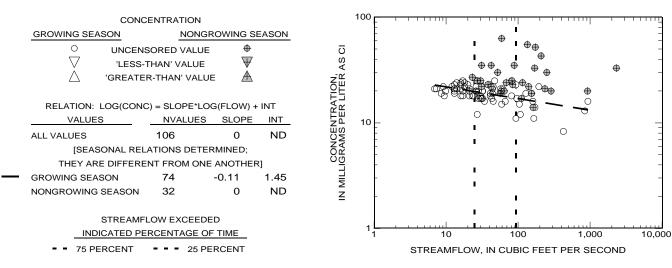
100

STREAMFLOW, IN CUBIC FEET PER SECOND

APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01400650 MILLSTONE RIVER AT GROVERS MILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

		1,000,000				
LOAD		1,000,000	1 1 1 1 1 1 1 1 1 1 1 1		1 1 1 1 1 1 1 1 1 1 1	' ' ' ' ' ' ' '
× UNCENSORED VALUE		F				\times =
V 'LESS-THAN' VALUE						/ 1
	>	400,000				_
RELATION: LOG(LOAD) = SLOPE*LOG(FLOV	C ۷) + INT ر	100,000		_		
VALUES NVALUES SLOP	É INT	<u>.</u>		' '>	××// ^ -	7
				1 × 1	>> \]
ALL VALUES 106 0.99	2.06	_		^`3*	% ^	
	<u> </u>	10,000		I XX	X.	3
SMOOTHED RELATION BETWEEN LOAD AND F	LOW	Z E				∃
(SHOWN IF THERE ARE 10 OR MORE VALUES)	2	Z ├	,			-
	c	أ دُ				-
STREAMFLOW EXCEEDED	<	5 1,000 -				=
INDICATED PERCENTAGE OF TIME	-	i	X	•		3
·	_	-		ı		1
= = 75 PERCENT = = = 25 PERCEN	Γ	-		1 1		-
		100				_ ليببب
		1	10	100	1,000	10,000
			STREAME	LOW IN CUBIC	FEET PER SEC	OND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

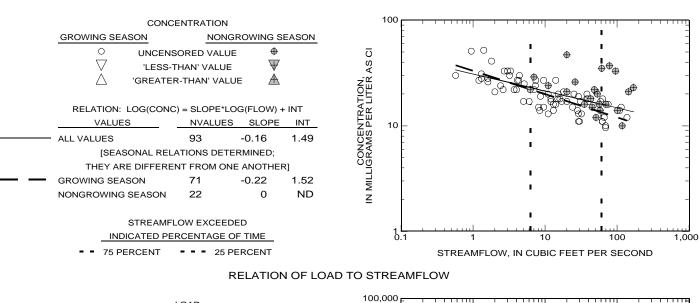
CONCENTRATION		100	
LOW FLOW HIGH FLOW	_		
○ UNCENSORED VALUE ♥ VLESS-THAN' VALUE ▼	AS CI	80	-
'LESS-THAN' VALUE	-		
TRENES IN CONCENTRATION	X LI	60	
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	CONCENTRATION, IN MILLIGRAMS PER LITER		⊕
LOW FLOW 30 14 ND	SAMS	40	⊕
HIGH FLOW 26 12 ND	SPI		• •
	M	20	
	∠		
		0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01401000 STONY BROOK AT PRINCETON, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



						100,000	 	 		
		LOAD				E	1	'		3
	×	UNCENSORED V	ALUE			Ė		Ī	- I	=
	∇	'LESS-THAN' VA	LUE		_	F		I	i.×. ×]
					DAY	10,000		-	××,	_
	RELATION: LOG(LOAD) = SLOPE*LC	G(FLOW)	+ INT	~	E		Ī		₫
	VALUES	NVALUES	SLOPE	INT	PE	-		- I		=
	ALL VALUES	93	0.84	2.22	JNDS	-				-
					<u> </u>	1,000			·· -	=
— —	SMOOTHED RELATIO	N BETWEEN LOAD	AND FLC	W	PO	Ē		~ ***	ı	3
	(SHOWN IF THERE A	RE 10 OR MORE VA	ALUES)		Z	F	×â		- I	7
					Ġ,				1	1
	STRE	AMFLOW EXCEED	ED		Ŏ,	100	×			
	INDICATED PERCENTAGE OF TIME					F			ı	3
	75 PERCEN	NT = = = 25 P	ERCENT			Ē		ı	I]
						10	1	10	100	1,000
						0.1	OTDE AME			
							SIREAME	LOW, IN CUBIC F	EET PER SECON	J

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

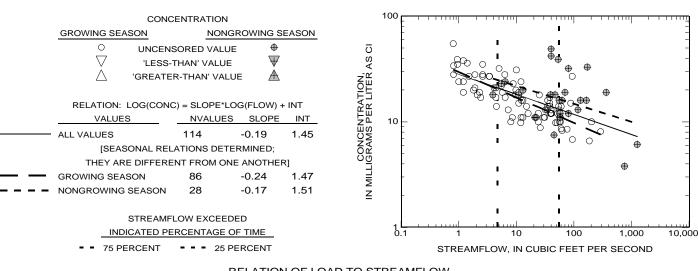
					100														
	CONCENTR	RATION			.00	'	'	1	1	ı		- 1	ı	ı	ı	1	'		' '
LOW FLOW			HIGH FLOW	_															
Ο υ	NCENSORE	D VALUE	⊕	Ö	80														
∇	LESS-THAN	' VALUE	$\overline{\Psi}$	AS	00														
△ 'GF	REATER-THA	AN' VALUE	A	Z,E															
				Ĕ5	60														
TREN	IDS IN CONC	CENTRAT	ON	동 문											^				
VALUES	NVALUES	NWYS	SLOPE	CONCENTRATION, IGRAMS PER LITER											0		0		
LOW FLOW	25	14	ND	ÄĞ.	40	_													
HIGH FLOW	18	11	ND	0.00									_	0	\oplus			+ C)
				- 4					C) (30	0	0	Ō	0		0	-	
				MILL	20	_			ď	9 '	5		\circ	0)	Ф		Φ.	0
				Z				\oplus	_	4	. • •	€	_		○ ∉ ∌	Φ (+	0
									⊕⊕	4	7	+	₩	-	₽				

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APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01401600 BEDEN BROOK NEAR ROCKY HILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT 114 0.81 2.18 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT - 25 PERCENT	1000 I I 1000 I 1000 I I I I
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

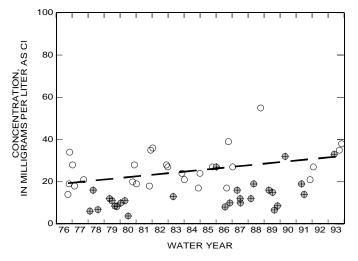
HIGH FLOW

Ο υ	NCENSORE	NSORED VALUE				
▽ ,	'LESS-THAN' VALUE					
△ 'GF	'GREATER-THAN' VALUE					
TREN	TRENDS IN CONCENTRATION					
VALUES	NVALUES	NWYS	SLOPE			
 LOW FLOW	27	14	0.75			
HIGH FLOW	27	11	ND			

LOW FLOW

0

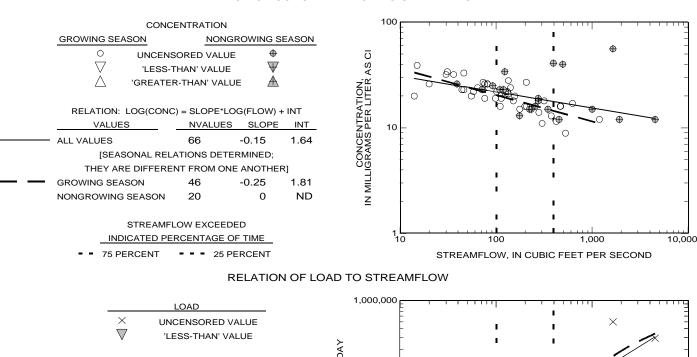
CONCENTRATION



APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



 RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT

 VALUES
 NVALUES
 SLOPE
 INT

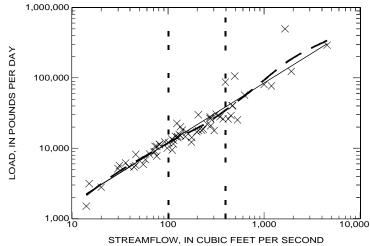
 ALL VALUES
 66
 0.85
 2.38

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

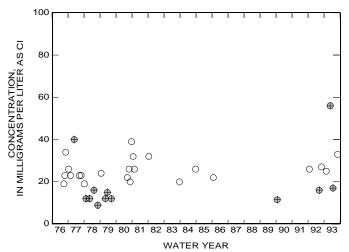
75 PERCENT - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTRATION	
LOW FLOW	I	HIGH FLOW
0	UNCENSORED VALUE	<u>+</u>
∇	'LESS-THAN' VALUE	\forall
\triangle	'GREATER-THAN' VALU	E A
	DENIDO IN CONCENTRA	TON!

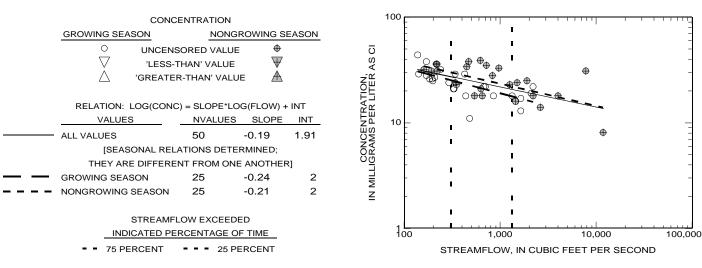
TRENDS IN CONCENTRATION							
VALUES	NVALUES	NWYS	SLOPE				
LOW FLOW	23	12	ND				
HIGH FLOW	12	6	ND				



APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01403300 RARITAN RIVER AT QUEENS BRIDGE, AT BOUND BROOK, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	10,000,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	NOO,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	100,000
75 PERCENT 25 PERCENT	10,000 10,000 100,000 STREAMELOW IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		
LOW FLOW HIGH FLOW	_ 0	
○ UNCENSORED VALUE ♥ ▽ 'LESS-THAN' VALUE ▼ △ 'GREATER-THAN' VALUE ▲	O O O	0
TOTALDO IN CONCENTRATION	IN MILLIGRAMS PER LITER, OONCENTRATION, 10 0 0 0 0 0 0 0 0 0 0 0 0	
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	AT O	
	NON O	· •
	ŽŽ 20 –	_
HIGH FLOW 14 9 ND	000 R	Ф ф Ф Ф Ф Ф Ф Ф Ф Ф Ф Ф Ф Ф Ф Ф Ф Ф Ф Ф
		·
	≥ 10 –	_
	Z	⊕
	76 77 78 79 80 81 82 83 84 85 8	86 87 88 89 90 91 92 93

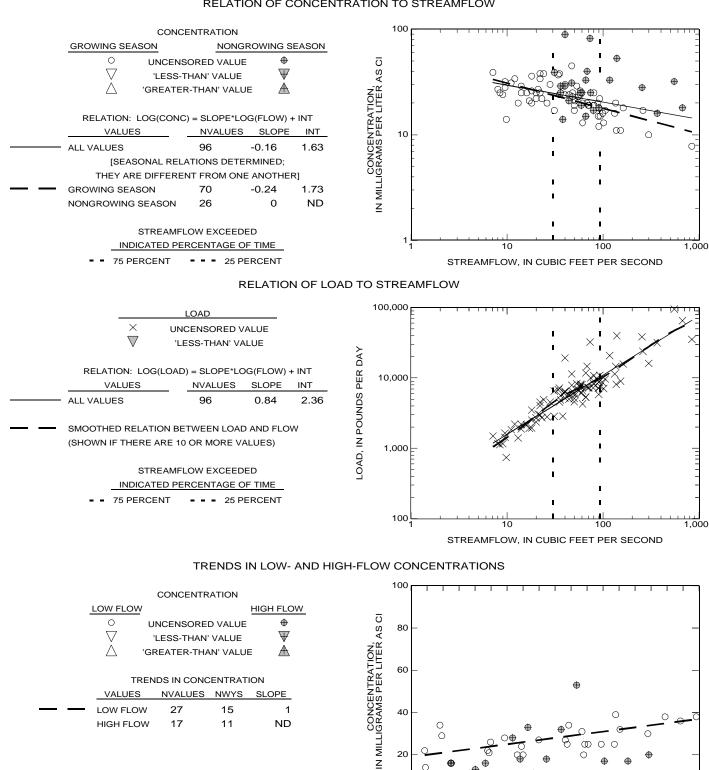
WATER YEAR

50 -

APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01405302 MATCHAPONIX BROOK AT MUNDY AVE, AT SPOTSWOOD, N.J.

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



40

20

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

LOW FLOW

HIGH FLOW

27

17

15

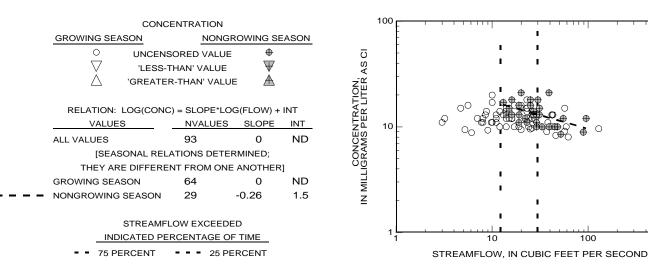
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ND

APPENDIX 7. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED CHLORIDE 01405340 MANALAPAN BROOK AT FEDERAL RD, NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



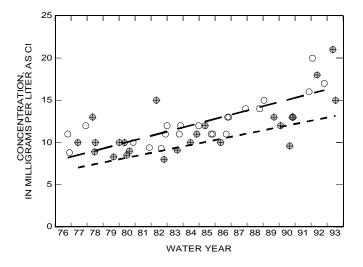
RELATION OF LOAD TO STREAMFLOW

LOAD	10,000
X UNCENSORED VALUEVLESS-THAN' VALUE	
— ALL VALUES 93 0.94 1.9 — SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	1,000
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	
	1 10 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

<u>_</u>	LOW FLOW		HIGH FLOW							
	Ο υ	NCENSORE	NCENSORED VALUE							
	∇ ,	$\overline{\Psi}$								
	TREN	DS IN CONC	ENTRAT	ON						
	VALUES	NVALUES	NWYS	SLOPE						
	LOW FLOW	22	14	0.5						
	HIGH FLOW	24	13	0.38						

CONCENTRATION



1,000

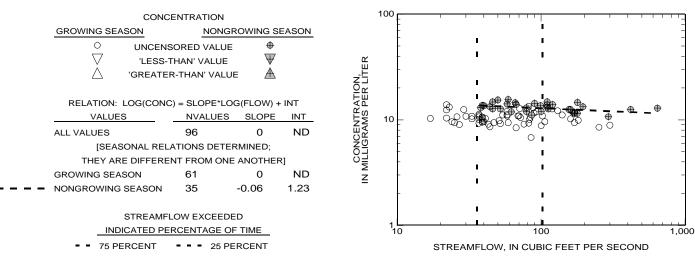
Appendix 8 - Dissolved oxygen

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Blackwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01396280 SB RARITAN RIVER AT MIDDLE VALLEY, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD T	O STREAMFLOW
LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 96 1.03 1.73 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	
75 PERCENT 25 PERCENT	100 10 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

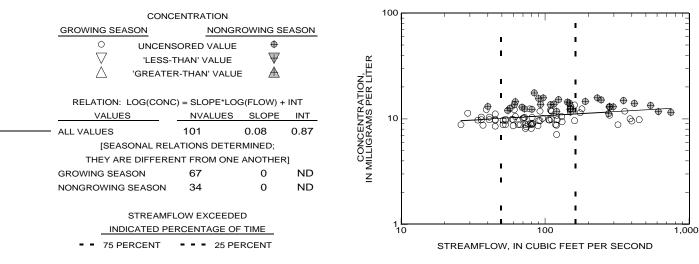
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CON	NCENTRATION			1 '							
LOW FLOW		HIGH FLOW									
, LES	NSORED VALUE S-THAN' VALUE 'ER-THAN' VALU		CONCENTRATION, MILLIGRAMS PER LITER	5 –	•		⊕				_
	N CONCENTRAT		TRA 1S P		○ ●	₱ ⊕	0 0 0	⊕	Φ	Ð _A ⊕	
	ALUES NWYS	SLOPE	ZNZ ZNZ		⊕	* ₩ ∉)	•	0	Φ Ψ	⊕
LOW FLOW	3 9	ND	9 ⁶ 10	o —	⊕	+ 0	○ ⊕ Ø ⊕	O	0 0	0	_
HIGH FLOW 2	25 14	0	Z	5 —			O # #		Ф ^Ф	O	_

APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01396535 SB RARITAN RIVER AT ARCH ST, AT HIGH BRIDGE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	O
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	10,000
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	1,000
	1,000 1,000 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		' '						. 1
LOW FLOW HIGH FLOW	<u>'</u> _							
○ UNCENSORED VALUE ♥ ▽ 'LESS-THAN' VALUE ▼ △ 'GREATER-THAN' VALUE ▲	CONCENTRATION, IN MILLIGRAMS PER LITER 0 0 1 51 00			Φ	•	4)	_
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	ATR VIS E	0		+		Ţ		
LOW FLOW 14 9 ND HIGH FLOW 20 12 0	CONCEN MILLIGRAP	,_	⊕⊕		00	Õ	0	<u>+</u>
	Z 5	; —						_
		1						

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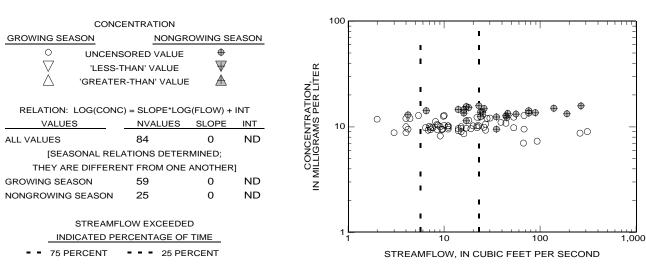
WATER YEAR

25

APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01396588 SPRUCE RUN NEAR GLEN GARDNER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VA VLESS-THAN' VAI		100,000
RELATION: LOG(LOAD) = SLOPE*LOG VALUES NVALUES	G(FLOW) + INT M SLOPE INT L	10,000 I
ALL VALUES 84	1.03 1.73	S X X X X X X X X X X X X X X X X X X X
SMOOTHED RELATION BETWEEN LOAD (SHOWN IF THERE ARE 10 OR MORE VA		Q 1,000
STREAMFLOW EXCEEDE INDICATED PERCENTAGE OF - 75 PERCENT 25 PE		100 1 100 100

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		
LOW FLOW	HIGH FLOW	
○ UNCENSORED VALUE □ 'LESS-THAN' VALUE □ 'GREATER-THAN' VALUE TRENDS IN CONCENTRAT VALUES NVALUES NWYS	LION TANK TO THE T	Φ Φ
LOW FLOW 9 6 HIGH FLOW 34 15	ND ONO 10 ND SERVICE S	

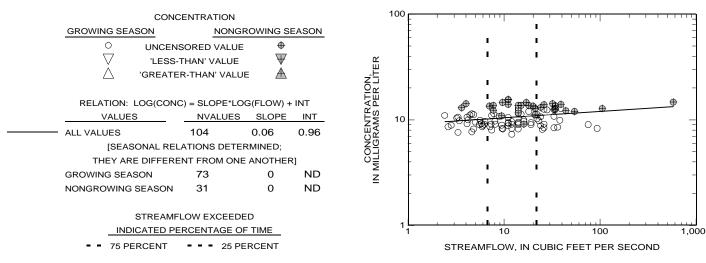
1,000

STREAMFLOW, IN CUBIC FEET PER SECOND

APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01396660 MULHOCKAWAY CREEK AT VAN SYCKEL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD				100,000		•	1 1 1	
$\stackrel{ imes}{ riangledown}$	UNCENSORED V			Α	Ē	1	į		
RELATION: LOG((LOAD) = SLOPE*LC	G(FLOW)	+ INT	iR D	10,000	1	1		
VALUES	NVALUES	SLOPE	INT	PEF	10,000	Ī	- I		
ALL VALUES	104	1.06	1.69	NDS	F	-	i		
SMOOTHED RELATION	ON BETWEEN LOAD	O AND FLO	w	POU	-	1			
(SHOWN IF THERE A	RE 10 OR MORE V	ALUES)		Ž,	1,000	*	× ×		
STRE	EAMFLOW EXCEED	ED		OAL	Ē		1		
INDICATE	ED PERCENTAGE C	F TIME		_	-		ı		
75 PERCE	NT = = = 25 P	ERCENT			-		1		
					100	10	10	00	1
						STREAMFLOW	/, IN CUBIC FEET P	ER SECOND	

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		
LOW FLOW HIGH FLOW		
O UNCENSORED VALUE ✓ 'LESS-THAN' VALUE ✓ 'GREATER-THAN' VALUE TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	CONCENTRATION, IN MILLIGRAMS PER LITER 0 0 51	
LOW FLOW 25 13 ND HIGH FLOW 29 14 0	CONCEI IN MILLIGRA	

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

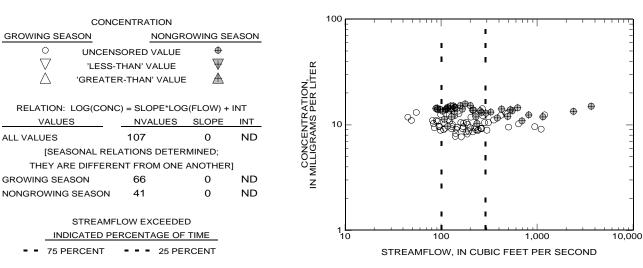
WATER YEAR

25

APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01397000 SB RARITAN RIVER AT STANTON STATION, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD				1,000,000			1 1 1	
$\overset{\times}{\triangledown}$	UNCENSORED VA			Α		1 1	i	X	- -
RELATION: LOG(L	LOAD) = SLOPE*LOO NVALUES	G(FLOW) - SLOPE	INT	PER D	100,000		1		=
- ALL VALUES	107	1.02	1.75	JNDS	-	•			-
- SMOOTHED RELATIO	N BETWEEN LOAD	AND FLO	N	POL	-	;	×		-
(SHOWN IF THERE AF	RE 10 OR MORE VA	LUES)		Ď,	10,000				-
STRE	AMFLOW EXCEEDE	D		PO-	Ė		•		-
INDICATE	D PERCENTAGE OF	TIME		_	-	*	ı		-
75 PERCEN	IT = = = 25 PE	RCENT			-	I	ı		-
					1,000	100	1,0	000	10,0
						STREAMFLOW	, IN CUBIC FEET F	PER SECOND	

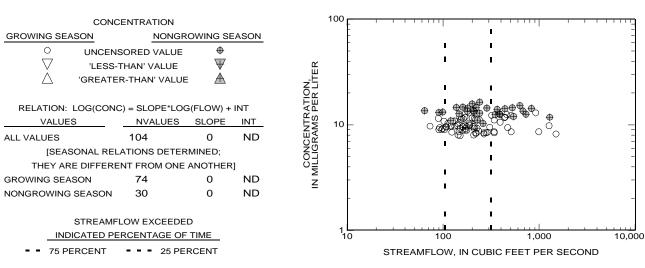
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTE	RATION				1										
LOW FLOW			HIGH FLOW													
٥ ر	INCENSORE	D VALUE	+		20	L										_
∇	LESS-THAN	VALUE	$\overline{\Psi}$	Ë												
△ 'g	REATER-TH	AN' VALUE	■ ▲	ž:												
				FE	15	L			Ф							_
TREN	DS IN CON	CENTRAT	ON	A G			0 0	⊕ ∰a	_ ♣	0				⊕ €	•	_
VALUES	NVALUES	NWYS	SLOPE	ΣŠ			₩ #	* •	. 0 .	\oplus		⊕		0		⊕
LOW FLOW	16	9	ND	CONCENTRATION, IN MILLIGRAMS PER LITER	10	L	0	,	⊕ €	Ö	0	\oplus		⊕	,	
HIGH FLOW	24	13	0	ËŠ				₩ (0			+	∌		,	O .
				5												
				Z	5	L										_
					0	<u> </u>										
						76	77 78	79 80	81 82	83 8	34 85	86 87	7 88	89 90 9	1 92	2 93

WATER YEAR

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	>	100,000			·
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW VALUES NVALUES SLOPE	HINT H	-	!		-
ALL VALUES 104 1.05	1.66	10,000			
SMOOTHED RELATION BETWEEN LOAD AND FLOAT (SHOWN IF THERE ARE 10 OR MORE VALUES)	OW 0	Ē	×	I	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	LOAD	- -	# <u>``</u> 1	1	
75 PERCENT 25 PERCENT		1,000	100	1,000	10,000
			STREAMFLOW,	IN CUBIC FEET PER	SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION				1						' '		
LOW FLOW			HIGH FLOW	=,										
, ,	NCENSOREI LESS-THAN' REATER-THA	VALUE			ION, R LITEF	20 –					⊕			_
TREN	IDS IN CONC	ENTRAT	ION		RAT S PE	5 –	•			# ₫	-	•	⊕	_
VALUES	NVALUES	NWYS	SLOPE		Z E M			₩ ⊕	⊕ ∉	∌	⊕	0	•	0
LOW FLOW	11	8	ND		2 2 2 1	0	_	0	0	+ +		0	⊕	
HIGH FLOW	27	14	0		Éġ		0	0	8	•		⊗ ⊕	\oplus	⊕
					Σ̈́									
					≤	5 –								-

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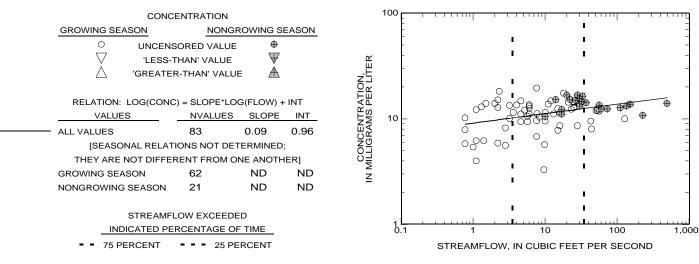
WATER YEAR

25 🗖

APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01398000 NESHANIC RIVER AT REAVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	
(SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	100 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

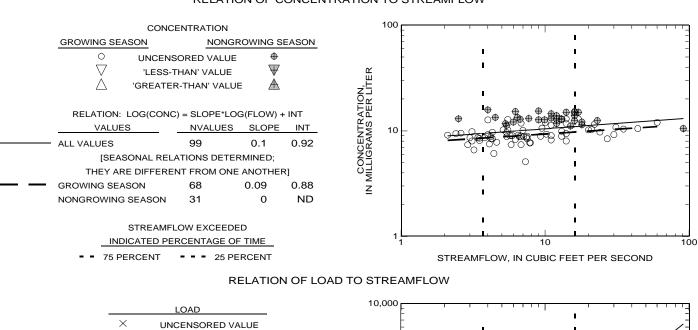
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION				
LOW FLOW HIGH FLOW				
O UNCENSORED VALUE ♥ VLESS-THAN' VALUE ▼ OREATER-THAN' VALUE ★ TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	MS PER LITER 121 -	⊕ ⊕ ⊕ ⊕ • •	° ° • ° •	• ° •
LOW FLOW 19 12 ND HIGH FLOW 16 10 ND	CONCENT IN MILLIGRAMS 2 0		o ⊕ 0 0	0

APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01398260 NB RARITAN RIVER NEAR CHESTER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



×	LOAD UNCENSORED VALUE 'LESS-THAN' VALUE	-	10,000	<u> </u>	
RELATION: LOG(L VALUES ALL VALUES	OAD) = SLOPE*LOG(FLO NVALUES SLOP 99 1.1	E INT	OS PER DAY	· · · · · · · · · · · · · · · · · · ·	
SMOOTHED RELATIO	N BETWEEN LOAD AND F RE 10 OR MORE VALUES)	FLOW	1,000 - 0 L 2 L		×
	AMFLOW EXCEEDED D PERCENTAGE OF TIME IT = = 25 PERCEN	_	LOAD	×	
73 FERGER	III ZOFERGEN		100	10 STREAMFLOW, IN CUBIC FEET PER	R SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		1 ' ' ' ' '		
LOW FLOW	HIGH FLOW			
○ UNCENSORED VALUE □ 'LESS-THAN' VALUE □ 'GREATER-THAN' VALUE	E A 20	_		-
TRENDS IN CONCENTRAT VALUES NVALUES NWYS	ION STORE	0 _		⊕
VALUES NVALUES NWYS LOW FLOW 12 6 HIGH FLOW 16 10	E A NON SLOPE ND	• • •	•	⊕⊕⊕⊕□
		1		

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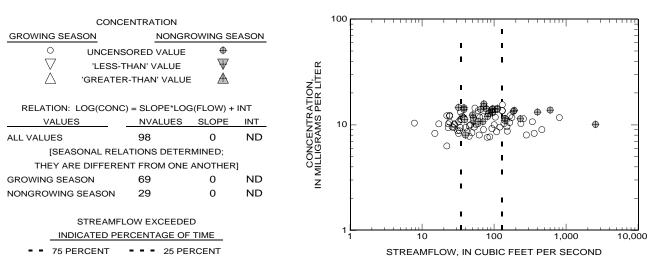
WATER YEAR

25

APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01399120 NB RARITAN RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD		1,000,000			· · · · · · · · · · · · · · · · · · ·
$ imes$ uncensored value $ ilde{\mathbb{V}}$ 'Less-than' value	>	:	1	;	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW VALUES NVALUES SLOPE	·	100,000	1		
ALL VALUES 98 1.03	1.71 SON	10,000			-
 SMOOTHED RELATION BETWEEN LOAD AND FL (SHOWN IF THERE ARE 10 OR MORE VALUES) 	.ow Od				
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	- LOAE	1,000		1	
75 PERCENT 25 PERCENT		100	10	100 1,00	0 10,000
			STREAMFLOW, IN	CUBIC FEET PER SE	COND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

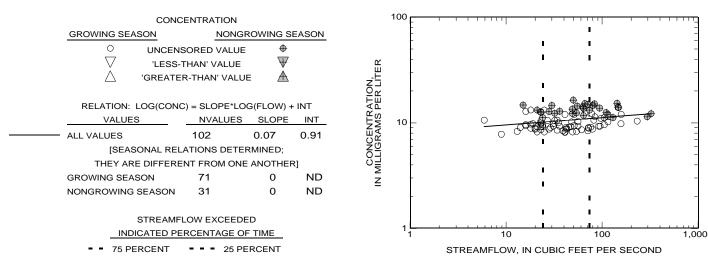
	CONCENTE	RATION				1 '					•					•	
LOW FLOW			HIGH FLOW														
٥ ر	NCENSORE	D VALUE	⊕	_	, 20												_
∇	LESS-THAN	' VALUE	$\overline{\Psi}$	<u>п</u>	<u> 2</u> 0												
△ 'GI	REATER-TH/	AN' VALUE	■ ▲	ź.	5												
				일	⊻ ⊔ 15		⊕										
TREN	IDS IN CON	CENTRAT	ION	A.	<u> </u>	_ c)	⊕		⊕					⊕		
VALUES	NVALUES	NWYS	SLOPE	Z	2					0	⊕ ○⊕()	-		•		•
LOW FLOW	22	12	ND	CONCENTRATION) 10	L,	•	₩	₩0	0	* • •	,		•			• •
HIGH FLOW	25	13	0	<u> </u>			70			⊕	0	8	0	#	•		∌ ō
				O								0		0	*	0	
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					0					1 1			1 1				1
					U	76	77 78	3 79	80 8	1 82	83 84	85 8	6 87 8	38 89	90 9	91 92	2 93

WATER YEAR

APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01399500 LAMINGTON (BLACK) RIVER NEAR POTTERSVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	100,000
	0 D D D D D D D D D D D D D D D D D D D
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED	0 N N N N N N N N N N N N N N N N N N N
INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	100 100 100 1.000
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		1	
LOW FLOW	H FLOW		
○ UNCENSORED VALUE □ 'LESS-THAN' VALUE □ 'GREATER-THAN' VALUE	⊕ 20 ₩	_	_
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SI	DIE 15		* * * * * * * * * * * * * * * * * * *
LOW FLOW 28 14 HIGH FLOW 27 13	CONCENTRATION O 10 12 15 16 17 18 19 10 10 10 10 10 10 10 10 10		
	Z 5	_	

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

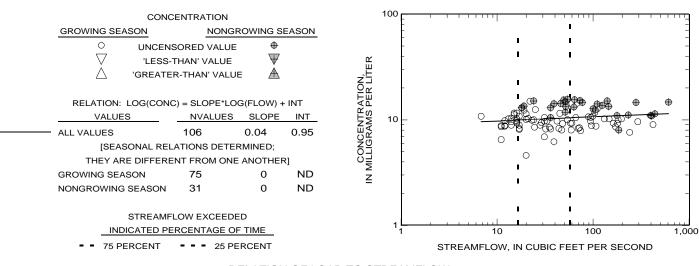
WATER YEAR

25

APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01399700 ROCKAWAY CREEK AT WHITEHOUSE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	10,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED	1,000
INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	100 100 1,000
	STREAMELOW IN CUBIC FEET PER SECOND

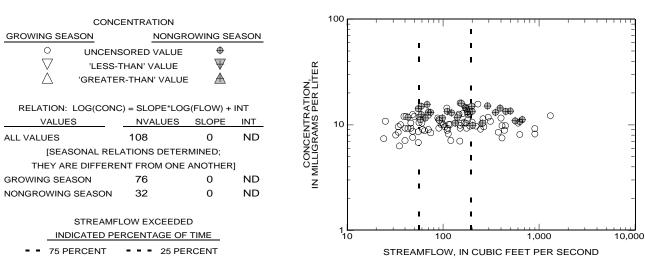
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

					25 i							
	CONCENTR	RATION			20		-	1	1 1	'	ı	I
LOW FLOW			HIGH FLOW									
0	UNCENSORE	D VALUE	⊕	~	20	_						
∇	'LESS-THAN	VALUE	$\overline{\Psi}$	ATION, PER LITER								
△ 'œ	REATER-THA	N' VALUI	E ▲	žΞ								
				E	15	_					⊕	•
TRE	NDS IN CONC	CENTRAT	ION							Ф		⊕
VALUES	NVALUES	NWYS	SLOPE	AMS SMS		_	Д			. *	⊕	. (
LOW FLOW	18	11	ND	CONCEN	10	_	₩	€	ΦΦ_	₽₽.	⊕ ₹	₹ <u>~</u> `
HIGH FLOW	45	16	0.25	ĔŖ		4	ቜ -	. –	-	,	. (9 4
				Σ		`	Ψ.			Ψ		
				Z	5	_						

APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01399780 LAMINGTON RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	10,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	1,000
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	
	100 100 1,000 10,000 10,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION				
LOW FLOW HIGH FLOW				
O UNCENSORED VALUE	CONCENTRATION, MILLIGRAMS PER LITER 10	+ • • • • • • • • • • • • • • • • • • •	+ + + -	- + + 0 p
LOW FLOW 22 11 ND HIGH FLOW 32 12 0	CONCEI IN MILLIGRA 2 -			

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

25

APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01400500 RARITAN RIVER AT MANVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONCE	NTRATION				100 F	1 1 1 1	тти т	1 1 1 1 1 1 1 1 1	<u> </u>
GROWING SEASON	NONGRO	WING SE	ASON		F		I		=
O UNCENSO	RED VALUE				F	ı	ı		1
√ 'LESS-TH	IAN' VALUE	$\overline{\Psi}$		ď	t	I			-
GREATER-	THAN' VALUE	A			t				-
		_		Z S	-	ı	1		_
RELATION: LOG(CONC)	= SLOPE*LOG(FLOW) +	INT	CONCENTRATION, N MILLIGRAMS PER LITER		- I			
VALUES	NVALUES	SLOPE	INT	AS AS	10 –			⊕ 0	_
ALL VALUES	108	0	ND	SEN	Ė	**************************************	‱_∞ ® 6	x 0	=
[SEASONAL RELAT	TIONS DETERM	IINED;		N 0	ł	90			=
THEY ARE DIFFEREN	T FROM ONE A	NOTHER]	싱글	Į	_]
GROWING SEASON	79	0	ND	≥ 7	-				_
NONGROWING SEASON	29	0	ND	=		ı	_		
					Ī		1		
STREAMFLO	W EXCEEDED						1.		
INDICATED PERO	CENTAGE OF T	IME			100		1,000	10,000	100,000
- 75 PERCENT -	25 PER	CENT					•	CUBIC FEET PER	•
.o. EROEIVI	201210	02				STREAT	ivii LOVV, IIV C	JOBIO I ELI PER	OLOGIND

RELATION OF LOAD TO STREAMFLOW

LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	1,000,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 108 1.03 1.67	ND 100,000 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED	Od N 10,000
INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	1,000 10,000 10,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	20		1 1 1 1	1 1 1	' '		'
LOW FLOW HIGH FLOW							
○ UNCENSORED VALUE ♥ ▽ 'LESS-THAN' VALUE △ 'GREATER-THAN' VALUE ▲	CONCENTRATION. IN MILLIGRAMS PER LITER 0 0 0	_					_
TRENDS IN CONCENTRATION	EH 15		• .	* *		_	-
VALUES NVALUES NWYS SLOPE	AMS		0 •		+ 0	⊕ ⊕	
LOW FLOW 17 9 ND	20 10			٠ _~ ^		0	_ ⊕ _
HIGH FLOW 28 13 0	CON	°°	○ ⊕ ⊕	,)	○ ⊕	⊕	
	Σ 7	•	⊕		Ψ	•	
	≟ 5.	_					-
	0.1						
	0.	76 77 78 79 80	81 82 83 84	85 86 87	88 89	90 91 9	2 93

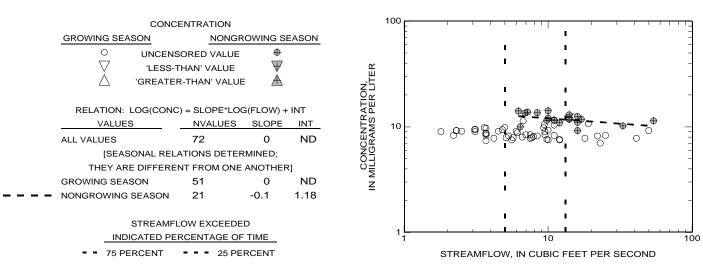
WATER YEAR

25

APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01400540 MILLSTONE RIVER NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000
	1,000
(SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	TOO
	10 10 100 100 100 STREAMELOW IN CUBIC FEET PER SECOND

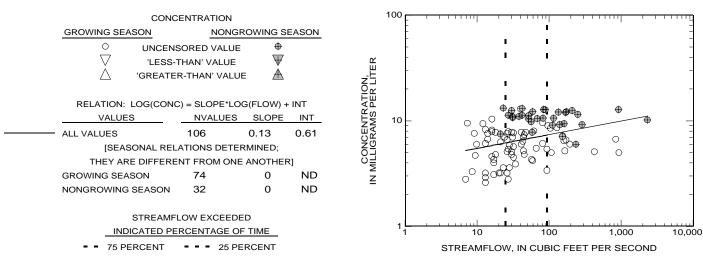
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION			
LOW FLOW	HIGH FLOW		
○ UNCENSORED VALUE □ 'LESS-THAN' VALUE □ 'GREATER-THAN' VALUE	T ATION, ₩	20 –	_
TRENDS IN CONCENTRAT	ION 550		• • •
VALUES NVALUES NWYS	SLOPE Z		
LOW FLOW 18 10	ND ŽÃ	10	•
HIGH FLOW 18 12	ND ND ON ND		
	Z	5 –	_

APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01400650 MILLSTONE RIVER AT GROVERS MILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

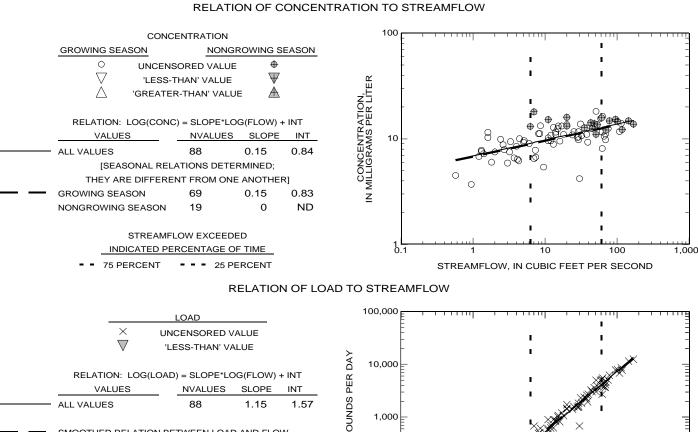
	LOAD				1,000,000			 	
×	UNCENSORED V			>	-		1 1 1 1		*
RELATION: LOG(VALUES	LOAD) = SLOPE*LO	G(FLOW) SLOPE	+ INT INT	PER DA	100,000		1 I		
ALL VALUES	106	1.13	1.34	UNDS	10,000				=
SMOOTHED RELATION (SHOWN IF THERE A			W	o, IN PC	- - -			*	
	AMFLOW EXCEED D PERCENTAGE O			LOAD	1,000				
					100	10 STREAMFL	100 OW, IN CUBIC	1,000	·

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION			
LOW FLOW HIGH FLOW			
O UNCENSORED VALUE ▼ 'LESS-THAN' VALUE ✓ 'GREATER-THAN' VALUE TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	MARATION, 12 PER LITER	- - ⊕ ⊕ ⊕	- -
LOW FLOW 30 14 ND HIGH FLOW 26 12 ND	CONCENTE IN MILLIGRAMS		

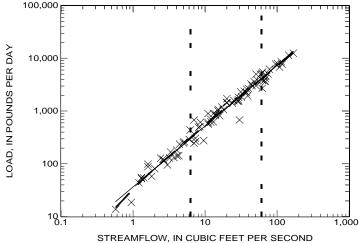
APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01401000 STONY BROOK AT PRINCETON, N.J.

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]



SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

> STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME **75 PERCENT** 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

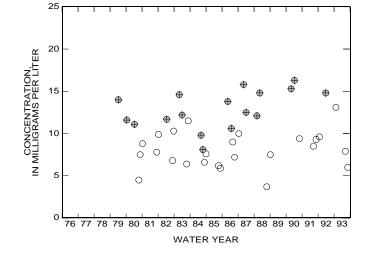
CONCENTRATION										
LOW FLOW		HIGH FLOW								
Ο υ	NCENSORE	O VALUE	⊕							
∇	$\overline{\Psi}$									
△ 'GREATER-THAN' VALUE ⚠										
TRENDS IN CONCENTRATION										
VALUES	NVALUES	NWYS	SLOPE							
LOW FLOW	25	14	ND							

10

ND

17

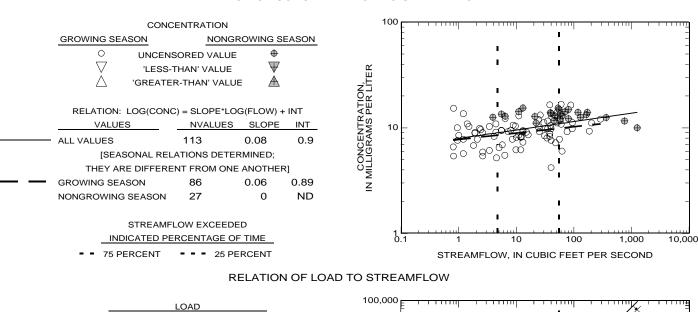
HIGH FLOW



APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01401600 BEDEN BROOK NEAR ROCKY HILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT 113 1.08 1.64 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT - 25 PERCENT	1,000 IN DOUNDS BER DAY
	10 100 1,000 10,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION				'	1		'	'	' '			'			- 1	'	'	'
LOW FLOW	HIGH FLOW																	
○ UNCENSORED VALUE VLESS-THAN' VALUE VGREATER-THAN' VALUE	*	N L'T ER	20	_												•	ħ	
TRENDS IN CONCENTRAT	ION SLOPE	NTRATIO MS PER	15	- 0	⊕	+			° ⊕ ₀			Φ.	⊕ ⊕ 4	₽ '	⊕ + •	⊕ ∉	-	Φ_
LOW FLOW 27 14 HIGH FLOW 26 11	0 ND	CONCENTRATION, IN MILLIGRAMS PER LITER	10		ф Э	•	00 (0 Ø	0	0	, o	00	Φ.		+ +		0	-
		Z	5	_@		⊕	0					С)	0				<u>Ø</u>
			0	76 7	7 78	79	80 8	1 82	2 83	84	85	86	87	88	89	90 9	1 92	2 93

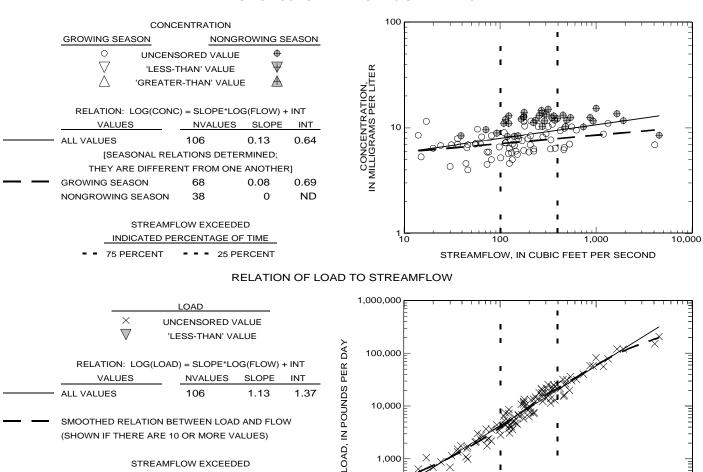
WATER YEAR

25 -

APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

100 L

CONCENTRATION							
LOW FLOW			HIGH FLOW				
0	UNCENSORE	VALUE	⊕				
∇	'LESS-THAN'	VALUE	$\overline{\Psi}$				
△ 'o	REATER-THA	N' VALUE	■ ▲				
TRENDS IN CONCENTRATION							
VALUES	NVALUES	NWYS	SLOPE				

13

11

ND

ND

28

21

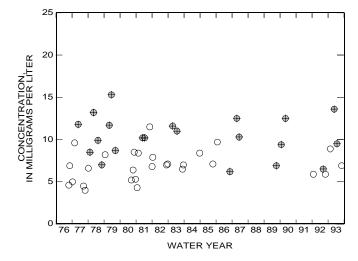
INDICATED PERCENTAGE OF TIME

75 PERCENT

LOW FLOW

HIGH FLOW

25 PERCENT



STREAMFLOW, IN CUBIC FEET PER SECOND

10,000

APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01403300 RARITAN RIVER AT QUEENS BRIDGE, AT BOUND BROOK, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION			10	00				
GROWING SEASON		ROWING SI	EASON		Ē		I		
	ORED VALUE				ţ	1	1		
$\overline{}$	HAN' VALUE	₩		œ	+	I	ı		
· .	R-THAN' VALU	e Å		<u>H</u>	+				
_		_		NO L	-	ı	I		
RELATION: LOG(CONC) = SLOPE*LO	G(FLOW) +	· INT	ATION, PER LITER		· • • •		A	
VALUES	NVALUES	SLOPE	INT	AS .	10			Φ Φ	
ALL VALUES	51	0	ND	CONCENTR IN MILLIGRAMS	₽ 8°	QQD Q Ø €			
[SEASONAL RELA	ATIONS DETE	RMINED;		NO 0	t	•			
THEY ARE DIFFERE	NT FROM ONE	ANOTHER	₹]	ŏ⋥	-	•			
GROWING SEASON	26	0	ND	Z	+		•		
NONGROWING SEASON	25	0	ND	_	-	•	ī		
						ı	-		
	OW EXCEED				1				
INDICATED PE	RCENTAGE O	F TIME			100		1,000	10,000	10
 75 PERCENT 	25 PE	ERCENT				STREAMF	LOW, IN CUB	IC FEET PER	SECOND

RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	1,000,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	NO,000 P P P P P P P P P P P P P P P P P P
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	QV 10,000
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	1,000 1,000 10,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

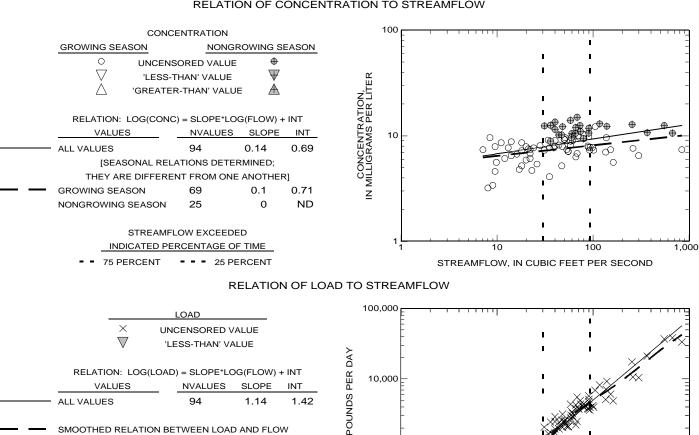
CONCENTRATION			' '	' '	- 1	1 1		' '		1	I		ı		
LOW FLOW	HIGH FLOW														
○ UNCENSORED VALUE VLESS-THAN' VALUE GREATER-THAN' VALUE	Å Ä	20 1 1 1 1 15	_												
TRENDS IN CONCENTRAT	ION K	. 13							⊕						
VALUES NVALUES NWYS	SLOPE Z					⊕ ₫		0	⊕ ⊕	+		Φ ,	⊕ ○		
LOW FLOW 15 9	ND 5	10	_				•	ם	Ω.	₩	\oplus			0	_
HIGH FLOW 14 9	ND 0	Ì				0	0	_ @	٥	w ()	•			0
	<u> </u>	5	=												⊕
		0	76 77	78 79	80 81	82 8	3 84	85	86 8	37 88	89	90 9	91 9	2 9)3

WATER YEAR

25

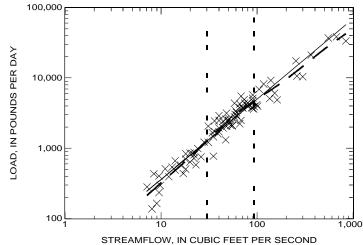
[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



(SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME **75 PERCENT** 25 PERCENT



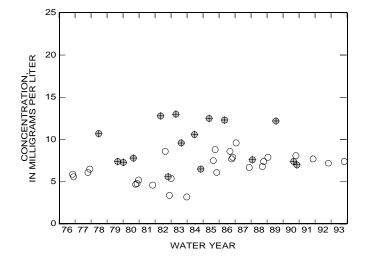
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION								
LOW FLOW								
Ο υ	NCENSORE	D VALUE	⊕					
√ 'LESS-THAN' VALUE √								
△ 'GREATER-THAN' VALUE A A A A A B A B A B A B B								
TRENDS IN CONCENTRATION								
VALUES	NVALUES	NWYS	SLOPE					
LOW FLOW	27	15	0					

11

ND

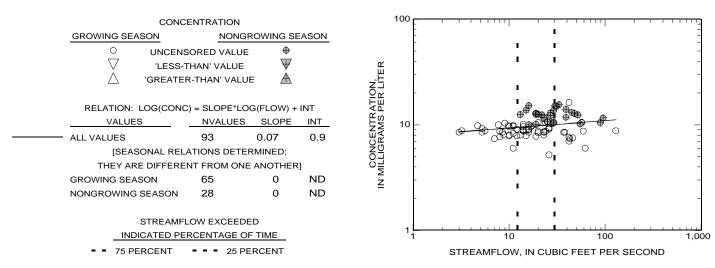
HIGH FLOW



APPENDIX 8. Relations of constituent concentration and load to streamflow and trends in concentration with time DISSOLVED OXYGEN 01405340 MANALAPAN BROOK AT FEDERAL RD, NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

×	LOAD UNCENSORED VALUE 'LESS-THAN' VALUE	<u></u> :	10,000	<u> </u>		
,	DAD) = SLOPE*LOG(FL	•	ER DA	ı		
VALUES ALL VALUES	NVALUES SLO		DS P	1	× 4.	
SMOOTHED RELATION (SHOWN IF THERE ARE			7,000 – 0 L 1,000 –		×,	
	MFLOW EXCEEDED PERCENTAGE OF TIME	4E	LOAI		ı	
= 75 PERCENT			-	- × 1	I I	
			100	10	100	
				STREAMFLOW,	IN CUBIC FEET PER	SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION			ı	1		'	1 1	1	'		'	'	'	-	ı	' '
LOW FLOW HIGH F	LOW															
	⊕	20	-													_
☐ 'GREATER-THAN' VALUE Z	CONCENTRATION,	15	_	⊕	0		⊕								⊕	_ #
VALUES NVALUES NWYS SLOP	E NING		•	₽	4	•		0	⊕	⊕						Ψ
LOW FLOW 23 14	0 20	10	-0	⊕			_	⊕ ,	00)		0	0	,	0	⊕_
HIGH FLOW 23 13	O WIFF			0	Ф Ф	₽ (⁾ ⊗ ⊕	8		0	0	0	⊕	⊕ #	0	Э
	<u>Z</u>	5	-	U			Ψ									_
		0					1 1		1							
		J -	76 7	77 78	79 8	0 81	82 8	3 84	85	86	87	88 8	39 9	90 9	1 92	93

WATER YEAR

25 -

Appendix 9 - Fraction of dissolved oxygen at saturation

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Blackwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

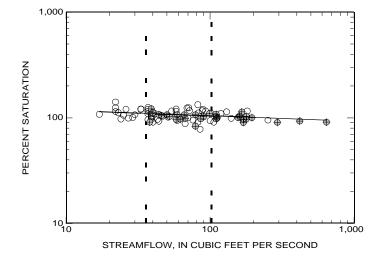
RELATION OF CONCENTRATION TO STREAMFLOW

	CONCENTRATION					
GRO	WING SEASON	NONGF	ROWING SI	EASON		
	O UNCENS	ORED VALUE	•			
	√ 'LESS-T	'HAN' VALUE	\rightarrow			
	△ 'GREATER-THAN' VALUE A A A A B C A C C C C C C C C C C C					
RE	RELATION: LOG(CONC) = SLOPE*LOG(FLOW) + INT					
	VALUES	NVALUES	SLOPE	INT		
ALL V	ALUES	91	-0.05	2.12		
	[SEASONAL RELAT	IONS NOT DET	ERMINED:			
TH	HEY ARE NOT DIFFER	RENT FROM O	NE ANOTH	ER]		
GROV	VING SEASON	59	ND	ND		
nong	ROWING SEASON	32	ND	ND		
STREAMFLOW EXCEEDED						

75 PERCENT

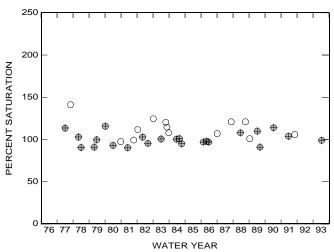
INDICATED PERCENTAGE OF TIME

- - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW	
0	UNCENSORE	D VALUE		
∇	√			
\triangle	■ ▲			
TR	ENDS IN CONC	ENTRAT	ION	
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOV	v 13	9	ND	
HIGH FLOV	v 23	14	0	



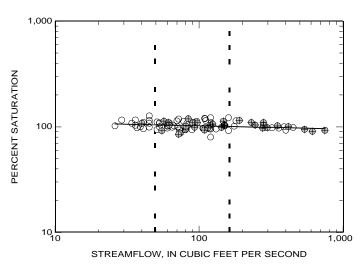
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION							
GROWING SEASON	ROWING SE	EASON					
○ UNCENSORED VALUE ♥ ○ 'LESS-THAN' VALUE ♥ △ 'GREATER-THAN' VALUE ▲							
RELATION: LOG(CONC) = SLOPE*LOG(FLOW) + INT							
VALUES	NVALUES	SLOPE	INT				
 ALL VALUES	97	-0.03	2.07				
[SEASONAL RELATION	ONS NOT DE	TERMINED;					
THEY ARE NOT DIFFERE	ENT FROM O	NE ANOTH	ER]				
GROWING SEASON	65	ND	ND				
NONGROWING SEASON	32	ND	ND				
STREAMELOW EVCEEDED							

STREAMFLOW EXCEEDED

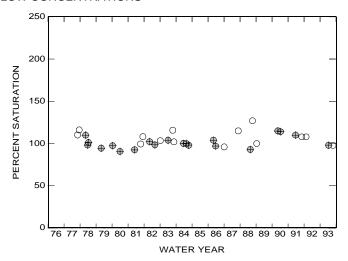
INDICATED PERCENTAGE OF TIME

75 PERCENT - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW	
О U	 UNCENSORED VALUE 			
▽ ,	√			
TREN	IDS IN CONC	ENTRAT	ION	
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	14	9	ND	
HIGH FLOW	20	12	0	

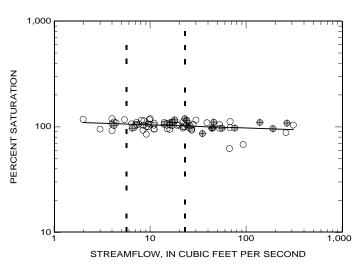


RELATION OF CONCENTRATION TO STREAMFLOW

CONC	CONCENTRATION							
GROWING SEASON	NONG	ROWING SI	EASON					
O UNCEN	SORED VALUE	Φ						
√ 'LESS-	THAN' VALUE	$\overline{\Psi}$						
△ 'GREATE	R-THAN' VALU	E A						
RELATION: LOG(CON	RELATION: LOG(CONC) = SLOPE*LOG(FLOW) + INT							
VALUES	NVALUES	SLOPE	INT					
ALL VALUES	80	-0.03	2.05					
[SEASONAL RELAT	TIONS NOT DE	TERMINED	;					
THEY ARE NOT DIFFE	RENT FROM C	NE ANOTH	IER]					
GROWING SEASON	58	ND	ND					
NONGROWING SEASON	22	ND	ND					
STREAMF	STREAMFLOW EXCEEDED							
INDICATED PE	INDICATED PERCENTAGE OF TIME							

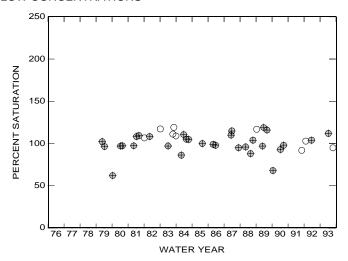
- - 25 PERCENT

75 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	00.102.111			
LOW FLOW			HIGH FLOW	
O и	 UNCENSORED VALUE 			
abla ,	√			
△ 'GF	REATER-THA	N' VALUE	■ ▲	
TREN	DS IN CONC	ENTRAT	ION	
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	9	6	ND	
HIGH FLOW	31	14	ND	

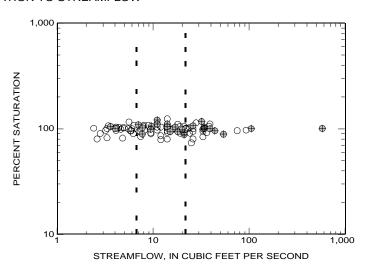


RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION						
GROWING SEASON	NONGR	OWING SE	ASON			
O UNCENS	ORED VALUE	⊕				
√ 'LESS-T	HAN' VALUE	$\overline{\Psi}$				
△ 'GREATER	R-THAN' VALUE	<u> </u>				
RELATION: LOG(CONC)) = SLOPE*LOG	G(FLOW) +	INT			
VALUES	NVALUES	SLOPE	INT			
ALL VALUES	97	0	ND			
[SEASONAL RELATI	ONS NOT DET	ERMINED;				
THEY ARE NOT DIFFER	ENT FROM ON	IE ANOTHE	ER]			
GROWING SEASON	69	ND	ND			
NONGROWING SEASON	28	ND	ND			
STREAMFLOW EXCEEDED						
INDICATED PERCENTAGE OF TIME						

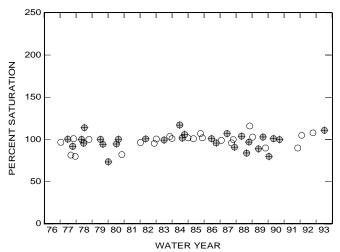
- - 25 PERCENT

75 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW	
Ο υ	⊕			
▽ ,	√ 'LESS-THAN' VALUE			
△ 'GF	■ ▲			
TREN	DS IN CONC	ENTRAT	ION	
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	24	12	ND	
HIGH FLOW	28	13	0	



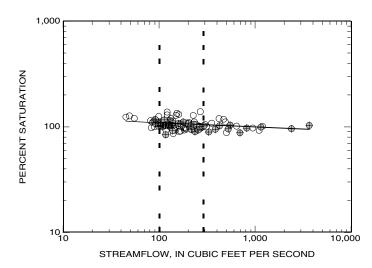
RELATION OF CONCENTRATION TO STREAMFLOW

CONC	CONCENTRATION						
GROWING SEASON	NONGF	ROWING SE	EASON				
O UNCENS	SORED VALUE						
LESS-	THAN' VALUE	\forall					
△ 'GREATEI	riangle 'GREATER-THAN' VALUE $ riangle$						
RELATION: LOG(CONC	RELATION: LOG(CONC) = SLOPE*LOG(FLOW) + INT						
VALUES	NVALUES	SLOPE	INT				
ALL VALUES	103	-0.04	2.12				
[SEASONAL RELAT	IONS NOT DET	ERMINED;					
THEY ARE NOT DIFFEI	RENT FROM O	NE ANOTH	ER]				
GROWING SEASON	64	ND	ND				
NONGROWING SEASON	39	ND	ND				
STREAMFI	STREAMFLOW EXCEEDED						

75 PERCENT

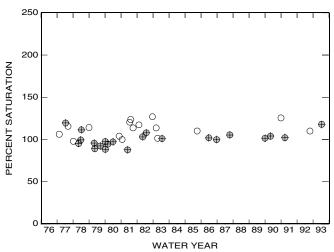
INDICATED PERCENTAGE OF TIME

- - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW
٥ ر	INCENSOREI	D VALUE	+
∇	'LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GI	REATER-THA	N' VALUE	■ ▲
TREN	NDS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	16	9	ND
HIGH FLOW	22	13	0



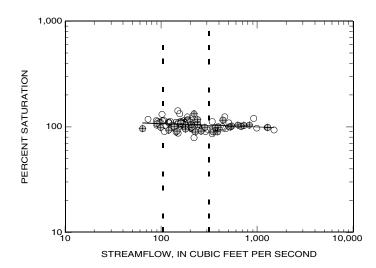
RELATION OF CONCENTRATION TO STREAMFLOW

CONCE	CONCENTRATION				
GROWING SEASON	GROWING SEASON NONGROWING SEAS				
LESS-TI	ORED VALUE HAN' VALUE -THAN' VALUE	⊕₩A			
RELATION: LOG(CONC) VALUES	= SLOPE*LO	G(FLOW) + SLOPE	INT INT		
ALL VALUES	101	-0.03	2.09		
[SEASONAL RELATION	ONS NOT DET	ERMINED;			
THEY ARE NOT DIFFER	ENT FROM O	NE ANOTH	ER]		
GROWING SEASON	71	ND	ND		
NONGROWING SEASON	30	ND	ND		
STREAMFL	OW EXCEEDE	:D			

75 PERCENT

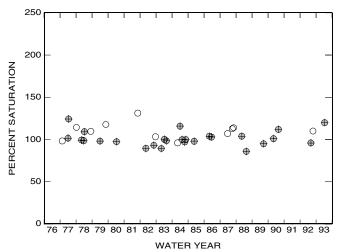
INDICATED PERCENTAGE OF TIME

- - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW
0	UNCENSORE	D VALUE	⊕
∇	'LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'œ	GREATER-THA	N' VALUE	■ ▲
TRE	NDS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	11	8	ND
HIGH FLOW	26	14	0



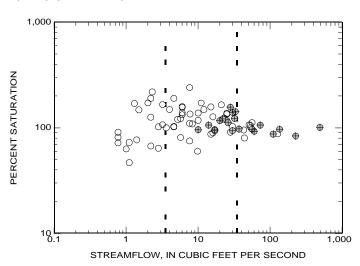
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION				
GROWING SEASON NONGROWING SEASON				
O UNCENSO	RED VALUE	Φ		
√ 'LESS-TH	IAN' VALUE	$\overline{\Psi}$		
△ 'GREATER-	THAN' VALUE	\triangle		
RELATION: LOG(CONC)	= SLOPE*LOG	G(FLOW) + I	INT	
VALUES	NVALUES	SLOPE	INT	
ALL VALUES	78	0	ND	
[SEASONAL RELATIO	NS NOT DET	ERMINED;		
THEY ARE NOT DIFFERE	NT FROM ON	IE ANOTHE	R]	
GROWING SEASON	58	ND	ND	
NONGROWING SEASON	20	ND	ND	
STREAMFLOW EXCEEDED				

INDICATED PERCENTAGE OF TIME

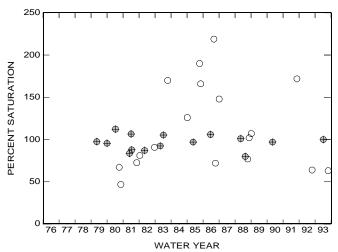
- - 25 PERCENT

75 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW
Ο υ	NCENSOREI	O VALUE	⊕
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	A
TREN	DS IN CONC	ENTRAT	ON
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	18	12	ND
HIGH FLOW	15	10	ND



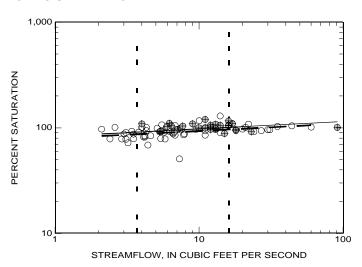
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION				
GROWING SEASON NONGROWING SEASON				
LESS-TH	DRED VALUE IAN' VALUE THAN' VALUI	⊕ ₩ Æ		
RELATION: LOG(CONC)	= SLOPE*LO	G(FLOW) +	INT	
VALUES	NVALUES	SLOPE	INT	
 ALL VALUES	94	0.07	1.92	
[SEASONAL RELA	TIONS DETER	RMINED;		
THEY ARE DIFFEREN	T FROM ONE	ANOTHER	?]	
 GROWING SEASON	67	0.07	1.9	
NONGROWING SEASON	27	0	ND	
STREAMFLO	W EXCEEDE	ED.		

