U.S. Department of the Interior
U.S. Geological Survey

TRENDS IN WATER QUALITY OF NEW JERSEY STREAMS, WATER YEARS 1986-95

Water-Resouces Investigations Report 98-4204

Prepared in cooperation with the

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

USGS
science for a changing world

TRENDS IN WATER QUALITY OF NEW JERSEY STREAMS, WATER YEARS 1986-95

By R. Edward Hickman and Thomas H. Barringer

Water-Resources Investigations Report 98-4204

Prepared in cooperation with the

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

West Trenton, New Jersey

1999

USGS
science for a changing world

U.S. DEPARTMENT OF THE INTERIOR

BRUCE BABBITT, *Secretary*

U.S. GEOLOGICAL SURVEY

Charles G. Groat, *Director*

For additional information
write to:

District Chief
U.S Geological Survey
Mountain View Office Park
810 Bear Tavern Road, Suite 206
West Trenton, NJ 08628

Copies of this report can be
purchased from:

U.S. Geological Survey
Branch of Information Services
Box 25286
Denver, CO 80225-0286

CONTENTS

Page

Abstract 1
Introduction 1
Purpose and scope 2
Previous investigations 2
Description of the study area 3
Methods of analysis 3
Data selection and preparation 3
Preparation of unadjusted values of water-quality characteristics 6
Preparation of flow-adjusted values of water-quality characteristics 11
Trend analysis 11
Unadjusted values of water-quality characteristics 15
Uncensored data sets 15
Censored data sets 15
Flow-adjusted values of water-quality characteristics 16
Trends in water-quality characteristics of New Jersey streams 17
Summary and conclusions 24
References cited 25
Appendix 1. Methods used to estimate missing unadjusted values for selected water-quality characteristics 28
2-25. Summary statistics and results of trend tests for water-quality characteristics of selected surface-water-quality stations in New Jersey, water years 1986-95
2. Instantaneous streamflow 31
3. Temperature 37
4. Dissolved oxygen 43
5. Dissolved oxygen (percent) 49
6. 5-day biochemical-oxygen demand 55
7. pH 61
8. Total alkalinity 67
9. Total nitrogen 73
10. Total ammonia 79
11. Total organic nitrogen 85
12. Total nitrate plus nitrite 91
13. Total phosphorus 97
14. Total organic carbon 103
15. Fecal coliform (MPN) 109
16. Fecal coliform (COL) 115
17. Specific conductance 121
18. Dissolved solids 127
19. Dissolved sodium 133
20. Dissolved potassium 139
21. Total hardness 145

CONTENTS--Continued

Page

Appendixes 2-25. Summary statistics and results of trend tests for water-quality characteristics of selected surface-water-quality stations in New Jersey, water years 1986-95--Continued
22. Dissolved calcium 151
23. Dissolved magnesium 157
24. Dissolved chloride 163
25. Dissolved sulfate 169

ILLUSTRATIONS

Figure 1. Map showing physiographic provinces and water regions in New Jersey 4
2. Map showing locations of selected surface-water-quality stations and water regions in New Jersey 7
3-5. Graphs showing relations for station 01399500, Lamington (Black) River near Pottersville, N.J., water years 1986-95
3. Relation between unadjusted values of dissolved oxygen and time 12
4. Relation between unadjusted values of dissolved oxygen and instantaneous streamflow 13
5. Relation between flow-adjusted values of dissolved oxygen and time ...14
Figures 6-8. Histograms showing number of surface-water-quality stations showing increasing values, decreasing values, and no change in value of the water-quality characteristics in New Jersey streams, water years 1986-95
6. Physical properties 19
7. Nutrients and bacteria 20
8. Major dissolved constituents 21

TABLES

Table 1. Water-quality characteristics tested for trends 5
2. Selected surface-water-quality stations in New Jersey 8
3. Summary of results of trend tests of water-quality characteristics at selected surface-water-quality stations in New Jersey, water years 1986-95 18

CONVERSION FACTORS

Multiply	By	To obtain
	Flow rate	
cubic feet per second (ft^3 /sec)	0.028317	cubic meters per second
	Area	
square miles (mi^2)	2.59	square kilometers

TRENDS IN WATER QUALITY OF NEW JERSEY STREAMS, WATER YEARS 1986-95

By R. Edward Hickman and Thomas H. Barringer

ABSTRACT

Trend tests were conducted on values of 24 water-quality characteristics measured at 83 surface-water-quality stations on streams in New Jersey during water years 1986-95. Characteristics tested include physical properties and concentrations of nutrients, bacteria, and major dissolved constituents. Seasonal Kendall uncensored tests and tobit regression were used to determine whether unadjusted values of water quality or flow-adjusted values of water quality increased or decreased during this period.

Results of tests on instantaneous streamflow measured at the time of water-quality measurements indicate that streamflow decreased during the period of study; 20 of the 81 stations tested showed decreasing values of instantaneous streamflow. No station showed increasing values of instantaneous streamflow. Because the locations of stations with decreasing streamflow are widespread, it is likely that these trends are due to changes in weather patterns rather than to changes in the amount of water withdrawals.

Results of tests on nutrients are consistent with the expected effects of upgrades to sewage-treatment plants, which occurred in the State of New Jersey during the period of study. For all nutrients tested other than total nitrate plus nitrite, more stations showed decreasing unadjusted and flow-adjusted values than showed increasing unadjusted and flow-adjusted values.

Results for eight major dissolved constituents--specific conductance, total hardness, and dissolved concentrations of solids, sodium, potassium, calcium, magnesium, and chloride--of the nine tested showed more stations with increasing values than stations with decreasing values. Only dissolved sulfate did not show more increases than decreases.

INTRODUCTION

The identification of trends in the water quality of streams allows water-quality managers to compare measured values of water quality with established standards and to determine whether water quality has changed over a selected period of time. To provide information on changes in the water quality of New Jersey streams, the U.S. Geological Survey (USGS), in cooperation with the New Jersey Department of Environmental Protection (NJDEP), undertook a study to identify trends in the water quality of streams in New Jersey during October 1, 1985, to September 30, 1995.

For this study, a trend is defined as a monotonic increase or decrease in the value of a water-quality characteristic over a period of years. Analysis of values measured during a period of years is necessary in order to account for the seasonal variation in water quality that typically occurs.

Trends in the water quality of streams during a specified period are often attributed to changes in the characteristics of the drainage basin during that period. Trends can result from changes in the amount and types of material discharged by point sources. In addition, trends can result from changes in land use in the basin; the amounts and types of material washing off the land surface and into a stream during storms often change with land use.

During the 1970's and 1980's, many sewage-treatment plants (STP) in the State of New Jersey were upgraded and regionalized (Kevin Berry, New Jersey Department of Environmental Protection, oral commun., 1997). Upgrade refers to increasing the efficiency of the STP processes so that a greater fraction of nutrients and organic materials in wastewater are removed and are not discharged to a stream. Upgrade of a STP probably would reduce the concentrations of nutrients in the treated wastewater discharged to the receiving stream. Regionalization refers to replacing a large number of small STP's with a smaller number of larger facilities. STP upgrades and regionalization may have resulted in improvements to the water quality of streams.

Purpose and Scope

This report presents the results of a study to identify increases and decreases in the values of water-quality characteristics of streams in New Jersey during water years[1] 1986-95 (October 1, 1985 - September 30, 1995). Twenty-four water-quality characteristics were tested for trends at 83 surface-water-quality stations. Increases and decreases in the values of water-quality characteristics were identified by the use of trend tests of unadjusted and flow-adjusted values. Summary statistics and results of trend tests are presented in tables and maps. A limited discussion compares the statewide patterns shown by results of trend tests.

Previous Investigations

Coastal Environmental Services, Inc. (1997) studied water quality at 84 stations on New Jersey streams during 1974-93. Hay and Campbell (1990) studied water quality at 86 stations during 1975-86 and 1979-86. Using the results in Hay and Campbell (1990), Robinson and others (1996) determined relations between trends in water quality and the characteristics of the drainage basins studied.

---

[1] A water year is the 12-month period that begins October 1 and ends September 30. It is designated by the year in which it ends.

DESCRIPTION OF THE STUDY AREA

New Jersey is composed of four physiographic provinces (fig. 1)--Valley and Ridge, New England, Piedmont, and Coastal Plain (Fenneman, 1946). The dominant types of rock below the land surface vary from province to province. In the Valley and Ridge physiographic province, sedimentary rock is dominant; in the New England, crystalline rock; in the Piedmont, shale and sandstone; and in the Coastal Plain, gravel, sand, silt, and clay.

Mean annual precipitation in New Jersey is about 44 inches; precipitation generally decreases from north to south (Bauersfeld and others, 1991). The greatest mean annual precipitation, 52 inches, occurred in the north; the least, 40 inches, occurred in the south.

New Jersey, a major industrial and commercial center in the northeastern United States, is the most densely populated state in the Nation. In 1990, the population was 7,730,000, which is equivalent to 1,041 persons per square mile (Morgan and others, 1992). In 1990, land use was classified as urban, 33 percent; active farmland, 21 percent; forest, 25 percent; and wetlands, transportation corridors, and mined areas, 21 percent (U.S. Department of Commerce, 1991).

For management purposes, the NJDEP has divided New Jersey into five water regions--Passaic, Upper Delaware, Lower Delaware, Raritan, and Atlantic Coastal (New Jersey Department of Environmental Protection, 1997, fig. 2). Water regions are included on some figures to facilitate regional analysis by water-quality managers. Streams in the water regions on the western side of the State (regions 2 and 4) drain to the west; streams in the regions on the eastern side (regions 1, 3, and 5) drain to the east.

METHODS OF ANALYSIS

Trends were determined by use of the ESTREND (estimate trend) series of computer programs (Schertz and others, 1991) designed to identify trends in water-quality characteristics. The methods used in ESTREND are briefly described in this report.

Trend tests were conducted on two types of water-quality values, unadjusted values and flow-adjusted values. In this report, the term “unadjusted value” refers to a measured value of water quality. Flow-adjusted values are unadjusted values modified to reduce some of the effects of changes in streamflow on changes in water quality.

Data Selection and Preparation

The water-quality characteristics considered in this report (table 1) were selected in cooperation with the NJDEP. For this report, the characteristics are divided into three groups--physical properties, nutrients and bacteria, and major dissolved constituents. Metals were not included because too few measurements were available to provide meaningful results from the trend tests.

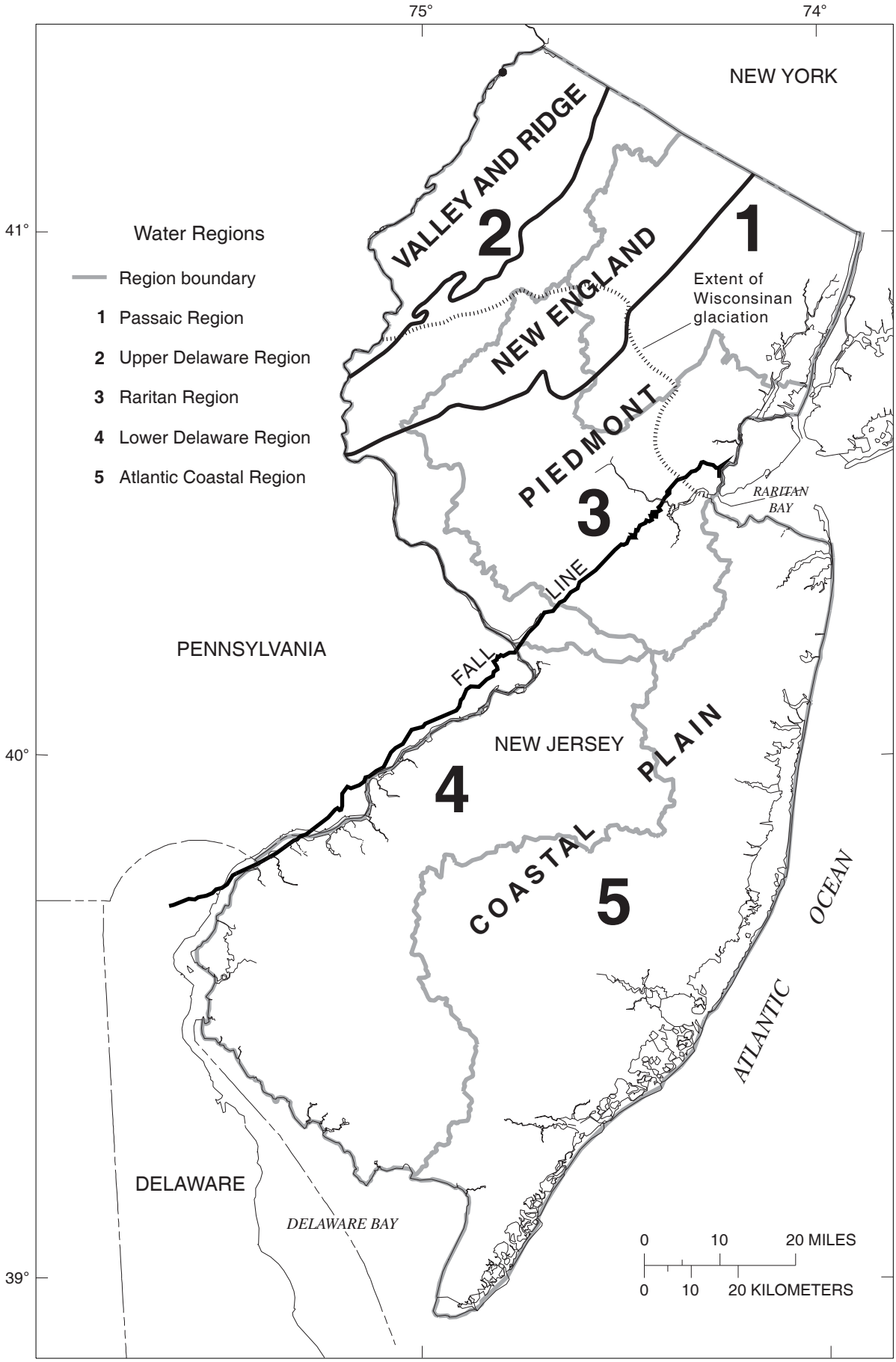

Figure 1. Physiographic Provinces and water regions in New Jersey.

Table 1. Water-quality characteristics tested for trends

Water-quality characteristic	Unit of measurement
Physical properties	
Instantaneous streamflow (at the time of water-quality measurement)	Cubic feet per second
Temperature	Degrees Celsius
Dissolved oxygen	Milligrams per liter
Dissolved oxygen (percent)	Dissolved oxygen as percent of saturation concentration
5-day biochemical-oxygen demand	Milligrams per liter
pH	Standard units
Total alkalinity	Milligrams per liter as $CaCO_3$
Nutrients and bacteria	
Total nitrogen	Milligrams per liter as N
Total ammonia	Milligrams per liter as N
Total organic nitrogen	Milligrams per liter as N
Total nitrate plus nitrite	Milligrams per liter as N
Total phosphorus	Milligrams per liter as P
Total organic carbon	Milligrams per liter as C
Fecal coliform bacteria (MPN)	Most probable number per 100 milliliters
Fecal coliform bacteria (COL)	Bacterial colonies per 100 milliliters
Major dissolved constituents	
Specific conductance	Microsiemens per centimeter at 25 degrees Celsius
Dissolved solids (sum of constituents)	Milligrams per liter
Dissolved sodium	Milligrams per liter as Na
Dissolved potassium	Milligrams per liter as K
Total hardness	Milligrams per liter as $CaCO_3$
Dissolved calcium	Milligrams per liter as Ca
Dissolved magnesium	Milligrams per liter as Mg
Dissolved chloride	Milligrams per liter as Cl
Dissolved sulfate	Milligrams per liter as SO_4

All water-quality values were retrieved from the National Water Information System, a computer-based water-quality data base maintained by the USGS. The stations (fig. 2; table 2) included in this study are those at which water-quality measurements had been made during the period of study as part of one or more sampling programs. Most of the measurements included in this study were made as part of the New Jersey Ambient Surface-Water-Quality Network, a streamflow water-quality monitoring program jointly operated by the USGS and the NJDEP. All stations included in this study are on nontidal streams.

There were three types of water-quality values--greater-than censored values, less-than censored values, and uncensored values. Greater-than censored values indicate that the actual value was greater than a reporting limit; most greater-than values were reported for bacteria. Less-than censored values indicate that the actual value was less than a reporting limit. Values not greater-than or less-than censored were considered uncensored.

Preparation of Unadjusted Values of Water-Quality Characteristics

Greater-than values were excluded from this study because ESTREND was not designed to include them in the analyses. In this report, the term "censored value" refers to a less-than censored value.

Estimates were made for some of the missing values of selected water-quality characteristics. Missing values of field specific conductance were replaced with values of specific conductance measured in the laboratory. Missing values of total nitrate plus nitrite were replaced with values of dissolved nitrate plus nitrite; nitrate plus nitrite is usually present in water in the dissolved form. Methods used to estimate missing values of dissolved oxygen (percent), total nitrogen, and total organic carbon are described in appendix 1.

Values of dissolved sulfate at the following stations in the southeastern part of the State were not included in this study: 01408500, 01409387, 01409416, 01409500, 01410150, 01410784, 01411000, 01411110, 01411500, 01465850, 01466500, and 01467000. At these stations, the natural tea color of the water caused sulfate concentrations determined by a turbidimetric method to be biased high (Jacob Gibs, U.S. Geological Survey, oral commun., 1997); the amount of bias is unknown. This turbidimetric method was used for samples analyzed before 1990 and during part of the 1990 calendar year (Fishman and other, 1994).

For each water-quality characteristic except instantaneous streamflow, a maximum of one value per month was included in the trend tests; the selected value was generally that measured closest to the middle of the month. As a result, as many as 120 measurements of each characteristic, except instantaneous streamflow, were included in each test. More than one value per month was not considered for analysis because the results of the tests could be biased if most of the values were measured in only a few months of the period of study. All available values of instantaneous streamflow were included in the trend tests.

Summary statistics were determined for the values used in each test where there were more than 10 values and at least 20 percent of values were uncensored; those presented are the number of measurements, the minimum, maximum, median, and mean of the values, and percentage of the measurements that are censored. Means were calculated by using logarithmic regression procedures (Helsel and Cohn, 1988).

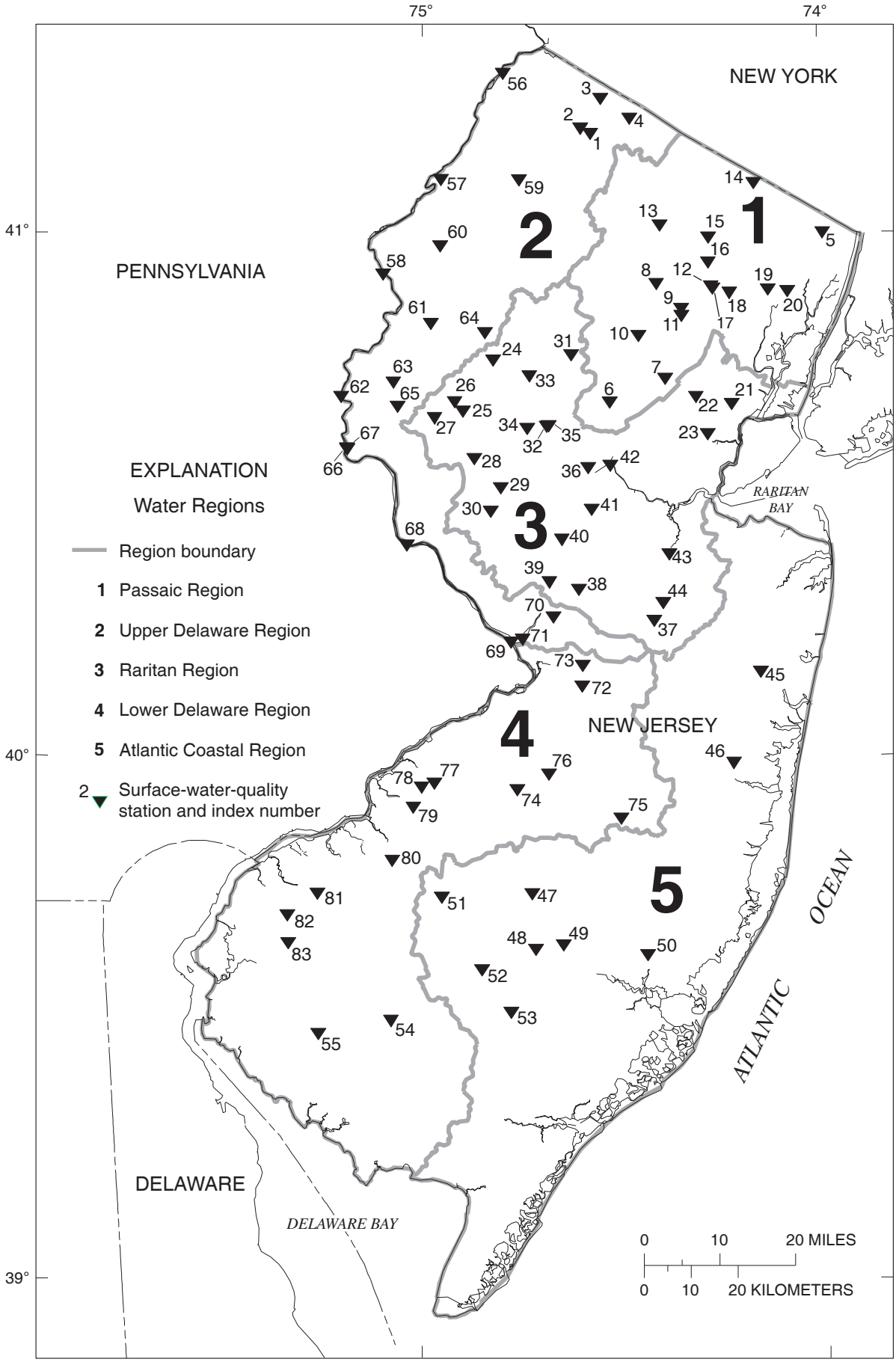

Figure 2. Locations of selected surface-water-quality stations and water regions in New Jersey.

Table 2. Selected surface-water-quality stations in New Jersey

[mi^2, square miles]

Station index	Station identification number	Station name	Latitude	Longitude	Hydrologic-unit code	Drainage area (mi^2)
1	01367770	WALLKILL RIVER NEAR SUSSEX NJ	411138	0743432	02020007	60.8
2	01367910	PAPAKATING CREEK AT SUSSEX NJ	411202	0743559	02020007	59.4
3	01368000	WALLKILL RIVER NEAR UNIONVILLE NY	411536	0743256	02020007	140
4	01368950	BLACK CREEK NEAR VERNON NJ	411321	0742833	02020007	17.3
5	01377000	HACKENSACK RIVER AT RIVERVALE NJ	405955	0735927	02030103	58.0
6	01379000	PASSAIC RIVER NEAR MILLINGTON NJ	404048	0743145	02030103	55.4
7	01379500	PASSAIC RIVER NEAR CHATHAM NJ	404331	0742323	02030103	100
8	01380500	ROCKAWAY RIVER ABOVE RESERVOIR AT BOONTON NJ	405410	0742436	02030103	116
9	01381200	ROCKAWAY RIVER AT PINE BROOK NJ	405129	0742053	02030103	136
10	01381500	WHIPPANY RIVER AT MORRISTOWN NJ	404826	0742722	02030103	29.4
11	01381800	WHIPPANY RIVER NEAR PINE BROOK NJ	405042	0742051	02030103	68.5
12	01382000	PASSAIC RIVER AT TWO BRIDGES NJ	405350	0741623	02030103	361
13	01382500	PEQUANNOCK RIVER AT MACOPIN INTAKE DAM NJ	410105	0742404	02030103	63.7
14	01387500	RAMAPO RIVER NEAR MAHWAH NJ	410551	0740948	02030103	120
15	01388000	RAMAPO RIVER AT POMPTON LAKES NJ	405933	0741644	02030103	160
16	01388600	POMPTON RIVER AT PACKANACK LAKE NJ	405636	0741647	02030103	361
17	01389005	PASSAIC RIVER BELOW POMPTON RIVER AT TWO BRIDGES NJ	405347	0741610	02030103	734
18	01389500	PASSAIC RIVER AT LITTLE FALLS NJ	405305	0741335	02030103	762
19	01389880	PASSAIC RIVER AT RT 46 AT ELMWOOD PARK NJ	405337	0740746	02030103	803
20	01391500	SADDLE RIVER AT LODI NJ	405325	0740451	02030103	54.6
21	01393450	ELIZABETH RIVER AT URSINO LAKE AT ELIZABETH NJ	404033	0741322	02030104	16.9
22	01394500	RAHWAY RIVER NEAR SPRINGFIELD NJ	404111	0741844	02030104	25.5
23	01395000	RAHWAY RIVER AT RAHWAY NJ	403705	0741700	02030104	40.9
24	01396280	SOUTH BRANCH RARITAN RIVER AT MIDDLE VALLEY NJ	404540	0744918	02030105	47.7
25	01396535	SOUTH BRANCH RARITAN RIVER ARCH ST AT HIGH BRIDGE NJ	403949	0745352	02030105	68.8

Table 2. Selected surface-water-quality stations in New Jersey--Continued

Station index	Station identification number	Station name	Latitude	Longitude	Hydrologic-unit code	Drainage area (mi^2)
26	01396588	SPRUCE RUN NEAR GLEN GARDNER NJ	404041	0745506	02030105	15.3
27	01396660	MULHOCKAWAY CREEK AT VAN SYCKEL NJ	403851	0745809	02030105	11.8
28	01397000	SOUTH BRANCH RARITAN RIVER AT STANTON NJ	403421	0745210	02030105	147
29	01397400	SOUTH BRANCH RARITAN RIVER AT THREE BRIDGES NJ	403101	0744810	02030105	181
30	01398000	NESHANIC RIVER AT REAVILLE NJ	402818	0744942	02030105	25.7
31	01398260	NB RARITAN RIVER NEAR CHESTER NJ	404616	0743734	02030105	7.57
32	01399120	NB RARITAN RIVER AT BURNT MILLS NJ	403809	0744056	02030105	63.8
33	01399500	LAMINGTON (BLACK) RIVER NEAR POTTERSVILLE NJ	404339	0744350	02030105	32.8
34	01399700	ROCKAWAY CREEK AT WHITEHOUSE NJ	403749	0744411	02030105	37.1
35	01399780	LAMINGTON RIVER AT BURNT MILLS NJ	403804	0744113	02030105	100
36	01400500	RARITAN RIVER AT MANVILLE NJ	403318	0743502	02030105	490
37	01400540	MILLSTONE RIVER NEAR MANALAPAN NJ	401544	0742513	02030105	7.37
38	01400650	MILLSTONE RIVER AT GROVERS MILL NJ	401919	0743631	02030105	43.4
39	01401000	STONY BROOK AT PRINCETON NJ	401959	0744056	02030105	44.5
40	01401600	BEDEN BROOK NEAR ROCKY HILL NJ	402452	0743902	02030105	27
41	01402000	MILLSTONE RIVER AT BLACKWELLS MILLS NJ	402830	0743434	02030105	258
42	01403300	RARITAN RIVER AT QUEENS BRIDGE AT BOUND BROOK NJ	403334	0743141	02030105	804
43	01405302	MATCHAPONIX BROOK AT MUNDY AVE AT SPOTSWOOD NJ	402322	0742255	02030105	44.1
44	01405340	MANALAPAN BROOK AT FEDERAL RD NEAR MANALAPAN NJ	401746	0742353	02030105	20.9
45	01408000	MANASQUAN RIVER AT SQUANKUM NJ	400947	0740921	02040301	44.0
46	01408500	TOMS RIVER NEAR TOMS RIVER NJ	395910	0741329	02040301	123
47	01409387	MULLICA RIVER AT OUTLET OF ATSION LK AT ATSION NJ	394425	0744337	02040301	26.7
48	01409416	HAMMONTON CREEK AT WESCOATVILLE NJ	393802	0744305	02040301	9.57
49	01409500	BATSTO RIVER AT BATSTO NJ	393833	0743900	02040301	67.8
50	01410150	EAST BRANCH BASS RIVER NEAR NEW GRETNA NJ	393723	0742630	02040301	8.11
51	01410784	GREAT EGG HARBOR RIVER NEAR SICKLERVILLE NJ	394402	0745705	02040302	15.1
52	01411000	GREAT EGG HARBOR RIVER AT FOLSOM NJ	393542	0745106	02040302	57.1
53	01411110	GREAT EGG HARBOR RIVER AT WEYMOUTH NJ	393050	0744647	02040302	154
54	01411500	MAURICE RIVER AT NORMA NJ	392942	0750438	02040206	112
55	01412800	COHANSEY RIVER AT SEELEY NJ	392821	0751521	02040206	28.0

Table 2. Selected surface-water-quality stations in New Jersey--Continued

Station index	Station identification number	Station name	Latitude	Longitude	Hydrologic-unit code	Drainage area (mi^2)
56	01438500	DELAWARE RIVER AT MONTAGUE NJ	411833	0744744	02040104	3,480
57	01440000	FLAT BROOK NEAR FLATBROOKVILLE NJ	410624	0745709	02040104	64.0
58	01443000	DELAWARE RIVER AT PORTLAND PA	405530	0750555	02040104	4,165
59	01443440	PAULINS KILL AT BALESVILLE NJ	410620	0744519	02040105	67.1
60	01443500	PAULINS KILL AT BLAIRSTOWN NJ	405844	0745715	02040105	126
61	01445500	PEQUEST RIVER AT PEQUEST NJ	404950	0745843	02040105	106
62	01447000	DELAWARE RIVER AT NORTHAMPTON ST AT EASTON PA	404130	0751215	02040105	4,717
63	01455200	POHATCONG CREEK AT NEW VILLAGE NJ	404257	0750420	02040105	33.3
64	01456200	MUSCONETCONG RIVER AT BEATTYSTOWN NJ	404848	0745032	02040105	90.3
65	01457000	MUSCONETCONG RIVER NEAR BLOOMSBURY NJ	404020	0750340	02040105	141
66	01457400	MUSCONETCONG RIVER AT RIEGELSVILLE NJ	403532	0751120	02040105	156
67	01457500	DELAWARE RIVER AT RIEGELSVILLE NJ	403536	0751117	02040105	6,328
68	01461000	DELAWARE RIVER AT LUMBERVILLE PA	402427	0750216	02040105	6,598
69	01463500	DELAWARE RIVER AT TRENTON NJ	401318	0744642	02040105	6,780
70	01463620	ASSUNPINK CREEK NEAR CLARKSVILLE NJ	401611	0744020	02040105	34.3
71	01464000	ASSUNPINK CREEK AT TRENTON NJ	401327	0744458	02040105	90.6
72	01464500	CROSSWICKS CREEK AT EXTONVILLE NJ	400815	0743602	02040201	81.5
73	01464515	DOCTORS CREEK AT ALLENTOWN NJ	401037	0743557	02040201	17.4
74	01465850	SOUTH BRANCH RANCOCAS CREEK AT VINCENTOWN NJ	395622	0744550	02040202	64.5
75	01466500	MCDONALDS BRANCH IN LEBANON STATE FOREST NJ	395305	0743020	02040202	2.35
76	01467000	NORTH BRANCH RANCOCAS CREEK AT PEMBERTON NJ	395810	0744105	02040202	118
77	01467069	NB PENNSAUKEN CREEK NEAR MOORESTOWN NJ	395707	0745810	02040202	12.8
78	01467081	SOUTH BRANCH PENNSAUKEN CREEK AT CHERRY HILL NJ	395630	0750005	02040202	8.98
79	01467150	COOPER RIVER AT HADDONFIELD NJ	395411	0750119	02040202	17.0
80	01467329	SOUTH BRANCH BIG TIMBER CREEK AT BLACKWOOD TERRACE NJ	394805	0750427	02040202	19.1
81	01477120	RACCOON CREEK NEAR SWEDESBORO NJ	394428	0751533	02040202	26.9
82	01477510	OLDMANS CREEK AT PORCHES MILL NJ	394157	0752001	02040206	21.0
83	01482500	SALEM RIVER AT WOODSTOWN NJ	393836	0751952	02040206	14.6

Preparation of Flow-Adjusted Values of Water-Quality Characteristics

Flow-adjusted values are the differences between (1) unadjusted values plotted as a function of instantaneous streamflow and (2) a LOWESS (locally weighted scatterplot smoothing) curve between the unadjusted values and instantaneous streamflow. Flow-adjusted values were determined for a water-quality characteristic at a station if no more than 5 percent of the values at that station were censored; this method would not be suitable if more than a small percentage of the unadjusted values were censored.

The LOWESS curve (Helsel and Hirsch, 1992, p. 288-291; Cleveland, 1979) represents a nonlinear, smoothed relation between any two variables. The curve is determined from a series of iterative, weighted least-squares regressions; the weight for each point decreases with distance away from the curve so that the influence on the curve from outlying points is minimized. The smoothness of the LOWESS curve is set by use of a smoothness factor, f. For this study, a value of 0.5 was used to determine all LOWESS curves; examination of LOWESS curves for water quality and streamflow indicates that curves with an f value of 0.5 generally are a good fit to the data (Lanfear and Alexander, 1990).

An example of unadjusted and flow-adjusted values of dissolved oxygen at station 01399500, Lamington (Black) River near Pottersville, N.J., is presented in figures 3-5. In figure 3, unadjusted values are shown plotted as a function of time. In figure 4, unadjusted values are shown plotted as a function of instantaneous streamflow. The LOWESS curve for these data shows that unadjusted values tend to increase with increasing instantaneous streamflow; flow-adjusted values are the differences between the unadjusted values and the value of the LOWESS curve. In figure 5, flow-adjusted values are shown plotted as a function of time. In this case, the result of the trend test of unadjusted values (fig. 3) is different from the result of the trend test of flow-adjusted values (fig. 5).

Trend Analysis

Values of trend slope and level of significance were calculated by each trend test. The trend slope, an estimate of the annual change in value during water years 1986-95, is presented in units per year and in percent of mean per year. The level of significance indicates how likely it is that the results of the tests are due to random change in water quality rather than a pattern of change or trend throughout the period of study. A trend is considered to exist at a 0.10 level of significance; at this level, there is only a 1 in 10 chance that the test result is due to random change in water quality. The smaller the level of significance, the more significant the trend and the less likely the chance that the result is due to random change in water quality. For example, for a trend with a 0.01 level of significance, there is only a 1 in 100 chance that the test result is due to random change in water quality.

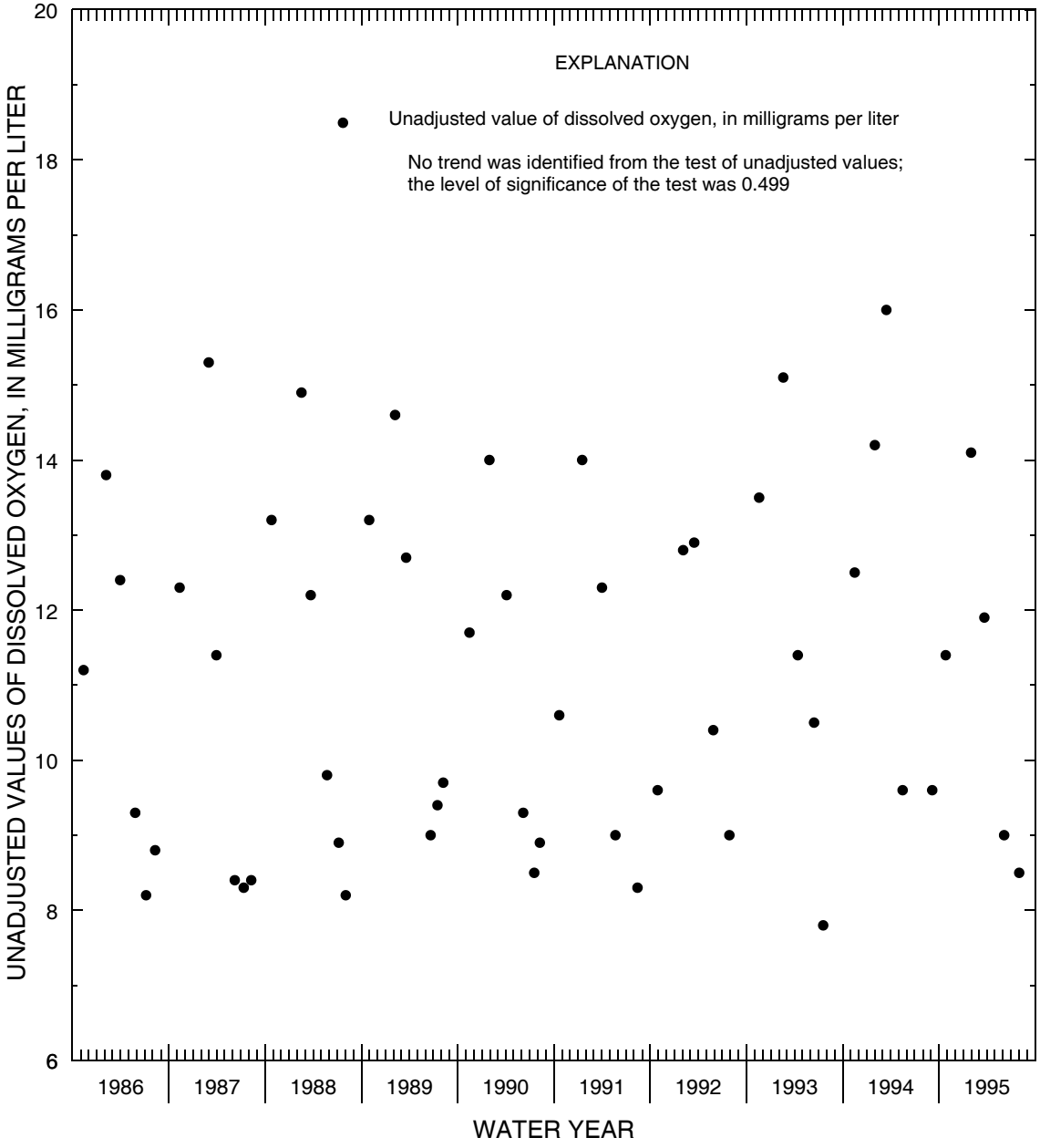

Figure 3. Relation between unadjusted values of dissolved oxygen and time at station 01399500, Lamington (Black) River near Pottersville, N.J., water years 1986-95.

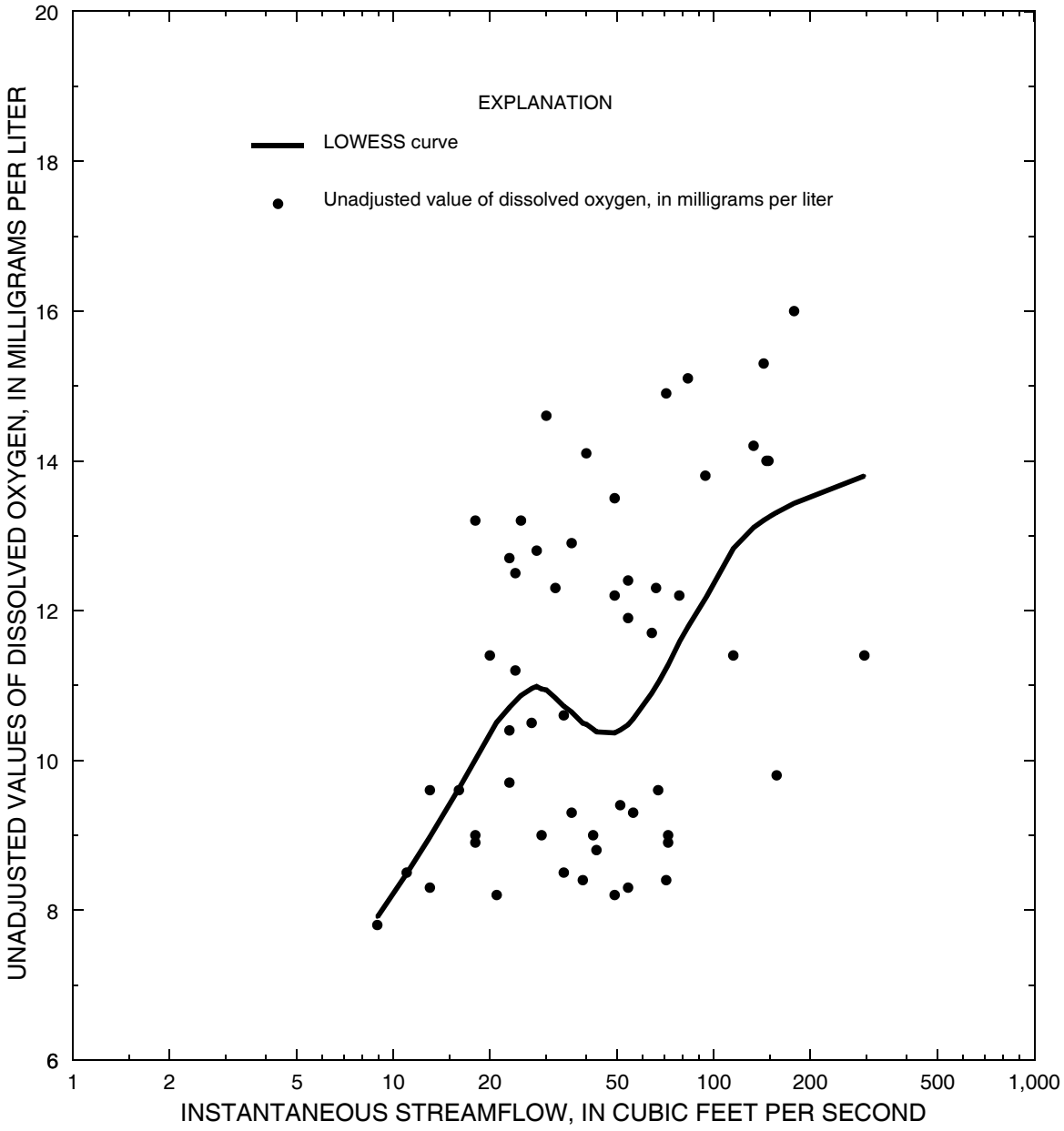

Figure 4. Relation between unadjusted values of dissolved oxygen and instantaneous streamflow at station 01399500, Lamington (Black) River near Pottersville, N.J., water years 1986-95.