75 PERCENT

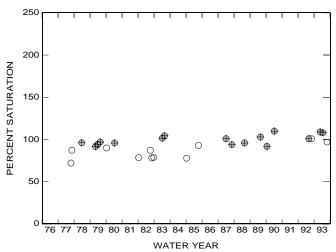
INDICATED PERCENTAGE OF TIME

- - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

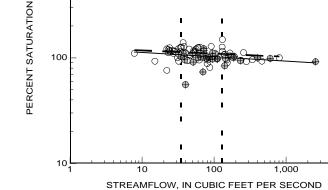
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	⊕
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	A
TREN	DS IN CONC	ENTRAT	ON
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	11	6	ND
HIGH FLOW	16	10	ND



RELATION OF CONCENTRATION TO STREAMFLOW

1,000

	CONCENTRATION				
_	GROWING SEASON NONGROWING SEASON				ASON
	O UN	CENSORED	VALUE		
	√ י∟	ESS-THAN' \	VALUE	$\overline{\Psi}$	
	△ 'GRE	ATER-THAI	N' VALUE	\triangle	
	RELATION: LOG(CONC) = SLO	OPE*LOG(FLOW) +	INT
-	VALUES	NV.	ALUES	SLOPE	INT
	ALL VALUES	92	-(0.04	2.09
	[SEASONAL	RELATION	S DETERM	IINED;	
	THEY ARE DIF	ERENT FRO	OM ONE A	NOTHER]
	GROWING SEASON	65	-(0.03	2.1
1	NONGROWING SEAS	ON 27		0	ND
	STREAMFLOW EXCEEDED				

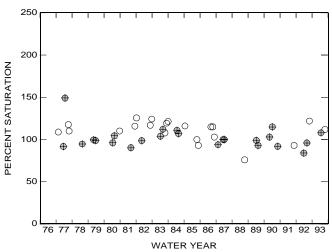


10,000

INDICATED PERCENTAGE OF TIME75 PERCENT25 PERCENT

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW
O U	NCENSORE	D VALUE	Φ
\triangle	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GI	REATER-THA	N' VALUE	A
TREN	IDS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	21	11	ND
HIGH FLOW	24	13	0



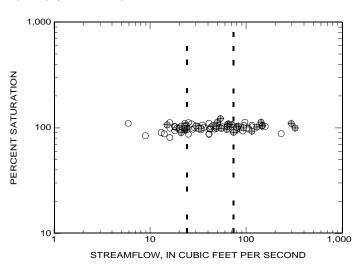
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION				
GROWING SEASON NONGROWING SEASO				
O UNCENSO	RED VALUE	Φ		
√ 'LESS-T⊦	IAN' VALUE	$\overline{\Psi}$		
△ 'GREATER-	THAN' VALUE	\blacksquare		
RELATION: LOG(CONC)	= SLOPE*LOG	(FLOW) +	INT	
VALUES	NVALUES	SLOPE	INT	
ALL VALUES	95	0	ND	
[SEASONAL RELATIONS NOT DETERMINED;				
THEY ARE NOT DIFFERE	ENT FROM ON	IE ANOTHE	R]	
GROWING SEASON	67	ND	ND	
NONGROWING SEASON	28	ND	ND	
STREAMFLOW EXCEEDED				

INDICATED PERCENTAGE OF TIME

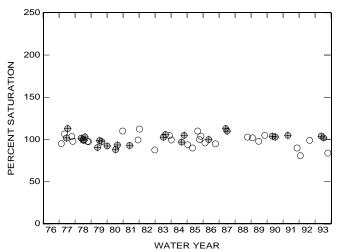
- - 25 PERCENT

75 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW
Ο υ	NCENSOREI	D VALUE	⊕
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	A
TREN	IDS IN CONC	ENTRATI	ON
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	27	14	0
HIGH FLOW	25	12	ND

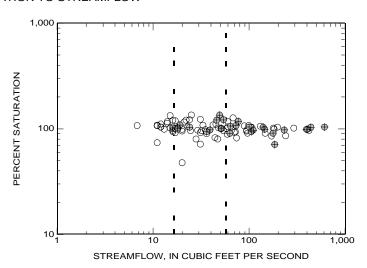


RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION				
GROWING SEASON NONGROWING SEASON				
O UNCENS	ORED VALUE	⊕		
√ 'LESS-T	HAN' VALUE	\forall		
△ 'GREATER	-THAN' VALUE	: <u>A</u>		
RELATION: LOG(CONC)) = SLOPE*LOG	G(FLOW) +	INT	
VALUES	NVALUES	SLOPE	INT	
ALL VALUES	98	0	ND	
[SEASONAL RELATI	ONS NOT DET	ERMINED;		
THEY ARE NOT DIFFER	ENT FROM ON	NE ANOTHE	ER]	
GROWING SEASON	71	ND	ND	
NONGROWING SEASON	27	ND	ND	
STREAMFLOW EXCEEDED				
INDICATED PERCENTAGE OF TIME				

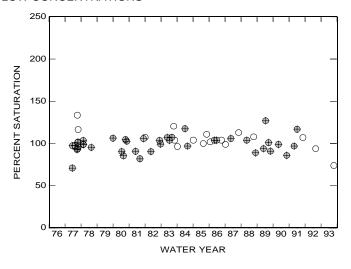
- - 25 PERCENT

75 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW
٥ ر	INCENSOREI	D VALUE	⊕
∇	'LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GI	REATER-THA	N' VALUE	A
TREN	NDS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	17	11	ND
HIGH FLOW	41	14	0



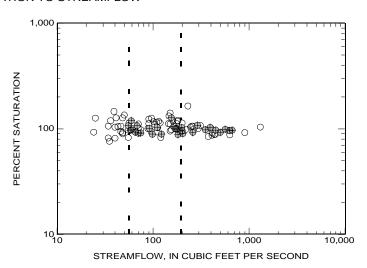
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION				
GROWING SEASON	NONGR	OWING SE	ASON	
O UNCENSO	DRED VALUE			
√ 'LESS-TH	IAN' VALUE	$\overline{\Psi}$		
△ 'GREATER-	THAN' VALUE	<u> </u>		
RELATION: LOG(CONC) = SLOPE*LOG(FLOW) + INT				
VALUES	NVALUES	SLOPE	INT	
ALL VALUES	99	0	ND	
[SEASONAL RELATIO	NS NOT DET	ERMINED;		
THEY ARE NOT DIFFERE	ENT FROM ON	IE ANOTHE	ER]	
GROWING SEASON	70	ND	ND	
NONGROWING SEASON	29	ND	ND	
STREAMFLOW EXCEEDED				

INDICATED PERCENTAGE OF TIME

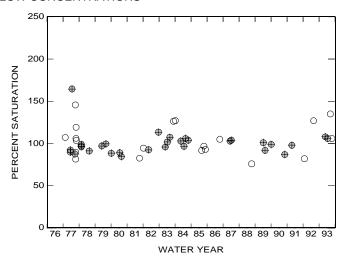
- - 25 PERCENT

75 PERCENT



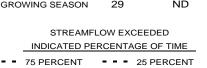
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

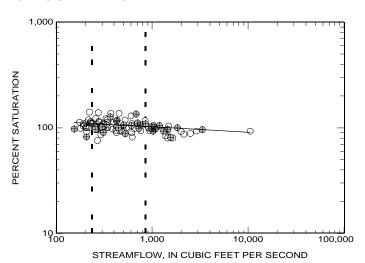
	00.102.111		
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	O VALUE	⊕
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	20	10	ND
HIGH FLOW	31	12	0



RELATION OF CONCENTRATION TO STREAMFLOW

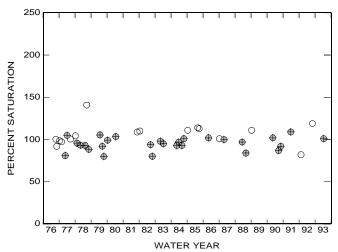
CONCENTRATION				
GROWING SEASON	NONGE	ROWING SE	EASON	
O UNCEN	SORED VALUE	Φ		
√ 'LESS-	THAN' VALUE	$\overline{\Psi}$		
	R-THAN' VALUI	E A		
RELATION: LOG(CON	C) = SLOPE*LO	G(FLOW) +	INT	
VALUES	NVALUES	SLOPE	INT	
 ALL VALUES	106	-0.05	2.16	
[SEASONAL RELAT	TIONS NOT DET	TERMINED;		
THEY ARE NOT DIFFE	RENT FROM O	NE ANOTH	ER]	
 GROWING SEASON	77	ND	ND	
NONGROWING SEASON	29	ND	ND	
STREAMF	LOW EXCEEDE	D		





TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	O VALUE	⊕
∇ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	16	9	ND
HIGH FLOW	28	13	0



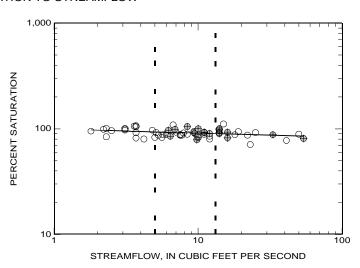
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION			
GROWING SEASON	NONGR	OWING SE	ASON
O UNCEN	SORED VALUE	•	
LESS-	THAN' VALUE	*	
	R-THAN' VALUE	<u> </u>	
RELATION: LOG(CON	C) = SLOPE*LOC	3(FLOW) +	INT
VALUES	NVALUES	SLOPE	INT
 ALL VALUES	66	-0.04	2
[SEASONAL RELAT	TONS NOT DET	ERMINED;	
THEY ARE NOT DIFFE	RENT FROM ON	NE ANOTHE	ΞR]
GROWING SEASON	48	ND	ND
NONGROWING SEASON	18	ND	ND
STREAME	LOW EXCEEDE	D	

75 PERCENT

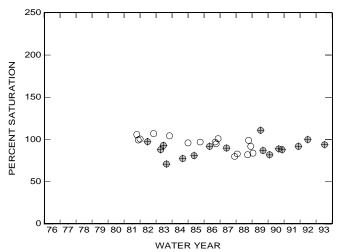
INDICATED PERCENTAGE OF TIME

- - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	Φ
∇	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	IDS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	16	9	ND
HIGH FLOW	16	11	ND



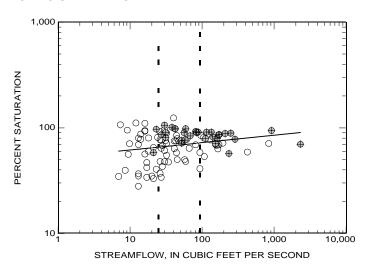
RELATION OF CONCENTRATION TO STREAMFLOW

CON	CONCENTRATION			
GROWING SEASON	NONGR	OWING SE	EASON	
O UNCE	SORED VALUE	+		
√ 'LESS	-THAN' VALUE	$\overline{\Psi}$		
△ 'GREAT	ER-THAN' VALUE	. ▲		
RELATION: LOG(CON	IC) = SLOPE*LO	G(FLOW) +	INT	
VALUES	NVALUES	SLOPE	INT	
ALL VALUES	105	0.07	1.72	
[SEASONAL RE	LATIONS DETER	RMINED;		
THEY ARE DIFFER	ENT FROM ONE	ANOTHER	.]	
GROWING SEASON	73	0	ND	
NONGROWING SEASON	32	0	ND	
STREAM	FLOW EXCEEDE	D		

75 PERCENT

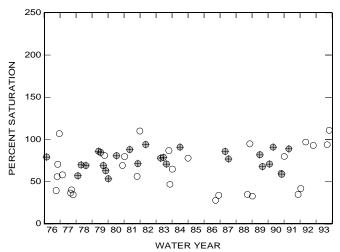
INDICATED PERCENTAGE OF TIME

- - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	VALUE	⊕
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	30	14	ND
HIGH FLOW	25	12	ND



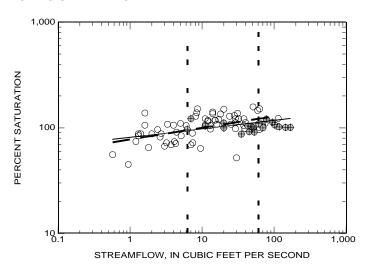
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION				
GROWING SEASON NONGROWING S			EASON	
○ UNCENSORED VALUE ♥ ○ 'LESS-THAN' VALUE ♥ ○ 'GREATER-THAN' VALUE ♠				
RELATION: LOG(CONC) = SLOPE*LOG(FLOW) + INT				
VALUES	NVALUES	SLOPE	INT	
 ALL VALUES	88	0.08	1.91	
[SEASONAL RELA	TIONS DETER	RMINED;		
THEY ARE DIFFEREN	IT FROM ONE	ANOTHER	:]	
 GROWING SEASON	69	0.11	1.89	
NONGROWING SEASON	19	0	ND	
STREAMFL	OW EXCEEDE	:D		

75 PERCENT

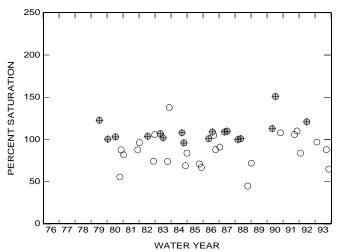
INDICATED PERCENTAGE OF TIME

- - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	Φ
∇	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'G	REATER-THA	N' VALUE	■ ▲
TREN	IDS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	25	14	ND
HIGH FLOW	17	10	ND



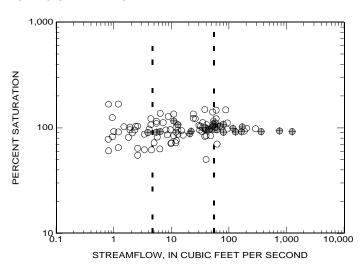
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION				
GROWING SEASON	NONGR	OWING SE	ASON	
O UNCENS	ORED VALUE	+		
√ 'LESS-T	HAN' VALUE	$\overline{\Psi}$		
△ 'GREATER	-THAN' VALUE	A		
RELATION: LOG(CONC) = SLOPE*LOG(FLOW) + INT				
VALUES	NVALUES	SLOPE	INT	
ALL VALUES	110	0	ND	
[SEASONAL RELATION SEASONAL RELATION SEASO	ONS NOT DET	ERMINED;		
THEY ARE NOT DIFFER	ENT FROM ON	IE ANOTHE	R]	
GROWING SEASON	84	ND	ND	
NONGROWING SEASON	26	ND	ND	
STREAMFLOW EXCEEDED				

INDICATED PERCENTAGE OF TIME

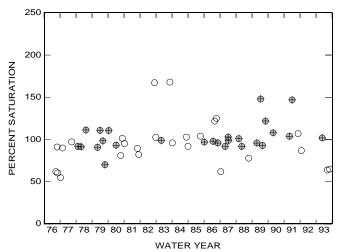
- - 25 PERCENT

75 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW	
Ο υ	NCENSORE	VALUE	⊕	
∇ ,	LESS-THAN'	VALUE	$\overline{\Psi}$	
△ 'GF	REATER-THA	N' VALUE	■ ▲	
TREN	DS IN CONC	ENTRAT	ION	
VALUES NVALUES NWYS SLOPE				
LOW FLOW	26	14	0	
HIGH FLOW	26	26 11		



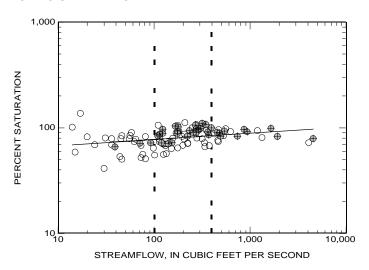
RELATION OF CONCENTRATION TO STREAMFLOW

CONCE	CONCENTRATION					
GROWING SEASON	NONGF	ROWING SE	EASON			
LESS-T	ORED VALUE HAN' VALUE 2-THAN' VALUE					
RELATION: LOG(CONC)	RELATION: LOG(CONC) = SLOPE*LOG(FLOW) + INT					
VALUES	NVALUES	SLOPE	INT			
ALL VALUES	104	0.06	1.77			
[SEASONAL RELA	TIONS DETER	RMINED;				
THEY ARE DIFFEREN	THEY ARE DIFFERENT FROM ONE ANOTHER]					
GROWING SEASON	67	0	ND			
NONGROWING SEASON	37	0	ND			
STREAMFL	OW EXCEEDE	D				

75 PERCENT

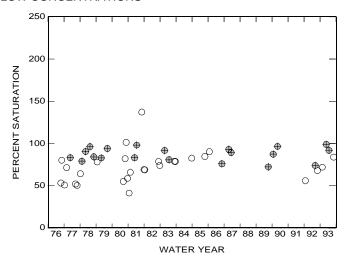
INDICATED PERCENTAGE OF TIME

- - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW		
Ο υ	⊕				
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$		
△ 'GF	REATER-THA	N' VALUE	A		
TRENDS IN CONCENTRATION					
VALUES	NVALUES	NWYS	SLOPE		
LOW FLOW	28	13	ND		
HIGH FLOW	20	11	ND		



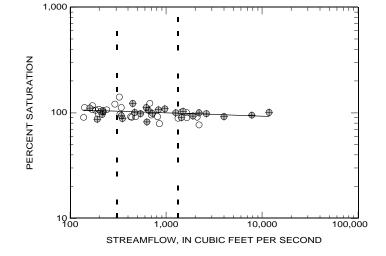
RELATION OF CONCENTRATION TO STREAMFLOW

	CONCENTRATION				
GROWING SEA	ASON	NONGR	NONGROWING SEASO		
$ \overset{\circ}{\overset{\circ}{\bigvee}}_{\bigtriangleup}$	'LESS-TH	ORED VALUE HAN' VALUE -THAN' VALUE	⊕₩≜		
RELATION: VALUE	` ,	= SLOPE*LOO	,	INT INT	
——— ALL VALUES		51	-0.03	2.09	
[SEASC	NAL RELATION	ONS NOT DET	ERMINED;		
THEY ARE	THEY ARE NOT DIFFERENT FROM ONE ANOTHER]				
GROWING SEA	ASON	26	ND	ND	
NONGROWING	SEASON	25	ND	ND	
	STREAMFLO	OW EXCEEDE	D		

75 PERCENT

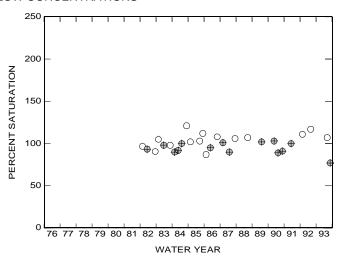
INDICATED PERCENTAGE OF TIME

- - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW	
0 1	UNCENSOREI	D VALUE	⊕	
∇	√			
△ 'œ	☐ 'GREATER-THAN' VALUE			
TRENDS IN CONCENTRATION				
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	15	9	ND	
HIGH FLOW	14	9	ND	



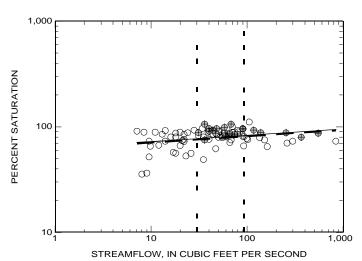
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION					
GROWING SEASON	NONGE	NONGROWING SEASON			
UNCENS	ORED VALUE	+			
√ 'LESS-T	'HAN' VALUE	$\overline{\Psi}$			
△ 'GREATER	R-THAN' VALUI	E A			
RELATION: LOG(CONC) = SLOPE*LOG(FLOW) + INT					
VALUES	NVALUES	SLOPE	INT		
 ALL VALUES	89	0.06	1.8		
[SEASONAL RELATIONS DETERMINED;					
THEY ARE DIFFERENT FROM ONE ANOTHER]					
 GROWING SEASON	66	0.06	1.79		
NONGROWING SEASON	23	0	ND		
STREAMFL	OW EXCEEDE	ED.			

STREAMFLOW EXCEEDED

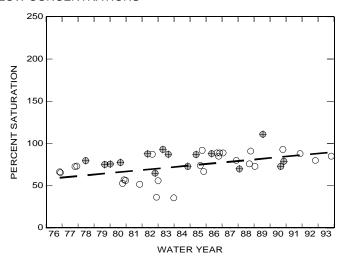
INDICATED PERCENTAGE OF TIME

75 PERCENT - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

_	LOW FLOW			HIGH FLOW
	Ο υ	NCENSORE	D VALUE	
	▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
	△ 'GF	REATER-THA	N' VALUE	■ ▲
	TREN	IDS IN CONC	ENTRAT	ION
	VALUES	NVALUES	NWYS	SLOPE
	LOW FLOW	27	15	1.78
	HIGH FLOW	15	11	ND



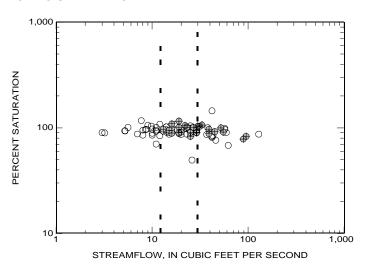
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION					
GROWING SEASON NONGROWING SEASON					
O UNCENSO	DRED VALUE	Φ			
√ 'LESS-T⊦	IAN' VALUE	$\overline{\Psi}$			
△ 'GREATER-	THAN' VALUE	\triangle			
RELATION: LOG(CONC)	= SLOPE*LOG	(FLOW) +	INT		
VALUES	NVALUES	SLOPE	INT		
ALL VALUES	87	0	ND		
[SEASONAL RELATIO	NS NOT DET	ERMINED;			
THEY ARE NOT DIFFERE	ENT FROM ON	IE ANOTHE	R]		
GROWING SEASON	61	ND	ND		
NONGROWING SEASON	26	ND	ND		
STREAMFLOW EXCEEDED					

INDICATED PERCENTAGE OF TIME

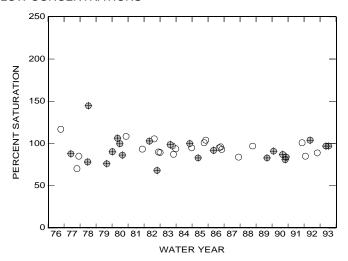
- - 25 PERCENT

75 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

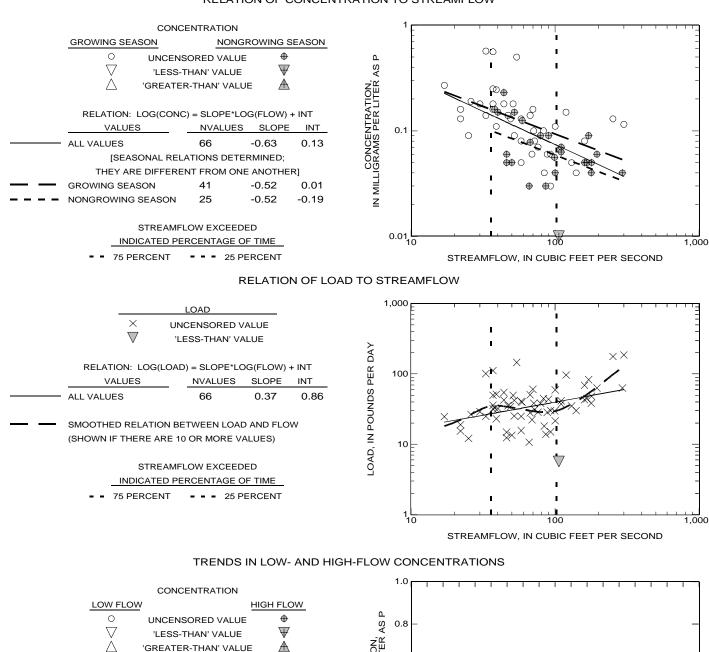
LOW FLOW			HIGH FLOW	
Ο υ	O UNCENSORED VALUE			
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$	
△ 'GF	REATER-THA	N' VALUE	■ A	
TREN	IDS IN CONC	ENTRATI	ION	
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	22	13	ND	
HIGH FLOW	22	13	0	



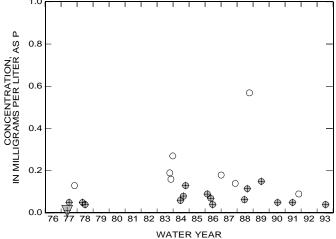
Appendix 10 - Total phosphorous

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Blackwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

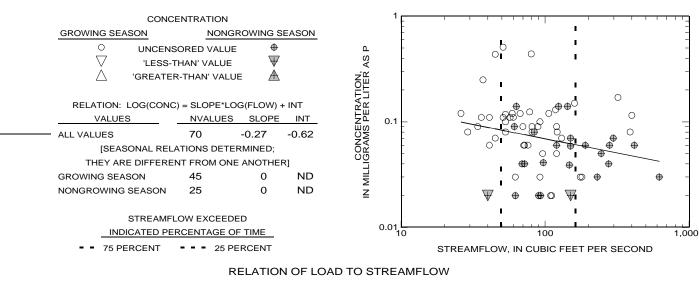
RELATION OF CONCENTRATION TO STREAMFLOW



	TREN	DS IN CONC	ENTRAT	ION
VALUES		NVALUES	NWYS	SLOPE
	LOW FLOW	8	5	ND
	HIGH FLOW	16	a	ND



RELATION OF CONCENTRATION TO STREAMFLOW



$egin{array}{ccc} & & & & & & \\ imes & & & & & & \\ ilde{\mathbb{V}} & & \\ ilde{\mathbb{V}} & & \\ ilde{\mathbb{V}} & & & \\ ilde{\mathbb{V}} & & \\ $	>	1,000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	× ×
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + VALUES NVALUES SLOPE ALL VALUES 70 0.73	NT	100	×	×
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	A ND, IN POU	10	**** *** *** **** **** **** **** **** ****	-
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	, 10,	- -	V '	
75 PERCENT 25 PERCENT		10	I I	1,000
			STREAMFLOW, IN CUBIC FEET	PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	
LOW FLOW HIGH FLOW	. 0
○ UNCENSORED VALUE ⊕	© 0.4 − −
abla 'LESS-THAN' VALUE $ abla$	`
△ 'GREATER-THAN' VALUE A A A A B C A B C A B C C C C C C C C C C C C	TION
	F_ 0.3 -
TRENDS IN CONCENTRATION	F F F F F F F F F F F F F F F F F F F
VALUES NVALUES NWYS SLOPE	OONOE DE LE
LOW FLOW 10 7 ND	O≥ Z< 0.2 −
HIGH FLOW 13 7 ND	000
	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93
	75 77 75 75 55 57 52 55 54 55 56 57 56 55 56 57 52 55

WATER YEAR

0.5

RELATION OF CONCENTRATION TO STREAMFLOW

	ENTRATION				¹ F	1 1 1 1 1 1 1 1		· · · · · · · · · · · · · · · · · · ·		
'LESS-T	NONGR ORED VALUE 'HAN' VALUE R-THAN' VALUE	OWING SE	<u>EASON</u>	TION, ITER AS P	† †	0 10	· · · · · · · · · · · · · · · · · · ·	0	0	- - - -
RELATION: LOG(CONC VALUES) = SLOPE*LOO NVALUES	SLOPE	INT INT	ENTRA PER L	0.1 –		0 0 1	⊕		_
ALL VALUES [SEASONAL RELATI THEY ARE NOT DIFFER				CONCENTR IN MILLIGRAMS PER	Į.	(C (C)		⊕ ○ ⊕ ○	•	
GROWING SEASON	36	ND	, ND	Į.	-		○ ○ ● ●			-
NONGROWING SEASON	19	ND	ND	Z	+	•	₩ 1	\forall		-
STREAMFL	OW EXCEEDE	D					.l	1		
INDICATED PER	RCENTAGE OF	TIME			0.01		10	100		1,00
75 PERCENT		RCENT	. 05.10	AD TO C			OW, IN CUBIC	FEET PER	SECOND	

RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	1,000 × × × = - × × + - × × + - × × + - × × × + - × × × + - × × × + - × × × ×
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 55 1 -0.4	DS PER C
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	SO 10 X X X X X X X X X X X X X X X X X X
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		1.0		1 1	-	- 1	1	ı ı	1 1	1	1 1	1	
LOW FLOW HI	GH FLOW ⊕												
○ VICENSORED VALUE ○ 'LESS-THAN' VALUE ○ 'GREATER-THAN' VALUE	\blacksquare										⊕		_
TRENDS IN CONCENTRATIO	ND N	0.6	-										_
	SLOPE HU	<u>.</u>											
LOW FLOW 5 3 HIGH FLOW 22 9	ND ZA	0.4	-				0				⊕		-
HIGH FLOW 22 9	<u> </u>)]								⊕			
	2	0.2	-				_		Ф	⊕			_
	=	•					0		Ф.	. \$	4	0	
		0.0	76 77 7	78 79 8	0 81	82 8	3 84	85 86	Ψ.	88 89	90 9	7 ⊕ 1 92	93

WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION		
GROWING SEASON	NONGE	ROWING SE	ASON
LESS-1	ORED VALUE HAN' VALUE R-THAN' VALUE	$\overline{\Psi}$	
RELATION: LOG(CONC) = SLOPE*LO	G(FLOW) +	INT
VALUES	NVALUES	SLOPE	INT
ALL VALUES	69	0	ND
[SEASONAL RELAT THEY ARE NOT DIFFER			ERI
GROWING SEASON	46	ND	ND
NONGROWING SEASON	23	ND	ND
STREAMFL INDICATED PE	LOW EXCEEDE		
■ ■ 75 PERCENT	25 PE	RCENT	
	В	EL ATIONI	OFIC

RELATION OF LOAD TO STREAMFLOW

$\overline{\hspace{1em}}^{ imes}$	LOAD UNCENSORED VA 'LESS-THAN' VAL			1,000 - - - - - - - - -	ı	, ××	-
,	LOAD) = SLOPE*LO			~ F	1	×^`_×_/	
VALUES	NVALUES	SLOPE	INT		•		3
ALL VALUES	69	1.3	-1.03	SON 10 -	×	×	-
SMOOTHED RELATIO	N BETWEEN LOAD	AND FLO	W	Š F	^	`***	=
(SHOWN IF THERE A	RE 10 OR MORE VA	LUES)		Ž -		×××	=
	AMFLOW EXCEEDED PERCENTAGE OF			T 1		× V^	
= - 75 PERCEN				0.1	× × 1	100	1,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		1.0	•
LOW FLOW HIGH FLOW	۵		₩
○ UNCENSORED VALUE ♥ ▽ 'LESS-THAN' VALUE ▼ △ 'GREATER-THAN' VALUE ★	AS	8.0	3-
	ZAT R L	0.6	6 - + -
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	불립		9
	MS		
LOW FLOW 17 8 ND HIGH FLOW 20 10 ND	RA	0.4	° -
HIGHT LOW 20 TO IND	O I		
	CONCENTRATION, IN MILLIGRAMS PER LITER	0.2	2 - ○ ⊕ -
			•
		0.0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

STREAMFLOW, IN CUBIC FEET PER SECOND

WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION			11	<u> </u>
GROWING SEASON	NONGR	OWING S	EASON		" =
O UNCENS VILESS-1 O 'GREATER RELATION: LOG(CONC	SORED VALUE THAN' VALUE R-THAN' VALUE	⊕ ₩ E <u>A</u>	· INT	NTRATION, PER LITER AS P	
ALL VALUES [SEASONAL RELAT	NVALUES 57 IONS NOT DET	SLOPE 0 ERMINED	ND	CONCENT IN MILLIGRAMS P	
THEY ARE NOT DIFFER	RENT FROM O	NE ANOTH	IER]	00	⊕ ⊕ ⊕ ⊕ − − − − − − − − − − − − − − − −
GROWING SEASON	34	ND	ND	. ⊿F	⊕ ⊕ ○ ○ ○ □ -
NONGROWING SEASON	23	ND	ND	<u>Z</u>	∘ ₩ ∘ ι
STREAMFL	OW EXCEEDE	D			
INDICATED PE	RCENTAGE OF	TIME		0.01	0 100 1,000 10,000
- 75 PERCENT		RCENT			STREAMFLOW, IN CUBIC FEET PER SECOND

RELATION OF LOAD TO STREAMFLOW

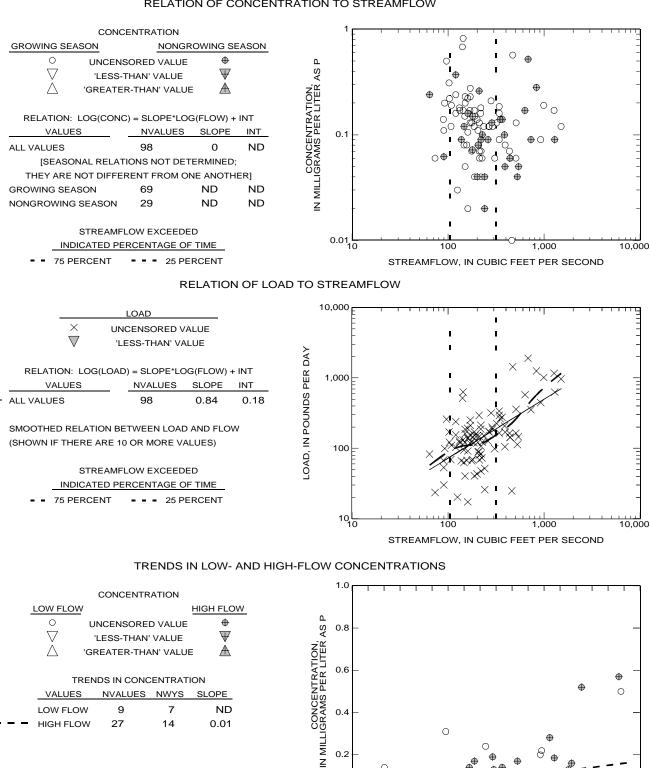
LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	1,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	100
ALL VALUES 57 0.87 -0.16	
(SHOWN IF THERE ARE 10 OR MORE VALUES)	10 × × 1 = 1
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	
	10 100 1,000 10,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATIO	N	0	25	1 1		1 1	ı	1	1 1	1	1 1	ı			
LOW FLOW O UNCENSORED VA VIESS-THAN' VAL O'GREATER-THAN' V.	NE Å	⋖	20 –							4	₽				
TRENDS IN CONCENT	RATION	RAT O	15 –												-
VALUES NVALUES NW		CONCENTRATION, IN MILLIGRAMS PER LITER		+ 0					_	⊕					
LOW FLOW 5	5 ND	NA 0.	10 –						0					0	_
HIGH FLOW 16) ND	0 <u>0</u> 8													
		⊒ ≥ 0.0	05 –	+ •	₽				+	₽	\oplus		0		
		Ζ		_ 4	⊕					⊕		·	₩	4	₽
		0.	.0 _												لِ
			7	6 77 7	78 79 8	0 81	82 83	3 84	85 8	6 87	88	89 90	91	92 9	3

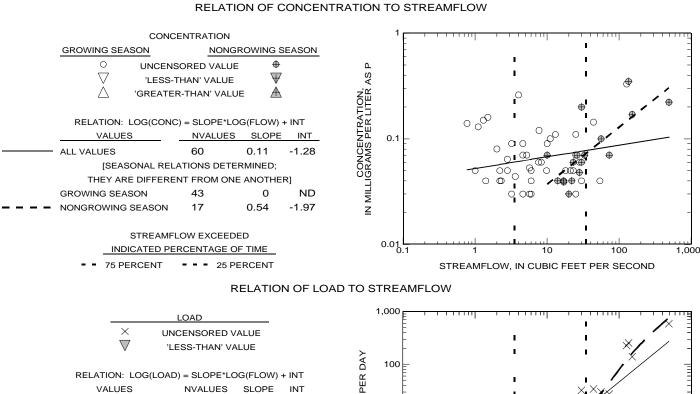
WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW



0.2

78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR



SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

SLOPE

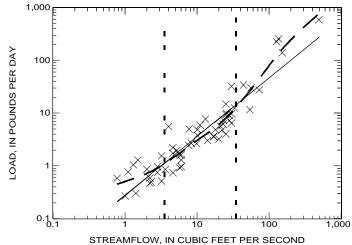
VALUES

LOW FLOW

HIGH FLOW

ALL VALUES

STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME **75 PERCENT** 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
٥ ر	JNCENSOREI	O VALUE	⊕
∇	'LESS-THAN'	VALUE	$\overline{\Psi}$
	REATER-THA	N' VALUE	■ ▲
TRE	NDS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE

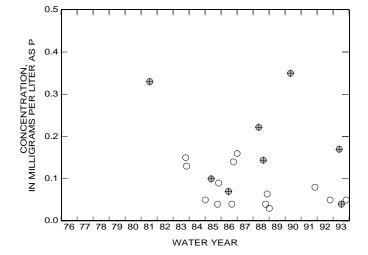
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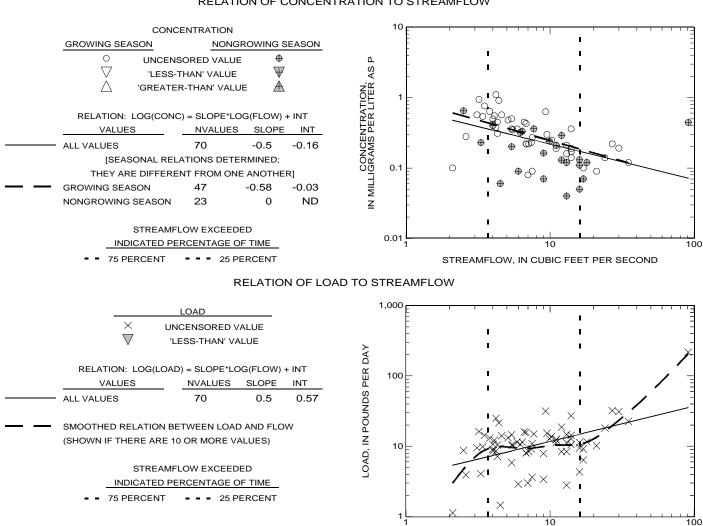
6

ND

ND

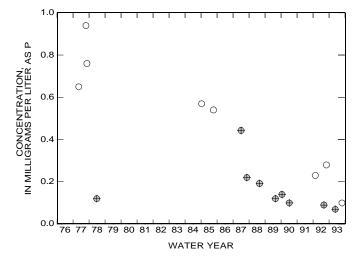


RELATION OF CONCENTRATION TO STREAMFLOW



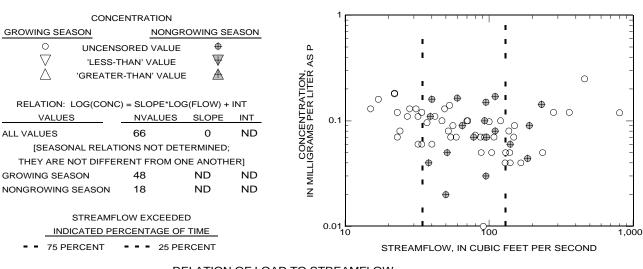
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION						
LOW FLOW			HIGH FLOW					
○ UNCENSORED VALUE ⊕								
∇	LESS-THAN'	VALUE	$\overline{\Psi}$					
△ 'GREATER-THAN' VALUE A A A A A B A B A B A B A B B								
TREN	IDS IN CONC	ENTRATI	ON					
VALUES	NVALUES	NWYS	SLOPE					
LOW FLOW	8	4	ND					
HIGH FLOW	9	7	ND					



STREAMFLOW, IN CUBIC FEET PER SECOND

RELATION OF CONCENTRATION TO STREAMFLOW



1.000

100

10

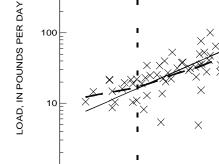
RELATION OF LOAD TO STREAMFLOW

	LOAD		
×	UNCENSORED V	ALUE	
∇	'LESS-THAN' VA	LUE	
RELATION: LO	G(LOAD) = SLOPE*LC	G(FLOW)	+ INT
VALUES	NVALUES	SLOPE	INT
ALL VALUES	66	0.9	-0.17
SMOOTHED RELAT	TION BETWEEN LOAD	AND FLO	W
(SHOWN IF THERE	ARE 10 OR MORE VA	ALUES)	
STE	REAMFLOW EXCEED	ED	
INDICA			

75 PERCENT

LOW FLOW

HIGH FLOW



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
0	UNCENSORE	VALUE	⊕
∇	'LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'œ	GREATER-THA	N' VALUE	\blacksquare
TRE	NDS IN CONC	ENTRATI	ON
VALUES	NVALUES	NWYS	SLOPE

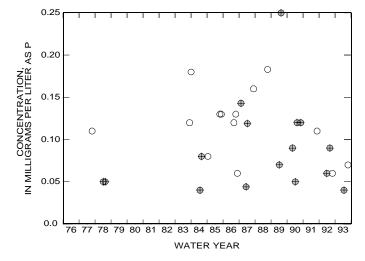
7

16

25 PERCENT

ND

ND



STREAMFLOW, IN CUBIC FEET PER SECOND

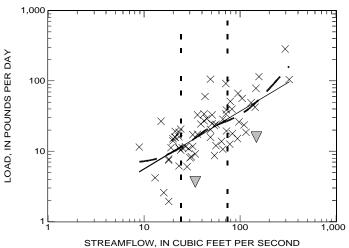
1,000

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION			1 F	 	РПП
GROWING SEASON	NONGRO	WING SEAS	ON	Ī	I	=
'LESS-	SORED VALUE ITHAN' VALUE R-THAN' VALUE S) = SLOPE*LOG NVALUES		 ENTRATION, S PER LITER AS P	0.1		-
ALL VALUES [SEASONAL RELAT THEY ARE NOT DIFFEI GROWING SEASON NONGROWING SEASON		RMINED; E ANOTHER; ND I	D D D D D D D D D D D D D D D D D D D	- - - - - -		- - - -
	LOW EXCEEDED RCENTAGE OF 25 PER	TIME_	(0.01 L	10 100 STREAMFLOW, IN CUBIC FEET PER SECOND	1,00

RELATION OF LOAD TO STREAMFLOW

_		LOAD				1,000		
	$\overline{}$	NCENSORED \ LESS-THAN' V/			≻			
RELATIO	N: LOG(LOA	D) = SLOPE*L0	DG(FLOW)	+ INT	ER DA	100 –		
VALU	JES	NVALUES	SLOPE	INT		100		
 ALL VALUES		70	0.82	-0.07	SOUNDS	Ē		
 SMOOTHED	RELATION B	ETWEEN LOAI	O AND FLO	W	Pou	-		
(SHOWN IF T	HERE ARE	0 OR MORE V	ALUES)		Ž Ć	10		×
	STREAM	FLOW EXCEED	DED		-OAD	Ē		7
	NDICATED P	ERCENTAGE C	OF TIME		_	-		
 75	PERCENT	25 F	PERCENT			-		
						l		



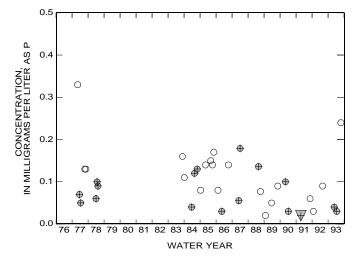
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION							
LOW FLOW			HIGH FLOW				
Ο υ	NCENSORE	O VALUE	+				
∇	LESS-THAN'	VALUE	$\overline{\Psi}$				
△ 'GF	REATER-THA	N' VALUE	■ ▲				
TRENDS IN CONCENTRATION							
VALUES	NVALUES	NWYS	SLOPE				
LOW FLOW	20	10	ND				

9

ND

HIGH FLOW



RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION	
GROWING SEASON NONGROV	WING SEASON
O UNCENSORED VALUE	⊕
√	\forall
	\mathbb{A}
RELATION: LOG(CONC) = SLOPE*LOG(F	FLOW) + INT
· · · · · · · · · · · · · · · · · · ·	SLOPE INT
ALL VALUES 69	0 ND
[SEASONAL RELATIONS DETERMI	
THEY ARE DIFFERENT FROM ONE AN	
GROWING SEASON 49	0 ND
NONGROWING SEASON 20	0 ND
STREAMFLOW EXCEEDED	
INDICATED PERCENTAGE OF TI	IME
- 75 PERCENT 25 PERC	
73 FEROLINI 23 FERO	JLIN I

RELATION OF LOAD TO STREAMFLOW

	LOAD				10,000		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
×	UNCENSORED ' 'LESS-THAN' V			>	= = =	 	
RELATION:	LOG(LOAD) = SLOPE*Lo	OG(FLOW)	+ INT	R D	1,000	I 1	
VALUES	S NVALUES	SLOPE	INT	PE	-		× 7/
ALL VALUES	69	1.08	-0.37	SONOC	100	ı	× ×
(SHOWN IF THE	LATION BETWEEN LOA RE ARE 10 OR MORE V STREAMFLOW EXCEET CATED PERCENTAGE (RCENT 25 F	ALUES)	ow	LOAD, IN POU	10	 	

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	0.5	
LOW FLOW HIGH FLOW	-	⊕
○ UNCENSORED VALUE	0.4 − ⊕ ⊕	
√ 'LESS-THAN' VALUE ₩	SV 0.4	_
△ 'GREATER-THAN' VALUE 🛕	<u> </u>	○ ●
	₩ 0.3 -	
TRENDS IN CONCENTRATION	F	O (
VALUES NVALUES NWYS SLOPE	200	
LOW FLOW 15 9 ND	0.2 0.2 −	○ ⊕
HIGH FLOW 24 11 ND	99 <u>6</u>	0 0
	OONCE OONCE IN MILLIGRAMS	OD OD O
	≥ 0.1 – Ψ	
	≥ ⊕ ⊕	
	•	⊕ \□7

STREAMFLOW, IN CUBIC FEET PER SECOND

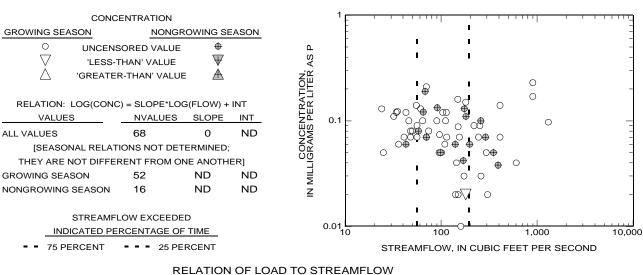
0.0 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

APPENDIX 10. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL PHOSPHORUS 01399780 LAMINGTON RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

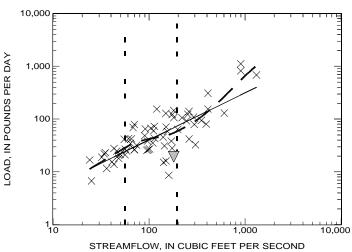
RELATION OF CONCENTRATION TO STREAMFLOW



	LOAD				10		
×	× uncensored value						
\bigvee	'LESS-THAN' VA	ALUE		>			
RELATION: LOG(I	LOAD) = SLOPE*LO	OG(FLOW)	+ INT	R DAY	1		
VALUES	NVALUES	SLOPE	INT	PER			
ALL VALUES	68	0.89	-0.17	IDS			
SMOOTHED RELATION (SHOWN IF THERE A			w	.D, IN POUNDS			
	AMFLOW EXCEED D PERCENTAGE C			LOAD,			

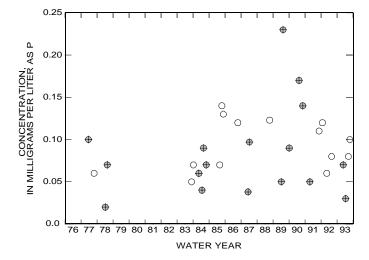
25 PERCENT

75 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION							
LOW FLOW			HIGH FLOW				
Ο υ	NCENSORE	D VALUE	⊕				
∇ ,	LESS-THAN'	VALUE	$\overline{\Psi}$				
△ 'GF							
TREN	TRENDS IN CONCENTRATION						
VALUES	NVALUES	NWYS	SLOPE				
LOW FLOW	14	9	ND				
HIGH FLOW	17	8	ND				



RELATION OF CONCENTRATION TO STREAMFLOW

CONCI	ENTRATION			¹ F				
GROWING SEASON	NONGRO	OWING S	EASON	ŧ		Ī		=
LESS-T	ORED VALUE 'HAN' VALUE R-THAN' VALUE	⊕₩A		TION, AS P	01	· · · · · ·		- - -
RELATION: LOG(CONC) = SLOPE*LOG NVALUES	(FLOW) + SLOPE	INT	CONCENTRATIC			0	-
ALL VALUES	105	0	ND	ΣŠ				=
[SEASONAL RELA	ATIONS DETERI	MINED;		ŌŖ [0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O ⊕		-
THEY ARE DIFFERE	NT FROM ONE	ANOTHER	₹]		. 0 🗇	→ ◆◆◆◆◆ → ◆ → ◆ → ◆ → ◆ → ◆ → ◆ → ◆ → ◆		-
GROWING SEASON	76	0	ND	⊒ E	. 0 0	0		-
NONGROWING SEASON	29	0	ND	<u>z</u> .	•	ī		_
STREAMFL INDICATED PEI	OW EXCEEDED			0.0100	I	1,000	10,000	100,000
- 75 PERCENT	25 PEF				STREAMF	LOW, IN CUBIC	,	ŕ

RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	Д Ш 1,000 — 1
	No. of the second secon
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	
	10 1,000 10,000 100,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

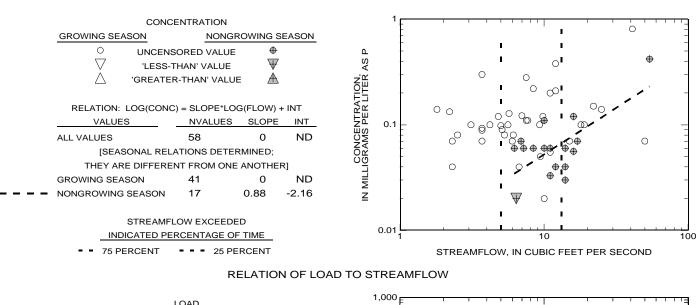
CONCENTRATION		0.5	 	1 1	 	- 	
Z ZESS-THAN VALUE	AS O	0.4					_
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	PE R	0.3	+		•	•	_
	D GCOND D	0.2 - 0	+	⊕	⊕		Φ –
	N MILL N 0	0.1		○ ◆ <i>◆</i>	+ 0 + 0 + 0	• • •	• ° -
	0	76 77		81 82 83	84 85 86 8	87 88 89 9	0 91 92 93

STREAMFLOW, IN CUBIC FEET PER SECOND

APPENDIX 10. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL PHOSPHORUS 01400540 MILLSTONE RIVER NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD	1,000
$ imes$ uncensored value $ ilde{\mathbb{V}}$ 'less-than' value	\$ 100 E
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 58 1.17 -0.47	OUNDS PER DO 100 PER D
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	NO NE
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	
	0.1 1 10 100 100 100 100 100 100 100 100

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION					
LOW FLOW			HIGH FLOW				
∇	INCENSORE 'LESS-THAN' REATER-TH <i>I</i>	VALUE	⊕ ₩ ±	CONCENTRATION,	- 8.0	-	-
TDE	IDO IN CONC	SENTE AT	ION	RAT	0.6	-	-
	NDS IN CONC			FH.			
VALUES	NVALUES	NWYS	SLOPE	<u> </u>			
LOW FLOW	13	8	ND	AM AM	0.4	_	4
HIGH FLOW	14	10	ND	9 <u>6</u>			
				∃			9
				Σ	0.2	_	4
					0.0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 9	\$

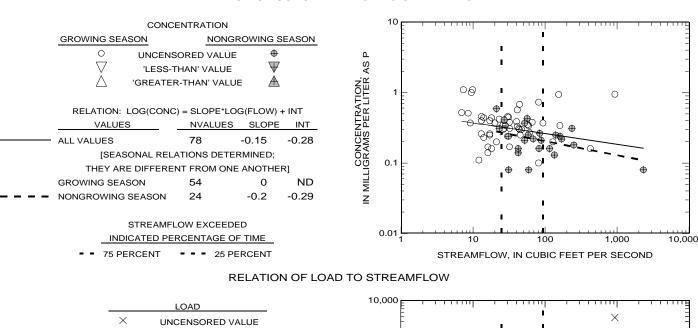
WATER YEAR

1.0

APPENDIX 10. Relations of constituent concentration and load to streamflow and trends in concentration with time 01400650 MILLSTONE RIVER AT GROVERS MILL, N.J.

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

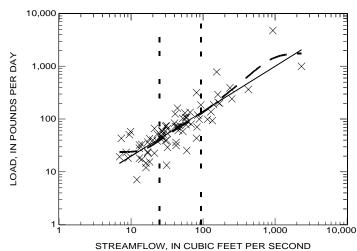


'LESS-THAN' VALUE

RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT NVALUES **VALUES** SLOPE ALL VALUES

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

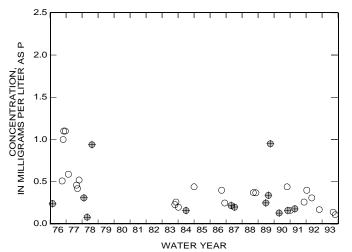
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME **75 PERCENT** 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTRATION	
LOW FLOW		HIGH FLOW
0	UNCENSORED VALUE	⊕
∇	'LESS-THAN' VALUE	$\overline{\Psi}$
Δ,	GREATER-THAN' VALU	e 🕭

TRENDS IN CONCENTRATION						
VALUES	NVALUES	NWYS	SLOPE			
LOW FLOW	24	10	ND			
HIGH FLOW	13	7	ND			



RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION			1 F	 	 		<u></u>
GROWING SEASON NONGROWING	SEASON		ļ.			I	=
UNCENSORED VALUE)	۵	Į.		I	I	_
✓ 'LESS-THAN' VALUE	7	S	F		I	Ī	-
↑ 'GREATER-THAN' VALUE	+	– <u>,</u> α	+				-
	_	TER,	-		ľ	ľ	
RELATION: LOG(CONC) = SLOPE*LOG(FLOW	L INT	¥2 ⊢Z			0.0	_ I	
VALUES NVALUES SLOPE		F	0.4	0	0 -		
	ND	CONCENTRA	0.1	90		~~ ○ •	3
		Z Z Z	ţ	0	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	o o o o o o o o o o o o o o o o o o o	• -
[SEASONAL RELATIONS NOT DETERMINE		OS OR	+	Q	000		-
THEY ARE NOT DIFFERENT FROM ONE ANO	-		t		, 👓	• • •	-
GROWING SEASON 46 ND	ND	⋚	+		Ē	(-
NONGROWING SEASON 14 ND	ND	Z			∇	7 .	_
					• •	-	
STREAMFLOW EXCEEDED					.		
INDICATED PERCENTAGE OF TIME			0.01	1	10	100	1,000
= = 75 PERCENT = = 25 PERCENT				STREAMFLO	OW, IN CUBIC	FEET PER SEC	COND

RELATION OF LOAD TO STREAMFLOW

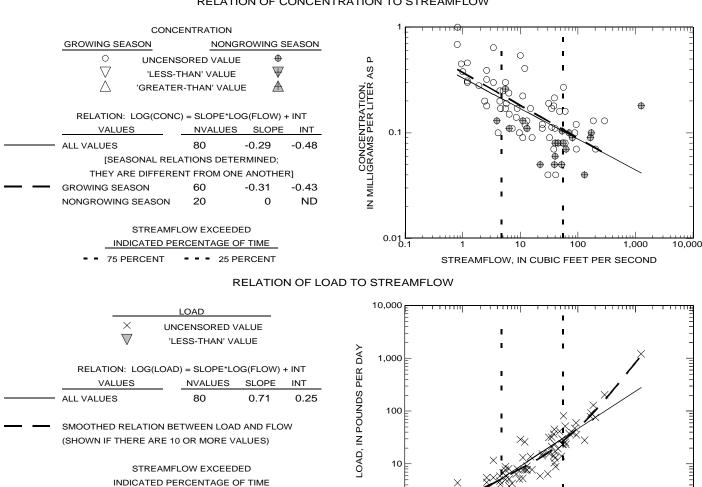
LOAD	100
$ imes$ uncensored value $ ilde{\mathbb{V}}$ 'Less-Than' value	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	
VALUES NVALUES SLOPE INT	# 10 X X X X
ALL VALUES 60 0.92 -0.35	
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	ž 1 V V V V V V V V V V V V V V V V V V
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	
75 PERCENT 25 PERCENT	0.1 1 10 100 1,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTE	RATION			0.25	- 1 1	1		1		- 1	1	1		1			٦
∇	INCENSORE 'LESS-THAN REATER-THA	D VALUE	HIGH FLOW	AS P	0.20	_												_
TDEA	IDO INI OON	OFNEDAT	1011	RAT R LI	0.15	_							0				-	-
VALUES	NVALUES		SLOPE	CONCENTRATION, MILLIGRAMS PER LITER							\oplus			0			(Э
LOW FLOW	18	11	ND	SAMC	0.10	_				_		_			•		0 -	
HIGH FLOW	8	5	ND	25						00	⊕	0)		⊕	00		C
				MILL	0.05						00	0		0		O		
				Z	0.05						0		⊕	0	\oplus	•		
															7	7		
					0.0	76 77 7	8 79	80 8	1 82	83	84 8	5 86	87	88 8	9 90	91 9	92 93	3

STREAMFLOW, IN CUBIC FEET PER SECOND

RELATION OF CONCENTRATION TO STREAMFLOW

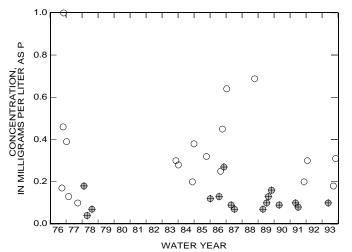


TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	+
\triangle	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GI	REATER-THA	N' VALUE	■ ▲
TREN	IDS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	19	11	ND
HIGH FLOW	16	7	ND

25 PERCENT

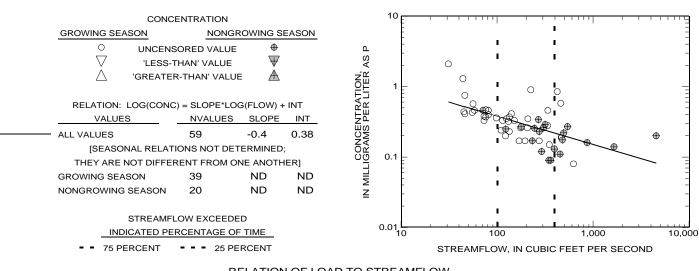
75 PERCENT



STREAMFLOW, IN CUBIC FEET PER SECOND

10,000

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

		10,000			
LOAD		· F			
X UNCENSORED VALUE		-		- I	
VLESS-THAN' VALUE	>	_	· i	I	×
	DA	=			
RELATION: $LOG(LOAD) = SLOPE*LOG(FLOW) + INT$	E.		1	Ī	,
VALUES NVALUES SLOPE INT	PEF		ı	×	//
— ALL VALUES 59 0.6 1.11	DS		•	×	x/
	S	1,000	ī	× , ·	
 SMOOTHED RELATION BETWEEN LOAD AND FLOW 	0	-		^, × /	
(SHOWN IF THERE ARE 10 OR MORE VALUES)	Z	ļ.	<u>-</u>	×× 🖟	
	Ó	-	× ,, • • ,	XXX	
STREAMFLOW EXCEEDED	Õ.	-	^ × X	××××	
INDICATED PERCENTAGE OF TIME	_	-			
75 PERCENT 25 PERCENT				×` `× `	
		100	100	1,000)
			STREAMFLOW,	IN CUBIC FEET PER	R SECOND

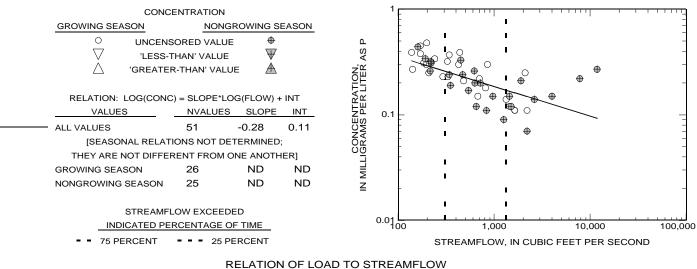
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	2.0		1 1 1 1 1 1 1	' ' ' '
LOW FLOW HIGH FLOW	_			
○ UNCENSORED VALUE ⊕	Ф У У 2.0	0		
√ 'LESS-THAN' VALUE √	7			
riangle 'GREATER-THAN' VALUE $ extcircle$	CONCENTRATION. GRAMS PER LITER 0 5			
	₩ 1.5	L		_
TRENDS IN CONCENTRATION	χÄ	0		
VALUES NVALUES NWYS SLOPE	ÄΩ			
LOW FLOW 16 9 ND	O∑ Z	_		_
HIGH FLOW 12 7 ND	000			⊕
				9
	W WIF 0.5	-000	0 0	_
	Z	8	9 0	0 0
		⊕ ⊕⊕	⊕	⊕ ⊕ ⊕
	0.0	70 77 70 70 00 04	20 00 04 05 00 07 00	90 00 01 00 00
		10 11 18 19 80 81 8	82 83 84 85 86 87 88	89 90 91 92 93

WATER YEAR

2.5

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	>	100,000	1 I		
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW VALUES NVALUES SLOPE	·	10,000			
ALL VALUES 51 0.72	0.84 SQNDC	-	1	×.V	=
SMOOTHED RELATION BETWEEN LOAD AND FL (SHOWN IF THERE ARE 10 OR MORE VALUES)	OW Z	1,000	, ×	×]
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	- LOA	E .			= = = = = = = = = = = = = = = = = = = =
75 PERCENT 25 PERCENT		100	1,000	10,000	100,000
				IN CUBIC FEET PER	SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		0.5		-	- 1		- 1	1	1 1		1	ı	1			\neg
LOW FLOW	HIGH FLOW									O	(O		(Э	
○ UNCENSORED VALUE VIESS-THAN' VALUE		<u>ດ</u> ທຸ 0.4 ∀	_				0								0	_
✓ CESS-THAN VALUE ✓ 'GREATER-THAN' VALUE		H H					_		()						0
TRENDS IN CONCENTRA	LION ND OO ND ND OO ND OO ND OO ND OO ND OO ND OO NO	⊒ 2 0.3	_				(0	0		0					-
VALUES NVALUES NWYS	SLOPE U	<u>8</u>				(С	(4	>		
LOW FLOW 15 9 HIGH FLOW 14 9	ND Z	∑ ∢ 0.2 Ƴ	_				⊕	,		⊕						-
HIGH FLOW 14 9	ND O	<u>5</u> 						⊕ ಈ				•	+			
		∑ _{0.1}	_					0		•		Ψ	₩			<u> </u>
	•													⊕		
		0.0	76 7	77 78	79 80	81	82	33 84	85	86 8	7 8	3 89	90	91	92	93

RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION	1
GROWING SEASON O UNCENSORED VALUE VILESS-THAN' VALUE O'GREATER-THAN' VALUE RELATION: LOG(CONC) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	ATION, CLITER AS P
ALL VALUES 71 0 ND [SEASONAL RELATIONS NOT DETERMINED; THEY ARE NOT DIFFERENT FROM ONE ANOTHER]	CONCENTRY CONCEN
GROWING SEASON 51 ND ND NONGROWING SEASON 20 ND ND STREAMFLOW EXCEEDED	
INDICATED PERCENTAGE OF TIME75 PERCENT25 PERCENT	0.01 10 10 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 71 1.2 -0.8	100 × × 1 ×
ALL VALUES 71 1.2 -0.8 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	0.1
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION			1.0		1 1 1	1 1	1 1		
LOW FLOW			HIGH FLOW								
<u> </u>	NCENSORE	VALUE	<u>+</u>	AS P	0.8	_		⊕	⊕		_
,	LESS-THAN'	VALUE	*								
△ 'GF	REATER-THA	n' value		CONCENTRATION.							
				ZAT R	0.6	_					_
	IDS IN CONC			Ë							
VALUES	NVALUES	NWYS	SLOPE	<u> </u>		0					
LOW FLOW	19	12	ND	AŽ V	0.4		_				_
HIGH FLOW	10	7	ND	000			0				
				Ė				0			
				Ξ	0.2	_ 0	0	⊕			_
				Z			0	0		⊕	
						•	⊕	8 8	o _∞ ⊕	_	
					0.0	790					, Q
						76 ^v 77 78 79 80 81 82	2 83 84	85 86 87	7 88 89	90 91	92 93

RELATION OF CONCENTRATION TO STREAMFLOW

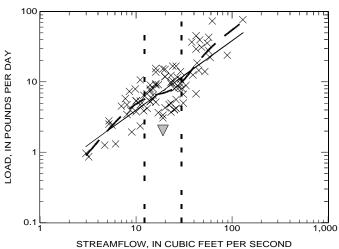
CON	CENTRATION			1		—
☐ 'LESS ☐ 'GREATI	NSORED VALUE I-THAN' VALUE ER-THAN' VALUE	G(FLOW) +	- INT	TRATION, PER LITER AS P		-
VALUES ALL VALUES [SEASONAL RE THEY ARE DIFFER	92 LATIONS DETER		ND	CONCENTR IGRAMS PER		-
GROWING SEASON NONGROWING SEASON	65	0 0	ND ND	IN MILL	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	-
	FLOW EXCEEDE ERCENTAGE OF 25 PE			0.01	10 100 STREAMFLOW, IN CUBIC FEET PER SECOND	1,000

RELATION OF LOAD TO STREAMFLOW

	LOAD			100
×	UNCENSORED \	/ALUE		E
∇	'LESS-THAN' V	ALUE		→ F
RELATION: LOG(LO	R DA			
VALUES	NVALUES	SLOPE	INT	10 E
ALL VALUES	92	0.99	-0.39	NDS
SMOOTHED RELATION	BETWEEN LOA	D AND FLO	w	Pou
(SHOWN IF THERE ARE	Z 1			
STREA	MFLOW EXCEED	DED		OAL
INDICATED	PERCENTAGE (OF TIME		_

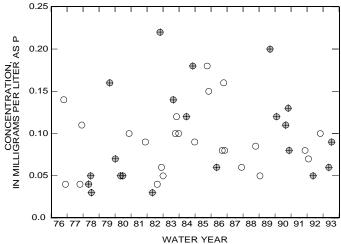
- - 25 PERCENT

75 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION			0.23
LOW FLOW			HIGH FLOW	_	
\bigvee	NCENSOREI LESS-THAN'	VALUE	#	R.Y. AS P	0.20
	REATER-THA		_	TRATION	0.15
VALUES	NVALUES	NWYS	SLOPE	Äα	
LOW FLOW	24	14	0	AZ AZO	0.10
HIGH FLOW	21	11	ND	CO	



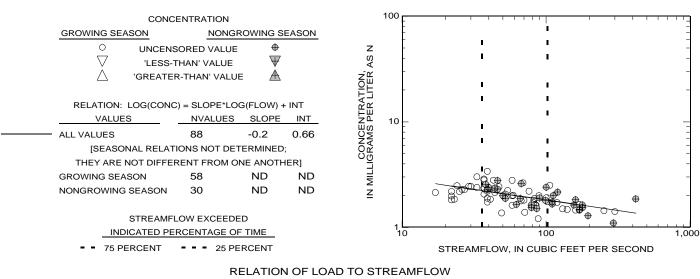
Appendix 11 - Total nitrogen

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Blackwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01396280 SB RARITAN RIVER AT MIDDLE VALLEY, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



	LOAD	<u> </u>	10,000	1 1 1 1 1	· · · · · · ·	
$\overset{\times}{\triangledown}$	UNCENSORED VALUE 'LESS-THAN' VALUE		<u>}</u>	1	I I	×
RELATION: LOG(L VALUES	OAD) = SLOPE*LOG(FLO	•	PER D/	ı		
— ALL VALUES	88 0.		ν Ω Ν 1,000 –	I		**X
	N BETWEEN LOAD AND		nod 1,900	ı ×		
`	RE 10 OR MORE VALUES	5)	AD, IN		^	
	AMFLOW EXCEEDED D PERCENTAGE OF TIM	<u>E_</u>	9 [ı	
■ ■ 75 PERCEN	IT = = = 25 PERCE	NT	100	I	100	
			10	STREAMFLOW,	100 IN CUBIC FEET I	PER SECOND

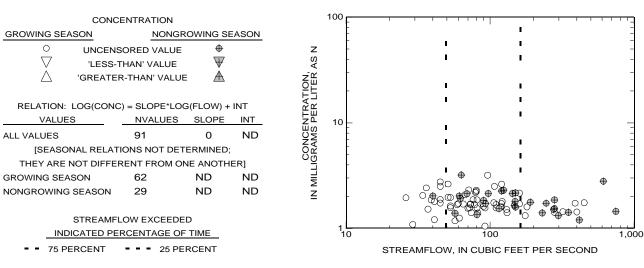
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTRA	ATION				٦.٥	1 1	1		1	1	1 1	- 1	-	ı	-	1	I		- 1	
71	NCENSORED LESS-THAN' \ REATER-THAN	VALUE VALUE	HIGH FLOW	_	⋖	4.0 –															_
TREN	DS IN CONCE	ENTRAT	ION		NTRATION, PER LITER	3.0											С				_
VALUES LOW FLOW HIGH FLOW	NVALUES 13 21	9 13	SLOPE ND 0		CONCE	2.0 -		₩	⊕ ∉	•) •		⊕ ⊕	#		•	○ ⊕	• •	○⊕		- ⊕ -
					,	ا م		- 1										1			

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93
WATER YEAR

APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN
01396535 SB RARITAN RIVER AT ARCH ST, AT HIGH BRIDGE, N.J.

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD	10,000
× uncensored value Version value	
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	
	100 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

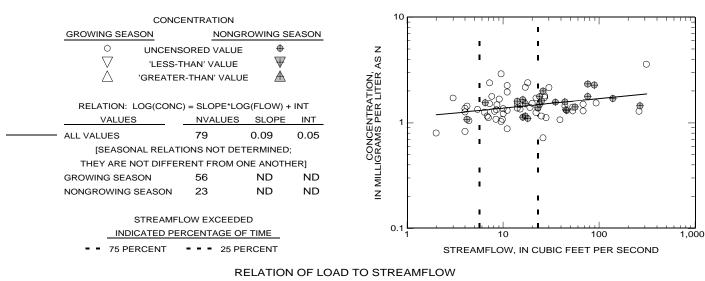
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION			5.0	Г	1	1	1	- 1	1	ı		ı	- 1	- 1	П	1	1	1	
\bigvee_{Λ}	NCENSOREI LESS-THAN' REATER-THA	VALUE	HIGH FLOW ⊕ ₩ E	-	N 4.0	_															_
TREN VALUES	IDS IN CONC	ENTRAT	ION SLOPE	- - - - - - - - - - - - - - - - - - -	IN MILLIGRAMS PER LITER 0.0 5.0 1.0	_			⊕	0	0					0					_
LOW FLOW HIGH FLOW	13 18	9 11	ND ND	C Z C	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	_					*	•		⊕ [○]	' 0	C	, (₽ [€]	∞		_
					1.0 Z	_	8		•	⊕ ∉	, ,	+	•	•		0					-
					0.0	76	77 78	79	80 8	81 8	2 83	84	85	86	87	88	89 9	90 9	1 9	2 9	93

APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01396588 SPRUCE RUN NEAR GLEN GARDNER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000 × =
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	OO 1,000 BER DA
(SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION			
LOW FLOW	HIGH FLOW		
○ UNCENSORED VALUE VESS-THAN' VALUE GREATER-THAN' VALUE	TON, AS N	4.0	_ ⊕
TRENDO IN CONCENTRAT	RAT RAT	3.0	+
TRENDS IN CONCENTRAT	ION FIL		
VALUES NVALUES NWYS	SLOPE HO		Φ ⊕
LOW FLOW 9 6	OO DI STORE ON DI	2.0	₩ Ψ +
HIGH FLOW 31 15	ND OR		
	W N	1.0	- ° -
	₹		⊕ ○ ○

0.0 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

5.0

APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01396660 MULHOCKAWAY CREEK AT VAN SYCKEL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION				10 F		1 1 1 1	—	
GROWING SEASON	NONGRO	OWING SE	ASON		ļ.		Ī		
O UNCENS	SORED VALUE			z	Į.	I	I		_
	ΓHAN' VALUE	$\overline{\Psi}$		AS	F	I	I	0	=
△ 'GREATE	R-THAN' VALUE	\triangle		TION, LITER,		o o'ma	+ •	0	-
RELATION: LOG(CONC) = SLOPE*LOG	(FLOW) +	INT	∢		8008)	⊕
VALUES	NVALUES	SLOPE	INT	FR	1 _	### Park ##			_
ALL VALUES	88	0	ND	CONCENTR.	Ē	. •	0 .		=
[SEASONAL RELAT	IONS NOT DETE	RMINED;		88	t	•	•		-
THEY ARE NOT DIFFER	RENT FROM ON	E ANOTH	ER]		F	-	•		_
GROWING SEASON	63	ND	ND	N M I	-	•	•		_
NONGROWING SEASON	25	ND	ND	Z	-	•	ı		-
STREAMFL	OW EXCEEDED)				.		1	
INDICATED PE	RCENTAGE OF	TIME			0.1	10		100	1,00
75 PERCENT	25 PER	CENT				STREAMFLOW	, IN CUBIC FE	ET PER	SECOND

RELATION OF LOAD TO STREAMFLOW

$\stackrel{\times}{\mathbb{V}}$	LOAD UNCENSORED V 'LESS-THAN' VA			10,000	ı ı		
RELATION: LOG(L	.OAD) = SLOPE*LC	G(FLOW)	+ INT	<u>и</u> 1,000	ī	\mathbf{x}	
VALUES	NVALUES	SLOPE	INT	面 1,000	Ī		
ALL VALUES	88	1.02	0.83	SOZ	-	i //	
SMOOTHED RELATIO			OW	N POUL	I ××`		
`	AMFLOW EXCEED	,		100 -		1	
INDICATE	D PERCENTAGE C	F TIME		- [-		ī	
75 PERCEN	IT = = = 25 P	ERCENT		_		ī	
				10	10	100	

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		
LOW FLOW HIGH FLOW	_	
○ UNCENSORED VALUE	Z Ø 4.0	_
√ 'LESS-THAN' VALUE √		
riangle 'GREATER-THAN' VALUE $ riangle$	ΘË	⊕
	¥⊒ 3.0	_
TRENDS IN CONCENTRATION	ÄÄ	⊕
VALUES NVALUES NWYS SLOPE	SEN	
LOW FLOW 23 13 ND	CONCENTRATION IN MILLIGRAMS PER LITER 0 0 0.00	-
HIGH FLOW 24 14 0	98	
	3	
	<u></u> 1.0	
	Z	₩ Ψ
	0.0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93
		10 11 10 19 00 01 02 03 04 03 00 01 00 09 90 91 92 93

5.0

STREAMFLOW, IN CUBIC FEET PER SECOND

APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01397000 SB RARITAN RIVER AT STANTON STATION, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

	ITRATION	WING G	- A CON	1	°E	<u> </u>	
'LESS-TH	NONGRO RED VALUE AN' VALUE IHAN' VALUE	₩ING SE	EASON	TION, LITER AS N			
RELATION: LOG(CONC) =	= SLOPE*LOG(FLOW) +	INT	∢−			
VALUES	NVALUES	SLOPE	INT	<u> </u>	1 –		
ALL VALUES	96	0	ND	CONCENTR. IGRAMS PER	E	.	
[SEASONAL RELAT	IONS DETERM	IINED;		δĀ	ŧ	· · ·	
THEY ARE DIFFERENT	FROM ONE A	NOTHER	!]	Og	-		
GROWING SEASON	56	0	ND	AL.	-	• •	
NONGROWING SEASON	40	0	ND	Ĭ Z		'	
				_		, ,	
STREAMFLO	W EXCEEDED						
INDICATED PERC	CENTAGE OF T	IME		0.	10	100 1,000	
- 75 PERCENT -	= 25 PER	CENT				STREAMFLOW, IN CUBIC FEET PER SECOND	

RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	10,000
ALL VALUES 96 1.03 0.9	SON
SMOOTHED RELATION BETWEEN LOAD AND FLOW	
(SHOWN IF THERE ARE 10 OR MORE VALUES)	Z 1,000
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	
75 PERCENT 25 PERCENT	
	100 100 1,000 10,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		5.0
LOW FLOW HIGH FLOW ○ UNCENSORED VALUE Φ ▽ 'LESS-THAN' VALUE ▼ △ 'GREATER-THAN' VALUE ▲	⋖	4.0 -
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	PER LI	3.0
LOW FLOW 13 8 ND HIGH FLOW 21 12 0	CONCENTRATION, IN MILLIGRAMS PER LITER	
	IN MIL	1.0
		0.0 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATIO	N	
GROWING SEASON NO	NGROWING S	EASON
O UNCENSORED VA	UF \oplus	
V 'LESS-THAN' VAL		
↑ 'GREATER-THAN' VA		
△ GREATER-MAN V	LOL A	
DELATION: LOG(CONO) - CLOPE	*! 00/F! 0\40	· INIT
RELATION: LOG(CONC) = SLOPE	, ,	
VALUES NVALU	ES SLOPE	INT
ALL VALUES 93	0	ND
[SEASONAL RELATIONS DE	TERMINED;	
THEY ARE DIFFERENT FROM	ONE ANOTHE	R]
GROWING SEASON 67	0	ND
NONGROWING SEASON 26	0	ND
STREAMFLOW EXCE	EDED	
INDICATED PERCENTAG		
·		
75 PERCENT 2	5 PERCENT	

RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 93 1.01 0.98 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED	1,000
INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	100 10 100 1,000 10,000 STREAMELOW IN CUBIC FEET PER SECOND

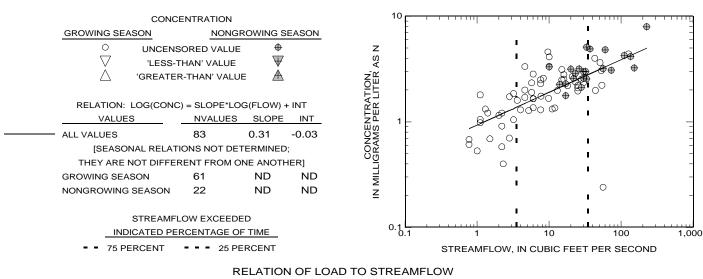
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION			5.0	- 1	ı	· ·	ı	1	ı	T	1 1		ı	- 1	1	1	
ן,	NCENSOREI LESS-THAN'	VALUE	HIGH FLOW		4.0	_												,	_
TRENI	DS IN CONC	ENTRAT	ION	TRATI	3.0	_	C)		4	,						⊕	,	_
VALUES LOW FLOW HIGH FLOW	10 24	7 13	SLOPE ND ND	CONCENTRATION.	2.0	_	♣	⊕	⊕	0#	⊕ ○ ⊕ ⊕	+	++	0	•	*	⊕	•	- +
				Z Z	1.0	_					,								
					0.0	76 7	7 78	79	80 8	1 82	83 84	85	86	87	88	89	90 9	1 92	93

APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01398000 NESHANIC RIVER AT REAVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

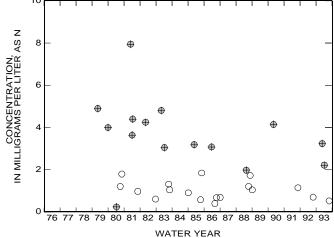
RELATION OF CONCENTRATION TO STREAMFLOW



RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 83 1.31 0.71 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	LOAD X UNCENSORED VALUE V 'LESS-THAN' VALUE	10,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT U	
INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	<u> </u>	100 ×
	INDICATED PERCENTAGE OF TIME	

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

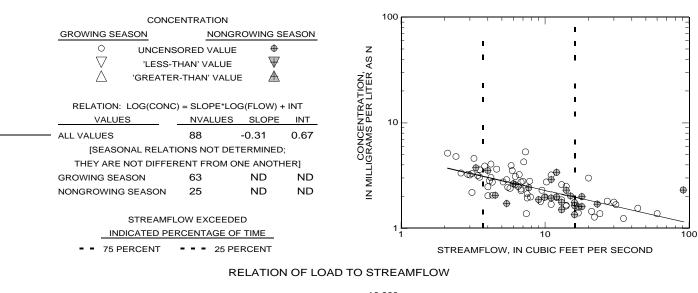
					10			_	_	_
	CONCENTR	ATION				'	ı	1		1
LOW FLOW			HIGH FLOW							
Ο υ	NCENSORE	D VALUE	Φ	_ S	8					
abla	LESS-THAN'	VALUE	$\overline{\Psi}$		Ū					
△ 'GF	REATER-THA	N' VALUE	■ ▲	NO.						
				Ę'	6					
TREN	IDS IN CONC	ENTRAT	ION	F.R.	Ū					
VALUES	NVALUES	NWYS	SLOPE	Π N				0		
LOW FLOW	18	12	ND	CONCER	4					
HIGH FLOW	15	10	ND	08	•				•	
				Ļ						
				Ę						



APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01398260 NB RARITAN RIVER NEAR CHESTER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	й 1,000 б 1
ALL VALUES 88 0.69 1.4 — SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	QNOO IN TOO IN T
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

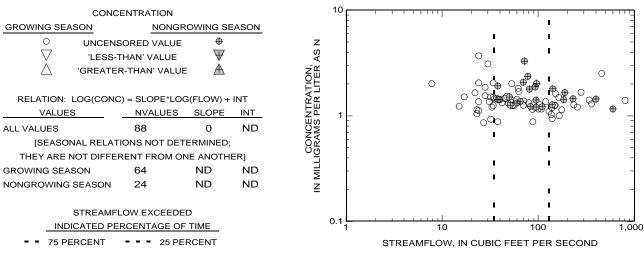
CONCENTRATION							
LOW FLOW	HIGH FLOW						
○ UNCENSORED VALUE □ 'LESS-THAN' VALUE □ 'GREATER-THAN' VALUE TRENDS IN CONCENTRAT VALUES NVALUES NWYS	ZATIG	8 -	-	0			- - 0
LOW FLOW 12 6	ND ZA		0	0			
	A P D D D D D D D D D D D D D D D D D D	4	- 0				0 -
HIGH FLOW 16 10	ND SP		•	&	00		0
	글		*			⊕	
	W Z	2 -	_ • • •	•		• •	+ +

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93
WATER YEAR

APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01399120 NB RARITAN RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	1,000
ALL VALUES 88 0.96 0.	
SMOOTHED RELATION BETWEEN LOAD AND FLOW	
(SHOWN IF THERE ARE 10 OR MORE VALUES)	Z 100
STREAMFLOW EXCEEDED	
INDICATED PERCENTAGE OF TIME	
75 PERCENT 25 PERCENT	1 1
	10 100 1,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		' ' ' ' '
LOW FLOW HIGH FLOW	_	
○ UNCENSORED VALUE ⊕	Z Ø 4.0 – V	_
abla 'LESS-THAN' VALUE $ abla$		
🛆 'GREATER-THAN' VALUE 🛕	TER	
		_
TRENDS IN CONCENTRATION	A H	
VALUES NVALUES NWYS SLOPE	πα Zπ	⊕
LOW FLOW 21 12 ND	IN MILLIGRAMS PERA TOONCENTRA _	
HIGH FLOW 24 12 0		⊕⊕ _
		⊕ ⊕ ⊕
	₩ 1.0	* * * * *
	<u>z</u> O	~ ~
	0.0	28, 80, 00, 01, 02, 03
	76 77 78 79 80 81 82 83 84 85 86 87 8	30 09 90 91 92 93

WATER YEAR

5.0

APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN
01399500 LAMINGTON (BLACK) RIVER NEAR POTTERSVILLE, N.J.

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION				¹⁰ F				
GROWING SEASON	NONGRO	OWING S	EASON		ŧ			1	
O UNCENS	ORED VALUE	+		z	E		1	Ī	
LESS-T	'HAN' VALUE	A		×	L		_		
△ 'GREATER	R-THAN' VALUE	A		FON,	Į.				⊕
RELATION: LOG(CONC) = SLOPE*LOG	(FLOW) -	+ INT	NTRA- PER L		0			0
VALUES	NVALUES	SLOPE	INT	ΞĒ	1 —				9 +
ALL VALUES	85	0	ND	CONCEN LIGRAMS I	E		0 .06	, m	
[SEASONAL RELA	ATIONS DETERM	ИINED;		δã	t		-		
THEY ARE DIFFERE	NT FROM ONE A	NOTHE	R]	00	-		-		
GROWING SEASON	61	0	ND	1	-			•	
NONGROWING SEASON	24	0	ND	Ĭ Z	_		Ī		
STREAMFL	OW EXCEEDED)						· •	
INDICATED PE	RCENTAGE OF	TIME			0.1		10	100	
75 PERCENT	25 PER	CENT				STREAMFLO	OW, IN CUBI	C FEET PER S	SECOND

RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT W WALUES SLOPE INT W WALUES 85 0.97 0.9 0.9	1,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) Z	100
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	10 100 1,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		0.0	1 1	1 1	1 1		1 1	1 1 1	1 1 1	
LOW FLOW HIGH FLOW	_									
○ UNCENSORED VALUE ⊕	AS N	4.0	_							
abla 'LESS-THAN' VALUE $ abla$	_ :									
	CONCENTRATION, IN MILLIGRAMS PER LITER									
	¥¥.	3.0	_				_			_
TRENDS IN CONCENTRATION	FF					(0			
VALUES NVALUES NWYS SLOPE	AN S						0	4		
LOW FLOW 24 14 0	ŠΑ	2.0	_	\oplus			0.0	,	0	_
HIGH FLOW 21 12 0	SS SR				0	0	, ⊗⊕ •	_		
	\exists		0 🕀		* 0		4	′ 00 €	0 4	₽
	Σ	1.0	_		Ψ0	\$ \tag{\tag{\tag{\tag{\tag{\tag{\tag{	0	⊕0 0 €	. Ψ 🔿	
	Z		•	,	(Ο Ψ				Ψ
		0.0	76 77 79	70.90	01 02	92 94	05 06 0	7 88 89 9	0 01 02 0	73
			10 11 10	19 60	01 02	03 04	00 00 0	1 00 09 9	0 91 92 8	J.J

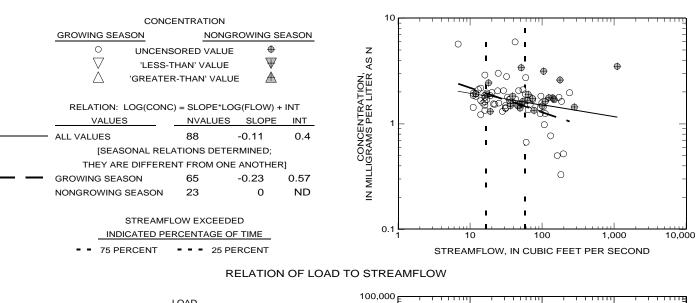
5.0

STREAMFLOW, IN CUBIC FEET PER SECOND

APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01399700 ROCKAWAY CREEK AT WHITEHOUSE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

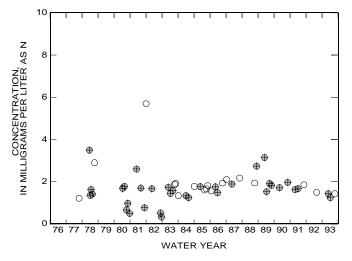
RELATION OF CONCENTRATION TO STREAMFLOW



LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 88 0.89 1.13	1,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) Z	× × ×
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	100
	STREAMFLOW IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	⊕
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	18	12	ND
HIGH FLOW	35	14	ND



APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01399780 LAMINGTON RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION		
GROWING SEASON	NONGR	OWING SEA	ASON
	SORED VALUE THAN' VALUE	$\overset{\Phi}{\forall}$	
△ 'GREATE	R-THAN' VALUE	\triangle	
RELATION: LOG(CONC	C) = SLOPE*LOG	(FLOW) + I	NT
VALUES	NVALUES	SLOPE	INT
ALL VALUES	83	0	ND
[SEASONAL REL	ATIONS DETER	MINED;	
THEY ARE DIFFERE	NT FROM ONE	ANOTHER]	
GROWING SEASON	64	0	ND
NONGROWING SEASON	19	0	ND
	LOW EXCEEDED		
INDICATED PE	RCENTAGE OF	TIME	
 75 PERCENT 	25 PEF	RCENT	

RELATION OF LOAD TO STREAMFLOW

LOAD				10,000				<u> </u>
× uncensored	VALUE			-	Ī		7	=
V (LESS-THAN)	/ALUE		≻	-	i	· ×	K	-
RELATION: LOG(LOAD) = SLOPE*I	.OG(FLOW) +	INT	R DA	-		×. **		_
VALUES NVALUES	SLOPE	INT	PER	-	*	×.*		-
— ALL VALUES 83	1	0.86	DS		•			
			Ž	1,000	ı 🔏	X .		=
 SMOOTHED RELATION BETWEEN LOA	AD AND FLOV	V	ВО	F	1 × 💥	×ı		=
(SHOWN IF THERE ARE 10 OR MORE	VALUES)		Z	F		XX		=
			ĄD,	-	*** ***	ĭ		_
STREAMFLOW EXCEE	DED		ò	<u> </u>				-
INDICATED PERCENTAGE	OF TIME		_	-	××××	1		-
75 PERCENT 25	PERCENT				×	ı		
				10010	100	.	1,000	10,00
					STREAMELOW	IN CUBIC F	FET PER SE	COND

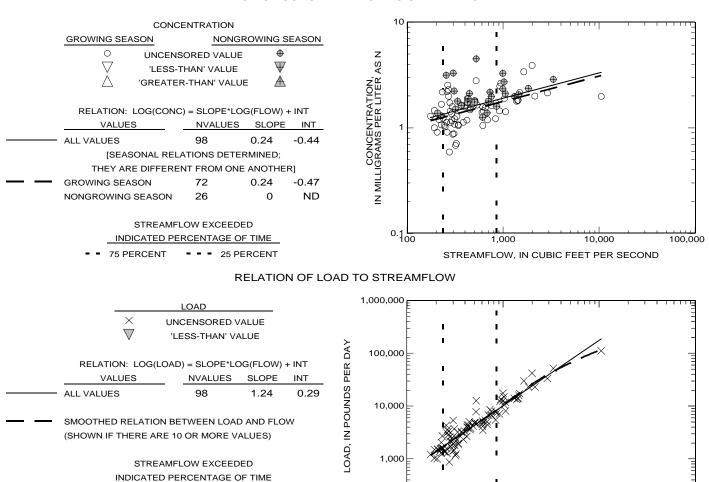
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		2.5		1 1		T	-	1	ı	1		- 1			- 1	- 1	ı	
LOW FLOW UNCENSORED VALUE VIESS-THAN' VALUE OGREATER-THAN' VALUE TRENDS IN CONCENTRATION	⋖	2.0	_				0		#	Œ	0	+ +		+	+ +	•	0	1 10
VALUES NVALUES NWYS SLOPE LOW FLOW 14 10 ND HIGH FLOW 23 10 ND	IN MILLIGRAMS PER LITER	0.5	_	⊕		\$	0		→ ◆)			0	ФФ	•	Č		+
		0.0	76 7	7 78	79	80 8	81 8	# 32 83	3 84	85	86	87	88	89	90	91	92	93

APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01400500 RARITAN RIVER AT MANVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



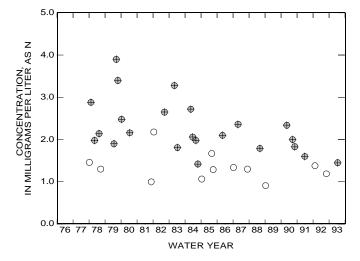
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

100 100

	CONCENTR	ATION						
LOW FLOW			HIGH FLOW					
Ο υ	UNCENSORED VALUE							
▽ ,	√							
△ 'GF	■ ▲							
TREN	IDS IN CONC	ENTRAT	ION					
VALUES	NVALUES	NWYS	SLOPE					
LOW FLOW	12	7	ND					
HIGH FLOW	23	12	ND					

25 PERCENT

75 PERCENT



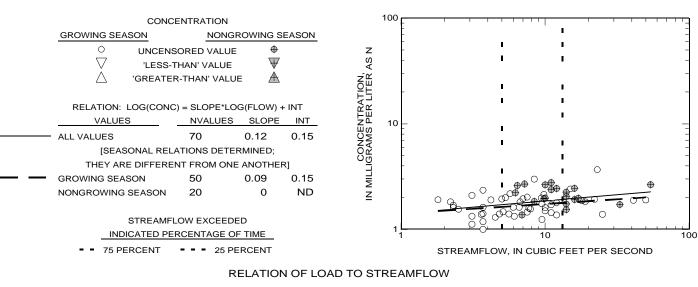
STREAMFLOW, IN CUBIC FEET PER SECOND

100,000

APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01400540 MILLSTONE RIVER NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



×	LOAD UNCENSORED V 'LESS-THAN' VA			^	1,000	: :	× /×	- - - -
RELATION: LOG(L	.OAD) = SLOPE*LC NVALUES	G(FLOW) SLOPE	+ INT INT	PER D,	-	ı	1×/×	-
- ALL VALUES	70	1.12	0.88	NDS F	100 —	' ××		
 SMOOTHED RELATIO			DW .	N POU	-	' X X X	ı	-
`	AMFLOW EXCEED	,		OAD, II	-		i i	-
	D PERCENTAGE C			ĭ	-		I	
75 PERCEN	IT = = = 25 P	ERCENT					I	
					10 L	10		1
						STREAMFLOW, IN CUBIC	FEET PER SECOND	

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	3.0
LOW FLOW HIGH FLOW	_
○ UNCENSORED VALUE □	Z Ø 4.0
	- i
TRENDS IN CONCENTRATION	ARARA 4
VALUES NVALUES NWYS SLOPE	N WILLIGRAMS PER LITER LITER STATION ON OCENTRATION OF STATION OF
LOW FLOW 18 10 ND	NOW 2.0
HIGH FLOW 17 11 ND	
	₹ 1.0 - ° °
	-
	0.0
	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

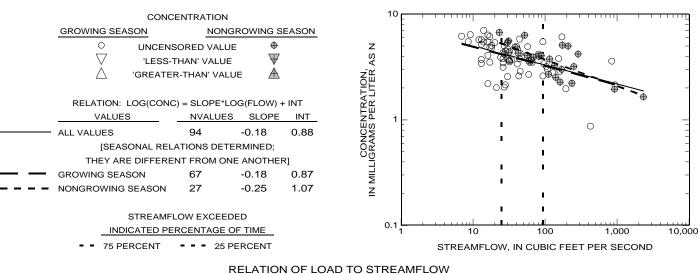
WATER YEAR

50-

APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01400650 MILLSTONE RIVER AT GROVERS MILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



$\overset{\times}{\mathbb{V}}$	LOAD UNCENSORED V 'LESS-THAN' VA			>	100,000		I I		<u>п</u>	
RELATION: LOG(VALUES ALL VALUES	(LOAD) = SLOPE*LC NVALUES 94	OG(FLOW) SLOPE 0.82	+ INT INT 1.61	JNDS PER DA	10,000		1			- -
 SMOOTHED RELATION (SHOWN IF THERE A)W	D, IN POU	1,000			×		-
	EAMFLOW EXCEED ED PERCENTAGE C NT 25 P			LOA	100	10		I I 100 1	.000	10,0
					'			IBIC FEET PER	•	10,

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		1 '	' '				' ' ' '
LOW FLOW	IGH FLOW						
○ UNCENSORED VALUE □ 'LESS-THAN' VALUE □ 'GREATER-THAN' VALUE	₩ ∰ ⊕	8 –	0 4	∌	0		0 0
TRENDS IN CONCENTRATION VALUES NVALUES NWYS S	N HU SLOPE		•	-	0	0	
LOW FLOW 23 13 HIGH FLOW 24 12	DZ D	4 –	•		Ф Ф Ф	0	_
	N MILLIO	2 ⊕	+ +	7 ⊕⊕∪ ⊕⊕	⊕ ○	•	⊕⊕⊕−
							•

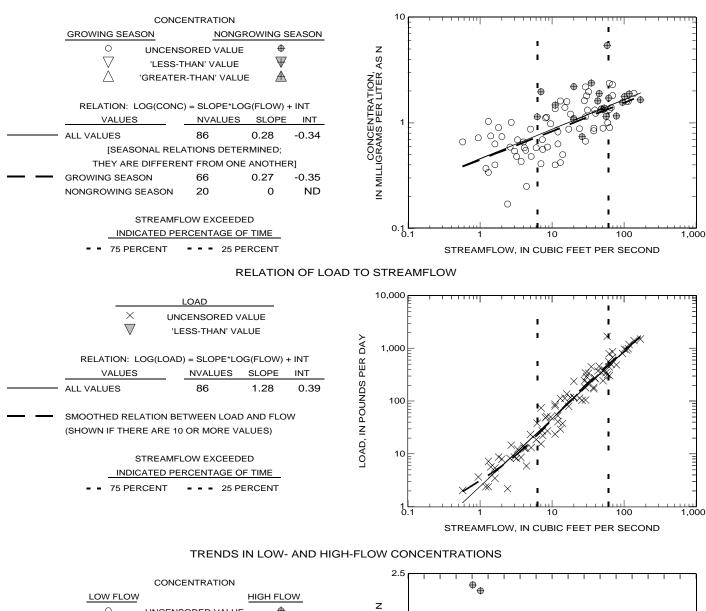
76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

10

APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01401000 STONY BROOK AT PRINCETON, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOW FLOW			HIGH FLOW
0	UNCENSORE	D VALUE	⊕
∇	'LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'o	REATER-THA	N' VALUE	\blacksquare
TRE	NDS IN CONC	ENTRATI	ON
VALUES	NVALUES	NWYS	SLOPE

14

10

ND

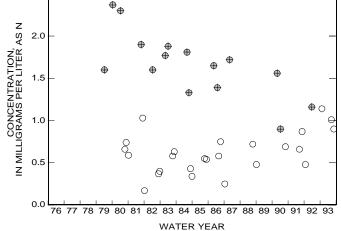
ND

25

15

LOW FLOW

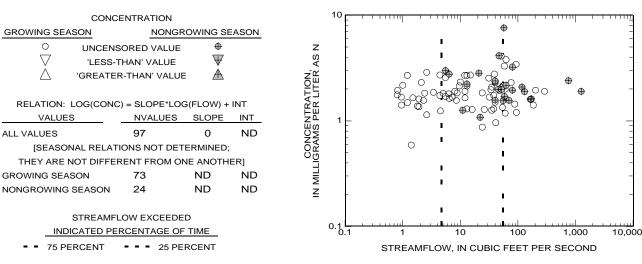
HIGH FLOW



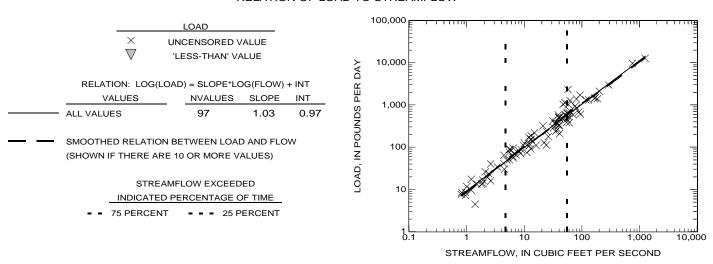
APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01401600 BEDEN BROOK NEAR ROCKY HILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

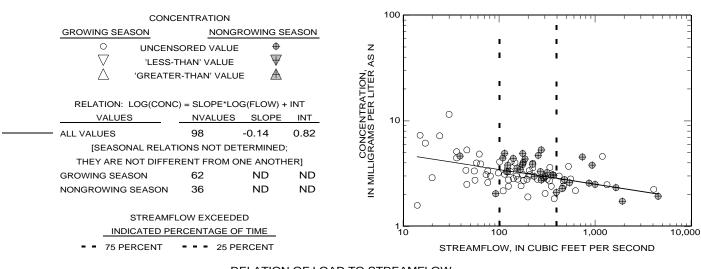
CONCENTRATION	10					1 1
LOW FLOW HIGH FLOW						
O UNCENSORED VALUE	8					
V LESS-THAN VALUE ₩			⊕			
△ 'GREATER-THAN' VALUE 🛕 💆						
<u> </u>	6	<u> </u>				
TRENDS IN CONCENTRATION						
VALUES NVALUES NWYS SLOPE WO						
☐ 'GREATER-THAN' VALUE TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE LOW FLOW 21 12 ND HIGH FLOW 24 10 ND YOU COMMITTED HIGH FLOW 24 10 ND	4	<u> </u>	⊕			
HIGH FLOW 24 10 ND 00			⊕ ⊕	⊕		
						0
	2	L	⊕ ⊕ ○		· •••	0
<u>z</u>		0		2 0 0 0 0 0 0 0 0 0 0 0 	° • • •	, ,
			0	O	Ψ	

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOA	D	10	00,000			<u> </u>
	SORED VALUE THAN' VALUE		-	1		* =
		DAY	-	ı	· · · · ×	
RELATION: $LOG(LOAD) = S$	SLOPE*LOG(FLOW) + INT	<u>r</u> 1	10,000	I	1 × 🚜	
VALUESN\	ALUES SLOPE INT	PER 1	10,000	Ī	×~, x2	=
ALL VALUES	0.86 1.55	NDS	Ē	•		=
— SMOOTHED RELATION BETWI	EN LOAD AND FLOW	POU	-	×	× 1	-
(SHOWN IF THERE ARE 10 OR	MORE VALUES)	<u>Z</u>	1,000	× ** **********************************	1	
STREAMFLOW	EXCEEDED	LOA	E×	×	ı	=
INDICATED PERCE	NTAGE OF TIME		- *	X	i	-
= = 75 PERCENT = -	= 25 PERCENT		-	i	1	-
			100 <u>×</u>	100	1,000	10,000
				STREAMFLOW. I	N CUBIC FEET PER	SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

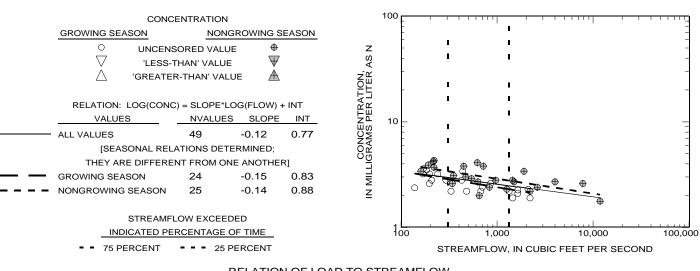
	CONCENTR		25	\Box	-	1	- 1	- 1	\neg	\neg	\neg	\neg	\neg	\neg		
	CONCENTR	ATION														
LOW FLOW			HIGH FLOW	_	_											
Ο υ	NCENSORE	D VALUE	+	<u> </u>		L										
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$	~ ~												
△ 'GF	REATER-THA	N' VALUE	■ ▲	ON	i											
				A.	15	L										
TREN	IDS IN CONC	ENTRAT	ION	TR/	i											
VALUES	NVALUES	NWYS	SLOPE	Äα 20	-)				0							
LOW FLOW	24	13	ND	CONCE	10	_										
HIGH FLOW	20	10	ND		5											
				=	į				0	0						
				2		L		Ф	0	0	0					
				2	•			∞⊕	0	∌ ○	4	٠.		0		

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APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01403300 RARITAN RIVER AT QUEENS BRIDGE, AT BOUND BROOK, N.J.

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

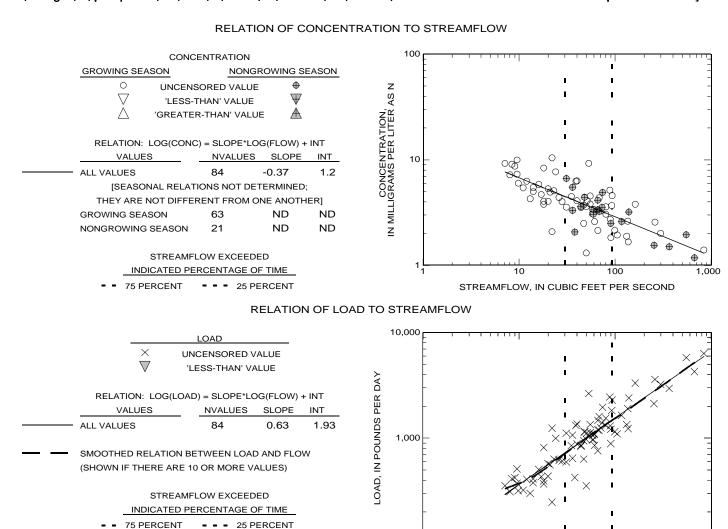
	LOAD				1,000,000	1 1 1	ттт		
×	UNCENSORED V	ALUE			Ė				
∇	'LESS-THAN' VA	LUE		>	_	i	i		
RELATION: LOG	(LOAD) = SLOPE*LC	G(FLOW)	+ INT	R D/	100,000			×	
VALUES	NVALUES	SLOPE	INT	PE	100,000	- I			•
ALL VALUES	49	0.88	1.51	NDS	=	-		×	
SMOOTHED RELATI	ON BETWEEN LOAD	AND FLC)W	Pou	-	1			
(SHOWN IF THERE	ARE 10 OR MORE V	ALUES)		Ž,	10,000	·		*	
STR	EAMFLOW EXCEED	ED		OAE	= - -		×× '		
INDICAT	ED PERCENTAGE C	F TIME		_	<u> </u>	※ ` ^ .			
75 PERCE	NT 25 P	ERCENT			l ×				
					1,000		1,000	10,000) 100,
							AMFLOW	IN CUBIC FEET PER	SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	0.		١
LOW FLOW HIGH FLOW	z	<u> </u>	
○ UNCENSORED VALUE □	Ø 4.	1	4
✓ 'LESS-THAN' VALUE ₩	_ :	0 0	
△ 'GREATER-THAN' VALUE 🛣	일	• 0 0)
TRENDS IN CONCENTRATION	CONCENTRATION GRAMS PER LITER '7	-0-	1
VALUES NVALUES NWYS SLOPE	SEN.	•	
LOW FLOW 14 9 ND	ON 2.	Φ Ψ Ψ	4
HIGH FLOW 14 9 ND	SS GR	Φ Ψ	Ī
	긑		
	⊒ ₩ 1.		1
	_		
	0.	0	
	0.	.° 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93	,

WATER YEAR

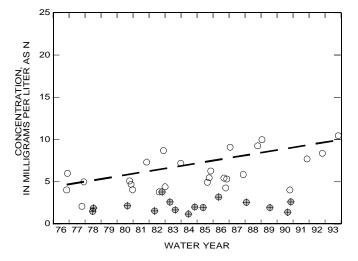
5.0



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

100

	CONCENTR	ATION							
LOW FLOW		HIGH FLOW							
Ο υ	O UNCENSORED								
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$						
△ 'GF	△ 'GREATER-THAN' VALUE ⚠								
TREN	IDS IN CONC	ENTRAT	ION						
VALUES	NVALUES	NWYS	SLOPE						
- LOW FLOW	26	15	0.311						
HIGH FLOW	15	10	ND						



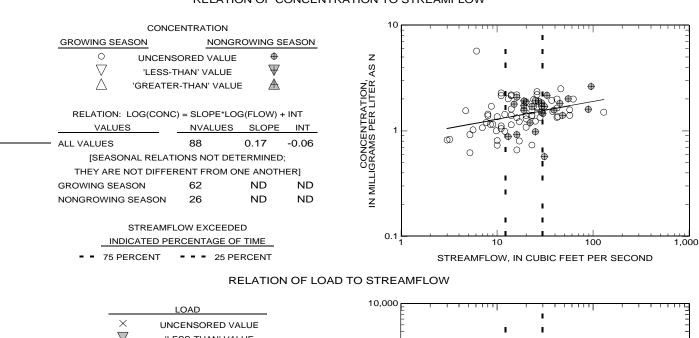
STREAMFLOW, IN CUBIC FEET PER SECOND

1,000

APPENDIX 11. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITROGEN 01405340 MANALAPAN BROOK AT FEDERAL RD, NEAR MANALAPAN, N.J.