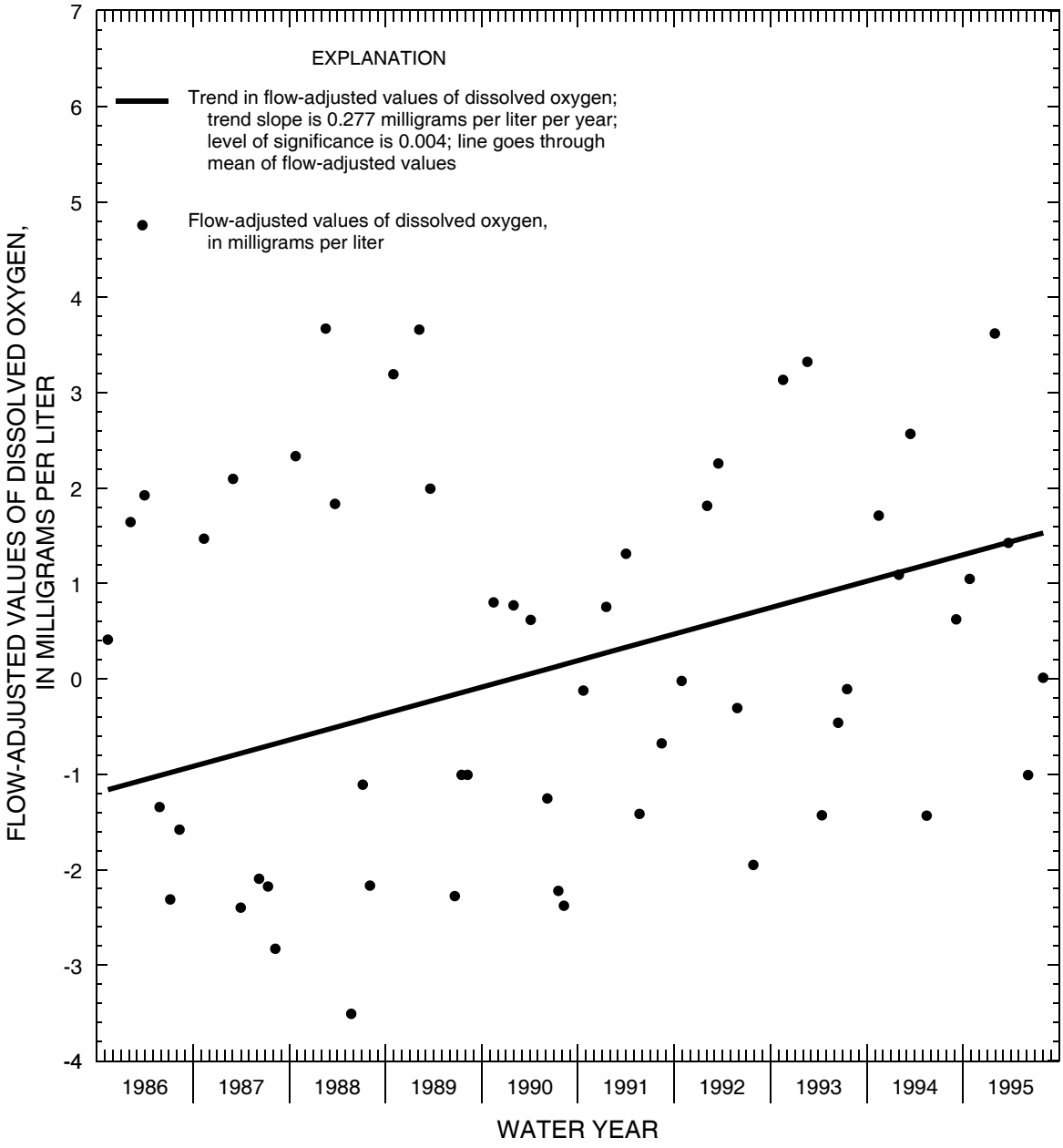

Figure 5. Relation between flow-adjusted values of dissolved oxygen and time at station 01399500, Lamington (Black) River near Pottersville, N.J., water years 1986-95.

Unadjusted Values of Water-Quality Characteristics

For this report, two tests, Seasonal Kendall uncensored test and tobit regression, were used to identify trends in unadjusted values of a water-quality characteristic. The results of the Seasonal Kendall uncensored test are presented if the data set of values of a characteristic at a station is uncensored and if sufficient values were available to conduct the test. The results of tobit regression are presented if the data set is censored, if sufficient values were available to conduct the regression, and if data were insufficient to conduct the Seasonal Kendall uncensored test. For this report, a data set was considered to be uncensored if no more than 5 percent of the values measured at the station were censored; otherwise, the data set was considered censored.

Uncensored data sets

The Seasonal Kendall uncensored test in ESTREND (Schertz and others, 1991) is a version of the nonparametric Seasonal Kendall test (Helsel and Hirsch, 1992; Hirsch and others, 1982). The Seasonal Kendall test is based on a series of comparisons of the relative magnitudes of each value with every other value in the same season; a season is a selected fraction of the year. The trend slope reported is the median of the slopes of each two values compared. All censored values were set to one-half of the reporting limit.

Tests were conducted on the following unadjusted values of water-quality characteristics that were expected to have small ranges as logarithms: temperature, pH, dissolved oxygen, and dissolved oxygen (percent). Tests were conducted on logarithms of the unadjusted values of the other characteristics that were expected to have larger ranges as logarithms.

For this study, the following four seasons were selected on the basis of water-quality measurement frequency and timing: January 1-March 31, April 1-June 30, July 1-September 30, and October 1-December 31. When more than one value was available for a season, the value that had associated streamflow and represented conditions at or closest to the middle of the season was selected; a maximum of 40 measurements could have been used for each test, one value during each of 4 seasons for 10 years.

Results of the Seasonal Kendall uncensored test are reported if there were a minimum of 12 measurements during 5 or more years, and if there were 4 measurements in each of the first 2 and last 2 years. Results of three tests indicated trends with slopes of 0; the direction of the trend slopes of these tests was determined by examining plots of the values as a function of time.

Censored data sets

Tobit regression (Cohen, 1976; Cohn, 1988; Helsel and Hirsch, 1992) is a type of linear regression that can accommodate censored values of the response variable (in this case, the response variable is an unadjusted water-quality value). Tobit regression assumes that the residuals are normally distributed around the regression line. Each regression for a characteristic and station included all unadjusted values of that characteristic at that station. The form of the equation used in this report is

$$\ln(C) = b0 + (b1)*t \quad , \qquad (1)$$

where ln is the natural logarithm,
C is the unadjusted value of the water-quality characteristic,
b0 and b1 are the intercept and slope, respectively, and
t is time.

For this study, results of tobit regression are reported if there were a minimum of 10 measurements during 5 or more years, and 1 measurement per year in the beginning and ending 2 years in the 10-year period. In addition, at least 20 percent of the measurements had to be uncensored.

The trend slope was calculated from the results of tobit regression by use of the following two equations:

$$\text{slope_units} = C_m * (e^{b1}-1) \quad \text{, and} \qquad (2)$$

$$\text{slope_perc} = 100 *(e^{b1}-1) \quad , \qquad (3)$$

where slope_units is the trend slope in units per year,
slope_perc is the trend slope in percent of mean per year,
C_m is the mean value of water-quality characteristic, and
b1 is the slope of the tobit regression.

Flow-Adjusted Values of Water-Quality Characteristics

The Seasonal Kendall uncensored test was used to test all data sets of flow-adjusted values. By definition, all data sets of flow-adjusted values are uncensored. For all characteristics except temperature, pH, dissolved oxygen, and dissolved oxygen (percent), the results of the trend tests were converted from logarithms to the original units by use of equations 2 and 3. The trend slope from the seasonal Kendall uncensored test was used in place of the trend slope from the tobit regression.

TRENDS IN WATER-QUALITY CHARACTERISTICS OF NEW JERSEY STREAMS

Summary statistics of the data tested and the results of the tests are presented in appendixes 2-25; each appendix contains information for one water-quality characteristic. For each characteristic, summary statistics are presented in a table, and results of the trend tests are presented in a map and a second table.

For a given water-quality characteristic and station, the results of the two types of trend tests may be different from one another. Given sufficient data to conduct both tests, the results of the seasonal Kendall uncensored test are more accurate than those of tobit regression because the Seasonal Kendall test takes seasonal variations into account, and tobit regression does not. In addition, use of the Seasonal Kendall test requires that a smaller fraction of the data tested are censored (5 percent or less) than is required by tobit regression (greater than 5 percent).

Summaries of the results of the trend tests are given in table 3 and figures 6 to 8 in order to compare the statewide pattern of trends in unadjusted and flow-adjusted values. For this study, the statewide pattern for a characteristic is considered to be the relative magnitude of the number of stations showing increases, no change, or decreases compared with the total number of stations tested for either unadjusted or flow adjusted values. For pH, for example, the largest number of stations showed no changes in unadjusted values, fewer stations showed increases in unadjusted values, and fewer stations still showed decreases in unadjusted values. A similar statewide pattern is shown by the results of tests of flow-adjusted values of pH.

For some water-quality characteristics, such as total ammonia and 5-day biochemical-oxygen demand, the number of stations tested for flow-adjusted values are far fewer than the number tested for unadjusted values. For each of these characteristics, most stations had censored data sets; flow-adjusted values could not be determined for trend tests.

For most water-quality characteristics, most stations had uncensored data sets and could be tested for trends in flow-adjusted values. For these characteristics, the number of stations tested for flow-adjusted values was approximately the number of stations tested for unadjusted values.

Trends in unadjusted values of a water-quality characteristic may be due to changes in basin characteristics, but may also be due to changes in weather patterns. For example, decreases in precipitation may decrease the loads of materials washing off the land surface and the resulting concentrations in the stream. Also, decreases in precipitation during the period of study tend to decrease streamflow, and may tend to increase concentrations of materials discharged by constant-rate point sources. In this report, streamflow is used as a surrogate for weather patterns because flow in most streams is largely due to weather patterns rather than to human activities.

Table 3. Summary of results of trend tests of water-quality characteristics at selected surface-water-quality stations in New Jersey, water years 1986-95

[Units of measurement are shown in table 1; MPN, most probable number per 100 milliliters; COL, bacterial colonies per 100 milliliters]

Water-quality characteristic	Number of stations with indicated result of trend test							
	Unadjusted values				Flow-adjusted values			
	Decreasing value	No change	Increasing value	Not tested	Decreasing value	No change	Increasing value	Not tested
Physical Properties								
Instantaneous streamflow	20	61	0	2	0	0	0	83
Temperature	4	73	4	2	4	75	2	2
Dissolved oxygen	13	61	7	2	1	63	17	2
Dissolved-oxygen (percent)	10	64	7	2	1	66	14	2
5-day biochemical-oxygen demand	21	48	12	2	5	5	0	73
pH	1	50	30	2	0	61	20	2
Total alkalinity	1	41	24	17	1	42	14	26
Nutrients and Bacteria								
Total nitrogen	46	35	1	1	41	31	1	10
Total ammonia	63	11	1	8	2	7	0	74
Total organic nitrogen	58	22	0	3	60	20	0	3
Total nitrate plus nitrite	9	51	22	1	8	46	19	10
Total phosphorus	37	44	1	1	24	28	0	31
Total organic carbon	21	42	1	19	15	45	0	23
Fecal coliform (MPN)	11	62	2	8	3	29	1	50
Fecal coliform (COL)	0	4	1	78	0	4	0	79
Major Dissolved Constituents								
Specific conductance	4	48	29	2	2	55	24	2
Dissolved solids	2	30	29	22	2	35	24	22
Dissolved sodium	2	35	28	18	2	37	26	18
Dissolved potassium	10	54	11	8	6	51	7	19
Total hardness	4	43	18	18	1	52	11	19
Dissolved calcium	4	37	24	18	3	49	13	18
Dissolved magnesium	5	46	14	18	3	52	10	18
Dissolved chloride	2	28	35	18	3	33	29	18
Dissolved sulfate	16	37	2	28	5	48	2	28

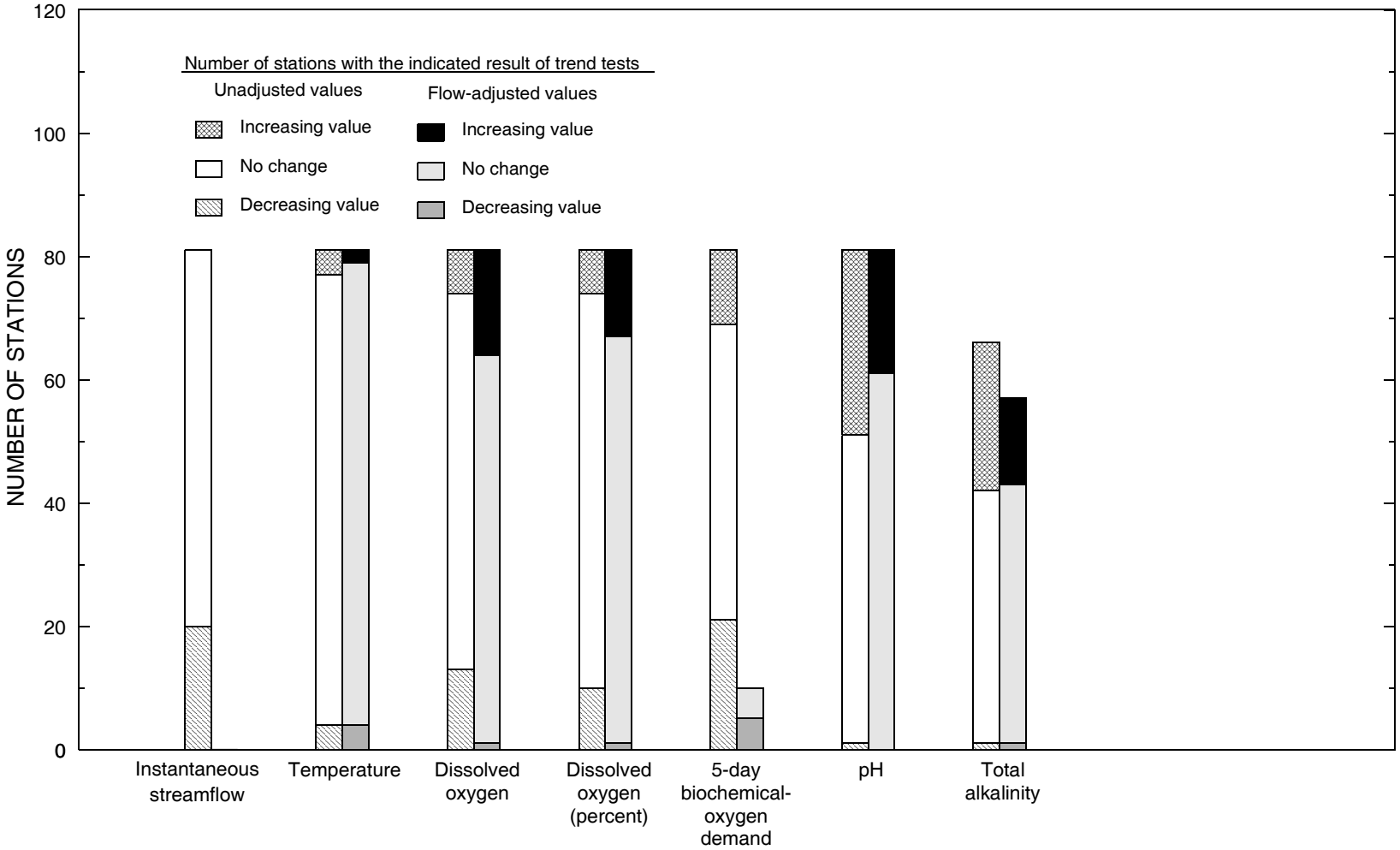

Figure 6. Number of surface-water-quality stations showing increasing values, decreasing values, and no change in value of the physical properties in New Jersey streams, water years 1986-95.

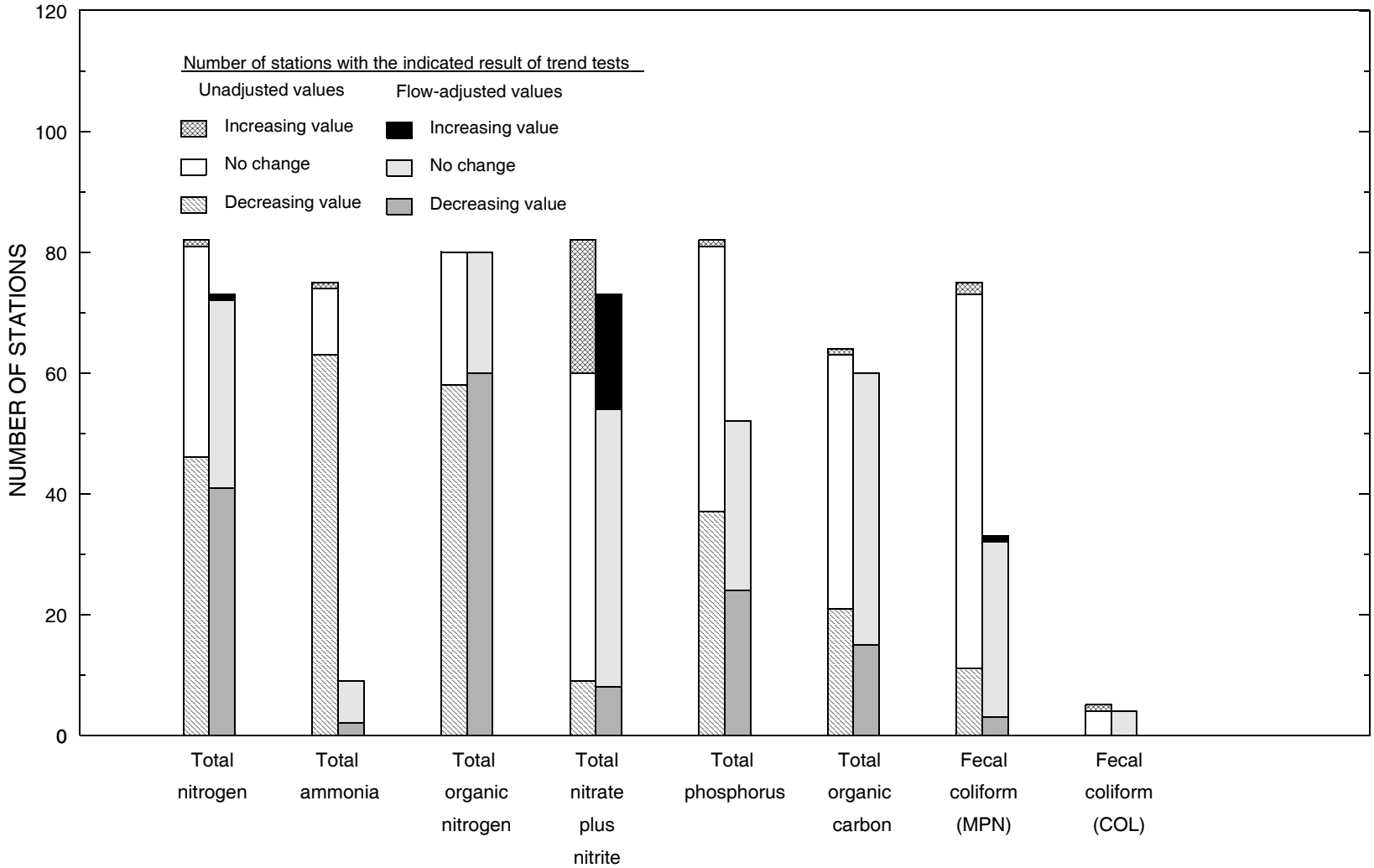

Figure 7. Number of surface-water-quality stations showing increasing values, decreasing values, and no change in value of the nutrients and bacteria in New Jersey streams, water years 1986-95.

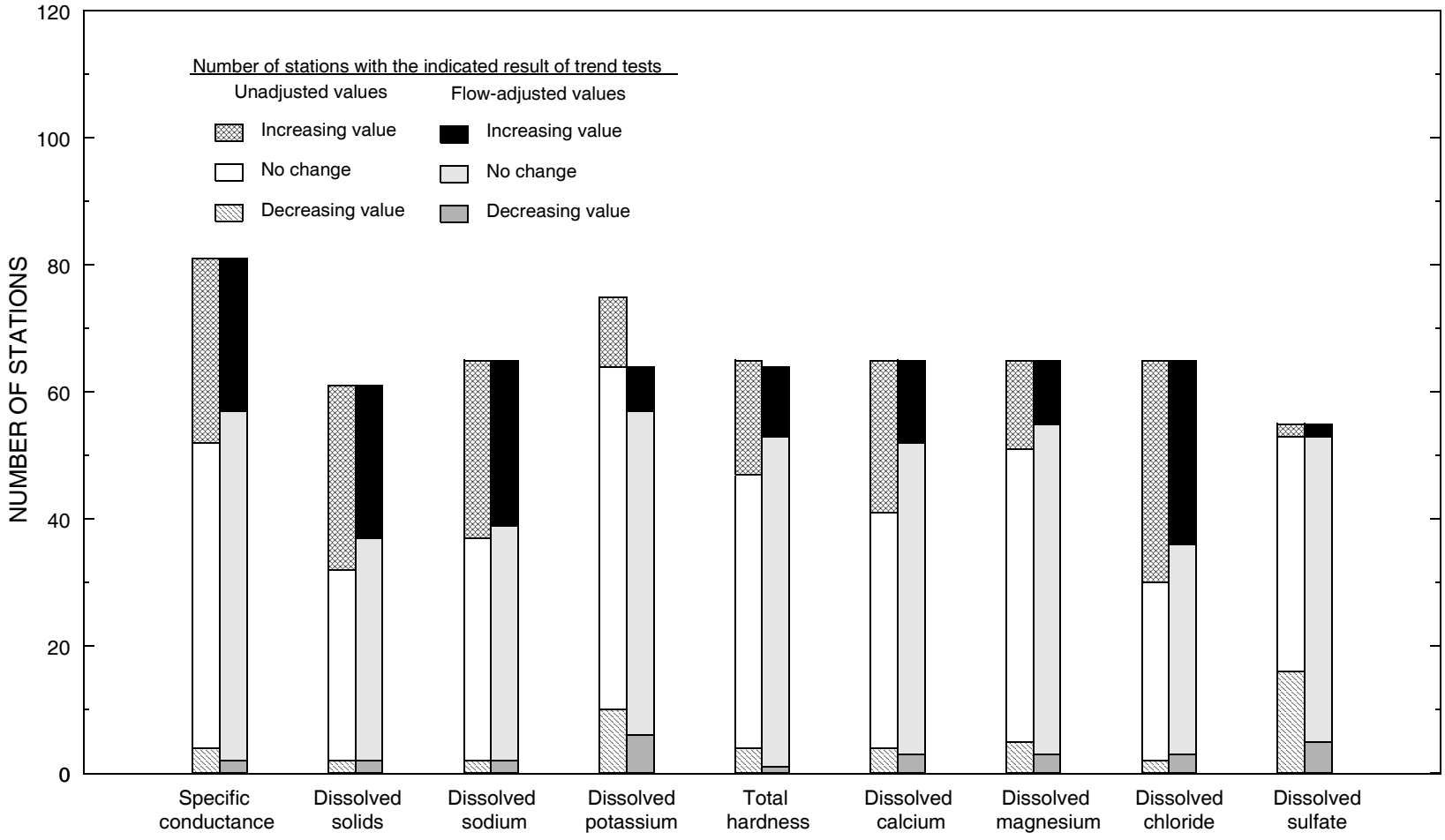

Figure 8. Number of surface-water-quality stations showing increasing values, decreasing values, and no change in value of the major dissolved constituents in New Jersey streams, water years 1986-95.

Trends in flow-adjusted values of water quality were identified, as well as trends in unadjusted values, because trends in flow-adjusted values of water quality are more likely the result of changes in basin characteristics than are trends in unadjusted values. The effects of changes in streamflow on changes in flow-adjusted values of water quality are much less significant than on changes in unadjusted values. As a result, the effects of changes in weather patterns on changes in flow-adjusted values are much less significant than on changes in unadjusted values.

The interpretation of trends as the result of changes in basin characteristics and (or) weather patterns requires the assumption that the techniques used to collect water samples in the field and analyze them in the laboratory were unchanged over the period of study. A detailed investigation of changes in laboratory methods was not conducted for this study; however, on October 1, 1994, there was a change of laboratories conducting the analyses of nutrients for most stations (Jacob Gibs, USGS, oral commun., 1998). Prior to October 1, 1994, total phosphorus, total organic nitrogen, total nitrogen, and total nitrate plus nitrite were determined by the New Jersey Department of Health; after that date, these analyses were conducted by the U.S. Geological Survey Central Laboratory. The change in laboratory occurred near the end of the period of study and may have had little effect on the results of the study. No known changes were made in field methods.

Streamflow appears to have decreased throughout New Jersey during water years 1986-95. Of the 81 stations tested, 20 showed decreasing streamflow (table 3; fig. 6); no station showed increasing streamflow. Because the locations of stations with decreasing streamflow are widespread (fig. 2-1; appendix 2), it is likely that these trends are due to changes in weather patterns rather than to changes in the amount of water withdrawals (a basin characteristic). These tests were conducted on a relatively small number of discrete measurements and may not accurately represent trends in streamflow as determined by tests of continuous records of streamflow.

For those characteristics with mostly uncensored data sets, the effects of the changes in streamflow on the statewide pattern of unadjusted values appear to be small. Generally, the statewide pattern of the results of tests on flow-adjusted values is similar to that of the unadjusted values (table 3; figs. 6-8). Differences between the two statewide patterns are due to the effects of the changes in streamflow.

For dissolved oxygen and dissolved oxygen (percent), the statewide patterns shown by the results of tests of unadjusted values are different from the patterns shown by results of tests of flow-adjusted values (table 3; fig. 6). For unadjusted values, more stations show decreasing values than increasing values; however, for flow-adjusted values, more stations show increasing values than show decreasing values. The difference in patterns is consistent with (1) conditions of decreasing streamflow during the period of study and (2) unadjusted values of both characteristics increasing with increasing streamflow. Unadjusted values of both characteristics often increase with increasing streamflow (as in figure 4). Concentrations of dissolved oxygen and dissolved oxygen (percent) are often greatest during winter and spring when streamflow is high and temperature is low, and lowest during summer when streamflow is low and temperature is high. Concentrations of dissolved oxygen often increase with decreasing temperature because the

saturation concentration at low temperature is greater than at high temperature. In addition, dissolved oxygen and dissolved oxygen (percent) commonly increase with decreasing temperature because the processes that remove dissolved oxygen from water at low temperature usually operate at a rate lower than that at high temperature.

Statewide patterns of trends (of unadjusted and flow-adjusted values) in pH and total alkalinity are consistent with one another; more stations show increases than decreases (table 3; fig. 6). Total alkalinity is a measure of the acid-neutralizing capacity of water, and pH is a measure of acidity. The pH of water typically increases with increasing total alkalinity; increasing values of pH and total alkalinity indicate decreasing acidity and increasing capacity of water to neutralize acidity, respectively.

Results of tests for nutrients are consistent with the expected decrease in concentrations in discharges from STP's as a result of upgrades. For the following nutrients, more stations show decreases in unadjusted and flow-adjusted values than show increases: total nitrogen, total ammonia (unadjusted values only), total organic nitrogen, total phosphorus, and total organic carbon. For total nitrate plus nitrite, more stations show increases than decreases. These results are consistent with STP upgrades; STP upgrades often include the addition of processes that convert ammonia to nitrate plus nitrite, thereby increasing the concentration of nitrate plus nitrite in the treated wastewater discharged to the receiving streams.

For eight of the nine major dissolved constituents--specific conductance, total hardness, and dissolved solids, sodium, potassium, calcium, magnesium, and chloride--statewide patterns of results show more stations with increases than decreases (table 3; fig. 8). These increases could be the result of increased loads from point discharges or of changes in basin land use or other basin characteristics. The effects of upgrades of STP's in New Jersey would not result in a reduction of the concentrations of major dissolved constituents in the treated wastewater discharged to the streams. Of the major dissolved constituents, only dissolved sulfate did not show more increases than decreases.

For total hardness, statewide patterns of results of tests are similar to those for dissolved calcium and magnesium (table 3; fig. 8). The relative proportion of stations with decreases, no change, and increases is approximately the same among all three characteristics. This was expected because total hardness is primarily a function of the amount of calcium and magnesium dissolved in water.

In this report, causes of the identified trends are only suggested; the determination of the causes of an observed trend is outside the scope of this study. Determination of the causes requires a detailed knowledge of drainage-basin characteristics during the period of study. The first step in such a determination would be a comparison of loads in the stream to loads discharged upstream by point sources.

SUMMARY AND CONCLUSIONS

Trend tests were conducted on values of 24 selected water-quality characteristics measured at 83 surface-water-quality stations on streams in New Jersey during water years 1986-95. Trends were identified by use of the Seasonal Kendall uncensored test and tobit regression procedures in the ESTREND system of computer programs. Trend tests were conducted on flow-adjusted values as well as unadjusted values; trends in flow-adjusted values are more likely to result from changes in basin characteristics than are trends in unadjusted values.

Results of trend tests of instantaneous streamflow measured at the times of water-quality measurement indicate that streamflow decreased throughout New Jersey during this period. Of the 81 stations with sufficient data to be tested, 20 showed decreases in instantaneous streamflow; no station showed increases. Because the locations of stations with decreasing streamflow are widespread, it is likely that these trends are due to changes in weather patterns rather than to changes in the amount of water withdrawals. The results of trend tests of these discrete values of instantaneous streamflow are not necessarily accurate indicators of trends in continuous streamflow.

For most water-quality characteristics, the number of stations tested for trends in flow-adjusted values was approximately the number of stations tested for trends in unadjusted values. For most characteristics, the effects of the changes in streamflow on the statewide pattern of unadjusted values appear to be small, and the proportion of stations showing increases, no change, or decreases was approximately the same for both unadjusted and flow-adjusted values. For dissolved oxygen and dissolved oxygen (percent), however, the statewide patterns of flow-adjusted values are different from those of unadjusted values. Tests of unadjusted values show more stations with decreases than with increases; tests of flow-adjusted values show more stations with increases than decreases. These results are consistent with conditions of (1) decreasing streamflow and (2) unadjusted values of both characteristics increasing with increasing streamflow. Unadjusted values of both characteristics often tend to increase with increasing streamflow.

Results of tests of nutrient values are consistent with the expected decrease in concentrations in treated wastewater discharged from sewage treatment plants (STP's) as a result of upgrades to the plants. For most nutrients, more stations show decreases in unadjusted and flow-adjusted values than show increases. For total nitrate plus nitrite, more stations show increases than decreases. This is also consistent with STP upgrades; STP upgrades often include the addition of processes that convert ammonia to nitrate plus nitrite, thereby increasing the concentrations of nitrate plus nitrite in treated wastewater discharged to the streams.

Results for eight major dissolved constituents--specific conductance, total hardness, and dissolved concentrations of solids, sodium, potassium, calcium, magnesium, and chloride--of the nine tested showed more stations with increasing values than stations with decreasing values. Only dissolved sulfate did not show more increases than decreases.

REFERENCES CITED

Bauersfeld, W.R., Schopp, R.D., and Shulman, M.D., 1991, New Jersey floods and droughts, *in* U.S. Geological Survey, National water summary 1988-89--hydrologic events and floods and droughts: U.S. Geological Survey Water-Supply Paper 2375, p. 401-408.

Cleveland, W.S., 1979, Robust locally weighted regression and smoothing scatterplots: Journal of the American Statistical Association, v. 74, p. 829-836.

Coastal Environmental Services, Inc., 1997, Statistical analyses of trends in water quality for stations in the ambient streams monitoring program: Linthicum, Md., prepared for the State of New Jersey, Department of Environmental Protection and Energy, Division of Science and Research, 66 p.

Cohen, A.C., Jr., 1976, Progressively censored sampling in the three parameter log-normal distribution: Technometrics, v. 18, no. 1, p. 99-103.

Cohn, T.A., 1988, Adjusted maximum likelihood estimation of the moments of lognormal populations from type I censored samples: U.S. Geological Survey Open-File Report 88-350, 34 p.

Fenneman, N.M., 1946, Physical divisions of the United States: U.S. Geological Survey special map, scale 1:7,000,000, 1sheet.

Fishman, M.J., Raese, J.W., Gerlitz, C.N., and Husband, R.A., 1994, U.S. Geological Survey approved inorganic and organic methods for the analysis of water and fluvial sediment, 1954-94: U.S. Geological Survey Open-File Report 94-351, 55 p.

Hay, L.E., and Campbell, J.P., 1990, Water-quality trends in New Jersey streams: U.S. Geological Survey Water-Resources Investigations Report 90-4046, 297 p.

Helsel, D.R., and Cohn, T.A., 1988, Estimation of descriptive statistics for multiply censored water quality data: Water Resource Research, v. 24, n. 12, p.1997-2004.

Helsel, D.R., and Hirsch, R.M., 1992, Statistical methods in water resources: New York, Elsevier Studies in Environmental Science, no. 49, 529 p.

Hirsch, R.M., Slack, J.R., and Smith, R.A., 1982, Techniques of trend analysis for monthly water quality data: Water Resources Research, v. 18, p. 107-121.

Lanfear, K.J., and Alexander, R.B., 1990, Methodology to derive water-quality trends for use by the national water summary program of the U.S. Geological Survey: U.S. Geological Survey Open-File Report 90-359, 10 p.

REFERENCES CITED--CONTINUED

Morgan, K.O., Morgan, Scott, and Quitno, Neal, eds., 1992, State rankings, 1992--a statistical view of the 50 United States: Lawrence, Kans., Morgan Quitno Corporation, 459 p.

New Jersey Department of Environmental Protection, 1997, Statewide watershed management framework document for the State of New Jersey: New Jersey Department of Environmental Protection, Trenton, N.J., 78 p.

Robinson, K.W., Lazaro, T.R., and Pak, Connie, 1996, Associations between water-quality trends in New Jersey streams and drainage-basin characteristics, 1975-86: U.S. Geological Survey Water-Resources Investigations Report 96-4119, 148 p.

Schertz, T.E., Alexander, R.B., and Ohe, D.J., 1991, The computer program estimate trend, ESTREND, A system for the detection of trends in water-quality data: U.S. Geological Survey Water-Resources Investigations Report 91-4040, 63 p.

U.S. Department of Commerce, 1991, State and metropolitan area data book, 1991, metropolitan areas, central cities, states--a statistical abstract supplement: Washington, D.C., Bureau of the Census, 388 p.

APPENDIXES

Appendix 1. Methods used to estimate missing unadjusted values for selected water-quality characteristics

Dissolved oxygen (percent) was calculated from the following equation:

$$DO_{pct} = 100 * (DO/DO_{sat}) \quad , \tag{1}$$

where DO_{pct} is dissolved oxygen (percent), in percent of saturation;
DO is dissolved-oxygen, in milligrams per liter; and
DO_{sat} is dissolved-oxygen at saturation, in milligrams per liter.

Values of dissolved oxygen at saturation were calculated by the method used by R.J. Pickering (U.S. Geological Survey, written commun., 1981) and by assuming a barometric pressure of 760 millimeters of mercury. The value of specific conductance, if missing, was assumed to be 300 microsiemens per centimeter at 25 degrees Celsius. The equations used to determine dissolved oxygen at saturation are

$$DO_{sat} = 1.4276 * 2.7183^{(A+(S*B))} , \tag{2}$$

$$A = (-173.4292) + (249.6339 * K) + (143.3484 * \ln(1/K)) - (21.8492/K) , \tag{3}$$

$$S = ((5.572*10^{4}) * SC) + ((2.02 * 10^{-9}) * SC^{2}) , \tag{4}$$

$$B = -0.033096 + (0.014259/K) - (0.001700/K^{2}) , \text{ and} \tag{5}$$

$$K = (100/(T + 273.15)) , \tag{6}$$

where DO_{sat} is dissolved-oxygen concentration at saturation, in milligrams per liter;
T is temperature, in degrees Celsius;
SC is specific conductance, in microsiemens per centimeter at 25 degrees Celsius; and
ln is the natural logarithm.

Missing values of total nitrogen and total organic carbon were each estimated from two components. Values of total nitrogen were calculated from values of total organic nitrogen plus ammonia and values of total nitrate plus nitrite; values of total organic carbon were calculated from values of dissolved organic carbon and values of suspended organic carbon. In the following discussion, the term "characteristic" refers to either total nitrogen or total organic carbon, and the term "component" refers to either of the two components used to estimate the missing values of the characteristic.

Missing values of either characteristic were estimated in one of four ways. (1) If both components were uncensored, the value of the characteristic was set equal to the sum of the two components. (2) If the values of both components were censored, the value of total nitrogen was set to a censored value with a reporting limit equal to the sum of the reporting limits of the two components. (3) If the reporting limit of the censored value was 5 percent or less than the sum of the reporting limit and the value of the other uncensored component, the value for the characteristic was set equal to the value of the uncensored component. (4) Otherwise, the value of characteristic was set equal to a censored value with a reporting limit equal to the sum of the uncensored component and the reporting limit of the censored component.