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

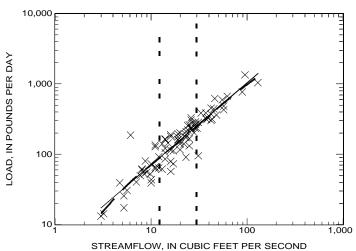


'LESS-THAN' VALUE

RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT NVALUES **VALUES** SLOPE ALL VALUES

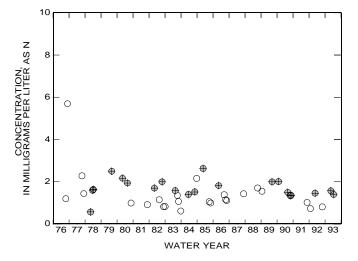
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

> STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 25 PERCENT 75 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION									
LOW FLOW		HIGH FLOW							
○ UNCENSORED VALUE									
√ 'LESS-THAN' VALUE ₩									
$ riangle$ 'GREATER-THAN' VALUE $ extcal{A}$									
TREN	DS IN CONC	ENTRAT	ION						
VALUES	NVALUES	NWYS	SLOPE						
LOW FLOW	24	14	0						
HIGH FLOW	21	12	ND						



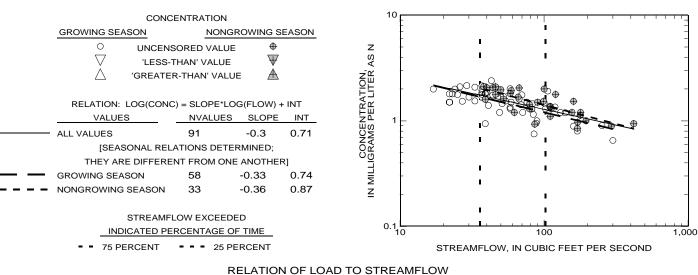
Appendix 12 - Total nitrate plus nitrite

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Blackwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

APPENDIX 12. Relations of constituent concentration and load to streamflow and trends in concentration with time 01396280 SB RARITAN RIVER AT MIDDLE VALLEY, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



	LOAD		10,000				
	ICENSORED VALUE .ESS-THAN' VALUE	2	- -	1 1	!		-
RELATION: LOG(LOAI VALUES	D) = SLOPE*LOG(FLOW) NVALUES SLOPE	+ INT 0	-	1	1	×	-
ALL VALUES	91 0.7	1.44	1,000 <u> </u>		** ×	×	-
— SMOOTHED RELATION BI	ETWEEN LOAD AND FLC	ow (<u> </u>	I		€	=
(SHOWN IF THERE ARE 1	0 OR MORE VALUES)	<u> </u>	<u> </u>				
STREAMF	LOW EXCEEDED	Š	5 -		× × •		_
INDICATED PE	ERCENTAGE OF TIME	-	-		ı		_
75 PERCENT	■ ■ 25 PERCENT				1		
			100	ı ı İ ı	100	1 1 1 1	1,000
				STREAMFLO	W, IN CUBIC FEE	T PER SECOND	

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

2.5

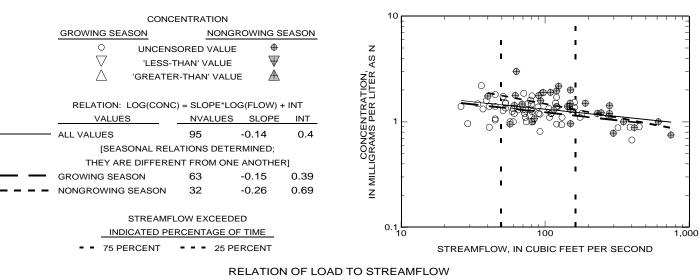
76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

	CONCENTR	ATION									' '		' '	'	•	
LOW FLOW			HIGH FLOW												\circ	
Ο υ	NCENSORE	D VALUE	⊕	Z Ø	2.0	_			0		0)		()	
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$	ž	2.0				0	_	_	,			+	
△ 'GF	REATER-THA	N' VALUI	E A	NO RHO NO						0	O		Ο			4
				E-	1.5	_	0			0	0			0		
TREN	IDS IN CONC	ENTRAT	ION	NTRA PER			•	⊕			Ŭ		\oplus	⊕	⊕	
VALUES	NVALUES	NWYS	SLOPE	ÄΩ			\oplus	Ψ			\oplus		Φ.			•
LOW FLOW	13	9	ND	CONCEN	1.0	_			_	⊕		Φ	Ф Ф			
HIGH FLOW	22	13	0	0.0 0.5			\oplus		⊕	•		***	Ψ			
				⋾						-	7			#	4	
				MI	0.5	_								4	,	
				Z												

APPENDIX 12. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRATE PLUS NITRITE 01396535 SB RARITAN RIVER AT ARCH ST, AT HIGH BRIDGE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	H L L L L L L L L L L L L L L L L L L L
ALL VALUES 95 0.86 1.13	
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	1,000 - X
STREAMFLOW EXCEEDED _INDICATED PERCENTAGE OF TIME_	
75 PERCENT 25 PERCENT	X I I I I I I I I I I I I I I I I I I I
	1,000 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION			2.5		- 1									-	ı	- 1			
LOW FLOW			HIGH FLOW								0										
<u>○</u> ∪	INCENSORE	D VALUE	•		2.0	_															_
,	'LESS-THAN'	VALUE	\rightarrow													0					
∐ 'GF	REATER-THA	N' VALUI	≣ ≜	NTRATION, PER LITER															C)	
				R LI	1.5	L				_		_				_	,	\oplus	Ф О		-
	IDS IN CONC			ĖŪ						0		0		C)				Ψ		0
VALUES	NVALUES	NWYS	SLOPE	<u> </u>			+				+	₽		+				\oplus			⊕
LOW FLOW	13	9	ND	N N N N N N N N N N N N N N N N N N N	1.0	_	\cap		\oplus	0	₽.			*	0)					_
HIGH FLOW	18	11	ND	0.80			ŏ			_	\oplus	(1)	₽								
				3			Ψ		,	+						\oplus					
				CONCE	0.5	-															_
				Z																	
					0.0																لــ
						76	77 78	79	80	81 8	B2 8	3 84	85	86	87	88	89	90	91	92	93

WATER YEAR

25-

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION				10 F				
GROWING SEASON	NONGRO	WING SI	EASON		F		I		=
☐ 'LESS-' ☐ 'GREATEI RELATION: LOG(CONC	•			TRATION, ER LITER AS N	+	 		• • •	-
VALUES ALL VALUES [SEASONAL REL THEY ARE DIFFERE	81 ATIONS DETERM		ND	CONCENT	1 -			, , , ,	 - - - - -
GROWING SEASON	56	0	ND	Ī	-				-
NONGROWING SEASON	25	0	ND	Z			1		-
STREAMFI	LOW EXCEEDED					• • • • • • • • • • • • • • • • • • • •		1	
INDICATED PE	RCENTAGE OF 1	ГІМЕ			0.1	10		100	1,00
- 75 PERCENT	= = 25 PER	CENT				STREAMFLOW	/, IN CUBIC FE	ET PER SECO	DND

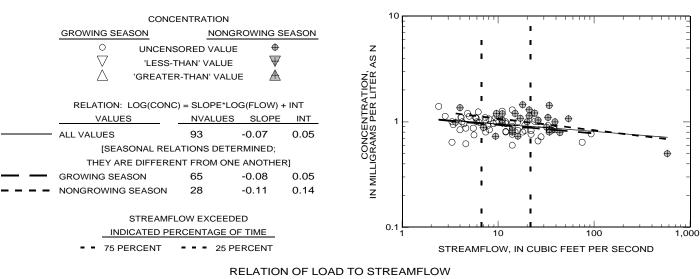
RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	TOAD, IN POUNDS PER DA
75 PERCENT 25 PERCENT	TREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION LOW FLOW HIGH FLOW	2.5	
○ UNCENSORED VALUE	Z S S Z E Z E Z E	
TRENDS IN CONCENTRATION 2 VALUES NVALUES NWYS SLOPE LOW FLOW 9 6 ND Z	1.5 – W DER	
HIGH FLOW 33 15 ND	IN MILLIGRAMS PER LITER 0.0 1 2.0 -	
	0.0	6 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

RELATION OF CONCENTRATION TO STREAMFLOW



×	LOAD × UNCENSORED VALUE √ 'LESS-THAN' VALUE			10,000	1 1	1 1 1	1 1		
RELATION: LOG(I VALUES	LOAD) = SLOPE*LOO NVALUES	G(FLOW) - SLOPE	INT	1,000	. !	1		//	
— ALL VALUES	93	0.93	0.79	SOND		ı	×/		
SMOOTHED RELATION BETWEEN LOAD AND FLOW			P _O	;		×			
(SHOWN IF THERE ARE 10 OR MORE VALUES)				<u>z</u>	-				
	AMFLOW EXCEEDED D PERCENTAGE OF			LOAD	ı				
75 PERCEN	NT = = = 25 PE	RCENT				ı			
				10 l	X 	10	100		
					STREAMFL	OW, IN CUBIC	FEET PER SI	ECOND	

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	_		
LOW FLOW HIGH FLOW	_		
○ UNCENSORED VALUE ♥ VLESS-THAN' VALUE ▼	გ თ 2	2.0	-
☐ 'GREATER-THAN' VALUE	TER,		
TRENDS IN CONCENTRATION	CONCENTRATION, IGRAMS PER LITER 1 1	1.5	-
VALUES NVALUES NWYS SLOPE	E H	0 ⊕	
LOW FLOW 23 13 ND	AMS 1		_
HIGH FLOW 25 14 0			₽
	N MIL 0	0.5	
	Ζ°	ψ	
	0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 9	3

WATER YEAR

25-

RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION		10	
GROWING SEASON NONGRO UNCENSORED VALUE 'LESS-THAN' VALUE 'GREATER-THAN' VALUE	DWING SEASON	LITER AS N	
RELATION: LOG(CONC) = SLOPE*LOGI VALUES NVALUES	SLOPE INT	CONCENTR GRAMS PER	
ALL VALUES 101 [SEASONAL RELATIONS DETERN THEY ARE DIFFERENT FROM ONE A		CONC	
GROWING SEASON 60	0 ND	 -	000
NONGROWING SEASON 41	0 ND	<u>Z</u> -	•
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF		0.1	1 I 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
75 PERCENT 25 PER	CENT		STREAMFLOW, IN CUBIC FEET PER SECOND

RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT W	10,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	1,000
	100 100 1,000 10,000 STREAMELOW IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION LOW FLOW UNCENSORED VALUE 'LESS-THAN' VALUE 'GREATER-THAN' VALUE TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE LOW FLOW 14 8 ND HIGH FLOW 22 13 0	ICENTRATION, MS PER LITER AS N 1	2.5
HIGH FLOW 22 13 0		

WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW

CONCE	ENTRATION			¹⁰ F	
GROWING SEASON	NONGRO	WING SE	EASON	ļ.	I
O UNCENS	ORED VALUE			z	I I
√ 'LESS-T	HAN' VALUE	\forall		S +	I I
△ 'GREATER	R-THAN' VALUE	\triangle		LITER,	
RELATION: LOG(CONC				CONCENTRAT	
VALUES		SLOPE	INT	<u>α</u> ω 1	
ALL VALUES	95	0	ND	ŞŞ	, [©] & & ,
[SEASONAL RELA	ATIONS DETERM	ΛINED;		<u>0</u> 8	0
THEY ARE DIFFEREN	NT FROM ONE A	NOTHER	?]		. 0
GROWING SEASON	68	0	ND		· ·
NONGROWING SEASON	27	0	ND	Z Z	
STREAMFL	OW EXCEEDED				1 1
INDICATED PER	RCENTAGE OF T	ГІМЕ		0.1 L 10	100 1,000 10,
= 75 PERCENT	25 PER	CENT			STREAMFLOW, IN CUBIC FEET PER SECOND

RELATION OF LOAD TO STREAMFLOW

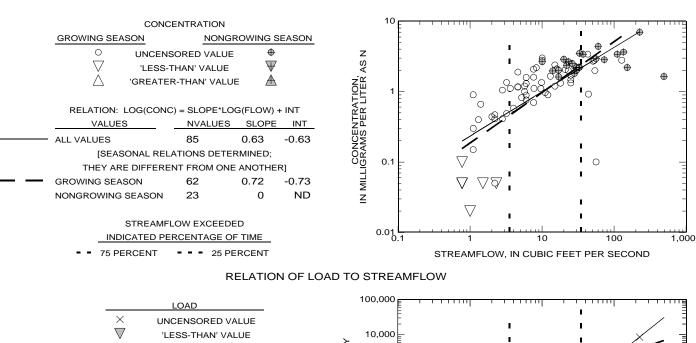
LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	
——————————————————————————————————————	1,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	
75 PERCENT 25 PERCENT	100 100 1,000 10,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		0.0	
LOW FLOW HIGH FLOW	_		
○ UNCENSORED VALUE ⊕	z o	4.0	_
abla 'Less-than' value $ abla$	⋖		
$ riangle$ 'GREATER-THAN' VALUE $ extcal{A}$	CONCENTRATION, IN MILLIGRAMS PER LITER		
	YAT LI	3.0	
TRENDS IN CONCENTRATION	봈		0
VALUES NVALUES NWYS SLOPE	N S		
LOW FLOW 10 7 ND	N S	2.0	-
HIGH FLOW 25 13 ND	250		
	∃		
	Σ	1.0	- ° • • · · · · · · · · · · · · · · · · ·
	≥		
		0.0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93
			10 11 10 13 00 01 02 03 04 03 00 01 00 09 90 91 92 93

WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW

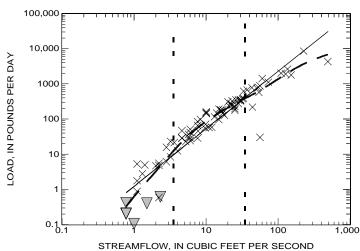


SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

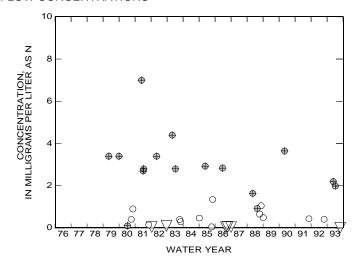
INDICATED PERCENTAGE OF TIME

75 PERCENT - 25 PERCENT



	CONCENTRATION	
LOW FLOW	I	HIGH FLOW
0	UNCENSORED VALUE	<u>+</u>
∇	'LESS-THAN' VALUE	\forall
\triangle	'GREATER-THAN' VALU	E A
	DENIDO IN CONCENTRA	TON!

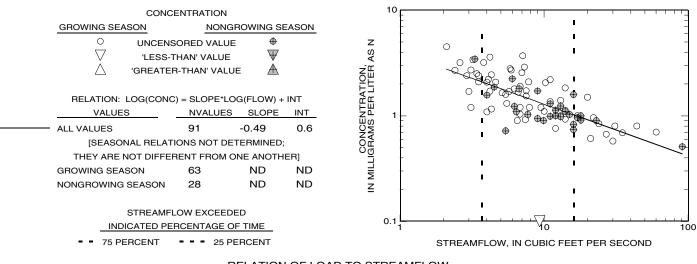
TRENDS IN CONCENTRATION				
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	19	12	ND	
HIGH FLOW	16	10	ND	



APPENDIX 12. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRATE PLUS NITRITE 01398260 NB RARITAN RIVER NEAR CHESTER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	1,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	SO PER DAY
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	NOO LO
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	
	10 100 100 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

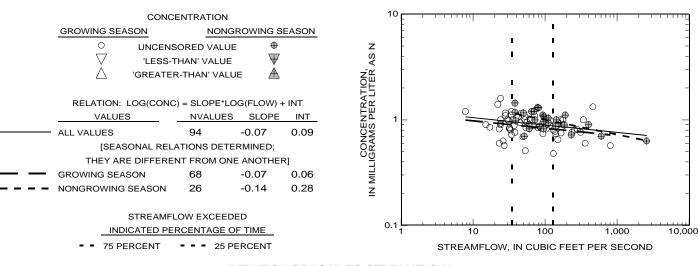
CONCENTRATION		' '	1 1 1				' ' '
LOW FLOW HIGH FLOW	_						0
○ UNCENSORED VALUE ⊕	Ζ Ø 4.0	_					_
abla 'LESS-THAN' VALUE $ abla$							
$ riangle$ 'GREATER-THAN' VALUE $ extcal{A}$	CONCENTRATION IN MILLIGRAMS PER LITER 0. 0. 0.	0					0
	₹ 3.0	L					° _
TRENDS IN CONCENTRATION	EÄ			0	0 _		
VALUES NVALUES NWYS SLOPE	SEN	0		0	0		
LOW FLOW 12 6 ND	0¥ 2.0	_		0			_
HIGH FLOW 16 10 ND	008		_	0			
	3		Φ				
	<u></u> 1.0	├	₽ 🛣			→	(1)
	Z	`	Φ Φ	₩			⊕
						₩ Ψ	*
	0.0	76 77 7	0.70.00	01 00 00	04 05 0	6 97 99 90 00	01 00 00
		10 // /	0 /9 80	01 02 83	04 05 8	6 87 88 89 90	91 92 93

WATER YEAR

APPENDIX 12. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRATE PLUS NITRITE 01399120 NB RARITAN RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

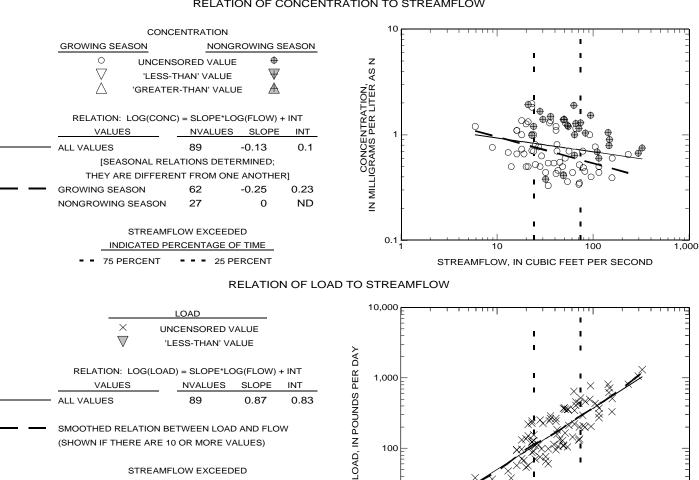
LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	_ F I \#
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT - 75 PERCENT - 25 PERCENT	
	10 100 1,000 10,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION				
LOW FLOW HIGH FLOW	_			
○ UNCENSORED VALUE	AS N	2.0		
√ 'LESS-THAN' VALUE √				
	SE			
	F'=	1.5	5	╛
TRENDS IN CONCENTRATION	CONCENTRATION		O •	
VALUES NVALUES NWYS SLOPE	E S		0 0 0	
LOW FLOW 22 12 ND	SS	1.0		
HIGH FLOW 28 13 0	88			
	Ę			₩
	₫	0.5		
	Z	0.0	0 +	
		0.0		
		0.0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 9	3

WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

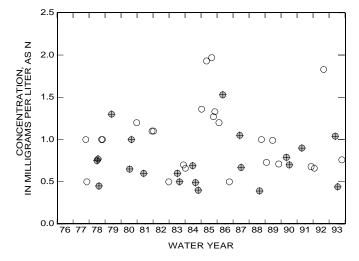
10

CONCENTRATION						
LOW FLOW			HIGH FLOW			
○ UNCENSORED VALUE						
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$			
TREN	IDS IN CONC	ENTRAT	ION			
VALUES	NVALUES	NWYS	SLOPE			
LOW FLOW	25	14	0			
HIGH FLOW	21	12	0			

INDICATED PERCENTAGE OF TIME

75 PERCENT

25 PERCENT



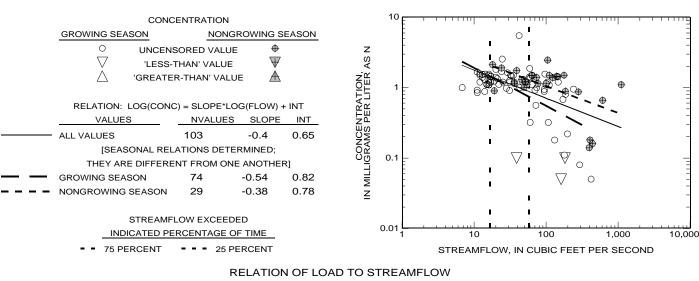
STREAMFLOW, IN CUBIC FEET PER SECOND

1,000

APPENDIX 12. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRATE PLUS NITRITE 01399700 ROCKAWAY CREEK AT WHITEHOUSE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) 2	100 × × × × × × × × × × × × × × × × × ×
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	10 10 100 1,000 10,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

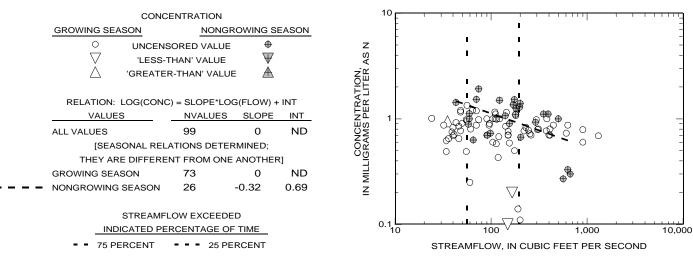
	2.5
CONCENTRATION	2.0
LOW FLOW HIGH FLOW	
○ UNCENSORED VALUE	Z Ø 2.0
√ 'LESS-THAN' VALUE √	
	ZA
_	
TRENDS IN CONCENTRATION	
VALUES NVALUES NWYS SLOPE	
LOW FLOW 20 12 ND	
HIGH FLOW 45 15 0.06	
111G111 EOW 43 13 0.00	
	≥ 0.5 - Ψ -
	()
	0.0 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93
	70 77 70 70 00 07 02 00 07 00 00 00 00 01 02 00

WATER YEAR

APPENDIX 12. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRATE PLUS NITRITE 01399780 LAMINGTON RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD	10,000
∨ UNCENSORED VALUE	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 99 0.9 0.83	1,000 R H H H H H H H H H H H H H H H H H
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	10 100 1,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

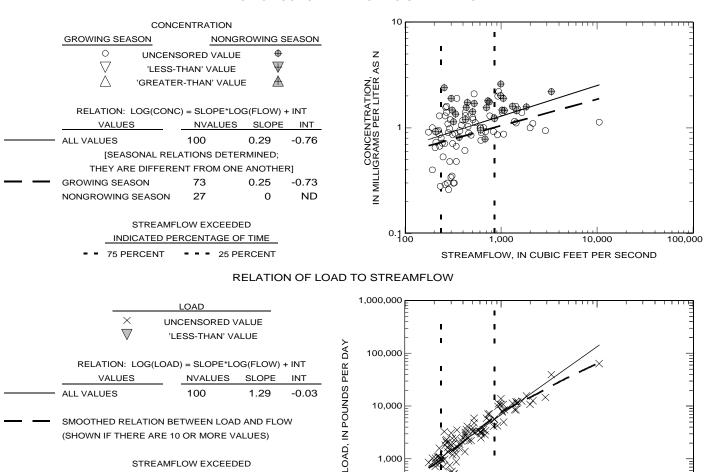
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	'	
LOW FLOW HIGH	H FLOW_	
○ UNCENSORED VALUE ○ 'LESS-THAN' VALUE △ 'GREATER-THAN' VALUE TRENDS IN CONCENTRATION	FRATION TRAP 4 9 1.5	
VALUES NVALUES NWYS SLO	OPE W	•
LOW FLOW 20 10 HIGH FLOW 30 11	ND ND 1.0	
	0.5 U	
		⊕

0.0 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

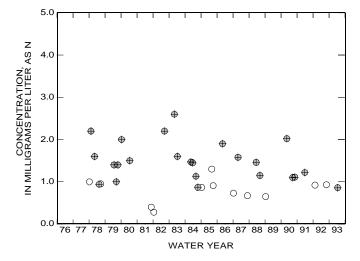
100 100

	CONCENTR	ATION				
LOW FLOW HIGH FLO						
Ο υ	NCENSOREI	D VALUE	⊕			
abla ,	abla 'LESS-THAN' VALUE $ abla$					
TREN	DS IN CONC	ENTRAT	ION			
VALUES	NVALUES	NWYS	SLOPE			
LOW FLOW	7	ND				
HIGH FLOW 24 12 ND						

INDICATED PERCENTAGE OF TIME

25 PERCENT

75 PERCENT



100,000

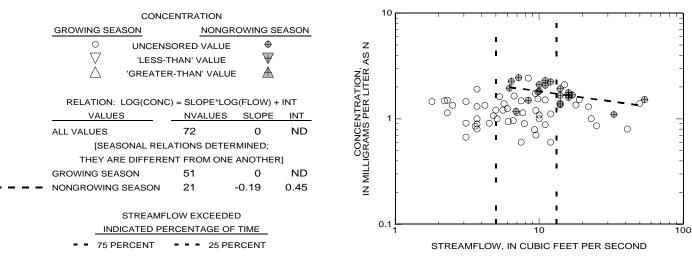
10.000

STREAMFLOW, IN CUBIC FEET PER SECOND

APPENDIX 12. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRATE PLUS NITRITE 01400540 MILLSTONE RIVER NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	×	LOAD UNCENSORED V 'LESS-THAN' VA			1,000	<u> </u>	1 1 1 1 1 I	· · · · · · · · · · · · · · · · · · ·	
	RELATION: LOG VALUES — ALL VALUES	(LOAD) = SLOPE*LC NVALUES 72	+ INT INT 0.8	NDS PER DAY	-			/XX	
<u> </u>	SMOOTHED RELATION (SHOWN IF THERE A		W	AD, IN POU	100				•
		EAMFLOW EXCEED ED PERCENTAGE O NT 25 P		0	10		× I I I I I I I I I I I I I I I I I I I		
					,	STREAMFLOW		T PER SECOND	

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

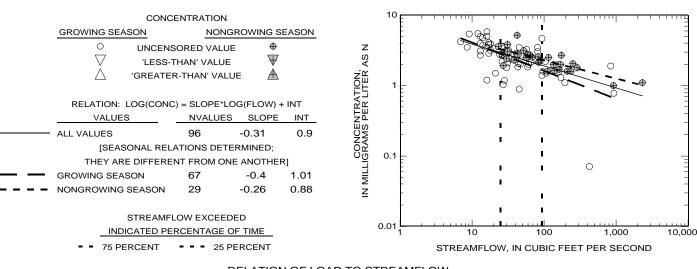
CONCENTRATION			
LOW FLOW HIGH FLOW			
○ UNCENSORED VALUE	Z	2.0	_
√ 'LESS-THAN' VALUE √	_ <	2.0	⊕ ○
	CONCENTRATION, IN MILLIGRAMS PER LITER		. • • •
	E-I	1.5	• • • • • • • • • • • • • • • • • • •
TRENDS IN CONCENTRATION	돘띴		
VALUES NVALUES NWYS SLOPE	S N N		
LOW FLOW 18 10 ND	NA NA	1.0	- O
HIGH FLOW 18 12 ND	98 8		
	Ξ		0
	₹	0.5	_
	≥		
		0.0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93
			10 11 10 13 00 01 02 03 04 03 00 01 00 09 90 91 92 93

WATER YEAR

APPENDIX 12. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRATE PLUS NITRITE 01400650 MILLSTONE RIVER AT GROVERS MILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

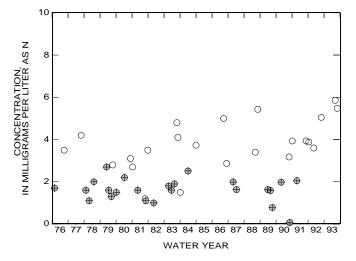
RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

<u>×</u>	LOAD UNCENSORED VA	ALUE		1	100,000	- 	<u> </u>			
RELATION: LOG('LESS-THAN' VAI (LOAD) = SLOPE*LO NVALUES		+ INT INT	PER DAY	10,000		1	1	׎	
ALL VALUES SMOOTHED RELATION (SHOWN IF THERE A			1.63 w	O, IN POUNDS	1,000			; × × •		
	EAMFLOW EXCEEDE ED PERCENTAGE OF NT 25 PE			LOAI	100	10	× × × × × × × × × × × × × × × × × × ×	I I 100	X 1,000	10
						STREAMI	FLOW, IN C	UBIC FE	EET PER SECONI)

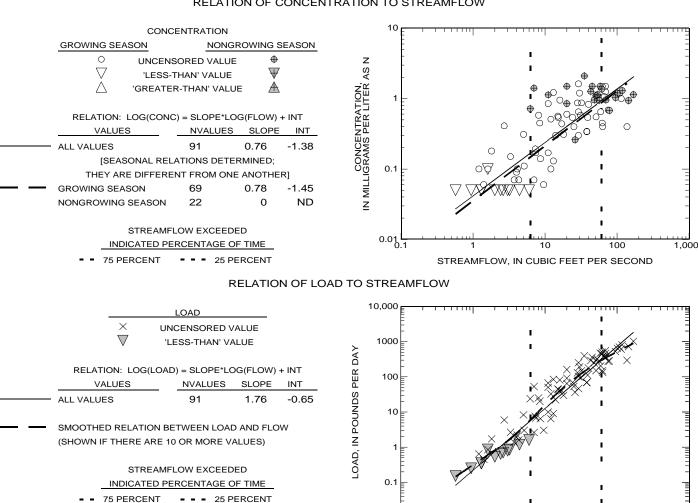
	CONCENTR	ATION		
LOW FLOW HIGH FLOW				
Ο υ	NCENSORE	D VALUE	⊕	
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$	
△ 'GF	REATER-THA	N' VALUE	\blacksquare	
TREN	IDS IN CONC	ENTRAT	ION	
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	23	13	ND	
HIGH FLOW	24	12	ND	



APPENDIX 12. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRATE PLUS NITRITE 01401000 STONY BROOK AT PRINCETON, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

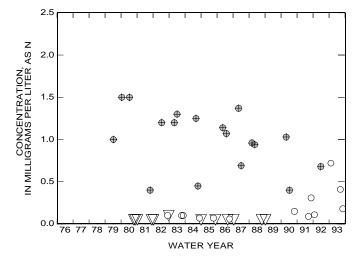
0.01 L 0.1

CONCENTRATION						
LOW FLOW HIGH FLO						
○ UNCENSORED VALUE ⊕						
	√ 'LESS-THAN' VALUE √					
△ 'GREATER-THAN' VALUE A A A A B C A B C A B C A B C C C C C C C C C C C C						
TRENDS IN CONCENTRATION						
VALUES	NVALUES	NWYS	SLOPE			
LOW FLOW	25	14	ND			

11

ND

HIGH FLOW



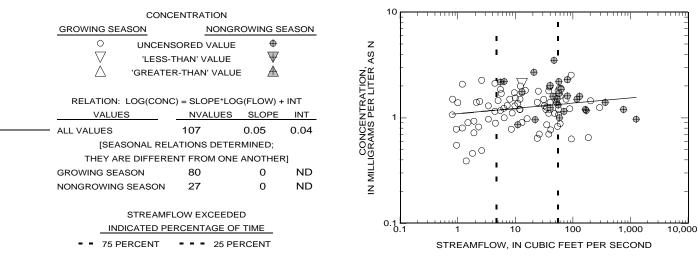
STREAMFLOW, IN CUBIC FEET PER SECOND

1,000

APPENDIX 12. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRATE PLUS NITRITE 01401600 BEDEN BROOK NEAR ROCKY HILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT 107 1.05 0.77 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	1,000 PER 1,000 PER 1
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	10 10 10 100 1,000 10,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

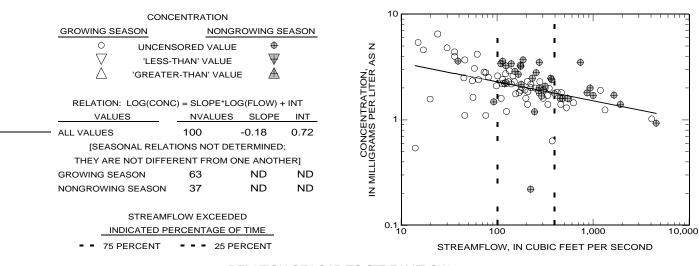
CONCENTRATION			' '					' '	' 1
LOW FLOW HIGH FLOW	_								
○ UNCENSORED VALUE ⊕	AS N	4.0	_						_
abla 'LESS-THAN' VALUE $ abla$									
△ 'GREATER-THAN' VALUE A A A A B C A B C C C C C C C C C C C C	CONCENTRATION								
	YAT LI	3.0	_						_
TRENDS IN CONCENTRATION	븄					⊕			
VALUES NVALUES NWYS SLOPE	ZEN 13 F			Ф _Ф		₩			0
LOW FLOW 22 13 ND	Ş. Ş. Ş.	2.0	_	₩			Φ.	0	Ď
HIGH FLOW 27 11 ND	9 <u>6</u>		•		ΟΦ.		• •		
	⊒			⊕ ⊕	0 0	© *		_ 0	⊕
	Σ	1.0	- _O •	⊕ *	08	Ø,	′ 0 *	⊕ [©]	Ψ_
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				. 0	0	O			
		0.0	76 77 7	8 79 80	81 82 83 84	4 85 86 87	7 88 89 9	0 91 92	2 93

WATER YEAR

APPENDIX 12. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRATE PLUS NITRITE 01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

'LESS-THAN' VALU	_	-	I	1	/ ★
	0.82 1.45 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1,000			
(SHOWN IF THERE ARE 10 OR MORE VALI STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF 75 PERCENT 25 PER	UES) Z GAO O TIME_	100 ×	X X X X I X I I I I I I I I I I I I I I	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

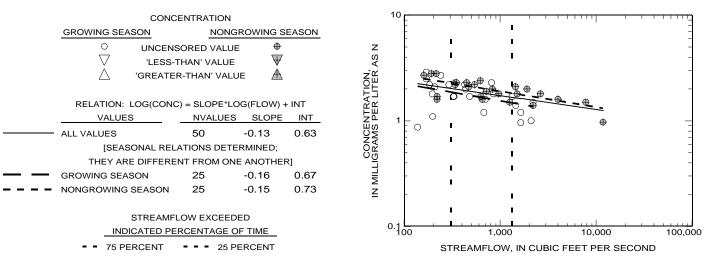
CONCENTRATION		1			' '			' ' '	' ' '
LOW FLOW	HIGH FLOW								
○ UNCENSORED VALUE □ 'LESS-THAN' VALUE □ 'GREATER-THAN' VALUE	₩ ₹ * ẑ¥	8 –		0					_
TRENDS IN CONCENTRAT	TION ZY ZY ZY ZY ZY ZY ZY ZY ZY ZY ZY ZY ZY			0					
LOW FLOW 24 13	ND ÖĞ	4 –		- 4	8				_
HIGH FLOW 20 10	ND SS			(_	0			Q
	 		0	0	. 0	0			00
	Z Z	2 –		• O •	•	0	⊕	₩	⊕
			O O O	0	⊕		*	⊕	

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

10

RELATION OF CONCENTRATION TO STREAMFLOW



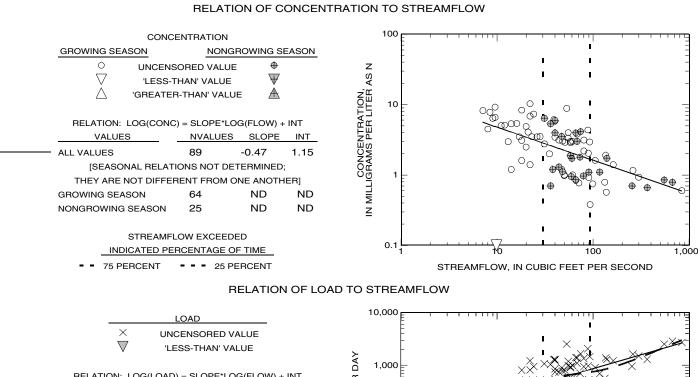
RELATION OF LOAD TO STREAMFLOW

	LOAD				100,000	1 1		1 1		1 1 1	1 1 1 1 9
×	UNCENSORED V	'ALUE			F	ı			XXX		=
∇	'LESS-THAN' VA	ALUE		>	F	i	·				-
RELATION: LOG(LOAD) = SLOPE*LO	OG(FLOW)	+ INT	R D/	10,000		×. ×				
VALUES	NVALUES	SLOPE	INT	PE	10,000 =	-		X.			Ξ.
LL VALUES	50	0.87	1.36	NDS	Ē	× >					1
MOOTHED RELATIO	ON BETWEEN LOAD	O AND FLC	»W	Pou		××					-
SHOWN IF THERE A	RE 10 OR MORE V	ALUES)		Z	1,000	×					4
STRE	EAMFLOW EXCEED	ED		OAL	E×	(I	I				=
INDICATE	D PERCENTAGE C	F TIME		_	F	-	Ī				-
= = 75 PERCE	NT = = = 25 P	ERCENT			-	1	į				-
					100		1,000		10,000		100,000
						STE	REAMELOW	IN CUBIC	FEET PER	SECOND	

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	0.0	1 1 1 1 1 1	1 1 1 1 1	
LOW FLOW				
○ UNCENSORED VALUE ⊕		_		_
√ 'LESS-THAN' VALUE √				
△ 'GREATER-THAN' VALUE 🛦	TER,			
	¥, 3.0 ·			0 -
TRENDS IN CONCENTRATION	7.7.7	0	0	_
VALUES NVALUES NWYS SLOPE	SE			0
LOW FLOW 14 9 ND	ZZ 2.0	-	→	0
HIGH FLOW 14 9 ND	GR		⊕ ○ •	•
	\exists		- · · ·	
	CONCENTRA IN MILLIGRAMS PER 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	_	0 0	⊕ –
	∠			
	0.0	76 77 78 79 80 81 8	32 83 84 85 86 8	7 88 89 90 91 92 93
		70 77 70 79 00 01 0	2 00 04 00 00 0	7 00 05 50 91 92 95

WATER YEAR

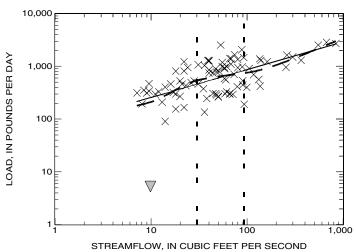


RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT

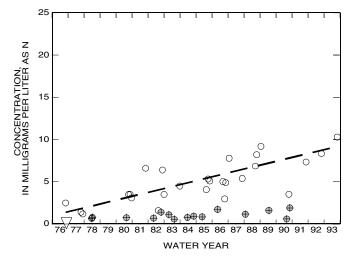
NVALUES **VALUES** SLOPE ALL VALUES

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 25 PERCENT 75 PERCENT



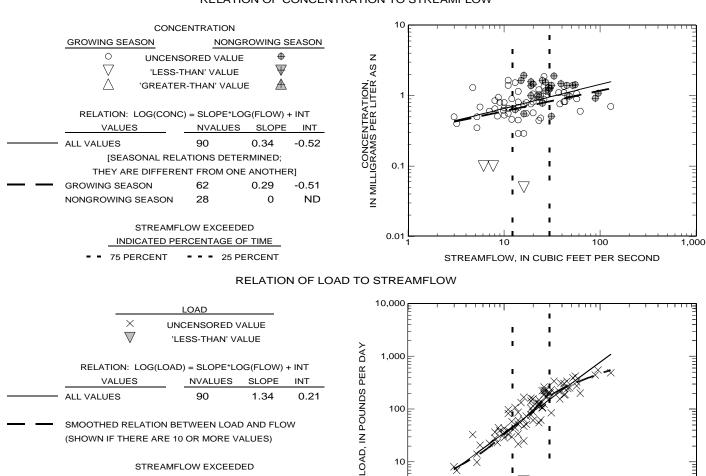
	CONCENTR	ATION				
LOW FLOW	LOW FLOW					
O U	O UNCENSORED VALU					
∇	abla 'LESS-THAN' VALUE $ abla$					
△ 'GI	riangle 'GREATER-THAN' VALUE $ riangle$					
TREN	IDS IN CONC	ENTRAT	ION			
VALUES	NVALUES	NWYS	SLOPE			
— LOW FLOW	27	15	0.46			
HIGH FLOW	15	10	ND			



APPENDIX 12. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRATE PLUS NITRITE 01405340 MANALAPAN BROOK AT FEDERAL RD, NEAR MANALAPAN, N.J.

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



10

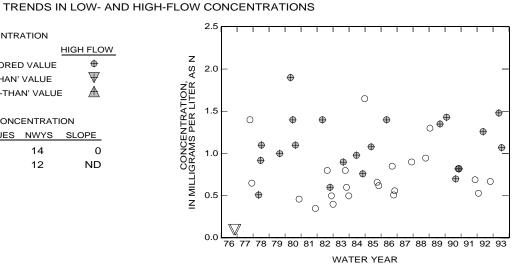
	CONCENTRATION	
LOW FLOW		HIGH FLOW
0	UNCENSORED VALUE	+
∇	'LESS-THAN' VALUE	$\overline{\Psi}$
\triangle ,	GREATER-THAN' VALUI	e A
TR	ENDS IN CONCENTRAT	ION

STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME

25 PERCENT

75 PERCENT

TRENDS IN CONCENTRATION						
VALUES	NVALUES	NWYS	SLOPE			
LOW FLOW	24	14	0			
HIGH FLOW	22	12	ND			



STREAMFLOW, IN CUBIC FEET PER SECOND

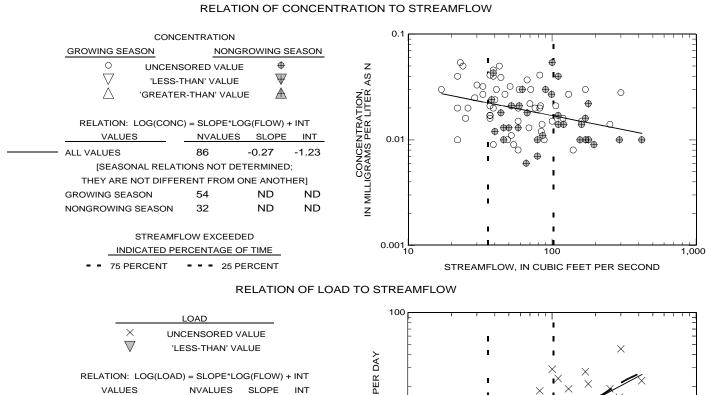
1,000

Appendix 13 - Total nitrite

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Blackwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01396280 SB RARITAN RIVER AT MIDDLE VALLEY, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]



SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

ALL VALUES

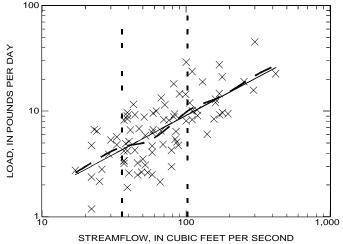
LOW FLOW

HIGH FLOW

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION				
LOW FLOW			HIGH FLOW			
٥ ر	INCENSOREI	VALUE	⊕			
∇	'LESS-THAN'	VALUE	$\overline{\Psi}$			
△ 'G	REATER-THA	.N' VALUE	■ ▲			
TRENDS IN CONCENTRATION						
VALUES	NIVALUES	NWYS	SLOPE			

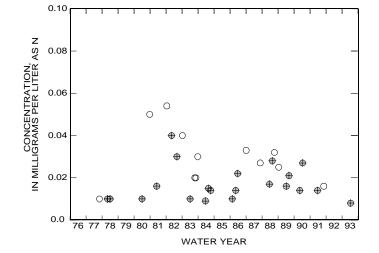
21

8

12

ND

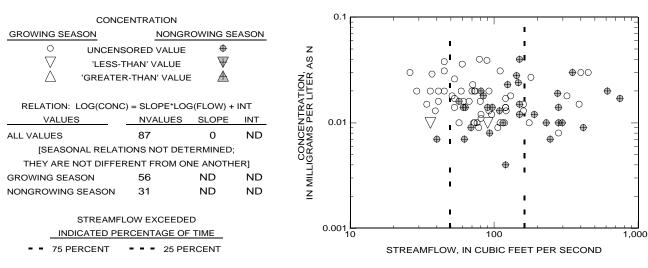
ND



APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01396535 SB RARITAN RIVER AT ARCH ST, AT HIGH BRIDGE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



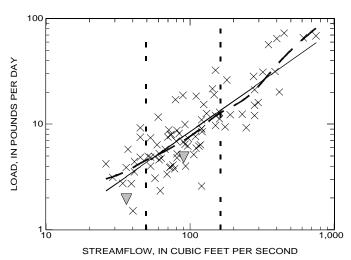
RELATION OF LOAD TO STREAMFLOW

	LOAD						
	× UNCENSORED VALUE						
	∇	'LE	SS-THAN' VA	ALUE			
	RELATION: LOG(I	_OAD) = SLOPE*LC	G(FLOW)	+ INT		
	VALUES		NVALUES	SLOPE	INT		
	ALL VALUES		87	0.96	-0.99		
_	SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)						
	STRE	AMFL	OW EXCEED	ED			

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT



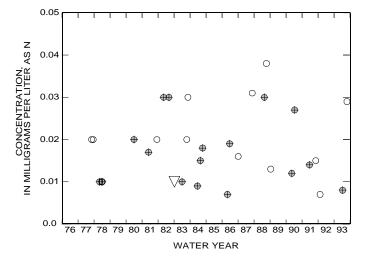
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION					
LOW FLOW			HIGH FLOW				
O U	NCENSORE	VALUE	+				
∇	LESS-THAN	VALUE	$\overline{\Psi}$				
△ 'GI	REATER-THA	N' VALUE	■ ▲				
TRENDS IN CONCENTRATION							
VALUES	NVALUES	NWYS	SLOPE				
LOW FLOW	13	9	ND				

11

ND

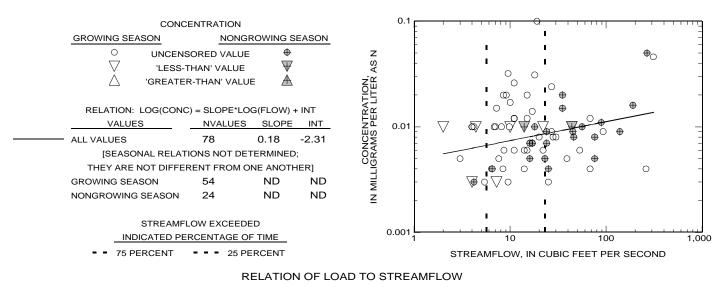
HIGH FLOW



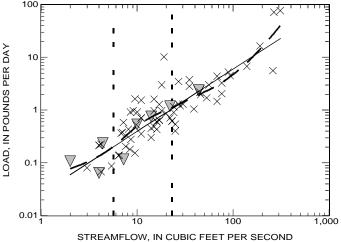
APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01396588 SPRUCE RUN NEAR GLEN GARDNER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

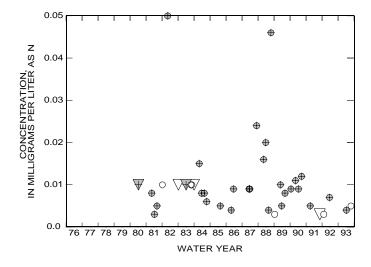
RELATION OF CONCENTRATION TO STREAMFLOW



	LOAD				100 F	
		E				
×	UNCENSORED V	ALUE			F	
∇	'LESS-THAN' VA	ALUE			F	
				DAY	10	
RELATION: LOG(L	OAD) = SLOPE*LO	OG(FLOW)	+ INT		Ē	
VALUES	NVALUES	SLOPE	INT	PER	-	
 ALL VALUES	78	1.18	-1.58	SOZ	4	
 SMOOTHED RELATION	N BETWEEN LOAI	O AND FLC	w	POUNDS	1	
(SHOWN IF THERE AR	E 10 OR MORE V	ALUES)		Z	E	
STREA	MFLOW EXCEED	ED		OAD,	0.1	∇
INDICATED	PERCENTAGE C	OF TIME			Ē	
75 PERCEN	Γ 25 P	ERCENT			-	



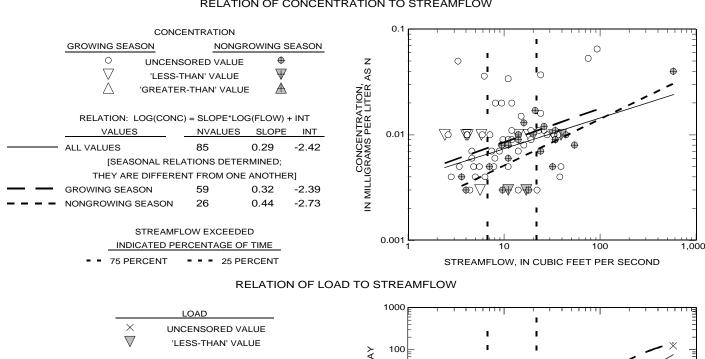
CONCENTRATION						
LOW FLOW			HIGH FLOW			
Ο υ	NCENSORE	O VALUE	⊕			
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$			
TREN	IDS IN CONC	ENTRATI	ON			
VALUES NVALUES NWYS SLOPE						
LOW FLOW	9	6	ND			
HIGH FLOW	30	14	ND			



APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time 01396660 MULHOCKAWAY CREEK AT VAN SYCKEL, N.J.

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

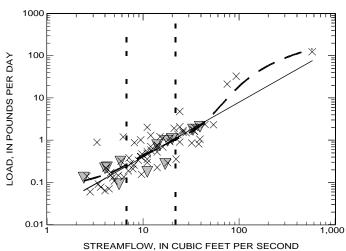
RELATION OF CONCENTRATION TO STREAMFLOW



RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT NVALUES SLOPE **VALUES** ALL VALUES

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

> STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME **75 PERCENT** 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION						
LOW FLOW			HIGH FLOW			
0	UNCENSORE	O VALUE	⊕			
∇	'LESS-THAN'	VALUE	$\overline{\Psi}$			
△ '(GREATER-THA	'N' VALUE	■ ▲			
TRENDS IN CONCENTRATION						
VALUES	NVALUES	NWYS	SLOPE			

11

13

ND

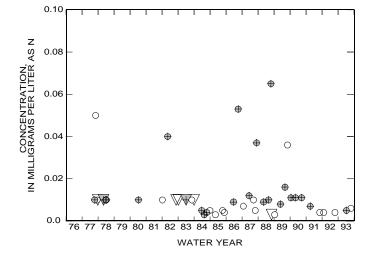
ND

22

24

LOW FLOW

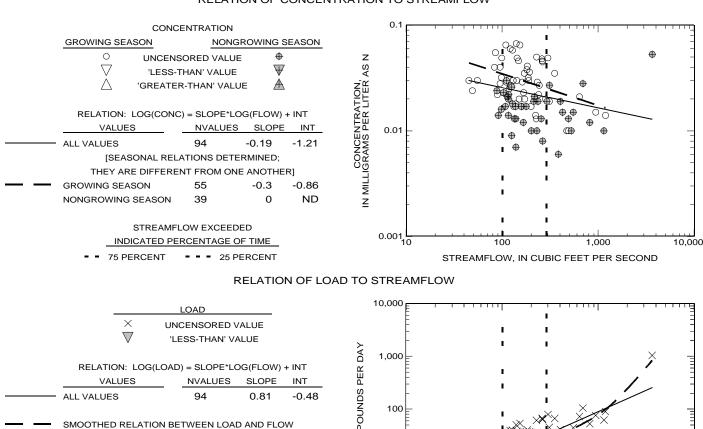
HIGH FLOW



APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time 01397000 SB RARITAN RIVER AT STANTON STATION, N.J.

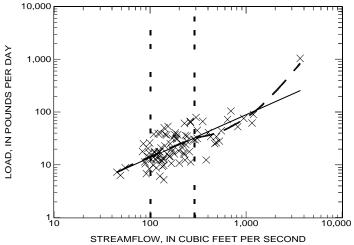
[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



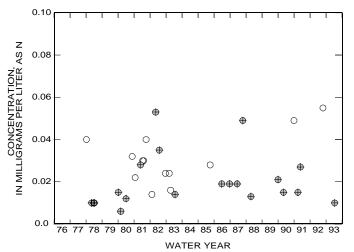
(SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME **75 PERCENT** 25 PERCENT



CONCENTRATION								
LOW FLOW	!	HIGH FLOW						
0	UNCENSORED VALUE	⊕						
∇	'LESS-THAN' VALUE	$\overline{\Psi}$						
Δ,	GREATER-THAN' VALUE	\triangle						
T D	ENDS IN CONCENTRATION	ONI						

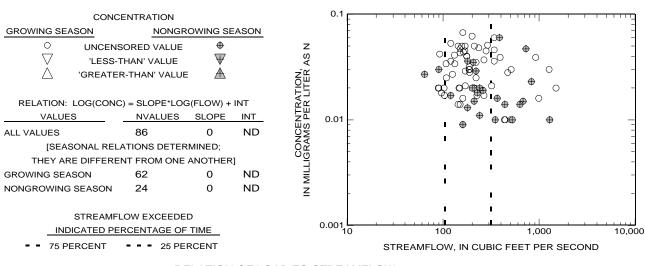
TRENDS IN CONCENTRATION								
VALUES NVALUES NWYS SLOP								
LOW FLOW	13	8	ND					
HIGH FLOW	20	12	ND					



APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01397400 SB RARITAN RIVER AT THREE BRIDGES, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

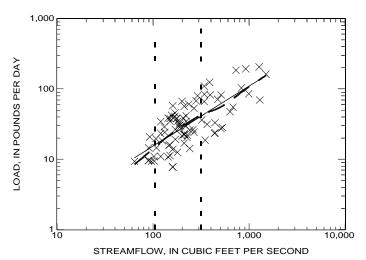
RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD							
X	× UNCENSORED VALUE							
∇	LESS-THAN' VALUE							
RELATION: LOG(LO	OAD) = SLOPE*LO	OG(FLOW)	+ INT					
VALUES	NVALUES	SLOPE	INT					
VALUES	INVALUES	SLOPE	IIN I					
ALL VALUES	86	0.85	-0.51					
	SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)							
STREA	STREAMFLOW EXCEEDED							
INDICATED	PERCENTAGE C	OF TIME						

75 PERCENT

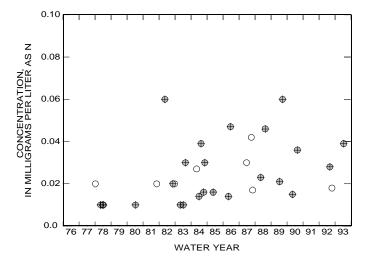


TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

LOW FLOW			HIGH FLOW
Ο υ	+		
∇ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	IDS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	8	6	ND
HIGH FLOW	24	12	ND

CONCENTRATION

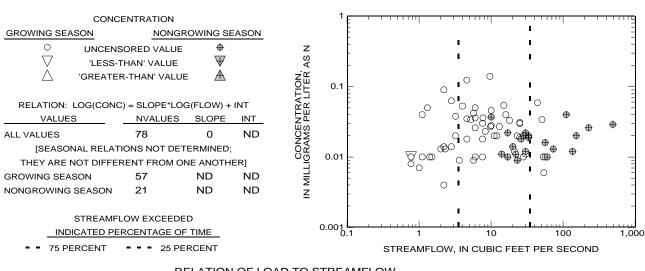
25 PERCENT



APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01398000 NESHANIC RIVER AT REAVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD				100		 	-
$\stackrel{\times}{\mathbb{V}}$	UNCENSORED \			≿	-		1 1	! ! !×
RELATION: LOG(L VALUES	.OAD) = SLOPE*LO	DG(FLOW) SLOPE	+ INT INT	ER DA	10		, ×	××1/X
ALL VALUES	78	1.02	-0.98	NDS F	1		ı× ×××××	
— SMOOTHED RELATIO			W	N POU	`E	×		××′`
(SHOWN IF THERE AR		,		AD, II	0.1	×	/ **	I I
INDICATE	AMFLOW EXCEED D PERCENTAGE (OF TIME		P	Ē	×	×	ı
= = 75 PERCEN	IT = = = 25 F	PERCENT			-	1	1 1	1

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	0.10	
LOW FLOW HIGH FLOW	Z	0
O UNCENSORED VALUE	0.08 ¥	
TRENDS IN CONCENTRATION		-
VALUES NVALUES NWYS SLOPE	ν Τ	0
LOW FLOW 18 12 ND	∑ 5 0.04	-
HIGH FLOW 13 9 ND	<u>, 5</u>	•
	╛	⊕
	≥ 0.02 Z	
	_	⊕ @ \##
	0.0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

1,000

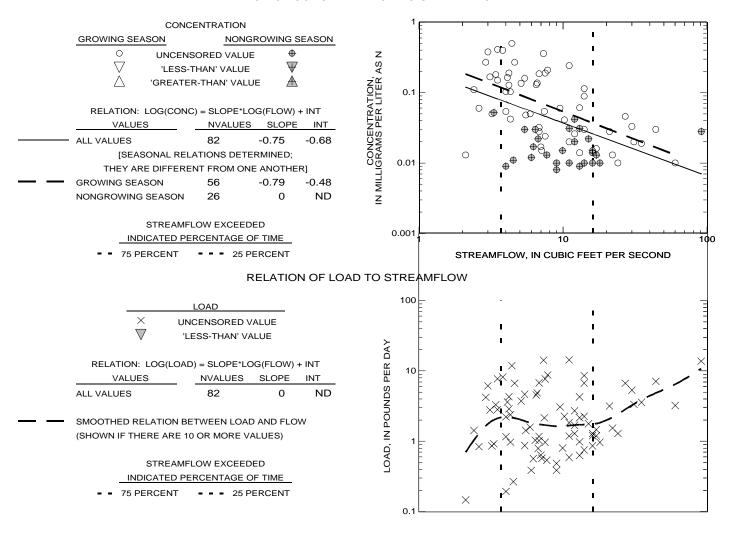
STREAMFLOW, IN CUBIC FEET PER SECOND

WATER YEAR

APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01398260 NB RARITAN RIVER NEAR CHESTER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



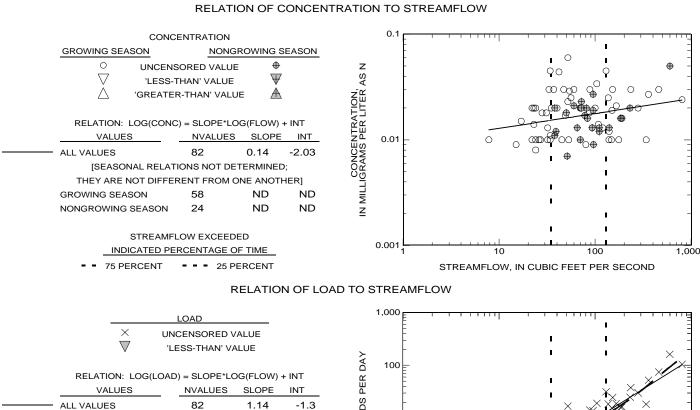
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	0.5	
LOW FLOW HIGH FLOW		
UNCENSORED VALUE W	0.4	_
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE VALUES NVALUES NWYS SLOPE	0.3	0
VALUES NVALUES NWYS SLOPE LOW FLOW 11 5 ND ZVA HIGH FLOW 13 9 ND OC Z Z	0.2	0 0
= 2 7	0.1	•
=	0.0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01399120 NB RARITAN RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

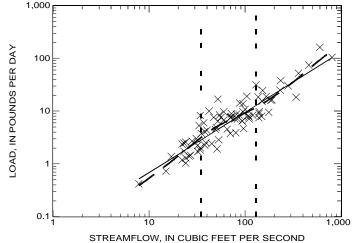


SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION						
LOW FLOW			HIGH FLOW			
0	UNCENSORE	O VALUE	⊕			
∇	'LESS-THAN'	VALUE	$\overline{\Psi}$			
△ 'o	SREATER-THA	'N' VALUE	\blacksquare			
TRENDS IN CONCENTRATION						
VALUES	NVALUES	NWYS	SLOPE			

11

11

ND

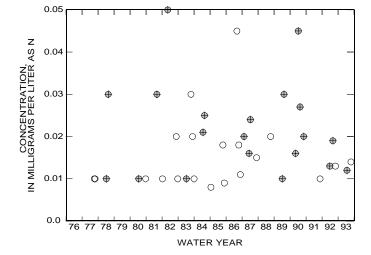
ND

20

20

LOW FLOW

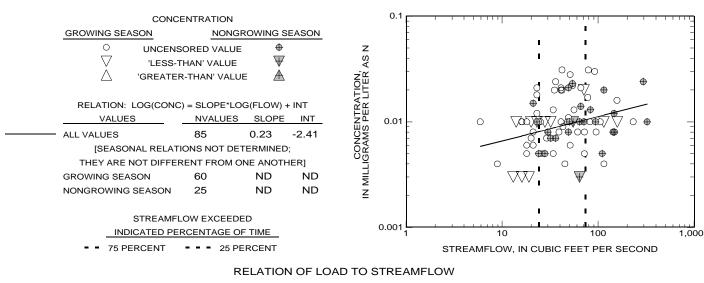
HIGH FLOW



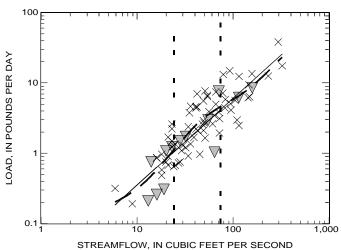
APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01399500 LAMINGTON (BLACK) RIVER NEAR POTTERSVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

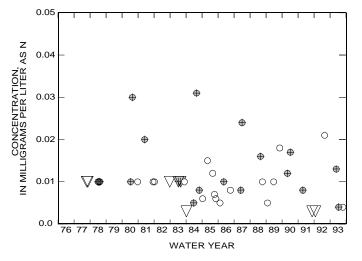
RELATION OF CONCENTRATION TO STREAMFLOW



		DRED VALUE		*	100	
RELATIO	ON: LOG(LOAD) = SLO	DPE*LOG(FLOW)	+ INT	ж О	10-	
VAL	LUES NVAL	LUES SLOPE	INT	PER	10 =	
ALL VALUES	s 85	1.23	-1.68	SONDS	Ē	
- SMOOTHED	O RELATION BETWEE	N LOAD AND FLO	W	POI	-	
(SHOWN IF	THERE ARE 10 OR M	ORE VALUES)		AD, IN	1	
	STREAMFLOW E	XCEEDED		Ŏ.	Ė	
_	INDICATED PERCENT	TAGE OF TIME		_	F	× / *
7	'5 PERCENT = = =	25 PERCENT			-	×

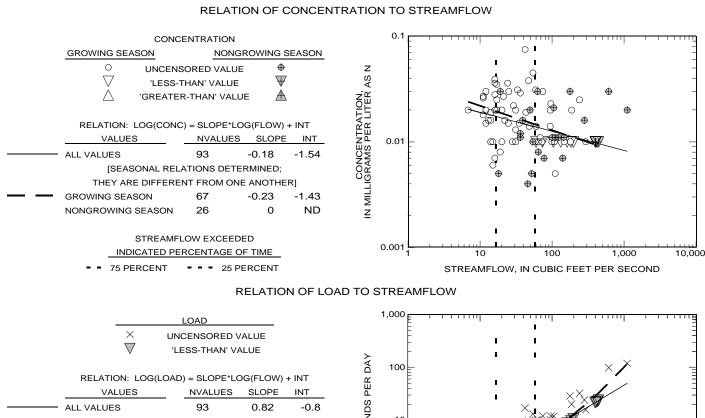


CONCENTRATION						
LOW FLOW HIGH FLOW						
○ UNCENSORED VALUE ⊕						
abla 'LESS-THAN' VALUE $ abla$						
△ 'GREATER-THAN' VALUE A A A A B C C C C C C C C C C C C						
TREN	TRENDS IN CONCENTRATION					
VALUES	NVALUES	NWYS	SLOPE			
LOW FLOW	23	13	ND			
HIGH FLOW	20	11	ND			



APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01399700 ROCKAWAY CREEK AT WHITEHOUSE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

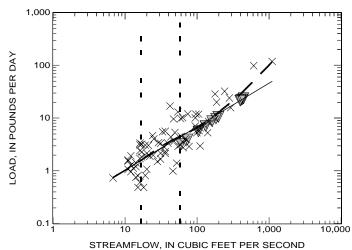


SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

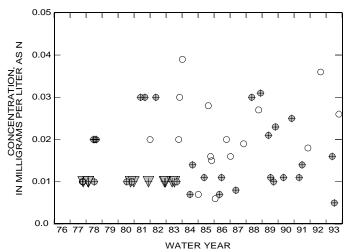
INDICATED PERCENTAGE OF TIME

75 PERCENT - 25 PERCENT



	CONCENTRATION	
LOW FLOW		HIGH FLOW
0	UNCENSORED VALUE	⊕
∇	'LESS-THAN' VALUE	$\overline{\Psi}$
\triangle ,	GREATER-THAN' VALUI	■ ▲

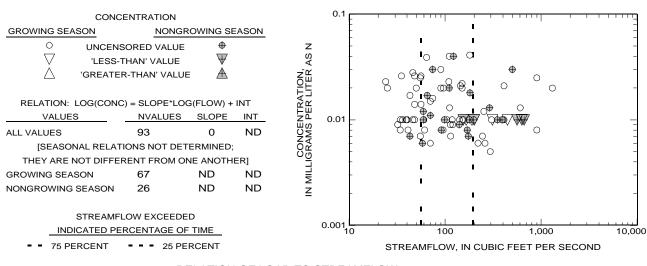
TRENDS IN CONCENTRATION						
VALUES NVALUES NWYS SLOPE						
LOW FLOW	18	11	ND			
HIGH FLOW	42	15	0			



APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01399780 LAMINGTON RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

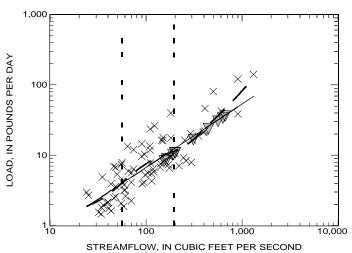
RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

		LOAD		
	×	UNCENSORED V	ALUE	
	∇	'LESS-THAN' VA	LUE	
R	ELATION: LOG(LC	AD) = SLOPE*LC	G(FLOW)	+ INT
	VALUES	NVALUES	SLOPE	INT
ALL V	VALUES	93	0.9	-0.97
	OTHED RELATION OWN IF THERE ARE			W
		MFLOW EXCEED PERCENTAGE C		

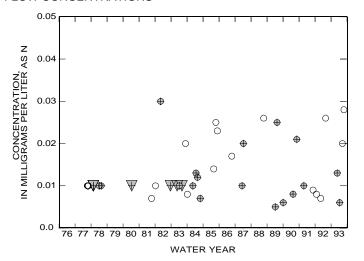
75 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION					
LOW FLOW			HIGH FLOW		
O и	+				
▽ ,	$\overline{\Psi}$				
TREN	DS IN CONC	ENTRAT	ION		
VALUES	NVALUES	NWYS	SLOPE		
LOW FLOW	21	11	ND		
HIGH FLOW	25	10	ND		

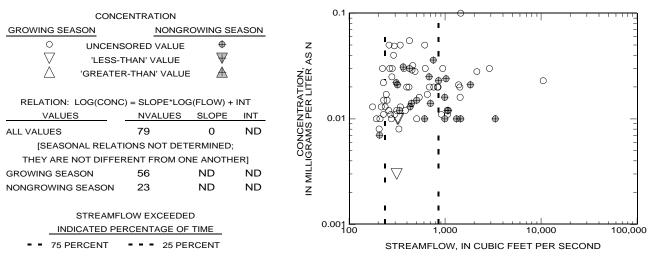
25 PERCENT



APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01400500 RARITAN RIVER AT MANVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



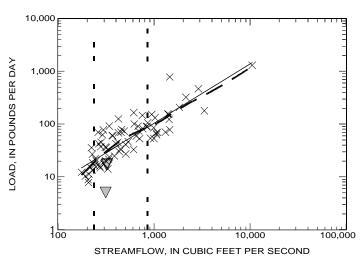
RELATION OF LOAD TO STREAMFLOW

		LOAD		
	× u	NCENSORED V	'ALUE	
	,	LESS-THAN' VA	ALUE	
RELATI	ON: LOG(LOA	(D) = SLOPE*LC	OG(FLOW)	+ INT
VA	LUES	NVALUES	SLOPE	INT
ALL VALUE	S	79	1.12	-1.34
- SMOOTHE	D RELATION E	BETWEEN LOAD	O AND FLO	w
(SHOWN IF	THERE ARE	10 OR MORE V	ALUES)	
	STREAM	FLOW EXCEED	ED	

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

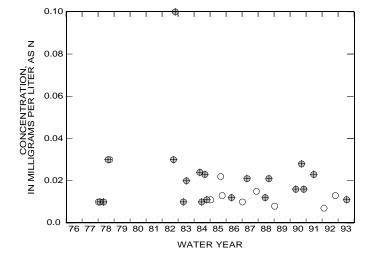
CONCENTRATION						
LOW FLOW			HIGH FLOW			
Ο υ	⊕					
√ 'LESS-THAN' VALUE						
△ 'GI	REATER-THA	N' VALUE	■ ▲			
TRENDS IN CONCENTRATION						
VALUES	NVALUES	NWYS	SLOPE			
LOW FLOW	10	5	ND			

10

ND

20

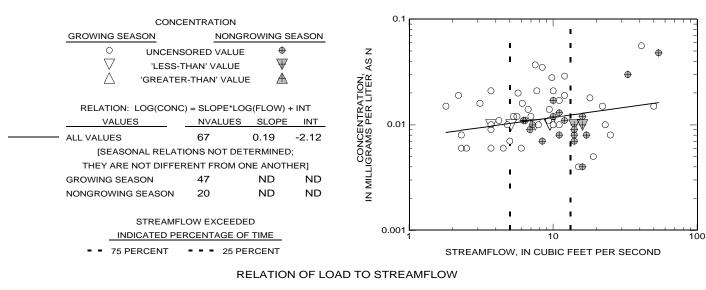
HIGH FLOW



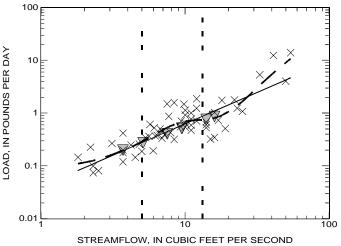
APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01400540 MILLSTONE RIVER NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

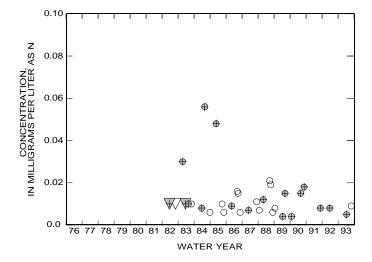
RELATION OF CONCENTRATION TO STREAMFLOW



	×	LOAD JNCENSORED V 'LESS-THAN' VA			λΑC	100
	RELATION: LOG(LO	AD) = SLOPE*LO	OG(FLOW)	+ INT	_	10
	VALUES	NVALUES	SLOPE	INT	PER	-
	ALL VALUES	67	1.19	-1.39	SOUNDS	1 =
	SMOOTHED RELATION	BETWEEN LOAD	O AND FLO	W	PO	F
	(SHOWN IF THERE ARE 10 OR MORE VALUES)				Z	E
STREAMFLOW EXCEEDED				OAD,	0.1	
	INDICATED	PERCENTAGE C	OF TIME		_	F
	75 PERCENT	25 P	ERCENT			-



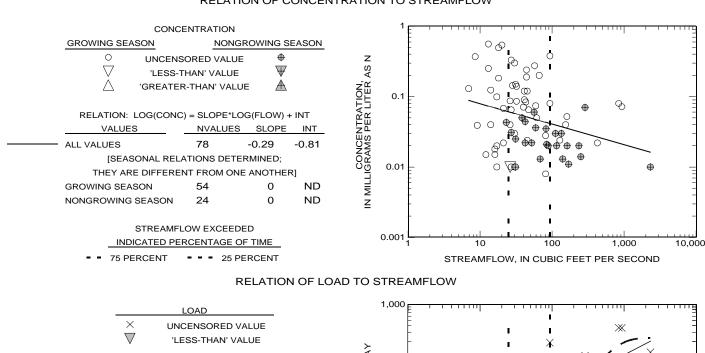
CONCENTRATION						
LOW FLOW	HIGH FLOW					
О U	⊕					
√ 'LESS-THAN' VALUE						
TREN	IDS IN CONC	ENTRAT	ION			
VALUES	NVALUES	NWYS	SLOPE			
LOW FLOW	15	9	ND			
HIGH FLOW	18	12	ND			



APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01400650 MILLSTONE RIVER AT GROVERS MILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



 RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT

 VALUES
 NVALUES
 SLOPE
 INT

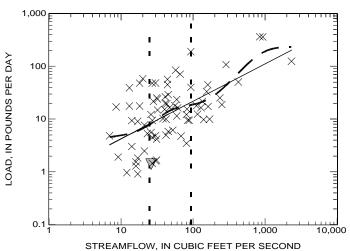
 ALL VALUES
 78
 0.71
 -0.08

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION						
LOW FLOW			HIGH FLOW			
٥ ر	JNCENSORE	VALUE	⊕			
∇	'LESS-THAN'	VALUE	$\overline{\Psi}$			
	REATER-THA	N' VALUE	A			
TRE	TRENDS IN CONCENTRATION					
VALUES	NVALUES	NWYS	SLOPE			

16

11

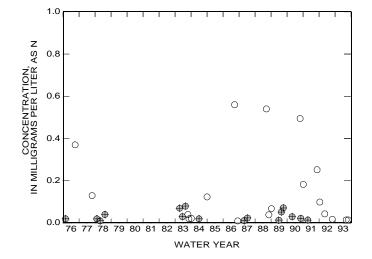
8

ND

ND

LOW FLOW

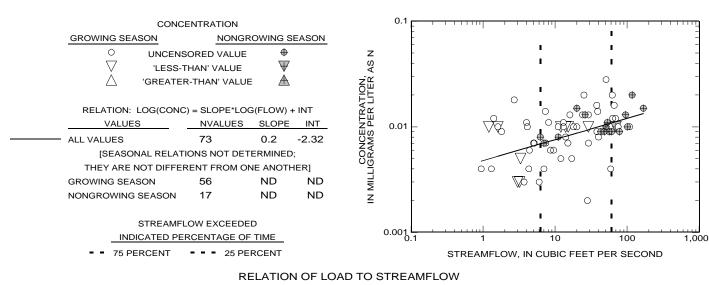
HIGH FLOW



APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01401000 STONY BROOK AT PRINCETON, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD		100	 	 	· · · · · · · · · · · · · · · · · · ·	
× UNCENSORED VALUE		E		ī		
VLESS-THAN' VALUE		≻		i	I ,	_
RELATION: LOG(LOAD) = SLOPE*LOG(FLOV		10			$\times Z$	_
· · · · · · · · · · · · · · · · · · ·	· INT	PER		ı	× × × × × × × × × × × × × × × × × × ×	=
VALUES NVALUES SLOPE				I	× ***	-
ALL VALUES 73 1.2	-1.59	عِ آ			XX XX	
— SMOOTHED RELATION BETWEEN LOAD AND FI	LOW	SONDO:		'×	· · · · · · · · · · · · · · · · · · ·	-
(SHOWN IF THERE ARE 10 OR MORE VALUES)		<u>z</u>	:	× × × × × × × × × × × × × × × × × × ×	\sim \times .	-
		0.1 OV	. —	XX	1	
STREAMFLOW EXCEEDED		٩ ^{0.1} [X× i		
INDICATED PERCENTAGE OF TIME	_	_ F	//	M,	ı	=
75 PERCENT 25 PERCENT	г		√×	1	1	
		0.01		i i i i i i i	.	
		0.01	1	10	100	1,0
			STREAMFLOV	W, IN CUBIC I	FEET PER SEC	OND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

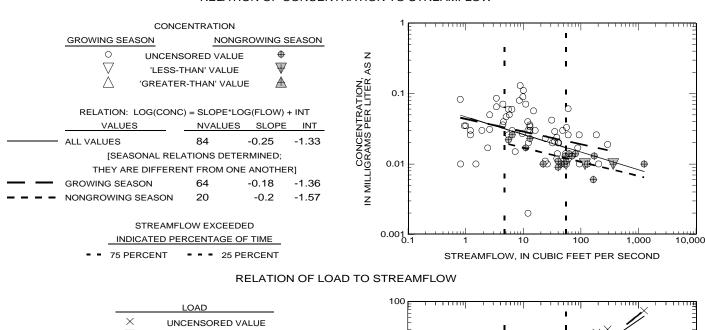
	0.025							
CONCENTRATION	0.020	1 1 1 1 1 1	1 1	1 1 1	- 1	1 1	'	ı
LOW FLOW HIGH FLOW								
O UNCENSORED VALUE ⊕ Z V V V V V V V V V V V V V	0.020	- •	⊕					<u> </u>
The Mark Concentration AR	0.015	_		$_{\oplus}^{\oplus}$				_
TRENDS IN CONCENTRATION			Ф	0		\bigoplus_{Φ}		
LOW FLOW 20 12 ND ZAY HIGH FLOW 13 8 ND OU	0.010	-	•	⊕ ₹		₩	○	
MILE IN	0.005	_	00	0	⇔	∇	0	_

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time 01401600 BEDEN BROOK NEAR ROCKY HILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

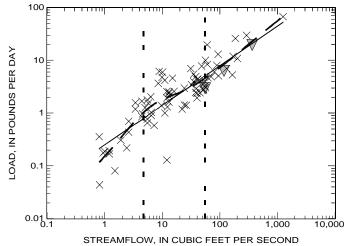


LOAD				
×	UNCENSORED VALUE			
∇	'LESS-THAN' VALUE			

RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT NVALUES SLOPE ALL VALUES

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

> STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME **75 PERCENT** 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

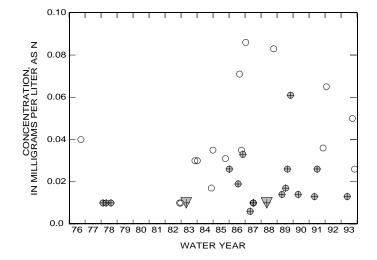
CONCENTRATION						
LOW FLOW			HIGH FLOW			
Ο υ	NCENSORE	VALUE	⊕			
abla 'LESS-THAN' VALUE $ abla$						
△ 'GI	REATER-THA	N' VALUE	■ 🛦			
TRENDS IN CONCENTRATION						
VALUES	NVALUES	NWYS	SLOPE			
LOW FLOW	16	11	ND			

9

ND

19

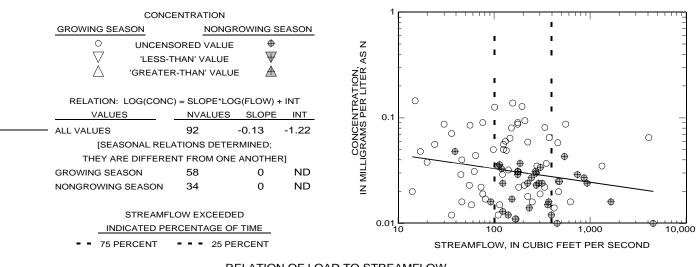
HIGH FLOW



APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000
	Y 1,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED	O TO
INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	1
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		
LOW FLOW HIGH FLOW		
○ UNCENSORED VALUE ♥ ▽ 'LESS-THAN' VALUE ▼ △ 'GREATER-THAN' VALUE ▲	CONCENTRATION, GRAMS PER LITER AS N 0.10	_
	₩ 0.15	i
TRENDS IN CONCENTRATION	ĒΜ	
VALUES NVALUES NWYS SLOPE	Π'Ω Π'Π	0
LOW FLOW 24 13 ND	Q¥ 0.10	4
HIGH FLOW 16 9 ND	O O R	○ ○
	3	0
	₹ 0.05	- 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	<u> </u>	

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

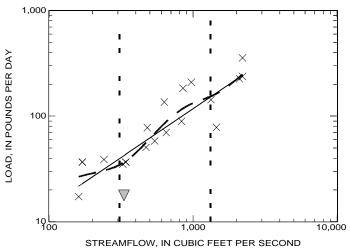
APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01403300 RARITAN RIVER AT QUEENS BRIDGE, AT BOUND BROOK, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION				1 —	- 1		1 1	1 1 1 1		1 1		 1
GROWING SEASON		OWING SI	EASON		F				'	1			=
UNCENS	ORED VALUE			Z	ŧ		1			1			-
LESS-T	HAN' VALUE	$\overline{\Psi}$		AS	Ī		•						
△ 'GREATER	R-THAN' VALUE	· A		ON,	Ī					Ī			
RELATION: LOG(CONC) = SLOPE*LOO NVALUES	G(FLOW) + SLOPE	INT INT	CONCENTRATI	0.1		ı			1			
ALL VALUES	21	0	ND	CEN AS I	0.1		1						=
[SEASONAL RELATI	ONS NOT DET	ERMINED:		NO No No	F		ı			ı			=
THEY ARE NOT DIFFER				0 <u>0</u>	1	0	_		⊕ ○⊕				
GROWING SEASON	12	ND	ND	1	-		0	0			⊕		-
NONGROWING SEASON	9	ND	ND	Z	-	⊕	(• • •	Ф Ф	0	0		-
STREAMFL	OW EXCEEDE	D			0.04		ı	7	1	I Io			
INDICATED PER	RCENTAGE OF	TIME			0.0100			/	1,0	00			10,000
■ ■ 75 PERCENT	25 PE	RCENT				ST	REAM	IFLOW,	IN CUB	C FEE	T PER S	ECOND	
	RI	ELATION	OF LC	AD TO S	STREAM	//FLOW	,						

	LOAD				1,000	ı	1 1 1
×	JNCENSORED \ 'LESS-THAN' V	DAY	-		I I		
RELATION: LOG(LO	AD) = SLOPE*LO	OG(FLOW)	+ INT	~	=		ı
VALUES	NVALUES	SLOPE	INT	PE	F		
 ALL VALUES	21	0.92	-0.69	SONOC	100 —		
 SMOOTHED RELATION	BETWEEN LOAI	O AND FLO	W	Pou			' ×
(SHOWN IF THERE ARE	10 OR MORE V	ALUES)		Z Ó	-	~ ×	
STREAM	LOAD	-	× ×	/ ^			
INDICATED	PERCENTAGE C	OF TIME		_	-		∇
 75 PERCENT 	25 F	PERCENT				×	. ▼



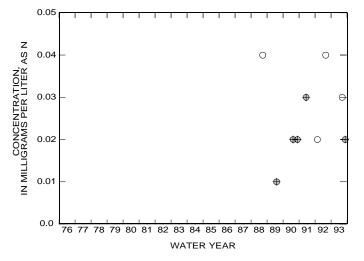
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION									
LOW FLOW			HIGH FLOW						
Ο υ	NCENSORE	D VALUE	⊕						
\triangle	'LESS-THAN'	VALUE	$\overline{\Psi}$						
△ 'GI	REATER-THA	N' VALUE	■ ▲						
TREN	IDS IN CONC	ENTRAT	ION						
VALUES	NVALUES	NWYS	SLOPE						
LOW FLOW	4	3	ND						

4

ND

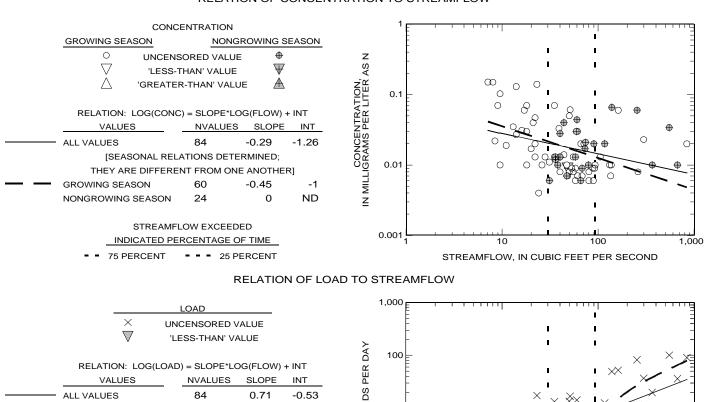
HIGH FLOW



APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01405302 MATCHAPONIX BROOK AT MUNDY AVE, AT SPOTSWOOD, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

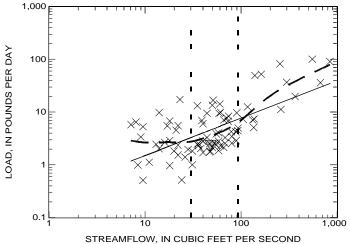


SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

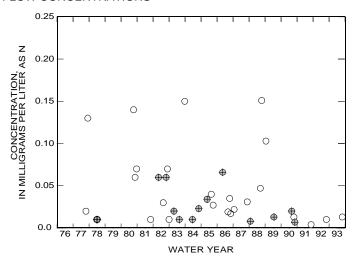
- 75 PERCENT - - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION									
LOW FLOW		HIGH FLOW							
0	UNCENSORED VALUE	⊕							
∇	'LESS-THAN' VALUE	$\overline{\Psi}$							
	GREATER-THAN' VALUE	\triangle							
TRI	ENDS IN CONCENTRATION	ON							

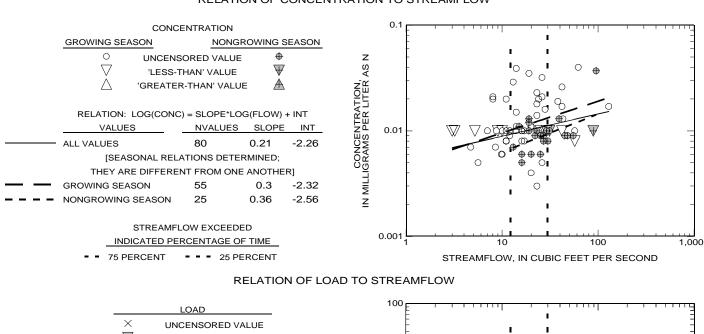
THE HEAD IN CONCENTRATION										
VALUES	NVALUES	NWYS	SLOPE							
LOW FLOW	24	14	ND							
HIGH ELOW	1/	a	ND							



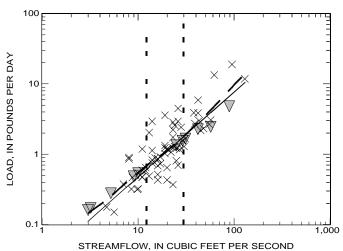
APPENDIX 13. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL NITRITE 01405340 MANALAPAN BROOK AT FEDERAL RD, NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



	LOAD								
× u	NCENSORED V	ALUE							
▽ ,	VLESS-THAN' VALUE								
RELATION: LOG(LOA	D) = SLOPE*LC	G(FLOW)	+ INT						
VALUES	NVALUES	SLOPE	INT						
ALL VALUES	80	1.21	-1.53						
 SMOOTHED RELATION B	BETWEEN LOAL	O AND FLO	W						
(SHOWN IF THERE ARE	10 OR MORE V	ALUES)							
STREAM	FLOW EXCEED	ED							
INDICATED P	ERCENTAGE C	F TIME							
 75 PERCENT 	25 P	ERCENT							



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

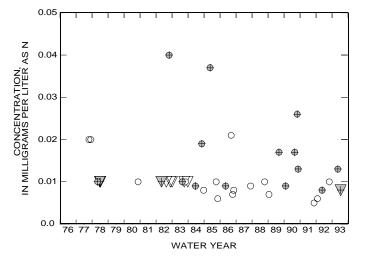
CONCENTRATION								
LOW FLOW			HIGH FLOW					
O U	NCENSORE	D VALUE	⊕					
∇	$\overline{\Psi}$							
△ 'GI	■ ▲							
TREN	IDS IN CONC	ENTRAT	ION					
VALUES	NVALUES	NWYS	SLOPE					
LOW FLOW	21	12	ND					

10

ND

18

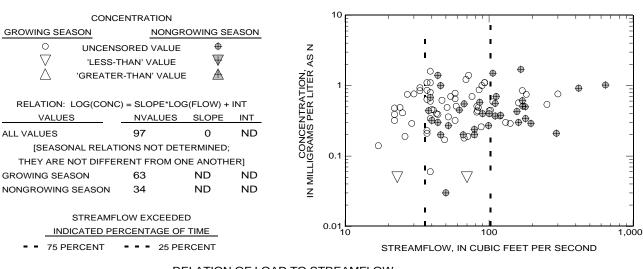
HIGH FLOW



Appendix 14 - Total ammonia plus organic nitrogen

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Blackwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	10,000	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 97 1.2 0.02 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT - 25 PERCENT	100 NO NO NO NO NO NO NO NO NO NO NO NO NO	
	10 100 1,0	000

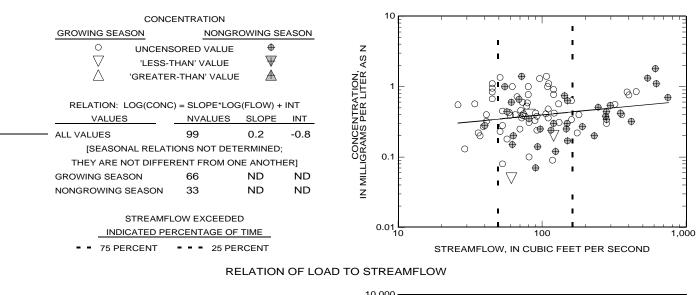
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

, ,	NCENSOREI LESS-THAN' REATER-THA	VALUE	HIGH FLOW	TION, LITER AS N	2.0 -					
TREN_VALUES	IDS IN CONC		ION SLOPE	ENTRA S PER	1.5	- +				
 LOW FLOW HIGH FLOW	13 25	9 14	ND -0.039	CONCE	1.0	•	- - +	*	0)
				∑ Z	0.5	- 04	0	O	•	,

CONCENTRATION

RELATION OF CONCENTRATION TO STREAMFLOW



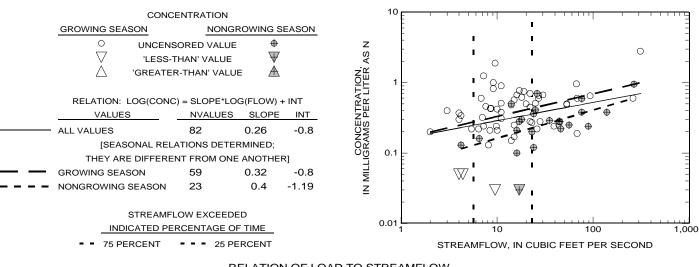
LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 99 1.2 -0.07 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT - 25 PERCENT	1,000 P P P P P P P P P P P P P P P P P P
	STREAMELOW IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

		2	2.5 ┏									_				$\overline{}$
CONCENTRATION		_			'		'	'	1 1		1	' '			'	'
LOW FLOW	HIGH FLOW															
 UNCENSORED VALUE 	⊕	Z SY 2	2.0	_												
√ 'LESS-THAN' VALUE	$\overline{\Psi}$		0				_									
△ 'GREATER-THAN' VALU	E A	SH.					Ф									
		Ĕ5 ,	.5													
TRENDS IN CONCENTRAT	ION	~~~	.5	-												
VALUES NVALUES NWYS	SLOPE	Z.G				\oplus										
LOW FLOW 13 9	ND	CONCENTRATION, IN MILLIGRAMS PER LITER	.0	€	₽			0								
HIGH FLOW 21 13	-0.042	<u>`</u> ŏ% '	.0 –			_		O 4	7	Ф			0			
11101112011 21 10	0.012					•	` ~₄	₽ -		Ψ			⊕			
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			7	76 7	7 78	79	80 8	31 82	83	84 8	5 86	87	88 88	90	91 9:	2 93

WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 82 1.26 -0.06 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	>	10,000	' ×
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	VALUES NVALUES SLOPE INT	. –		
INDICATED PERCENT 25 PERCENT		o, IN POUN	100	
1 10 100	INDICATED PERCENTAGE OF TIME	LOAE	10	10 100

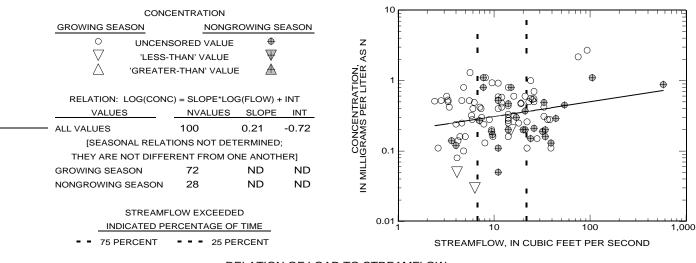
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		
LOW FLOW HIGH FLOW	_	
○ UNCENSORED VALUE	Z თ. 4.0	
abla 'Less-than' value $ abla$	<	
△ 'GREATER-THAN' VALUE A A A A A A A A A A A A A	ᅙ描	
	CONCENTRATION, IN MILLIGRAMS PER LITER 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
TRENDS IN CONCENTRATION	F F	⊕
VALUES NVALUES NWYS SLOPE	AS I	
LOW FLOW 9 6 ND	ŽŽ 2.0	
HIGH FLOW 32 15 ND	<u> </u>	
	╛	
	≥ 1.0	-
	=	
	0.0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

5.0

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	γV	10,000	i 1	, × ,	
RELATION: $LOG(LOAD) = SLOPE*LOG(FLOW) +$	INT K	Ē	1	^ <i>/</i>	
VALUES NVALUES SLOPE	PE TNI	-	1	ı '/	_
ALL VALUES 100 1.21	0.01	-		- k	-
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	LOAD, IN POUN	100	×1 × × × × × × × × × × × × × × × × × ×	1 100	1,000
			STREAMFLOW,	IN CUBIC FEET PER	SECOND

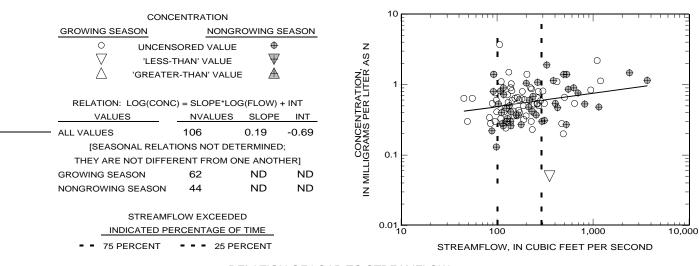
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		0.0	
LOW FLOW HIGH	H FLOW		
○ UNCENSORED VALUE ✓ 'LESS-THAN' VALUE	⊕ W SA SA SA SA SA SA SA SA SA SA SA SA SA	4.0	_
☐ 'GREATER-THAN' VALUE	₩ ION,		
TRENDS IN CONCENTRATION	NTRAT	3.0	
	OPE HØ		+
LOW FLOW 26 13	ND SA	2.0	← –
HIGH FLOW 28 14	ND OO OO OO OO OO OO OO OO OO OO OO OO OO		
	■	1.0	•
	Ž	1.0	
		0.0	
		0.0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

5.0

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

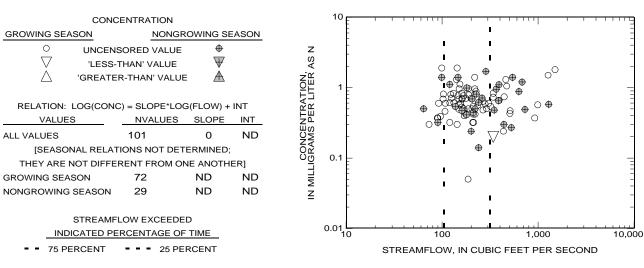
LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	
ALL VALUES 106 1.19 0.04 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED	1,000
INDICATED PERCENTAGE OF TIME 75 PERCENT = = 25 PERCENT	100 1,000 10,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

					2.5													_
	CONCENTR	ATION			2.0		1 1	1 1	1		1		ı	1		1		1
LOW FLOW			HIGH FLOW					⊕										
٥ ر	NCENSORE	O VALUE	+	Z S Z	2.0			·										
∇	LESS-THAN	VALUE	$\overline{\Psi}$					\oplus										
△ 'gı	REATER-THA	N' VALUI	■ A	NO NO NO NO														
				Ĕ5	1.5			_										
TREN	IDS IN CONC	ENTRAT	ION	CONCENTRATION	1.5		○	⊕										
VALUES	NVALUES	NWYS	SLOPE	Z				_										
LOW FLOW	15	9	ND	Ξ̈́Š́	1.0		\oplus	⊕		Φ Φ								
HIGH FLOW	27	13	0		1.0	Γ		\oplus_{\oplus}							#			П
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										, W,Ö								
					0.0	76	77 78	79 80	81	82 83	84	85 8	86 8	7 88	89 90	91	92	93

WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	
ALL VALUES 101 1.09 0.31 — SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	1,000 1,000 10,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

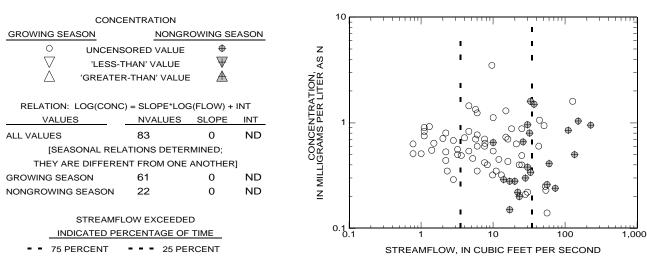
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	2.0	' ' '	1 1 1 1 1	1 1 1 1	1 1 1	' '
LOW FLOW HIGH FLOY						
○ UNCENSORED VALUE ⊕	- Z の 2.0 ダ	L				_
abla 'LESS-THAN' VALUE $ abla$		0	•			
△ 'GREATER-THAN' VALUE 🛦	CONCENTRATION, IN MILLIGRAMS PER LITER 0.0 0.1		Ψ			
	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		+			_
TRENDS IN CONCENTRATION	X H	⊕				
VALUES NVALUES NWYS SLOPE	S F		*		⊕	
LOW FLOW 11 8 ND	Z 1.0	L .	₽	• •		Φ _
HIGH FLOW 26 14 0	00 GR			•	•	
	3	_	Ф _{ОФ}	•	⊕	
	≥ _{0.5}	L #	•	o⊕ ⊕ O	⊕	_
	Z	_ 0⊕	0	• 0		○ ⊕
		•	Φ	Ψ .	$\overline{\Psi}$	
	0.0		200000	04 05 00 07	00 00 00 01	
		76 77 78 7	9 80 81 82 83	84 85 86 87	88 89 90 91	92 93

WATER YEAR

25-

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	1,000 H
ALL VALUES 83 0.95 0.53 — SMOOTHED RELATION BETWEEN LOAD AND FLOW	SON TOOL TOOL TO TOOL
(SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT - 25 PERCENT	Y 10 10 10 10 10 10 10 10 10 10 10 10 10
	0.1 1 10 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

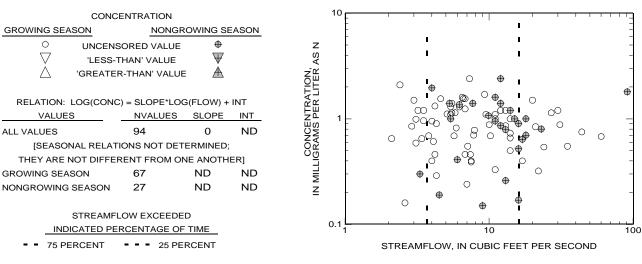
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		2.0	
LOW FLOW HIGH FLOW	_		
○ UNCENSORED VALUE	AS N	2.0	_
abla 'Less-than' value $ abla$			
△ 'GREATER-THAN' VALUE A A A A A A A A A A A A A	ÓΉ		
	¥.	1.5	→
TRENDS IN CONCENTRATION	TH.		•
VALUES NVALUES NWYS SLOPE	CONCENTRATION, IN MILLIGRAMS PER LITER		
LOW FLOW 18 12 ND	A A	1.0	⊕ ⊕_
HIGH FLOW 15 10 ND	OS R		⊕ 0
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	Ξ	0.5	
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		0.0	
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WATER YEAR

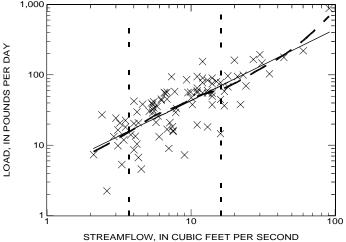
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RELATION OF CONCENTRATION TO STREAMFLOW



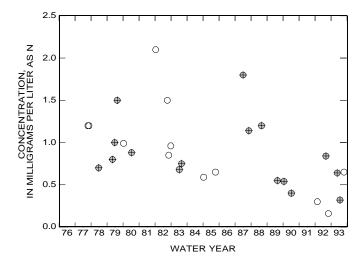
RELATION OF LOAD TO STREAMFLOW

×	LOAD UNCENSORED V			<i>,</i>	1,000		
RELATION: LOG(I	LOAD) = SLOPE*L0	OG(FLOW)	+ INT	ER D/	100	ļ	X
VALUES	NVALUES	SLOPE	INT	7	T E	ı	. ^ × 💸
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STRE	AMFLOW EXCEED	DED		Ô.	F	×	ιX
INDICATE	D PERCENTAGE	OF TIME		_	F	•	<u>-</u> '
75 PERCEN	NT = = = 25 F	PERCENT			-	×	Ì
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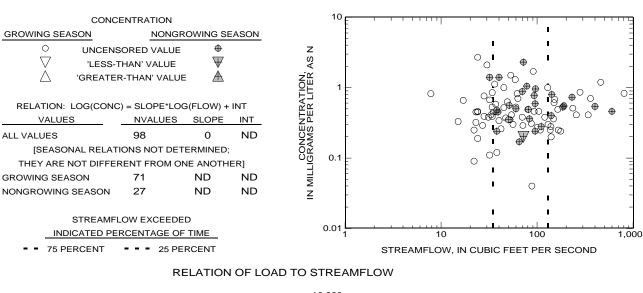


TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	+
\triangle	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GI	REATER-THA	N' VALUE	■ ▲
TREN	IDS IN CONC	ENTRATI	ON
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	12	6	ND
HIGH FLOW	16	10	ND



RELATION OF CONCENTRATION TO STREAMFLOW



LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	1,000 X X X X X X X X X X X X X X X X X X
— ALL VALUES 98 1.04 0.34 — SMOOTHED RELATION BETWEEN LOAD AND FLOW	NO COUNTRY OF THE PROPERTY OF
(SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED	qq 100 -
INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	*/* * * : = =
	10 10 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

0 V A	UNCENSORE 'LESS-THAN	l' VALUE	$\overline{\Psi}$
TF	RENDS IN CON	CENTRAT	ION
/ALUES	w 23	13	-0.05
GH FLO	W 24	12	0

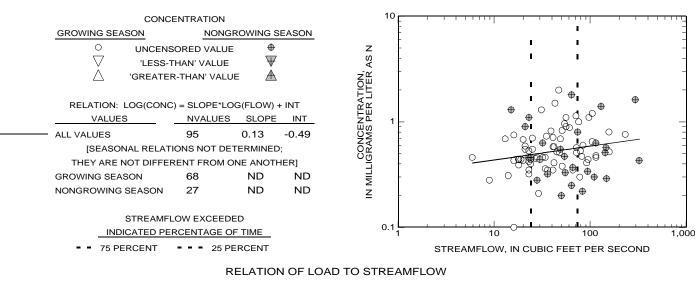
76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

HIGH FLOW

CONCENTRATION

LOW FLOW

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD × UNCENSORED VALUE	10,000
'LESS-THAN' VALUE	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	
SMOOTHED RELATION BETWEEN LOAD AND FLOW	100
(SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	
75 PERCENT 25 PERCENT	10 100 1,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

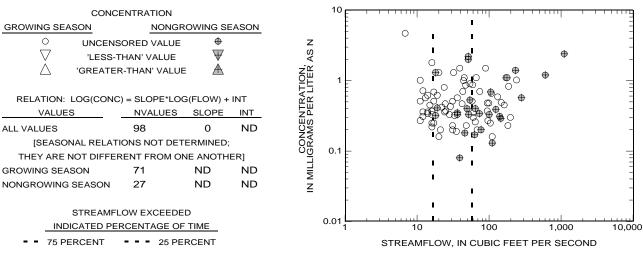
CONCENTRATION

	CONCENTR	AHON								
LOW FLOW			HIGH FLOW							
Ο υ	NCENSORE	D VALUE	⊕	Z W		L				
∇ ,	LESS-THAN'	VALUE	$\overline{\Psi}$	AS						
△ 'GF	REATER-THA	N' VALUI	e A	CONCENTRATION. IGRAMS PER LITER				_		
				Ę'-	1.5	_		⊕		
TREN	IDS IN CONC	ENTRAT	ION	X X X		⊕				
VALUES	NVALUES	NWYS	SLOPE	äα Zπ		•				
LOW FLOW	26	14	0	AN AN AN	1.0	_ 🌣 .				
 HIGH FLOW	26	13	-0.033	000				0	⊕	
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				MIL	0.5	₩	~ ~ *	<u>`</u> ₱`-ॐ- [©] •	•	
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						1	()			

0.0 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	100,000
RELATION: $LOG(LOAD) = SLOPE*LOG(FLOW) + INT$	L L L L L L L L L L L L L L L L L L L
VALUES NVALUES SLOPE INT	
———— ALL VALUES 98 1.07 0.29	0 2 1,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	1,000 I I I I I I I I I I I I I I I I I I
STREAMFLOW EXCEEDED	₹ 100 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±
INDICATED PERCENTAGE OF TIME	
75 PERCENT 25 PERCENT	10 100 1,000 10,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

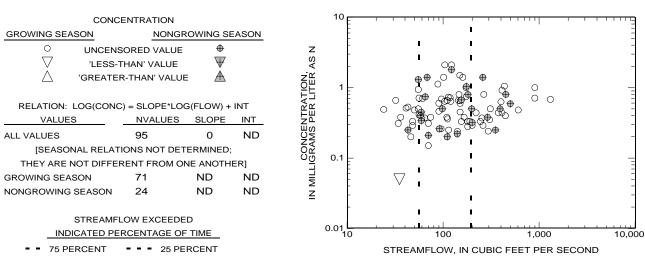
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	0.0	
LOW FLOW HIGH FLO		
UNCENSORED VALUE		.0_
'LESS-THAN' VALUE	7	
	ION, TER	
	O.0 CONCENTRAT O.0 CONCENTRAT O.1 CONCENTRAT O.1 CONCENTRAT	.0 –
TRENDS IN CONCENTRATION	F H	
VALUES NVALUES NWYS SLOPE	18 18	\oplus
LOW FLOW 18 12 ND	ŽŽ 2.0	
HIGH FLOW 39 16 0	9 <u>6</u>	
	⊒	
	∑ 1.0	.0 + + + + + - + - + - + - + + + 0.
	₹	
	0.0	.0 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93
		10 11 10 10 00 01 02 03 04 03 00 01 00 09 90 91 92 93

WATER YEAR

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RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD	10,000
$ imes$ uncensored value $ ilde{ textstyle igwedge}$ 'less-than' value	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	H 1,000
ALL VALUES 95 1.14 0.13	Δη 100 Ε
 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) 	Q Z Z
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	Q 10
	10 100 1,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

C	CONCENTRATION												
LOW FLOW		HIGH FLOW											
, LE	CENSORED VALUE ESS-THAN' VALUE EATER-THAN' VALU	⊕ ₩ ±	TION, LITER A	2.0 -									_
TREND	S IN CONCENTRAT	ION	NTR4 PER		•								
VALUES 1	NVALUES NWYS	SLOPE	Äα		Ŭ								
LOW FLOW	15 10	ND	CONCE	1.0 –		\oplus	_					+	_
HIGH FLOW	27 12	0	O B			₩	O						
						ФФ		⊕		⊕	\oplus	0	
			IN WILL	0.5		•	⊕	₩ ФОФь	00	· •	_		0
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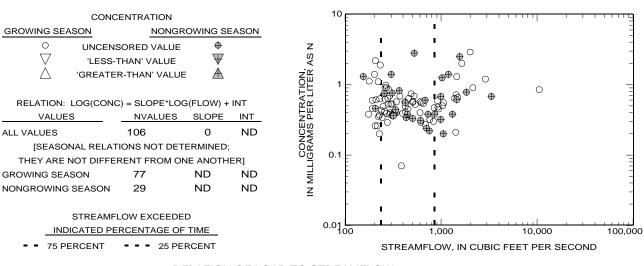
10,000

STREAMFLOW, IN CUBIC FEET PER SECOND

0.0 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD	100,000
× UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	10,000 × 1××××××××××××××××××××××××××××××
ALL VALUES 106 1.12 0.15	SO SO SO SO SO SO SO SO SO SO SO SO SO S
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	0 1,000 × × × =
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	
	100 1,000 10,000 100,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

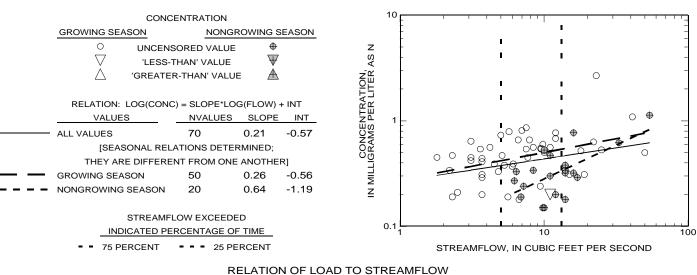
CONCENTRATION			
LOW FLOW HIGH FLOW	_		
○ UNCENSORED VALUE ⊕	AS N	4.0	_
abla 'LESS-THAN' VALUE $ abla$			
	CONCENTRATION. IN MILLIGRAMS PER LITER		
	ΑÄ	3.0	
TRENDS IN CONCENTRATION	КÄ		
VALUES NWYS SLOPE	15 15		•
LOW FLOW 17 9 ND	NS SS	2.0	- ° + o
HIGH FLOW 26 13 0	200		
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		0.0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

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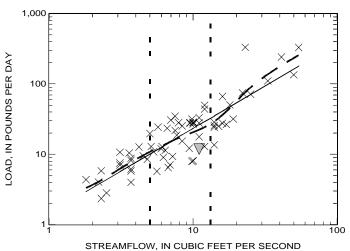
STREAMFLOW, IN CUBIC FEET PER SECOND

WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW



				LOAD				1,0
		$\overset{\times}{\triangledown}$	>					
	RELATIO	ON: LOG(L	OAD)) = SLOPE*LO	OG(FLOW)	+ INT	PER DAY	1
	VAI	LUES	_	NVALUES	SLOPE	INT	2	
	ALL VALUE	S		70	1.21	0.16	SONI	
ALL VALUES 70 1.21 0.16 SO SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED								
STREAMFLOW EXCEEDED 9 INDICATED PERCENTAGE OF TIME								
	7	5 PERCEN	Т	25 F	PERCENT			



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
0 1	UNCENSORE	VALUE	⊕
∇	'LESS-THAN'	VALUE	$\overline{\Psi}$
	REATER-THA	N' VALUE	■ ▲
TRE	NDS IN CONC	ENTRATI	ON
VALUES	NVALUES	NWYS	SLOPE

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ND

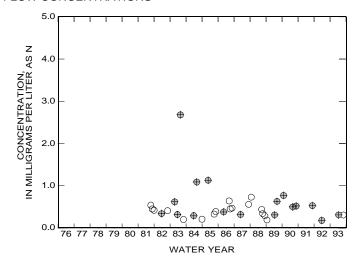
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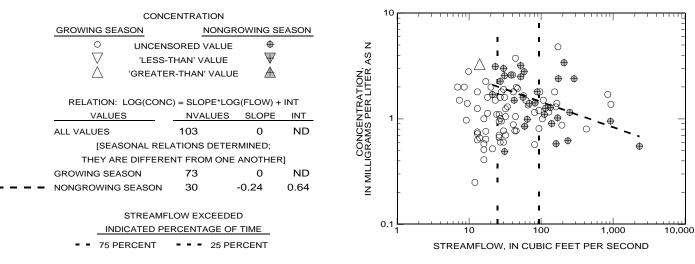
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LOW FLOW

HIGH FLOW



RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD		100,000		
× UNCENSORED VALUE		E	1 1	=
V 'LESS-THAN' VALUE	>	-	1 1	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOV VALUES NVALUES SLOPE	·	10,000	! ! »	××××××××××××××××××××××××××××××××××××××
ALL VALUES 103 1.02	0.79	-		× -
SMOOTHED RELATION BETWEEN LOAD AND FI (SHOWN IF THERE ARE 10 OR MORE VALUES)	0.79 SQNNO VI	1,000		× = = = = = = = = = = = = = = = = = = =
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME	LOAI	100		
75 PERCENT 25 PERCENT	Г	10	X I I	1,000 10,000
			STREAMFLOW, IN CUBIC FE	EET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

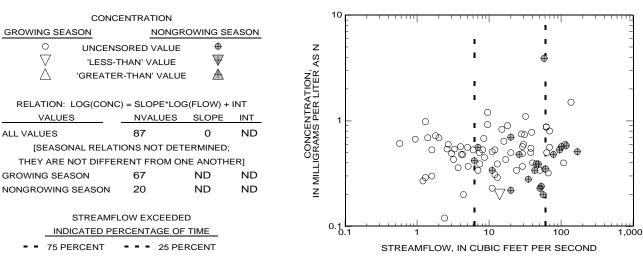
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WATER YEAR

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RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

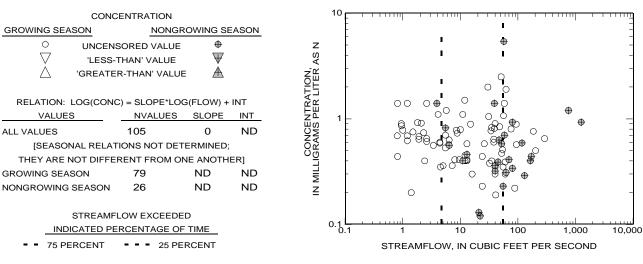
LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + IN	
VALUES NVALUES SLOPE IN	
ALL VALUES 87 1.03 0).38 <u>\(\text{\alpha} \\ \text{\alpha} </u>
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT - 25 PERCENT	0 100 100 100 1,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION				' '			' '	' '				1
LOW FLOW			HIGH FLOW											
<u>○</u> u	INCENSORE	VALUE	•	Z Ø	2.0	_								_
V.	'LESS-THAN'	VALUE	$\overline{\Psi}$	- ΣΥ										
△ 'GI	REATER-THA	n' value	A	ATION, LITER										
				XX LX	1.5	_		⊕						_
TREN	IDS IN CONC	ENTRATI	ON	NTRA PER 1										
VALUES	NVALUES	NWYS	SLOPE	SEN										
LOW FLOW	25	14	ND	A N	1.0	_		0						_
HIGH FLOW	15	10	ND	CONCE IN MILLIGRAMS			\oplus_{\oplus}	Ü	⊕					
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WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 105 0.97 0.55 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT - 25 PERCENT	- r /×4%x
	STREAMELOW IN CUBIC FEET PER SECOND

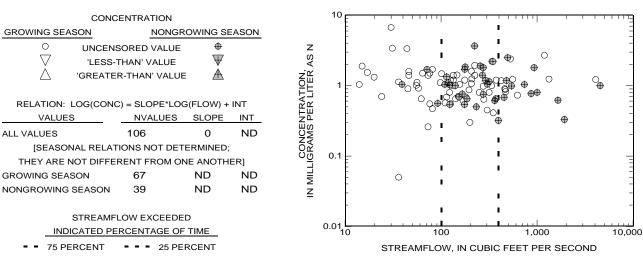
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION

∇	JNCENSORE 'LESS-THAN' REATER-THA	'VALUE	\rightarrow	ATION, LITER AS N	8	ş —
	NDS IN CONC				6	⊕
 VALUES LOW FLOW HIGH FLOW	NVALUES 26 24	13 10	-0.025 ND	CONCENTR GRAMS PER	4	
				N MILLI	2	Ψ
				=		

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

$\overline{\hspace{1cm}}^{ imes}_{\hspace{1cm}}$	LOAD UNCENSORED V 'LESS-THAN' VA			≻A	100,000	1 1 1	 	I I I	×××××	***************************************	
RELATION: LOG(LO VALUES ALL VALUES	DAD) = SLOPE*LO NVALUES 106	SLOPE 0.96	+ INT INT 0.82	IDS PER D	1,000	×××	I			×	-
SMOOTHED RELATION (SHOWN IF THERE ARI			w), IN POUN	100	XX	**** * '	× I			
	MFLOW EXCEED PERCENTAGE C - 25 P			LOAE	10	×	I I I 100	1 1	1,000		10,000
					10	STRE		IN CUBIC FE			10,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		
LOW FLOW HIGH FLOW		
○ UNCENSORED VALUE ♥ ▽ 'LESS-THAN' VALUE ▼ △ 'GREATER-THAN' VALUE ★	ON, PER AS N	
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	CONCENTRATION. GRAMS PER LITER 5	_
LOW FLOW 29 13 ND	ONCE RAMS	
HIGH FLOW 21 11 ND	O IN WILLIG	

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93
WATER YEAR

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RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION				10		1 1 1		ı		11111			
GROWING SEASON	NONGR	OWING SI	EASON			_			ı					=
LESS-	SORED VALUE THAN' VALUE R-THAN' VALUE	⊕ ₩ Æ		FION, TTER AS N		- - - -	1	.⊕	! !					- - - -
RELATION: LOG(CONG	NVALUES	SLOPE	INT	ENTRA' S PER L	1	0 0	• ⊕ ₽ ⊕	•••		⊕	⊕	Φ.		_
ALL VALUES [SEASONAL RELAT THEY ARE NOT DIFFE				CONCENTR MILLIGRAMS PER		- -		••				⊕		- - -
GROWING SEASON	25	ND	ND	╡		-								-
NONGROWING SEASON	25 LOW EXCEEDEI	ND	ND	Z		_] [-
	RCENTAGE OF				0.1	100		1,000			10,0	200		100,000
= 75 PERCENT	25 PEI	RCENT						MFLOW		BIC FE	,		ECOND	•

RELATION OF LOAD TO STREAMFLOW

LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	10,000
VALUES NVALUES SLOPE INT ALL VALUES 50 0.95 0.8	
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	1,000
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT - 25 PERCENT	
= - 751 EROEM	100 1,000 10,000

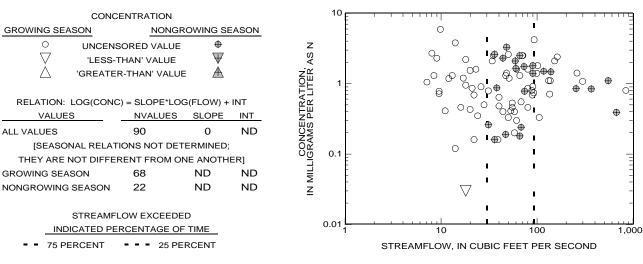
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION			5.0		1 1	-	1		1	1	1 1			1	1 1	- 1	٦
∇	INCENSOREI 'LESS-THAN' REATER-THA	O VALUE VALUE	HIGH FLOW	ION, TER AS N	4.0	_													_
TREN VALUES	IDS IN CONC	ENTRATI	ION SLOPE	NTRATI PER LI	3.0	_						0							_
LOW FLOW	15 14	9	ND ND	CONCE	2.0	_				С			0						_
				CONCENTRATION. IN MILLIGRAMS PER LITER	1.0	_			(ϡ	*	(œ⊕) (⊕⊕	0	+ +	• • (00	-
					0.0	76 77	78	79 80	81	82 8	33 84	85	86	87 8	8 89	90	91	92 9	3

STREAMFLOW, IN CUBIC FEET PER SECOND

WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW

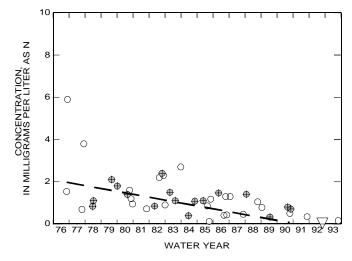


RELATION OF LOAD TO STREAMFLOW

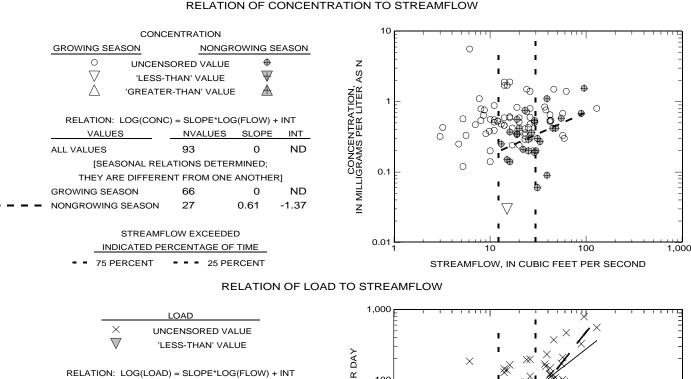
LOAD	10,000
× UNCENSORED VALUE	
V 'LESS-THAN' VALUE	- X X X X
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	Δ 1,000 <u>α</u>
VALUES NVALUES SLOPE INT	××. ***
ALL VALUES 90 1.04 0.6	
	₹ 100 × × × × × × × × × × × × × × × × × ×
SMOOTHED RELATION BETWEEN LOAD AND FLOW	
(SHOWN IF THERE ARE 10 OR MORE VALUES)	Z [
STREAMFLOW EXCEEDED	× · · ·
INDICATED PERCENTAGE OF TIME	_ <u> </u>
75 PERCENT 25 PERCENT	- V 1 1
	1 10 100 1,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	VALUE	+
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	IDS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	26	15	-0.137
HIGH FLOW	17	11	ND



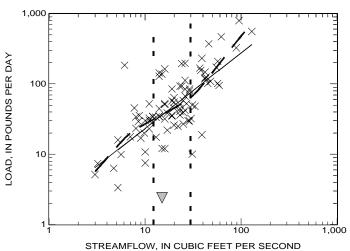
RELATION OF CONCENTRATION TO STREAMFLOW



NVALUES **VALUES** SLOPE ALL VALUES

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

> STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME **75 PERCENT** 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

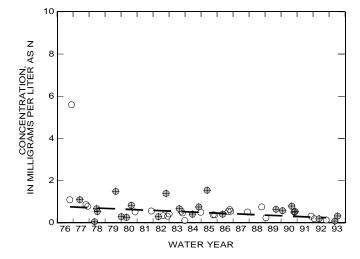
	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο (JNCENSOREI	D VALUE	⊕
∇	'LESS-THAN'	VALUE	$\overline{\Psi}$
	REATER-THA	AN' VALUE	Ε Α
TRE	NDS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
- LOW FLOW	24	14	-0.032