Appendix 2. Summary statistics and results of trend tests for instantaneous streamflow at selected surface-water-quality stations in New Jersey, water years 1986-95

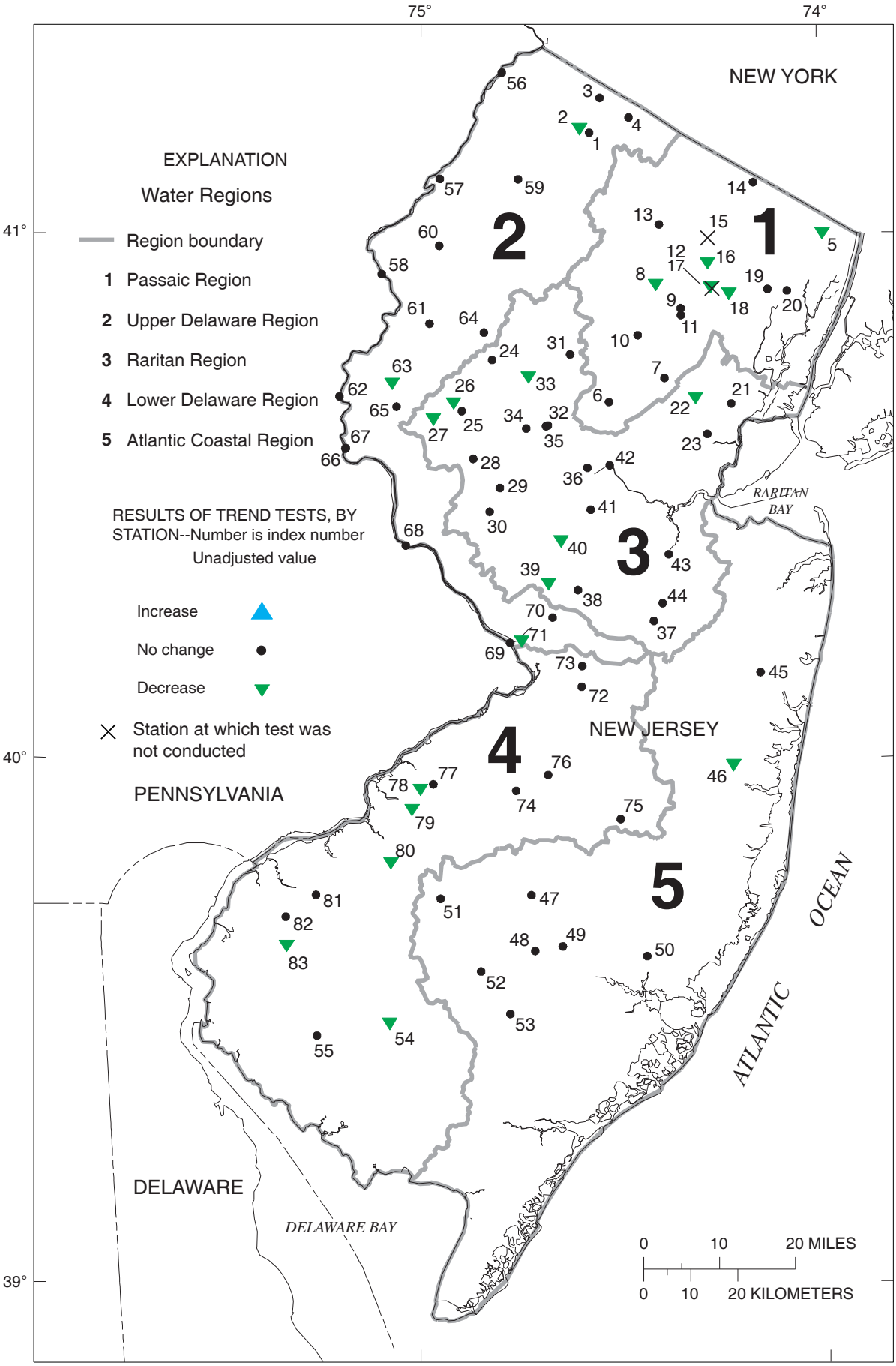

Figure 2-1. Results of trend tests for instantaneous streamflow at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 2a. Summary statistics for instantaneous streamflow at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in cubic feet per second and are rounded to three significant figures or, if less than three significant figures, values are rounded to 0.1 cubic feet per second]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	55	55	0	11.0	73.0	93.7	355
2	01367910	55	55	0	6.8	40.0	54.3	240
3	01368000	43	43	0	25.0	160	221	1,600
4	01368950	54	54	0	3.9	23.5	26.8	120
5	01377000	56	56	0	16.0	55.5	79.1	490
6	01379000	55	55	0	7.9	44.0	93.1	535
7	01379500	55	55	0	19.0	73.0	182	1,120
8	01380500	51	51	0	11.0	150	194	669
9	01381200	55	55	0	23.0	46.0	118	780
10	01381500	55	55	0	15.0	39.0	65.8	600
11	01381800	55	55	0	25.0	72.0	119	730
12	01382000	134	134	0	90.0	438	739	4,090
13	01382500	44	44	0	.5	7.8	26.5	315
14	01387500	55	55	0	15.0	110	159	636
15	01388000	125	125	0	10.0	126	226	1,470
16	01388600	135	135	0	40.0	200	417	2,800
17	01389005	116	116	0	120	522	881	4,800
18	01389500	139	139	0	46.0	585	972	4,400
19	01389880	44	44	0	61.0	595	1,010	4,280
20	01391500	55	55	0	19.0	62.0	75.7	294
21	01393450	67	67	0	5.0	10.2	28.1	456
22	01394500	63	63	0	4.0	10.4	27.3	420
23	01395000	66	66	0	1.2	20.5	49.6	887
24	01396280	55	55	0	25.0	59.0	76.0	300
25	01396535	55	55	0	34.0	89.0	112	400
26	01396588	55	55	0	3.0	18.0	39.0	310
27	01396660	55	55	0	2.8	11.0	19.3	123
28	01397000	43	43	0	76.0	170	253	1,430
29	01397400	55	55	0	90.0	205	275	1,230
30	01398000	55	55	0	.5	10.0	36.2	491
31	01398260	55	55	0	2.1	8.8	12.2	91.0
32	01399120	55	55	0	10.0	75.0	109	805
33	01399500	55	55	0	8.9	42.0	58.5	295
34	01399700	54	54	0	11.0	36.0	64.6	610
35	01399780	54	54	0	23.0	102	191	1,310
36	01400500	55	55	0	205	445	634	3,870
37	01400540	55	55	0	1.8	9.3	10.4	50.0
38	01400650	55	55	0	8.0	35.0	80.3	930
39	01401000	62	62	0	.9	15.1	40.2	754
40	01401600	60	60	0	.8	16.0	47.4	362
41	01402000	45	45	0	1.0	210	420	4,100
42	01403300	41	41	0	155	620	1,500	11,800
43	01405302	56	56	0	7.1	48.0	84.1	840
44	01405340	55	55	0	4.7	20.0	25.1	129
45	01408000	45	45	0	18.0	45.0	51.4	194
46	01408500	56	56	0	64.0	170	209	895
47	01409387	55	55	0	11.0	35.0	50.0	240
48	01409416	55	55	0	3.2	15.0	24.0	172
49	01409500	56	56	0	42.0	103	116	301
50	01410150	55	55	0	6.8	13.0	15.1	48.0

Table 2a. Summary statistics for instantaneous streamflow at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in cubic feet per second and are rounded to three significant figures or, if less than three significant figures, values are rounded to 0.1 cubic feet per second]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
51	01410784	56	56	0	2.4	11.0	14.0	57.0
52	01411000	43	43	0	30.0	72.0	73.3	168
53	01411110	55	55	0	83.0	210	236	800
54	01411500	59	59	0	49.0	141	159	544
55	01412800	55	55	0	9.1	25.0	29.8	80.0
56	01438500	43	43	0	1,600	2,800	4,430	27,300
57	01440000	33	33	0	9.0	87.0	124	1,210
58	01443000	55	55	0	1,300	3,860	6,350	32,000
59	01443440	55	55	0	14.0	80.0	136	880
60	01443500	55	55	0	20.0	134	239	1,390
61	01445500	44	44	0	33.0	120	195	1,210
62	01447000	55	55	0	1,960	4,130	6,950	39,000
63	01455200	55	55	0	4.4	25.0	40.9	340
64	01456200	53	53	0	33.0	124	194	1,600
65	01457000	43	43	0	71.0	170	254	1,240
66	01457400	55	55	0	77.0	195	236	620
67	01457500	42	42	0	3,000	6,700	9,900	47,100
68	01461000	55	55	0	2,700	7,600	10,300	44,500
69	01463500	59	59	0	2,540	9,920	15,700	60,200
70	01463620	52	52	0	7.7	24.5	46.0	270
71	01464000	44	44	0	27.0	95.0	138	629
72	01464500	55	55	0	30.0	85.0	143	882
73	01464515	55	55	0	2.6	22.0	34.1	330
74	01465850	55	55	0	8.6	53.0	64.4	200
75	01466500	104	104	0	.6	1.7	1.8	7.0
76	01467000	55	55	0	34.0	124	152	476
77	01467069	55	55	0	1.0	6.0	7.4	61.0
78	01467081	55	55	0	2.9	8.3	11.7	63.0
79	01467150	44	44	0	8.0	20.0	33.9	250
80	01467329	55	55	0	8.6	23.0	27.0	128
81	01477120	55	55	0	9.4	24.0	32.0	124
82	01477510	55	55	0	5.0	17.0	31.0	240
83	01482500	55	55	0	1.5	12.0	14.8	115

Table 2b. Summary of trends in instantaneous streamflow at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, cubic feet per second; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NT	SKEN	40	-2.5	-2.7	0.720	--	--	--	--
2	01367910	DOWN	NT	SKEN	40	-3.1	-5.6	.073	--	--	--	--
3	01368000	NSIG	NT	SKEN	37	-5.0	-2.3	.764	--	--	--	--
4	01368950	NSIG	NT	SKEN	39	1.3	4.7	.353	--	--	--	--
5	01377000	DOWN	NT	SKEN	40	-5.9	-7.5	.054	--	--	--	--
6	01379000	NSIG	NT	SKEN	40	-2.0	-2.2	.530	--	--	--	--
7	01379500	NSIG	NT	SKEN	40	-4.6	-2.5	.348	--	--	--	--
8	01380500	DOWN	NT	SKEN	36	-14	-7.3	.073	--	--	--	--
9	01381200	NSIG	NT	SKEN	40	0	0	1.000	--	--	--	--
10	01381500	NSIG	NT	SKEN	40	- .92	-1.4	.529	--	--	--	--
11	01381800	NSIG	NT	SKEN	40	.99	.83	.893	--	--	--	--
12	01382000	DOWN	NT	SKEN	40	-73	-9.9	.039	--	--	--	--
13	01382500	NSIG	NT	SKEN	37	-1.1	-4.2	.691	--	--	--	--
14	01387500	NSIG	NT	SKEN	40	-14	-8.9	.107	--	--	--	--
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	DOWN	NT	SKEN	40	-44	-11	.036	--	--	--	--
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	DOWN	NT	SKEN	40	-140	-14	.008	--	--	--	--
19	01389880	NSIG	NT	SKEN	36	-69	-6.9	.386	--	--	--	--
20	01391500	NSIG	NT	SKEN	40	- .22	- .30	.858	--	--	--	--
21	01393450	NSIG	NT	SKEN	40	- .98	-3.5	.125	--	--	--	--
22	01394500	DOWN	NT	SKEN	40	-1.5	-5.6	.069	--	--	--	--
23	01395000	NSIG	NT	SKEN	40	0	0	.928	--	--	--	--
24	01396280	NSIG	NT	SKEN	40	-1.8	-2.4	.621	--	--	--	--
25	01396535	NSIG	NT	SKEN	40	-4.7	-4.1	.139	--	--	--	--
26	01396588	DOWN	NT	SKEN	40	-3.6	-9.3	.081	--	--	--	--
27	01396660	DOWN	NT	SKEN	40	-1.3	-6.7	.049	--	--	--	--
28	01397000	NSIG	NT	SKEN	33	-18	-6.9	.164	--	--	--	--
29	01397400	NSIG	NT	SKEN	40	0	0	1.000	--	--	--	--
30	01398000	NSIG	NT	SKEN	40	-1.8	-4.9	.474	--	--	--	--
31	01398260	NSIG	NT	SKEN	40	- .41	-3.3	.324	--	--	--	--
32	01399120	NSIG	NT	SKEN	40	-7.1	-6.5	.117	--	--	--	--
33	01399500	DOWN	NT	SKEN	40	-5.0	-8.6	.044	--	--	--	--
34	01399700	NSIG	NT	SKEN	40	-1.6	-2.6	.621	--	--	--	--
35	01399780	NSIG	NT	SKEN	39	-9.0	-4.7	.431	--	--	--	--
36	01400500	NSIG	NT	SKEN	40	-23	-3.6	.179	--	--	--	--
37	01400540	NSIG	NT	SKEN	40	.23	2.2	.754	--	--	--	--
38	01400650	NSIG	NT	SKEN	40	-3.9	-4.8	.395	--	--	--	--
39	01401000	DOWN	NT	SKEN	40	-5.4	-13	.014	--	--	--	--
40	01401600	DOWN	NT	SKEN	40	-6.7	-14	.081	--	--	--	--
41	01402000	NSIG	NT	SKEN	35	-47	-11	.114	--	--	--	--
42	01403300	NSIG	NT	SKEN	40	-4.3	- .29	1.000	--	--	--	--
43	01405302	NSIG	NT	SKEN	40	- .39	- .46	.964	--	--	--	--
44	01405340	NSIG	NT	SKEN	40	0	0	1.000	--	--	--	--
45	01408000	NSIG	NT	SKEN	34	- .098	- .19	.867	--	--	--	--
46	01408500	DOWN	NT	SKEN	40	-9.2	-4.4	.016	--	--	--	--
47	01409387	NSIG	NT	SKEN	40	.89	1.8	.787	--	--	--	--

Table 2b. Summary of trends in instantaneous streamflow at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, cubic feet per second; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
48	01409416	NSIG	NT	SKEN	40	-1.1	-4.5	.446	--	--	--	--
49	01409500	NSIG	NT	SKEN	40	1.1	.97	.687	--	--	--	--
50	01410150	NSIG	NT	SKEN	40	.33	2.2	.244	--	--	--	--
51	01410784	NSIG	NT	SKEN	40	- .64	-4.6	.446	--	--	--	--
52	01411000	NSIG	NT	SKEN	35	0	0	1.000	--	--	--	--
53	01411110	NSIG	NT	SKEN	40	-4.0	-1.7	.531	--	--	--	--
54	01411500	DOWN	NT	SKEN	40	-6.5	-4.1	.054	--	--	--	--
55	01412800	NSIG	NT	SKEN	40	0	0	1.000	--	--	--	--
56	01438500	NSIG	NT	SKEN	35	-130	-2.9	.287	--	--	--	--
57	01440000	NSIG	NT	SKEN	27	-2.5	-2.1	.440	--	--	--	--
58	01443000	NSIG	NT	SKEN	40	-45	- .71	.893	--	--	--	--
59	01443440	NSIG	NT	SKEN	40	-9.4	-6.9	.210	--	--	--	--
60	01443500	NSIG	NT	SKEN	40	-15	-6.5	.244	--	--	--	--
61	01445500	NSIG	NT	SKEN	34	-9.1	-4.7	.252	--	--	--	--
62	01447000	NSIG	NT	SKEN	40	120	1.7	.623	--	--	--	--
63	01455200	DOWN	NT	SKEN	40	-3.3	-8.1	.060	--	--	--	--
64	01456200	NSIG	NT	SKEN	38	-8.8	-4.5	.112	--	--	--	--
65	01457000	NSIG	NT	SKEN	33	-4.7	-1.9	.606	--	--	--	--
66	01457400	NSIG	NT	SKEN	40	-3.7	-1.6	.299	--	--	--	--
67	01457500	NSIG	NT	SKEN	31	-200	-2.1	.707	--	--	--	--
68	01461000	NSIG	NT	SKEN	40	15	.14	1.000	--	--	--	--
69	01463500	NSIG	NT	SKEN	40	250	1.6	.591	--	--	--	--
70	01463620	NSIG	NT	SKEN	38	.61	1.3	.810	--	--	--	--
71	01464000	DOWN	NT	SKEN	35	-9.8	-7.1	.095	--	--	--	--
72	01464500	NSIG	NT	SKEN	40	-2.6	-1.8	.589	--	--	--	--
73	01464515	NSIG	NT	SKEN	40	1.6	4.8	.194	--	--	--	--
74	01465850	NSIG	NT	SKEN	40	- .49	- .77	.719	--	--	--	--
75	01466500	NSIG	NT	SKEN	39	0	0	.707	--	--	--	--
76	01467000	NSIG	NT	SKEN	40	-6.0	-3.9	.243	--	--	--	--
77	01467069	NSIG	NT	SKEN	40	- .28	-3.8	.226	--	--	--	--
78	01467081	DOWN	NT	SKEN	40	- .75	-6.4	.019	--	--	--	--
79	01467150	DOWN	NT	SKEN	34	-3.1	-9.1	.001	--	--	--	--
80	01467329	DOWN	NT	SKEN	40	-1.2	-4.6	.028	--	--	--	--
81	01477120	NSIG	NT	SKEN	40	- .52	-1.6	.559	--	--	--	--
82	01477510	NSIG	NT	SKEN	40	.25	.80	.822	--	--	--	--
83	01482500	DOWN	NT	SKEN	40	-1.4	-9.4	.072	--	--	--	--

Appendix 3. Summary statistics and results of trend tests for temperature at selected surface-water-quality stations in New Jersey, water years 1986-95

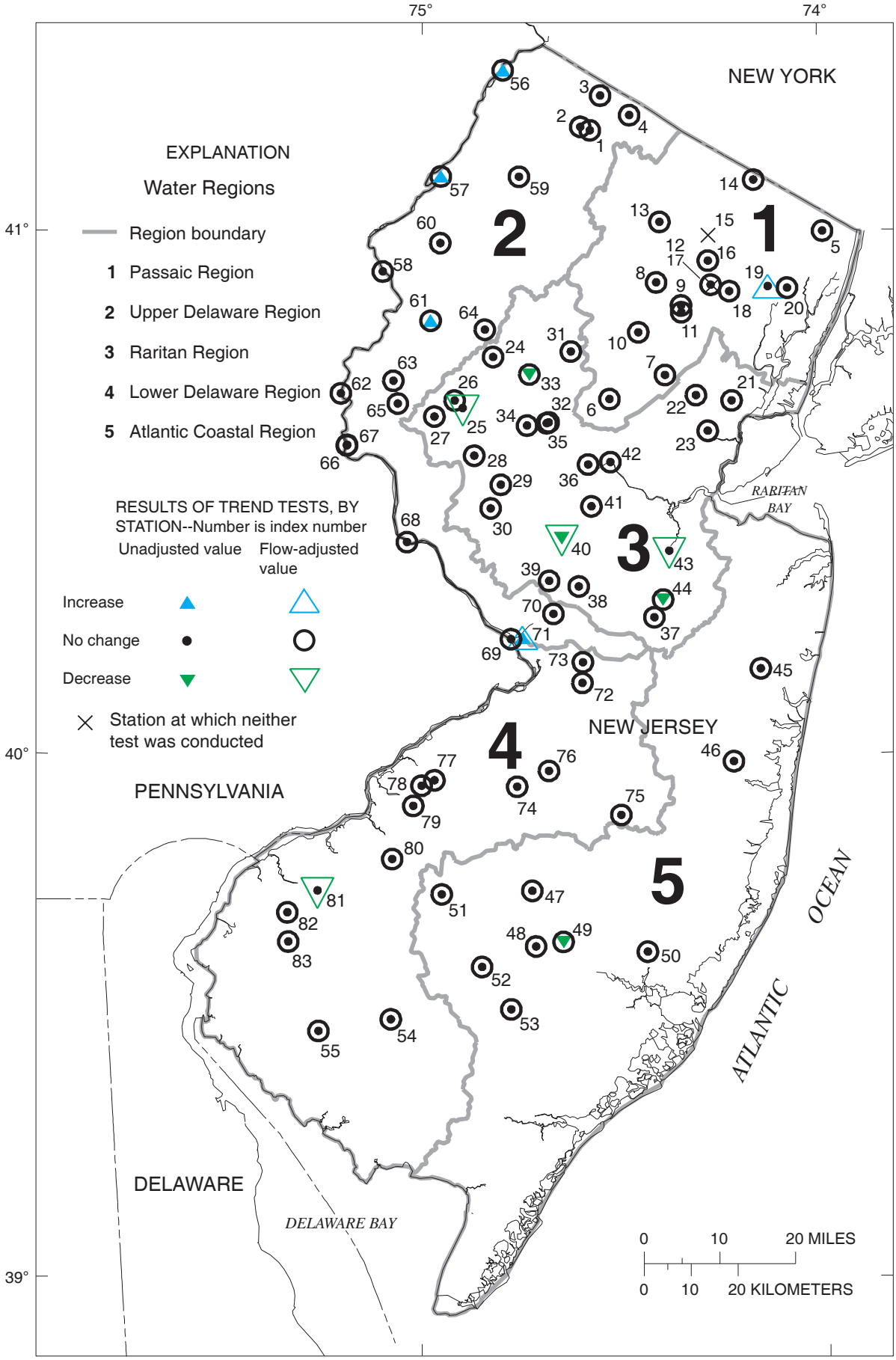

Figure 3-1. Results of trend tests for temperature at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 3a. Summary statistics for temperature at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in degrees Celsius and are rounded to 0.5 degrees]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	55	55	0	0.0	11.0	12.0	24.0
2	01367910	55	55	0	0	12.5	12.0	24.0
3	01368000	42	42	0	0	11.0	11.5	27.0
4	01368950	55	55	0	0	12.5	12.5	26.0
5	01377000	56	54	0	0	13.0	14.0	26.5
6	01379000	54	54	0	0	13.5	13.5	27.5
7	01379500	55	55	0	0	15.0	14.0	25.5
8	01380500	51	48	0	0	11.0	11.5	26.0
9	01381200	55	53	0	.5	14.0	13.5	24.0
10	01381500	55	55	0	.5	16.0	14.5	26.0
11	01381800	55	53	0	0	12.5	14.0	26.0
12	01382000	133	109	0	0	14.0	13.5	28.0
13	01382500	44	44	0	0	10.5	11.5	25.0
14	01387500	55	54	0	.5	13.0	13.0	25.0
15	01388000	125	100	0	.5	13.0	13.5	27.5
16	01388600	135	109	0	.5	13.5	13.0	27.0
17	01389005	115	92	0	0	14.0	14.0	27.5
18	01389500	259	110	0	0	12.5	13.0	28.5
19	01389880	44	44	0	0	13.5	13.0	27.5
20	01391500	55	54	0	.5	13.0	14.0	24.5
21	01393450	67	60	0	2.0	14.0	14.5	26.5
22	01394500	64	59	0	.5	12.5	13.5	25.0
23	01395000	70	61	0	1.0	12.5	14.0	26.0
24	01396280	54	54	0	0	12.0	11.0	23.0
25	01396535	54	54	0	0	13.0	12.0	24.0
26	01396588	55	54	0	0	12.0	12.0	23.5
27	01396660	55	54	0	.5	12.5	12.0	23.0
28	01397000	43	43	0	0	12.5	12.0	26.5
29	01397400	55	55	0	0	15.5	14.0	27.0
30	01398000	55	55	0	0	15.5	14.0	27.5
31	01398260	55	54	0	.5	12.5	12.0	21.5
32	01399120	55	55	0	0	12.0	13.0	27.0
33	01399500	55	54	0	0	11.5	12.0	24.5
34	01399700	55	55	0	0	12.0	12.5	27.0
35	01399780	56	56	0	0	12.0	12.0	25.5
36	01400500	55	54	0	0	15.0	15.5	29.0
37	01400540	55	55	0	0	13.5	13.0	23.5
38	01400650	55	55	0	1.0	16.0	15.0	26.5
39	01401000	60	55	0	0	13.0	14.0	28.0
40	01401600	60	58	0	0	13.5	13.0	27.0
41	01402000	43	43	0	0	12.0	13.0	26.5
42	01403300	117	40	0	1.5	12.0	13.5	28.5
43	01405302	56	55	0	.5	14.0	13.5	25.5
44	01405340	55	55	0	0	13.0	13.0	25.0
45	01408000	46	45	0	1.0	10.5	11.5	22.0
46	01408500	156	56	0	0	13.0	12.5	23.5
47	01409387	55	55	0	1.0	15.5	15.5	30.0
48	01409416	54	54	0	.5	16.0	14.0	23.5
49	01409500	54	54	0	.5	15.5	14.5	27.0
50	01410150	55	55	0	1.5	14.0	12.5	22.0
51	01410784	56	54	0	1.5	13.0	13.0	22.0

Table 3a. Summary statistics for temperature at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in degrees Celsius and are rounded to 0.5 degrees]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
52	01411000	43	43	0	1.0	12.0	12.0	24.0
53	01411110	55	54	0	.5	14.0	13.5	23.0
54	01411500	171	59	0	.5	13.0	13.5	25.0
55	01412800	55	55	0	1.5	14.0	14.0	25.0
56	01438500	42	42	0	0	9.5	11.0	26.0
57	01440000	33	33	0	0	11.0	10.5	24.5
58	01443000	55	55	0	0	13.0	13.0	28.0
59	01443440	55	54	0	0	11.5	12.0	25.0
60	01443500	55	55	0	.5	12.5	13.0	26.0
61	01445500	44	44	0	0	11.0	10.5	19.0
62	01447000	55	55	0	.5	12.5	14.0	30.0
63	01455200	55	54	0	0	12.0	12.5	25.0
64	01456200	53	53	0	1.0	11.0	12.5	24.0
65	01457000	43	43	0	0	11.5	12.0	22.5
66	01457400	55	55	0	0	13.0	13.0	24.5
67	01457500	42	42	0	1.5	12.5	13.0	29.5
68	01461000	55	55	0	1.5	13.5	14.0	28.5
69	01463500	133	48	0	1.0	11.0	13.5	30.0
70	01463620	55	55	0	1.0	16.5	15.5	27.5
71	01464000	44	44	0	1.0	15.0	14.5	26.5
72	01464500	55	55	0	0	16.5	14.5	25.5
73	01464515	55	55	0	1.0	15.0	15.0	26.0
74	01465850	55	55	0	0	14.5	14.0	27.0
75	01466500	115	105	0	1.0	10.5	10.5	19.0
76	01467000	55	55	0	.5	14.0	14.0	25.0
77	01467069	55	55	0	.5	16.0	16.0	29.5
78	01467081	55	55	0	0	15.0	15.0	25.0
79	01467150	44	44	0	0	14.0	14.0	26.0
80	01467329	55	55	0	.5	15.0	14.5	26.0
81	01477120	55	55	0	.5	14.0	14.0	24.5
82	01477510	55	55	0	.5	15.0	14.5	27.0
83	01482500	55	55	0	1.5	14.5	16.5	31.0

Table 3b. Summary of trends in temperature at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, degrees Celsius; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	40	0	0	0.822	38	0.20	1.7	0.446
2	01367910	NSIG	NSIG	SKEN	40	0	0	1.000	40	- .17	-1.5	.420
3	01368000	NSIG	NSIG	SKEN	36	.23	2.0	.157	34	- .053	- .47	.823
4	01368950	NSIG	NSIG	SKEN	40	0	0	1.000	38	.25	2.0	.362
5	01377000	NSIG	NSIG	SKEN	40	- .073	- .52	.496	40	.15	1.1	.227
6	01379000	NSIG	NSIG	SKEN	39	.20	1.5	.128	35	.026	.19	1.000
7	01379500	NSIG	NSIG	SKEN	40	.092	.66	.556	40	- .30	-2.2	.304
8	01380500	NSIG	NSIG	SKEN	36	0	0	1.000	35	- .19	-1.7	.334
9	01381200	NSIG	NSIG	SKEN	40	0	0	.750	40	.12	.91	.623
10	01381500	NSIG	NSIG	SKEN	40	- .17	-1.1	.191	40	- .27	-1.9	.348
11	01381800	NSIG	NSIG	SKEN	40	.13	.91	.257	39	.059	.43	.781
12	01382000	NSIG	NSIG	SKEN	40	.059	.44	.787	40	- .075	- .56	.561
13	01382500	NSIG	NSIG	SKEN	37	- .17	-1.5	.341	37	.15	1.3	.729
14	01387500	NSIG	NSIG	SKEN	40	.17	1.3	.161	40	- .14	-1.0	.687
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	NSIG	NSIG	SKEN	40	0	0	.892	40	- .12	- .93	.561
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	NSIG	NSIG	SKEN	40	0	0	.786	40	.28	2.1	.447
19	01389880	NSIG	UP	SKEN	36	.25	1.9	.182	35	.40	3.1	.079
20	01391500	NSIG	NSIG	SKEN	40	.036	.26	.718	40	.13	.91	.561
21	01393450	NSIG	NSIG	SKEN	40	0	0	.614	40	- .21	-1.5	.283
22	01394500	NSIG	NSIG	SKEN	40	- .086	- .64	.588	40	- .20	-1.5	.210
23	01395000	NSIG	NSIG	SKEN	40	0	0	1.000	40	- .16	-1.1	.447
24	01396280	NSIG	NSIG	SKEN	39	0	0	.963	39	- .42	-3.8	.139
25	01396535	NSIG	DOWN	SKEN	39	0	0	.707	39	- .45	-3.7	.064
26	01396588	NSIG	NSIG	SKEN	40	- .17	-1.4	.259	40	.065	.55	.823
27	01396660	NSIG	NSIG	SKEN	40	- .13	-1.0	.497	40	- .12	-1.0	.283
28	01397000	NSIG	NSIG	SKEN	33	.50	4.2	.144	33	.55	4.6	.200
29	01397400	NSIG	NSIG	SKEN	40	0	0	.785	40	- .13	- .91	.754
30	01398000	NSIG	NSIG	SKEN	40	- .17	-1.2	.415	40	.018	.13	.964
31	01398260	NSIG	NSIG	SKEN	40	- .23	-2.0	.261	40	.037	.31	.964
32	01399120	NSIG	NSIG	SKEN	40	.063	.49	.526	40	.015	.12	.964
33	01399500	DOWN	NSIG	SKEN	40	- .25	-2.1	.017	39	.10	.85	.644
34	01399700	NSIG	NSIG	SKEN	40	0	0	.820	38	- .34	-2.7	.153
35	01399780	NSIG	NSIG	SKEN	40	.11	.93	.556	38	.22	1.8	.253
36	01400500	NSIG	NSIG	SKEN	40	- .25	-1.6	.162	39	- .28	-1.8	.229
37	01400540	NSIG	NSIG	SKEN	40	- .17	-1.3	.241	40	- .31	-2.4	.195
38	01400650	NSIG	NSIG	SKEN	40	- .031	- .21	.752	40	- .12	- .78	.754
39	01401000	NSIG	NSIG	SKEN	40	- .30	-2.1	.256	38	- .15	-1.0	.567
40	01401600	DOWN	DOWN	SKEN	40	- .41	-3.1	.010	39	- .64	-4.8	.021
41	01402000	NSIG	NSIG	SKEN	34	0	0	.823	34	.67	5.2	.135
42	01403300	NSIG	NSIG	SKEN	40	.13	.92	.621	40	- .12	- .89	.502
43	01405302	NSIG	DOWN	SKEN	40	- .25	-1.8	.103	40	- .39	-2.8	.044
44	01405340	DOWN	NSIG	SKEN	40	- .25	-1.9	.094	40	- .22	-1.7	.447
45	01408000	NSIG	NSIG	SKEN	34	.027	.23	.696	34	- .27	-2.3	.109
46	01408500	NSIG	NSIG	SKEN	40	0	0	.650	40	- .19	-1.5	.195
47	01409387	NSIG	NSIG	SKEN	40	0	0	.892	40	- .22	-1.4	.244

Table 3b. Summary of trends in temperature at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, degrees Celsius; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
48	01409416	NSIG	NSIG	SKEN	40	- .063	- .45	.619	40	- .11	- .77	.447
49	01409500	DOWN	NSIG	SKEN	40	- .31	-2.1	.033	40	- .085	- .58	.623
50	01410150	NSIG	NSIG	SKEN	40	0	0	.617	40	.18	1.4	.227
51	01410784	NSIG	NSIG	SKEN	40	0	0	.928	40	- .013	- .10	.964
52	01411000	NSIG	NSIG	SKEN	35	0	0	.667	35	- .10	- .85	.673
53	01411110	NSIG	NSIG	SKEN	40	- .21	-1.5	.161	40	- .17	-1.3	.195
54	01411500	NSIG	NSIG	SKEN	40	- .067	- .50	.588	40	- .23	-1.7	.140
55	01412800	NSIG	NSIG	SKEN	40	- .18	-1.3	.145	40	- .012	- .083	.929
56	01438500	UP	NSIG	SKEN	34	.27	2.4	.006	33	.16	1.5	.350
57	01440000	UP	NSIG	SKEN	27	.46	4.3	.036	26	.25	2.3	.414
58	01443000	NSIG	NSIG	SKEN	40	- .098	- .76	.587	38	- .40	-3.1	.182
59	01443440	NSIG	NSIG	SKEN	40	.092	.77	.588	40	.007	.055	.893
60	01443500	NSIG	NSIG	SKEN	40	.17	1.3	.236	40	.12	.94	.561
61	01445500	UP	NSIG	SKEN	34	.24	2.3	.099	33	.18	1.8	.253
62	01447000	NSIG	NSIG	SKEN	40	- .24	-1.7	.345	40	- .23	-1.7	.348
63	01455200	NSIG	NSIG	SKEN	40	0	0	1.000	40	- .15	-1.2	.823
64	01456200	NSIG	NSIG	SKEN	38	0	0	.884	38	.11	.90	.666
65	01457000	NSIG	NSIG	SKEN	33	.083	.70	.419	33	.15	1.3	.647
66	01457400	NSIG	NSIG	SKEN	40	.075	.58	.620	38	.28	2.2	.316
67	01457500	NSIG	NSIG	SKEN	31	.060	.46	.658	31	.14	1.1	.617
68	01461000	NSIG	NSIG	SKEN	40	0	0	.964	40	.057	.40	.823
69	01463500	NSIG	NSIG	SKEN	40	0	0	.786	40	.30	2.2	.166
70	01463620	NSIG	NSIG	SKEN	40	.077	.51	.619	38	- .21	-1.3	.414
71	01464000	UP	UP	SKEN	35	.36	2.5	.093	35	.37	2.5	.077
72	01464500	NSIG	NSIG	SKEN	40	.031	.21	.752	40	- .007	- .047	1.000
73	01464515	NSIG	NSIG	SKEN	40	0	0	1.000	40	- .020	- .13	.858
74	01465850	NSIG	NSIG	SKEN	40	.077	.55	.468	40	- .26	-1.8	.166
75	01466500	NSIG	NSIG	SKEN	40	0	0	.964	39	0	0	1.000
76	01467000	NSIG	NSIG	SKEN	40	0	0	1.000	40	- .24	-1.7	.244
77	01467069	NSIG	NSIG	SKEN	40	0	0	.964	40	- .16	- .98	.264
78	01467081	NSIG	NSIG	SKEN	40	- .063	- .42	.411	40	- .079	- .53	.502
79	01467150	NSIG	NSIG	SKEN	34	0	0	1.000	33	.11	.77	.570
80	01467329	NSIG	NSIG	SKEN	40	- .077	- .53	.317	40	- .20	-1.3	.371
81	01477120	NSIG	DOWN	SKEN	40	- .17	-1.2	.222	40	- .36	-2.6	.028
82	01477510	NSIG	NSIG	SKEN	40	- .18	-1.3	.191	40	- .20	-1.3	.348
83	01482500	NSIG	NSIG	SKEN	40	0	0	1.000	40	- .33	-2.0	.348

Appendix 4. Summary statistics and results of trend tests for dissolved oxygen at selected surface-water-quality stations in New Jersey, water years 1986-95

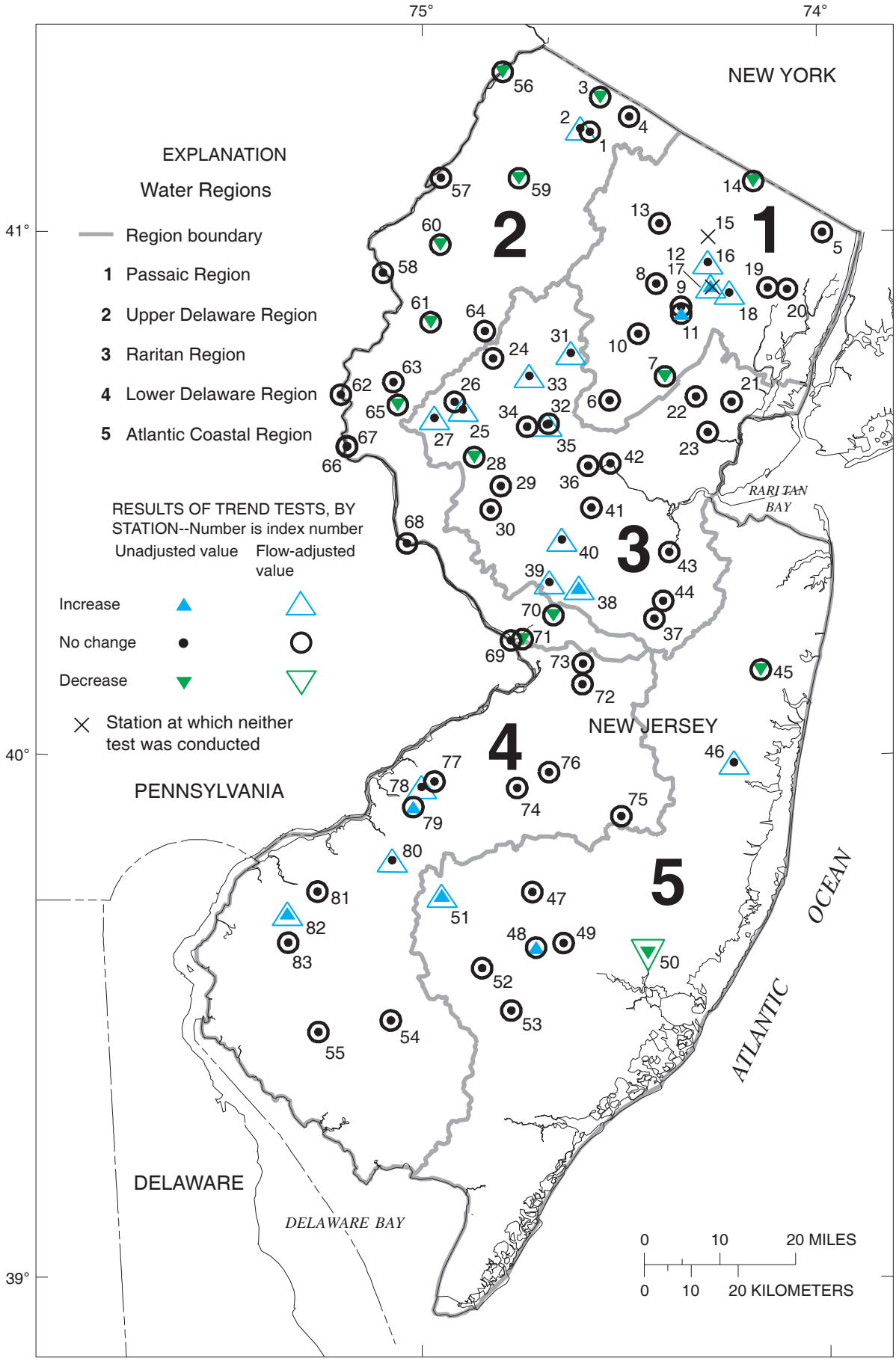

Figure 4-1. Results of trend tests for dissolved oxygen at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 4a. Summary statistics for dissolved oxygen at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter and are rounded to 0.1 milligrams per liter]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	54	54	0	6.8	10.0	10.1	15.8
2	01367910	55	55	0	3.8	9.1	9.2	14.9
3	01368000	41	41	0	4.5	8.6	9.2	14.8
4	01368950	55	55	0	2.5	8.0	8.6	14.7
5	01377000	55	53	0	5.5	9.1	9.6	14.8
6	01379000	53	53	0	2.3	6.0	6.9	15.3
7	01379500	52	52	0	4.2	7.5	8.3	18.2
8	01380500	49	45	0	6.3	11.1	11.3	15.8
9	01381200	52	50	0	5.4	8.6	9.6	15.6
10	01381500	54	54	0	7.1	10.5	11.3	18.4
11	01381800	55	53	0	3.8	7.8	8.1	14.7
12	01382000	132	107	0	1.4	7.9	7.9	15.1
13	01382500	43	43	0	6.2	11.1	11.0	15.2
14	01387500	53	52	0	5.5	10.2	10.6	16.1
15	01388000	123	100	0	2.1	10.9	10.8	16.5
16	01388600	133	107	0	5.4	10.5	11.0	17.9
17	01389005	111	89	0	2.5	8.3	8.6	14.0
18	01389500	258	109	0	6.3	9.9	10.6	16.6
19	01389880	44	44	0	6.1	9.7	10.5	18.0
20	01391500	54	53	0	3.4	7.7	8.3	13.0
21	01393450	52	52	0	6.2	9.5	9.9	15.9
22	01394500	53	53	0	3.1	7.3	8.4	16.4
23	01395000	51	50	0	4.3	8.8	9.8	14.8
24	01396280	54	54	0	8.1	11.3	11.6	15.6
25	01396535	54	54	0	8.6	10.8	11.4	17.6
26	01396588	55	54	0	7.3	10.3	11.2	15.8
27	01396660	55	54	0	7.3	10.6	10.9	15.6
28	01397000	43	43	0	8.2	11.9	11.9	18.2
29	01397400	55	55	0	7.8	10.0	11.1	16.4
30	01398000	54	54	0	5.4	12.3	11.8	18.2
31	01398260	55	54	0	7.4	10.4	11.0	15.4
32	01399120	55	55	0	6.3	11.0	11.1	15.8
33	01399500	55	54	0	7.8	10.9	11.1	16.0
34	01399700	54	54	0	6.5	10.3	11.2	15.9
35	01399780	56	56	0	6.3	11.6	11.3	16.1
36	01400500	55	54	0	6.8	10.2	10.8	15.5
37	01400540	55	55	0	7.4	9.2	9.9	14.1
38	01400650	55	55	0	2.6	7.7	7.8	13.2
39	01401000	59	55	0	3.7	11.7	11.6	18.2
40	01401600	60	58	0	5.5	10.3	10.7	16.7
41	01402000	43	43	0	4.4	9.4	9.4	15.0
42	01403300	117	40	0	6.7	10.3	10.7	16.0
43	01405302	56	55	0	6.0	8.2	9.1	14.0
44	01405340	55	55	0	7.0	9.6	10.1	15.2
45	01408000	45	44	0	6.9	9.7	9.9	14.1
46	01408500	156	56	0	5.9	9.5	9.8	14.3
47	01409387	55	55	0	5.8	8.8	9.0	13.2
48	01409416	55	54	0	1.9	5.9	6.2	11.7
49	01409500	54	54	0	5.6	9.3	9.2	12.8
50	01410150	55	55	0	4.7	7.8	8.0	12.6
51	01410784	56	54	0	2.6	7.6	7.7	12.2

Table 4a. Summary statistics for dissolved oxygen at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter and are rounded to 0.1 milligrams per liter]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
52	01411000	42	42	0	6.4	8.7	9.3	14.3
53	01411110	54	53	0	5.0	8.8	9.0	13.3
54	01411500	172	59	0	5.4	8.9	9.2	13.1
55	01412800	55	55	0	5.8	8.8	9.1	13.6
56	01438500	43	43	0	7.3	10.8	11.0	15.4
57	01440000	33	33	0	7.6	11.3	11.6	14.9
58	01443000	55	55	0	7.0	10.2	10.5	15.9
59	01443440	55	54	0	7.5	10.4	10.9	15.5
60	01443500	55	55	0	7.1	10.5	10.9	15.5
61	01445500	43	43	0	8.3	11.4	11.7	16.4
62	01447000	54	54	0	6.1	10.4	10.3	15.8
63	01455200	54	53	0	7.1	11.6	11.4	15.8
64	01456200	53	53	0	8.0	10.8	11.4	16.3
65	01457000	43	43	0	7.5	11.6	11.9	17.6
66	01457400	55	55	0	7.4	10.7	10.9	15.7
67	01457500	42	42	0	7.3	10.4	10.5	15.3
68	01461000	55	55	0	6.1	10.0	10.3	15.5
69	01463500	123	45	0	7.4	11.0	11.2	17.2
70	01463620	55	55	0	3.6	9.1	9.4	13.2
71	01464000	43	43	0	4.6	9.2	9.9	17.5
72	01464500	55	55	0	5.5	7.9	8.4	13.2
73	01464515	54	54	0	4.2	8.4	9.0	13.8
74	01465850	55	55	0	3.7	7.9	8.5	14.0
75	01466500	113	103	0	1.9	3.5	4.4	8.7
76	01467000	55	55	0	4.4	8.5	8.8	13.1
77	01467069	54	54	0	5.0	8.0	8.6	13.4
78	01467081	54	54	0	3.3	6.3	7.2	14.7
79	01467150	44	44	0	4.1	8.0	8.7	13.0
80	01467329	54	54	0	5.6	9.2	9.4	14.5
81	01477120	55	55	0	5.8	9.2	9.4	13.5
82	01477510	55	55	0	5.5	9.5	9.6	14.2
83	01482500	55	55	0	5.0	9.0	9.2	14.7

Table 4b. Summary of trends in dissolved oxygen at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	40	-0.071	-0.70	0.259	40	0.21	2.1	0.304
2	01367910	NSIG	UP	SKEN	40	0	0	.928	40	.23	2.5	.081
3	01368000	DOWN	NSIG	SKEN	35	- .13	-1.5	.034	35	- .043	- .47	.787
4	01368950	NSIG	NSIG	SKEN	40	- .11	-1.3	.347	39	- .18	-2.1	.579
5	01377000	NSIG	NSIG	SKEN	40	.033	.35	.528	40	.003	.032	.964
6	01379000	NSIG	NSIG	SKEN	38	- .093	-1.3	.411	38	- .16	-2.3	.362
7	01379500	DOWN	NSIG	SKEN	39	- .18	-2.2	.078	39	- .085	-1.0	.405
8	01380500	NSIG	NSIG	SKEN	34	- .063	- .56	.108	34	.043	.38	.619
9	01381200	NSIG	NSIG	SKEN	39	- .033	- .35	.745	39	- .10	-1.1	.517
10	01381500	NSIG	NSIG	SKEN	39	0	0	.963	39	.043	.39	.781
11	01381800	UP	NSIG	SKEN	40	.17	2.1	.081	40	.093	1.1	.447
12	01382000	UP	UP	SKEN	40	.29	3.7	.002	40	.33	4.2	.004
13	01382500	NSIG	NSIG	SKEN	36	- .050	- .45	.357	36	- .27	-2.5	.360
14	01387500	DOWN	NSIG	SKEN	39	- .16	-1.5	.070	39	.24	2.2	.229
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	NSIG	UP	SKEN	40	.11	1.0	.225	40	.24	2.2	.054
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	NSIG	UP	SKEN	40	0	0	1.000	40	.42	3.9	.004
19	01389880	NSIG	NSIG	SKEN	36	- .060	- .57	.539	36	.18	1.7	.416
20	01391500	NSIG	NSIG	SKEN	40	.092	1.1	.395	40	.16	1.9	.227
21	01393450	NSIG	NSIG	SKEN	39	0	0	.926	39	.15	1.5	.459
22	01394500	NSIG	NSIG	SKEN	39	- .029	- .34	.852	39	.060	.71	.487
23	01395000	NSIG	NSIG	SKEN	40	.031	.32	.685	40	- .042	- .43	.893
24	01396280	NSIG	NSIG	SKEN	39	.10	.87	.150	39	.12	1.0	.355
25	01396535	NSIG	UP	SKEN	39	0	0	.888	39	.24	2.1	.052
26	01396588	NSIG	NSIG	SKEN	40	.039	.35	.501	40	.31	2.8	.128
27	01396660	NSIG	UP	SKEN	40	.12	1.1	.262	40	.22	2.0	.098
28	01397000	DOWN	NSIG	SKEN	33	- .18	-1.5	.083	33	- .040	- .33	.616
29	01397400	NSIG	NSIG	SKEN	40	.039	.35	.346	40	.067	.61	.623
30	01398000	NSIG	NSIG	SKEN	39	- .20	-1.7	.114	39	.10	.84	.711
31	01398260	NSIG	UP	SKEN	40	.089	.81	.152	40	.16	1.5	.067
32	01399120	NSIG	NSIG	SKEN	40	- .017	- .15	.685	40	.24	2.2	.304
33	01399500	NSIG	UP	SKEN	40	.027	.24	.499	40	.28	2.5	.004
34	01399700	NSIG	NSIG	SKEN	40	- .075	- .67	.178	40	.11	.97	.502
35	01399780	NSIG	UP	SKEN	40	.050	.44	.654	39	.30	2.7	.003
36	01400500	NSIG	NSIG	SKEN	40	.063	.58	.104	40	.15	1.4	.348
37	01400540	NSIG	NSIG	SKEN	40	.007	.072	.822	40	.042	.42	.893
38	01400650	UP	UP	SKEN	40	.25	3.1	.003	40	.32	4.1	.011
39	01401000	NSIG	UP	SKEN	40	- .073	- .64	.623	40	.39	3.4	.067
40	01401600	NSIG	UP	SKEN	40	.12	1.1	.325	40	.59	5.5	.011
41	01402000	NSIG	NSIG	SKEN	34	- .090	- .96	.290	34	.24	2.6	.245
42	01403300	NSIG	NSIG	SKEN	40	- .088	- .82	.473	40	- .19	-1.7	.348
43	01405302	NSIG	NSIG	SKEN	40	- .050	- .55	.560	40	.038	.41	.893
44	01405340	NSIG	NSIG	SKEN	40	.046	.46	.323	40	.023	.23	.964
45	01408000	DOWN	NSIG	SKEN	34	- .12	-1.2	.084	34	- .073	- .74	.699
46	01408500	NSIG	UP	SKEN	40	0	0	1.000	40	.099	1.0	.067

Table 4b. Summary of trends in dissolved oxygen at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
47	01409387	NSIG	NSIG	SKEN	40	.029	.32	.621	40	.048	.53	.687
48	01409416	UP	NSIG	SKEN	40	.13	2.0	.072	40	.18	2.9	.140
49	01409500	NSIG	NSIG	SKEN	40	.043	.47	.418	40	.039	.43	.823
50	01410150	DOWN	DOWN	SKEN	40	- .14	-1.8	.019	40	- .25	-3.1	.003
51	01410784	UP	UP	SKEN	40	.32	4.2	.000	40	.42	5.5	.000
52	01411000	NSIG	NSIG	SKEN	35	- .025	- .27	.958	35	- .099	-1.1	.527
53	01411110	NSIG	NSIG	SKEN	40	0	0	1.000	40	.018	.20	.395
54	01411500	NSIG	NSIG	SKEN	40	.050	.55	.344	40	.071	.77	.502
55	01412800	NSIG	NSIG	SKEN	40	- .006	- .069	.857	40	- .017	- .19	.964
56	01438500	DOWN	NSIG	SKEN	35	- .20	-1.8	.002	35	- .18	-1.7	.151
57	01440000	NSIG	NSIG	SKEN	27	- .15	-1.3	.125	27	- .016	- .14	1.000
58	01443000	NSIG	NSIG	SKEN	40	.046	.44	.369	40	.057	.54	.687
59	01443440	DOWN	NSIG	SKEN	40	- .10	- .92	.072	40	.096	.88	.687
60	01443500	DOWN	NSIG	SKEN	40	- .21	-1.9	.001	40	.10	.93	.687
61	01445500	DOWN	NSIG	SKEN	34	- .22	-1.9	.030	34	.030	.25	.871
62	01447000	NSIG	NSIG	SKEN	39	.029	.28	.745	39	.041	.40	.644
63	01455200	NSIG	NSIG	SKEN	40	.050	.44	.590	40	.17	1.5	.395
64	01456200	NSIG	NSIG	SKEN	38	- .10	- .88	.111	38	.082	.72	.414
65	01457000	DOWN	NSIG	SKEN	33	- .18	-1.5	.029	33	- .16	-1.4	.109
66	01457400	NSIG	NSIG	SKEN	40	- .12	-1.1	.115	40	.009	.079	.964
67	01457500	NSIG	NSIG	SKEN	31	.022	.21	.571	31	.12	1.1	.349
68	01461000	NSIG	NSIG	SKEN	40	.021	.20	.787	40	.11	1.1	.502
69	01463500	NSIG	NSIG	SKEN	38	- .088	- .78	.315	38	- .010	- .088	.849
70	01463620	DOWN	NSIG	SKEN	40	- .11	-1.2	.008	38	- .16	-1.7	.362
71	01464000	DOWN	NSIG	SKEN	35	- .11	-1.2	.095	35	- .067	- .68	.350
72	01464500	NSIG	NSIG	SKEN	40	.037	.44	.391	40	.057	.68	.823
73	01464515	NSIG	NSIG	SKEN	39	- .025	- .28	.545	39	- .11	-1.2	.355
74	01465850	NSIG	NSIG	SKEN	40	- .050	- .59	.473	40	- .083	- .98	.304
75	01466500	NSIG	NSIG	SKEN	40	- .050	-1.1	.242	39	- .050	-1.1	.517
76	01467000	NSIG	NSIG	SKEN	40	.050	.57	.302	40	.078	.89	.264
77	01467069	NSIG	NSIG	SKEN	39	.063	.73	.245	39	.20	2.3	.139
78	01467081	NSIG	UP	SKEN	39	.13	1.8	.103	39	.36	5.0	.008
79	01467150	UP	NSIG	SKEN	34	.16	1.8	.066	34	.21	2.4	.195
80	01467329	NSIG	UP	SKEN	39	.050	.53	.710	39	.23	2.5	.016
81	01477120	NSIG	NSIG	SKEN	40	.071	.75	.393	40	.11	1.2	.447
82	01477510	UP	UP	SKEN	40	.18	1.9	.019	40	.28	2.9	.054
83	01482500	NSIG	NSIG	SKEN	40	0	0	.964	40	.17	1.9	.118

Appendix 5. Summary statistics and results of trend tests for dissolved oxygen (percent) at selected surface-water-quality stations in New Jersey, water years 1986-95

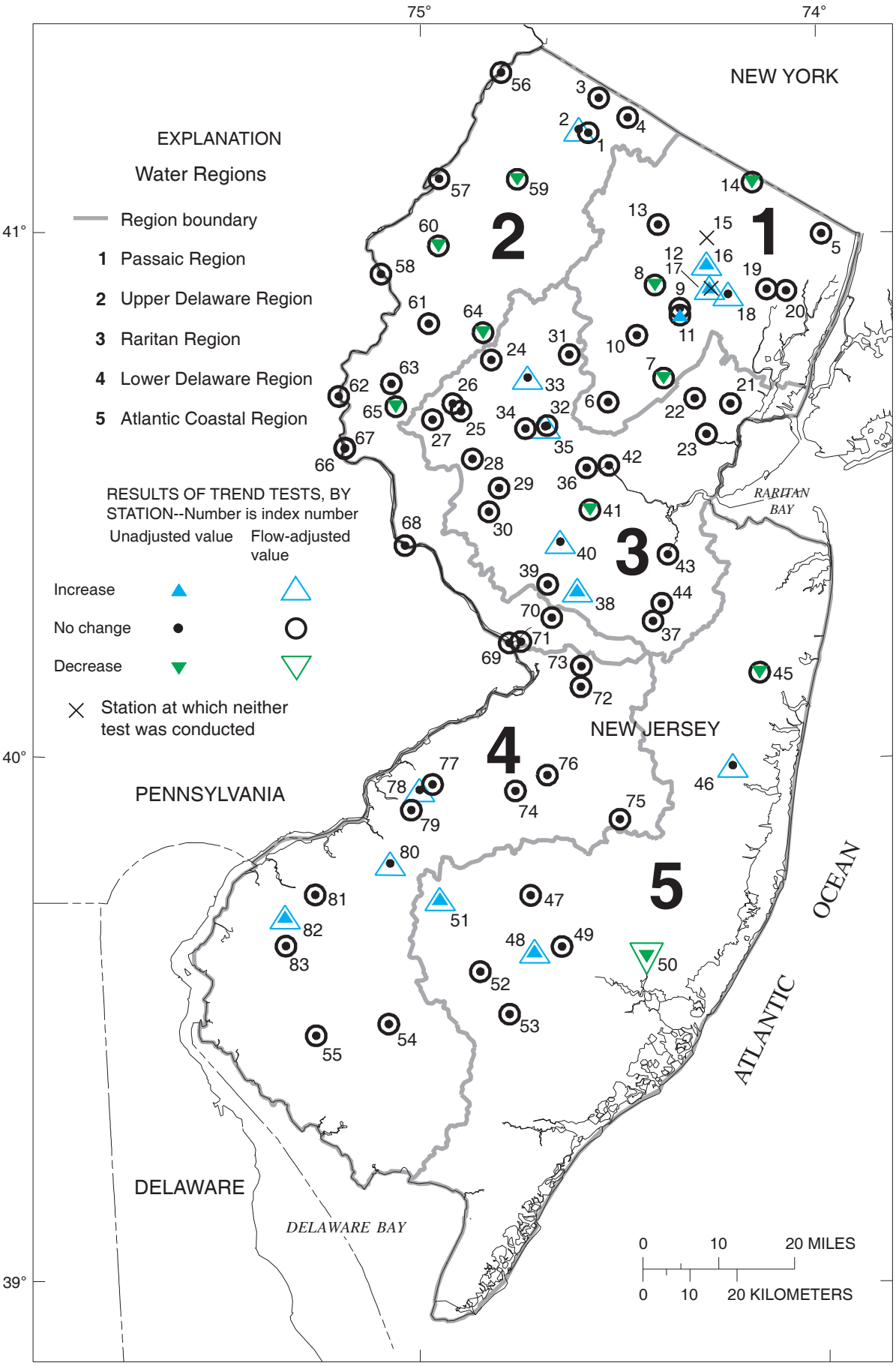

Figure 5-1. Results of trend tests for dissolved oxygen (percent) at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 5a. Summary statistics for dissolved oxygen (percent) at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in percent of saturation and are rounded to one percent]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	54	54	0	73	91	92	113
2	01367910	55	55	0	45	84	82	119
3	01368000	41	41	0	51	82	81	119
4	01368950	55	55	0	28	76	79	114
5	01377000	55	53	0	64	89	89	116
6	01379000	53	53	0	18	62	62	106
7	01379500	52	52	0	48	73	76	125
8	01380500	48	45	0	79	101	100	121
9	01381200	52	50	0	61	90	90	119
10	01381500	54	54	0	82	105	109	165
11	01381800	55	53	0	40	76	75	103
12	01382000	131	107	0	15	76	72	156
13	01382500	43	43	0	71	98	99	131
14	01387500	53	52	0	66	98	97	137
15	01388000	123	100	0	26	100	102	182
16	01388600	133	107	0	68	101	101	149
17	01389005	111	89	0	31	82	81	156
18	01389500	258	109	0	66	99	98	114
19	01389880	44	44	0	66	91	96	159
20	01391500	54	53	0	41	79	78	118
21	01393450	52	52	0	65	94	98	177
22	01394500	53	53	0	29	71	77	152
23	01395000	51	50	0	53	93	94	136
24	01396280	54	54	0	86	105	105	125
25	01396535	54	54	0	91	103	104	127
26	01396588	55	54	0	68	103	102	119
27	01396660	55	54	0	79	100	100	121
28	01397000	40	40	0	88	104	106	134
29	01397400	55	55	0	79	104	104	133
30	01398000	54	54	0	60	106	114	219
31	01398260	54	53	0	82	101	100	120
32	01399120	55	55	0	76	102	104	139
33	01399500	55	54	0	81	101	101	122
34	01399700	54	54	0	74	102	103	135
35	01399780	56	56	0	76	101	103	141
36	01400500	55	54	0	82	103	105	137
37	01400540	55	55	0	77	90	91	111
38	01400650	55	55	0	28	76	74	124
39	01401000	59	55	0	45	105	109	158
40	01401600	59	57	0	62	97	97	149
41	01402000	43	43	0	53	87	85	112
42	01403300	117	40	0	77	101	100	141
43	01405302	56	55	0	66	86	85	113
44	01405340	55	55	0	81	93	93	109
45	01408000	45	44	0	72	87	90	130
46	01408500	156	56	0	66	89	90	109
47	01409387	55	55	0	59	89	88	111
48	01409416	54	54	0	21	57	57	106
49	01409500	54	54	0	65	87	88	118
50	01410150	55	55	0	51	74	73	98
51	01410784	56	54	0	29	77	71	106

Table 5a. Summary statistics for dissolved oxygen (percent) at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in percent of saturation and are rounded to one percent]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
52	01411000	42	42	0	64	84	83	104
53	01411110	54	53	0	57	85	84	123
54	01411500	171	59	0	61	87	85	108
55	01412800	55	55	0	66	86	87	132
56	01438500	42	42	0	81	96	98	125
57	01440000	33	33	0	86	101	103	127
58	01443000	55	55	0	75	96	97	119
59	01443440	55	54	0	85	98	99	115
60	01443500	55	55	0	86	101	102	125
61	01445500	43	43	0	84	104	104	132
62	01447000	54	54	0	73	96	97	124
63	01455200	54	53	0	78	104	107	159
64	01456200	53	53	0	89	105	105	123
65	01457000	43	43	0	80	105	108	144
66	01457400	55	55	0	83	100	101	126
67	01457500	41	41	0	84	96	96	111
68	01461000	55	55	0	73	96	97	113
69	01463500	123	45	0	86	104	106	132
70	01463620	55	55	0	40	92	91	114
71	01464000	43	43	0	53	91	93	124
72	01464500	55	55	0	63	80	80	101
73	01464515	54	54	0	51	87	86	108
74	01465850	55	55	0	45	77	78	110
75	01466500	113	103	0	19	32	37	66
76	01467000	55	55	0	53	82	82	114
77	01467069	54	54	0	53	82	83	126
78	01467081	54	54	0	37	67	69	138
79	01467150	44	44	0	47	85	81	99
80	01467329	54	54	0	66	90	89	111
81	01477120	55	55	0	63	89	89	114
82	01477510	55	55	0	61	90	92	140
83	01482500	55	55	0	64	92	90	114

Table 5b. Summary of trends in dissolved oxygen (percent) at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, percent of saturation; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	40	-0.33	-0.36	0.445	40	0.91	0.98	0.264
2	01367910	NSIG	UP	SKEN	40	- .056	- .068	.822	40	1.1	1.4	.081
3	01368000	NSIG	NSIG	SKEN	35	- .65	- .79	.300	35	- .68	- .84	.787
4	01368950	NSIG	NSIG	SKEN	40	-1.0	-1.3	.654	39	-1.2	-1.5	.781
5	01377000	NSIG	NSIG	SKEN	40	- .37	- .41	.686	40	.33	.37	.687
6	01379000	NSIG	NSIG	SKEN	38	- .42	- .67	.664	38	-1.2	-1.9	.362
7	01379500	DOWN	NSIG	SKEN	39	-1.3	-1.8	.095	39	-1.2	-1.6	.517
8	01380500	DOWN	NSIG	SKEN	34	-1.1	-1.1	.035	34	.028	.028	1.000
9	01381200	NSIG	NSIG	SKEN	39	- .50	- .56	.485	39	-1.1	-1.2	.459
10	01381500	NSIG	NSIG	SKEN	39	- .75	- .69	.378	39	- .78	- .71	.579
11	01381800	UP	NSIG	SKEN	40	1.6	2.1	.017	40	1.1	1.4	.264
12	01382000	UP	UP	SKEN	40	2.6	3.5	.001	40	2.9	4.0	.001
13	01382500	NSIG	NSIG	SKEN	36	- .75	- .76	.357	36	-1.3	-1.3	.476
14	01387500	DOWN	NSIG	SKEN	39	-1.2	-1.2	.041	39	.72	.74	.579
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	UP	UP	SKEN	40	1.1	1.1	.031	40	2.7	2.6	.098
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	NSIG	UP	SKEN	40	0	0	.964	40	2.2	2.2	.036
19	01389880	NSIG	NSIG	SKEN	36	.33	.35	.799	36	1.9	2.0	.476
20	01391500	NSIG	NSIG	SKEN	40	1.0	1.3	.419	40	1.6	2.1	.140
21	01393450	NSIG	NSIG	SKEN	39	.33	.34	.780	39	.80	.81	.405
22	01394500	NSIG	NSIG	SKEN	39	- .50	- .65	.516	39	- .091	- .12	1.000
23	01395000	NSIG	NSIG	SKEN	40	.27	.29	.753	40	- .55	- .59	.687
24	01396280	NSIG	NSIG	SKEN	39	.50	.48	.457	39	.13	.13	.781
25	01396535	NSIG	NSIG	SKEN	39	0	0	.889	39	1.3	1.3	.139
26	01396588	NSIG	NSIG	SKEN	40	0	0	1.000	40	.77	.76	.304
27	01396660	NSIG	NSIG	SKEN	40	.071	.072	.787	40	.54	.54	.502
28	01397000	NSIG	NSIG	SKEN	31	- .20	- .19	.619	31	.19	.18	.459
29	01397400	NSIG	NSIG	SKEN	40	0	0	.821	40	.18	.17	.893
30	01398000	NSIG	NSIG	SKEN	39	-1.5	-1.3	.229	39	.93	.82	.711
31	01398260	NSIG	NSIG	SKEN	39	.50	.50	.244	39	.99	.99	.165
32	01399120	NSIG	NSIG	SKEN	40	.13	.13	.719	40	1.0	1.0	.195
33	01399500	NSIG	UP	SKEN	40	- .40	- .40	.223	40	2.0	2.0	.018
34	01399700	NSIG	NSIG	SKEN	40	-1.0	- .98	.242	40	- .25	- .25	.964
35	01399780	NSIG	UP	SKEN	40	.54	.52	.347	39	2.7	2.6	.012
36	01400500	NSIG	NSIG	SKEN	40	.15	.14	.753	40	.93	.88	.447
37	01400540	NSIG	NSIG	SKEN	40	- .34	- .38	.590	40	- .41	- .45	.561
38	01400650	UP	UP	SKEN	40	2.4	3.2	.001	40	3.2	4.3	.001
39	01401000	NSIG	NSIG	SKEN	40	-1.0	- .92	.370	40	2.3	2.1	.227
40	01401600	NSIG	UP	SKEN	40	0	0	1.000	40	1.9	2.0	.036
41	01402000	DOWN	NSIG	SKEN	34	-1.3	-1.6	.019	34	.32	.38	.868
42	01403300	NSIG	NSIG	SKEN	40	- .50	- .50	.559	40	-1.7	-1.7	.118
43	01405302	NSIG	NSIG	SKEN	40	- .54	- .63	.391	40	- .40	- .47	.754
44	01405340	NSIG	NSIG	SKEN	40	0	0	.928	40	.011	.012	.929
45	01408000	DOWN	NSIG	SKEN	34	-1.4	-1.6	.003	34	- .99	-1.1	.347
46	01408500	NSIG	UP	SKEN	40	0	0	1.000	40	.86	.96	.044

Table 5b. Summary of trends in dissolved oxygen (percent) at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, percent of saturation; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
47	01409387	NSIG	NSIG	SKEN	40	.13	.14	.822	40	.056	.064	.823
48	01409416	UP	UP	SKEN	40	1.8	3.1	.020	40	2.2	3.9	.023
49	01409500	NSIG	NSIG	SKEN	40	0	0	.857	40	- .12	- .14	.964
50	01410150	DOWN	DOWN	SKEN	40	-1.2	-1.6	.001	40	-1.8	-2.4	.004
51	01410784	UP	UP	SKEN	40	2.9	4.1	.000	40	3.4	4.8	.000
52	01411000	NSIG	NSIG	SKEN	35	- .50	- .60	.632	35	- .16	- .20	.752
53	01411110	NSIG	NSIG	SKEN	40	- .17	- .20	.621	40	.093	.11	.788
54	01411500	NSIG	NSIG	SKEN	40	0	0	.928	40	.48	.56	.447
55	01412800	NSIG	NSIG	SKEN	40	- .57	- .66	.262	40	- .083	- .096	.964
56	01438500	NSIG	NSIG	SKEN	34	- .60	- .61	.104	34	.062	.063	.911
57	01440000	NSIG	NSIG	SKEN	27	0	0	.754	27	.18	.18	.818
58	01443000	NSIG	NSIG	SKEN	40	.24	.25	.558	40	.80	.83	.395
59	01443440	DOWN	NSIG	SKEN	40	- .75	- .76	.047	40	- .056	- .057	.964
60	01443500	DOWN	NSIG	SKEN	40	-1.3	-1.3	.039	40	.48	.47	.964
61	01445500	NSIG	NSIG	SKEN	34	-1.0	- .97	.112	34	.75	.73	.550
62	01447000	NSIG	NSIG	SKEN	39	0	0	1.000	39	- .42	- .43	.926
63	01455200	NSIG	NSIG	SKEN	40	.50	.47	.654	40	1.2	1.1	.395
64	01456200	DOWN	NSIG	SKEN	38	-1.0	- .95	.048	38	.46	.44	.597
65	01457000	DOWN	NSIG	SKEN	33	-2.0	-1.8	.044	33	-1.7	-1.6	.170
66	01457400	NSIG	NSIG	SKEN	40	- .45	- .44	.394	40	- .024	- .024	.823
67	01457500	NSIG	NSIG	SKEN	31	.25	.26	.250	31	.50	.52	.574
68	01461000	NSIG	NSIG	SKEN	40	0	0	.964	40	.72	.74	.447
69	01463500	NSIG	NSIG	SKEN	38	- .33	- .32	.632	38	- .19	- .18	.849
70	01463620	NSIG	NSIG	SKEN	40	-1.0	-1.1	.163	38	-1.4	-1.5	.230
71	01464000	NSIG	NSIG	SKEN	35	- .50	- .54	.296	35	.14	.15	.755
72	01464500	NSIG	NSIG	SKEN	40	.55	.69	.150	40	.65	.81	.264
73	01464515	NSIG	NSIG	SKEN	39	- .20	- .23	.372	39	-1.2	-1.4	.267
74	01465850	NSIG	NSIG	SKEN	40	- .20	- .26	.652	40	- .78	-1.0	.264
75	01466500	NSIG	NSIG	SKEN	40	- .50	-1.3	.206	39	- .60	-1.6	.459
76	01467000	NSIG	NSIG	SKEN	40	.35	.43	.243	40	.60	.73	.502
77	01467069	NSIG	NSIG	SKEN	39	1.0	1.2	.176	39	1.3	1.6	.267
78	01467081	NSIG	UP	SKEN	39	.80	1.2	.265	39	2.5	3.7	.012
79	01467150	NSIG	NSIG	SKEN	34	1.3	1.6	.144	34	2.0	2.5	.117
80	01467329	NSIG	UP	SKEN	39	.33	.38	.575	39	1.4	1.5	.079
81	01477120	NSIG	NSIG	SKEN	40	.41	.47	.261	40	.69	.78	.371
82	01477510	UP	UP	SKEN	40	1.0	1.1	.065	40	1.3	1.4	.067
83	01482500	NSIG	NSIG	SKEN	40	- .23	- .25	.527	40	1.3	1.5	.395

Appendix 6. Summary statistics and results of trend tests for 5-day biochemical-oxygen demand at selected surface-water-quality stations in New Jersey, water years 1986-95

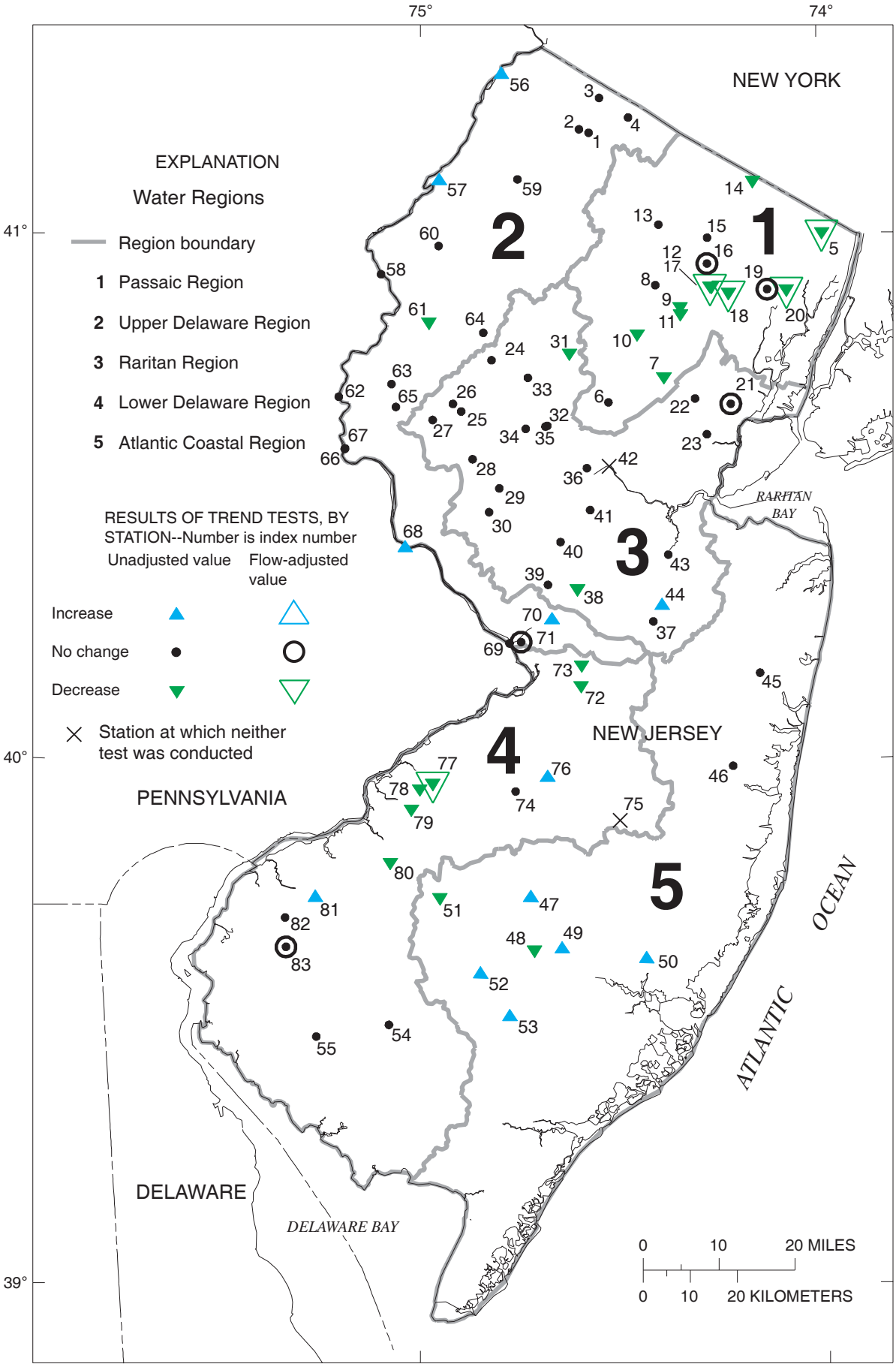

Figure 6-1. Results of trend tests for 5-day biochemical-oxygen demand at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 6a. Summary statistics for 5-day biochemical-oxygen demand at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter and are rounded to 0.1 milligrams per liter; <, less than]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	55	55	27.3	<0.7	1.4	1.5	4.3
2	01367910	55	55	27.3	< .5	1.6	1.8	4.8
3	01368000	43	43	41.9	< .5	1.3	1.5	3.8
4	01368950	55	55	32.7	< .1	1.4	1.6	5.0
5	01377000	53	52	3.8	<1.0	2.8	3.0	6.3
6	01379000	53	53	17.0	<1.0	1.6	1.9	7.2
7	01379500	53	53	7.5	<1.0	2.7	3.1	9.0
8	01380500	44	44	52.3	< .5	<1.4	1.3	4.0
9	01381200	53	52	9.6	<1.0	1.8	2.1	9.9
10	01381500	54	54	7.4	<1.0	2.4	3.0	12.9
11	01381800	51	50	12.0	<1.0	3.3	3.9	12.0
12	01382000	128	106	0	.6	2.9	3.7	18.6
13	01382500	43	43	30.2	< .1	1.4	1.4	5.0
14	01387500	54	53	15.1	<1.0	2.1	2.4	6.6
15	01388000	116	94	0	.6	2.8	3.2	9.9
16	01388600	123	103	3.9	<1.0	2.4	2.8	9.0
17	01389005	102	83	0	.5	3.0	3.5	15.3
18	01389500	120	99	0	.5	3.0	3.6	23.0
19	01389880	44	43	2.3	<1.0	3.2	3.5	7.7
20	01391500	54	53	1.9	<1.0	3.2	3.9	10.8
21	01393450	50	50	2.0	<1.0	3.0	3.4	10.2
22	01394500	54	54	14.8	<1.0	1.9	2.3	9.3
23	01395000	52	51	7.8	<1.0	2.7	3.1	13.5
24	01396280	55	55	30.9	< .4	1.5	1.7	4.8
25	01396535	55	55	34.5	< .4	1.4	1.6	7.1
26	01396588	55	54	38.9	< .4	1.3	1.5	5.3
27	01396660	55	54	40.7	< .2	1.2	1.4	8.5
28	01397000	43	43	25.6	< .4	1.8	2.4	30.0
29	01397400	54	54	16.7	< .3	1.7	2.0	6.0
30	01398000	55	55	29.1	< .4	1.6	1.9	6.0
31	01398260	55	54	29.6	< .8	1.7	1.7	4.9
32	01399120	55	55	29.1	< .4	1.6	1.6	5.5
33	01399500	55	54	37.0	< .9	1.2	1.3	6.8
34	01399700	55	55	41.8	< .3	1.3	1.4	4.9
35	01399780	55	55	23.6	< .7	1.5	1.6	3.9
36	01400500	51	49	10.2	<1.0	1.4	1.5	3.7
37	01400540	55	55	54.5	< .1	<1.1	1.1	4.4
38	01400650	53	53	13.2	<1.0	1.9	2.6	8.7
39	01401000	52	51	13.7	<1.0	1.8	2.2	7.5
40	01401600	52	52	15.4	<1.0	1.5	1.7	4.9
41	01402000	43	43	25.6	< .7	1.9	2.1	5.8
42	01403300	21	21	0	.5	2.1	2.8	7.8
43	01405302	55	53	41.5	< .1	1.1	1.2	5.9
44	01405340	54	54	61.1	< .1	<1.1	.8	2.8
45	01408000	43	43	44.2	< .1	1.3	1.3	3.6
46	01408500	40	40	7.5	<1.0	1.0	1.1	2.1
47	01409387	54	54	59.3	< .1	<1.0	1.0	2.5
48	01409416	55	52	19.2	< .4	2.1	2.6	7.8
49	01409500	54	53	69.8	< .2	<1.0	.7	3.3
50	01410150	55	55	78.2	< .2	<1.0	.4	2.0
51	01410784	54	53	15.1	<1.0	1.5	1.8	6.0

Table 6a. Summary statistics for 5-day biochemical-oxygen demand at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter and are rounded to 0.1 milligrams per liter; <, less than]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
52	01411000	42	42	45.2	< .5	1.4	1.4	6.2
53	01411110	52	51	19.6	<1.0	1.0	1.2	5.9
54	01411500	34	34	11.8	<1.0	.9	1.3	6.3
55	01412800	54	54	24.1	< .5	1.5	1.5	2.9
56	01438500	42	42	57.1	< .3	<1.1	.9	4.2
57	01440000	33	33	66.7	< .1	<1.0	1.0	2.2
58	01443000	54	54	38.9	< .1	1.3	1.5	4.4
59	01443440	55	54	29.6	< .6	1.4	1.5	3.7
60	01443500	55	55	32.7	< .6	1.4	1.5	4.5
61	01445500	44	44	18.2	<1.0	1.7	1.9	6.9
62	01447000	53	53	45.3	< .3	1.1	1.3	4.1
63	01455200	53	51	29.4	< .7	1.9	2.1	5.1
64	01456200	52	52	23.1	< .1	1.6	1.7	6.1
65	01457000	43	43	27.9	< .9	1.5	1.5	3.0
66	01457400	54	54	25.9	< .1	1.5	1.7	6.0
67	01457500	41	41	36.6	< .3	1.5	1.7	9.1
68	01461000	53	53	37.7	< .4	1.3	1.5	14.0
69	01463500	41	41	19.5	<1.0	1.4	1.7	6.1
70	01463620	55	55	9.1	< .1	2.6	3.0	7.3
71	01464000	43	43	4.7	<1.0	2.3	2.6	8.5
72	01464500	55	55	9.1	<1.0	2.3	2.8	8.4
73	01464515	54	54	7.4	<1.0	2.2	2.8	9.6
74	01465850	53	53	17.0	<1.0	1.4	1.5	3.8
75	01466500	61	60	5.0	< .1	.5	.5	1.3
76	01467000	51	51	15.7	<1.0	1.1	1.1	2.2
77	01467069	54	54	3.7	<1.0	3.3	3.6	10.0
78	01467081	53	53	5.7	<1.0	4.5	4.9	14.7
79	01467150	42	41	7.3	<1.0	2.5	3.0	7.6
80	01467329	54	54	14.8	<1.0	1.9	2.4	8.4
81	01477120	53	53	43.4	< .4	1.1	1.4	6.8
82	01477510	53	53	24.5	< .8	1.8	1.9	5.9
83	01482500	54	54	3.7	<1.0	3.3	3.6	8.1

Table 6b. Summary of trends in 5-day biochemical-oxygen demand at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NT	TOBT	55	0.026	1.7	0.390	--	--	--	--
2	01367910	NSIG	NT	TOBT	55	- .053	-2.9	.194	--	--	--	--
3	01368000	NSIG	NT	TOBT	43	- .016	-1.1	.636	--	--	--	--
4	01368950	NSIG	NT	TOBT	55	.065	4.1	.150	--	--	--	--
5	01377000	DOWN	DOWN	SKEN	40	- .19	-6.4	.001	40	- .15	-5.1	0.004
6	01379000	NSIG	NT	TOBT	53	- .076	-3.9	.143	--	--	--	--
7	01379500	DOWN	NT	TOBT	53	- .26	-8.5	.001	--	--	--	--
8	01380500	NSIG	NT	TOBT	44	.015	1.1	.587	--	--	--	--
9	01381200	DOWN	NT	TOBT	52	- .13	-5.9	.049	--	--	--	--
10	01381500	DOWN	NT	TOBT	54	- .25	-8.2	.002	--	--	--	--
11	01381800	DOWN	NT	TOBT	50	- .61	-16	.000	--	--	--	--
12	01382000	DOWN	DOWN	SKEN	40	- .26	-6.9	.046	40	- .28	-7.6	0.036
13	01382500	NSIG	NT	TOBT	43	.019	1.3	.677	--	--	--	--
14	01387500	DOWN	NT	TOBT	53	- .14	-6.0	.039	--	--	--	--
15	01388000	NSIG	NT	TOBT	94	- .042	-1.3	.612	--	--	--	--
16	01388600	NSIG	NSIG	SKEN	40	0	0	.857	40	- .048	-1.7	0.447
17	01389005	DOWN	NT	TOBT	83	- .25	-7.2	.005	--	--	--	--
18	01389500	DOWN	DOWN	SKEN	40	- .31	-8.7	.004	40	- .25	-7.1	0.008
19	01389880	NSIG	NSIG	SKEN	35	- .17	-4.7	.223	35	- .13	-3.7	0.170
20	01391500	DOWN	DOWN	SKEN	39	- .33	-8.4	.008	39	- .27	-6.8	0.026
21	01393450	NSIG	NSIG	SKEN	38	- .17	-5.0	.360	38	- .076	-2.2	0.472
22	01394500	NSIG	NT	TOBT	54	- .089	-3.8	.168	--	--	--	--
23	01395000	NSIG	NT	TOBT	51	- .089	-2.9	.243	--	--	--	--
24	01396280	NSIG	NT	TOBT	55	- .031	-1.9	.438	--	--	--	--
25	01396535	NSIG	NT	TOBT	55	- .048	-2.9	.217	--	--	--	--
26	01396588	NSIG	NT	TOBT	54	- .031	-2.0	.435	--	--	--	--
27	01396660	NSIG	NT	TOBT	54	.004	.27	.926	--	--	--	--
28	01397000	NSIG	NT	TOBT	43	- .074	-3.1	.364	--	--	--	--
29	01397400	NSIG	NT	TOBT	54	.014	.71	.776	--	--	--	--
30	01398000	NSIG	NT	TOBT	55	- .009	- .49	.867	--	--	--	--
31	01398260	DOWN	NT	TOBT	54	- .091	-5.4	.014	--	--	--	--
32	01399120	NSIG	NT	TOBT	55	.019	1.2	.554	--	--	--	--
33	01399500	NSIG	NT	TOBT	54	- .007	- .53	.834	--	--	--	--
34	01399700	NSIG	NT	TOBT	55	.036	2.6	.288	--	--	--	--
35	01399780	NSIG	NT	TOBT	55	.047	2.9	.139	--	--	--	--
36	01400500	NSIG	NT	TOBT	49	.019	1.3	.641	--	--	--	--
37	01400540	NSIG	NT	TOBT	55	.026	2.4	.357	--	--	--	--
38	01400650	DOWN	NT	TOBT	53	- .15	-5.6	.057	--	--	--	--
39	01401000	NSIG	NT	TOBT	51	- .062	-2.8	.343	--	--	--	--
40	01401600	NSIG	NT	TOBT	52	- .037	-2.2	.336	--	--	--	--
41	01402000	NSIG	NT	TOBT	43	- .043	-2.0	.449	--	--	--	--
42	01403300	NT	NT	NT	--	--	--	--	--	--	--	--
43	01405302	NSIG	NT	TOBT	53	- .021	-1.8	.546	--	--	--	--
44	01405340	UP	NT	TOBT	54	.039	4.6	.075	--	--	--	--
45	01408000	NSIG	NT	TOBT	43	.065	5.0	.139	--	--	--	--
46	01408500	NSIG	NT	TOBT	40	.039	3.6	.125	--	--	--	--
47	01409387	UP	NT	TOBT	54	.058	5.7	.034	--	--	--	--

Table 6b. Summary of trends in 5-day biochemical-oxygen demand at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
48	01409416	DOWN	NT	TOBT	52	- .29	-11	.000	--	--	--	--
49	01409500	UP	NT	TOBT	53	.051	7.3	.003	--	--	--	--
50	01410150	UP	NT	TOBT	55	.038	9.5	.001	--	--	--	--
51	01410784	DOWN	NT	TOBT	53	- .085	-4.6	.090	--	--	--	--
52	01411000	UP	NT	TOBT	42	.093	6.5	.010	--	--	--	--
53	01411110	UP	NT	TOBT	51	.12	9.4	.000	--	--	--	--
54	01411500	NSIG	NT	TOBT	34	.005	.38	.925	--	--	--	--
55	01412800	NSIG	NT	TOBT	54	- .015	- .97	.543	--	--	--	--
56	01438500	UP	NT	TOBT	42	.092	9.7	.003	--	--	--	--
57	01440000	UP	NT	TOBT	33	.14	14	.003	--	--	--	--
58	01443000	NSIG	NT	TOBT	54	.075	5.0	.161	--	--	--	--
59	01443440	NSIG	NT	TOBT	54	- .030	-2.0	.241	--	--	--	--
60	01443500	NSIG	NT	TOBT	55	.009	.57	.768	--	--	--	--
61	01445500	DOWN	NT	TOBT	44	- .081	-4.4	.028	--	--	--	--
62	01447000	NSIG	NT	TOBT	53	.019	1.4	.553	--	--	--	--
63	01455200	NSIG	NT	TOBT	51	- .047	-2.3	.376	--	--	--	--
64	01456200	NSIG	NT	TOBT	52	.071	4.2	.156	--	--	--	--
65	01457000	NSIG	NT	TOBT	43	- .032	-2.2	.161	--	--	--	--
66	01457400	NSIG	NT	TOBT	54	.082	4.7	.182	--	--	--	--
67	01457500	NSIG	NT	TOBT	41	.048	2.8	.345	--	--	--	--
68	01461000	UP	NT	TOBT	53	.082	5.4	.038	--	--	--	--
69	01463500	NSIG	NT	TOBT	41	0	.001	1.000	--	--	--	--
70	01463620	UP	NT	TOBT	55	.19	6.2	.068	--	--	--	--
71	01464000	NSIG	NSIG	SKEN	35	.038	1.5	.293	35	.090	3.4	0.177
72	01464500	DOWN	NT	TOBT	55	- .27	-9.7	.000	--	--	--	--
73	01464515	DOWN	NT	TOBT	54	- .17	-6.1	.022	--	--	--	--
74	01465850	NSIG	NT	TOBT	53	- .011	- .76	.694	--	--	--	--
75	01466500	NT	NT	NT	--	--	--	--	--	--	--	--
76	01467000	UP	NT	TOBT	51	.052	4.8	.007	--	--	--	--
77	01467069	DOWN	DOWN	SKEN	40	- .30	-8.4	.009	40	- .30	-8.4	0.023
78	01467081	DOWN	NT	TOBT	53	- .58	-12	.000	--	--	--	--
79	01467150	DOWN	NT	TOBT	41	- .25	-8.3	.001	--	--	--	--
80	01467329	DOWN	NT	TOBT	54	- .23	-9.7	.000	--	--	--	--
81	01477120	UP	NT	TOBT	53	.11	8.0	.001	--	--	--	--
82	01477510	NSIG	NT	TOBT	53	.026	1.4	.535	--	--	--	--
83	01482500	NSIG	NSIG	SKEN	39	0	0	1.000	39	- .005	- .15	1.000