23

13

0

HIGH FLOW

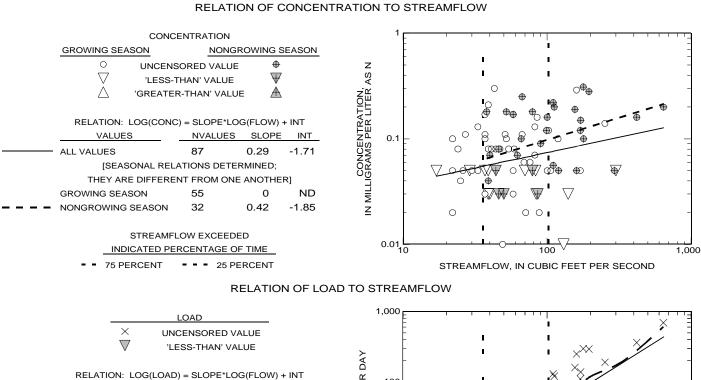


Appendix 15 - Total ammonia

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Blackwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

APPENDIX 15. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL AMMONIA 01396280 SB RARITAN RIVER AT MIDDLE VALLEY, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]



SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

VALUES

VALUES LOW FLOW

HIGH FLOW

ALL VALUES

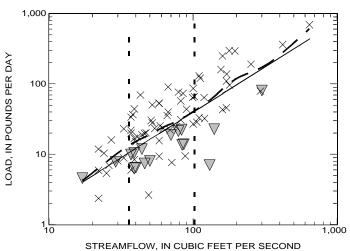
NVALUES

SLOPE

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTRATION	
LOW FLOW		HIGH FLOW
0	UNCENSORED VALUE	⊕
∇	'LESS-THAN' VALUE	$\overline{\Psi}$
Δ,	GREATER-THAN' VALUI	e A
TR	ENDS IN CONCENTRAT	ION

22

NVALUES NWYS SLOPE

8

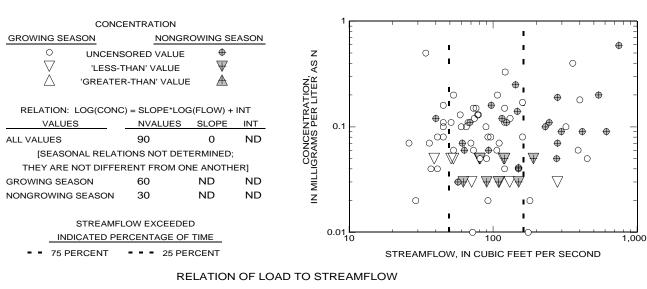
13

ND

0

გ დ 0.4	-																-
CONCENTRATION, IN MILLIGRAMS PER LITER 10.0	i -							#		⊕							_
CONCE 0.2 0.2	: -		#	Φ.			⊕			⊕							-
Σ 0.1 Σ	-			Φ	⊕ ⊙	' ()	0	, '	⊕		0	+				
_		0				0	ξ	7		(₩	7#	+	Ф _О		\forall
0.0	76	77 78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93
							WA	TEF	R YE	EAR							

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000 L L L L L L L L L L L L L L L L L
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	1,000
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED O	10
INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	X X I I I I I I I I I I I I I I I I I I

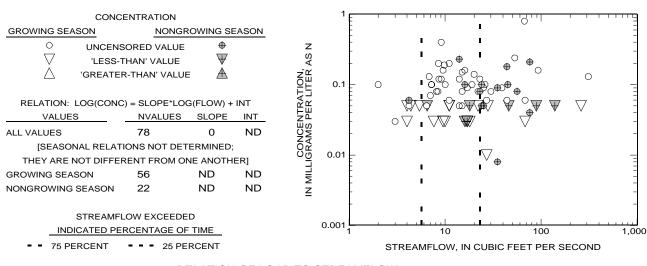
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		' ' ' '		' ' '
LOW FLOW HIGH FL				
○ UNCENSORED VALUE		<u>.</u>		
abla 'LESS-THAN' VALUE $ abla$				
🛆 'GREATER-THAN' VALUE 🔏	ON E			
	F. 0.6	;L	\oplus	
TRENDS IN CONCENTRATION	XX		Ψ	
VALUES NVALUES NWYS SLOPE	πα Zπ			0
LOW FLOW 13 9 NI	CONCENTRATION. IN MILLIGRAMS PER LITER 6.0 6.0			_
 HIGH FLOW 19 12 -0.0	00 20	·		
	Ē			
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	Z		- 	
		₩ ⊕		*
	0.0	76 77 78 79 80	81 82 83 84 85 86 87 88 89 9	20 01 03 03
		10 11 10 19 00	01 02 03 04 03 80 87 88 89 8	30 31 32 33

1.0

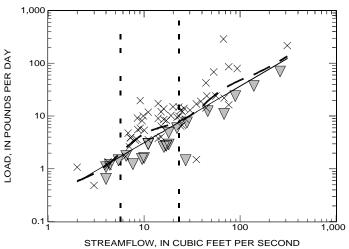
WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW



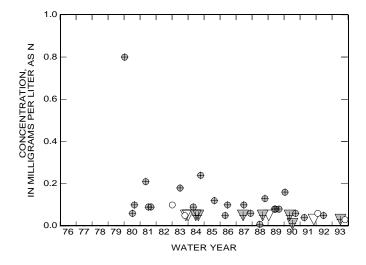
RELATION OF LOAD TO STREAMFLOW

	LOAD				1,000
× un	ICENSORED V	'ALUE			E
, 'L	.ESS-THAN' VA	ALUE		>_	-
RELATION: LOG(LOAI	O) = SLOPE*LO	OG(FLOW)	+ INT	R DAY	100
VALUES	NVALUES	SLOPE	INT	PE	Ē
 ALL VALUES	78	1.07	-0.57	SOT	-
				SONNOG	10
 SMOOTHED RELATION BI	ETWEEN LOAD	O AND FLO	W	ĕ	E
(SHOWN IF THERE ARE 1	0 OR MORE V	ALUES)		Z	-
STREAMF	LOW EXCEED	ED		-OAD	1
INDICATED PE	ERCENTAGE C	F TIME		_	F
 75 PERCENT 	25 P	ERCENT			

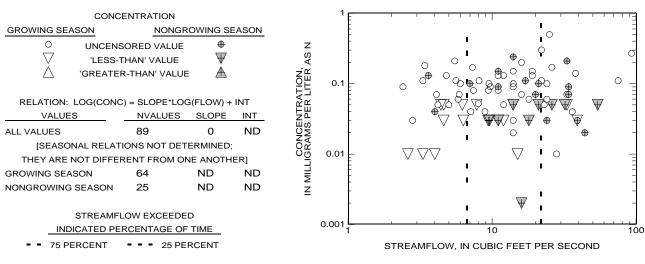


TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο υ	NCENSOREI	D VALUE	⊕
∇ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	8	5	ND
HIGH FLOW	30	13	ND



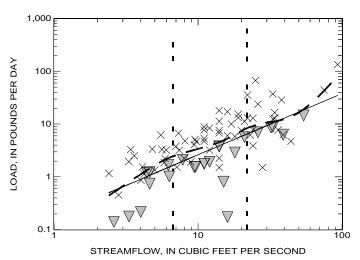
RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	×	UNC	LOAD CENSORED V SS-THAN' VA			
RELATIO	N: LOG(LC)AD)	= SLOPE*LC	G(FLOW)	+ INT	
VAL	UES		NVALUES	SLOPE	INT	
 ALL VALUES	3		89	1.16	-0.74	
 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)						
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME						

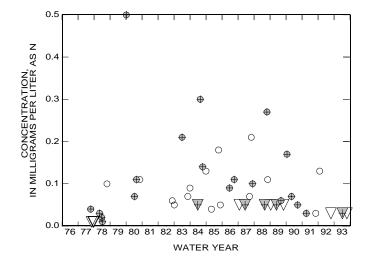
75 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	⊕
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	\blacksquare
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	23	13	ND
HIGH FLOW	24	12	ND

25 PERCENT



APPENDIX 15. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL AMMONIA 01397000 SB RARITAN RIVER AT STANTON STATION, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION		1	
GROWING SEASON O UNCENS 'LESS-T	NONGROWIN SORED VALUE THAN' VALUE R-THAN' VALUE	⊕₩≜	FRATION, ER LITER AS N	
	NVALUES SLO 88 0 ATIONS DETERMINE NT FROM ONE ANOT	ND D;	CONCENTR IGRAMS PER	
GROWING SEASON NONGROWING SEASON	54 0 34 0		- N	○
	OW EXCEEDED RCENTAGE OF TIME 25 PERCEN	_	0.01	100 1,000 10,000 STREAMFLOW, IN CUBIC FEET PER SECOND

RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT ALL VALUES 88 1.06 -0.5	NO 1,000 NO 100
 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) 	O IN PO
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	10 × × 1
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

C	CONCENTRATION	N												1
LOW FLOW		HIG	H FLOW					⊕						
O UN	CENSORED VA	LUE	⊕	N N N	0.4	_								
'L	ESS-THAN' VAL	.UE	$\overline{\Psi}$											
△ 'GRE	EATER-THAN' V	ALUE	\triangle	CONCENTRATION.										
				TAT LI	0.3	_	⊕							_
TREND	S IN CONCENT	RATION		T. S. F.										
VALUES	NVALUES NV	/YS SL	OPE_	Ä.S.										
LOW FLOW	12	8	ND	AN AN A	0.2	_	$\oplus \oplus$	0	0			⊕		-
HIGH FLOW	20 1	2	0	OB				00						
				3				0 0		0	Ф Ф			
				Ξ	0.1	_	•			⊕ `	⊕ ⊕	#		_
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						0		0 7	V ₩			Ψ ∨	∇	∀
					0.0	76 77 78	79 80	81.8	2 83 84	1 85 86	87 88	89 90 9	1 92	93
								0.0	_ 00 0		0. 00	00 00 0		••

WATER YEAR

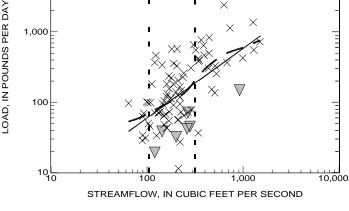
0.5

RELATION OF CONCENTRATION TO STREAMFLOW

CONO	-NITO A TION			1			
CONCI	ENTRATION						
GROWING SEASON	NONGF	ROWING SI	EASON	+	0	• •	-
O LINCENS	ORED VALUE			z	ı⊕ "	·]
ONOLINO		$\overline{\Psi}$		AS I	I O	ÓФ	_
V 'LESS-T	HAN' VALUE	4		,			
	R-THAN' VALUI	≣ Æ		ZΫ́	• 0	•	
				TION THERY	•	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	_
DELATION: LOC/CONC	\ CLODE*LO	C/FL (C)A/) .	INIT	<	\$ \$	™	
RELATION: LOG(CONC	•			도표	₩ . \$6	₩ • ~	
VALUES	NVALUES	SLOPE	INT	Z <u>0</u> 0.1		ð "\ \	_
ALL VALUES	92	0	ND	CONCENTR NMILLIGRAMS PER	\2 0 0\		3
[SEASONAL RELATI	ONS NOT DET	EDMINED		Z∑ [8 20	∟' ○	4
				9 <u>6</u>	0,00	D##Ø1 ○	-
THEY ARE NOT DIFFER	RENT FROM O	NE ANOTH	ER]	ă h		ı	-
GROWING SEASON	67	ND	ND	╡	<u>-</u> △ 4	\overline{A}	-
NONGROWING SEASON	25	ND	ND	7	•	Φ _	
				=		ρ	-
					1	ı	
STREAMFL	OW EXCEEDE	D		0.04		- 	
INDICATED PE	RCENTAGE OF	TIME		0.01	100	1,000	10,000
 75 PERCENT 	25 PE	RCENT			STREAMFLOW, IN	CUBIC FEET PER SE	COND
					- ,		
	D			AD TO CTDE ANA			

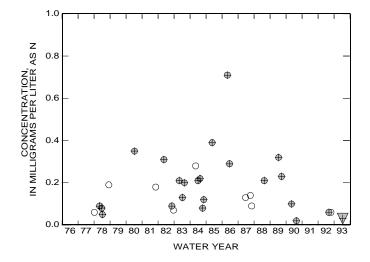
RELATION OF LOAD TO STREAMFLOW

	LOAD				10,000		•
$\stackrel{ imes}{ abla}$	UNCENSORED '			ΑΥ	-	1 1	, ,
RELATION: LOG((LOAD) = SLOPE*L	OG(FLOW)	+ INT	ж О	1,000	1	1
VALUES	NVALUES	SLOPE	INT	7	,,,,,,E	ī	√ X×
 - ALL VALUES	92	0.99	-0.2	JNDS	-	×	
 SMOOTHED RELATION	ON BETWEEN LOA	D AND FLO	w	POI	-	×	
(SHOWN IF THERE A	RE 10 OR MORE V	(ALUES)		Ď,	100	× *	***
STRE	EAMFLOW EXCEED	DED		Ó	F		
INDICATE	ED PERCENTAGE	OF TIME		_	F	×××	/X
- 75 PERCE	NT 25 i	PERCENT			-	, ▽	1
					10		×



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

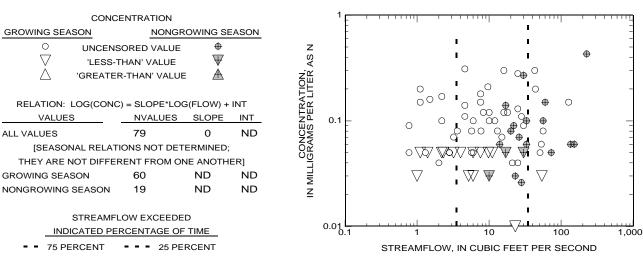
	CONCENTR	ATION					
LOW FLOW			HIGH FLOW				
О U	NCENSORE	D VALUE	⊕				
▽ ,	LESS-THAN	VALUE	$\overline{\Psi}$				
△ 'GF							
TREN	DS IN CONC	ENTRAT	ION				
VALUES	NVALUES	NWYS	SLOPE				
LOW FLOW	6	ND					
HIGH FLOW	23	12	ND				



APPENDIX 15. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL AMMONIA 01398000 NESHANIC RIVER AT REAVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

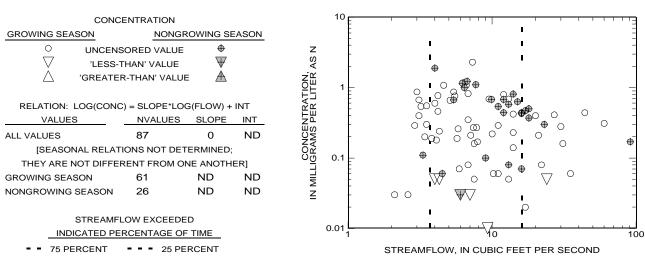
LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	≻ 40	1,000	1 1	1 1 1	×
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW	ار) + INT ه	E			ĺ
VALUES NVALUES SLOPE		-	i		_
ALL VALUES 79 1.11	-0.54 O	-	-	^x***	-
SMOOTHED RELATION BETWEEN LOAD AND FL (SHOWN IF THERE ARE 10 OR MORE VALUES)	OW NO OU	10	'× \$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		
STREAMFLOW EXCEEDED	OAI	1	××××××××××××××××××××××××××××××××××××××	V 1	
INDICATED PERCENTAGE OF TIME	_	Ē		I	=
75 PERCENT 25 PERCENT		0.1	1 10	100	1,000
			STREAMFLOW, IN CUBIC	C FEET PER SECO	OND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCE	NTRATION		0.5		1 1	1 1	1 1	1 1		1 1	1		ı
LESS-TH	HIGH FI RED VALUE AN' VALUE FHAN' VALUE	Z S Y	0.4	_		⊕							_
TRENDS IN CO	ONCENTRATION	RAT LIR	0.3	_	⊕								_
VALUES NVALU		EN HIS											
LOW FLOW 18	12 N	D ŠŠ	0.2	_	С)				⊕			_
HIGH FLOW 13	9 N	CONCENTRATION.			0	⊕⊃	⊕		0				
		\(\bar{\bar{\bar{\bar{\bar{\bar{\bar{	0.1		•			₩	0				_
						⊕	○♥	′ ∇ ॅ·	₩/	\boxtimes	⊕	С	, ○ ♥
			0.0	76 77 7	78 79 80	81	82 83	84 85 8	36 87	7 88 89	90	91	92 93

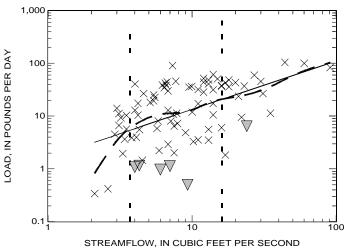
WATER YEAR

RELATION OF CONCENTRATION TO STREAMFLOW



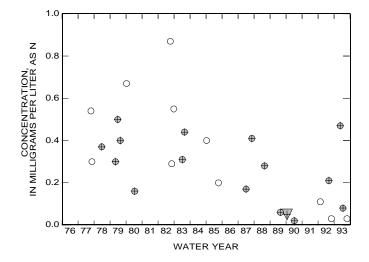
RELATION OF LOAD TO STREAMFLOW

$\overline{\mathbb{V}}$	LOAD UNCENSORED \('LESS-THAN' \) \(\text{V} \)			>	1,000	I I
RELATION: LOG(L	OAD) = SLOPE*L0 NVALUES	OG(FLOW) SLOPE	+ INT INT	PER DA	100	<u> </u>
 ALL VALUES	87	0.92	0.21	SONDO	10	***
 SMOOTHED RELATION (SHOWN IF THERE AR			W	Z Z	-	
	AMFLOW EXCEED D PERCENTAGE (T = = 25 F	OF TIME		LOAD	1 = -	/ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

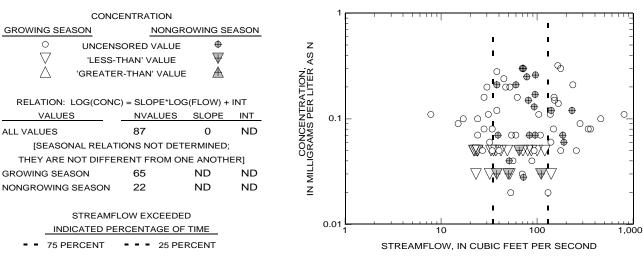
	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο υ	D VALUE	+	
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	11	6	ND
HIGH FLOW	16	10	ND



APPENDIX 15. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL AMMONIA 01399120 NB RARITAN RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	1,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	9 100 X X X X X X X X X X X X X X X X X X
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	Z 10 Z
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	
	1 10 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION				'	' '	' '		' '	'		' '	'	'
LOW FLOW			HIGH FLOW	_											
٥ ر	NCENSORE	D VALUE	+	Z S Z	0.4										
∇	LESS-THAN	VALUE	$\overline{\Psi}$		0										
△ 'GI	REATER-THA	N' VALUE	■ ▲	NO H											
				Ę'-	0.3		⊕	⊕							
TREN	IDS IN CONC	ENTRAT	ION	X, X			Ψ								
VALUES	NVALUES	NWYS	SLOPE	Äα											
LOW FLOW	21	13	0	CONCENTRATION IN MILLIGRAMS PER LITER	0.2	_	•								_
HIGH FLOW	22	10	ND	000					\circ					⊕	
				Ė				4	₹	⊕	_				<i>'</i>
				₹	0.1		0	0		Ф О	•) #		0	
				Z			Φ.	⊕		. 0	, © [⊕] _		*	\circ	
							\circ \oplus				0	\vee		7	/\\
					0.0								<u>,⊕,</u>		
						76 7	7 78 7	9 80 81	82 83 8	84 85	86 87	88 89	90 9	91 92	93

WATER YEAR

0.5

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION				¹ F	
GROWING SEASON	NON	ROWING SI	EASON		F	Ψ I
'LESS-T	SORED VALUE FHAN' VALUE R-THAN' VAL	UE Å	· INT	RATION, R LITER AS N		
VALUES	NVALUES	SLOPE	INT	CONCENT	0.1	
ALL VALUES	89	0	ND	ŠΕ	-	00 00°
[SEASONAL RELAT	IONS NOT DE	TERMINED:	;	Şδ	ţ	
THEY ARE NOT DIFFER	RENT FROM	ONE ANOTH	IER]		-	₩ ₩ V ₩ ₩ Ψ ₩ Φ
GROWING SEASON	64	ND	ND	MILI	-	$ abla \circ abla $
NONGROWING SEASON	25	ND	ND	Z	-	0 10
STREAMFI INDICATED PE	_OW EXCEED				0.01	10 \\ \begin{array}{c ccccccccccccccccccccccccccccccccccc
75 PERCENT	25 F	PERCENT				STREAMFLOW, IN CUBIC FEET PER SECOND

RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	1,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	ш 100 × × × × × × × × × × × × × × × × × ×
ALL VALUES 89 1.19 -0.82	Se · × × × · · · · · · · · · · · · · · ·
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	× × × · · · · · · · · · · · · · · · · ·
	1 10 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION				' ' ' ' ' ' ' '
LOW FLOW	HIGH FLOW	_		
UNCENSORED VALUE	U	2 0.8	_	_
'LESS-THAN' VALUE	₩	Σ Έ		
	ION TABLE OF COLUMN TABLE OF C	0.6	_	-
TRENDS IN CONCENTRAT	ION Fü	Г		
VALUES NVALUES NWYS	SLOPE SLOPE	2		
LOW FLOW 25 14	0 25	0.4	- ⊕	_
HIGH FLOW 22 12	0 55	2		Φ.
	Ξ	1		+ +
	- - - - - - -	0.2	- + +	_
	2	É		
		0.0	76 77 78 79 80 81 82 83 84 85	86 87 88 89 90 91 92 93

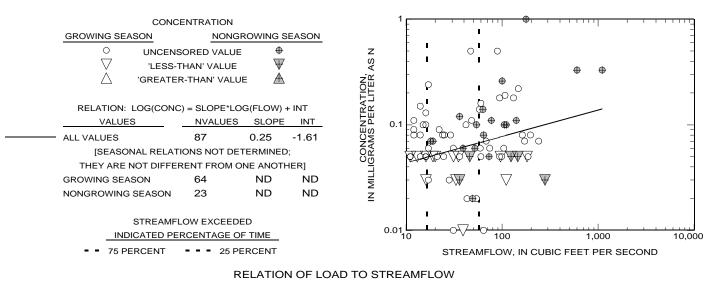
WATER YEAR

1.0

APPENDIX 15. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL AMMONIA 01399700 ROCKAWAY CREEK AT WHITEHOUSE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



	LOAD		10,000		
$\stackrel{ imes}{ riangledown}$	UNCENSORED VALUE 'LESS-THAN' VALUE	>		×	= = = = = = = = = = = = = = = = = = = =
RELATION: LO	G(LOAD) = SLOPE*LOG(FLOW) NVALUES SLOPE	INT D	1,000	× ×/	
ALL VALUES ———————————————————————————————————	87 1.24	-0.88 0 Z	100 × 1		
	ARE 10 OR MORE VALUES)		× × ×		= = = = = = = = = = = = = = = = = = = =
INDICA	REAMFLOW EXCEEDED TED PERCENTAGE OF TIME	Õ	10		
= = 75 PERC	ENT = = = 25 PERCENT		10	100 1,000	0 10,000
			STREAMF	LOW, IN CUBIC FEET PER	R SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION			1.0	
∇	NCENSORE 'LESS-THAN' REATER-THA	VALUE	HIGH FLOW	z S Z	0.8	_
TREN VALUES	IDS IN CONC	ENTRAT NWYS	ION SLOPE	ENTRAT S PER LI	0.6	<u>-</u> ⊕
LOW FLOW HIGH FLOW	17 37	11 15	ND 0	CONCENTRATION.	0.4	- + +
				M N	0.2	
					0.0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

APPENDIX 15. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL AMMONIA 01399780 LAMINGTON RIVER AT BURNT MILLS, N.J.

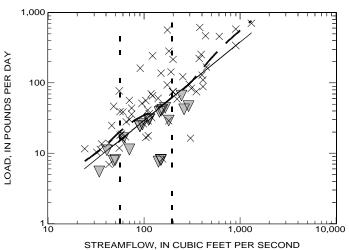
[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

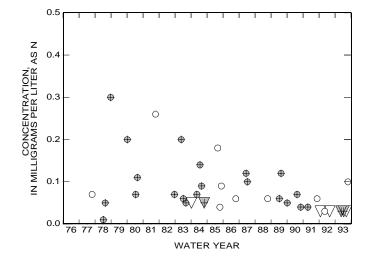
CONC	ENTRATION			1 -		<u></u>
GROWING SEASON	NONGF	OWING S	EASON	į.	ı	=
O UNCENS	ORED VALUE			z	ı ^O ı]
$\overline{}$	HAN' VALUE	Ψ		S A	•	-
∴ 'GREATE	R-THAN' VALUI	<u> </u>		,	• • •	-
		_		LITER,	ĭ b o	_
RELATION: LOG(CONC) = SLOPE*LO	G(FLOW) -	- INT	∢-		
VALUES	NVALUES	SLOPE	INT	₩ 2 0.1		
ALL VALUES	86	0	ND	CONCENTR IN MILLIGRAMS PER]
[SEASONAL RELAT		-		ŽŠ		7
THEY ARE NOT DIFFER				<u> </u>		
GROWING SEASON	66	ND	ND	⊒ [
NONGROWING SEASON	20	ND	ND	Σ	\	
NONGROWING SEASON	20	ND	ND	₹ -	I	-
STREAME	OW EXCEEDE	D			I I	
				0.01	100	
INDICATED PE	RCENTAGE OF	IIIVIE		10	100 😿 💛 1,000	10,000
= 75 PERCENT	25 PE	RCENT			STREAMFLOW, IN CUBIC FEET PER	R SECOND
	_					

RELATION OF LOAD TO STREAMFLOW

		OAD				1,000	
		SENSORED V			≻A	-	
	RELATION: LOG(LOAD)	= SLOPE*LO	G(FLOW) +	+ INT	R D	100	_ ×
	VALUES	NVALUES	SLOPE	INT	PE	100	¥ >
——— ALL	L VALUES	86	1.11	-0.75	JNDS		
— — SM	OOTHED RELATION BE	TWEEN LOAD	AND FLO	W	POL	-	
(SH	HOWN IF THERE ARE 10	OR MORE VA	ALUES)		Ď Z	10	
	STREAMFL INDICATED PER	OW EXCEED			LOA		-
	- 75 PERCENT	25 PI	ERCENT			-	· I



CONCENTRATION											
LOW FLOW		HIGH FLOW									
O UI	NCENSORE	D VALUE	⊕								
√ 'LESS-THAN' VALUE √											
△ 'GREATER-THAN' VALUE A A A A A B A B A B A B A B B											
TREN	DS IN CONC	ENTRAT	ION								
VALUES	NVALUES	NWYS	SLOPE								
LOW FLOW	14	9	ND								
HIGH FLOW	24	10	ND								



[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION			10 F				T T T T
GROWING SEASON	NONGROV	VING SEASO	N	E	1		·	
	SORED VALUE			F	I I			
□ ONOEIN	THAN' VALUE	$\overline{\Psi}$	Ω	-	I I			
, A	R-THAN' VALUE	Å	-;γ ∢	Ť		0		
△ GREATE	R-THAN VALUE		台岜	1 _	1 1			
RELATION: LOG(CON	C) = SLOPE*LOG(F	I OW) + INT	ZATI	Ē	1 1	⊕		
VALUES	,	SLOPE INT	. <u>F</u> #	F	,⊕			
	95			-		⊕		
ALL VALUES			CONCE	Ť				
[SEASONAL RELAT			00 02	0.1 —		0 0 0		
THEY ARE NOT DIFFE		-	7	· •		•		
GROWING SEASON	70 I	ND NI		F		∇	∇	
NONGROWING SEASON	25 I	ND NI	\bar{z}	F		•		
				-	o` o o o o o o o o o o o o o o o o o o			
STREAMF	LOW EXCEEDED						1	
INDICATED PE	RCENTAGE OF TI	ME	•	0.0160	1,00	0	10,000	10
- 75 PERCENT	25 PERC	ENT			STREAMFLOW	/ IN CUBIC F	FET PER SE	COND
					3Z/WII E0V	, 235101		005

RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT L	10,000
ALL VALUES 95 1.09 -0.67 SO SO SO SO SO SO SO SO SO SO SO SO SO	1,000 ×
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	100 1,000 10,000 100,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

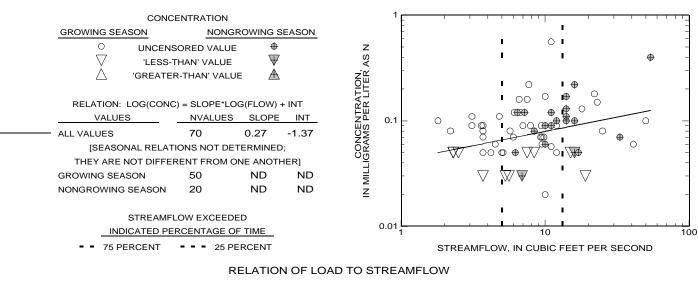
	CONCENT	RATION			2.5		1 1 1	ı	1 1	ı	1			1		ı	
	INCENSORE 'LESS-THAN REATER-TH	D VALUE	HIGH FLOW	- N N	2.0	_	⊕										_
TREN	NDS IN CON	CENTRAT	ION	CONCENTRATION.	1.5	_											-
VALUES	NVALUES		SLOPE	JSEN AS F													
LOW FLOW	11	6	ND	ŽŠ.	1.0	_											_
HIGH FLOW	22	12	ND	CC						_							
				\ <u>\{\text{\Z}}</u>	0.5					⊕							=
					0.0	76 77	⊕ ⊕ 78 79	⊕ ⊕ 80 8	○ 81 82	⊕ √ 33 8	4 85	0 0 5 86	87 8	₩ <u>/</u> 8 89	⊕ © 90		92 93

STREAMFLOW, IN CUBIC FEET PER SECOND

APPENDIX 15. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL AMMONIA 01400540 MILLSTONE RIVER NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LC	DAD	1,0	000		<u> </u>	雪
× unce	ENSORED VALUE		E	İ	1	=
V 'LES	S-THAN' VALUE	>	-	1	1	-
, ,	= SLOPE*LOG(FLOW) + INT NVALUES SLOPE INT	PER DA	100	ı	× ;	
ALL VALUES	70 1.27 -0.64	SS F	F	I ^	$\times \times \times \times$	=
SMOOTHED RELATION BETV	WEEN LOAD AND FLOW	, IN POUNE	10		××××××××××××××××××××××××××××××××××××××	
	OW EXCEEDED CENTAGE OF TIME	LOAD	1	× V V ×	1	
75 PERCENT -	• • • 25 PERCENT		0.1	I	<u>.</u>	
			1	10 STREAMFLOW, IN CUBIC	FEET PER SECOND	100

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION			
LOW FLOW	GH FLOW	_	
 UNCENSORED VALUE 	+	Ζ Ø 0.4	- ⊕
LESS-THAN' VALUE	W .		
△ 'GREATER-THAN' VALUE	A <u>ō</u>	IN MILLIGRAMS PER LITER 0.0 0.1	
	¥	0.3	-
TRENDS IN CONCENTRATION	\ \	Н	
VALUES NVALUES NWYS S	SLOPE E	<u>s</u>	
LOW FLOW 17 10	ND Ž	∑ ▼ 0.2	
HIGH FLOW 18 12	ND 8	G R	• •
		3	+ + +
		≥ 0.1	
		∠	
		0.0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

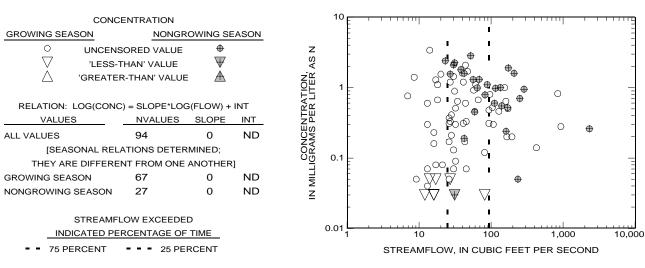
WATER YEAR

0.5

APPENDIX 15. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL AMMONIA 01400650 MILLSTONE RIVER AT GROVERS MILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

$\frac{}{\mathbb{V}}$	LOAD UNCENSORED V			ΑΥ	100,000		·······	
RELATION: LOG(I VALUES	NVALUES	SLOPE	INT	S PER D	1,000	' ' ××	/ *	
	RE 10 OR MORE V. AMFLOW EXCEED D PERCENTAGE C	ALUES)	-0.1	LOAD, IN POUNDS	100	X X X X X X X X X X X X X X X X X X X	1,000 10	0,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	5.0	0		
CONCENTRATION				
LOW FLOW HIGH FL	<u>>W</u>			
○ UNCENSORED VALUE ◀		0		_
√ 'LESS-THAN' VALUE ₹				
△ 'GREATER-THAN' VALUE	N N N		0	
	Ē 3.0			_
TRENDS IN CONCENTRATION	7 Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z			
VALUES NVALUES NWYS SLOPE	CONCENTRATION IN MILLIGRAMS PER LITER 0.0 0.0			0
LOW FLOW 22 12 NI	O∑ Z∀ 2.0	0		_
HIGH FLOW 24 11 NI	00.0	•	⊕	_
	Ä	0	₩	0
	<u></u> 1.0	0		•
	Z 1.0	°	⊕ ⊕	
	-	→	Φ Φ	
		⊕ ⊕ ₽	• •	
	0.0	76 77 78 79 8	80 81 82 83 84 8	35 86 87 88 89 90 91 92 93

APPENDIX 15. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL AMMONIA 01401000 STONY BROOK AT PRINCETON, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	PENTRATION				1	
GROWING SEASON UNCEN 'LESS-	ENTRATION NONG SORED VALUE THAN' VALUE R-THAN' VALUE	$\overline{\Psi}$	EASON	ION, TER AS N	1	
RELATION: LOG(CONG	C) = SLOPE*LO	, ,	· INT	NTRAT PER LI	0.1 –	
ALL VALUES [SEASONAL RELAT	81 FIONS NOT DE	0 TERMINED	ND ;	CONCENTR, IGRAMS PER		
THEY ARE NOT DIFFE	RENT FROM (ONE ANOTH	IER]	09	-	-
GROWING SEASON	63	ND	ND	Z Z	+	
NONGROWING SEASON	18	ND	ND	Z	-	© 1
STREAMF	LOW EXCEED			0	0.01	1 10 100 1,00
75 PERCENT	= = 25 P	ERCENT				STREAMFLOW, IN CUBIC FEET PER SECOND

RELATION OF LOAD TO STREAMFLOW

×	LOAD UNCENSORED V 'LESS-THAN' VA			≻ ∀	1,000	 	ı ı		v
RELATION: LOG(VALUES ALL VALUES	(LOAD) = SLOPE*LO NVALUES 81	SLOPE 0.93	+ INT INT -0.44	NDS PER DA	100		I I	***	^
 SMOOTHED RELATION (SHOWN IF THERE A)W	AD, IN POUI	10	>	1 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
	EAMFLOW EXCEED ED PERCENTAGE C NT 25 P			PO	0.1		I 10	100	1,000
						STREAME	I OW IN CUBIC	FEET PER SEC	OND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		
LOW FLOW HIGH FLOW		
O UNCENSORED VALUE ♥ VILESS-THAN' VALUE ▼ OREATER-THAN' VALUE	⋖	4 – •
	RAT o	3
TRENDS IN CONCENTRATION	트	
VALUES NVALUES NWYS SLOPE	ËΩ	0
LOW FLOW 24 14 ND	NA O	2
HIGH FLOW 14 9 ND	200	. 0
	CONCENTRATION. IN MILLIGRAMS PER LITER	
	Z	
	_	
	0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

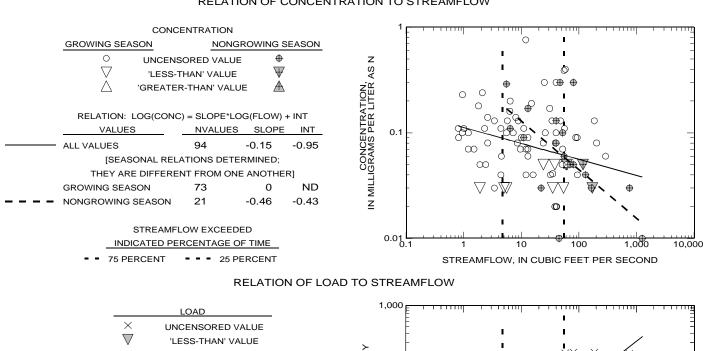
WATER YEAR

0.5

APPENDIX 15. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL AMMONIA 01401600 BEDEN BROOK NEAR ROCKY HILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT

VALUES NVALUES SLOPE INT

94

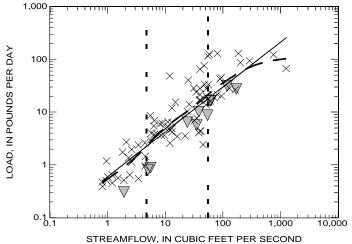
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

ALL VALUES

STREAMFLOW EXCEEDED

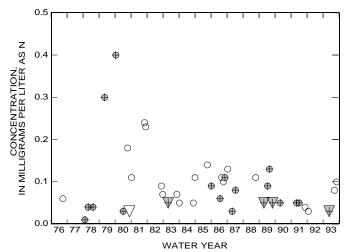
INDICATED PERCENTAGE OF TIME

- 75 PERCENT - 25 PERCENT



	CONCENTRATION	
LOW FLOW		HIGH FLOW
0	UNCENSORED VALUE	+
∇	'LESS-THAN' VALUE	$\overline{\Psi}$
\triangle ,	'GREATER-THAN' VALU	E A

TRENDS IN CONCENTRATION								
VALUES	NVALUES	NWYS	SLOPE					
LOW FLOW	21	13	ND					
HIGH FLOW	20	10	ND					



APPENDIX 15. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL AMMONIA 01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION			10	
GROWING SEASON	NONG	ROWING SI	EASON	Į.	i i
	SORED VALUE			- İ	į į
ONOLING		₩		ő	l I
	THAN' VALUE	V		. <u><</u> †	
	R-THAN' VALU	JE <u>#</u>		NH 1	• • °
				售 售	○
RELATION: LOG(CONC	C) = SLOPE*LC)G(FLOW) +	INT	<u>₹</u>	• • •
VALUES	NVALUES	SLOPE	INT	ZZ [
ALL VALUES	94	0	ND	CONCER LIGRAMS	
[SEASONAL RELAT	IONS NOT DE	TERMINED		~ §§	
THEY ARE NOT DIFFER	RENT FROM C	ONE ANOTH	ER]	0.1	
GROWING SEASON	61	ND	ND	╡ ‡ .	00 . 0 0 .00 .00 .00 .00 .00 .00 .00 .00 .00
NONGROWING SEASON	33	ND	ND	Z O	\(\sqrt{\sq}}}}}\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sq}}}}}}\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sq}}}}}}}}\eqset\sepsition}\sqrt{\sqrt{\sq}}}}}}}\eqset\sqrt{\sqrt{\sq}}}}}}\eqset\sqrt{\sqrt{\sqrt{\sq}}}}}}\eqset\sqrt{\sqrt{\sq}\sqrt{\sqrt{\sqrt{\sq}}}}}}\eqset\signt{\sqrt{\sq}}}}}}\eqset\signt{\sq}\si
				= [VV I V
STREAME	LOW EXCEED	ED			ı ı
				0.01	
INDICATED PE	RCENTAGE C	PE HIVIE		10	100 1,000 10,0
 75 PERCENT 	25 P	ERCENT			STREAMFLOW, IN CUBIC FEET PER SECOND

RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	10,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	1,000 III III III III III III III III III
	10 100 1,000 10,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	1.0
LOW FLOW HIGH FLOW ○ UNCENSORED VALUE ⊕ ✓ 'LESS-THAN' VALUE ₩ △ 'GREATER-THAN' VALUE ♠	OH HON HON HON HON HON HON HON HON HON H
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	IN MILLIGRAMS PER LITER OONCENTRATION OONCENTRATI
LOW FLOW 22 13 ND HIGH FLOW 20 10 ND	CONCI
	0.0 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION				10 E	-	1 1					1 1 1	
GROWING SEASON	NONGR	OWING SI	EASON		Ė				ı				=
○ UNCENS ▽ 'LESS-T △ 'GREATER	ORED VALUE HAN' VALUE R-THAN' VALUE	⊕ ₩ ±		ATION, LITER AS N	1=	0	1	+	1				
RELATION: LOG(CONC) = SLOPE*LOC	FLOW) +	INT	NTR/ PER	F		-	_ O €	•				=
VALUES	NVALUES	SLOPE	INT	Z <u>Z</u>	Į	0	_	⊕ ⊕	•				
ALL VALUES	29	0	ND	ΣĘ	+	Q a	•	Φ =	⊕⊕ _		₩		_
[SEASONAL RELATI	ONS NOT DET	ERMINED;		δÃ		. •	•	O 0	• 0		\oplus		
THEY ARE NOT DIFFER	ENT FROM ON	IE ANOTH	ER]	00	0.1		\sim		©D ⊕				=
GROWING SEASON	14	ND	ND	CONCE	F				Ψ				=
NONGROWING SEASON	15	ND	ND	Z	F		0	⊕	ı				=
	OW EXCEEDE				0.01		1		I I ,				_
INDICATED PER	RCENTAGE OF	IIIVIE			100			1,0	000		10,000		100,000
75 PERCENT		RCENT		\	TDE 4.			AMFLO	W, IN CU	BIC FEE	T PER S	SECOND	

RELATION OF LOAD TO STREAMFLOW

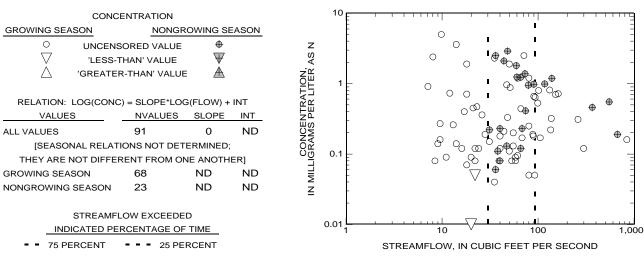
LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	100,000
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	Y 10,000 X X X X X X X X X X X X X X X X X
ALL VALUES 29 0.97 0.03 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	NON 1,000 X X X X X X X X X X X X X X X X X X
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	100 × × 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION			2.5		ı	1 1	1	1 1	ı	T	I I	1	1	1	1	
\bigvee_{Λ}	NCENSOREI LESS-THAN' REATER-THA	VALUE	HIGH FLOW		Z 0 2.0 Y H) -												_
TREN VALUES	IDS IN CONC	ENTRAT NWYS	ION SLOPE	CONCENTRATION	1.5 L	-												_
LOW FLOW HIGH FLOW	6 8	4 5	ND ND	ONO	1.0 1.0	-							0					-
					0.5	-							*	0	١	#	C	_
					0.0	76	77 78	79 8	30 81	82	83 84	85	86 8		89	90 9		93

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD	10,000
✓ UNCENSORED VALUE ✓ 'LESS-THAN' VALUE >	
	1,000 × × × × × × × × × × × × × × × × × ×
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED	
INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	1 1 10 100 1,000
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

0

78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

∑ 'GF	INCENSOREI 'LESS-THAN' REATER-THA	VALUE N' VALUE	₩
 VALUES LOW FLOW HIGH FLOW	IDS IN CONC NVALUES 27 16	NWYS 15 11	SLOPE -0.053
THIGHT FLOW	10	11	ND

HIGH FLOW

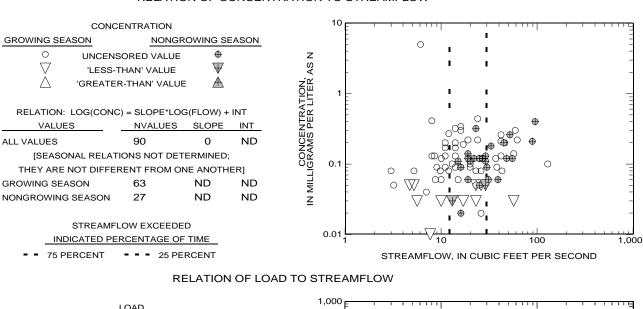
CONCENTRATION

LOW FLOW

APPENDIX 15. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL AMMONIA 01405340 MANALAPAN BROOK AT FEDERAL RD, NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



LOAD

X UNCENSORED VALUE

▼ 'LESS-THAN' VALUE

 RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT

 VALUES
 NVALUES
 SLOPE
 INT

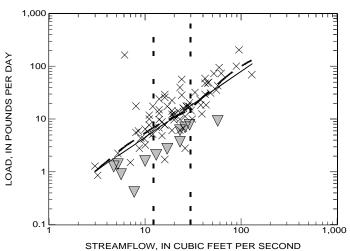
 ALL VALUES
 90
 1.25
 -0.59

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

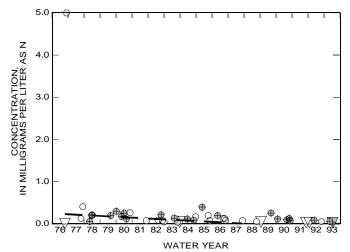
STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT



	CONCENTRATION									
LOW FLOW		HIGH FLO								
Ο (JNCENSOREI	D VALUE	⊕							
∇	'LESS-THAN'	HAN' VALUE ₩								
	REATER-THA	REATER-THAN' VALUE								
TRE	NDS IN CONC	ENTRAT	ION							
VALUES	NVALUES	NWYS	SLOPE							
- LOW FLOW	24	14	-0.02							
HIGH FLOW	22	12	ND							



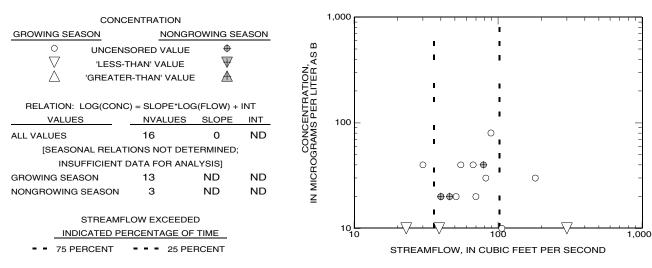
Appendix 16 - Total boron

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Bleckwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01396280 SB RARITAN RIVER AT MIDDLE VALLEY, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

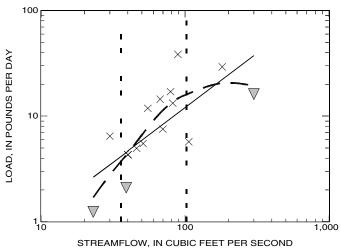
RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

		LOAD				
	× un	CENSORED \	/ALUE			
	\(\sqrt{\text{LE}}	ESS-THAN' VA	ALUE		>	.
RELATIO	ON: LOG(LOAD)) = SLOPE*LO	OG(FLOW)	+ INT	B DA	-
VAI	LUES	NVALUES	SLOPE	INT	P	! :
— ALL VALUE	S	16	1.03	-0.98	DS	
• SMOOTHER	O RELATION BE	TWEENLOA	O AND ELO	١٨/	NO NO	10
	THERE ARE 10			• • • • • • • • • • • • • • • • • • • •	<u>a</u> Z	
					ģ	ĵ
	STREAMFI	LOW EXCEED	ED		Ò	i l
_	INDICATED PE	RCENTAGE C	OF TIME		_	·

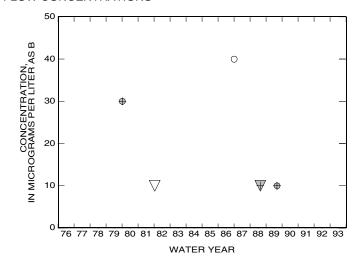
- - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION						
LOW FLOW		HIGH FLOW						
Ο υ	NCENSORE	D VALUE	⊕					
∇	abla 'LESS-THAN' VALUE $ abla$							
△ 'GF	■ ▲							
TREN	IDS IN CONC	ENTRAT	ION					
VALUES	NVALUES	NWYS	SLOPE					
LOW FLOW	2	2	ND					
HIGH FLOW	3	3	ND					

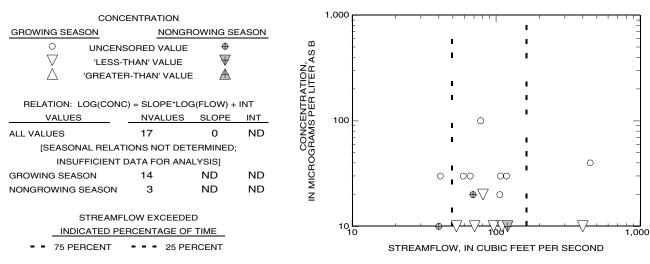
75 PERCENT



APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01396535 SB RARITAN RIVER AT ARCH ST, AT HIGH BRIDGE, N.J.

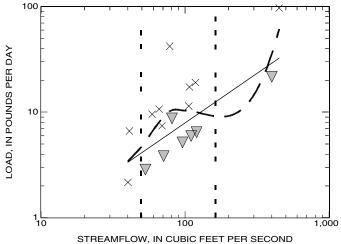
[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

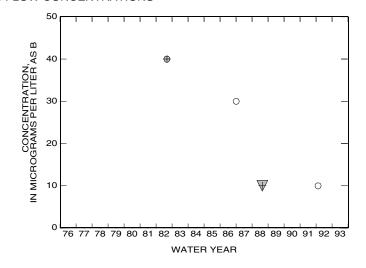


RELATION OF LOAD TO STREAMFLOW

	LOAD				100 E	
$\overline{\mathbb{V}}$	UNCENSORED 'LESS-THAN' V			>	- - -	
RELATION: L	LOG(LOAD) = SLOPE*L	OG(FLOW)	+ INT	ER DA	-	
VALUES	NVALUES	SLOPE	INT	R	-	
- ALL VALUES	17	0.94	-0.98	SONO	10	
 SMOOTHED REL	ATION BETWEEN LOA	D AND FLC	w	PO	E	
(SHOWN IF THE	RE ARE 10 OR MORE \	'ALUES)		Z	F	
_				OAD,	Ė	
8	STREAMFLOW EXCEE	DED		9		
INDIC	CATED PERCENTAGE	OF TIME			-	
75 PEF	RCENT 251	PERCENT				



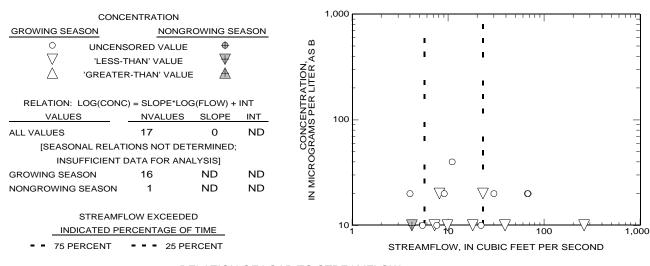
	CONCENTR	ATION						
LOW FLOW		HIGH FLOW						
О U	NCENSORE	D VALUE	⊕					
▽ '	LESS-THAN'	VALUE	$\overline{\Psi}$					
riangle 'GREATER-THAN' VALUE $ riangle$								
TREN	DS IN CONC	ENTRAT	ION					
VALUES	NVALUES	NWYS	SLOPE					
LOW FLOW	2	2	ND					
HIGH FLOW	2	2	ND					



APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01396588 SPRUCE RUN NEAR GLEN GARDNER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

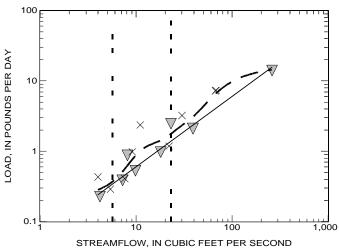
RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD		_			E	
×	UNCENSO	DRED VALUE				E	
\vee	'LESS-TH	IAN' VALUE			<u>></u>	-	
RELATION:	LOG(LOAD) = SLO	OPE*LOG(FLO	W) + INT		я Д		
VALUES	S NVAL	LUES SLOF	PE INT		H 10	'E	
 ALL VALUES	17	1	1 -1.2	22	NDS	F	
 SMOOTHED RE	LATION BETWEE	N LOAD AND I	LOW		Pour	-	
(SHOWN IF THE	RE ARE 10 OR M	ORE VALUES)		Z 1	E	
	STREAMFLOW E	XCEEDED			LOA	Ė	×
INDI	CATED PERCENT	TAGE OF TIME	_		_	-	

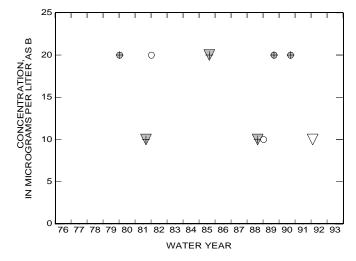
= = 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION				
LOW FLOW		HIGH FLOW				
Ο υ	NCENSORE	D VALUE	⊕			
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$			
TREN	DS IN CONC	ENTRAT	ION			
VALUES	NVALUES	NWYS	SLOPE			
LOW FLOW	3	3	ND			
HIGH FLOW	6	6	ND			

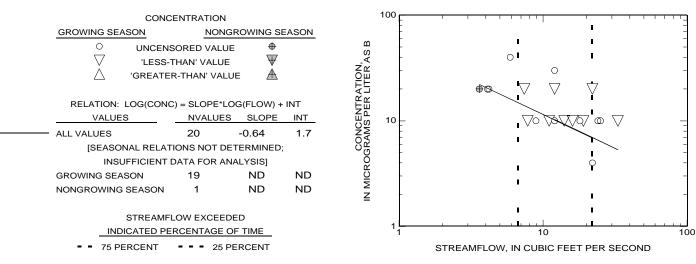
75 PERCENT



APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01396660 MULHOCKAWAY CREEK AT VAN SYCKEL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD			10 E	1 1 1	1111		
×	UNCENSORED V	ALUE		-			:	-
∇	'LESS-THAN' VA	ALUE		> -		i	i	-
RELATION: LOC	G(LOAD) = SLOPE*LO	OG(FLOW) -	+ INT	R D.			∇	-
VALUES	NVALUES	SLOPE	INT	Д -		×	. ∇	-
ALL VALUES	20	0	ND	SQ		\times ∇		
				SONDO		∇ . \Rightarrow	- >>	=
SMOOTHED RELAT	ION BETWEEN LOAI	O AND FLO	W	2 -		$\overset{\checkmark}{\longrightarrow}^{\vee}$	ľ	-
(SHOWN IF THERE	ARE 10 OR MORE V	ALUES)		Z [1	\Rightarrow	*	=
				ģ ŀ	××	ı V	1	-
STF	REAMFLOW EXCEED	ED		ô F		1		-
INDICAT	ED PERCENTAGE C	OF TIME		_		-	1	_
75 PERCI	ENT = = 25 P	ERCENT				İ	ı	
				0.1		10		100

STREAMFLOW, IN CUBIC FEET PER SECOND

WATER YEAR

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION			50	- 1	1 1		1 1	1	1	1 1	ı	- 1	1	1	1	1
LOW FLOW			HIGH FLOW	- <u>m</u>														
<u>○</u> ∪	NCENSORE	D VALUE	+	ATION, LITER AS B	40	_							0					_
,	LESS-THAN'		$\overline{\Psi}$	N N,N														
∐ 'GF	REATER-THA	N' VALUE		ξĒ														
TDEN		CNITDATI	ION	H. H.	30	_												-
VALUES	IDS IN CONC NVALUES	NWYS	SLOPE	S PI														
LOW FLOW	4	4	ND	CONCENTR MICROGRAMS PER							7							
HIGH FLOW	5	4	ND	25	20	_			0 0) 4	7						0	_
THOITT LOW	Ü		110	Õ														
				<u>S</u>	10	_	4	₽						$\overline{\Psi}$	⊕			
				<u>Z</u>	. 0		`	~						V	Ψ			
								\oplus										
					0	70 77	70.70	00 04		00 0	1 05		07.6			20 0	1 00	
						76 77	78 79	80 81	82	83 84	1 85	86	87 8	88 8	39 9	90 9	1 92	93

50 -

APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01397000 SB RARITAN RIVER AT STANTON STATION, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION		1,000 F	
GROWING SEASON	NONGRO\	WING SEASON	Ī	'
'LESS-1	SORED VALUE THAN' VALUE R-THAN' VALUE	⊕ ₩ Æ	ATION, LITER AS B	
RELATION: LOG(CONC) = SLOPE*LOG(F	FLOW) + INT	H. H.	<u> </u>
VALUES	NVALUES S	SLOPE INT	ω _ω 100	'
ALL VALUES	3	ND ND	CONCENTR OGRAMS PER 001	
[SEASONAL RELAT	IONS NOT DETER	RMINED;	2%	
INSUFFICIENT [DATA FOR ANALY	'SIS]		
GROWING SEASON	2	ND ND	<u> </u>	-
NONGROWING SEASON	1	ND ND	N MICR	O 1
	OW EXCEEDED RCENTAGE OF TI 25 PERC		10	1,000 10,000 STREAMFLOW, IN CUBIC FEET PER SECOND

RELATION OF LOAD TO STREAMFLOW

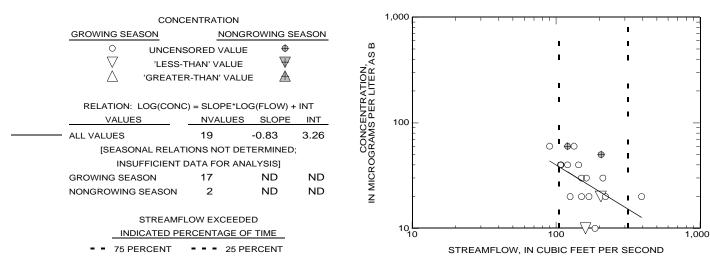
	LOAD		1,000	-		
$\overset{\times}{\mathbb{V}}$	UNCENSORED VALUE 'LESS-THAN' VALUE		>	- [L	1 1 1	- - - -
RELATION: LO VALUES	G(LOAD) = SLOPE*LOG(FLOW NVALUES SLOPE) + INT INT	ER DA	- !	1	-
ALL VALUES	3 ND	ND	S 100	•	1 1	
	TION BETWEEN LOAD AND FLO EARE 10 OR MORE VALUES)	OW	N POOL	- - - - -	1	
·	REAMFLOW EXCEEDED		OAD, I	×	1	
INDICA 75 PERC	TED PERCENTAGE OF TIME			×	i	-
			10	× 00	1,000	10,000

STREAMFLOW, IN CUBIC FEET PER SECOND

APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01397400 SB RARITAN RIVER AT THREE BRIDGES, N.J.

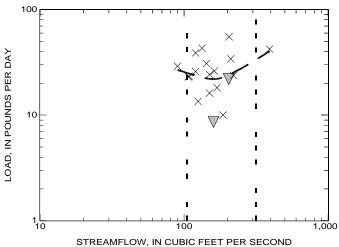
[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

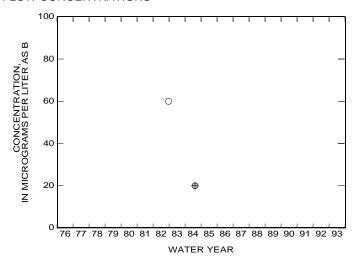


RELATION OF LOAD TO STREAMFLOW

	LOAD				100	
×	UNCENSORED V	ALUE			=	
∇	'LESS-THAN' VA	LUE		>	-	
RELATION: LOG(L	.OAD) = SLOPE*LC NVALUES)G(FLOW)	+ INT INT	PER DAY	-	
ALL VALUES	19	0	ND	DS		
SMOOTHED RELATION			w	D, IN POUNDS	10	
· · · · · ·	AMFLOW EXCEED D PERCENTAGE C			LOAD	-	
- 75 PERCEN	T = = 25 P	ERCENT				



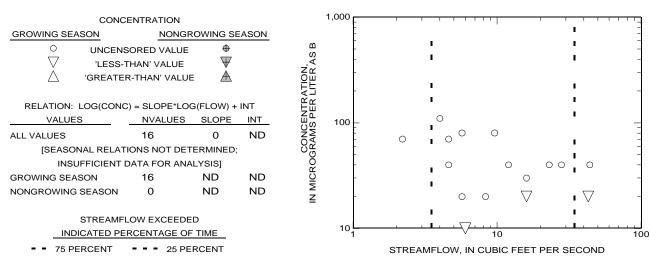
	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	⊕
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	\blacksquare
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	1	1	ND
HIGH FLOW	1	1	ND



APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01398000 NESHANIC RIVER AT REAVILLE, N.J.