Appendix 7. Summary statistics and results of trend tests for pH at selected surface-water-quality stations in New Jersey, water years 1986-95

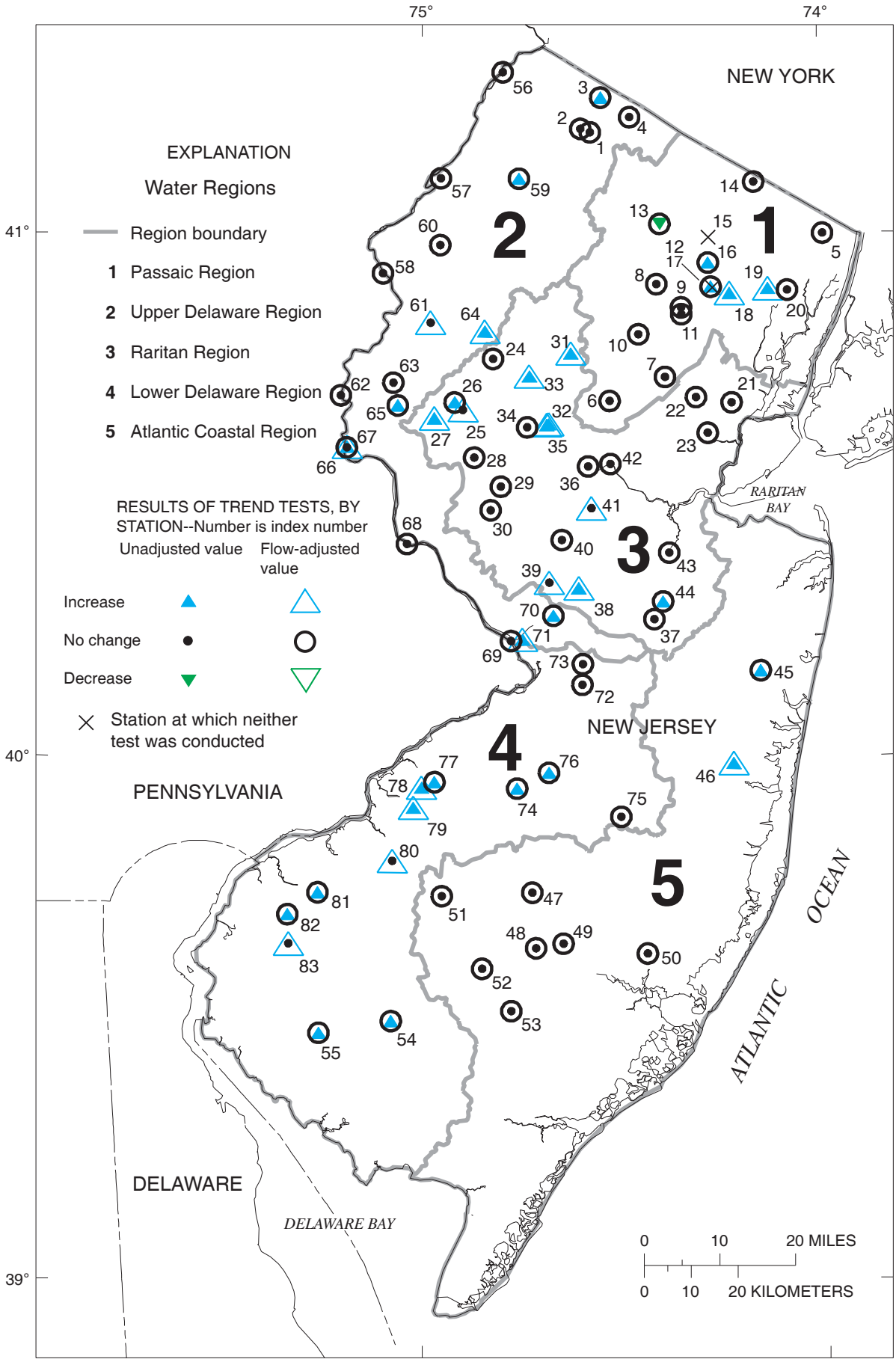

Figure 7-1. Results of trend tests for pH at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 7a. Summary statistics for pH at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in standard units and are rounded to 0.1 units]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	55	55	0	6.9	7.9	7.9	8.4
2	01367910	55	55	0	7.0	7.6	7.6	8.3
3	01368000	40	40	0	7.3	7.7	7.7	8.3
4	01368950	55	55	0	6.9	7.8	7.8	8.3
5	01377000	56	54	0	7.5	7.9	7.8	8.2
6	01379000	55	55	0	6.5	7.2	7.2	7.8
7	01379500	55	55	0	6.7	7.5	7.5	8.1
8	01380500	49	46	0	6.8	7.7	7.6	8.5
9	01381200	55	53	0	7.4	7.6	7.6	8.0
10	01381500	54	54	0	7.1	7.9	8.0	9.2
11	01381800	55	53	0	7.0	7.5	7.5	8.0
12	01382000	134	109	0	6.8	7.5	7.5	8.7
13	01382500	41	41	0	5.7	7.6	7.5	8.8
14	01387500	55	54	0	7.0	7.8	7.8	8.3
15	01388000	122	98	0	7.0	7.9	8.1	9.4
16	01388600	135	109	0	7.1	7.7	7.8	9.2
17	01389005	114	91	0	7.0	7.5	7.5	8.8
18	01389500	220	110	0	7.0	7.8	7.8	8.7
19	01389880	39	39	0	6.7	7.6	7.7	8.8
20	01391500	55	54	0	7.5	7.8	7.8	8.2
21	01393450	54	54	0	7.2	7.9	7.8	8.6
22	01394500	55	55	0	7.0	7.6	7.6	7.9
23	01395000	54	53	0	7.2	7.8	7.8	8.7
24	01396280	54	54	0	6.5	8.0	7.9	9.3
25	01396535	55	55	0	7.0	8.2	8.1	9.0
26	01396588	54	53	0	6.5	7.6	7.6	8.7
27	01396660	54	53	0	6.5	7.8	7.8	9.5
28	01397000	39	39	0	7.2	8.2	8.1	9.0
29	01397400	53	53	0	6.9	8.0	8.0	9.4
30	01398000	54	54	0	7.1	8.2	8.3	9.5
31	01398260	54	53	0	6.6	7.7	7.6	8.5
32	01399120	55	55	0	6.5	7.6	7.7	8.9
33	01399500	54	53	0	7.0	7.8	7.8	8.7
34	01399700	54	54	0	7.1	8.0	8.1	9.3
35	01399780	55	55	0	6.8	7.7	7.8	9.2
36	01400500	53	53	0	7.2	7.9	8.0	9.5
37	01400540	52	52	0	6.1	6.8	6.9	8.4
38	01400650	54	54	0	6.1	6.9	6.9	7.4
39	01401000	58	53	0	7.2	8.0	8.1	9.3
40	01401600	60	58	0	6.8	7.6	7.7	9.0
41	01402000	40	40	0	6.6	7.3	7.2	8.0
42	01403300	87	40	0	7.0	7.6	7.6	8.8
43	01405302	56	55	0	4.3	6.5	6.4	7.8
44	01405340	55	55	0	5.5	6.8	6.7	8.5
45	01408000	41	41	0	5.8	7.2	7.2	8.4
46	01408500	101	56	0	4.0	5.2	5.2	6.4
47	01409387	54	54	0	3.8	4.9	4.9	6.7
48	01409416	54	53	0	5.0	6.4	6.3	6.8
49	01409500	55	54	0	3.6	5.3	5.2	6.3
50	01410150	55	55	0	4.1	4.5	4.6	5.3
51	01410784	55	53	0	4.5	6.2	6.1	6.6

Table 7a. Summary statistics for pH at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in standard units and are rounded to 0.1 units]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
52	01411000	40	40	0	4.3	6.1	6.0	6.9
53	01411110	54	53	0	4.0	5.5	5.5	6.6
54	01411500	129	59	0	4.7	6.4	6.3	7.0
55	01412800	54	54	0	5.5	6.7	6.7	7.6
56	01438500	42	42	0	6.9	7.7	7.7	8.5
57	01440000	30	30	0	7.2	7.8	7.9	8.6
58	01443000	54	54	0	6.1	7.6	7.6	8.9
59	01443440	55	54	0	7.3	8.0	7.9	8.4
60	01443500	55	55	0	7.2	8.1	8.1	8.7
61	01445500	38	38	0	7.6	8.3	8.3	8.7
62	01447000	53	53	0	6.9	7.8	7.8	8.7
63	01455200	55	54	0	6.4	7.8	7.9	9.2
64	01456200	52	52	0	7.4	8.2	8.1	8.7
65	01457000	41	41	0	6.2	8.2	8.0	9.0
66	01457400	54	54	0	6.9	8.1	8.0	8.9
67	01457500	40	40	0	7.1	8.0	7.9	9.2
68	01461000	55	55	0	7.0	7.8	7.9	8.7
69	01463500	104	48	0	7.3	7.8	7.9	9.4
70	01463620	52	52	0	5.8	6.9	6.9	7.8
71	01464000	40	40	0	6.7	7.3	7.3	8.1
72	01464500	54	54	0	6.7	7.1	7.1	7.9
73	01464515	53	53	0	6.7	7.2	7.2	7.8
74	01465850	55	55	0	4.7	6.0	5.9	6.7
75	01466500	113	104	0	3.6	4.2	4.2	4.7
76	01467000	55	55	0	3.7	4.8	4.9	6.2
77	01467069	55	55	0	6.1	6.9	6.9	7.7
78	01467081	55	55	0	6.6	7.2	7.1	7.7
79	01467150	40	40	0	6.0	7.0	6.9	7.7
80	01467329	55	55	0	6.4	7.1	7.0	7.6
81	01477120	55	55	0	5.9	7.1	7.1	7.8
82	01477510	54	54	0	6.1	7.2	7.2	8.4
83	01482500	55	55	0	6.2	7.4	7.4	9.1

Table 7b. Summary of trends in pH at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, standard units; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	40	0.022	0.29	0.170	40	0.028	0.36	0.823
2	01367910	NSIG	NSIG	SKEN	40	.017	.22	.253	40	.068	.90	.166
3	01368000	UP	NSIG	SKEN	35	.033	.43	.087	35	.018	.24	.787
4	01368950	NSIG	NSIG	SKEN	40	.013	.16	.337	39	- .031	- .40	.644
5	01377000	NSIG	NSIG	SKEN	40	0	0	.641	40	.074	.94	.118
6	01379000	NSIG	NSIG	SKEN	40	0	0	.648	40	.016	.22	.754
7	01379500	NSIG	NSIG	SKEN	40	0	0	.381	40	.003	.042	1.000
8	01380500	NSIG	NSIG	SKEN	35	.017	.22	.489	35	.064	.84	.292
9	01381200	NSIG	NSIG	SKEN	40	0	0	.452	40	- .056	- .74	.348
10	01381500	NSIG	NSIG	SKEN	39	- .014	- .18	.254	39	0	0	1.000
11	01381800	NSIG	NSIG	SKEN	40	0	0	.517	40	- .024	- .32	.561
12	01382000	UP	NSIG	SKEN	40	.046	.62	.002	40	.086	1.1	.166
13	01382500	DOWN	NSIG	SKEN	35	- .025	- .33	.057	35	- .045	- .59	.833
14	01387500	NSIG	NSIG	SKEN	40	0	0	.105	40	.083	1.1	.210
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	UP	NSIG	SKEN	40	.033	.43	.024	40	.10	1.3	.166
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	UP	UP	SKEN	40	.033	.43	.046	40	.14	1.8	.018
19	01389880	UP	UP	SKEN	32	.060	.78	.010	32	.15	1.9	.046
20	01391500	NSIG	NSIG	SKEN	40	0	0	.817	40	.014	.18	.788
21	01393450	NSIG	NSIG	SKEN	39	0	0	.735	39	.035	.45	.578
22	01394500	NSIG	NSIG	SKEN	40	0	0	.885	40	.022	.29	.324
23	01395000	NSIG	NSIG	SKEN	39	0	0	.568	39	- .079	-1.0	.309
24	01396280	NSIG	NSIG	SKEN	39	.044	.56	.148	39	.032	.40	.644
25	01396535	NSIG	UP	SKEN	40	.029	.35	.257	40	.094	1.2	.016
26	01396588	UP	NSIG	SKEN	40	.10	1.3	.001	40	.12	1.5	.166
27	01396660	UP	UP	SKEN	40	.067	.85	.013	40	.12	1.6	.018
28	01397000	NSIG	NSIG	SKEN	33	.007	.088	.693	33	.052	.64	.404
29	01397400	NSIG	NSIG	SKEN	40	0	0	.964	40	- .005	- .058	1.000
30	01398000	NSIG	NSIG	SKEN	39	- .025	- .30	.545	39	.096	1.2	.267
31	01398260	UP	UP	SKEN	40	.083	1.1	.000	40	.15	2.0	.023
32	01399120	UP	UP	SKEN	40	.10	1.3	.005	40	.13	1.7	.067
33	01399500	UP	UP	SKEN	40	.046	.60	.012	40	.21	2.7	.002
34	01399700	NSIG	NSIG	SKEN	39	.033	.41	.207	39	.030	.38	.459
35	01399780	UP	UP	SKEN	40	.10	1.3	.001	39	.22	2.8	.033
36	01400500	NSIG	NSIG	SKEN	40	0	0	.786	40	.071	.89	.140
37	01400540	NSIG	NSIG	SKEN	39	0	0	1.000	39	- .025	- .36	.644
38	01400650	UP	UP	SKEN	40	.057	.83	.000	40	.16	2.4	.008
39	01401000	NSIG	UP	SKEN	39	0	0	.850	39	.18	2.2	.052
40	01401600	NSIG	NSIG	SKEN	40	.021	.27	.364	40	.13	1.7	.447
41	01402000	NSIG	UP	SKEN	33	.014	.20	.319	33	.20	2.7	.022
42	01403300	NSIG	NSIG	SKEN	40	0	0	.890	40	- .090	-1.2	.304
43	01405302	NSIG	NSIG	SKEN	40	.050	.78	.163	40	.030	.46	.687
44	01405340	UP	NSIG	SKEN	40	.079	1.2	.034	40	.082	1.2	.447
45	01408000	UP	NSIG	SKEN	34	.067	.93	.066	34	.016	.22	.782
46	01408500	UP	UP	SKEN	40	.10	1.9	.004	40	.11	2.1	.003

Table 7b. Summary of trends in pH at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, standard units; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
47	01409387	NSIG	NSIG	SKEN	40	- .031	- .63	.444	40	- .071	-1.5	.195
48	01409416	NSIG	NSIG	SKEN	40	0	0	.891	40	.069	1.1	.561
49	01409500	NSIG	NSIG	SKEN	40	.006	.11	.358	40	.019	.36	.502
50	01410150	NSIG	NSIG	SKEN	40	0	0	.819	40	- .020	- .43	.325
51	01410784	NSIG	NSIG	SKEN	39	- .022	- .37	.322	39	.001	.010	1.000
52	01411000	NSIG	NSIG	SKEN	34	0	0	.617	34	- .014	- .24	.625
53	01411110	NSIG	NSIG	SKEN	39	.067	1.2	.264	39	.054	.99	.267
54	01411500	UP	NSIG	SKEN	40	.031	.49	.047	40	.061	.97	.227
55	01412800	UP	NSIG	SKEN	39	.029	.43	.033	39	.035	.52	.379
56	01438500	NSIG	NSIG	SKEN	35	- .021	- .27	.519	35	.013	.17	.632
57	01440000	NSIG	NSIG	SKEN	26	0	0	.868	26	- .010	- .13	.870
58	01443000	NSIG	NSIG	SKEN	40	.039	.51	.160	40	.074	.97	.195
59	01443440	UP	NSIG	SKEN	40	.025	.32	.090	40	.083	1.1	.227
60	01443500	NSIG	NSIG	SKEN	40	.018	.23	.186	40	.10	1.3	.118
61	01445500	NSIG	UP	SKEN	31	0	0	.475	31	.13	1.6	.026
62	01447000	NSIG	NSIG	SKEN	39	0	0	.963	39	- .050	- .65	.309
63	01455200	NSIG	NSIG	SKEN	40	.040	.51	.175	40	.12	1.6	.264
64	01456200	UP	UP	SKEN	38	.027	.33	.031	38	.13	1.6	.068
65	01457000	UP	NSIG	SKEN	33	.050	.62	.094	33	.056	.70	.208
66	01457400	NSIG	NSIG	SKEN	40	.013	.17	.271	40	.064	.80	.166
67	01457500	UP	UP	SKEN	31	.058	.73	.021	31	.12	1.5	.070
68	01461000	NSIG	NSIG	SKEN	40	.022	.28	.318	40	.042	.53	.140
69	01463500	NSIG	NSIG	SKEN	40	- .021	- .26	.295	40	- .061	- .77	.304
70	01463620	UP	NSIG	SKEN	39	.071	1.0	.008	38	.044	.64	.137
71	01464000	UP	UP	SKEN	33	.065	.89	.000	33	.074	1.0	.099
72	01464500	NSIG	NSIG	SKEN	39	0	0	.227	39	.008	.11	.963
73	01464515	NSIG	NSIG	SKEN	38	0	0	.921	38	- .011	- .16	.962
74	01465850	UP	NSIG	SKEN	40	.054	.90	.004	40	.075	1.3	.165
75	01466500	NSIG	NSIG	SKEN	40	.015	.37	.127	39	.025	.60	.379
76	01467000	UP	NSIG	SKEN	40	.10	2.1	.002	40	.065	1.3	.127
77	01467069	UP	NSIG	SKEN	40	.033	.49	.032	40	.051	.75	.166
78	01467081	UP	UP	SKEN	40	.027	.38	.069	40	.11	1.5	.020
79	01467150	UP	UP	SKEN	32	.033	.48	.065	32	.093	1.3	.046
80	01467329	NSIG	UP	SKEN	40	.017	.24	.274	40	.089	1.3	.002
81	01477120	UP	NSIG	SKEN	40	.050	.71	.018	40	.048	.68	.227
82	01477510	UP	NSIG	SKEN	40	.054	.75	.011	40	.093	1.3	.348
83	01482500	NSIG	UP	SKEN	40	.050	.67	.149	40	.11	1.5	.098

Appendix 8. Summary statistics and results of trend tests for total alkalinity at selected surface-water-quality stations in New Jersey, water years 1986-95

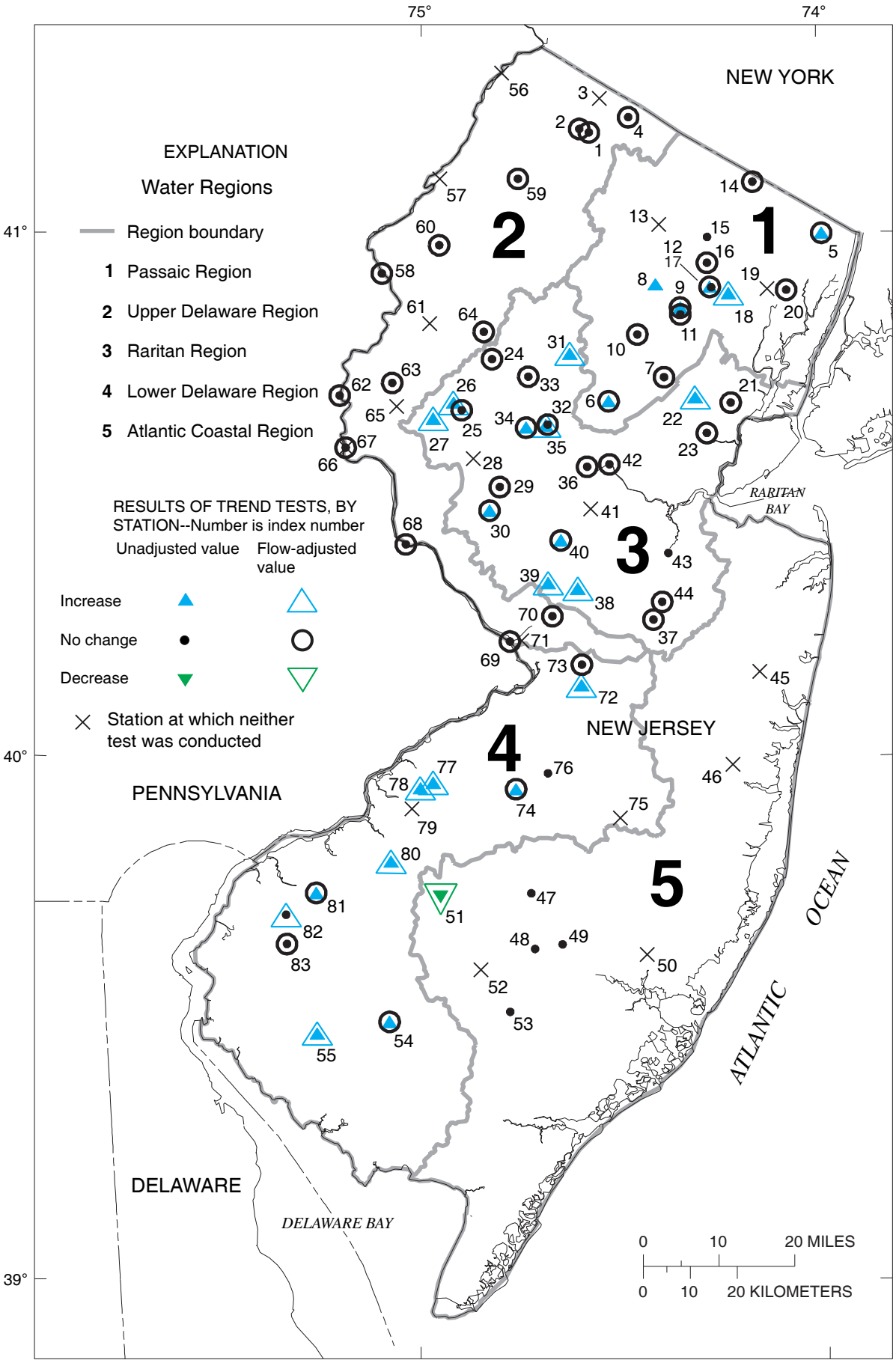

Figure 8-1. Results of trend tests for total alkalinity at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 8a. Summary statistics for total alkalinity at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter as CaCO3 and are rounded to 1 milligram per liter; <, less than; --, not applicable]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	54	54	0	66	143	143	199
2	01367910	55	55	0	31	55	59	88
3	01368000	20	20	0	61	110	103	142
4	01368950	54	54	0	104	190	184	233
5	01377000	54	53	0	58	81	81	109
6	01379000	55	55	0	21	53	51	80
7	01379500	55	55	0	23	60	59	98
8	01380500	28	27	0	22	35	45	83
9	01381200	55	53	0	29	57	59	88
10	01381500	55	55	0	19	54	54	85
11	01381800	55	53	0	30	72	71	108
12	01382000	134	109	0	26	60	63	112
13	01382500	21	21	0	17	30	30	43
14	01387500	55	54	0	28	61	63	96
15	01388000	125	100	0	27	56	58	87
16	01388600	134	108	0	28	53	52	72
17	01389005	116	93	0	29	59	61	100
18	01389500	138	109	0	23	59	61	100
19	01389880	21	21	0	31	67	69	102
20	01391500	55	54	0	63	122	117	151
21	01393450	53	53	0	25	115	109	161
22	01394500	54	54	0	22	104	95	133
23	01395000	55	54	0	21	88	87	136
24	01396280	55	55	0	31	62	63	100
25	01396535	55	55	0	33	66	67	101
26	01396588	55	54	0	19	33	32	45
27	01396660	55	54	0	24	50	52	84
28	01397000	21	21	0	29	58	56	80
29	01397400	55	55	0	18	61	60	88
30	01398000	54	54	0	20	64	61	109
31	01398260	55	54	0	20	41	40	58
32	01399120	55	55	0	22	53	51	72
33	01399500	54	53	0	17	47	45	63
34	01399700	54	54	0	26	57	57	84
35	01399780	54	54	0	18	56	54	82
36	01400500	55	54	0	27	56	55	74
37	01400540	54	54	0	2	10	10	17
38	01400650	55	55	0	2	15	17	49
39	01401000	60	55	0	14	47	49	84
40	01401600	60	58	0	17	44	44	78
41	01402000	21	21	0	15	35	35	52
42	01403300	40	40	0	19	47	44	63
43	01405302	54	53	7.5	<1	7	9	32
44	01405340	55	55	0	1	8	7	13
45	01408000	21	21	0	12	35	33	50
46	01408500	47	47	29.8	<1	1	2	3
47	01409387	53	53	60.4	<1	<1	1	9
48	01409416	55	54	9.3	<1	6	7	43
49	01409500	55	54	25.9	<1	2	2	4
50	01410150	49	49	83.7	--	--	--	--
51	01410784	55	54	0	1	7	8	26

Table 8a. Summary statistics for total alkalinity at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter as CaCO3 and are rounded to 1 milligram per liter; <, less than; --, not applicable]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
52	01411000	21	21	4.8	<1	5	4	7
53	01411110	55	54	13.0	<1	2	3	5
54	01411500	58	58	0	2	7	6	9
55	01412800	55	55	0	7	16	15	31
56	01438500	21	21	0	7	15	16	43
57	01440000	10	10	0	--	--	--	--
58	01443000	52	52	0	8	18	18	27
59	01443440	55	54	0	58	127	128	191
60	01443500	53	53	0	66	119	123	177
61	01445500	21	21	0	111	187	180	211
62	01447000	55	55	0	16	33	33	48
63	01455200	54	53	0	21	55	56	113
64	01456200	53	53	0	40	79	84	137
65	01457000	21	21	0	42	103	99	136
66	01457400	55	55	0	56	100	100	137
67	01457500	20	20	0	19	42	40	55
68	01461000	54	54	0	19	41	41	64
69	01463500	58	48	0	18	40	40	65
70	01463620	55	55	0	3	13	13	24
71	01464000	21	21	0	21	40	41	77
72	01464500	55	55	0	10	20	22	37
73	01464515	54	54	0	10	21	21	44
74	01465850	54	54	3.7	<1	4	5	12
75	01466500	112	104	98.1	--	--	--	--
76	01467000	54	54	50.0	<1	1	1	3
77	01467069	54	54	0	7	16	17	31
78	01467081	55	55	0	11	40	43	103
79	01467150	21	21	0	20	29	30	55
80	01467329	53	53	0	17	25	25	30
81	01477120	55	55	0	10	31	29	50
82	01477510	55	55	0	11	31	29	45
83	01482500	55	55	0	15	30	32	68

Table 8b. Summary of trends in total alkalinity at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter as CaCO3; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend test		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	39	1.1	0.76	0.547	39	1.1	0.76	0.711
2	01367910	NSIG	NSIG	SKEN	40	.82	1.4	.262	40	.70	1.2	.348
3	01368000	NT	NT	NT	--	--	--	--	--	--	--	--
4	01368950	NSIG	NSIG	SKEN	40	- .14	- .075	.964	39	- .99	- .54	.711
5	01377000	UP	NSIG	SKEN	40	.86	1.1	.088	40	.67	.82	.623
6	01379000	UP	NSIG	SKEN	40	1.0	2.0	.043	40	.45	.89	.623
7	01379500	NSIG	NSIG	SKEN	40	.21	.35	.525	40	.006	.011	.823
8	01380500	UP	NT	TOBT	27	2.3	5.1	.021	--	--	--	--
9	01381200	UP	NSIG	SKEN	40	1.1	1.9	.073	40	.53	.91	.623
10	01381500	NSIG	NSIG	SKEN	40	.10	.19	.652	40	.43	.80	.474
11	01381800	NSIG	NSIG	SKEN	40	- .26	- .36	.622	40	- .57	- .80	.447
12	01382000	UP	NSIG	SKEN	40	2.8	4.4	.060	40	1.3	2.0	.118
13	01382500	NT	NT	NT	--	--	--	--	--	--	--	--
14	01387500	NSIG	NSIG	SKEN	40	.41	.65	.687	40	- .74	-1.2	.623
15	01388000	NSIG	NT	TOBT	100	.43	.73	.529	--	--	--	--
16	01388600	NSIG	NSIG	SKEN	40	.74	1.4	.324	40	.63	1.2	.264
17	01389005	NSIG	NT	TOBT	93	.054	.088	.946	--	--	--	--
18	01389500	UP	UP	SKEN	40	2.6	4.3	.005	40	2.9	4.7	.001
19	01389880	NT	NT	NT	--	--	--	--	--	--	--	--
20	01391500	NSIG	NSIG	SKEN	40	.18	.15	.858	40	.021	.018	1.000
21	01393450	NSIG	NSIG	SKEN	39	2.2	2.0	.151	39	3.0	2.7	.165
22	01394500	UP	UP	SKEN	40	2.1	2.2	.020	40	2.0	2.1	.067
23	01395000	NSIG	NSIG	SKEN	40	2.4	2.7	.165	40	.78	.89	.623
24	01396280	NSIG	NSIG	SKEN	40	.77	1.2	.531	40	- .86	-1.4	.140
25	01396535	NSIG	NSIG	SKEN	40	.52	.78	.528	40	.52	.78	.447
26	01396588	UP	UP	SKEN	40	.83	2.6	.001	40	1.2	3.8	.005
27	01396660	UP	UP	SKEN	40	1.5	2.9	.022	40	1.5	3.0	.073
28	01397000	NT	NT	NT	--	--	--	--	--	--	--	--
29	01397400	NSIG	NSIG	SKEN	40	- .046	- .076	.857	40	.21	.35	.893
30	01398000	UP	NSIG	SKEN	40	1.4	2.3	.048	40	3.1	5.0	.348
31	01398260	UP	UP	SKEN	40	1.1	2.8	.031	40	2.1	5.1	.006
32	01399120	NSIG	NSIG	SKEN	40	.58	1.1	.259	40	.55	1.1	.348
33	01399500	NSIG	NSIG	SKEN	40	.38	.86	.443	40	1.3	2.9	.166
34	01399700	UP	NSIG	SKEN	40	1.2	2.2	.020	40	2.0	3.6	.118
35	01399780	UP	UP	SKEN	40	1.5	2.7	.073	39	1.8	3.4	.042
36	01400500	NSIG	NSIG	SKEN	40	.57	1.0	.473	40	.64	1.2	.227
37	01400540	NSIG	NSIG	SKEN	40	- .18	-1.8	.159	40	- .20	-2.1	.264
38	01400650	UP	UP	SKEN	40	2.0	11	.000	40	2.0	12	.001
39	01401000	UP	UP	SKEN	40	2.0	4.0	.028	40	4.9	9.9	.018
40	01401600	UP	NSIG	SKEN	40	1.5	3.4	.014	40	1.7	4.0	.195
41	01402000	NT	NT	NT	--	--	--	--	--	--	--	--
42	01403300	NSIG	NSIG	SKEN	40	.59	1.3	.225	40	.40	.92	.195
43	01405302	NSIG	NT	TOBT	53	- .27	-2.9	.546	--	--	--	--
44	01405340	NSIG	NSIG	SKEN	40	0	0	1.000	40	.023	.32	.720
45	01408000	NT	NT	NT	--	--	--	--	--	--	--	--
46	01408500	NT	NT	NT	--	--	--	--	--	--	--	--
47	01409387	NSIG	NT	TOBT	53	- .029	-2.6	.240	--	--	--	--

Table 8b. Summary of trends in total alkalinity at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter as CaCO3; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend test		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
48	01409416	NSIG	NT	TOBT	54	.010	.13	.976	--	--	--	--
49	01409500	NSIG	NT	TOBT	54	.011	.61	.782	--	--	--	--
50	01410150	NT	NT	NT	--	--	--	--	--	--	--	--
51	01410784	DOWN	DOWN	SKEN	40	- .55	-6.8	.053	40	- .31	-3.9	.081
52	01411000	NT	NT	NT	--	--	--	--	--	--	--	--
53	01411110	NSIG	NT	TOBT	54	.074	2.9	.240	--	--	--	--
54	01411500	UP	NSIG	SKEN	40	.18	2.9	.012	40	.12	2.0	.118
55	01412800	UP	UP	SKEN	40	.67	4.3	.000	40	.75	4.9	.000
56	01438500	NT	NT	NT	--	--	--	--	--	--	--	--
57	01440000	NT	NT	NT	--	--	--	--	--	--	--	--
58	01443000	NSIG	NSIG	SKEN	38	0	0	.697	38	.006	.032	.849
59	01443440	NSIG	NSIG	SKEN	40	1.7	1.4	.348	40	3.2	2.5	.264
60	01443500	NSIG	NSIG	SKEN	38	1.2	1.0	.270	38	1.2	.96	.313
61	01445500	NT	NT	NT	--	--	--	--	--	--	--	--
62	01447000	NSIG	NSIG	SKEN	40	- .090	- .27	.718	40	- .18	- .55	.687
63	01455200	NSIG	NSIG	SKEN	39	.58	1.0	.431	39	1.2	2.2	.309
64	01456200	NSIG	NSIG	SKEN	38	1.2	1.4	.360	38	1.3	1.5	.362
65	01457000	NT	NT	NT	--	--	--	--	--	--	--	--
66	01457400	NSIG	NSIG	SKEN	40	.80	.80	.530	40	.86	.86	.502
67	01457500	NT	NT	NT	--	--	--	--	--	--	--	--
68	01461000	NSIG	NSIG	SKEN	39	.55	1.3	.578	39	.30	.74	.355
69	01463500	NSIG	NSIG	SKEN	40	.61	1.5	.370	40	.57	1.4	.348
70	01463620	NSIG	NSIG	SKEN	40	.12	.90	.467	38	.12	.92	.597
71	01464000	NT	NT	NT	--	--	--	--	--	--	--	--
72	01464500	UP	UP	SKEN	40	.70	3.1	.017	40	.43	1.9	.018
73	01464515	NSIG	NSIG	SKEN	40	.12	.56	.753	40	.38	1.8	.623
74	01465850	UP	NSIG	SKEN	39	.11	2.3	.084	39	.075	1.6	.287
75	01466500	NT	NT	NT	--	--	--	--	--	--	--	--
76	01467000	NSIG	NT	TOBT	54	.005	.42	.812	--	--	--	--
77	01467069	UP	UP	SKEN	40	1.1	6.7	.000	40	1.1	6.6	.000
78	01467081	UP	UP	SKEN	40	1.5	3.5	.013	40	2.2	5.1	.044
79	01467150	NT	NT	NT	--	--	--	--	--	--	--	--
80	01467329	UP	UP	SKEN	40	.28	1.1	.031	40	.58	2.4	.007
81	01477120	UP	NSIG	SKEN	40	1.1	3.8	.043	40	.89	3.0	.264
82	01477510	NSIG	UP	SKEN	40	.74	2.6	.149	40	1.4	4.9	.028
83	01482500	NSIG	NSIG	SKEN	40	.56	1.7	.189	40	.50	1.5	.502

Appendix 9. Summary statistics and results of trend tests for total nitrogen at selected surface-water-quality stations in New Jersey, water years 1986-95

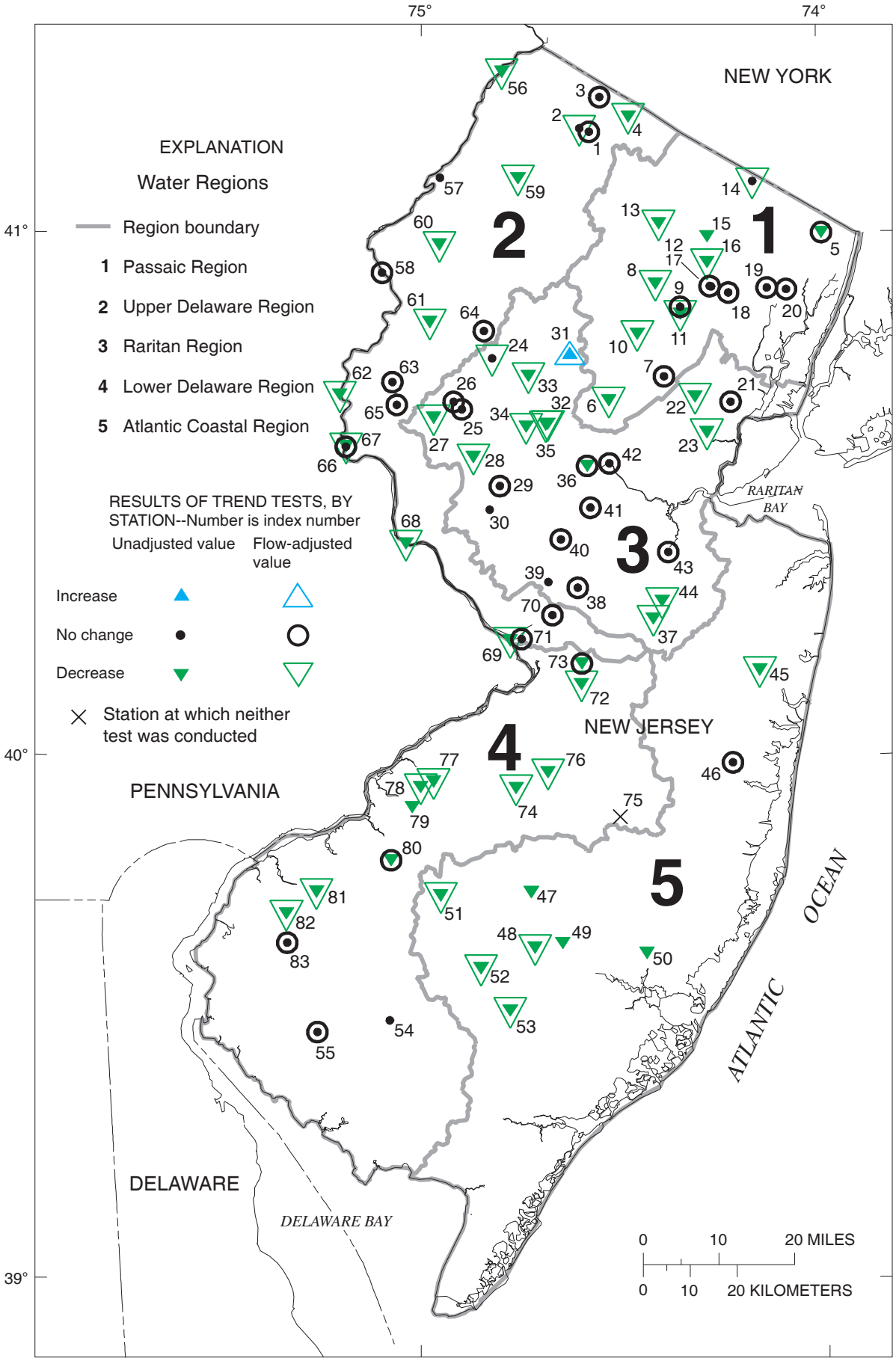

Figure 9-1. Results of trend tests for total nitrogen at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 9a. Summary statistics for total nitrogen at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter as N and are rounded to three significant figures or, if less than three significant figures, values are rounded to 0.01 milligrams per liter; <, less than; --, not applicable]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	52	52	0	0.61	1.46	1.71	4.57
2	01367910	53	53	0	.89	1.57	1.64	2.99
3	01368000	40	40	0	.98	1.53	1.61	2.60
4	01368950	53	53	0	.70	1.27	1.32	2.07
5	01377000	52	51	0	.76	1.24	1.28	1.84
6	01379000	53	53	1.9	< .46	.82	.88	1.70
7	01379500	54	54	0	.94	2.43	2.82	6.10
8	01380500	42	42	0	.46	.74	.84	1.79
9	01381200	50	48	0	.72	3.31	3.79	8.49
10	01381500	53	53	0	1.36	2.01	2.11	3.64
11	01381800	51	49	0	1.23	3.14	3.20	7.58
12	01382000	132	108	0	.94	3.30	3.87	8.50
13	01382500	41	41	2.4	< .36	.58	.67	2.61
14	01387500	53	52	0	.76	1.83	2.01	4.44
15	01388000	124	99	13.1	< .36	1.14	1.20	2.96
16	01388600	132	107	.9	< .87	1.40	1.47	3.40
17	01389005	114	91	0	.78	3.20	3.36	7.80
18	01389500	135	108	0	.96	3.16	3.37	7.80
19	01389880	42	42	0	1.29	3.56	3.39	5.80
20	01391500	52	51	0	2.61	5.56	5.66	8.61
21	01393450	52	52	0	.76	2.09	2.13	3.73
22	01394500	53	53	0	1.01	1.89	1.88	2.64
23	01395000	53	52	0	.91	1.59	1.62	2.89
24	01396280	53	53	0	1.41	2.10	2.10	3.01
25	01396535	52	52	1.9	<1.60	1.77	1.89	3.20
26	01396588	52	51	0	.59	1.51	1.60	3.59
27	01396660	52	51	2.0	<1.00	1.30	1.37	3.47
28	01397000	41	41	0	.63	1.63	1.67	3.03
29	01397400	54	54	1.9	<1.70	2.09	2.04	3.26
30	01398000	54	54	5.6	< .40	2.12	2.03	4.16
31	01398260	53	52	0	1.19	2.33	2.47	5.30
32	01399120	52	52	0	.93	1.31	1.34	2.52
33	01399500	53	52	0	.76	1.21	1.30	2.29
34	01399700	54	54	0	1.04	1.71	1.86	5.96
35	01399780	51	51	0	.70	1.36	1.38	2.56
36	01400500	54	54	0	.64	1.59	1.57	2.57
37	01400540	53	53	1.9	<1.71	1.89	1.88	2.99
38	01400650	50	50	0	.87	4.19	4.18	6.73
39	01401000	54	53	9.4	< .26	1.01	1.12	4.20
40	01401600	52	52	1.9	<2.69	1.90	2.02	3.60
41	01402000	42	42	0	1.93	2.98	3.11	6.92
42	01403300	40	40	0	1.54	2.66	2.67	4.10
43	01405302	50	49	0	1.40	4.28	4.89	10.5
44	01405340	53	53	1.9	< .66	1.40	1.41	2.36
45	01408000	42	41	4.9	< .48	.94	1.00	1.92
46	01408500	55	55	3.6	< .64	.92	.94	1.71
47	01409387	52	52	5.8	< .56	.67	.69	1.36
48	01409416	50	49	0	1.49	4.03	4.52	12.8
49	01409500	50	49	10.2	< .26	.49	.54	1.10

Table 9a. Summary statistics for total nitrogen at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter as N and are rounded to three significant figures or, if less than three significant figures, values are rounded to 0.01 milligrams per liter; <, less than; --, not applicable]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
50	01410150	52	52	28.8	< .08	.29	.33	.81
51	01410784	52	51	0	.56	1.16	1.69	5.20
52	01411000	40	40	0	.52	1.19	1.32	2.29
53	01411110	53	52	0	.40	.91	.90	1.52
54	01411500	59	59	8.5	< .26	1.80	1.86	2.90
55	01412800	52	52	0	3.48	4.77	4.83	6.60
56	01438500	42	42	0	.36	.64	.66	1.33
57	01440000	31	31	16.1	< .21	.40	.39	.72
58	01443000	53	53	0	.30	.69	.76	1.96
59	01443440	51	50	0	.98	1.54	1.62	2.53
60	01443500	53	53	0	.52	1.08	1.09	1.58
61	01445500	42	42	0	1.17	1.84	1.97	3.99
62	01447000	53	53	1.9	< .72	.96	1.00	2.07
63	01455200	52	51	0	1.48	2.48	2.57	4.63
64	01456200	52	52	0	.90	1.64	1.72	3.43
65	01457000	40	40	0	1.62	2.12	2.22	3.10
66	01457400	54	54	0	1.68	2.61	2.67	4.22
67	01457500	39	39	0	.50	1.40	1.47	2.33
68	01461000	53	53	0	.68	1.46	1.57	4.24
69	01463500	57	48	4.2	<1.19	1.33	1.42	2.80
70	01463620	52	52	1.9	< .98	1.29	1.41	2.50
71	01464000	42	42	0	1.73	3.92	4.26	8.06
72	01464500	53	53	0	.52	1.69	1.77	3.53
73	01464515	53	53	0	.89	1.90	1.92	3.00
74	01465850	53	53	0	.67	1.18	1.18	1.93
75	01466500	109	105	98.1	--	--	--	--
76	01467000	54	54	1.9	< .51	.52	.53	1.11
77	01467069	52	52	0	.52	1.32	1.58	3.82
78	01467081	50	50	0	1.36	4.42	4.67	12.6
79	01467150	41	41	0	.49	1.41	2.71	13.4
80	01467329	53	53	0	.91	1.86	1.83	2.58
81	01477120	52	52	0	1.09	2.33	2.48	4.60
82	01477510	53	53	0	1.31	2.12	2.27	3.99
83	01482500	53	53	1.9	< .66	3.20	3.26	5.67

Table 9b. Summary of trends in total nitrogen at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter as N; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	39	0.008	0.46	0.853	39	-0.002	-0.091	1.000
2	01367910	NSIG	DOWN	SKEN	40	- .020	-1.2	.107	40	- .033	-2.0	.044
3	01368000	NSIG	NSIG	SKEN	35	- .006	- .40	.665	35	- .010	- .60	.552
4	01368950	DOWN	DOWN	SKEN	40	- .038	-2.8	.003	39	- .031	-2.4	.005
5	01377000	DOWN	NSIG	SKEN	39	- .023	-1.8	.041	39	- .020	-1.6	.139
6	01379000	DOWN	DOWN	SKEN	38	- .090	-10	.000	38	- .080	-9.2	.000
7	01379500	NSIG	NSIG	SKEN	39	.041	1.5	.610	39	.022	.76	.711
8	01380500	DOWN	DOWN	SKEN	34	- .051	-6.1	.002	34	- .045	-5.4	.005
9	01381200	NSIG	NSIG	SKEN	36	.060	1.6	.756	36	.034	.91	.408
10	01381500	DOWN	DOWN	SKEN	39	- .083	-3.9	.012	39	- .074	-3.5	.010
11	01381800	DOWN	DOWN	SKEN	38	- .084	-2.6	.039	38	- .073	-2.3	.031
12	01382000	NSIG	NSIG	SKEN	40	.13	3.3	.347	40	- .032	- .82	.823
13	01382500	DOWN	DOWN	SKEN	34	- .043	-6.4	.000	34	- .043	-6.4	.001
14	01387500	NSIG	DOWN	SKEN	38	- .013	- .66	.848	38	- .089	-4.4	.014
15	01388000	DOWN	NT	TOBT	99	- .080	-6.6	.000	--	--	--	--
16	01388600	DOWN	DOWN	SKEN	39	- .062	-4.2	.011	39	- .087	-6.0	.000
17	01389005	NSIG	NT	TOBT	91	.016	.48	.840	--	--	--	--
18	01389500	NSIG	NSIG	SKEN	40	.12	3.5	.165	40	.033	.99	.823
19	01389880	NSIG	NSIG	SKEN	34	.015	.44	.579	34	- .046	-1.3	.407
20	01391500	NSIG	NSIG	SKEN	38	.022	.40	.810	38	.010	.17	.533
21	01393450	NSIG	NSIG	SKEN	38	.015	.70	.738	38	.016	.77	.703
22	01394500	DOWN	DOWN	SKEN	39	- .079	-4.2	.001	39	- .073	-3.9	.001
23	01395000	DOWN	DOWN	SKEN	39	- .047	-2.9	.042	39	- .044	-2.7	.064
24	01396280	NSIG	DOWN	SKEN	39	- .018	- .86	.579	39	- .025	-1.2	.079
25	01396535	NSIG	NSIG	SKEN	38	- .021	-1.1	.470	38	- .011	- .58	.533
26	01396588	NSIG	NSIG	SKEN	38	- .022	-1.4	.312	38	- .006	- .38	.886
27	01396660	DOWN	DOWN	SKEN	39	- .049	-3.6	.002	39	- .043	-3.1	.010
28	01397000	DOWN	DOWN	SKEN	31	- .069	-4.2	.006	31	- .065	-3.9	.003
29	01397400	NSIG	NSIG	SKEN	40	.014	.69	.622	40	.018	.90	.447
30	01398000	NSIG	NT	TOBT	54	- .046	-2.2	.390	--	--	--	--
31	01398260	UP	UP	SKEN	39	.14	5.6	.029	39	.11	4.4	.052
32	01399120	DOWN	DOWN	SKEN	39	- .029	-2.1	.023	39	- .022	-1.7	.021
33	01399500	DOWN	DOWN	SKEN	39	- .050	-3.8	.029	39	- .044	-3.4	.042
34	01399700	DOWN	DOWN	SKEN	40	- .051	-2.7	.012	40	- .047	-2.5	.054
35	01399780	DOWN	DOWN	SKEN	38	- .056	-4.1	.000	37	- .053	-3.8	.002
36	01400500	DOWN	NSIG	SKEN	40	- .039	-2.5	.044	40	- .021	-1.3	.166
37	01400540	DOWN	DOWN	SKEN	38	- .086	-4.6	.003	38	- .10	-5.4	.001
38	01400650	NSIG	NSIG	SKEN	36	.094	2.3	.305	36	.099	2.4	.112
39	01401000	NSIG	NT	TOBT	53	.022	1.9	.391	--	--	--	--
40	01401600	NSIG	NSIG	SKEN	38	0	0	1.000	38	- .011	- .54	.666
41	01402000	NSIG	NSIG	SKEN	33	.034	1.1	.731	33	.014	.44	.647
42	01403300	NSIG	NSIG	SKEN	40	- .031	-1.2	.417	40	- .020	- .76	.195
43	01405302	NSIG	NSIG	SKEN	36	.14	2.9	.472	36	.13	2.6	.384
44	01405340	DOWN	DOWN	SKEN	38	- .051	-3.6	.008	38	- .064	-4.6	.003
45	01408000	DOWN	DOWN	SKEN	31	- .096	-9.7	.000	31	- .099	-10	.003
46	01408500	NSIG	NSIG	SKEN	40	.010	1.1	.501	40	.002	.26	.823
47	01409387	DOWN	NT	TOBT	52	- .031	-4.5	.022	--	--	--	--

Table 9b. Summary of trends in total nitrogen at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter as N; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
48	01409416	DOWN	DOWN	SKEN	37	- .39	-8.5	.007	37	- .29	-6.4	.009
49	01409500	DOWN	NT	TOBT	49	- .026	-4.8	.024	--	--	--	--
50	01410150	DOWN	NT	TOBT	52	- .018	-5.3	.027	--	--	--	--
51	01410784	DOWN	DOWN	SKEN	38	- .27	-16	.000	38	- .24	-14	.000
52	01411000	DOWN	DOWN	SKEN	32	- .11	-8.3	.000	32	- .10	-7.8	.000
53	01411110	DOWN	DOWN	SKEN	39	- .037	-4.1	.001	39	- .028	-3.1	.002
54	01411500	NSIG	NT	TOBT	59	- .036	-1.9	.199	--	--	--	--
55	01412800	NSIG	NSIG	SKEN	39	.048	1.0	.228	39	.047	.98	.355
56	01438500	DOWN	DOWN	SKEN	34	- .024	-3.7	.046	34	- .017	-2.6	.068
57	01440000	NSIG	NT	TOBT	31	- .010	-2.5	.333	--	--	--	--
58	01443000	NSIG	NSIG	SKEN	39	- .031	-4.1	.150	39	- .026	-3.5	.116
59	01443440	DOWN	DOWN	SKEN	38	- .066	-4.1	.012	38	- .060	-3.7	.002
60	01443500	DOWN	DOWN	SKEN	39	- .052	-4.8	.001	39	- .045	-4.1	.001
61	01445500	DOWN	DOWN	SKEN	32	- .039	-2.0	.068	32	- .041	-2.1	.046
62	01447000	DOWN	DOWN	SKEN	39	- .026	-2.6	.041	39	- .028	-2.8	.064
63	01455200	NSIG	NSIG	SKEN	40	.023	.90	.325	40	.017	.65	.754
64	01456200	NSIG	NSIG	SKEN	37	.014	.82	.803	37	.031	1.8	.231
65	01457000	NSIG	NSIG	SKEN	30	- .018	- .81	.742	30	- .003	- .14	.947
66	01457400	NSIG	NSIG	SKEN	39	- .029	-1.1	.644	39	- .011	- .40	.853
67	01457500	DOWN	DOWN	SKEN	29	- .049	-3.3	.040	29	- .044	-3.0	.024
68	01461000	DOWN	DOWN	SKEN	39	- .074	-4.7	.001	39	- .068	-4.4	.000
69	01463500	DOWN	DOWN	SKEN	40	- .052	-3.7	.004	40	- .054	-3.9	.008
70	01463620	NSIG	NSIG	SKEN	38	- .013	- .90	.472	36	- .026	-1.8	.238
71	01464000	NSIG	NSIG	SKEN	33	.21	5.0	.192	33	.074	1.7	.192
72	01464500	DOWN	DOWN	SKEN	38	- .16	-9.1	.000	38	- .14	-7.8	.000
73	01464515	DOWN	NSIG	SKEN	38	- .054	-2.8	.095	38	- .053	-2.8	.127
74	01465850	DOWN	DOWN	SKEN	39	- .039	-3.3	.009	39	- .040	-3.4	.004
75	01466500	NT	NT	NT	--	--	--	--	--	--	--	--
76	01467000	DOWN	DOWN	SKEN	40	- .037	-6.9	.000	40	- .030	-5.6	.001
77	01467069	DOWN	DOWN	SKEN	38	- .16	-9.9	.000	38	- .15	-9.4	.000
78	01467081	DOWN	DOWN	SKEN	37	- .25	-5.3	.022	37	- .18	-3.9	.036
79	01467150	DOWN	DOWN	SKEN	32	- .55	-20	.000	32	- .36	-13	.005
80	01467329	DOWN	NSIG	SKEN	39	- .038	-2.1	.058	39	- .027	-1.5	.309
81	01477120	DOWN	DOWN	SKEN	38	- .088	-3.6	.084	38	- .13	-5.3	.027
82	01477510	DOWN	DOWN	SKEN	39	- .068	-3.0	.000	39	- .076	-3.4	.001
83	01482500	NSIG	NSIG	SKEN	39	- .097	-3.0	.459	39	.011	.34	.926

Appendix 10. Summary statistics and results of trend tests for total ammonia at selected surface-water-quality stations in New Jersey, water years 1986-95

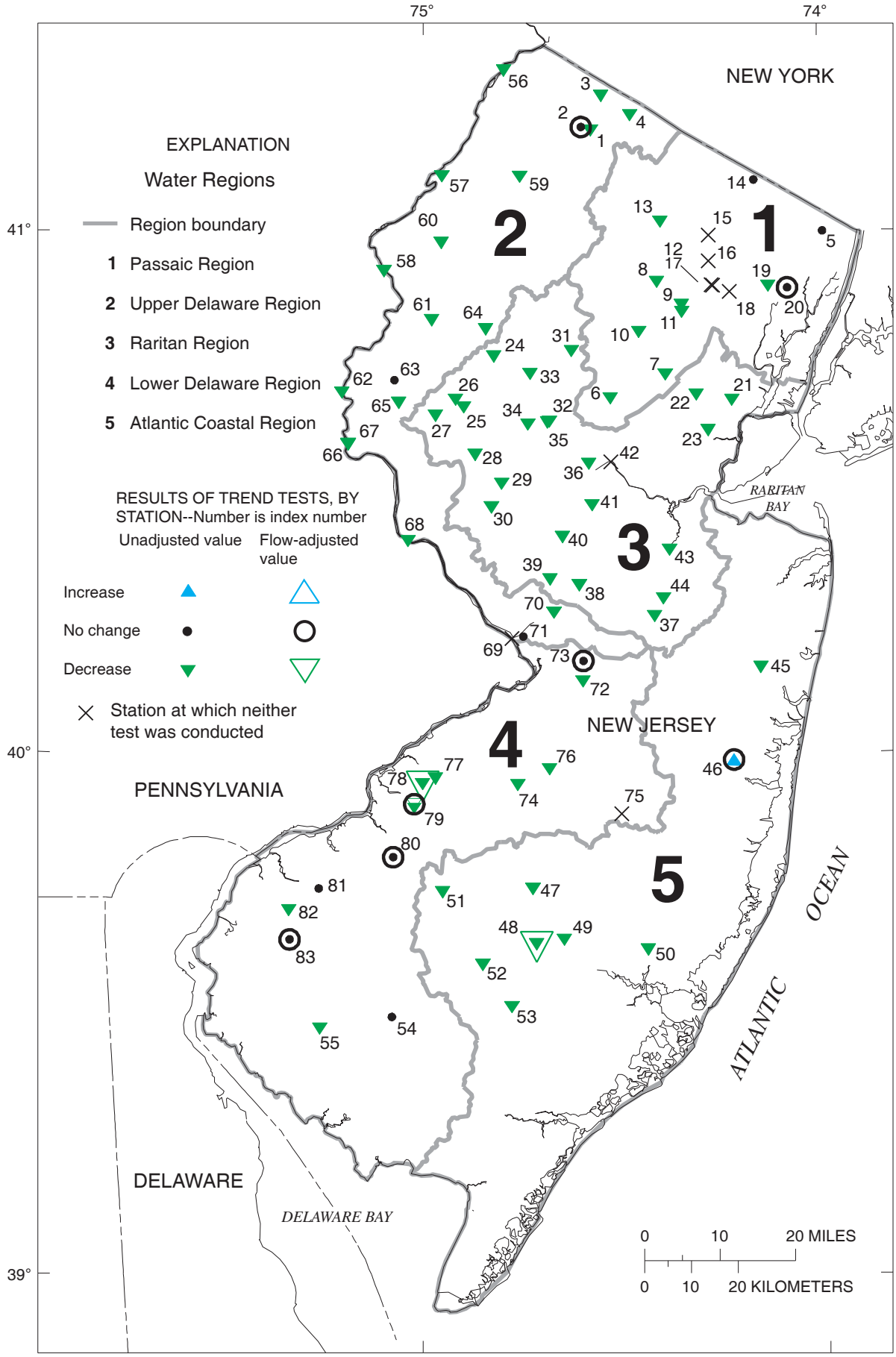

Figure 10-1. Results of trend tests for total ammonia at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 10a. Summary statistics for total ammonia at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter as N and are rounded to 0.01 milligrams per liter; <, less than]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	54	54	31.5	<0.01	0.06	0.08	0.36
2	01367910	54	54	3.7	< .03	.19	.21	.76
3	01368000	41	41	14.6	< .03	.08	.10	.43
4	01368950	54	54	24.1	< .01	.08	.10	.34
5	01377000	54	53	11.3	< .03	.10	.12	.38
6	01379000	54	54	29.6	< .03	.06	.08	.48
7	01379500	54	54	5.6	< .03	.21	.31	2.02
8	01380500	42	42	50.0	< .03	.03	.05	.14
9	01381200	54	52	19.2	< .03	.06	.11	.77
10	01381500	54	54	22.2	< .03	.11	.15	.50
11	01381800	54	52	5.8	< .03	.45	.60	2.05
12	01382000	90	75	0	.01	.41	.81	4.50
13	01382500	41	41	41.5	< .03	.04	.07	.58
14	01387500	54	53	9.4	< .03	.13	.20	1.81
15	01388000	82	66	7.6	< .01	.05	.07	.39
16	01388600	91	75	1.3	< .01	.13	.18	.52
17	01389005	73	59	3.4	< .01	.25	.49	2.40
18	01389500	95	77	1.3	< .01	.32	.44	2.00
19	01389880	42	42	14.3	< .03	.13	.29	1.52
20	01391500	54	53	0	.09	.66	1.16	4.40
21	01393450	52	52	13.5	< .03	.11	.12	.44
22	01394500	54	54	13.0	< .03	.10	.11	.31
23	01395000	54	53	17.0	< .01	.07	.10	.58
24	01396280	54	54	42.6	< .01	.05	.07	.31
25	01396535	54	54	31.5	< .03	.06	.08	.50
26	01396588	54	53	37.7	< .01	.05	.06	.20
27	01396660	54	53	39.6	< .01	.05	.07	.27
28	01397000	41	41	36.6	< .03	.05	.08	.28
29	01397400	54	54	14.8	< .03	.09	.14	.71
30	01398000	54	54	27.8	< .01	.06	.07	.31
31	01398260	54	53	17.0	< .03	.09	.28	1.14
32	01399120	54	54	37.0	< .03	.05	.07	.26
33	01399500	54	53	37.7	< .01	.05	.07	.48
34	01399700	54	54	29.6	< .03	.05	.07	.50
35	01399780	54	53	34.0	< .01	.05	.06	.33
36	01400500	54	54	29.6	< .03	.06	.07	.25
37	01400540	55	55	20.0	< .03	.08	.09	.22
38	01400650	52	52	19.2	< .03	.37	.56	2.40
39	01401000	54	52	34.6	< .01	.05	.06	.21
40	01401600	54	54	24.1	< .03	.08	.09	.76
41	01402000	42	42	11.9	< .03	.13	.20	1.27
42	01403300	29	29	0	.03	.16	.23	1.10
43	01405302	55	54	5.6	< .03	.15	.32	2.90
44	01405340	55	55	20.0	< .03	.09	.09	.26
45	01408000	43	42	45.2	< .03	.05	.11	.79
46	01408500	51	51	2.0	< .03	.15	.15	.28
47	01409387	53	53	37.7	< .03	.05	.07	.27
48	01409416	52	51	3.9	< .03	.81	1.37	5.30
49	01409500	52	51	49.0	< .03	.02	.06	.83
50	01410150	54	54	50.0	< .03	.02	.05	.21
51	01410784	53	52	34.6	< .03	.06	.22	1.60

Table 10a. Summary statistics for total ammonia at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter as N and are rounded to 0.01 milligrams per liter; <, less than]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
52	01411000	40	40	12.5	< .03	.10	.14	.77
53	01411110	54	53	34.0	< .03	.06	.07	.27
54	01411500	48	48	10.4	< .01	.04	.04	.08
55	01412800	54	54	11.1	< .03	.09	.10	.37
56	01438500	42	42	54.8	< .03	< .05	.05	.34
57	01440000	31	31	51.6	< .03	< .05	.05	.24
58	01443000	54	54	44.4	< .01	.03	.05	.20
59	01443440	54	53	24.5	< .03	.06	.10	.42
60	01443500	54	54	37.0	< .01	.05	.07	.28
61	01445500	42	42	11.9	< .03	.08	.10	.44
62	01447000	54	54	35.2	< .03	.05	.06	.25
63	01455200	52	51	11.8	< .03	.13	.16	.78
64	01456200	52	52	17.3	< .03	.18	.21	.66
65	01457000	41	41	46.3	< .03	.03	.06	.19
66	01457400	54	54	18.5	< .03	.07	.09	.27
67	01457500	40	40	37.5	< .03	.06	.10	.30
68	01461000	54	54	27.8	< .03	.06	.11	.56
69	01463500	37	33	3.0	< .01	.05	.07	.26
70	01463620	55	55	21.8	< .03	.07	.09	.90
71	01464000	42	42	7.1	< .03	.10	.19	1.56
72	01464500	54	54	5.6	< .03	.19	.25	1.20
73	01464515	54	54	0	.03	.26	.34	1.03
74	01465850	54	54	13.0	< .03	.09	.11	.56
75	01466500	88	85	16.5	< .01	.02	.02	.07
76	01467000	54	54	37.0	< .03	.04	.06	.22
77	01467069	54	54	7.4	< .03	.20	.42	3.00
78	01467081	53	53	0	.06	1.50	2.11	8.20
79	01467150	42	42	0	.05	.23	1.65	11.1
80	01467329	54	54	1.9	< .03	.24	.27	.66
81	01477120	54	54	9.3	< .03	.11	.13	.41
82	01477510	54	54	13.0	< .03	.07	.10	.43
83	01482500	54	54	1.9	< .03	.21	.21	.51

Table 10b. Summary of trends in total ammonia at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter as N; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	DOWN	NT	TOBT	54	-0.010	-13	0.000	--	--	--	--
2	01367910	NSIG	NSIG	SKEN	40	- .004	-1.9	.754	40	- .005	-2.6	.140
3	01368000	DOWN	NT	TOBT	41	- .013	-13	.000	--	--	--	--
4	01368950	DOWN	NT	TOBT	54	- .009	-9.1	.007	--	--	--	--
5	01377000	NSIG	NT	TOBT	53	- .006	-4.8	.125	--	--	--	--
6	01379000	DOWN	NT	TOBT	54	- .009	-11	.001	--	--	--	--
7	01379500	DOWN	NT	TOBT	54	- .058	-19	.000	--	--	--	--
8	01380500	DOWN	NT	TOBT	42	- .006	-11	.000	--	--	--	--
9	01381200	DOWN	NT	TOBT	52	- .014	-13	.000	--	--	--	--
10	01381500	DOWN	NT	TOBT	54	- .024	-17	.000	--	--	--	--
11	01381800	DOWN	NT	TOBT	52	- .16	-27	.000	--	--	--	--
12	01382000	NT	NT	NT	--	--	--	--	--	--	--	--
13	01382500	DOWN	NT	TOBT	41	- .008	-12	.000	--	--	--	--
14	01387500	NSIG	NT	TOBT	53	- .011	-5.7	.210	--	--	--	--
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	NT	NT	NT	--	--	--	--	--	--	--	--
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	NT	NT	NT	--	--	--	--	--	--	--	--
19	01389880	DOWN	NT	TOBT	42	- .079	-27	.000	--	--	--	--
20	01391500	NSIG	NSIG	SKEN	39	- .097	-8.4	.165	39	- .086	-7.4	.116
21	01393450	DOWN	NT	TOBT	52	- .012	-9.7	.003	--	--	--	--
22	01394500	DOWN	NT	TOBT	54	- .007	-6.8	.015	--	--	--	--
23	01395000	DOWN	NT	TOBT	53	- .008	-8.0	.014	--	--	--	--
24	01396280	DOWN	NT	TOBT	54	- .010	-15	.000	--	--	--	--
25	01396535	DOWN	NT	TOBT	54	- .007	-8.8	.001	--	--	--	--
26	01396588	DOWN	NT	TOBT	53	- .007	-11	.000	--	--	--	--
27	01396660	DOWN	NT	TOBT	53	- .007	-9.4	.009	--	--	--	--
28	01397000	DOWN	NT	TOBT	41	- .008	-10	.001	--	--	--	--
29	01397400	DOWN	NT	TOBT	54	- .014	-9.7	.014	--	--	--	--
30	01398000	DOWN	NT	TOBT	54	- .005	-7.6	.006	--	--	--	--
31	01398260	DOWN	NT	TOBT	53	- .064	-23	.000	--	--	--	--
32	01399120	DOWN	NT	TOBT	54	- .005	-7.9	.002	--	--	--	--
33	01399500	DOWN	NT	TOBT	53	- .009	-13	.000	--	--	--	--
34	01399700	DOWN	NT	TOBT	54	- .005	-7.2	.008	--	--	--	--
35	01399780	DOWN	NT	TOBT	53	- .005	-9.4	.000	--	--	--	--
36	01400500	DOWN	NT	TOBT	54	- .007	-9.1	.001	--	--	--	--
37	01400540	DOWN	NT	TOBT	55	- .005	-5.7	.026	--	--	--	--
38	01400650	DOWN	NT	TOBT	52	- .12	-22	.000	--	--	--	--
39	01401000	DOWN	NT	TOBT	52	- .003	-5.5	.058	--	--	--	--
40	01401600	DOWN	NT	TOBT	54	- .006	-6.9	.026	--	--	--	--
41	01402000	DOWN	NT	TOBT	42	- .024	-12	.006	--	--	--	--
42	01403300	NT	NT	NT	--	--	--	--	--	--	--	--
43	01405302	DOWN	NT	TOBT	54	- .030	-9.4	.035	--	--	--	--
44	01405340	DOWN	NT	TOBT	55	- .006	-6.8	.013	--	--	--	--
45	01408000	DOWN	NT	TOBT	42	- .021	-20	.000	--	--	--	--
46	01408500	UP	NSIG	SKEN	37	.008	5.7	.049	37	.002	1.4	.369
47	01409387	DOWN	NT	TOBT	53	- .008	-11	.000	--	--	--	--

Table 10b. Summary of trends in total ammonia at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter as N; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
48	01409416	DOWN	DOWN	SKEN	38	- .39	-29	.000	38	- .44	-32	.000
49	01409500	DOWN	NT	TOBT	51	- .009	-14	.000	--	--	--	--
50	01410150	DOWN	NT	TOBT	54	- .007	-14	.000	--	--	--	--
51	01410784	DOWN	NT	TOBT	52	- .066	-29	.000	--	--	--	--
52	01411000	DOWN	NT	TOBT	40	- .015	-11	.002	--	--	--	--
53	01411110	DOWN	NT	TOBT	53	- .010	-14	.000	--	--	--	--
54	01411500	NSIG	NT	TOBT	48	.002	4.3	.166	--	--	--	--
55	01412800	DOWN	NT	TOBT	54	- .008	-7.7	.004	--	--	--	--
56	01438500	DOWN	NT	TOBT	42	- .006	-12	.000	--	--	--	--
57	01440000	DOWN	NT	TOBT	31	- .005	-10	.000	--	--	--	--
58	01443000	DOWN	NT	TOBT	54	- .004	-8.2	.002	--	--	--	--
59	01443440	DOWN	NT	TOBT	53	- .015	-16	.000	--	--	--	--
60	01443500	DOWN	NT	TOBT	54	- .007	-11	.000	--	--	--	--
61	01445500	DOWN	NT	TOBT	42	- .007	-6.8	.029	--	--	--	--
62	01447000	DOWN	NT	TOBT	54	- .008	-14	.000	--	--	--	--
63	01455200	NSIG	NT	TOBT	51	- .008	-4.9	.201	--	--	--	--
64	01456200	DOWN	NT	TOBT	52	- .036	-18	.000	--	--	--	--
65	01457000	DOWN	NT	TOBT	41	- .009	-14	.000	--	--	--	--
66	01457400	DOWN	NT	TOBT	54	- .010	-10	.001	--	--	--	--
67	01457500	DOWN	NT	TOBT	40	- .022	-22	.000	--	--	--	--
68	01461000	DOWN	NT	TOBT	54	- .021	-20	.000	--	--	--	--
69	01463500	NT	NT	NT	--	--	--	--	--	--	--	--
70	01463620	DOWN	NT	TOBT	55	- .005	-5.4	.073	--	--	--	--
71	01464000	NSIG	NT	TOBT	42	- .008	-4.2	.349	--	--	--	--
72	01464500	DOWN	NT	TOBT	54	- .052	-21	.000	--	--	--	--
73	01464515	NSIG	NSIG	SKEN	39	- .010	-3.0	.404	39	- .015	-4.3	.229
74	01465850	DOWN	NT	TOBT	54	- .013	-12	.000	--	--	--	--
75	01466500	NT	NT	NT	--	--	--	--	--	--	--	--
76	01467000	DOWN	NT	TOBT	54	- .008	-13	.000	--	--	--	--
77	01467069	DOWN	NT	TOBT	54	- .095	-23	.000	--	--	--	--
78	01467081	DOWN	DOWN	SKEN	39	- .43	-20	.001	39	- .36	-17	.004
79	01467150	DOWN	NSIG	SKEN	33	- .28	-17	.006	33	- .25	-15	.281
80	01467329	NSIG	NSIG	SKEN	40	- .009	-3.4	.210	40	- .005	-2.0	.502
81	01477120	NSIG	NT	TOBT	54	0	.12	.970	--	--	--	--
82	01477510	DOWN	NT	TOBT	54	- .011	-11	.000	--	--	--	--
83	01482500	NSIG	NSIG	SKEN	40	0	0	1.000	40	.002	1.2	.893

Appendix 11. Summary statistics and results of trend tests for total organic nitrogen at selected surface-water-quality stations in New Jersey, water years 1986-95

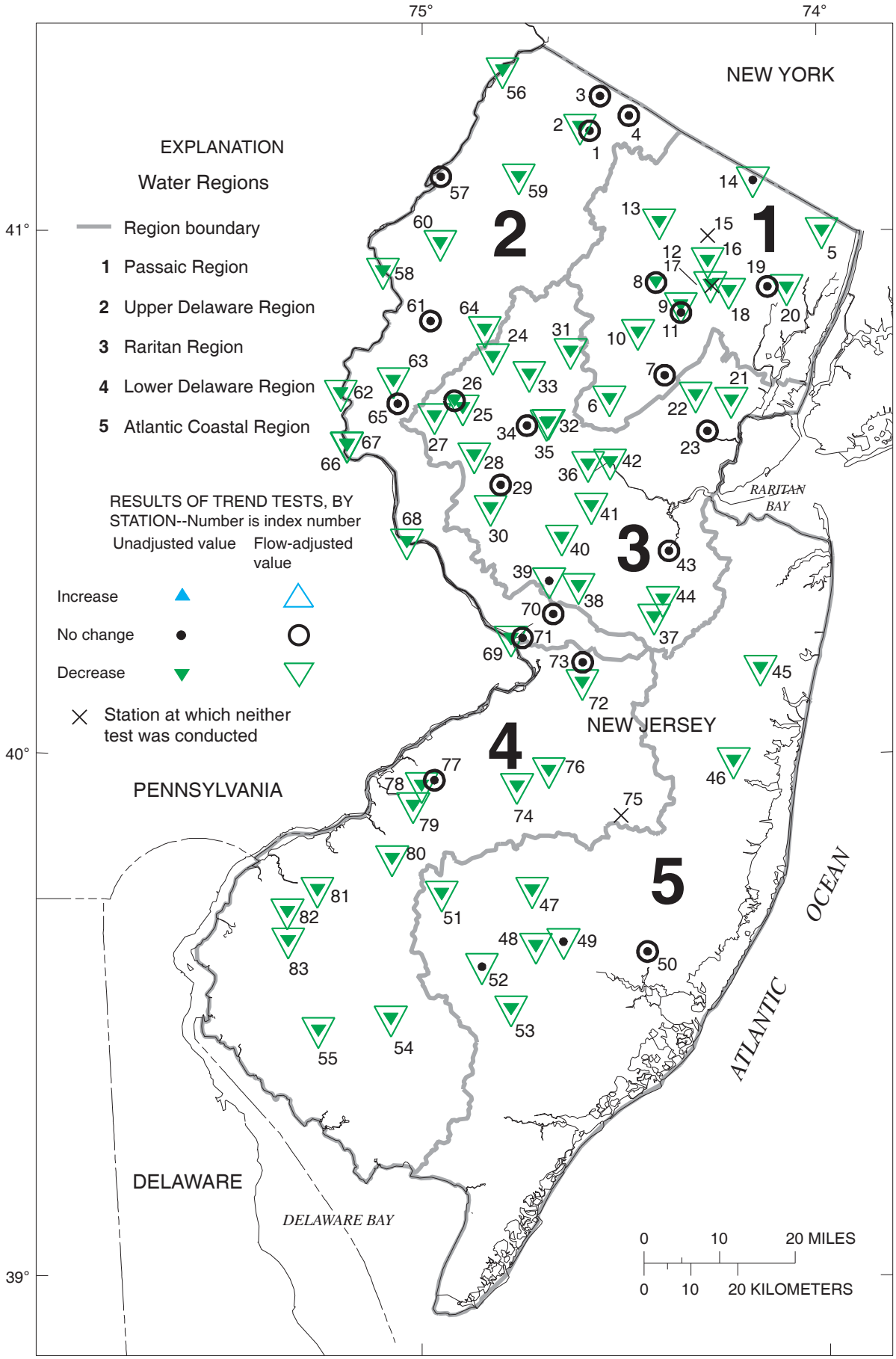

Figure 11-1. Results of trend tests for total organic nitrogen at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 11a. Summary statistics for total organic nitrogen at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter as N and are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.01 milligrams per liter]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	51	51	0	0.14	0.42	0.49	1.2
2	01367910	54	54	0	0	.49	.51	1.1
3	01368000	40	40	0	.14	.52	.50	1.1
4	01368950	53	53	0	.12	.51	.53	.98
5	01377000	52	51	0	.14	.66	.67	1.2
6	01379000	53	53	0	.10	.51	.55	1.4
7	01379500	54	54	0	.07	.69	.76	4.4
8	01380500	41	41	0	.06	.29	.36	1.2
9	01381200	49	47	0	.08	.44	.45	.95
10	01381500	53	53	0	.12	.41	.49	1.2
11	01381800	52	50	0	.20	.74	.74	2.7
12	01382000	132	108	0	.10	.65	.70	2.3
13	01382500	41	41	0	.05	.30	.33	1.1
14	01387500	53	52	0	.15	.42	.49	1.1
15	01388000	118	94	0	.09	.49	.57	2.4
16	01388600	132	108	0	.10	.45	.53	1.8
17	01389005	115	92	0	.10	.54	.66	2.6
18	01389500	136	109	0	.24	.65	.76	4.2
19	01389880	41	41	0	.30	.77	.88	1.8
20	01391500	50	49	0	.14	.68	.70	2.0
21	01393450	52	52	0	.16	.53	.60	1.3
22	01394500	51	51	0	.15	.44	.48	1.2
23	01395000	52	51	0	.08	.59	.60	2.1
24	01396280	53	53	0	.03	.30	.39	1.2
25	01396535	51	51	0	.02	.27	.34	1.2
26	01396588	48	47	0	.02	.25	.40	2.7
27	01396660	49	48	0	0	.24	.37	2.4
28	01397000	40	40	0	.03	.32	.39	1.8
29	01397400	52	52	0	.07	.41	.44	1.1
30	01398000	53	53	0	.09	.41	.46	1.3
31	01398260	53	52	0	.05	.35	.40	1.6
32	01399120	52	52	0	.04	.32	.37	1.1
33	01399500	52	51	0	.04	.36	.44	1.5
34	01399700	54	54	0	.03	.29	.36	.96
35	01399780	51	51	0	.06	.33	.40	.94
36	01400500	53	53	0	.02	.37	.40	.87
37	01400540	51	51	0	.06	.28	.31	.72
38	01400650	48	48	0	.16	.51	.57	1.7
39	01401000	53	52	0	.12	.41	.48	3.0
40	01401600	52	52	0	.04	.43	.45	.96
41	01402000	41	41	0	.18	.56	.62	1.5
42	01403300	40	40	0	.31	.55	.60	1.2
43	01405302	48	47	0	.04	.33	.39	1.2
44	01405340	52	52	0	.03	.29	.33	1.6
45	01408000	38	37	0	.06	.24	.25	.53
46	01408500	54	54	0	.05	.28	.35	.91
47	01409387	51	51	0	.12	.39	.45	1.1
48	01409416	47	46	0	.18	.83	1.1	9.7
49	01409500	50	49	0	.05	.25	.32	.90

Table 11a. Summary statistics for total organic nitrogen at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter as N and are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.01 milligrams per liter]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
50	01410150	49	49	0	0	.23	.24	.74
51	01410784	51	50	0	.07	.51	.58	1.4
52	01411000	38	38	0	.03	.38	.45	1.0
53	01411110	51	50	0	.08	.36	.41	.97
54	01411500	54	54	0	.13	.37	.41	1.2
55	01412800	50	50	0	.04	.50	.56	2.5
56	01438500	42	42	0	.11	.27	.28	.84
57	01440000	31	31	0	0	.23	.22	.58
58	01443000	52	52	0	.08	.33	.36	.95
59	01443440	51	50	0	.08	.48	.52	1.2
60	01443500	53	53	0	.10	.46	.46	1.0
61	01445500	41	41	0	.21	.49	.55	2.3
62	01447000	53	53	0	.05	.32	.35	1.0
63	01455200	51	50	0	.13	.37	.53	2.6
64	01456200	52	52	0	.06	.46	.49	1.6
65	01457000	40	40	0	.04	.32	.38	1.2
66	01457400	54	54	0	.05	.71	.71	1.5
67	01457500	37	37	0	.13	.35	.39	.93
68	01461000	52	52	0	.02	.36	.41	1.9
69	01463500	55	46	0	.14	.37	.44	1.1
70	01463620	52	52	0	.30	.70	.70	1.7
71	01464000	42	42	0	.28	.69	.72	1.3
72	01464500	53	53	0	.13	.55	.58	1.3
73	01464515	52	52	0	.08	.53	.53	1.3
74	01465850	53	53	0	.19	.53	.57	1.0
75	01466500	59	59	0	.04	.28	.34	.87
76	01467000	54	54	0	.03	.32	.37	.89
77	01467069	51	51	0	.07	.69	.70	1.8
78	01467081	45	45	0	.10	.75	.86	3.0
79	01467150	40	40	0	.10	.63	1.0	10.
80	01467329	53	53	0	.02	.49	.48	1.1
81	01477120	51	51	0	.04	.38	.38	.89
82	01477510	53	53	0	.02	.44	.50	1.2
83	01482500	53	53	0	.11	1.1	1.1	3.8

Table 11b. Summary of trends in total organic nitrogen at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter as N; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	39	-0.008	-1.6	0.193	39	-0.010	-2.0	0.195
2	01367910	DOWN	DOWN	SKEN	39	- .028	-5.6	.041	39	- .031	-6.0	.026
3	01368000	NSIG	NSIG	SKEN	35	- .015	-3.0	.175	35	- .010	-1.9	.213
4	01368950	NSIG	NSIG	SKEN	40	- .010	-1.8	.116	39	- .003	- .49	.711
5	01377000	DOWN	DOWN	SKEN	38	- .034	-5.1	.013	38	- .025	-3.8	.022
6	01379000	DOWN	DOWN	SKEN	38	- .034	-6.1	.034	38	- .033	-6.0	.002
7	01379500	NSIG	NSIG	SKEN	39	- .021	-2.7	.308	39	- .025	-3.3	.165
8	01380500	DOWN	NSIG	SKEN	33	- .024	-6.5	.041	33	- .020	-5.6	.102
9	01381200	DOWN	DOWN	SKEN	36	- .037	-8.2	.003	36	- .035	-7.9	.002
10	01381500	DOWN	DOWN	SKEN	39	- .035	-7.0	.023	39	- .035	-7.2	.021
11	01381800	NSIG	NSIG	SKEN	39	- .013	-1.8	.459	39	- .020	-2.7	.195
12	01382000	DOWN	DOWN	SKEN	40	- .042	-6.0	.036	40	- .051	-7.3	.006
13	01382500	DOWN	DOWN	SKEN	34	- .015	-4.6	.064	34	- .018	-5.4	.074
14	01387500	NSIG	DOWN	SKEN	39	- .015	-3.1	.246	39	- .024	-4.9	.064
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	DOWN	DOWN	SKEN	40	- .042	-7.9	.001	40	- .049	-9.3	.001
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	DOWN	DOWN	SKEN	40	- .033	-4.4	.065	40	- .050	-6.6	.008
19	01389880	NSIG	NSIG	SKEN	34	- .022	-2.5	.578	34	- .037	-4.2	.135
20	01391500	DOWN	DOWN	SKEN	38	- .046	-6.6	.075	38	- .045	-6.5	.061
21	01393450	DOWN	DOWN	SKEN	38	- .031	-5.2	.001	38	- .023	-3.9	.022
22	01394500	DOWN	DOWN	SKEN	38	- .030	-6.3	.009	38	- .034	-7.0	.004
23	01395000	NSIG	NSIG	SKEN	39	- .025	-4.1	.194	39	- .012	-2.0	.267
24	01396280	DOWN	DOWN	SKEN	39	- .027	-7.0	.041	39	- .032	-8.2	.052
25	01396535	DOWN	DOWN	SKEN	38	- .030	-8.8	.030	38	- .026	-7.7	.039
26	01396588	DOWN	NSIG	SKEN	36	- .034	-8.5	.063	36	- .044	-11	.121
27	01396660	DOWN	DOWN	SKEN	37	- .058	-15	.007	36	- .062	-17	.005
28	01397000	DOWN	DOWN	SKEN	31	- .035	-9.1	.009	31	- .030	-7.7	.016
29	01397400	NSIG	NSIG	SKEN	40	- .021	-4.8	.179	40	- .020	-4.5	.166
30	01398000	DOWN	DOWN	SKEN	40	- .036	-7.8	.067	40	- .045	-9.8	.014
31	01398260	DOWN	DOWN	SKEN	39	- .032	-8.0	.018	39	- .034	-8.6	.010
32	01399120	DOWN	DOWN	SKEN	39	- .035	-9.5	.005	39	- .027	-7.4	.016
33	01399500	DOWN	DOWN	SKEN	39	- .032	-7.3	.007	39	- .035	-8.0	.002
34	01399700	NSIG	NSIG	SKEN	40	- .010	-2.7	.263	40	- .011	-3.0	.118
35	01399780	DOWN	DOWN	SKEN	38	- .037	-9.2	.011	37	- .039	-9.6	.007
36	01400500	DOWN	DOWN	SKEN	40	- .023	-5.7	.073	40	- .025	-6.2	.081
37	01400540	DOWN	DOWN	SKEN	38	- .027	-8.6	.004	38	- .026	-8.2	.019
38	01400650	DOWN	DOWN	SKEN	36	- .029	-5.2	.065	36	- .031	-5.5	.073
39	01401000	NSIG	DOWN	SKEN	39	- .009	-1.8	.547	39	- .023	-4.7	.079
40	01401600	DOWN	DOWN	SKEN	38	- .035	-7.8	.007	38	- .043	-9.7	.006
41	01402000	DOWN	DOWN	SKEN	32	- .046	-7.3	.029	32	- .046	-7.3	.014
42	01403300	DOWN	DOWN	SKEN	40	- .037	-6.2	.003	40	- .035	-5.9	.008
43	01405302	NSIG	NSIG	SKEN	35	- .016	-4.1	.707	35	- .007	-1.8	.830
44	01405340	DOWN	DOWN	SKEN	38	- .022	-6.6	.007	38	- .026	-7.7	.024
45	01408000	DOWN	DOWN	SKEN	28	- .026	-10	.005	28	- .025	-10	.005
46	01408500	DOWN	DOWN	SKEN	39	- .035	-9.9	.006	39	- .024	-6.8	.016
47	01409387	DOWN	DOWN	SKEN	38	- .031	-6.9	.006	38	- .025	-5.6	.045