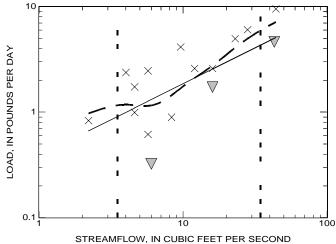
[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

_		LOAD		
	× un	CENSORED V	ALUE	
	,rr	ESS-THAN' VA	LUE	
RELATIO	N: LOG(LOAD	O) = SLOPE*LC	G(FLOW)	+ INT
VALI	UES	NVALUES	SLOPE	INT
ALL VALUES		16	0.68	-0.41
SMOOTHED	RELATION BE	TWEEN LOAD	AND FLO	W
(SHOWN IF T	THERE ARE 10	OR MORE V	ALUES)	
	STREAMF	LOW EXCEED	ED	
<u></u>	NDICATED PE	RCENTAGE C	F TIME	

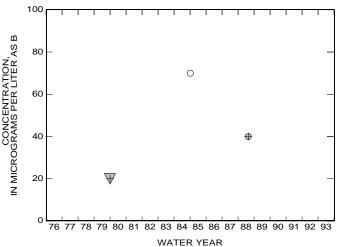


TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION			
LOW FLOW			HIGH FLOW		1
O U	NCENSORE	D VALUE	⊕	v.	-
\triangle	LESS-THAN	VALUE	$\overline{\Psi}$	Źα	:
△ 'GI	REATER-THA	N' VALUE	■ ▲	은뿌	1
				-X-X-	į
TREN	IDS IN CONC	ENTRAT	ION	ΕÜ	i
VALUES	NVALUES	NWYS	SLOPE	SE)
LOW FLOW	1	1	ND	N N	;
HIGH FLOW	2	2	ND	O H	į
				ă	:

= = 25 PERCENT

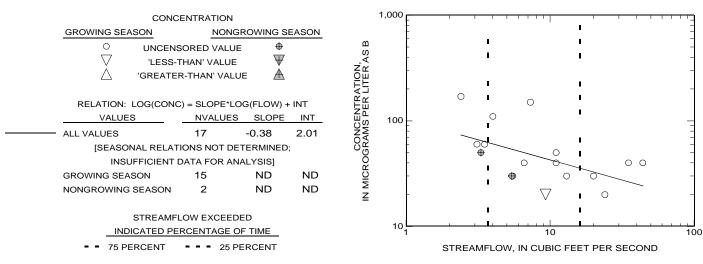
75 PERCENT



APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01398260 NB RARITAN RIVER NEAR CHESTER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	10	1 ×	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	<u>п</u> 🗒 -	×××	** × = = = = = = = = = = = = = = = = = =
	0.26	× V	I
SMOOTHED RELATION BETWEEN LOAD AND FLOW	<u> </u>	ı	·
(SHOWN IF THERE ARE 10 OR MORE VALUES)	AD, IA	ı	: =
STREAMFLOW EXCEEDED	Ì	ı	-
INDICATED PERCENTAGE OF TIME	_		-
75 PERCENT 25 PERCENT		ı	I
	0.1	10	100
		STREAMFLOW, IN CUBIC FE	ET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	I	200	' '	1 1	1 1	1 1	'	'	1 1	1 1	- 1	ı	'
LOW FLOW	HIGH FLOW	מ											
O UNCENSORED VAL	UE +	200											_
√ 'LESS-THAN' VALU	E ₩ zo	YY											
△ 'GREATER-THAN' VA	UE ⊕ ZOL E ₩ ZOL LUE Æ COL	<u> </u>			0								
	۷- ۷-	ע ע 150	_										_
TRENDS IN CONCENTR	ATION	Д П											
VALUES NVALUES NWY	<u>S SLOPE</u> Üğ	<u>N</u>											
LOW FLOW 4 3	ATION SS SLOPE ND ND	₹ 100											_
HIGH FLOW 4 4	ND 0	5											
	j.	Ř				0	_						
	2	∑ 50 50	_			0	0					0	_
	2	Z		⊕		\oplus				⊕			
				4						0)		
		0		70 70 00	04.00	0.00	24.0	5 00	07.0	0 00		4 00	
			16 // /	78 79 80	81 82	2 83	84 8	5 86	87 8	88 89	90 9	1 92	93

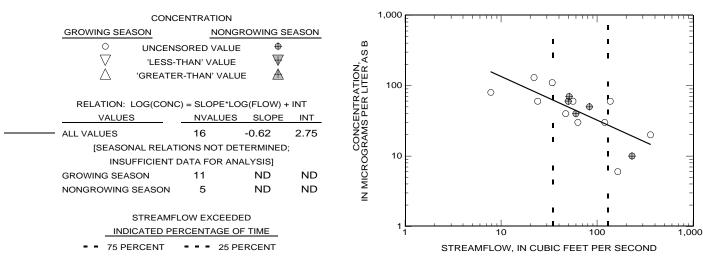
WATER YEAR

250 -

APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01399120 NB RARITAN RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	O SORED VALUE THAN' VALUE	100 - - - -		1 1	< × -
RELATION: LOG(LOAD) = SI VALUES NV	LOPE*LOG(FLOW) + INT ALUES SLOPE INT	PER D		* * * * * * * * * * * * * * * * * * *	
ALL VALUES 1	6 0.37 0.49	SQN00		× × × ·	×
SMOOTHED RELATION BETWE	EN LOAD AND FLOW	9 F		7 × , ,	=
(SHOWN IF THERE ARE 10 OR I	MORE VALUES)	ð Z		1	×
STREAMFLOW	EXCEEDED	Õ -	X	i	=
INDICATED PERCEN	NTAGE OF TIME	_		ı	-
= = 75 PERCENT = =	= 25 PERCENT			1 1	
		1	10	100	1,000
			STREAMFLOW,	IN CUBIC FEET PER	SECOND

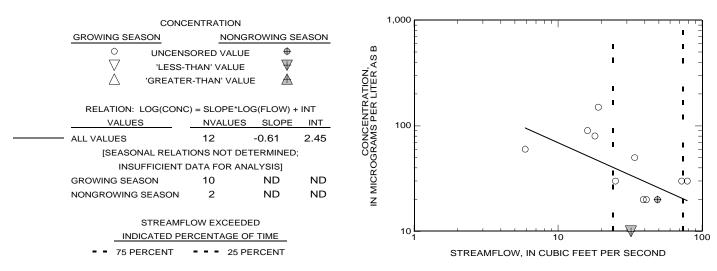
TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENT	TRATION		250	<u>, </u>
LOW FLOW O UNCENSOR	HIGH	+ m		_
V 'LESS-THA △ 'GREATER-TI		CONCENTRATION,	1 1 1 150	
TRENDS IN CON		PPE OS	i 130	0
LOW FLOW 4 HIGH FLOW 4		ND ON ON ON ON ON ON ON ON ON ON ON ON ON	100	
		2 2 2	50	○ ⊕
		2	:	+
			Ū	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01399500 LAMINGTON (BLACK) RIVER NEAR POTTERSVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD			100		1 1 1		1	1 1 1	· '.' · ·
$\stackrel{ imes}{ riangledown}$	UNCENSORED VAL 'LESS-THAN' VALU			∀					1	• = • = • =
RELATION: LOG(LO	DAD) = SLOPE*LOG(NVALUES S		INT INT	PER D,					1	.]
ALL VALUES	12	0	ND	SONO 10	-			×	ı ×	* =
SMOOTHED RELATION			V	0				/ ××		/ . <u> </u>
(SHOWN IF THERE AR	E 10 OR MORE VALU	UES)		Ğ,			/		× × ×	I -
STREA	MFLOW EXCEEDED)		LOA			/		1	-
INDICATED	PERCENTAGE OF	TIME		_			*		∇	1 -
■ ■ 75 PERCENT	= = = 25 PER	RCENT							. *	
				1	-		10)	<u> </u>	100

STREAMFLOW, IN CUBIC FEET PER SECOND

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

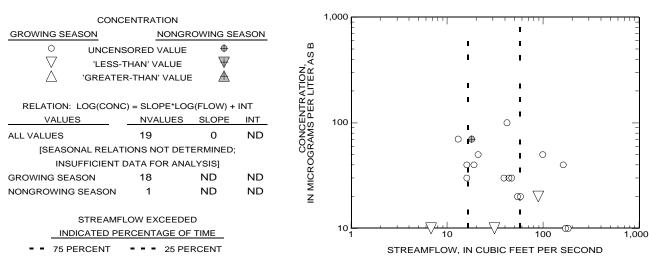
CONC	ENTRATION			1	'	 			'	 '	'			
LOW FLOW		HIGH FLOW	ш											
, LESS-	SORED VALUE THAN' VALUE R-THAN' VALU	\Pi	"	200	-									_
			~ -	150	-		C							_
	CONCENTRAT		温료											
VALUES NVA	UES NWYS	SLOPE	ΣŠ											
LOW FLOW 4	4	ND	CONCI	100	-									_
HIGH FLOW 1	1	ND	Ole							0		С)	
			MICRO	50	_	0				O				_
			呈					\oplus						

250 -

APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01399700 ROCKAWAY CREEK AT WHITEHOUSE, N.J.

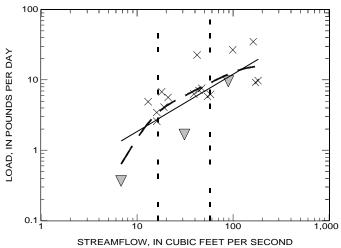
[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

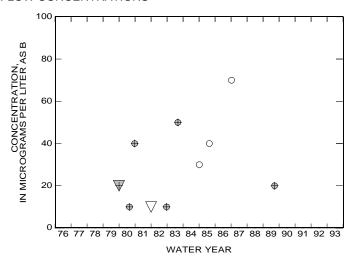


RELATION OF LOAD TO STREAMFLOW

<u></u>	LOAD		
×	UNCENSORED V	/ALUE	
∇	'LESS-THAN' VA	ALUE	
RELATION: LOG(LO	OAD) = SLOPE*LO	OG(FLOW)	+ INT
VALUES	NVALUES	SLOPE	INT
- ALL VALUES	19	0.81	-0.54
SMOOTHED RELATION (SHOWN IF THERE ARI			w
STREA	MFLOW EXCEED	ED	
INDICATED	PERCENTAGE C	OF TIME	
 75 PERCENT 	T = = = 25 P	ERCENT	



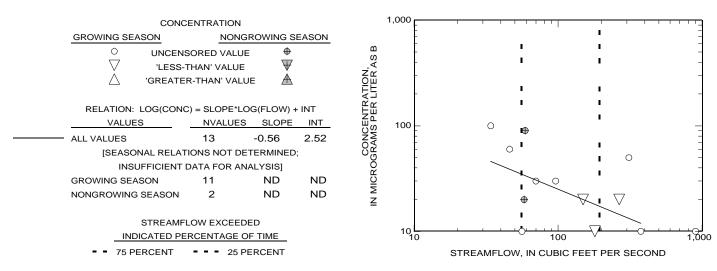
	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	+
∇	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	IDS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	4	3	ND
HIGH FLOW	6	5	ND



APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01399780 LAMINGTON RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD			100	1 1 1 1 1 1 1 1 1 1	. × ' ' '
$\stackrel{ imes}{ riangledown}$	UNCENSORED \ 'LESS-THAN' V				1 1	<u> </u>
RELATION: LOG(VALUES	LOAD) = SLOPE*LO	OG(FLOW) SLOPE	+ INT INT	PER DAY	× × × ¬	. ×
ALL VALUES	13	0	ND	80 NO NO NO NO NO NO NO NO NO NO NO NO NO N	\x\x\x\	• • •
SMOOTHED RELATION	ON BETWEEN LOAI	D AND FLO	w	<u> </u>		
(SHOWN IF THERE A	RE 10 OR MORE V	ALUES)		<u>≥</u> -		
	EAMFLOW EXCEED ED PERCENTAGE (- FOAD	X I	·
■ ■ 75 PERCE	NT = = = 25 F	PERCENT			1	1
				1 10	100	1,000

STREAMFLOW, IN CUBIC FEET PER SECOND

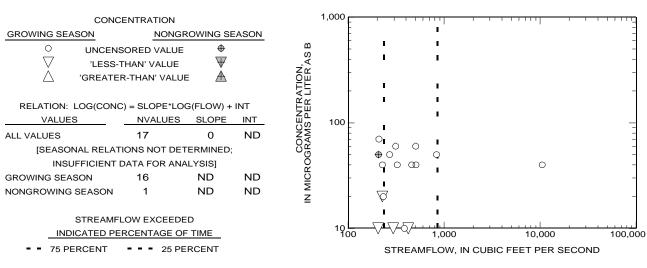
WATER YEAR

CONCENTRATION		100	1 1	ı	1 1	1	1	ı	1 1	ı	ı	1 1	1	Ψ	
LOW FLOW HIGH FL ○ UNCENSORED VALUE ▼ 'LESS-THAN' VALUE △ 'GREATER-THAN' VALUE	YOUNG	80 -	-												_
TRENDS IN CONCENTRATION		60	_			0									_
VALUES NVALUES NWYS SLOPE	CEN AS P						4)							
LOW FLOW 2 2 NE	RAN C	40	-												_
HIGH FLOW 4 4 NE) ဗိ														
	CONCENTR	20		A	7										_
	Z				⊕								⊕		
		0	76 77	78 79	80	81 8	2 83	8 84	85	86 8	7 88	89	90 9	1 92	93

APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01400500 RARITAN RIVER AT MANVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10,000
ALL VALUES 17 1.17 -1.27 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1,000
(SHOWN IF THERE ARE 10 OR MORE VALUES) STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME - 75 PERCENT 25 PERCENT	100 1,000 10,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	100		_	_	_	_	_	_	_	_	$\overline{}$		$\overline{}$	$\overline{}$	$\overline{}$		_
CONCENTRATION		'	'	1	1	1	1	1	'	'	'	'	1	1	1	'	
LOW FLOW HIGH FLOW @																	
○ UNCENSORED VALUE	80	L															
	00																
V 'LESS-THAN' VALUE ♥ Z̈́́́́́́́́C Ö́́́́́́U Ö́́́́́́C Oʻ́́́C Oʻ́́́C ʻ́́́C Oʻ́́́C Oʻ́́C Oʻ́́́C Oʻ́́C Oʻ́́́C Oʻ́́́C Oʻ́́́C Oʻ́́́C Oʻ́́́C Oʻ́́́C Oʻ́́́C Oʻ́́́C Oʻ́́́C Oʻ́́C Oʻ́́́C Oʻ́́C Oʻ́́C Oʻ́́C Oʻ́́C Oʻ́́C Oʻ́́C Oʻ́́C Oʻ́́́C Oʻ́C Oʻ		İ										0					
5	00	İ															
TRENDS IN CONCENTRATION	60																
Ш.		İ															(
		İ															
LOW FLOW 6 5 ND O	40	_								\oplus							
HIGH FLOW 1 1 ND		İ															
χ. Θ		İ															
M MIC W	20	L					0			7	∇						
<u>Z</u>		ĺ									V						
=		ĺ												∇			

STREAMFLOW, IN CUBIC FEET PER SECOND

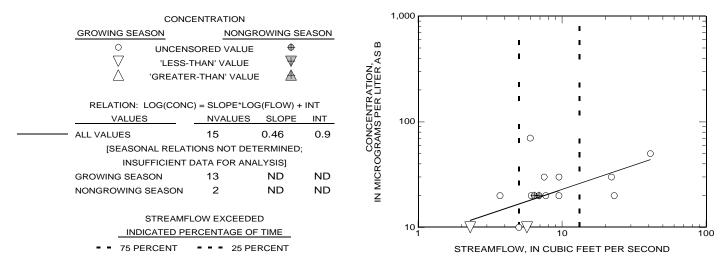
76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

0

APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01400540 MILLSTONE RIVER NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

		LOAD NCENSORED V LESS-THAN' VA			>	100	1 1	1 I	1 1	-
RE	LATION: LOG(LOA VALUES	D) = SLOPE*LO NVALUES	G(FLOW) SLOPE	+ INT INT	PER DA	10		1 1	/	× =
——— ALL VA	ALUES	15	1.46	-1.37	SOUNDS	Ē		i		=
	THED RELATION B VN IF THERE ARE 1)W	o, IN POU	1 =		'×	X	- - -
_		FLOW EXCEED ERCENTAGE O	F TIME		LOAE	-		√		- - - -
						0.1	STREAMELO	10 W, IN CUBIC F	TEET DED SE	100
							STREAMFLO	VV, IIV CUBIC F	LLIFER SE	COND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTR	ATION	30		1 41 1 1	1 1 1 1 1	'
LOW FLOW	HIGH FLOV	<u>/</u>				
O UNCENSOREI		_ თ_ 40 -	_			
√	VALUE $\overline{\Psi}$	zα				
△ 'GREATER-THA	N' VALUE					
		⊼⊼ 30 · ∢⊐	_		⊕	_
TRENDS IN CONC	ENTRATION	28				
VALUES NVALUES	NWYS SLOPE	SE				
LOW FLOW 3	2 ND	CONCENTRATION, MICROGRAMS PER LITER AS B 00 00 00	_	•	0	_
HIGH FLOW 3	3 ND	96				
		SRO				
		∑ ∑ 10-	_		$\circ \nabla$	_
		Z			•	
		0	70 77 70 70 00 01 00	00 04 05 00 4	7 00 00 00 01	20.00
			76 77 78 79 80 81 82	83 84 85 86 8	37 88 89 90 91	92 93

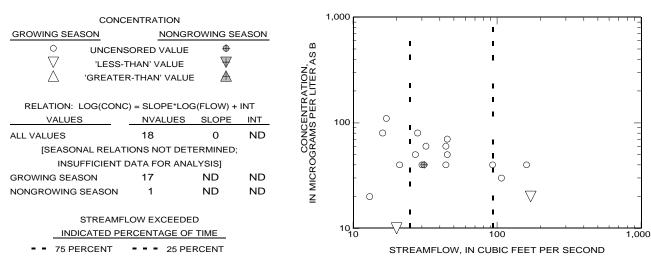
WATER YEAR

50 -

APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01400650 MILLSTONE RIVER AT GROVERS MILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

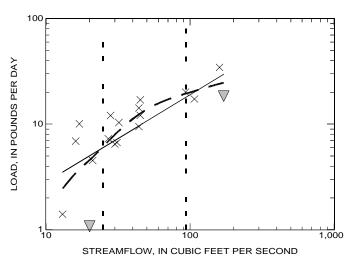
$\stackrel{\times}{ riangledown}$	UNCENSORED V		
RELATION: LOG(L	OAD) = SLOPE*LO	OG(FLOW)	+ INT
VALUES	NVALUES	SLOPE	INT
ALL VALUES	18	0.83	-0.38
SMOOTHED RELATION	N BETWEEN LOAI	O AND FLO	W
(SHOWN IF THERE AR	E 10 OR MORE V	ALUES)	

LOAD

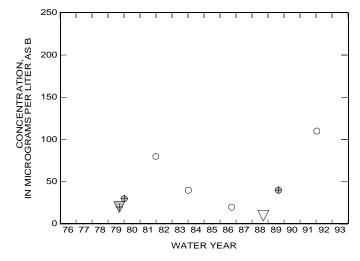
STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT



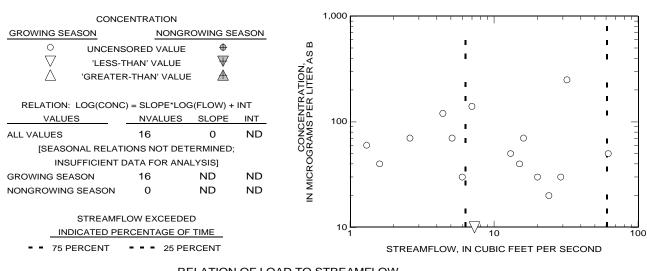
	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
O UI	NCENSORE	O VALUE	⊕
7	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	DS IN CONC	ENTRATI	ON
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	5	5	ND
HIGH FLOW	3	3	ND



APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01401000 STONY BROOK AT PRINCETON, N.J.

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD		
$\overset{\times}{\triangledown}$	UNCENSORED \ 'LESS-THAN' V		
RELATION: LOG(L	•	, ,	
ALL VALUES	NVALUES 16	0.96	-0.53
SMOOTHED RELATIO			w
(SHOWN IF THERE AF	RE 10 OR MORE V	ALUES)	
	AMFLOW EXCEED D PERCENTAGE (
75 PERCEN	IT 25 F	PERCENT	

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

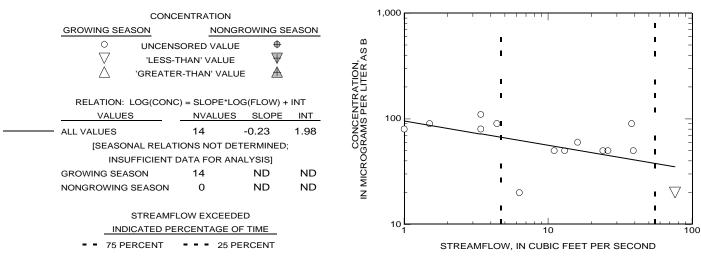
CONCENTRATION	2	250	1 1 1	1 1		ı	ı	1	1 1	ı	ı	ı	1 1	
LOW FLOW ○ UNCENSORED VALUE ○ 'LESS-THAN' VALUE ○ 'GREATER-THAN' VALUE	ATION, LITER AS B	200 -	-											_
TRENDS IN CONCENTRATION	ENTRA PER L	150	-											_
VALUES NVALUES NWYS SLOPE LOW FLOW 6 6 ND HIGH FLOW 1 1 ND	CONCENTR MICROGRAMS PER	100	-						0					_
		50	-	○⊕)	0						0	
	Z	0	76 77 78	79 80 8			4 85	5 86		88	89 9	0 91	92	93

STREAMFLOW, IN CUBIC FEET PER SECOND

APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01401600 BEDEN BROOK NEAR ROCKY HILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	×	LOAD UNCENSORED V			>	100	 	1 1
F	RELATION: LOG(LC	OAD) = SLOPE*LO	OG(FLOW) SLOPE	+ INT INT	PER DA	10	1	
ALL	VALUES	14	0.77	-0.29	NDS F	-	ı	
	OOTHED RELATION			DW .	N POUI	-		
(SHC	STREA	MFLOW EXCEED)ED		LOAD, II	1	ı ×	
	= 75 PERCENT	= = = 25 P	ERCENT			0.1	<u> </u>	

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION			250		I I	1 1	1	1			1 1	ı	-	1	1	ı	1
LOW FLOW			HIGH FLOW	ш															
O U	NCENSORE	D VALUE	⊕	AS I	200	_													
∇	LESS-THAN	VALUE	$\overline{\Psi}$	zκ															
△ 'GI	REATER-THA	N' VALUI	■ ▲	ATION, LITER AS															
				RAP	150	_													
TREN	IDS IN CONC	ENTRAT	ION																
VALUES	NVALUES	NWYS	SLOPE	AS S														_	
LOW FLOW	5	5	ND	Z.S.	100	_												0	_
HIGH FLOW	1	1	ND	CONCENTR DGRAMS PER						0	()	0)					
				MICR	50	_													-
				Z			_	_											
							1	$\overline{\forall}$											
					0	76 77	78 7	9 80 8	31 8	2 83	84	85	86	87 8	8 8	a a	0 91	92	93
						10 11	, ,	000	, 0	2 03	04	00	00	0, 0	,0 0	5 5	0 31	32	55

250 -

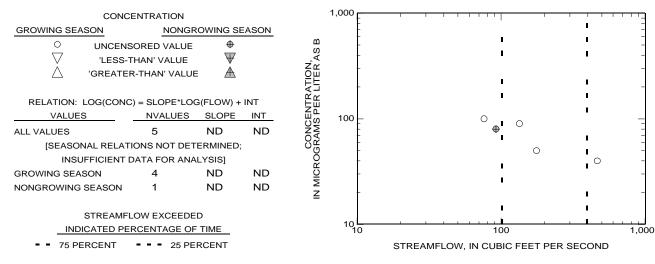
100

STREAMFLOW, IN CUBIC FEET PER SECOND

APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	1,000	
LOAD		F 1
× UNCENSORED VALUE		F 1
LESS-THAN' VALUE		
	¥	·
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	R D	. 1
VALUES NVALUES SLOPE INT	P	ŀ <u>'</u> -
ALL VALUES 5 ND ND	S	I I
ALL VALUES 5 ND ND	S Q N 100	
	2 100	F ^ 3
SMOOTHED RELATION BETWEEN LOAD AND FLOW	Ъ	I X I
(SHOWN IF THERE ARE 10 OR MORE VALUES)	Z	F × 1
	Ď.	- ×x, ^
STREAMFLOW EXCEEDED	O A	- :
INDICATED PERCENTAGE OF TIME	ĭ	l l
-		†
= = 75 PERCENT = = = 25 PERCENT		I I
	10 ₁	
	. 1	0 100 1,00
		STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

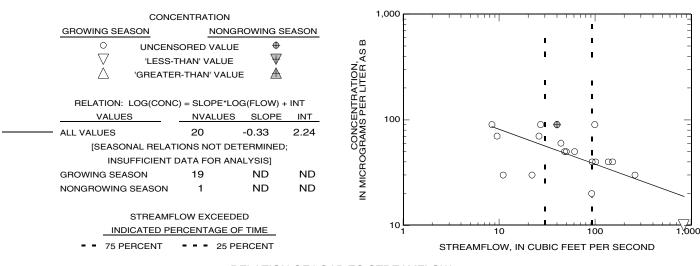
CONCENTRATION	1	100	
LOW FLOW O UNCENSORED VALUE VILESS-THAN' VALUE O GREATER-THAN' VALUE	- <u>a</u>	80 –	0-
TRENDS IN CONCENTRATION	TRA ER L	60 –	_
TRENDS IN CONCENTRATION VALUES NVALUES NWYS SLOPE	NCEN MS P		
LOW FLOW 2 2 ND	80	40	> -
HIGH FLOW 1 1 ND	CONCENTR MICROGRAMS PER		
	N MIC	20	-
	<u> </u>		
		76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92	2 93

No data for this station

APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01405302 MATCHAPONIX BROOK AT MUNDY AVE, AT SPOTSWOOD, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE □ 'LESS-THAN' VALUE	100
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	<u> </u>
ALL VALUES 20 0.67 -0.02	SQUNDO X
 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) 	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	×
	'1 10 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

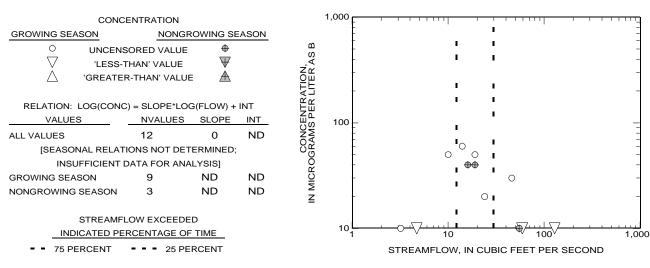
	100					\neg	\Box	\neg
CONCENTRATION								
LOW FLOW HIGH FLOW M		0	⊕		0			
○ UNCENSORED VALUE ♥ SV VALUE ♥ SV VALUE ♥ SV VALUE ♥ SV VALUE ★ SV VALUE ★ SV VALUE ★ SV VALUE ★ SV VALUE ▼	80	_		0		0		-
Eë.	60	_						-
TRENDS IN CONCENTRATION	40		₩	•	○ ◆	0		_
\(\frac{\z}{2}\)	20	_					\forall	_

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 WATER YEAR

APPENDIX 16. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL BORON 01405340 MANALAPAN BROOK AT FEDERAL RD, NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

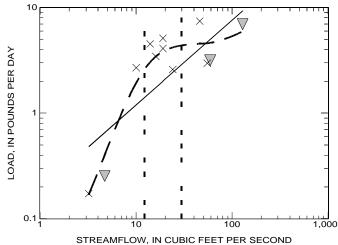
	INCENSORED V 'LESS-THAN' VA			>	
RELATION: LOG(LO	K Q				
VALUES	NVALUES	SLOPE	INT	P	.
ALL VALUES	12	8.0	-0.72	SUNDS	1_
SMOOTHED RELATION I (SHOWN IF THERE ARE	AD, IN POL	- -			

STREAMFLOW EXCEEDED

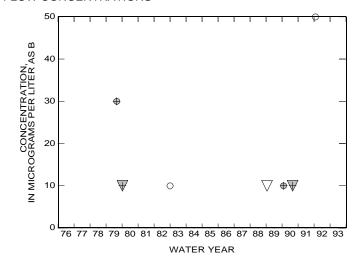
INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT

LOAD



CONCENTRATION									
LOW FLOW			HIGH FLOW						
О U	NCENSORE	O VALUE	⊕						
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$						
△ 'GREATER-THAN' VALUE A A A A A A A B A A A B A B A B A B B									
TREN	DS IN CONC	ENTRATI	ON						
VALUES	NVALUES	NWYS	SLOPE						
LOW FLOW	3	3	ND						
HIGH FLOW	4	3	ND						



Appendix 17 - Total lead

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Blackwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01396280 SB RARITAN RIVER AT MIDDLE VALLEY, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION		100		1 1	
GROWING SEASON NONGROWING SE	ASON	ţ	i		=
O UNCENSORED VALUE +		ţ	1 1		_
VILESS-THAN' VALUE	m	-	ı O ı		_
A LEGG-THAN VALUE W	Ζ'n	Į.			_
☐ 'GREATER-THAN' VALUE 🖽	ZATION, LITER A				
	[₽]	Ť			-
RELATION: $LOG(CONC) = SLOPE*LOG(FLOW) +$	INT E		<u>.</u>		
VALUES NVALUES SLOPE	<u>INT</u> III I	10 —	•		_
ALL VALUES 18 0	DA TAIL TAIL TAIL TAIL TAIL TAIL TAIL TAI	Ē	<u>.</u>	0	. 3
[SEASONAL RELATIONS NOT DETERMINED;	S A S S	+		_	-
INSUFFICIENT DATA FOR ANALYSIS]	50	Į		0]
GROWING SEASON 15 ND	ND ND Z		ı		
NONGROWING SEASON 3 ND	ND ∑		I		
NONGROWING SEASON 3 ND	ND Z	+	○⊕○ ▷		-
	_		1		
STREAMFLOW EXCEEDED		4			
INDICATED PERCENTAGE OF TIME		10	₩ 100		1,000
75 PERCENT 25 PERCENT			STREAMFLOW, IN CUBIC	FEET PER S	ECOND

RELATION OF LOAD TO STREAMFLOW

X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE										
RELATION: LOG(LO)AD		` ,							
VALUES		NVALUES	SLOPE	INT						
 ALL VALUES		18	1.22	-2.21						
 SMOOTHED RELATION	BE	TWEEN LOAD	AND FLO	w						

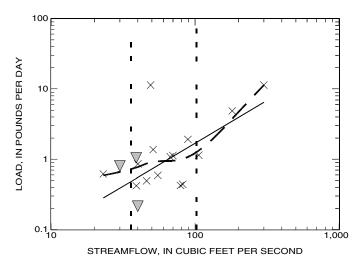
LOAD

SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)

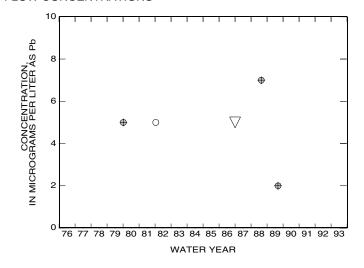
STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

- 75 PERCENT - 25 PERCENT



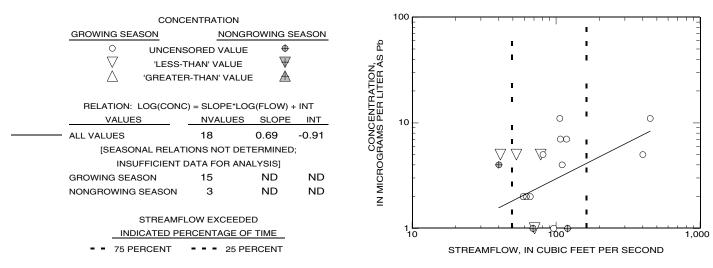
CONCENTRATION									
LOW FLOW			HIGH FLOW						
Ο υ	NCENSORE	D VALUE	⊕						
▽ .	LESS-THAN'	VALUE	$\overline{\Psi}$						
△ 'GF	REATER-THA	N' VALUE	■ 🛦						
TREN	DS IN CONC	ENTRAT	ION						
VALUES	NVALUES	NWYS	SLOPE						
LOW FLOW	2	2	ND						
HIGH FLOW	3	3	ND						



APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01396535 SB RARITAN RIVER AT ARCH ST, AT HIGH BRIDGE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	:	100	1 I	× -
RELATION: $LOG(LOAD) = SLOPE*LOG(F$		10 10	1 1	/×
VALUES NVALUES SL			1 × 1	//
ALL VALUES 18 1	69 -3.18			
— SMOOTHED RELATION BETWEEN LOAD AN	D FLOW	<u> </u>		-
(SHOWN IF THERE ARE 10 OR MORE VALUE	,	1 - CO		
STREAMFLOW EXCEEDED		₫ F	/ <u>`</u> × ^	=
INDICATED PERCENTAGE OF TI		→	∕' ₩	-
-			I	7
= = 75 PERCENT = = = 25 PERC	ENT	Ī	I I	-
		0.1	100	1,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION							 		 		' '		•	'	
LOW FLOW HIGH FLOW				A Q											
∑ 'GF	NCENSOREI 'LESS-THAN' REATER-THA IDS IN CONC	VALUE	_	ATION, LITER AS	20 —									_	
VALUES	NVALUES	NWYS	SLOPE	CONCI RAMS 1				⊕							l
LOW FLOW	2	2	ND	<u>0</u> ₹ 1	10 –			Ψ						_	
HIGH FLOW	2	2	ND	СВОВ	5 —					∇	⊕		0	_	

25

STREAMFLOW, IN CUBIC FEET PER SECOND

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93
WATER YEAR

APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01396588 SPRUCE RUN NEAR GLEN GARDNER, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONCI	ENTRATION		¹⁰⁰ E	 		
GROWING SEASON	NONGROW	ING SEASON	. E	•		
O UNCENS	ORED VALUE	⊕	g -	1		
√ 'LESS-T	HAN' VALUE	\forall		l I		
△ 'GREATER	R-THAN' VALUE	\triangle	ō# -			
			RATION,	l I		
RELATION: LOG(CONC) = SLOPE*LOG(FL	.OW) + INT		ı		
VALUES	NVALUES S	LOPE INT	<u> </u>	ı		
ALL VALUES	18	0 ND	CONCENTI	O ! O		
[SEASONAL RELATI	IONS NOT DETERM	MINED;	86		<u> </u>	,
INSUFFICIENT D	DATA FOR ANALYS	SIS]	90	0 . V W .	V	
GROWING SEASON	17 N	ID ND	CR.	! !		
ONGROWING SEASON	1 N	ID ND	₹	0.0	.	
			Z		!	
STREAMFL	OW EXCEEDED					
INDICATED PE	RCENTAGE OF TIM	1E_	1 1	10	100	
= 75 PERCENT	25 PERCE	ENT		STREAMFLOW, IN CUE	IC FEET PER SECC	ND
				01112/1111/2011, 111/202		

RELATION OF LOAD TO STREAMFLOW

LOAD		10		•	
$ imes$ uncensored value $ ilde{\mathbb{V}}$ 'less-than' value	≻	-	1	i	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOV	اً () + INT و	1	1	. /	/
VALUES NVALUES SLOPE	INT W	'E	1	· //	/
ALL VALUES 18 0.69	-1.64 SOL	-	· ×	X	=
- SMOOTHED RELATION BETWEEN LOAD AND FI	- ш	-	×	X	-
(SHOWN IF THERE ARE 10 OR MORE VALUES)	Ö Z	0.1	×	1	=
STREAMFLOW EXCEEDED	-OAI	E		•	=
INDICATED PERCENTAGE OF TIME		-	V		-
75 PERCENT 25 PERCENT		-	× 1	1	-
		0.01	10	100	1,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRA LOW FLOW O UNCENSORED	HIGH FLOW	10 94	1 1 1 1	· · · · · · · · · · · · · · · · · · ·)	
∨ 'LESS-THAN' △ 'GREATER-THA	VALUE ₩	CONCENTRATION, IN MICROGRAMS PER LITER AS	_			
TRENDS IN CONC VALUES NVALUES LOW FLOW 4	ENTRATION NWYS SLOPE 4 ND	CONCENT SAMS PEI	_	0	+	₩/
HIGH FLOW 6	6 ND	MICROGE	_			+ -
		<u>Z</u>	76 77 78 79 80	81 82 83	84 85 86 87	88 89 90 91 92 93

STREAMFLOW, IN CUBIC FEET PER SECOND

WATER YEAR

APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01396660 MULHOCKAWAY CREEK AT VAN SYCKEL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CON	CENTRATION		
GROWING SEASON		GROWING S	EASON
	NSORED VALU		
, ,	-THAN' VALUE	A	
△ 'GREATI	ER-THAN' VAL	UE A	
RELATION: LOG(CON	IC) = SLOPE*L	OG(FLOW) -	+ INT
VALUES	NVALUES	S SLOPE	INT
ALL VALUES	23	0	ND
[SEASONAL RELA INSUFFICIENT);
GROWING SEASON	22	ND	ND
NONGROWING SEASON	1	ND	ND
STREAM'	FLOW EXCEED	DED	
	ERCENTAGE (
■ ■ 75 PERCENT	25 F	PERCENT	
	_		

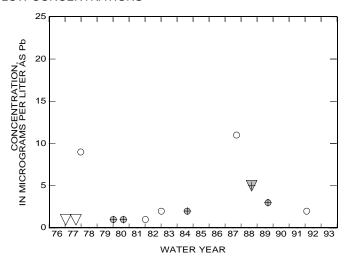
RELATION OF LOAD TO STREAMFLOW

		LOAD			F		
	×	UNCENSORED \	/ALUE		Ė		
	V	'LESS-THAN' V	ALUE		> [
	RELATION: LOG(LO	0AD) = SI OPE*I (OG/ELOW/	+ INIT	- DA		×
	,	•	. ,		J. ER	V	
	VALUES	NVALUES	SLOPE	INT	-	×	
	ALL VALUES	23	1.11	-2.13	SON 01		
					S 0.1	-	
_	SMOOTHED RELATION	BETWEEN LOA	D AND FLC	W	<u> </u>		/
	(SHOWN IF THERE ARE	E 10 OR MORE V	ALUES)		Z -	•	'/
					AD,	12	
	STREA	MFLOW EXCEED	DED		9 1	/ 7	7
	INDICATED	PERCENTAGE (OF TIME		_	×	•
	 75 PERCENT 	25 F	PERCENT			V	

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	⊕
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	\blacksquare
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	7	5	ND
HIGH FLOW	5	4	ND

1010



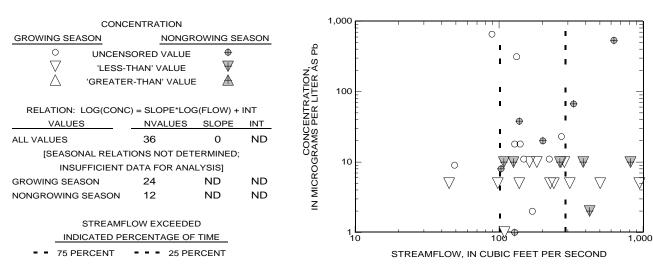
STREAMFLOW, IN CUBIC FEET PER SECOND

100

APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01397000 SB RARITAN RIVER AT STANTON STATION, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

_		LOAD			10,000	1 1 1 1 1			· · · · · · · · · · · · · · · · · · ·
	$\stackrel{\times}{ riangledown}$	UNCENSORED 'LESS-THAN' \		≻	1000		1	i	× -
	UES	OAD) = SLOPE*L NVALUES 36	 + INT INT ND	UNDS PER D	100		× ₁ × 1 ×	1 1× × ×	
		N BETWEEN LOA	W	D, IN PO	10	~			√
		AMFLOW EXCEE D PERCENTAGE IT 25		ГОА	0.1		*	· · · · · · · · · · · · · · · · · · ·	1,000
						STREAMFLOW, I		T PER SECO	•

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

					1,000											_				٠
	CONCENTR	ATION			.,500		1	1 1	- 1	1	1 1	'	1	'	1	1		- 1	1	١
LOW FLOW			HIGH FLOW	Pp																
	INCENSORE		₩	S	800	-													_	ł
^	'LESS-THAN' REATER-THA		, A	RATION LITER A																
Δ 0.	KEATEK-ITIA	IV VALO	- 🛎		600				0											
TREN	DS IN CONC	ENTRAT	ON	CONCENT IN MICROGRAMS PER	000	_		⊕												
VALUES	NVALUES	NWYS	SLOPE	15 E				•												
LOW FLOW	4	3	ND	SAN	400	_													_	ŀ
HIGH FLOW	9	5	ND	OGR																
				SRC																
				Σ	200	_													_	-
				Z																
					0			↑ <u>/27</u>	W / /\	7, ,	<u> </u>			∇			. 7			l
					0	76 7	77 78	79 ^W	30 8	82	83	84 8	5 8	6 ^V 8	7 88	89	90	91 9	92 93	•

WATER YEAR

APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01397400 SB RARITAN RIVER AT THREE BRIDGES, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION			100		
GROWING SEASON		ROWING SE	EASON	E	' I	=
	SORED VALUE			<u>a</u>	ı ı	_
ONOLING	THAN' VALUE			m	l I	-
^	R-THAN' VALUE	*		ZX -		-
△ GREATEI	V-IIIAN VALC			KATION, LITER A	I 0 I	
RELATION: LOG(CONC	;) = SLOPE*L(OG(FLOW) +	INT	ER L	ı	
VALUES	NVALUES	SLOPE	INT	<u>ы</u> й 10 –	O I	_
ALL VALUES	22	0	ND	CONCENTE N MICROGRAMS PER 01		3
[SEASONAL RELAT	IONS NOT DE	TERMINED;		8g -		=
INSUFFICIENT [DATA FOR AN	IALYSIS]		8 [o. ° v '.]
GROWING SEASON	20	ND	ND	К	0 00 00	-
NONGROWING SEASON	2	ND	ND	Ē	0.0	0 -
				Z		
STREAMFL	LOW EXCEED	ED				
INDICATED PE	RCENTAGE C	OF TIME		10	100	1,000
75 PERCENT	25 P	ERCENT			STREAMFLOW, IN CUBIC FEET PER SE	COND
	E	PELATION	IOFIC	AD TO STREAM	ELOW.	

RELATION OF LOAD TO STREAMFLOW

	LOAD			100 E	1 1 1 1		 	
$\overset{\times}{\triangledown}$	UNCENSORED '		>			I I	; ;	= = - -
RELATION: LOG	G(LOAD) = SLOPE*L	OG(FLOW) + INT	PER D	10 –			×	
VALUES	NVALUES	SLOPE IN	· H	· · ·				=
ALL VALUES	22	1.45 -2.	85 SON	Ē			X	=
SMOOTHED RELAT	ION BETWEEN LOA	D AND FLOW	Pol	-		\times	/` I	-
(SHOWN IF THERE	ARE 10 OR MORE V	'ALUES)	Z	1 -		/ ^	× ı	
INDICAT	REAMFLOW EXCEED	OF TIME	LOAD	=			1	-
75 PERCE	ENT 25 F	PERCENT				1	1	1
				0.1		100	- 1	1,000

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	5.0
CONCENTRATION	
LOW FLOW HIGH FLOW	<u>a</u>
○ UNCENSORED VALUE	
√ 'LESS-THAN' VALUE √	
↑ 'GREATER-THAN' VALUE ♠	ON ENGLAND
SKEWER TIME VALUE	<u> </u>
TRENDS IN CONCENTRATION	- 3.0
TRENDS IN CONCENTRATION	드립
VALUES NVALUES NWYS SLOPE	$\overline{\square}_{\mathcal{O}}$
LOW FLOW 1 1 ND	3.0
HIGH FLOW 1 1 ND	OK =10
	OY VO X 1.0
	₹ 1.0 -
	<u>Z</u>
	0.0
	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

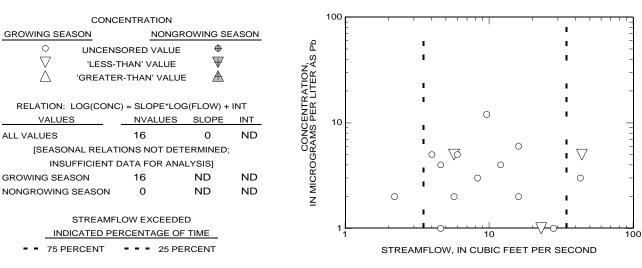
STREAMFLOW, IN CUBIC FEET PER SECOND

WATER YEAR

APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01398000 NESHANIC RIVER AT REAVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



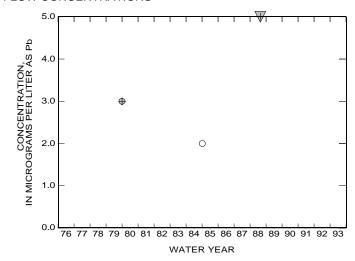
10.

RELATION OF LOAD TO STREAMFLOW

	LOAD			10 E		
×	UNCENSORED V	/ALUE		E	i	
∇	'LESS-THAN' VA	ALUE		}	i	
RELATION: LOG(LO	OAD) = SLOPE*LO	OG(FLOW)	+ INT	, H	_	
VALUES	NVALUES	SLOPE	INT	<u> </u>		V
ALL VALUES	16	0.82	-1.67	SON	•	×
SMOOTHED RELATION			w	100 d N 0.1 -	I I - ××	V /×
	MFLOW EXCEED PERCENTAGE C			LOAD,		×
■ ■ 75 PERCENT	「 25 P	PERCENT			^ , ^	
				0.01		10

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTO	ATION								
CONCENTRATION										
LOW FLOW			HIGH FLOW							
O и	NCENSORE	O VALUE	⊕							
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$							
△ 'GF	REATER-THA	N' VALUE	≜							
TREN	DS IN CONC	ENTRATI	ON							
VALUES	NVALUES	NWYS	SLOPE							
LOW FLOW	1	1	ND							
HIGH FLOW	2	2	ND							



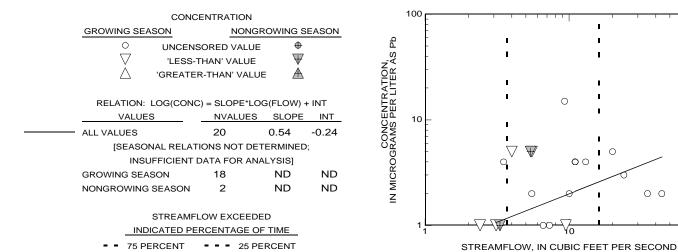
STREAMFLOW, IN CUBIC FEET PER SECOND

100

APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time 01398260 NB RARITAN RIVER NEAR CHESTER, N.J.

[NVALUES, number of values: LOG, base-10 logarithm; CONC, concentration in indicated units: INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

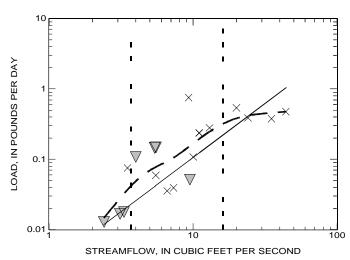
RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD X UNCENSORED VALUE VLESS-THAN' VALUE							
	ON: LOG(LO	DAD) = SLOPE*LC NVALUES	G(FLOW)	+ INT INT				
 ALL VALUE	S	20	1.54	-2.51				
 		I BETWEEN LOAD E 10 OR MORE V		W				

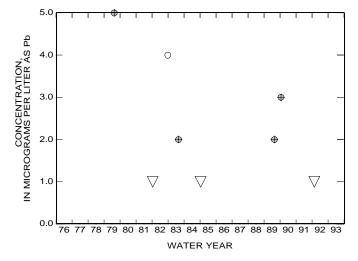
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT - - 25 PERCENT



0 0

100

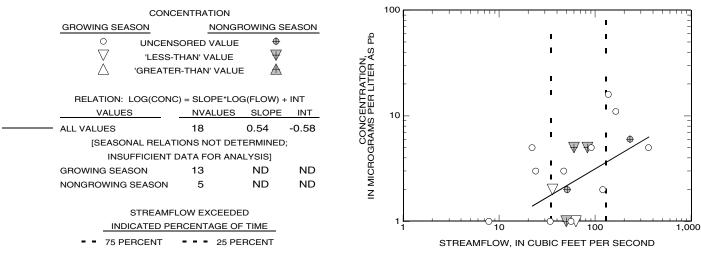
	CONCENTR	ATION								
CONCENTION										
LOW FLOW		HIGH FLOW								
О U	D VALUE	⊕								
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$							
△ 'GF	REATER-THA	N' VALUE	■ ▲							
TREN	DS IN CONC	ENTRAT	ION							
VALUES	NVALUES	NWYS	SLOPE							
LOW FLOW	4	3	ND							
HIGH FLOW	4	4	ND							



APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01399120 NB RARITAN RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	100
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	DER DE LA COLLEGIO DE
ALL VALUES 18 1.54 -2.86	SGNNO 1
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT - 25 PERCENT	QV 0.1
	0.01 10 100 1,000 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION				' '	' '	1	1	'		- 1	1	1	1 1	'	ı	1
LOW FLOW	HIGH FLOW	Pb														
O UNCENSORED VALUE		Ω̈́	20	_												_
√ 'LESS-THAN' VALUE	$\overline{\Psi}$	TON, ER ÅS														
△ 'GREATER-THAN' VALUE	Ξ Α	뛷						_								
		준그	15	_				0	•							_
TRENDS IN CONCENTRAT	ION	ΞË														
VALUES NVALUES NWYS	SLOPE	CONCENTRAT IN MICROGRAMS PER LITI				Φ.										
LOW FLOW 4 3	ND	ρŞ	10	_		⊕										_
HIGH FLOW 4 4	ND	ρΩ														
		Ä								⊕						
		Ĭ S	5	_				0		Ψ			\oplus			4
		Z)								
						0	_									
			0	76 77 7	9 70	<u> </u>	1 02	92 94	95	96 9	7 0	2 00	00.0	1 0	2 0	_
				10 11 1	0 /9	00 0	1 02	03 04	65	00 0	7 0	09	90 8	11 9	2 9,	3

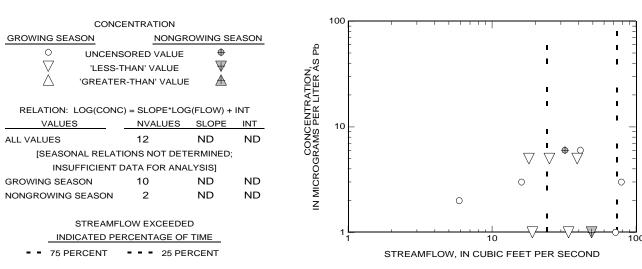
WATER YEAR

25 -

APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01399500 LAMINGTON (BLACK) RIVER NEAR POTTERSVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD		10 E		9
>	UNCENSORED VALUE	≻	-	1 1	
RELATION: VALUE	LOG(LOAD) = SLOPE*LOG(FLOW) S NVALUES SLOPE	INT H	1 -	ı ×♥ ×	
ALL VALUES	12 ND	ND SOUNDS	F		-
	ELATION BETWEEN LOAD AND FLOE ERE ARE 10 OR MORE VALUES)	ow S	0.1		
IND	STREAMFLOW EXCEEDED DICATED PERCENTAGE OF TIME	ГОА	- - -	× ' '	
= = 75 P	ERCENT 25 PERCENT		0.01		
			1	10 STREAMFLOW, IN CUBIC FEET PER SECOND	100

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		5.0		- 1		I	1	1		ı	1	Τ,	1/ 1	- 1	ı	
LOW FLOW HIGH FLOW ○ UNCENSORED VALUE ⊕ ✓ 'LESS-THAN' VALUE ₩ △ 'GREATER-THAN' VALUE ★	TION, TER AS Pb	4.0	_													_
TRENDS IN CONCENTRATION	ENTRA PER LI	3.0	-						⊕						0	_
VALUES NVALUES NWYS SLOPE LOW FLOW 4 4 ND HIGH FLOW 1 1 ND	CONCENTRA OGRAMS PER LI	2.0	_			0										_
	IN MICRO	1.0	_					7	7							_
		0.0	76 77	78 7	9 80	81	82	83	84 8	85 86	6 87	7 88	89	90 9	1 9:	2 93

 \Box

WATER YEAR

APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01399700 ROCKAWAY CREEK AT WHITEHOUSE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

				400
CONC	ENTRATION			100
GROWING SEASON	NONG	ROWING S	EASON	
O UNCENS	SORED VALUE	= +		· 8
	THAN' VALUE			RATION SATION S
, A				Ζ΄,
△ GREATE	R-THAN' VALU			FE L
				≨ ≒ †
RELATION: LOG(CONG	C) = SLOPE*LC	OG(FLOW)	+ INT	F
VALUES	NVALUES	SLOPE	INT	
ALL VALUES	21	0	ND	MICROGRAMS PERIL
[SEASONAL RELAT	TIONS NOT DE	TERMINED);	
INSUFFICIENT	DATA FOR AN	ALYSIS]		
GROWING SEASON	20	ND	ND	
NONGROWING SEASON	1	ND	ND	Σ
	-			<u>z</u>
				I I
	LOW EXCEED			
INDICATED PE	RCENTAGE C	F TIME		10 10 1000
 75 PERCENT 	25 P	ERCENT		STREAMFLOW, IN CUBIC FEET PER SECOND

RELATION OF LOAD TO STREAMFLOW

LOAD	10 _[
X UNCENSORED VALUE▼ 'LESS-THAN' VALUE	
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT	B H A T E X X X X X X X X X X X X X X X X X X
ALL VALUES 21 1.17 -2.09	So × × ×
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	Z 0.1 × 1
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	
	0.01

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR				2	5	1 1	-	1	1	· ·	ı	1 1	ı	1	1	1	1	
\bigvee_{Λ}	NCENSOREI LESS-THAN' REATER-THA	VALUE VALUE	HIGH FLOV	_	IN MICROGRAMS PER LITER AS Pb	0 –													_
TREN VALUES	IDS IN CONC	ENTRATI NWYS	ON SLOPE	M F Z	IS PER L	5 –													_
LOW FLOW HIGH FLOW	4 7	3 6	ND ND	Č	ROGRAN	0 –			4)			0						_
					IN MICE	5 —			⊕	⊕ (• •		Э	∇		_			_
					(0 76	77	₩ 78 7	9 80	81	82 83	84	85	86 8	7 88	3 89	90 9	1 92	2 93

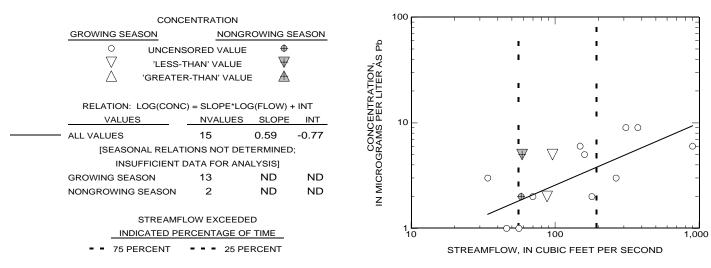
STREAMFLOW, IN CUBIC FEET PER SECOND

WATER YEAR

APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01399780 LAMINGTON RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE ▼ 'LESS-THAN' VALUE	100
RELATION: LOG(LOAD) = SLOPE*LOG(FLOW) + INT	OUNDS PER D
 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) 	No No No No No No No No No No No No No N
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	0.1
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION	
LOW FLOW HIGH FLOW	\oplus \oplus
() LINCENCODED VALUE #	8 – –
TRENDS IN CONCENTRATION	6 - + -
VALUES NVALUES NWYS SLOPE Og	
LOW FLOW 2 2 ND 04	4
O O O	• •
\overline{\overl	0

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01400500 RARITAN RIVER AT MANVILLE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

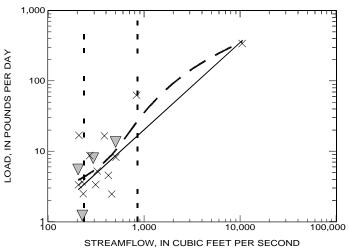
RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION				100		1111		
GROWING SEASON		OWING SE	ASON		‡		1	'	
	SORED VALUE	+		Pb	ţ	1	ı		
ONOLING	THAN' VALUE	₩		S	-	ı	ı		
, A	R-THAN' VALUE			N.Y	-				
△ GREATE	R-IHAN VALUE			TER A		1	ı		
RELATION: LOG(CONC	C) = SLOPE*LOG	(FLOW) +	INT	ENTRA PER LI		0	•		
VALUES	NVALUES	SLOPE	INT	μg	10 —	-	•		
ALL VALUES	17	0	ND	CONCI	E	0	-		
[SEASONAL RELAT	IONS NOT DETE	ERMINED;		ΩÃ	+	~ P ~		0	
INSUFFICIENT I	DATA FOR ANAL	YSIS]		9	Į	V V V			
GROWING SEASON	16	ND	ND	N MICRO	-	® 0 0			
NONGROWING SEASON	1	ND	ND	Σ		0.00			
				Z	Ī	000	I		
STREAMFI	LOW EXCEEDED)				I	1		
	RCENTAGE OF				100		1,000	10,000	10
					.00	OTDEAN	•	•	
- 75 PERCENT	25 PEF	CENT				STREAM	FLOW, IN	CUBIC FEET PER	SECOND

RELATION OF LOAD TO STREAMFLOW

						1.000	
		LOAD				1,000	
	×	UNCENSORED V	ALUE			F	
	∇	'LESS-THAN' VA	LUE			F	
					(a)	-	-
	RELATION: LOG(LO	DAD) = SLOPE*LC	G(FLOW)	+ INT	Ä.	100	
	VALUES	NVALUES	SLOPE	INT	PE	100 =	-
	ALL VALUES	17	1.24	-2.41	SONO	E	=
					Ž	-	ı
-	SMOOTHED RELATION	I BETWEEN LOAD	AND FLO	W	P	T T	×ı
	(SHOWN IF THERE AR	E 10 OR MORE VA	ALUES)		Z	10	_
					AD,	-	\rightarrow
	STREA	MFLOW EXCEED	ED		ò	E	
	INDICATED	PERCENTAGE C	F TIME		_	-	- XX >

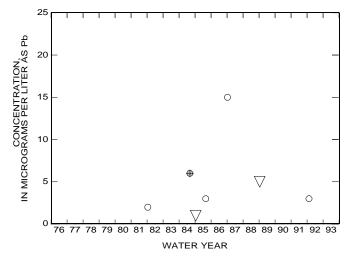
25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION								
LOW FLOW			HIGH FLOW					
Ο υ	NCENSORE	D VALUE	⊕					
\triangle ,	abla 'LESS-THAN' VALUE $ abla$							
△ 'GF	REATER-THA	N' VALUE	\blacksquare					
TREN	DS IN CONC	ENTRATI	ON					
VALUES	NVALUES	NWYS	SLOPE					
LOW FLOW	6	5	ND					
HIGH FLOW	1	1	ND					

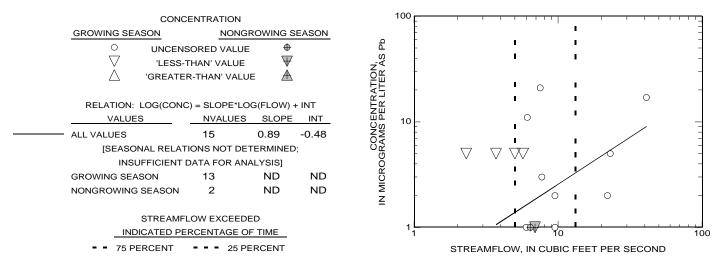
75 PERCENT



APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01400540 MILLSTONE RIVER NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

LOAD X UNCENSORED VALUE VLESS-THAN' VALUE	10
	<u>nt</u>
 ALL VALUES 15 1.89 SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES) 	2.75 Ø
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT - 25 PERCENT	QV 0.01
	0.001 100 100 STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTR	ATION			' '	 		 		'
LOW FLOW			HIGH FLOW	<u>'</u> &						
, ,	INCENSOREI 'LESS-THAN' REATER-THA	VALUE	⊕ ₩ Æ	ATION, ITER AS	0 –		•			_
TDEA	IDC IN CONC	·FNTDAT	ION	CONCENTR RAMS PER L	5 –					-
	IDS IN CONC			Ä						
VALUES	NVALUES	NWYS	SLOPE	258						
LOW FLOW	3	2	ND	Ö	0 –					_
HIGH FLOW	3	3	ND	Ō						
				S S						
				2	5 –	+	₽	\bigvee		=
				Z					⊕	

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

WATER YEAR

25

APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01400650 MILLSTONE RIVER AT GROVERS MILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION			10	00
			FACON		
GROWING SEASON	NONG	ROWING S	EASON	Pp	
O UNCEN	SORED VALUE				. 0
LESS-	THAN' VALUE	\forall		γ A	• •
△ 'GREATE	R-THAN' VALU	E A		TER A	
				₽Ë	l l
RELATION: LOG(CON	C) = SI OPE*I C	G(FLOW) -	⊾ INT	R _T R	ı ^O ı
VALUES	NVALUES			ÄÜ.	0 _ 1 0
				CONCENTE RAMS PER	10 - 0
ALL VALUES	18	0	ND	δδ	f i
[SEASONAL RELAT	TIONS NOT DE	TERMINED);	ပမ္တ	
INSUFFICIENT	DATA FOR AN	ALYSIS]		ŏ	. 0 .0
GROWING SEASON	17	ND	ND	IN MICROGI	0 00
NONGROWING SEASON	1	ND	ND	₹	'
				Z	U •
STREAME	LOW EXCEED	ED			1 1
					1
INDICATED PE	RCENTAGE O	F HIME			1 10 ^Ψ 100 1,
 75 PERCENT 	25 PI	ERCENT			STREAMFLOW, IN CUBIC FEET PER SECOND

RELATION OF LOAD TO STREAMFLOW

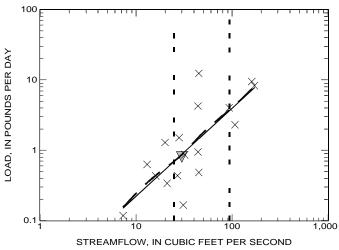
<u></u>	LOAD				E	
×	UNCENSORED \	/ALUE			F	
∇	Viless-than' value					
DELATION: LOCAL	24D) 010DE#1	00/FI 0M/	· INIT	DA	f	
RELATION: LOG(LO	JAD) = SLOPE"LC	JG(FLOW)	+ IIN I	<u>Ж</u>	10	
VALUES	NVALUES	SLOPE	INT	<u> </u>		
 ALL VALUES	18	1.25	-1.9	NDS		
 SMOOTHED RELATION	w	POL				
(SHOWN IF THERE AR		Z	1			
STREA	MFLOW EXCEED	ED		OAD		

STREAMFLOW EXCEEDED

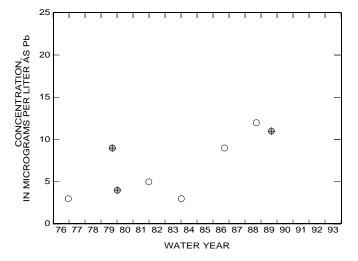
INDICATED PERCENTAGE OF TIME

75 PERCENT - - 25 PERCENT

1010



	CONCENTR	ATION					
LOW FLOW		HIGH FLOW					
Ο υ	NCENSORE	D VALUE	⊕				
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$				
△ 'GF	REATER-THA	N' VALUE	\blacksquare				
TREN	DS IN CONC	ENTRAT	ION				
VALUES	NVALUES	NWYS	SLOPE				
LOW FLOW	5	5	ND				
HIGH FLOW	3	3	ND				



APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01401000 STONY BROOK AT PRINCETON, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION				100 F	_	1 1		1	1 1	1 1 1 1 1	1
GROWING SEASON	NON	ROWING S	EASON		F							1
O UNCENS	SORED VALU	E #		Ъ	F			ı				1
√ 'LESS-	THAN' VALUE	$\overline{\Psi}$		A S	t						-	1
	R-THAN' VAL	JE 🛦		진띪	İ						-	1
				ξĒ	ł			ı			١.	-
RELATION: LOG(CONC	C) = SLOPE*L	OG(FLOW) +	INT	H.H.				ı			ı	
VALUES	NVALUES	SLOPE	INT	PEN.	10	_		_			· -	
ALL VALUES	16	0	ND	CONCENT IN MICROGRAMS PER	İ						_	
[SEASONAL RELAT	IONS NOT DE	TERMINED	;	Sec	t	0		° \(\frac{1}{\sqrt{0}} \)	∇			
INSUFFICIENT I	DATA FOR AN	NALYSIS]		0		0	0	V 0	V	0		1
GROWING SEASON	16	ND	ND	CR	H				0 0	0		-
NONGROWING SEASON	0	ND	ND	Ξ				•				l
				Z								
STREAMF	LOW EXCEED	DED									. 🗁	l
INDICATED PE	RCENTAGE (OF TIME			1 1			10	, \)	1	Ĵ٥
■ ■ 75 PERCENT	25 F	PERCENT				S	TREAM	IFLOW, IN CUBI	C FEET PE	R SECO	ND	

RELATION OF LOAD TO STREAMFLOW

LOAD × UNCENSORED VALUE VLESS-THAN' VALUE	
	$\frac{\text{INT}}{-1.62}$ $\frac{\text{II}}{\omega}$ \times V^{\times}
SMOOTHED RELATION BETWEEN LOAD AND FLOW (SHOWN IF THERE ARE 10 OR MORE VALUES)	
STREAMFLOW EXCEEDED INDICATED PERCENTAGE OF TIME 75 PERCENT 25 PERCENT	0.01
	STREAMFLOW, IN CUBIC FEET PER SECOND

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

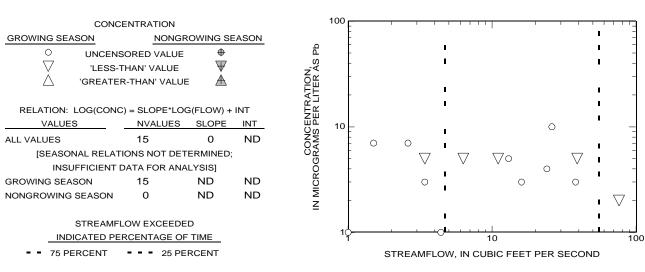
CONCENTRATION		1
LOW FLOW HIGH FLOW		
○ UNCENSORED VALUE ⊕ Ø	8	
V 'LESS-THAN' VALUE ₩ Zor		
△ 'GREATER-THAN' VALUE 🛦 🧲		
TRA LIRA	6-	4
TRENDS IN CONCENTRATION	- \	
VALUES NVALUES NWYS SLOPE Og	O V	
VALUES NVALUES NWYS SLOPE SION LOW FLOW 6 6 ND OVE HIGH FLOW 1 1 ND OVE	4 - 0 0	4
SR C		
MICRO	2	-
<u>z</u>	₩ 0	
	0	
	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 9	13

WATER YEAR

APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01401600 BEDEN BROOK NEAR ROCKY HILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD				10	1 1	 	1 1 1	
$\stackrel{ imes}{ riangledown}$	UNCENSORED 'LESS-THAN' V			≻			1 1	X	
RELATION: LOG(L VALUES	OAD) = SLOPE*L NVALUES	OG(FLOW) SLOPE	+ INT INT	PER D	1		,		₹
ALL VALUES	15	1.02	-1.83	SON	0.1	_	7	X	
SMOOTHED RELATIO (SHOWN IF THERE AF)W	AD, IN POU		× -×	``````````````````````````````````````		
	AMFLOW EXCEE			ρ	0.01		1		
= - 75 PERCEN	D PERCENTAGE T = = 25	PERCENT			Ŧ		ı		
					0.001		10		100
						STREAMF	LOW, IN CUBIC F	EET PER SECON	iD

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		10		1	ı	- 1	- 1	1				ı	1	1	ı	1	1	1	ı	1	
LOW FLOW HIGH FLOW	Ъ																				
○ UNCENSORED VALUE	S	8	L																		
√ 'LESS-THAN' VALUE ₩	žά	Ŭ																			
△ 'GREATER-THAN' VALUE A A A A A B C C C C C C C C C C C C	읟		()					()											
	Ϋ́	6																			
TRENDS IN CONCENTRATION	뒫띲	U																			
VALUES NVALUES NWYS SLOPE	SP												1	∇							
LOW FLOW 6 6 ND	CONCENTRATION, IN MICROGRAMS PER LITER A	4	L																		_
HIGH FLOW 1 1 ND	GRO																				
	8																		0		
	₽	2				$\overline{\Psi}$															
	2 Z					v															
	_										()	C)							
		0																			┙
		·	76	77 7	78	79	80	81	82	83	84	85	86	87	7 88	89	9	0 9	1 9	2 9	3

WATER YEAR

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APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, N.J.

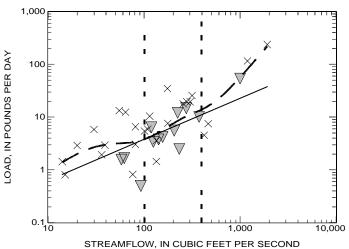
[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

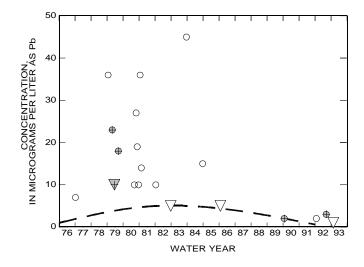
CONCENTRA*	TION		10	00 F	1 1 1 1 1 1 1	1		η τ	
GROWING SEASON	NONGROWING SE	EASON		Ŧ			I		
O UNCENSORED	VALUE #		Ъ	Ī	0	I	ı		
√ 'LESS-THAN' V	∕ALUE ₩		₹A	+	0 0	•	I		-
△ 'GREATER-THAN	ľ VALUE 🖽		ᅙᆢ	0				_	-
			RATION, LITER AS	- 0		1	I	0	
RELATION: LOG(CONC) = SLO	PE*LOG(FLOW) +	INT	H.H.		Φ () ^{IO}	~o '	0	
VALUESNVA	ALUES SLOPE	INT	CONCENTE RAMS PER	10 - 0	0	₩ ₩		$\overline{\Psi}$	_
ALL VALUES 39	0	ND	MS MS	Ē	-	, " o "	v _	v	- -
[SEASONAL RELATIONS N	OT DETERMINED;		S ⁸ C	ŀ	\(\tau\)	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	∇		-
INSUFFICIENT DATA FO	OR ANALYSIS]		00	Į	W	. W	V		
GROWING SEASON 28	ND	ND	CR	-			•		
NONGROWING SEASON 11	ND	ND	N MICRO				, o		
			Z			. • •			
STREAMFLOW EX	CEEDED					■		1	
INDICATED PERCENTA	AGE OF TIME			10		160	1	,000	10,0
75 PERCENT	25 PERCENT				STREAMFL	OW, IN CL	JBIC FEET	PER SEG	COND

RELATION OF LOAD TO STREAMFLOW

					1,000	
	LOAD				1,000	- 1
×	UNCENSORED V	ALUE			F	
∇	'LESS-THAN' VA	ALUE			-	
				DAY	100	
RELATION: LOG(LO	DAD) = SLOPE*LC	OG(FLOW)	+ INT		Ē	
VALUES	NVALUES	SLOPE	INT	PER	-	
ALL VALUES	39	0.78	-0.98	DS	-	
				POUNDS	10	
 SMOOTHED RELATION	BETWEEN LOAD	O AND FLO	W	Ь	E	>
(SHOWN IF THERE AR	E 10 OR MORE V	ALUES)		Z	E	×
				OAD,	×	
STREA	MFLOW EXCEED	ED		ò	1 3	
INDICATED	PERCENTAGE C	OF TIME		_	F	
 75 PERCENT 	25 P	ERCENT				



	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	+
∇ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	DS IN CONC	ENTRATI	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	15	10	ND
HIGH FLOW	5	3	ND



APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01403300 RARITAN RIVER AT QUEENS BRIDGE, AT BOUND BROOK, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

				400					
CONCE	NTRATION			100 E		1			1 1 1 1 1
GROWING SEASON	NONGROV	VING SEASON	_	Ł				ı	
O UNCENSO	ORED VALUE	⊕	8	-			1	ı	
√ 'LESS-TF	HAN' VALUE	$\overline{\Psi}$	AS	t			Ī	I	
GREATER-	-THAN' VALUE	À	진유	-					
			RATION, LITER AS	-			1	I	
RELATION: LOG(CONC)	= SLOPE*LOG(F	LOW) + INT	TATA L				1		
VALUES	NVALUES S	SLOPE INT	<u> </u>	10	-		_		
ALL VALUES	4	ND ND	CONCENTI IN MICROGRAMS PER	Ē				-	
[SEASONAL RELATION	ONS NOT DETER	MINED;	ပိန္ထိ	t	0		•		
INSUFFICIENT DA	ATA FOR ANALY	SIS]	Ö	-	0	⊕	-		
GROWING SEASON	2	ND ND	CR	-				•	
NONGROWING SEASON	2	ND ND	₹				1	_	
			Z	ſ				ı	
STREAMFLO	OW EXCEEDED							I .	
INDICATED PER	CENTAGE OF TII	ME		16	Ď.		1,00	0	
= 75 PERCENT	25 PERC					STDEA	MFLOW, IN CUBI		
73 I ENGENT	23 FERO	LIVI				SIKE	IN CUBIC	, FEET PE	K SECOND

RELATION OF LOAD TO STREAMFLOW

_		LOAD			1	100 E	1 1		-	
	$\overset{\times}{\triangledown}$	UNCENSORED V 'LESS-THAN' VA			≿	- - -	İ		! !	
	N: LOG	G(LOAD) = SLOPE*LC NVALUES	OG(FLOW) - SLOPE	INT	PER DA	-	Ī		ı	
ALL VALUES		4	ND	ND	NDS F	10 —	•	*	1	
		ION BETWEEN LOAD ARE 10 OR MORE V		W	, IN POL	- - -			1 1	
ı		EAMFLOW EXCEED			LOAD	×	! !			
= = 75	PERCE	ENT = = = 25 P	ERCENT			100		1,000	! 	10

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION		5.0	
LOW FLOW	f FLOW		
○ UNCENSORED VALUE □ 'LESS-THAN' VALUE □ 'GREATER-THAN' VALUE	₩ ∰ ∰ ⊕ ENTRATION, PER LITER AS F	4.0	0 –
TRENDS IN CONCENTRATION	NTR/	3.0	0
	DPE Ωσ		
LOW FLOW 2 1	ON DO BAG BAG BAG BAG BAG BAG BAG BAG BAG BAG	2.0	0 -
HIGH FLOW 0 0	ND OG		
	MICRO		
	Ξ	1.0	0
	Z		
		0.0	76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

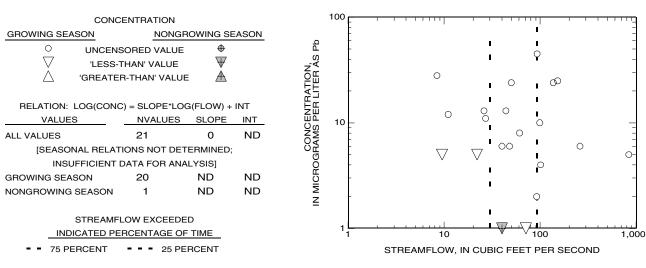
STREAMFLOW, IN CUBIC FEET PER SECOND

WATER YEAR

APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01405302 MATCHAPONIX BROOK AT MUNDY AVE, AT SPOTSWOOD, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW



RELATION OF LOAD TO STREAMFLOW

	LOAD				100 E	 111
	CENSORED V			_	-	
ELATION: LOG(LOAE	•	OG(FLOW) - SLOPE		ER DA	10	
VALUES	NVALUES 21	1.01	-1.43	NDS F	E	
OTHED RELATION BE			W	IN POU	_	×
STREAMF INDICATED PE	LOW EXCEED			LOAD,	' [-	×/\(\frac{1}{\pi}\)
- 75 PERCENT	25 F	ERCENT			-	∨ .

TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

	CONCENTE	RATION			00		1 1	1 1	1 1		1 1	1 1	'	1	'
LOW FLOW			HIGH FLOW	Pb											
O U	NCENSORE	D VALUE	⊕		40										
∇	LESS-THAN	VALUE	$\overline{\Psi}$	Z,K											
△ 'GI	REATER-THA	N' VALUE	A												
					30										
TREN	IDS IN CONC	ENTRAT	ON	ËΉ							0				
VALUES	NVALUES	NWYS	SLOPE	SE			⊕		⊕						
LOW FLOW	6	6	ND	AS AN	20	_									_
HIGH FLOW	6	5	ND	O.E.											
				2					0	_					
				CONCENTRATION, IN MICROGRAMS PER LITER AS	10	_0	•	₽)				_
				Z							7⊕	V 7	Φ.		
							⊕				- 1	W	⊕		
					0	70 77 -	70 70 00	2 01	00 00 0	4 05 00	07.0	0.00	00 0	1 00	
						76 // /	78 79 80) 81	82 83 8	4 85 86	87 8	8 89	90 9	1 92	93

50 -

1,000

STREAMFLOW, IN CUBIC FEET PER SECOND

WATER YEAR

APPENDIX 17. Relations of constituent concentration and load to streamflow and trends in concentration with time TOTAL LEAD 01405340 MANALAPAN BROOK AT FEDERAL RD, NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

CONC	ENTRATION		
GROWING SEASON		ROWING S	FASON
O UNCEN	SORED VALUE	*	<u> </u>
∠ GREATE	R-THAN' VALU	E Æ	
RELATION: LOG(CON	C) = SLOPE*LO	G(FLOW) +	+ INT
VALUES	NVALUES	SLOPE	INT
ALL VALUES	13	ND	ND
[SEASONAL RELAT	TIONS NOT DE	TERMINED	ν;
INSUFFICIENT	DATA FOR AN	ALYSIS]	
GROWING SEASON	10	ND	ND
NONGROWING SEASON	3	ND	ND
	LOW EXCEEDI		
- 75 PERCENT	25 PE	RCENT	

RELATION OF LOAD TO STREAMFLOW

	LOAD		10 E		 	
$\overset{\times}{\triangledown}$	UNCENSORED VAL		∀ ∀	! !		
RELATION: LO	OG(LOAD) = SLOPE*LOG(NVALUES S	FLOW) + INT	DER D	!		×
ALL VALUES	13	ND ND	SOND	7		
SMOOTHED RELA	ATION BETWEEN LOAD A	ND FLOW	<u> </u>	× '	ı	-
(SHOWN IF THER	E ARE 10 OR MORE VALU	JES)	Z 0.1		ı	_
	TREAMFLOW EXCEEDED		LOAD	$\nabla_{\mathbf{i}}^{\mathbf{i}}$	1	
75 PER	CENT 25 PER	CENT	-	Ī	Ī	-
			0.01	10	100	1,000

STREAMFLOW, IN CUBIC FEET PER SECOND

WATER YEAR

	CONCENTO	ATION				10		ı		1	- 1	1	1	1 1	- 1		- 1	1	1 1		٦
	CONCENTR	ATION																			
LOW FLOW			HIGH FLOW		Ъ							0									
Ο υ	NCENSORE	VALUE	⊕			8														_	
∇ ,	'LESS-THAN'	VALUE	$\overline{\Psi}$:	, AS	0														_	1
Ň	REATER-THA		A	i																	
					₹ <u>~</u>	6	_		⊕											-	4
TREN	IDS IN CONC	ENTRAT	ION		ZΨ																
VALUES	NVALUES	NWYS	SLOPE		<u> </u>												\vee				
LOW FLOW	3	3	ND		CONCENI GRAMS PER	4	_													_	4
HIGH FLOW	4	3	ND	,	GR																
					S				\oplus												
					MICRO	2	-											0		-	1
					Z												•	$\overline{\Psi}$	∇	7	
						0															╛
						5 -	76 77	78	79 8	8 08	1 82	2 83	84	85	86 8	8 78	8 89	90	91 9	92 93	3

Appendix 18 - Fecal coliform bacteria

Station number	Station name
01396280	SB Raritan River at Middle Valley, N.J.
01396535	SB Raritan River at Arch St, at High Bridge, N.J.
01396588	Spruce Run near Glen Gardner, N.J.
01396660	Mulhockaway Creek at Van Syckel, N.J.
01397000	SB Raritan River at Stanton Station, N.J.
01397400	SB Raritan River at Three Bridges, N.J.
01398000	Neshanic River at Reaville, N.J.
01398260	NB Raritan River near Chester, N.J.
01399120	NB Raritan River at Burnt Mills, N.J.
01399500	Lamington (Black) River near Pottersville, N.J.
01399700	Rockaway Creek at Whitehouse, N.J.
01399780	Lamington River at Burnt Mills, N.J.
01400500	Raritan River at Manville, N.J.
01400540	Millstone River near Manalapan, N.J.
01400650	Millstone River at Grovers Mill, N.J.
01401000	Stony Brook at Princeton, N.J.
01401600	Beden Brook near Rocky Hill, N.J.
01402000	Millstone River at Bleckwells Mills, N.J.
01403300	Raritan River at Queens Bridge, at Bound Brook, N.J.
01405302	Matchaponix Brook at Mundy Ave, at Spotswood, N.J.
01405340	Manalapan Brook at Federal Rd, near Manalapan, N.J.

APPENDIX 18. Relations of constituent concentration and load to streamflow and trends in concentration with time FECAL COLIFORM BACTERIA 01396280 SB RARITAN RIVER AT MIDDLE VALLEY, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

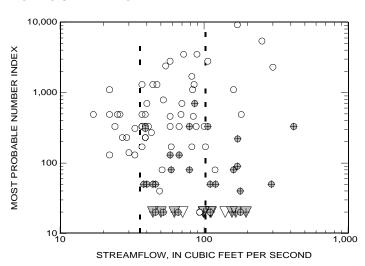
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION			
GROWING SEASON	NONGR	OWING SE	ASON
O UNCENSO	DRED VALUE	⊕	
√ 'LESS-TH	IAN' VALUE	Ψ	
△ 'GREATER-	THAN' VALUE	· A	
RELATION: LOG(CONC)	= SLOPE*LOG	G(FLOW) +	INT
VALUES	NVALUES	SLOPE	INT
ALL VALUES	94	0	ND
[SEASONAL RELA	TIONS DETER	MINED;	
THEY ARE DIFFEREN	T FROM ONE	ANOTHER:	l
GROWING SEASON	59	0	ND
NONGROWING SEASON	35	0	ND
STREAMFLOW EXCEEDED			

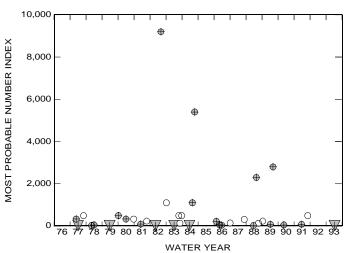
INDICATED PERCENTAGE OF TIME

- - 25 PERCENT

75 PERCENT



CONCENTRATION			
LOW FLOW			HIGH FLOW
O U	NCENSOREI	D VALUE	⊕
\triangle ,	LESS-THAN	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	12	8	ND
HIGH FLOW	24	14	0



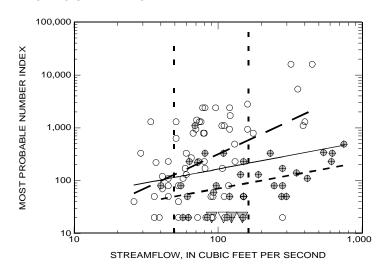
RELATION OF CONCENTRATION TO STREAMFLOW

CON	CONCENTRATION			
GROWING SEASON	GROWING SEASON NONGROWING SEASON			
O UNCEN	ISORED VALUE	+		
√ 'LESS	-THAN' VALUE	$\overline{\Psi}$		
△ 'GREATE	ER-THAN' VALU	E <u></u>		
RELATION: LOG(CON	C) = SLOPE*LO	G(FLOW) +	· INT	
VALUES	NVALUES	SLOPE	INT	
ALL VALUES	100	0.52	1.18	
[SEASONAL RE	LATIONS DETE	RMINED;		
THEY ARE DIFFER	ENT FROM ONE	ANOTHER	R]	
GROWING SEASON	64	1.27	-0.04	
─ ─ ─ NONGROWING SEASON	36	0.5	0.85	
STREAM	FLOW EXCEEDE	ĒD		

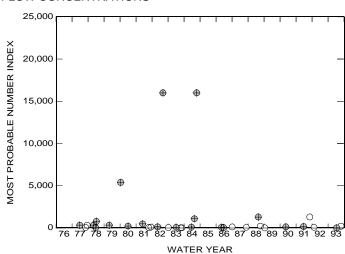
75 PERCENT

INDICATED PERCENTAGE OF TIME

- - 25 PERCENT



CONCENTRATION			
LOW FLOW			HIGH FLOW
O U	NCENSOREI	D VALUE	
∇ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	14	9	ND
HIGH FLOW	20	13	0



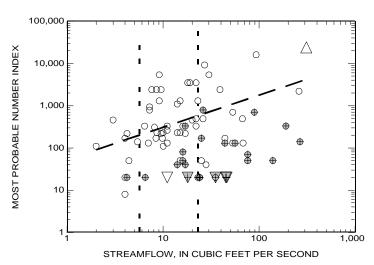
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION				
	GROWING SEASON	NONGR	OWING SE	EASON
	O UNCENSO	RED VALUE	⊕	
	√ 'LESS-TH	IAN' VALUE	$\overline{\Psi}$	
	△ 'GREATER-	THAN' VALUE	<u> </u>	
	RELATION: LOG(CONC)	= SLOPE*LOC	G(FLOW) +	INT
	VALUES	NVALUES	SLOPE	INT
	ALL VALUES	81	0	ND
	[SEASONAL RELAT	TIONS DETER	MINED;	
	THEY ARE DIFFEREN	T FROM ONE	ANOTHER	?]
-	GROWING SEASON	56	0.76	1.73
	NONGROWING SEASON	25	0	ND
	STREAMFLO	W EXCEEDE	D	

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

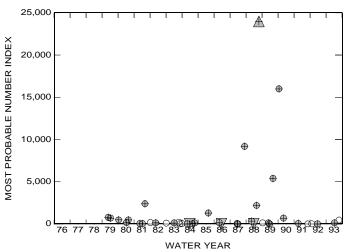
75 PERCENT - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION			
LOW FLOW			HIGH FLOW
О U	NCENSORE	D VALUE	+
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ A
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	9	6	ND
HIGH FLOW	32	15	ND

CONCENTRATION



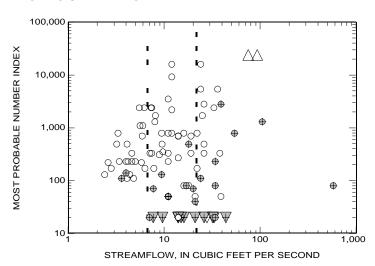
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION			
GROWING SEASON	NONGR	OWING SE	ASON
O UNCENSO	ORED VALUE		
√ 'LESS-TF	HAN' VALUE	\forall	
△ 'GREATER	-THAN' VALUE	\blacksquare	
RELATION: LOG(CONC)	= SLOPE*LOG	G(FLOW) +	INT
VALUES	NVALUES	SLOPE	INT
ALL VALUES	100	0	ND
[SEASONAL RELA	TIONS DETER	MINED;	
THEY ARE DIFFEREN	T FROM ONE	ANOTHER]	
GROWING SEASON	69	0	ND
NONGROWING SEASON	31	0	ND
STREAMFLOW EXCEEDED			

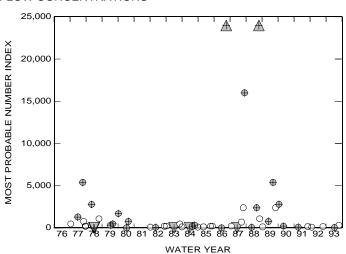
INDICATED PERCENTAGE OF TIME

- - 25 PERCENT

75 PERCENT



	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	24	12	ND
HIGH FLOW	28	14	0



APPENDIX 18. Relations of constituent concentration and load to streamflow and trends in concentration with time FECAL COLIFORM BACTERIA 01397000 SB RARITAN RIVER AT STANTON STATION, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

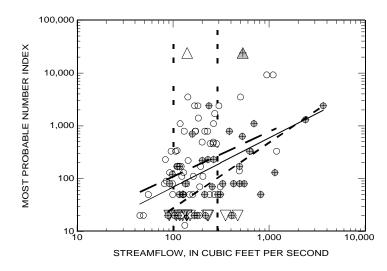
RELATION OF CONCENTRATION TO STREAMFLOW

c	CONCENTRATION		
GROWING SEASON	NONGE	ROWING	SEASON
, LE	CENSORED VALUE ESS-THAN' VALUE EATER-THAN' VALUE	⊕ ₩ Æ	
RELATION: LOG(0 VALUES	CONC) = SLOPE*LO NVALUES	G(FLOW) SLOPE	
ALL VALUES	108	0.93	-0.02
[SEASONAL	RELATIONS DETER	RMINED;	
THEY ARE DIFF	FERENT FROM ONE	ANOTHE	:R]
GROWING SEASON	63	0.85	0.34
NONGROWING SEAS	ON 45	1.24	-1.04
STRE	AMFLOW EXCEEDE	ED	

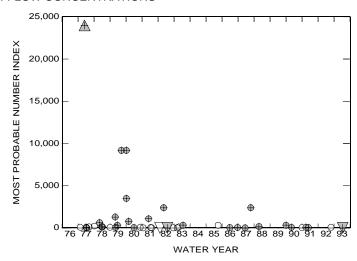
75 PERCENT

INDICATED PERCENTAGE OF TIME

- - 25 PERCENT



	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	⊕
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUI	■ ▲
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	15	9	ND
HIGH FLOW	28	14	0



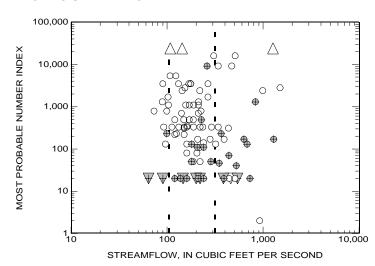
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION			
GROWING SEASON	NONGR	OWING SE	ASON
O UNCENSO	DRED VALUE	+	
▽ 'LESS-TH	HAN' VALUE	\forall	
△ 'GREATER	-THAN' VALUE	\triangle	
RELATION: LOG(CONC)	= SLOPE*LOG	G(FLOW) +	INT
VALUES	NVALUES	SLOPE	INT
ALL VALUES	100	0	ND
[SEASONAL RELA	TIONS DETER	MINED;	
THEY ARE DIFFEREN	T FROM ONE	ANOTHER]	
GROWING SEASON	70	0	ND
NONGROWING SEASON	30	0	ND
STREAMFLOW EXCEEDED			

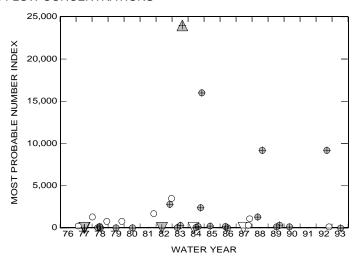
INDICATED PERCENTAGE OF TIME

- - 25 PERCENT

75 PERCENT



	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
Ο υ	NCENSORE	D VALUE	⊕
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	11	8	ND
HIGH FLOW	26	14	0



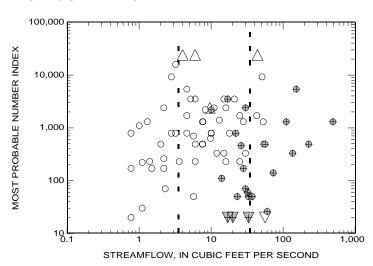
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION				
GROWING SEASON NONGROWING SEASON				
O UNCENS	ORED VALUE	⊕		
√ 'LESS-T	HAN' VALUE	\forall		
△ 'GREATER	-THAN' VALUE	· A		
RELATION: LOG(CONC)	= SLOPE*LOG	G(FLOW) +	INT	
VALUES NVALUES SLOPE INT				
ALL VALUES	81	0	ND	
[SEASONAL RELA	TIONS DETER	MINED;		
THEY ARE DIFFEREN	IT FROM ONE	ANOTHER]	
GROWING SEASON	58	0	ND	
NONGROWING SEASON	23	0	ND	
OTDE AMELOW EVOLEDED				

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

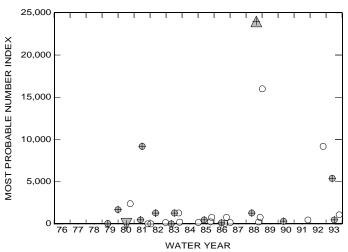
75 PERCENT - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION				
LOW FLOW			HIGH FLOW	
О U	NCENSOREI	D VALUE	⊕	
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$	
△ 'GF	REATER-THA	N' VALUE	■ A	
TREN	DS IN CONC	ENTRAT	ION	
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	18	12	ND	
HIGH FLOW	15	10	ND	

CONCENTRATION



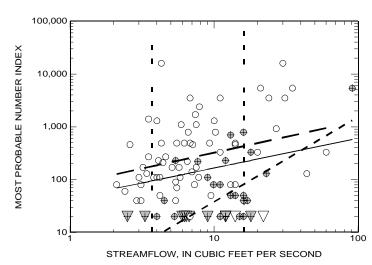
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION				
GROWING SEASON NONGROWING SEASON				
O UNCE	NSORED VALUE	⊕		
√ 'LESS	S-THAN' VALUE	$\overline{\Psi}$		
	ER-THAN' VALU	E ∄		
RELATION: LOG(CON	NC) = SLOPE*LO	G(FLOW) +	· INT	
VALUES	NVALUES	SLOPE	INT	
 ALL VALUES	98	0.56	1.66	
[SEASONAL RE	LATIONS DETE	RMINED;		
THEY ARE DIFFERENT FROM ONE ANOTHER]				
 GROWING SEASON	66	0.6	1.91	
 NONGROWING SEASON	32	1.61	-0.03	
STREAMFLOW EXCEEDED				

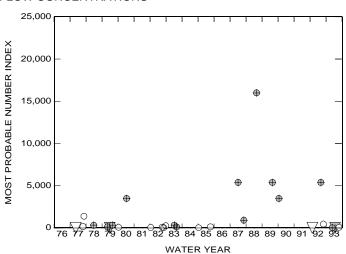
75 PERCENT

INDICATED PERCENTAGE OF TIME

- - 25 PERCENT



CONCENTRATION				
LOW FLOW			HIGH FLOW	
Ο υ	NCENSOREI	D VALUE	⊕	
\triangle ,	LESS-THAN'	VALUE	$\overline{\Psi}$	
△ 'GF	REATER-THA	N' VALUE	■ ▲	
TREN	DS IN CONC	ENTRAT	ION	
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	13	6	ND	
HIGH FLOW	15	10	ND	



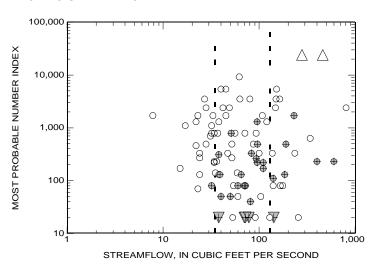
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION				
GROWING SEASON	NONGR	OWING SE	ASON	
O UNCENSO	ORED VALUE			
√ 'LESS-TH	IAN' VALUE	\forall		
△ 'GREATER-	THAN' VALUE	<u> </u>		
RELATION: LOG(CONC)	= SLOPE*LOG	G(FLOW) +	INT	
VALUES	NVALUES	SLOPE	INT	
ALL VALUES	93	0	ND	
[SEASONAL RELA ⁻	TIONS DETER	MINED;		
THEY ARE DIFFERENT FROM ONE ANOTHER]				
GROWING SEASON	65	0	ND	
NONGROWING SEASON	28	0	ND	
STREAMFLOW EXCEEDED				

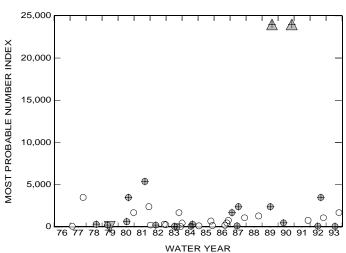
INDICATED PERCENTAGE OF TIME

- - 25 PERCENT

75 PERCENT



CONCENTRATION				
LOW FLOW			HIGH FLOW	
O и	NCENSORE	D VALUE	+	
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$	
△ 'GF	REATER-THA	N' VALUE	■ ▲	
TREN	DS IN CONC	ENTRAT	ION	
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	21	12	ND	
HIGH FLOW	21	12	0	



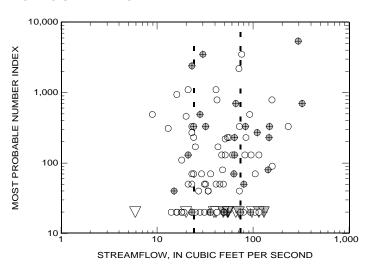
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION					
GROWING SEASON	GROWING SEASON NONGROWING SEASON				
O UNCENSO	ORED VALUE	⊕			
√ 'LESS-TI	HAN' VALUE	Ψ			
△ 'GREATER	-THAN' VALUE	<u> </u>			
RELATION: LOG(CONC)	= SLOPE*LOG	G(FLOW) +	INT		
VALUES	NVALUES	SLOPE	INT		
ALL VALUES	99	0	ND		
[SEASONAL RELATION	ONS NOT DET	ERMINED;			
THEY ARE NOT DIFFERENT FROM ONE ANOTHER]					
GROWING SEASON	68	ND	ND		
NONGROWING SEASON	31	ND	ND		
STREAMFLOW EXCEEDED					

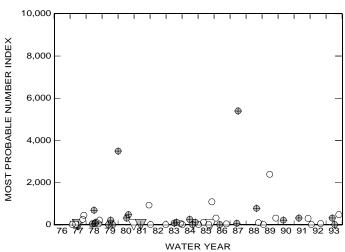
INDICATED PERCENTAGE OF TIME

- - 25 PERCENT

75 PERCENT



CONCENTRATION				
LOW FLOW			HIGH FLOW	
Ο υ	NCENSOREI	D VALUE	⊕	
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$	
△ 'GF	REATER-THA	N' VALUE	■ ▲	
TREN	DS IN CONC	ENTRAT	ION	
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	27	14	0	
HIGH FLOW	26	13	0	



APPENDIX 18. Relations of constituent concentration and load to streamflow and trends in concentration with time FECAL COLIFORM BACTERIA 01399700 ROCKAWAY CREEK AT WHITEHOUSE, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

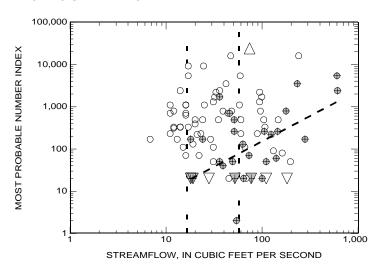
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION				
GROWING SEASON NONGROWING SEASON				
0	UNCENS	ORED VALUE	⊕	
∇	'LESS-TI	HAN' VALUE	$\overline{\Psi}$	
\triangle	'GREATER	-THAN' VALUE	<u> </u>	
RELATION:	LOG(CONC)	= SLOPE*LOG	(FLOW) +	- INT
VALUE	S	NVALUES	SLOPE	INT
ALL VALUES		93	0	ND
[SEAS	SONAL RELA	TIONS DETER	MINED;	
THEY AR	E DIFFEREN	IT FROM ONE	ANOTHER	₹]
GROWING SEA	SON	65	0	ND
 NONGROWING	SEASON	28	1.2	-0.22

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

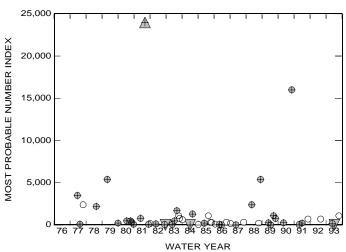
75 PERCENT - - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION				
LOW FLOW			HIGH FLOW	
Ο υ	NCENSOREI	D VALUE	⊕	
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$	
△ 'GF	REATER-THA	N' VALUE	■ A	
TREN	DS IN CONC	ENTRAT	ION	
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	17	11	ND	
HIGH FLOW	36	16	0	

CONCENTRATION



APPENDIX 18. Relations of constituent concentration and load to streamflow and trends in concentration with time FECAL COLIFORM BACTERIA 01399780 LAMINGTON RIVER AT BURNT MILLS, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

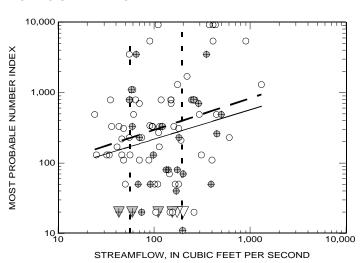
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION					
GROWING SEASON NONGROWING SEASON					
'LESS-TI	ORED VALUE HAN' VALUE -THAN' VALU	⊕ ₩ Æ			
RELATION: LOG(CONC) = SLOPE*LOG(FLOW) + INT VALUES NVALUES SLOPE INT					
 ALL VALUES	94	0.42	1.5		
[SEASONAL RELATIONS DETERMINED;					
THEY ARE DIFFERENT FROM ONE ANOTHER]					
 GROWING SEASON	67	0.45	1.57		
NONGROWING SEASON	27	0	ND		
OTDE AMEL	014/ EVOEEDE	-D			

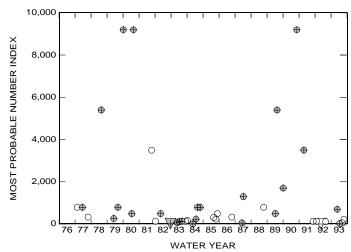
STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - 25 PERCENT



	CONCENTR	ATION	
LOW FLOW			HIGH FLOW
O и	NCENSORE	D VALUE	+
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	17	11	ND
HIGH FLOW	25	12	0



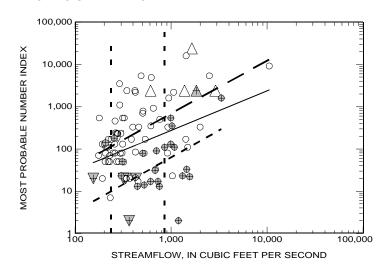
RELATION OF CONCENTRATION TO STREAMFLOW

COI	CONCENTRATION				
GROWING SEASON	NONGR	ROWING S	SEASON		
O UNCE	NSORED VALUE	+			
√ 'LES	S-THAN' VALUE	\forall	•		
△ 'GREA	ΓER-THAN' VALUE	<u> </u>	ı		
RELATION: LOG(CO	NC) = SLOPE*LO	G(FLOW)	+ INT		
VALUES	NVALUES	SLOPE	INT		
ALL VALUES	101	0.94	-0.38		
[SEASONAL R	ELATIONS DETER	RMINED;			
THEY ARE DIFFEI	RENT FROM ONE	ANOTHE	R]		
GROWING SEASON	72	1.25	-0.91		
NONGROWING SEASON	۱ 29	1.28	-2.04		
STREAM	STREAMFLOW EXCEEDED				

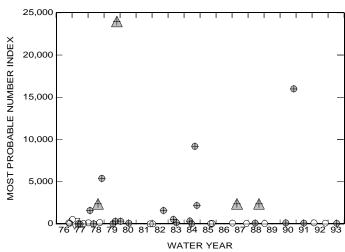
75 PERCENT

INDICATED PERCENTAGE OF TIME

- - 25 PERCENT



CONCENTRATION				
LOW FLOW			HIGH FLOW	
Ο υ	NCENSOREI	D VALUE	⊕	
\triangle ,	LESS-THAN'	VALUE	$\overline{\Psi}$	
△ 'GF	REATER-THA	N' VALUE	■ ▲	
TREN	DS IN CONC	ENTRAT	ION	
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	16	9	ND	
HIGH FLOW	25	12	0	



APPENDIX 18. Relations of constituent concentration and load to streamflow and trends in concentration with time FECAL COLIFORM BACTERIA 01400540 MILLSTONE RIVER NEAR MANALAPAN, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

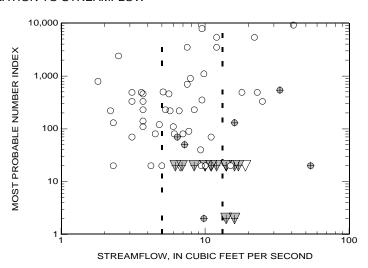
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION				
GROWING SEASON NONGROWING SEASON				
O UNCENS	ORED VALUE	⊕		
√ 'LESS-T	HAN' VALUE	\forall		
△ 'GREATER	-THAN' VALUE	<u> </u>		
RELATION: LOG(CONC)	= SLOPE*LOG	G(FLOW) +	INT	
VALUES	NVALUES	SLOPE	INT	
ALL VALUES	ALL VALUES 70		ND	
[SEASONAL RELATION SEASO	ONS NOT DET	ERMINED;		
INSUFFICIENT D	ATA FOR ANA	LYSIS]		
GROWING SEASON	49	ND	ND	
NONGROWING SEASON	21	ND	ND	

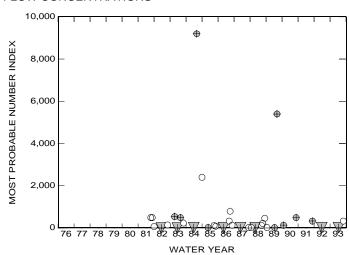
STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - 25 PERCENT



CONCENTRATION			
LOW FLOW			HIGH FLOW
О U	NCENSOREI	D VALUE	⊕
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ ▲
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	18	10	ND
HIGH FLOW	17	12	ND



APPENDIX 18. Relations of constituent concentration and load to streamflow and trends in concentration with time FECAL COLIFORM BACTERIA 01400650 MILLSTONE RIVER AT GROVERS MILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

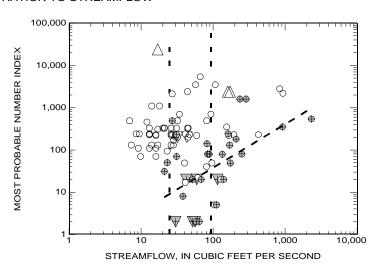
RELATION OF CONCENTRATION TO STREAMFLOW

	CONCENTRATION				
GRO	WING SEASON	NONGR	OWING SI	EASON	
	O UNCEN	SORED VALUE	⊕		
	√ 'LESS	-THAN' VALUE	$\overline{\Psi}$		
	△ 'GREATI	ER-THAN' VALUE	\mathbb{A}		
R	ELATION: LOG(CON	IC) = SLOPE*LOG	(FLOW) +	INT	
	VALUES	NVALUES	SLOPE	INT	
ALL \	/ALUES	101	0	ND	
	[SEASONAL RE	LATIONS DETER	MINED;		
	THEY ARE DIFFERENT FROM ONE ANOTHER]				
GRO	WING SEASON	70	0	ND	
NON	GROWING SEASON	31	1.03	-0.48	
	CTDEAM		`		

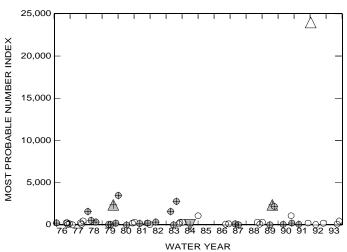
STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

75 PERCENT - 25 PERCENT



CONCENTRATION				
LOW FLOW			HIGH FLOW	
<u> </u>	NCENSORE	D VALUE	<u>+</u>	
'1	LESS-THAN'	VALUE	\forall	
△ 'GF	REATER-THA	N' VALUE	■ ▲	
TREN	DS IN CONC	ENTRAT	ION	
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	28	13	ND	
HIGH FLOW	25	12	ND	



APPENDIX 18. Relations of constituent concentration and load to streamflow and trends in concentration with time FECAL COLIFORM BACTERIA 01401000 STONY BROOK AT PRINCETON, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

RELATION OF CONCENTRATION TO STREAMFLOW

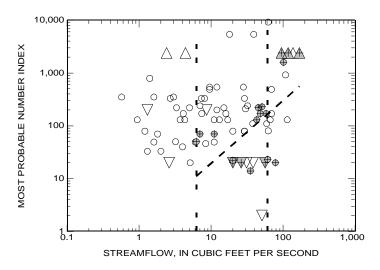
	CONCENTRATION				
GROWING SE	ASON	NONGR	OWING SE	ASON	
0	UNCENS	ORED VALUE	Φ		
∇	'LESS-T	HAN' VALUE	$\overline{\Psi}$		
\triangle	'GREATER	R-THAN' VALUE			
RELATION:	LOG(CONC) = SLOPE*LO	G(FLOW) +	INT	
VALUE	S	NVALUES	SLOPE	INT	
ALL VALUES		81	0	ND	
[SEA	SONAL RELA	ATIONS DETER	RMINED;		
THEY AF	RE DIFFEREI	NT FROM ONE	ANOTHER]	
GROWING SEA	ASON	62	0	ND	
- NONGROWING	SEASON	19	1.19	0.1	

STREAMFLOW EXCEEDED

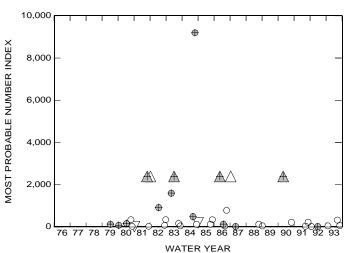
INDICATED PERCENTAGE OF TIME

- - 25 PERCENT

75 PERCENT



CONCENTRATION				
LOW FLOW			HIGH FLOW	
О U	NCENSORE	D VALUE	+	
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$	
△ 'GF	REATER-THA	N' VALUE	■ ▲	
TREN	DS IN CONC	ENTRAT	ION	
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	25	14	ND	
HIGH FLOW	14	10	ND	



APPENDIX 18. Relations of constituent concentration and load to streamflow and trends in concentration with time FECAL COLIFORM BACTERIA 01401600 BEDEN BROOK NEAR ROCKY HILL, N.J.

[NVALUES, number of values; LOG, base-10 logarithm; CONC, concentration in indicated units; INT, intercept; FLOW, streamflow in cubic feet per second; NWYS, number of water years during which at least one measurement was made; a slope value of '0' indicates that the slope is not significantly different from zero; ND, not determined; CaCO3, calcium carbonate; C, carbon; N, nitrogen; P, phosphorus; Pb, lead; B, boron; Cl, chloride; Na, sodium; MOST PROBABLE NUMBER INDEX is per 100 milliliters]

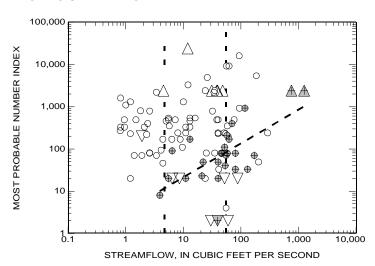
RELATION OF CONCENTRATION TO STREAMFLOW

	CONCENTRATION				
GROWING SEA	SON	NONGRO	OWING SE	ASON	
0	UNCENSO	RED VALUE			
∇	'LESS-TH	AN' VALUE	$\overline{\Psi}$		
\triangle	'GREATER-	ΓΗΑΝ' VALUE	\mathbb{A}		
RELATION:	LOG(CONC) =	SLOPE*LOG	(FLOW) +	INT	
VALUES	<u> </u>	NVALUES	SLOPE	INT	
ALL VALUES		106	0	ND	
[SEAS	ONAL RELAT	IONS DETER	MINED;		
THEY AR	THEY ARE DIFFERENT FROM ONE ANOTHER]				
GROWING SEA	SON	80	0	ND	
NONGROWING	SEASON	26	8.0	0.53	
	CTDEAMELO	W EVOLEDED	•		

STREAMFLOW EXCEEDED

INDICATED PERCENTAGE OF TIME

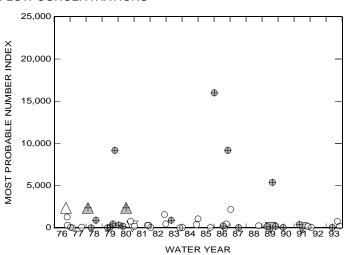
75 PERCENT - - 25 PERCENT



TRENDS IN LOW- AND HIGH-FLOW CONCENTRATIONS

CONCENTRATION				
LOW FLOW			HIGH FLOW	
Ο υ	NCENSOREI	D VALUE		
∇ ,	LESS-THAN'	VALUE	$\overline{\Psi}$	
△ 'GF	REATER-THA	N' VALUE	■ A	
TREN	IDS IN CONC	ENTRAT	ION	
VALUES	NVALUES	NWYS	SLOPE	
LOW FLOW	27	14	0	
HIGH FLOW	23	10	ND	

CONCENTRATION



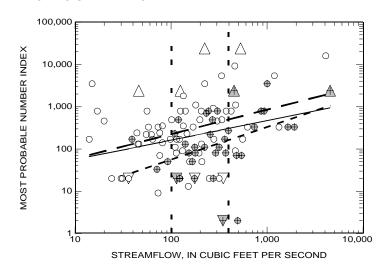
RELATION OF CONCENTRATION TO STREAMFLOW

	CONCENTRATION				
GI	ROWING SEASON	1	NONGR	OWING SE	ASON
	UNCENSORED VA VLESS-THAN' VAL GREATER-THAN' V		VALUE	♦ ★ ★	
	RELATION: LOG	` '	LOPE*LOG	(FLOW) + SLOPE	INT INT
AL	L VALUES	107	7	0.46	1.29
	[SEASONA	AL RELATION	NS DETER	MINED;	
	THEY ARE DI	FFERENT FF	ROM ONE	ANOTHER]
 GF	ROWING SEASON	69	9	0.58	1.19
NO	NGROWING SEA	SON 38	3	0.77	0.21
	STR	REAMFLOW E	EXCEEDEI)	

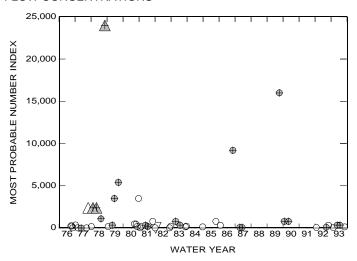
75 PERCENT

INDICATED PERCENTAGE OF TIME

- - 25 PERCENT



CONCENTRATION			
LOW FLOW			HIGH FLOW
О U	NCENSOREI	D VALUE	+
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUE	■ A
TREN	DS IN CONC	ENTRAT	ION
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	29	13	ND
HIGH FLOW	21	11	ND



No data for this station

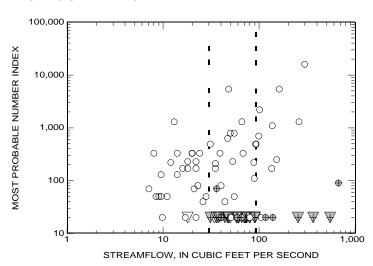
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION			
GROWING SEASON NONGRO		OWING SE	ASON
O UNCENSO	ORED VALUE	⊕	
√ 'LESS-TI	HAN' VALUE	$\overline{\Psi}$	
△ 'GREATER	-THAN' VALUE	<u> </u>	
RELATION: LOG(CONC) = SLOPE*LOG(FLOW) + INT			
VALUES	NVALUES	SLOPE	INT
ALL VALUES	93	0	ND
[SEASONAL RELATIONS NOT DETERMINED;			
INSUFFICIENT DATA FOR ANALYSIS]			
GROWING SEASON	68	ND	ND
NONGROWING SEASON	25	ND	ND
STREAMFLOW EXCEEDED			

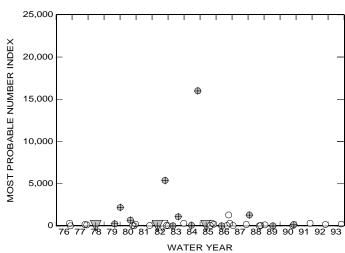
INDICATED PERCENTAGE OF TIME

- - 25 PERCENT

75 PERCENT



CONCENTRATION			
LOW FLOW			HIGH FLOW
O UI	NCENSORE	D VALUE	⊕
7	⁷ 'LESS-THAN' VALUE ₩		
			■ ▲
TRENDS IN CONCENTRATION			
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	27	15	0
HIGH FLOW	15	11	ND



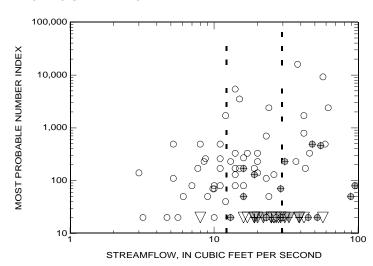
RELATION OF CONCENTRATION TO STREAMFLOW

CONCENTRATION			
GROWING SEASON	NONGR	OWING SE	ASON
O UNCENSO	DRED VALUE	⊕	
▽ 'LESS-TF	HAN' VALUE	\forall	
△ 'GREATER	-THAN' VALUE	<u> </u>	
RELATION: LOG(CONC)	= SLOPE*LOG	G(FLOW) +	INT
VALUES	NVALUES	SLOPE	INT
ALL VALUES	92	0	ND
[SEASONAL RELATIONS DETERMINED;			
THEY ARE DIFFERENT FROM ONE ANOTHER]			
GROWING SEASON	64	0	ND
NONGROWING SEASON	28	0	ND
STREAMFLOW EXCEEDED			

INDICATED PERCENTAGE OF TIME

- - 25 PERCENT

75 PERCENT



CONCENTRATION			
LOW FLOW			HIGH FLOW
Ο υ	NCENSOREI	D VALUE	
▽ ,	LESS-THAN'	VALUE	$\overline{\Psi}$
△ 'GF	REATER-THA	N' VALUI	■ ▲
TRENDS IN CONCENTRATION			
VALUES	NVALUES	NWYS	SLOPE
LOW FLOW	24	14	0
HIGH FLOW	23	13	0