Table 11b. Summary of trends in total organic nitrogen at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter as N; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
48	01409416	DOWN	DOWN	SKEN	35	- .12	-11	.001	35	- .12	-11	.001
49	01409500	NSIG	DOWN	SKEN	38	- .024	-7.5	.102	38	- .029	-9.1	.031
50	01410150	NSIG	NSIG	SKEN	38	- .013	-5.4	.336	37	.002	.90	.729
51	01410784	DOWN	DOWN	SKEN	37	- .081	-14	.000	37	- .071	-12	.000
52	01411000	NSIG	DOWN	SKEN	31	- .051	-11	.150	31	- .044	-9.7	.029
53	01411110	DOWN	DOWN	SKEN	37	- .028	-6.8	.047	37	- .020	-4.8	.067
54	01411500	DOWN	DOWN	SKEN	36	- .033	-8.1	.000	36	- .024	-5.9	.001
55	01412800	DOWN	DOWN	SKEN	37	- .061	-11	.007	37	- .054	-9.7	.009
56	01438500	DOWN	DOWN	SKEN	34	- .016	-5.7	.023	34	- .014	-5.0	.068
57	01440000	NSIG	NSIG	SKEN	25	- .002	- .89	.727	24	- .007	-3.0	.212
58	01443000	DOWN	DOWN	SKEN	38	- .024	-6.6	.043	38	- .019	-5.3	.061
59	01443440	DOWN	DOWN	SKEN	37	- .043	-8.1	.001	37	- .046	-8.7	.000
60	01443500	DOWN	DOWN	SKEN	39	- .021	-4.5	.029	39	- .021	-4.6	.021
61	01445500	NSIG	NSIG	SKEN	31	- .021	-3.9	.206	31	- .019	-3.5	.254
62	01447000	DOWN	DOWN	SKEN	39	- .017	-4.9	.012	39	- .021	-6.0	.007
63	01455200	DOWN	DOWN	SKEN	39	- .022	-4.3	.095	39	- .024	-4.6	.010
64	01456200	DOWN	DOWN	SKEN	37	- .025	-5.2	.045	37	- .027	-5.5	.046
65	01457000	NSIG	NSIG	SKEN	30	- .026	-6.8	.234	30	- .027	-7.0	.166
66	01457400	DOWN	DOWN	SKEN	40	- .051	-7.1	.036	40	- .051	-7.2	.044
67	01457500	DOWN	DOWN	SKEN	27	- .034	-8.7	.017	27	- .035	-9.0	.014
68	01461000	DOWN	DOWN	SKEN	39	- .033	-8.0	.003	39	- .034	-8.2	.001
69	01463500	DOWN	DOWN	SKEN	39	- .036	-8.2	.005	39	- .034	-7.7	.002
70	01463620	NSIG	NSIG	SKEN	37	- .002	- .34	.883	35	- .015	-2.2	.755
71	01464000	NSIG	NSIG	SKEN	33	- .032	-4.5	.173	33	- .027	-3.8	.126
72	01464500	DOWN	DOWN	SKEN	39	- .056	-9.6	.001	39	- .055	-9.4	.001
73	01464515	NSIG	NSIG	SKEN	38	- .007	-1.4	.364	38	- .016	-3.1	.391
74	01465850	DOWN	DOWN	SKEN	39	- .030	-5.3	.008	39	- .030	-5.2	.012
75	01466500	NT	NT	NT	--	--	--	--	--	--	--	--
76	01467000	DOWN	DOWN	SKEN	40	- .031	-8.4	.000	40	- .028	-7.6	.001
77	01467069	NSIG	NSIG	SKEN	38	- .037	-5.3	.136	38	- .029	-4.2	.195
78	01467081	DOWN	DOWN	SKEN	35	- .062	-7.2	.021	35	- .057	-6.6	.014
79	01467150	DOWN	DOWN	SKEN	32	- .19	-18	.001	32	- .13	-13	.015
80	01467329	DOWN	DOWN	SKEN	39	- .045	-9.4	.000	39	- .044	-9.1	.000
81	01477120	DOWN	DOWN	SKEN	38	- .043	-11	.000	38	- .038	-10	.000
82	01477510	DOWN	DOWN	SKEN	39	- .044	-8.7	.011	39	- .038	-7.6	.007
83	01482500	DOWN	DOWN	SKEN	39	- .060	-5.2	.013	39	- .062	-5.4	.010

Appendix 12. Summary statistics and results of trend tests for total nitrate plus nitrite at selected surface-water-quality stations in New Jersey, water years 1986-95

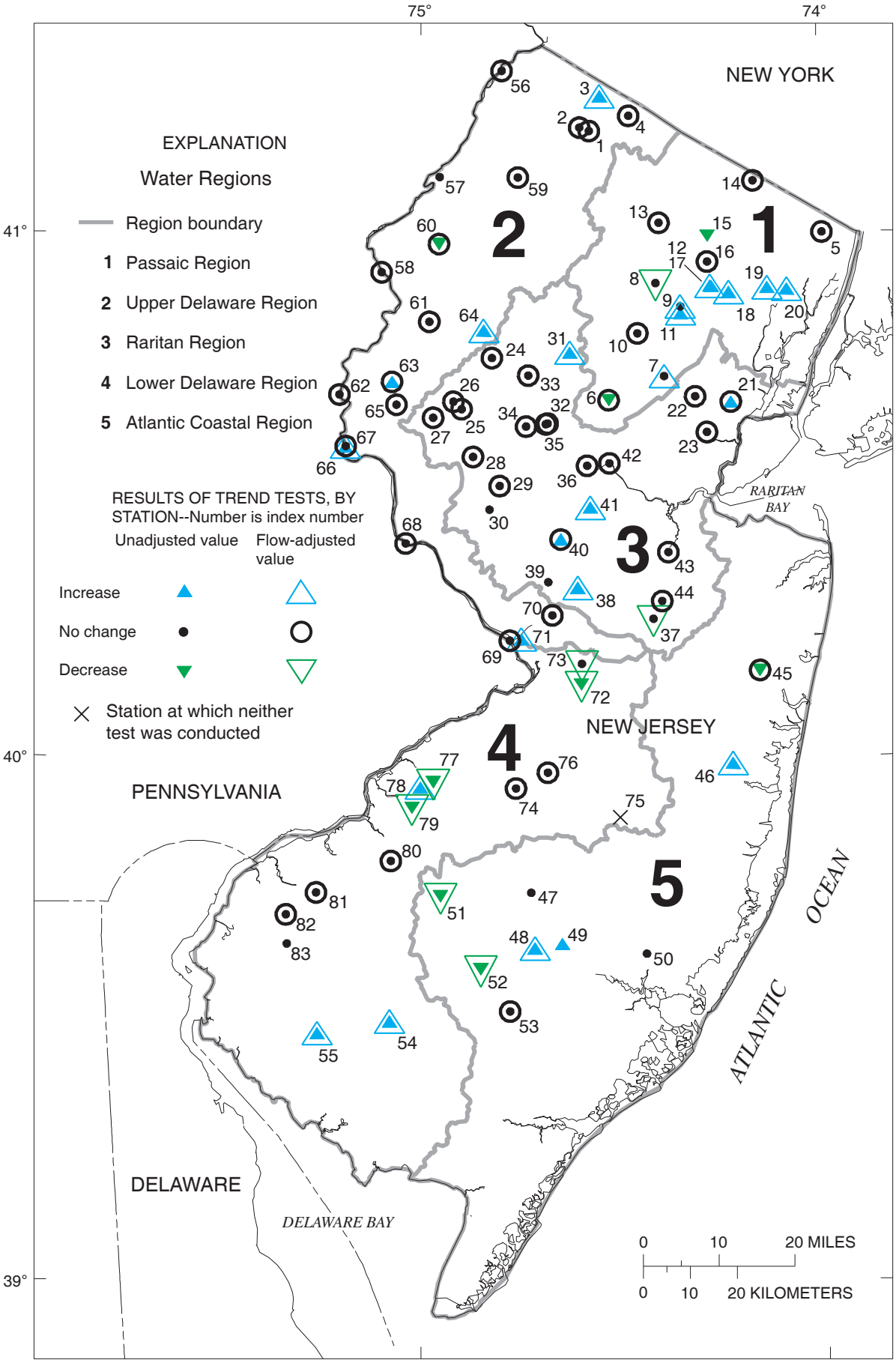

Figure 12-1. Results of trend tests for total nitrate plus nitrite at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 12a. Summary statistics for total nitrate plus nitrite at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter as N and are rounded to three significant figures or, if is less than three significant figures, values are rounded to 0.01 milligrams per liter; <, less than; --, not applicable]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	54	54	0	0.27	0.88	1.15	3.75
2	01367910	54	54	0	.44	.94	.95	1.73
3	01368000	42	42	0	.55	.93	1.00	1.87
4	01368950	55	55	0	.24	.72	.71	1.26
5	01377000	54	53	0	.10	.50	.50	.97
6	01379000	55	55	3.6	< .05	.20	.26	1.04
7	01379500	55	55	0	.40	1.52	1.73	5.00
8	01380500	51	48	0	.11	.42	.45	.75
9	01381200	54	52	0	.52	2.79	3.41	8.15
10	01381500	55	55	0	.55	1.42	1.48	2.56
11	01381800	54	52	0	.57	1.74	1.83	3.45
12	01382000	133	108	0	.34	2.15	2.57	7.90
13	01382500	43	43	2.3	< .05	.22	.28	1.80
14	01387500	54	53	0	.39	1.14	1.33	3.40
15	01388000	124	99	10.1	< .05	.60	.62	1.50
16	01388600	133	107	0	.26	.76	.81	2.70
17	01389005	114	91	0	.38	2.10	2.35	7.00
18	01389500	137	108	0	.44	1.90	2.28	7.00
19	01389880	44	44	0	.79	2.05	2.19	5.10
20	01391500	55	54	0	1.60	3.86	3.90	7.20
21	01393450	53	53	1.9	< .05	1.35	1.43	3.10
22	01394500	55	55	0	.41	1.28	1.31	2.03
23	01395000	55	54	0	.33	.93	.94	1.63
24	01396280	55	55	0	.65	1.75	1.66	2.16
25	01396535	55	55	0	.67	1.42	1.47	3.00
26	01396588	55	54	0	.39	1.13	1.17	2.04
27	01396660	54	53	0	.54	.96	.96	1.50
28	01397000	43	43	0	.36	1.25	1.21	1.89
29	01397400	55	55	0	.70	1.43	1.47	2.87
30	01398000	55	55	7.3	< .02	1.59	1.53	3.65
31	01398260	55	54	0	.51	1.57	1.78	4.90
32	01399120	53	53	0	.49	.89	.92	1.40
33	01399500	55	54	0	.33	.71	.83	1.83
34	01399700	55	55	0	.66	1.33	1.43	5.49
35	01399780	54	53	0	.49	.90	.93	1.70
36	01400500	55	54	0	.34	1.10	1.12	2.02
37	01400540	55	55	0	.75	1.46	1.48	2.45
38	01400650	53	53	0	.78	3.04	3.12	6.30
39	01401000	60	55	7.3	< .05	.54	.61	1.62
40	01401600	60	58	1.7	<2.11	1.40	1.48	2.90
41	01402000	43	43	0	1.02	2.09	2.28	6.40
42	01403300	40	40	0	.88	1.75	1.87	2.90
43	01405302	55	54	0	.60	3.51	4.25	10.3
44	01405340	54	54	1.9	< .05	.97	1.00	1.94
45	01408000	45	44	0	.17	.62	.66	1.58
46	01408500	56	56	1.8	< .10	.41	.45	.95
47	01409387	53	53	5.7	< .05	.17	.18	.65
48	01409416	54	53	0	.58	2.16	2.18	4.65
49	01409500	52	51	11.8	< .05	.14	.18	.69

Table 12a. Summary statistics for total nitrate plus nitrite at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter as N and are rounded to three significant figures or, if is less than three significant figures, values are rounded to 0.01 milligrams per liter; <, less than; --, not applicable]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
50	01410150	54	54	27.8	< .02	.09	.10	.25
51	01410784	55	54	0	.13	.62	.90	4.00
52	01411000	42	42	0	.09	.75	.76	1.76
53	01411110	55	54	0	.05	.46	.43	.77
54	01411500	59	59	0	.35	1.50	1.48	2.50
55	01412800	54	54	0	2.69	4.31	4.23	6.15
56	01438500	43	43	0	.10	.34	.33	.53
57	01440000	33	33	18.2	< .02	.16	.16	.42
58	01443000	54	54	0	.10	.34	.35	1.03
59	01443440	54	53	0	.40	1.00	1.01	1.64
60	01443500	55	55	1.8	< .05	.58	.58	1.09
61	01445500	44	44	0	.73	1.25	1.33	2.66
62	01447000	54	54	0	.31	.60	.61	1.20
63	01455200	54	53	0	.85	1.93	1.91	2.70
64	01456200	53	53	0	.41	.87	1.03	2.60
65	01457000	43	43	0	.75	1.73	1.78	2.93
66	01457400	55	55	0	1.21	1.86	1.85	2.90
67	01457500	42	42	0	.32	1.01	.99	1.51
68	01461000	55	55	0	.52	1.05	1.06	2.36
69	01463500	57	48	0	.59	.92	.95	1.50
70	01463620	55	55	1.8	< .05	.51	.67	1.66
71	01464000	43	43	0	.64	3.08	3.29	7.02
72	01464500	54	54	0	.34	.89	.95	1.85
73	01464515	54	54	0	.41	1.01	1.08	2.66
74	01465850	55	55	0	.20	.47	.50	.94
75	01466500	109	105	97.1	--	--	--	--
76	01467000	55	55	3.6	< .05	.11	.12	.25
77	01467069	55	55	0	.05	.54	.52	1.20
78	01467081	55	55	0	.51	1.46	1.80	5.66
79	01467150	43	43	0	.19	.49	.56	2.45
80	01467329	55	55	0	.60	1.10	1.11	1.72
81	01477120	54	54	0	.83	1.80	1.98	3.87
82	01477510	54	54	0	.62	1.52	1.74	4.53
83	01482500	54	54	5.6	< .03	1.95	1.95	4.85

Table 12b. Summary of trends in total nitrate plus nitrite at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter as N; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	40	0.030	2.6	0.502	40	0.019	1.7	0.561
2	01367910	NSIG	NSIG	SKEN	40	.005	.48	.858	40	0	.040	1.000
3	01368000	UP	UP	SKEN	36	.039	3.9	.088	36	.025	2.5	.098
4	01368950	NSIG	NSIG	SKEN	40	- .008	-1.1	.501	39	- .010	-1.5	.405
5	01377000	NSIG	NSIG	SKEN	40	.014	2.8	.227	40	.007	1.5	.395
6	01379000	DOWN	NSIG	SKEN	40	- .017	-6.5	.087	40	- .017	-6.5	.118
7	01379500	NSIG	UP	SKEN	40	.077	4.5	.140	40	.045	2.6	.054
8	01380500	NSIG	DOWN	SKEN	36	- .013	-2.8	.165	36	- .015	-3.3	.046
9	01381200	NSIG	UP	SKEN	39	.11	3.1	.267	39	.077	2.3	.096
10	01381500	NSIG	NSIG	SKEN	40	- .008	- .57	.720	40	.001	.064	.964
11	01381800	UP	UP	SKEN	39	.060	3.3	.026	39	.061	3.4	.016
12	01382000	UP	UP	SKEN	40	.35	14	.001	40	.25	9.8	.000
13	01382500	NSIG	NSIG	SKEN	36	- .009	-3.1	.498	36	- .006	-2.3	.756
14	01387500	NSIG	NSIG	SKEN	39	.027	2.1	.458	39	- .027	-2.0	.309
15	01388000	DOWN	NT	TOBT	99	- .082	-13	.000	--	--	--	--
16	01388600	NSIG	NSIG	SKEN	39	.015	1.9	.516	39	- .006	- .77	.405
17	01389005	UP	NT	TOBT	91	.20	8.5	.004	--	--	--	--
18	01389500	UP	UP	SKEN	40	.27	12	.000	40	.14	6.2	.000
19	01389880	UP	UP	SKEN	36	.13	6.0	.033	36	.059	2.7	.053
20	01391500	UP	UP	SKEN	40	.16	4.2	.006	40	.15	3.9	.008
21	01393450	UP	NSIG	SKEN	39	.054	3.8	.087	39	.044	3.0	.195
22	01394500	NSIG	NSIG	SKEN	40	- .020	-1.5	.283	40	- .010	- .79	.304
23	01395000	NSIG	NSIG	SKEN	40	0	0	1.000	40	.002	.20	.964
24	01396280	NSIG	NSIG	SKEN	40	.023	1.4	.227	40	.004	.26	.687
25	01396535	NSIG	NSIG	SKEN	40	.018	1.2	.244	40	.023	1.6	.227
26	01396588	NSIG	NSIG	SKEN	40	.011	.97	.420	40	.031	2.6	.304
27	01396660	NSIG	NSIG	SKEN	40	.005	.47	.788	40	.001	.057	1.000
28	01397000	NSIG	NSIG	SKEN	33	- .008	- .62	.615	33	- .017	-1.4	.540
29	01397400	NSIG	NSIG	SKEN	40	.029	2.0	.263	40	.032	2.2	.107
30	01398000	NSIG	NT	TOBT	55	- .008	- .50	.926	--	--	--	--
31	01398260	UP	UP	SKEN	40	.25	14	.000	40	.21	12	.000
32	01399120	NSIG	NSIG	SKEN	40	.002	.20	.822	40	- .001	- .080	.964
33	01399500	NSIG	NSIG	SKEN	40	.039	4.7	.140	40	.033	4.0	.195
34	01399700	NSIG	NSIG	SKEN	40	- .022	-1.6	.116	40	- .016	-1.1	.227
35	01399780	NSIG	NSIG	SKEN	40	- .017	-1.8	.150	39	- .014	-1.5	.139
36	01400500	NSIG	NSIG	SKEN	40	- .020	-1.8	.226	40	- .010	- .85	.395
37	01400540	NSIG	DOWN	SKEN	40	- .035	-2.4	.165	40	- .051	-3.4	.098
38	01400650	UP	UP	SKEN	38	.20	6.4	.007	38	.18	5.8	.000
39	01401000	NSIG	NT	TOBT	55	.045	7.3	.121	--	--	--	--
40	01401600	UP	NSIG	SKEN	40	.072	4.9	.039	40	.055	3.7	.140
41	01402000	UP	UP	SKEN	34	.16	7.1	.014	34	.10	4.5	.026
42	01403300	NSIG	NSIG	SKEN	40	.052	2.8	.240	40	.029	1.6	.264
43	01405302	NSIG	NSIG	SKEN	40	.16	3.7	.304	40	.17	4.0	.348
44	01405340	NSIG	NSIG	SKEN	39	- .029	-2.9	.211	39	- .027	-2.7	.165
45	01408000	DOWN	NSIG	SKEN	34	- .027	-4.1	.040	34	- .024	-3.6	.347
46	01408500	UP	UP	SKEN	40	.030	6.7	.000	40	.017	3.7	.001
47	01409387	NSIG	NT	TOBT	53	.008	4.1	.126	--	--	--	--

Table 12b. Summary of trends in total nitrate plus nitrite at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter as N; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
48	01409416	UP	UP	SKEN	40	.13	6.1	.089	40	.13	6.0	.081
49	01409500	UP	NT	TOBT	51	.018	9.5	.009	--	--	--	--
50	01410150	NSIG	NT	TOBT	54	.003	2.9	.399	--	--	--	--
51	01410784	DOWN	DOWN	SKEN	40	- .093	-10	.005	40	- .10	-11	.000
52	01411000	DOWN	DOWN	SKEN	34	- .054	-7.2	.004	34	- .049	-6.5	.002
53	01411110	NSIG	NSIG	SKEN	40	- .002	- .54	.687	40	- .005	-1.2	.304
54	01411500	UP	UP	SKEN	40	.049	3.3	.095	40	.033	2.2	.060
55	01412800	UP	UP	SKEN	40	.12	2.8	.001	40	.11	2.7	.008
56	01438500	NSIG	NSIG	SKEN	35	.002	.70	.591	35	.003	1.0	.489
57	01440000	NSIG	NT	TOBT	33	.002	1.4	.754	--	--	--	--
58	01443000	NSIG	NSIG	SKEN	40	.001	.41	.929	40	.004	1.1	.687
59	01443440	NSIG	NSIG	SKEN	40	.007	.74	.687	40	.002	.18	.893
60	01443500	DOWN	NSIG	SKEN	40	- .015	-2.6	.067	40	- .009	-1.5	.348
61	01445500	NSIG	NSIG	SKEN	34	0	0	1.000	34	- .013	- .97	.586
62	01447000	NSIG	NSIG	SKEN	40	0	0	1.000	40	.002	.29	.893
63	01455200	UP	NSIG	SKEN	40	.041	2.2	.081	40	.021	1.1	.447
64	01456200	UP	UP	SKEN	38	.078	7.6	.002	38	.073	7.1	.002
65	01457000	NSIG	NSIG	SKEN	33	.010	.54	.647	33	.024	1.4	.137
66	01457400	UP	UP	SKEN	39	.035	1.9	.095	39	.028	1.5	.096
67	01457500	NSIG	NSIG	SKEN	31	.007	.71	.415	31	.008	.81	.492
68	01461000	NSIG	NSIG	SKEN	40	- .016	-1.5	.348	40	- .013	-1.2	.264
69	01463500	NSIG	NSIG	SKEN	40	- .020	-2.1	.370	40	- .014	-1.5	.395
70	01463620	NSIG	NSIG	SKEN	40	- .008	-1.2	.654	38	- .017	-2.5	.313
71	01464000	UP	UP	SKEN	34	.33	9.9	.052	34	.11	3.2	.040
72	01464500	DOWN	DOWN	SKEN	39	- .070	-7.4	.000	39	- .068	-7.2	.000
73	01464515	NSIG	DOWN	SKEN	39	- .030	-2.8	.165	39	- .036	-3.3	.052
74	01465850	NSIG	NSIG	SKEN	40	.004	.72	.620	40	.004	.80	.447
75	01466500	NT	NT	NT	--	--	--	--	--	--	--	--
76	01467000	NSIG	NSIG	SKEN	40	.001	.49	.857	40	.001	1.0	.561
77	01467069	DOWN	DOWN	SKEN	40	- .063	-12	.000	40	- .057	-11	.000
78	01467081	UP	UP	SKEN	40	.17	9.3	.003	40	.13	7.5	.014
79	01467150	DOWN	DOWN	SKEN	34	- .044	-7.8	.000	34	- .020	-3.5	.023
80	01467329	NSIG	NSIG	SKEN	40	- .003	- .24	.893	40	.002	.20	.754
81	01477120	NSIG	NSIG	SKEN	40	- .080	-4.1	.179	40	- .061	-3.1	.118
82	01477510	NSIG	NSIG	SKEN	40	- .012	- .72	.591	40	- .028	-1.6	.561
83	01482500	NSIG	NT	TOBT	54	- .009	- .47	.938	--	--	--	--

Appendix 13. Summary statistics and results of trend tests for total phosphorus at selected surface-water-stations in New Jersey, water years 1986-95

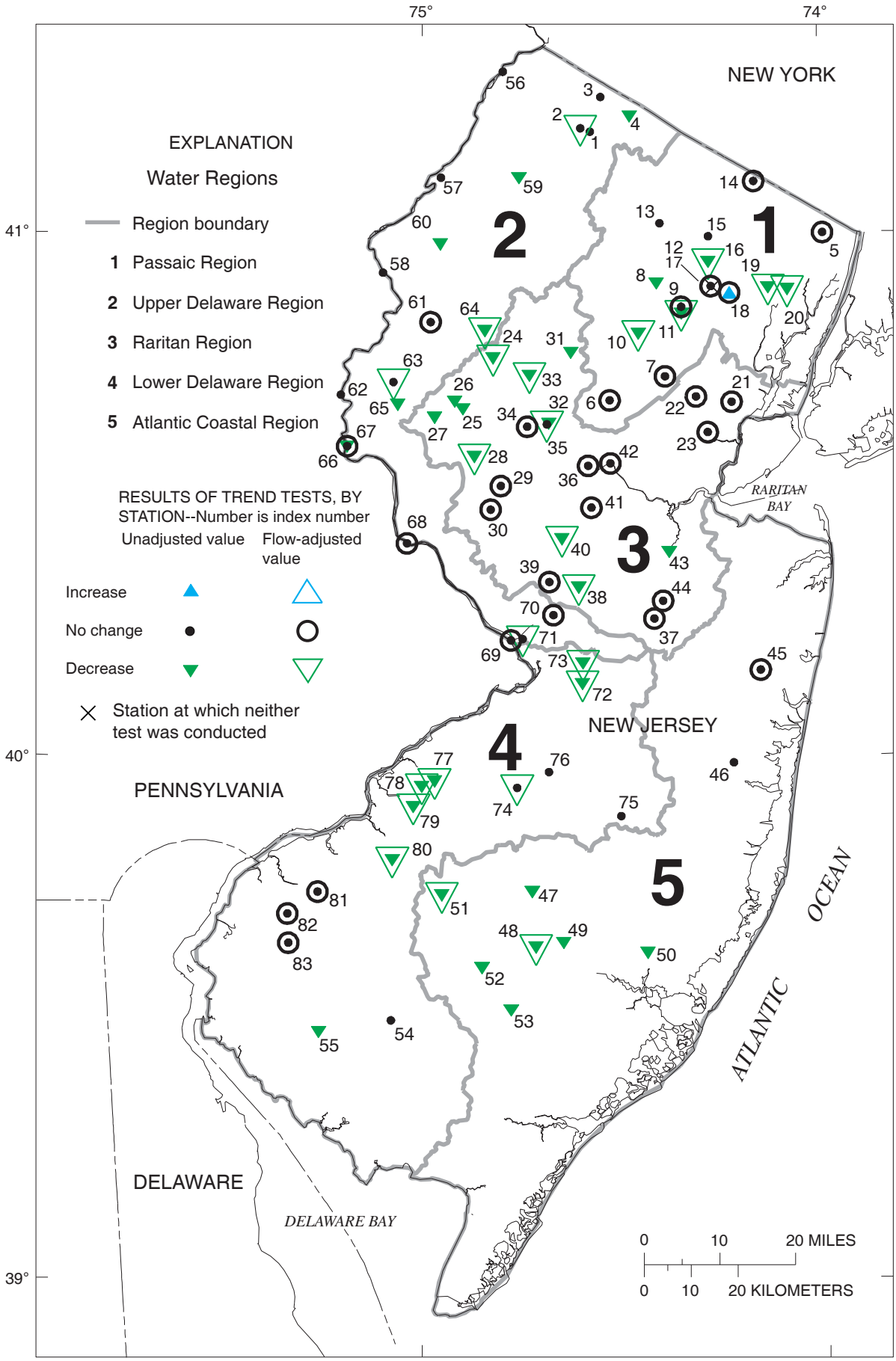

Figure 13-1. Results of trend tests for total phosphorus at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 13a. Summary statistics for total phosphorus at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter as P and are rounded to three significant figures or, if less than three significant figures, values are rounded to 0.01 milligrams per liter; <, less than]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	51	51	19.6	<0.02	0.04	0.07	0.54
2	01367910	54	54	1.9	< .02	.09	.11	.66
3	01368000	43	43	9.3	< .02	.06	.07	.31
4	01368950	55	55	9.1	< .02	.05	.06	.20
5	01377000	55	54	1.9	< .02	.06	.06	.17
6	01379000	55	55	0	.03	.13	.15	.56
7	01379500	55	55	0	.07	.36	.39	.95
8	01380500	43	43	9.3	< .01	.04	.08	.49
9	01381200	53	51	0	.04	.24	.44	1.40
10	01381500	55	55	0	.03	.21	.21	.54
11	01381800	54	52	0	.05	.36	.39	1.00
12	01382000	132	108	0	.03	.46	.53	1.60
13	01382500	44	44	13.6	< .01	.03	.05	.38
14	01387500	53	52	1.9	< .02	.15	.17	.57
15	01388000	124	99	0	.03	.07	.08	.38
16	01388600	133	108	1.9	< .01	.07	.10	.45
17	01389005	115	92	0	.04	.39	.43	1.30
18	01389500	136	109	0	.06	.39	.41	1.20
19	01389880	43	43	2.3	< .02	.32	.35	1.05
20	01391500	53	52	1.9	< .02	.58	.64	1.50
21	01393450	53	53	0	.02	.10	.13	.69
22	01394500	53	53	3.8	< .02	.07	.09	.19
23	01395000	55	54	1.9	< .02	.09	.10	.27
24	01396280	50	50	0	.03	.09	.12	.57
25	01396535	52	52	5.8	< .01	.06	.09	.51
26	01396588	51	50	8.0	< .01	.05	.11	.79
27	01396660	50	49	22.4	< .01	.03	.11	.92
28	01397000	43	43	4.7	< .01	.06	.07	.30
29	01397400	55	55	0	.02	.14	.17	.57
30	01398000	55	55	0	.02	.05	.07	.35
31	01398260	54	53	5.7	< .01	.19	.21	.57
32	01399120	53	53	5.7	< .01	.08	.09	.25
33	01399500	55	54	3.7	< .02	.06	.08	.40
34	01399700	54	54	1.9	< .02	.12	.14	.46
35	01399780	53	52	1.9	< .02	.08	.09	.23
36	01400500	53	52	0	.04	.09	.09	.28
37	01400540	55	55	1.8	< .02	.07	.09	.30
38	01400650	53	53	0	.03	.24	.26	.95
39	01401000	54	53	3.8	< .02	.08	.08	.19
40	01401600	55	55	0	.05	.12	.18	.69
41	01402000	41	41	0	.08	.26	.31	.90
42	01403300	40	40	0	.07	.22	.25	.58
43	01405302	55	54	11.1	< .01	.05	.09	.80
44	01405340	55	55	1.8	< .02	.08	.09	.21
45	01408000	44	43	4.7	< .02	.06	.07	.30
46	01408500	56	56	14.3	< .01	.02	.03	.38
47	01409387	53	53	24.5	< .01	.03	.04	.16
48	01409416	54	53	0	.07	.47	.66	2.01
49	01409500	52	51	41.2	< .01	.02	.03	.07

Table 13a. Summary statistics for total phosphorus at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter as P and are rounded to three significant figures or, if less than three significant figures, values are rounded to 0.01 milligrams per liter; <, less than]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
50	01410150	53	53	54.7	< .01	< .02	.02	.15
51	01410784	54	53	3.8	< .02	.10	.25	1.16
52	01411000	43	43	11.6	< .01	.07	.07	.22
53	01411110	54	53	15.1	< .01	.04	.05	.12
54	01411500	59	59	25.4	< .01	.02	.02	.09
55	01412800	54	54	11.1	< .01	.07	.08	.28
56	01438500	43	43	25.6	< .01	.03	.04	.31
57	01440000	33	33	39.4	< .01	.02	.03	.32
58	01443000	50	50	14.0	< .01	.04	.09	.50
59	01443440	55	54	9.3	< .02	.07	.09	.38
60	01443500	55	55	9.1	< .01	.05	.05	.21
61	01445500	44	44	2.3	< .02	.08	.14	.84
62	01447000	51	51	11.8	< .01	.05	.08	.82
63	01455200	51	50	0	.03	.20	.24	.81
64	01456200	53	53	1.9	< .02	.07	.10	.38
65	01457000	43	43	16.3	< .01	.07	.11	.62
66	01457400	53	53	5.7	< .02	.05	.11	.91
67	01457500	42	42	0	.03	.08	.08	.18
68	01461000	54	54	3.7	< .01	.07	.10	.59
69	01463500	57	48	0	.03	.07	.09	.23
70	01463620	53	53	0	.02	.06	.06	.17
71	01464000	43	43	0	.07	.39	.51	1.58
72	01464500	55	55	0	.03	.16	.20	.82
73	01464515	55	55	0	.04	.15	.17	.61
74	01465850	55	55	0	.02	.11	.14	.43
75	01466500	109	105	63.8	< .01	< .01	.01	.06
76	01467000	53	53	15.1	< .01	.04	.05	.16
77	01467069	55	55	1.8	< .02	.20	.20	.92
78	01467081	52	52	0	.18	.46	.55	1.83
79	01467150	44	44	0	.06	.32	.44	1.49
80	01467329	54	54	0	.01	.10	.12	.59
81	01477120	51	51	0	.03	.11	.13	.54
82	01477510	53	53	0	.02	.08	.11	.56
83	01482500	54	54	1.9	< .02	.18	.21	.58

Table 13b. Summary of trends in total phosphorus at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter as P; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NT	TOBT	51	-0.003	-4.0	0.273	--	--	--	--
2	01367910	NSIG	DOWN	SKEN	39	- .003	-2.4	.324	39	- .006	-6.1	.037
3	01368000	NSIG	NT	TOBT	43	0	.64	.837	--	--	--	--
4	01368950	DOWN	NT	TOBT	55	- .005	-8.2	.005	--	--	--	--
5	01377000	NSIG	NSIG	SKEN	40	0	0	.584	40	- .001	- .81	.964
6	01379000	NSIG	NSIG	SKEN	40	- .004	-3.0	.300	40	- .004	-2.8	.561
7	01379500	NSIG	NSIG	SKEN	40	- .014	-3.5	.283	40	- .012	-2.9	.227
8	01380500	DOWN	NT	TOBT	43	- .006	-8.3	.065	--	--	--	--
9	01381200	NSIG	NSIG	SKEN	39	- .010	-2.2	.458	39	.002	.38	.853
10	01381500	DOWN	DOWN	SKEN	40	- .022	-11	.000	40	- .022	-11	.000
11	01381800	DOWN	DOWN	SKEN	39	- .025	-6.5	.009	39	- .027	-6.8	.012
12	01382000	NSIG	NSIG	SKEN	40	.026	4.8	.139	40	0	- .042	.964
13	01382500	NSIG	NT	TOBT	44	0	.085	.981	--	--	--	--
14	01387500	NSIG	NSIG	SKEN	38	.006	3.8	.266	38	- .002	-1.4	.533
15	01388000	NSIG	NT	TOBT	99	- .002	-1.9	.359	--	--	--	--
16	01388600	DOWN	DOWN	SKEN	40	- .009	-9.9	.001	40	- .012	-12	.000
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	UP	NSIG	SKEN	40	.029	7.1	.002	40	.001	.28	.893
19	01389880	DOWN	DOWN	SKEN	35	- .020	-5.8	.095	35	- .019	-5.6	.029
20	01391500	DOWN	DOWN	SKEN	39	- .037	-5.9	.029	39	- .033	-5.2	.021
21	01393450	NSIG	NSIG	SKEN	39	- .003	-2.4	.304	39	- .002	-1.4	.459
22	01394500	NSIG	NSIG	SKEN	39	- .002	-2.6	.154	39	- .002	-2.7	.151
23	01395000	NSIG	NSIG	SKEN	40	- .003	-3.0	.280	40	- .002	-1.9	.502
24	01396280	DOWN	DOWN	SKEN	37	- .009	-7.1	.034	37	- .014	-12	.001
25	01396535	DOWN	NT	TOBT	52	- .009	-9.4	.005	--	--	--	--
26	01396588	DOWN	NT	TOBT	50	- .016	-14	.001	--	--	--	--
27	01396660	DOWN	NT	TOBT	49	- .015	-13	.013	--	--	--	--
28	01397000	DOWN	DOWN	SKEN	33	- .010	-13	.016	33	- .009	-13	.017
29	01397400	NSIG	NSIG	SKEN	40	.001	.58	.858	40	.003	1.9	.502
30	01398000	NSIG	NSIG	SKEN	40	- .001	-1.5	.231	40	- .005	-7.0	.195
31	01398260	DOWN	NT	TOBT	53	- .049	-24	.000	--	--	--	--
32	01399120	DOWN	NT	TOBT	53	- .010	-11	.000	--	--	--	--
33	01399500	DOWN	DOWN	SKEN	40	- .009	-12	.002	40	- .012	-14	.003
34	01399700	NSIG	NSIG	SKEN	39	0	0	.926	39	0	- .005	.926
35	01399780	NSIG	DOWN	SKEN	39	- .002	-2.7	.205	38	- .003	-3.9	.061
36	01400500	NSIG	NSIG	SKEN	39	0	- .21	.510	39	- .002	-2.2	.309
37	01400540	NSIG	NSIG	SKEN	40	0	0	.854	40	0	.059	1.000
38	01400650	DOWN	DOWN	SKEN	38	- .034	-13	.000	38	- .038	-15	.000
39	01401000	NSIG	NSIG	SKEN	39	0	0	1.000	39	- .006	-7.5	.165
40	01401600	DOWN	DOWN	SKEN	40	- .008	-4.4	.065	40	- .015	-8.4	.011
41	01402000	NSIG	NSIG	SKEN	32	- .003	-1.0	.769	32	- .003	-1.1	.481
42	01403300	NSIG	NSIG	SKEN	40	.004	1.5	.858	40	.005	1.9	.264
43	01405302	DOWN	NT	TOBT	54	- .012	-13	.001	--	--	--	--
44	01405340	NSIG	NSIG	SKEN	40	.001	.91	.555	40	.001	.85	.823
45	01408000	NSIG	NSIG	SKEN	33	- .004	-5.7	.168	33	- .003	-4.3	.363
46	01408500	NSIG	NT	TOBT	56	0	- .71	.824	--	--	--	--
47	01409387	DOWN	NT	TOBT	53	- .002	-5.4	.081	--	--	--	--

Table 13b. Summary of trends in total phosphorus at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter as P; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
48	01409416	DOWN	DOWN	SKEN	40	- .096	-15	.000	40	- .090	-14	.000
49	01409500	DOWN	NT	TOBT	51	- .002	-7.0	.004	--	--	--	--
50	01410150	DOWN	NT	TOBT	53	- .001	-5.0	.033	--	--	--	--
51	01410784	DOWN	DOWN	SKEN	40	- .072	-28	.000	40	- .070	-27	.000
52	01411000	DOWN	NT	TOBT	43	- .012	-16	.000	--	--	--	--
53	01411110	DOWN	NT	TOBT	53	- .006	-13	.000	--	--	--	--
54	01411500	NSIG	NT	TOBT	59	0	1.6	.521	--	--	--	--
55	01412800	DOWN	NT	TOBT	54	- .005	-5.8	.069	--	--	--	--
56	01438500	NSIG	NT	TOBT	43	.001	1.3	.705	--	--	--	--
57	01440000	NSIG	NT	TOBT	33	- .001	-4.3	.223	--	--	--	--
58	01443000	NSIG	NT	TOBT	50	- .002	-2.7	.536	--	--	--	--
59	01443440	DOWN	NT	TOBT	54	- .016	-18	.000	--	--	--	--
60	01443500	DOWN	NT	TOBT	55	- .004	-8.4	.002	--	--	--	--
61	01445500	NSIG	NSIG	SKEN	34	- .005	-3.9	.703	34	- .003	-2.1	.550
62	01447000	NSIG	NT	TOBT	51	- .001	-1.5	.702	--	--	--	--
63	01455200	NSIG	DOWN	SKEN	38	- .008	-3.4	.315	38	- .015	-6.2	.003
64	01456200	DOWN	DOWN	SKEN	38	- .014	-15	.000	38	- .015	-15	.000
65	01457000	DOWN	NT	TOBT	43	- .018	-16	.001	--	--	--	--
66	01457400	DOWN	NT	TOBT	53	- .017	-15	.000	--	--	--	--
67	01457500	NSIG	NSIG	SKEN	31	0	- .58	.570	31	- .002	-2.1	.417
68	01461000	NSIG	NSIG	SKEN	39	- .003	-3.7	.162	39	- .003	-3.2	.165
69	01463500	NSIG	NSIG	SKEN	40	0	0	.927	40	- .002	-1.9	.264
70	01463620	NSIG	NSIG	SKEN	39	0	0	.925	37	0	.36	.960
71	01464000	NSIG	DOWN	SKEN	34	- .003	- .60	.871	34	- .020	-4.0	.084
72	01464500	DOWN	DOWN	SKEN	40	- .020	-10	.001	40	- .014	-7.1	.004
73	01464515	DOWN	DOWN	SKEN	40	- .015	-9.0	.031	40	- .010	-6.1	.032
74	01465850	NSIG	DOWN	SKEN	40	- .006	-4.5	.105	40	- .006	-4.3	.098
75	01466500	NSIG	NT	TOBT	105	0	- .19	.883	--	--	--	--
76	01467000	NSIG	NT	TOBT	53	- .002	-3.9	.199	--	--	--	--
77	01467069	DOWN	DOWN	SKEN	40	- .013	-6.6	.013	40	- .018	-8.8	.009
78	01467081	DOWN	DOWN	SKEN	38	- .043	-7.7	.003	38	- .044	-8.0	.003
79	01467150	DOWN	DOWN	SKEN	34	- .072	-17	.000	34	- .047	-11	.004
80	01467329	DOWN	DOWN	SKEN	39	- .008	-6.5	.028	39	- .009	-7.4	.006
81	01477120	NSIG	NSIG	SKEN	38	0	0	1.000	38	0	.008	1.000
82	01477510	NSIG	NSIG	SKEN	39	- .004	-3.9	.326	39	- .006	-5.2	.165
83	01482500	NSIG	NSIG	SKEN	40	- .011	-5.5	.126	40	- .010	-5.1	.128

Appendix 14. Summary statistics and results of trend tests for total organic carbon at selected surface-water-quality stations in New Jersey, water years 1986-95

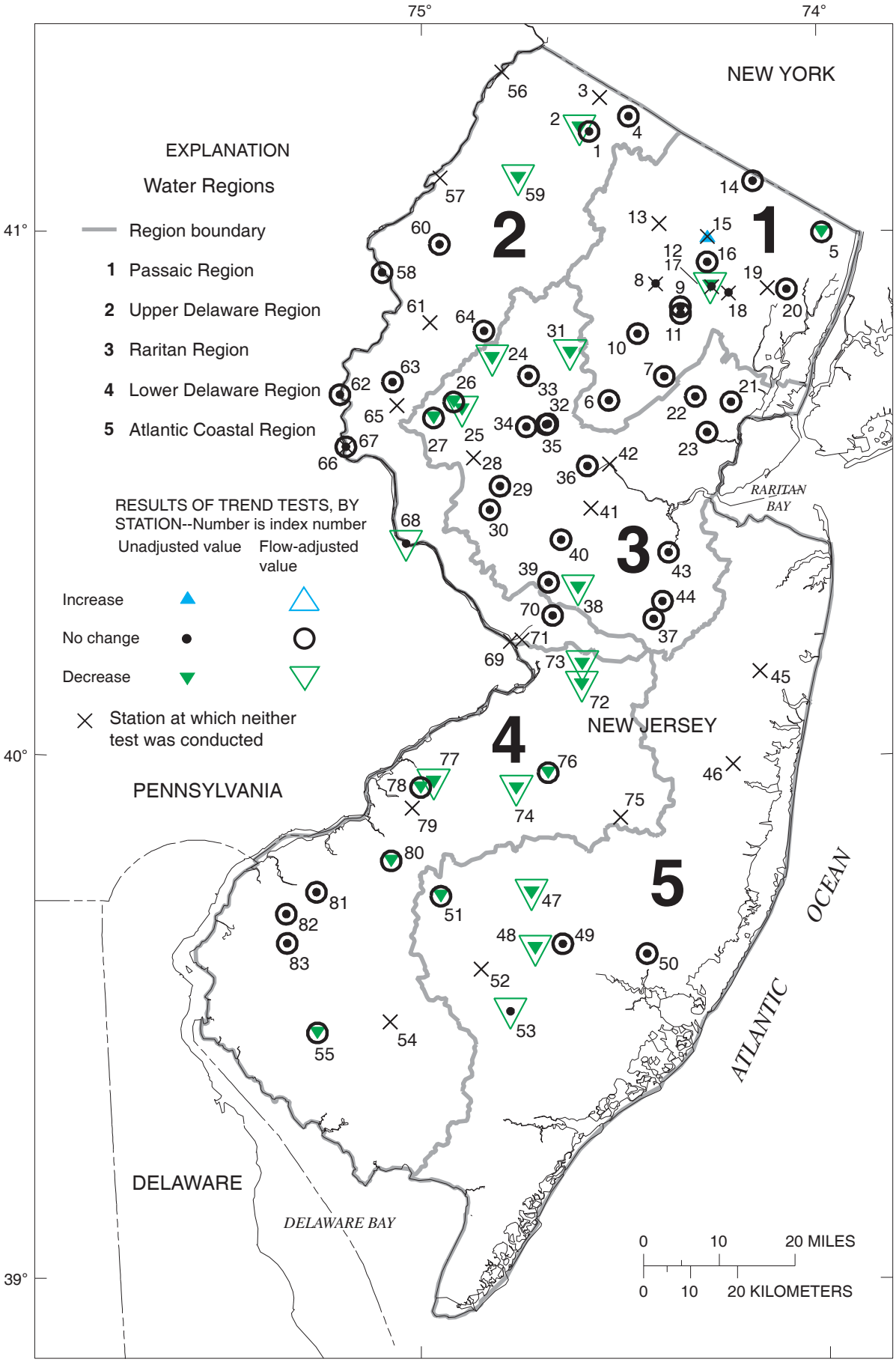

Figure 14-1. Results of trend tests for total organic carbon at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 14a. Summary statistics for total organic carbon at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter as C and are rounded to 0.1 milligrams per liter; <, less than; --, not applicable]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	54	54	0	2.6	4.6	4.7	10.5
2	01367910	53	53	0	2.2	4.5	5.0	9.2
3	01368000	20	20	0	3.3	4.6	5.0	9.3
4	01368950	53	53	0	2.7	4.8	5.1	11.0
5	01377000	52	51	0	3.4	5.9	6.1	9.7
6	01379000	52	52	0	4.0	7.6	8.1	16.0
7	01379500	54	54	0	2.1	7.2	7.4	15.0
8	01380500	27	27	0	2.8	3.4	3.7	5.4
9	01381200	54	52	0	2.9	4.3	4.5	12.5
10	01381500	52	52	0	2.2	3.8	4.2	11.0
11	01381800	52	50	0	3.8	6.1	7.2	28.0
12	01382000	127	103	0	3.0	6.0	6.2	9.8
13	01382500	17	17	0	2.8	4.0	4.4	6.8
14	01387500	53	52	0	1.1	3.6	3.9	7.9
15	01388000	114	96	0	2.3	4.0	4.3	8.6
16	01388600	120	101	0	2.6	3.7	3.9	8.7
17	01389005	109	87	0	3.5	5.6	5.7	9.5
18	01389500	113	92	0	3.6	5.7	5.7	10.3
19	01389880	21	21	0	3.4	6.2	6.1	9.1
20	01391500	52	51	0	3.3	5.2	5.4	10.0
21	01393450	51	51	0	2.7	4.9	6.3	33.3
22	01394500	55	55	0	2.4	4.2	4.6	9.5
23	01395000	55	54	0	2.4	5.1	5.4	13.0
24	01396280	53	53	0	1.5	2.9	3.4	8.8
25	01396535	54	54	0	1.2	2.8	3.1	8.9
26	01396588	53	52	0	1.3	2.1	3.1	32.0
27	01396660	54	53	0	1.2	2.1	2.3	6.5
28	01397000	20	20	0	.8	3.1	3.4	8.6
29	01397400	53	53	0	1.7	3.3	3.7	10.0
30	01398000	54	54	0	1.2	3.4	3.8	13.0
31	01398260	54	54	0	1.6	3.0	4.2	18.0
32	01399120	54	54	0	1.2	3.4	3.9	11.2
33	01399500	53	53	0	2.6	4.2	5.5	21.0
34	01399700	52	52	0	1.2	2.7	3.6	16.2
35	01399780	53	53	0	1.6	3.5	4.4	16.2
36	01400500	53	52	0	1.6	3.3	3.9	17.2
37	01400540	53	53	0	1.2	2.9	3.2	6.7
38	01400650	53	53	0	2.5	4.4	5.0	12.5
39	01401000	59	54	0	1.7	4.3	4.8	19.3
40	01401600	59	57	0	1.5	4.1	4.3	9.0
41	01402000	19	19	0	2.4	5.1	5.6	14.4
42	01403300	0	0	0	--	--	--	--
43	01405302	55	54	0	2.0	3.2	3.8	16.0
44	01405340	55	55	0	1.0	3.2	3.4	6.7
45	01408000	21	21	4.8	<1.5	2.2	3.1	11.2
46	01408500	1	1	0	--	--	--	--
47	01409387	54	54	0	2.0	7.6	10.1	43.0
48	01409416	54	53	0	2.9	7.1	8.1	18.0
49	01409500	53	52	0	1.9	5.3	6.0	20.0
50	01410150	54	54	0	1.9	4.5	5.0	19.3
51	01410784	55	54	0	2.7	8.5	10.3	40.0

Table 14a. Summary statistics for total organic carbon at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter as C and are rounded to 0.1 milligrams per liter; <, less than; --, not applicable]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
52	01411000	21	21	0	2.8	5.7	9.1	34.2
53	01411110	55	54	0	3.0	6.9	9.2	32.0
54	01411500	5	5	0	--	--	--	--
55	01412800	54	54	0	1.4	3.7	4.0	8.9
56	01438500	21	21	0	2.1	2.9	3.0	5.1
57	01440000	10	10	0	--	--	--	--
58	01443000	55	55	0	1.5	3.0	3.2	6.2
59	01443440	54	53	0	3.1	5.3	5.9	15.0
60	01443500	53	53	0	2.5	4.2	4.7	9.3
61	01445500	19	19	0	2.5	4.3	4.3	7.7
62	01447000	54	54	0	1.8	3.2	3.4	9.8
63	01455200	54	53	0	1.7	3.3	3.8	9.4
64	01456200	52	52	0	2.1	3.6	3.8	6.4
65	01457000	21	21	0	2.0	2.7	3.0	5.8
66	01457400	54	54	0	2.0	3.3	3.5	7.3
67	01457500	19	19	0	2.2	2.9	3.0	4.7
68	01461000	54	54	0	1.1	3.2	3.4	9.8
69	01463500	20	20	0	2.3	3.2	3.5	8.3
70	01463620	55	55	0	3.4	5.7	5.8	10.0
71	01464000	16	16	0	4.0	5.0	5.2	6.8
72	01464500	53	53	0	3.4	5.5	6.3	14.0
73	01464515	54	54	0	1.9	4.5	4.5	8.7
74	01465850	52	52	0	4.6	10.1	11.9	33.0
75	01466500	14	14	0	2.2	3.2	3.8	8.0
76	01467000	54	54	0	4.2	7.5	9.1	25.0
77	01467069	54	54	0	1.9	5.8	6.1	12.0
78	01467081	52	52	0	4.1	6.7	7.4	25.0
79	01467150	20	20	0	3.3	5.4	5.5	8.6
80	01467329	54	54	0	2.6	4.8	5.0	11.0
81	01477120	55	55	0	1.3	3.4	3.6	6.2
82	01477510	55	55	0	1.6	4.8	4.6	8.8
83	01482500	51	51	0	3.4	8.4	9.4	21.0

Table 14b. Summary of trends in total organic carbon at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter as C; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	39	0	0	0.814	39	0.048	1.0	0.459
2	01367910	DOWN	DOWN	SKEN	39	- .13	-2.6	.025	39	- .15	-3.1	.016
3	01368000	NT	NT	NT	--	--	--	--	--	--	--	--
4	01368950	NSIG	NSIG	SKEN	38	- .058	-1.1	.388	38	- .064	-1.2	.417
5	01377000	DOWN	NSIG	SKEN	38	- .23	-3.8	.000	38	- .084	-1.4	.137
6	01379000	NSIG	NSIG	SKEN	38	.083	1.0	.500	38	.13	1.6	.230
7	01379500	NSIG	NSIG	SKEN	40	- .069	- .94	.560	40	- .078	-1.1	.264
8	01380500	NSIG	NT	TOBT	27	0	- .010	.992	--	--	--	--
9	01381200	NSIG	NSIG	SKEN	39	- .044	- .98	.484	39	- .017	- .39	.817
10	01381500	NSIG	NSIG	SKEN	37	0	0	1.000	37	- .009	- .22	.960
11	01381800	NSIG	NSIG	SKEN	38	- .11	-1.5	.311	38	- .14	-2.0	.472
12	01382000	DOWN	DOWN	SKEN	40	- .30	-4.8	.000	40	- .17	-2.7	.002
13	01382500	NT	NT	NT	--	--	--	--	--	--	--	--
14	01387500	NSIG	NSIG	SKEN	39	.035	.90	.428	39	- .019	- .49	.781
15	01388000	UP	NT	TOBT	96	.11	2.5	.078	--	--	--	--
16	01388600	NSIG	NSIG	SKEN	40	0	0	.964	40	- .012	- .31	.687
17	01389005	NSIG	NT	TOBT	87	- .060	-1.1	.324	--	--	--	--
18	01389500	NSIG	NT	TOBT	92	- .013	- .23	.815	--	--	--	--
19	01389880	NT	NT	NT	--	--	--	--	--	--	--	--
20	01391500	NSIG	NSIG	SKEN	38	- .048	- .90	.631	38	- .021	- .38	.634
21	01393450	NSIG	NSIG	SKEN	38	- .096	-1.5	.736	38	.040	.62	.737
22	01394500	NSIG	NSIG	SKEN	40	- .068	-1.5	.367	40	- .064	-1.4	.561
23	01395000	NSIG	NSIG	SKEN	40	.081	1.5	.472	40	.033	.61	.823
24	01396280	DOWN	DOWN	SKEN	39	- .13	-3.7	.085	39	- .11	-3.3	.052
25	01396535	DOWN	DOWN	SKEN	39	- .11	-3.4	.028	39	- .10	-3.2	.021
26	01396588	DOWN	NSIG	SKEN	39	- .19	-6.2	.070	39	- .10	-3.4	.116
27	01396660	DOWN	NSIG	SKEN	40	- .095	-4.0	.027	40	- .029	-1.3	.227
28	01397000	NT	NT	NT	--	--	--	--	--	--	--	--
29	01397400	NSIG	NSIG	SKEN	40	0	0	.964	40	.007	.20	.964
30	01398000	NSIG	NSIG	SKEN	40	.006	.17	.929	40	.001	.025	1.000
31	01398260	DOWN	DOWN	SKEN	40	- .17	-4.1	.009	40	- .18	-4.3	.028
32	01399120	NSIG	NSIG	SKEN	39	0	0	1.000	39	.074	1.9	.229
33	01399500	NSIG	NSIG	SKEN	39	- .21	-3.9	.150	39	- .088	-1.6	.229
34	01399700	NSIG	NSIG	SKEN	39	0	0	.963	39	.001	.015	.889
35	01399780	NSIG	NSIG	SKEN	38	- .043	- .98	.668	37	- .053	-1.2	.729
36	01400500	NSIG	NSIG	SKEN	39	0	0	1.000	39	.013	.33	.781
37	01400540	NSIG	NSIG	SKEN	38	- .061	-1.9	.310	38	- .041	-1.3	.195
38	01400650	DOWN	DOWN	SKEN	38	- .22	-4.3	.008	38	- .17	-3.4	.008
39	01401000	NSIG	NSIG	SKEN	40	- .038	- .80	.278	40	- .006	- .12	.623
40	01401600	NSIG	NSIG	SKEN	39	- .078	-1.8	.430	39	- .009	- .21	.926
41	01402000	NT	NT	NT	--	--	--	--	--	--	--	--
42	01403300	NT	NT	NT	--	--	--	--	--	--	--	--
43	01405302	NSIG	NSIG	SKEN	40	0	0	1.000	40	- .015	- .39	.754
44	01405340	NSIG	NSIG	SKEN	40	.007	.21	.822	40	- .004	- .13	.823
45	01408000	NT	NT	NT	--	--	--	--	--	--	--	--
46	01408500	NT	NT	NT	--	--	--	--	--	--	--	--
47	01409387	DOWN	DOWN	SKEN	39	- .67	-6.7	.008	39	- .42	-4.2	.010

Table 14b. Summary of trends in total organic carbon at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter as C; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
48	01409416	DOWN	DOWN	SKEN	40	- .71	-8.7	.000	40	- .59	-7.3	.002
49	01409500	NSIG	NSIG	SKEN	38	.057	.95	.885	38	.038	.63	.666
50	01410150	NSIG	NSIG	SKEN	39	.076	1.5	.643	39	.20	4.1	.229
51	01410784	DOWN	NSIG	SKEN	40	- .69	-6.7	.066	40	- .20	-2.0	.140
52	01411000	NT	NT	NT	--	--	--	--	--	--	--	--
53	01411110	NSIG	DOWN	SKEN	40	- .41	-4.5	.263	40	- .19	-2.1	.081
54	01411500	NT	NT	NT	--	--	--	--	--	--	--	--
55	01412800	DOWN	NSIG	SKEN	40	- .17	-4.3	.088	40	- .11	-2.9	.304
56	01438500	NT	NT	NT	--	--	--	--	--	--	--	--
57	01440000	NT	NT	NT	--	--	--	--	--	--	--	--
58	01443000	NSIG	NSIG	SKEN	40	0	0	1.000	40	- .007	- .23	.964
59	01443440	DOWN	DOWN	SKEN	40	- .25	-4.2	.019	40	- .26	-4.4	.008
60	01443500	NSIG	NSIG	SKEN	38	- .091	-1.9	.193	38	- .060	-1.3	.164
61	01445500	NT	NT	NT	--	--	--	--	--	--	--	--
62	01447000	NSIG	NSIG	SKEN	39	- .062	-1.8	.353	39	- .042	-1.2	.195
63	01455200	NSIG	NSIG	SKEN	39	- .084	-2.2	.192	39	- .066	-1.7	.355
64	01456200	NSIG	NSIG	SKEN	38	- .068	-1.8	.385	38	- .044	-1.1	.472
65	01457000	NT	NT	NT	--	--	--	--	--	--	--	--
66	01457400	NSIG	NSIG	SKEN	39	- .064	-1.8	.111	39	- .067	-1.9	.116
67	01457500	NT	NT	NT	--	--	--	--	--	--	--	--
68	01461000	NSIG	DOWN	SKEN	40	- .10	-3.0	.114	40	- .085	-2.5	.054
69	01463500	NT	NT	NT	--	--	--	--	--	--	--	--
70	01463620	NSIG	NSIG	SKEN	40	- .050	- .85	.299	38	- .076	-1.3	.164
71	01464000	NT	NT	NT	--	--	--	--	--	--	--	--
72	01464500	DOWN	DOWN	SKEN	40	- .31	-4.9	.002	40	- .30	-4.8	.000
73	01464515	DOWN	DOWN	SKEN	40	- .13	-2.9	.025	40	- .081	-1.8	.081
74	01465850	DOWN	DOWN	SKEN	39	- .39	-3.3	.026	39	- .48	-4.0	.026
75	01466500	NT	NT	NT	--	--	--	--	--	--	--	--
76	01467000	DOWN	NSIG	SKEN	40	- .44	-4.9	.043	40	- .22	-2.4	.118
77	01467069	DOWN	DOWN	SKEN	39	- .33	-5.4	.001	39	- .32	-5.2	.010
78	01467081	DOWN	NSIG	SKEN	39	- .39	-5.3	.001	39	- .22	-2.9	.116
79	01467150	NT	NT	NT	--	--	--	--	--	--	--	--
80	01467329	DOWN	NSIG	SKEN	40	- .15	-3.0	.048	40	- .080	-1.6	.304
81	01477120	NSIG	NSIG	SKEN	40	0	0	.683	40	.023	.66	.754
82	01477510	NSIG	NSIG	SKEN	40	- .070	-1.5	.473	40	- .060	-1.3	.447
83	01482500	NSIG	NSIG	SKEN	36	.087	.92	.572	36	- .017	- .18	.959

Appendix 15. Summary statistics and results of trend tests for fecal coliform (MPN) at selected surface-water-quality stations in New Jersey, water years 1986-95

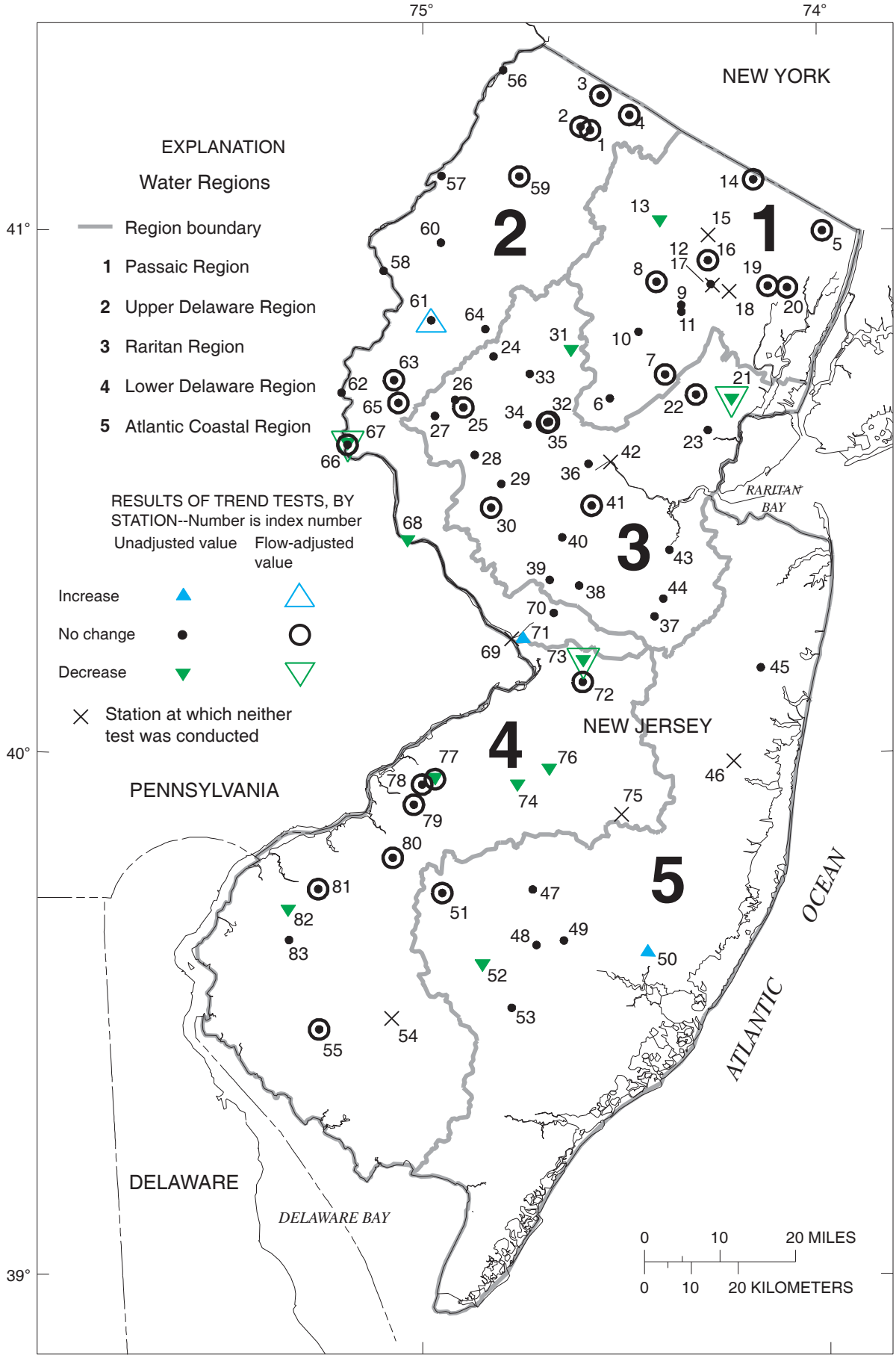

Figure 15-1. Results of trend tests for fecal coliform (MPN) at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 15a. Summary statistics for fecal coliform (MPN) bacteria at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in most probable number per 100 milliliters and are rounded to two significant figures or, if less than two significant figures, values are rounded to 1 per 100 milliliters; <, less than; --, not applicable]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	53	52	1.9	<20	230	700	5,400
2	01367910	53	52	3.8	<20	790	2,100	16,000
3	01368000	43	41	2.4	<20	230	830	5,400
4	01368950	53	53	1.9	<20	330	2,200	24,000
5	01377000	52	49	0	20	170	340	1,700
6	01379000	51	51	7.8	<2	110	530	5,400
7	01379500	52	49	0	49	500	3,500	92,000
8	01380500	43	42	4.8	<20	94	230	1,800
9	01381200	51	49	16.3	<20	350	790	5,400
10	01381500	52	51	9.8	<200	790	4,400	92,000
11	01381800	51	47	8.5	<20	500	2,400	16,000
12	01382000	51	48	6.3	<20	170	530	3,500
13	01382500	44	44	31.8	<2	5	49	790
14	01387500	51	49	4.1	<20	350	1,600	22,000
15	01388000	0	0	0	--	--	--	--
16	01388600	50	49	2.0	<20	330	1,200	16,000
17	01389005	0	0	0	--	--	--	--
18	01389500	14	14	0	50	270	640	1,700
19	01389880	44	38	0	70	2,300	8,000	92,000
20	01391500	53	49	2.0	<200	1,600	5,100	92,000
21	01393450	49	41	2.4	<200	4,900	15,000	160,000
22	01394500	53	49	2.0	<200	1,300	5,300	92,000
23	01395000	52	45	6.7	<200	700	1,500	16,000
24	01396280	53	53	9.4	<20	230	550	2,800
25	01396535	53	53	3.8	<20	220	660	3,500
26	01396588	53	51	7.8	<20	170	1,000	16,000
27	01396660	53	50	10.0	<20	230	1,000	16,000
28	01397000	43	43	7.0	<20	80	330	2,400
29	01397400	53	52	5.8	<20	220	900	9,200
30	01398000	53	51	3.9	<20	700	1,600	16,000
31	01398260	53	52	9.6	<20	230	1,000	16,000
32	01399120	53	51	3.9	<20	490	870	5,400
33	01399500	53	52	13.5	<20	70	400	5,400
34	01399700	53	53	9.4	<20	260	1,500	16,000
35	01399780	53	53	3.8	<20	270	760	9,200
36	01400500	49	46	6.5	<2	130	760	16,000
37	01400540	53	53	32.1	<20	50	390	5,400
38	01400650	51	49	6.1	<20	130	370	5,400
39	01401000	49	45	11.1	<2	130	450	5,400
40	01401600	52	48	6.3	<2	230	1,500	16,000
41	01402000	44	44	4.5	<20	270	1,300	16,000
42	01403300	0	0	0	--	--	--	--
43	01405302	54	53	28.3	<20	50	300	5,400
44	01405340	53	53	24.5	<20	50	520	16,000
45	01408000	43	43	9.3	<20	130	640	9,200
46	01408500	10	10	20.0	--	--	--	--
47	01409387	52	52	75.0	<20	<20	24	330
48	01409416	53	50	24.0	<20	60	340	3,500
49	01409500	53	52	69.2	<20	<20	60	2,200

Table 15a. Summary statistics for fecal coliform (MPN) bacteria at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in most probable number per 100 milliliters and are rounded to two significant figures or, if less than two significant figures, values are rounded to 1 per 100 milliliters; <, less than; --, not applicable]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
50	01410150	53	53	58.5	<20	<20	25	340
51	01410784	51	50	4.0	<20	79	180	1,600
52	01411000	43	43	18.6	<2	27	170	2,400
53	01411110	52	49	12.2	<2	22	94	920
54	01411500	5	5	40.0	--	--	--	--
55	01412800	53	51	2.0	<20	220	760	9,200
56	01438500	42	42	64.3	<20	<20	22	270
57	01440000	32	32	40.6	<20	20	96	790
58	01443000	53	52	32.7	<20	40	97	790
59	01443440	53	51	2.0	<20	490	1,100	9,200
60	01443500	53	52	7.7	<20	110	290	3,500
61	01445500	44	42	0	20	160	520	9,200
62	01447000	53	53	22.6	<20	50	260	5,400
63	01455200	53	49	4.1	<20	790	1,600	9,200
64	01456200	51	51	5.9	<20	130	450	3,500
65	01457000	43	43	2.3	<20	490	1,100	16,000
66	01457400	53	52	3.8	<20	310	1,100	16,000
67	01457500	42	42	4.8	<20	110	540	9,200
68	01461000	53	53	15.1	<20	70	260	1,700
69	01463500	21	20	5.0	<20	20	130	920
70	01463620	53	53	37.7	<20	20	56	700
71	01464000	44	39	5.1	<20	3,500	3,800	16,000
72	01464500	52	51	3.9	<20	220	790	9,200
73	01464515	52	50	0	20	700	1,500	9,200
74	01465850	51	51	5.9	<2	130	470	9,200
75	01466500	0	0	0	--	--	--	--
76	01467000	51	50	14.0	<2	33	100	920
77	01467069	51	50	4.0	<20	330	1,700	16,000
78	01467081	51	49	0	170	3,300	15,000	350,000
79	01467150	44	38	0	70	750	1,900	16,000
80	01467329	53	51	2.0	<20	490	1,000	16,000
81	01477120	53	53	3.8	<20	230	540	5,400
82	01477510	53	52	5.8	<20	130	340	5,400
83	01482500	53	49	8.2	<20	330	910	9,200

Table 15b. Summary of trends in fecal coliform (MPN) bacteria at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, most probable number per 100 milliliters; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	38	-41	-5.9	0.325	38	-42	-6.0	0.195
2	01367910	NSIG	NSIG	SKEN	39	-130	-6.0	.326	39	-210	-9.9	.195
3	01368000	NSIG	NSIG	SKEN	35	60	7.2	.420	35	49	5.9	.632
4	01368950	NSIG	NSIG	SKEN	39	270	12	.243	38	340	16	.316
5	01377000	NSIG	NSIG	SKEN	38	16	4.6	.355	38	22	6.4	.270
6	01379000	NSIG	NT	TOBT	51	32	6.0	.485	--	--	--	--
7	01379500	NSIG	NSIG	SKEN	36	-58	-1.7	.834	36	-190	-5.6	.639
8	01380500	NSIG	NSIG	SKEN	35	0	0	.785	35	7.9	3.5	.334
9	01381200	NSIG	NT	TOBT	49	-85	-11	.153	--	--	--	--
10	01381500	NSIG	NT	TOBT	51	-340	-7.7	.326	--	--	--	--
11	01381800	NSIG	NT	TOBT	47	87	3.6	.715	--	--	--	--
12	01382000	NSIG	NT	TOBT	48	-59	-11	.107	--	--	--	--
13	01382500	DOWN	NT	TOBT	44	-5.7	-12	.049	--	--	--	--
14	01387500	NSIG	NSIG	SKEN	36	81	5.2	.675	36	17	1.1	.958
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	NSIG	NSIG	SKEN	35	-46	-3.8	.628	35	-20	-1.7	.830
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	NT	NT	NT	--	--	--	--	--	--	--	--
19	01389880	NSIG	NSIG	SKEN	31	-330	-4.1	.616	31	-780	-9.7	.459
20	01391500	NSIG	NSIG	SKEN	37	-130	-2.5	.765	37	-9.2	- .18	1.000
21	01393450	DOWN	DOWN	SKEN	33	-4700	-32	.005	33	-3400	-22	.052
22	01394500	NSIG	NSIG	SKEN	37	0	0	.840	37	-120	-2.2	.582
23	01395000	NSIG	NT	TOBT	45	-49	-3.2	.639	--	--	--	--
24	01396280	NSIG	NT	TOBT	53	-14	-2.6	.724	--	--	--	--
25	01396535	NSIG	NSIG	SKEN	39	-32	-4.8	.640	39	-35	-5.3	.579
26	01396588	NSIG	NT	TOBT	51	-100	-10	.212	--	--	--	--
27	01396660	NSIG	NT	TOBT	50	-110	-11	.161	--	--	--	--
28	01397000	NSIG	NT	TOBT	43	-19	-5.9	.407	--	--	--	--
29	01397400	NSIG	NT	TOBT	52	-65	-7.3	.361	--	--	--	--
30	01398000	NSIG	NSIG	SKEN	38	72	4.6	.701	38	230	15	.446
31	01398260	DOWN	NT	TOBT	52	-210	-20	.005	--	--	--	--
32	01399120	NSIG	NSIG	SKEN	39	-75	-8.6	.207	39	-56	-6.4	.517
33	01399500	NSIG	NT	TOBT	52	-41	-10	.141	--	--	--	--
34	01399700	NSIG	NT	TOBT	53	43	2.8	.753	--	--	--	--
35	01399780	NSIG	NSIG	SKEN	39	-60	-8.0	.515	38	-49	-6.4	.414
36	01400500	NSIG	NT	TOBT	46	85	11	.189	--	--	--	--
37	01400540	NSIG	NT	TOBT	53	9.3	2.4	.753	--	--	--	--
38	01400650	NSIG	NT	TOBT	49	-32	-8.4	.128	--	--	--	--
39	01401000	NSIG	NT	TOBT	45	-24	-5.4	.464	--	--	--	--
40	01401600	NSIG	NT	TOBT	48	-28	-1.9	.833	--	--	--	--
41	01402000	NSIG	NSIG	SKEN	35	-52	-4.1	.791	35	-68	-5.3	.598
42	01403300	NT	NT	NT	--	--	--	--	--	--	--	--
43	01405302	NSIG	NT	TOBT	53	-8.9	-3.0	.670	--	--	--	--
44	01405340	NSIG	NT	TOBT	53	-30	-5.8	.430	--	--	--	--
45	01408000	NSIG	NT	TOBT	43	53	8.3	.311	--	--	--	--

Table 15b. Summary of trends in fecal coliform (MPN) bacteria at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, most probable number per 100 milliliters; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
46	01408500	NT	NT	NT	--	--	--	--	--	--	--	--
47	01409387	NSIG	NT	TOBT	52	- .60	-2.5	.420	--	--	--	--
48	01409416	NSIG	NT	TOBT	50	-3.3	- .96	.902	--	--	--	--
49	01409500	NSIG	NT	TOBT	52	1.4	2.4	.548	--	--	--	--
50	01410150	UP	NT	TOBT	53	1.3	5.3	.053	--	--	--	--
51	01410784	NSIG	NSIG	SKEN	37	-15	-8.6	.341	37	-16	-8.8	.231
52	01411000	DOWN	NT	TOBT	43	-23	-14	.099	--	--	--	--
53	01411110	NSIG	NT	TOBT	49	-7.3	-7.8	.380	--	--	--	--
54	01411500	NT	NT	NT	--	--	--	--	--	--	--	--
55	01412800	NSIG	NSIG	SKEN	37	-82	-11	.177	37	-35	-4.6	.586
56	01438500	NSIG	NT	TOBT	42	1.1	5.2	.134	--	--	--	--
57	01440000	NSIG	NT	TOBT	32	-4.8	-5.0	.489	--	--	--	--
58	01443000	NSIG	NT	TOBT	52	-5.3	-5.5	.277	--	--	--	--
59	01443440	NSIG	NSIG	SKEN	38	-94	-8.2	.334	38	-80	-7.0	.341
60	01443500	NSIG	NT	TOBT	52	10	3.5	.607	--	--	--	--
61	01445500	NSIG	UP	SKEN	33	66	13	.145	33	45	8.7	.067
62	01447000	NSIG	NT	TOBT	53	-6.8	-2.6	.683	--	--	--	--
63	01455200	NSIG	NSIG	SKEN	37	-130	-8.1	.228	37	-140	-8.6	.181
64	01456200	NSIG	NT	TOBT	51	32	7.0	.357	--	--	--	--
65	01457000	NSIG	NSIG	SKEN	33	97	8.8	.323	33	140	13	.360
66	01457400	NSIG	NSIG	SKEN	38	-70	-6.3	.496	38	-50	-4.5	.442
67	01457500	DOWN	DOWN	SKEN	31	-100	-19	.016	31	-100	-19	.021
68	01461000	DOWN	NT	TOBT	53	-34	-13	.040	--	--	--	--
69	01463500	NT	NT	NT	--	--	--	--	--	--	--	--
70	01463620	NSIG	NT	TOBT	53	2.0	3.7	.375	--	--	--	--
71	01464000	UP	NT	TOBT	39	870	23	.027	--	--	--	--
72	01464500	NSIG	NSIG	SKEN	38	-37	-4.7	.561	38	-43	-5.5	.414
73	01464515	DOWN	DOWN	SKEN	37	-260	-17	.056	37	-250	-16	.022
74	01465850	DOWN	NT	TOBT	51	-100	-22	.002	--	--	--	--
75	01466500	NT	NT	NT	--	--	--	--	--	--	--	--
76	01467000	DOWN	NT	TOBT	50	-19	-18	.019	--	--	--	--
77	01467069	DOWN	NSIG	SKEN	36	-400	-23	.009	36	-310	-18	.256
78	01467081	NSIG	NSIG	SKEN	37	480	3.1	.550	37	2400	16	.400
79	01467150	NSIG	NSIG	SKEN	31	-170	-8.9	.396	31	120	6.5	.436
80	01467329	NSIG	NSIG	SKEN	38	-1.5	- .14	.847	38	25	2.4	.737
81	01477120	NSIG	NSIG	SKEN	39	56	10	.403	39	49	9.0	.309
82	01477510	DOWN	NT	TOBT	52	-35	-10	.075	--	--	--	--
83	01482500	NSIG	NT	TOBT	49	-99	-11	.152	--	--	--	--

Appendix 16. Summary statistics and results of trend tests for fecal coliform (COL) at selected surface-water-quality stations in New Jersey, water years 1986-95

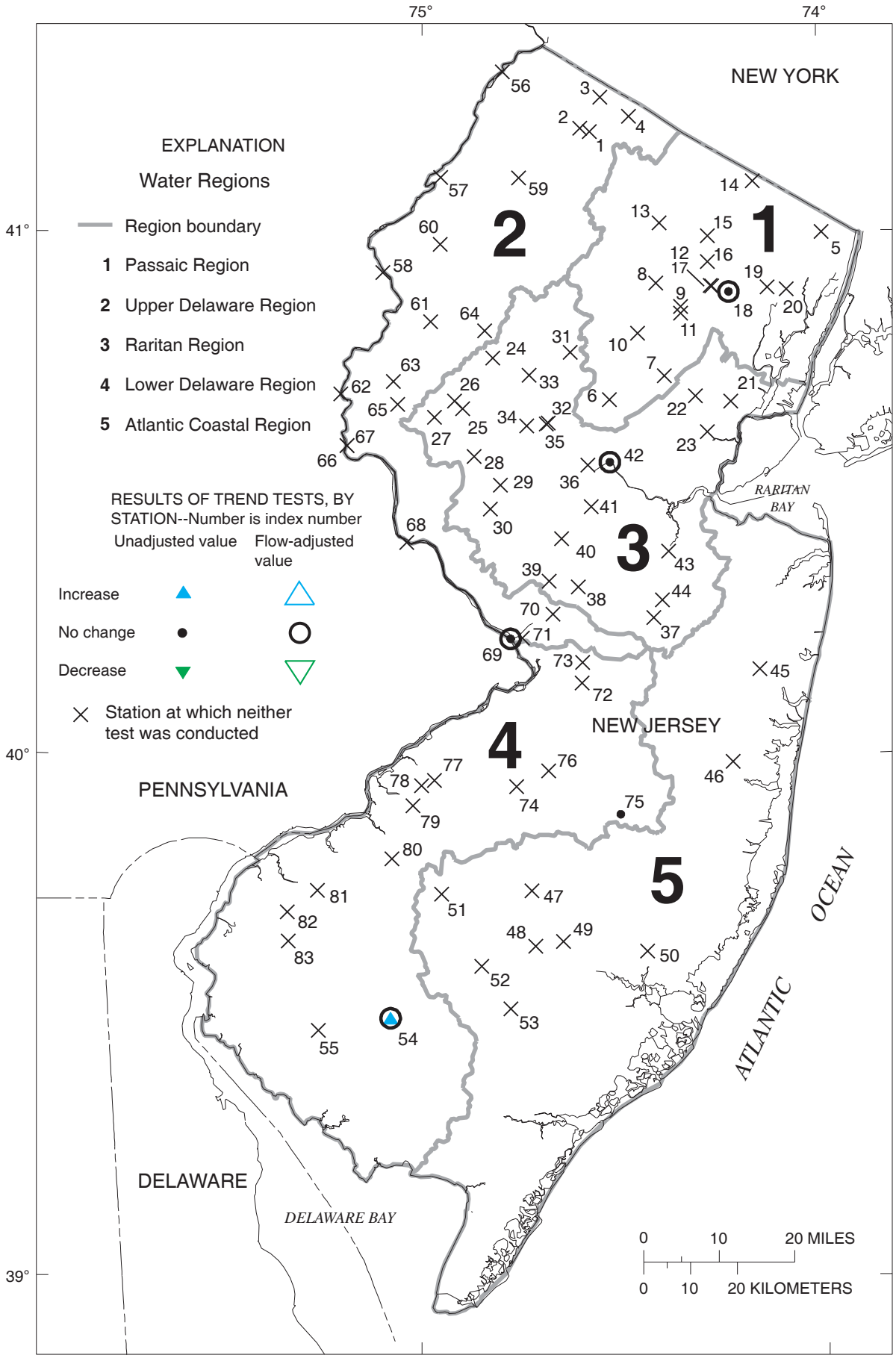

Figure 16-1. Results of trend tests for fecal coliform (COL) at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 16a. Summary statistics for fecal coliform (COL) bacteria at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in bacterial colonies per 100 milliliters and are rounded to two significant figures or, if less than two significant figures, values are rounded to 1 colony per 100 milliliters; <, less than; --, not applicable]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	0	0	0	--	--	--	--
2	01367910	0	0	0	--	--	--	--
3	01368000	0	0	0	--	--	--	--
4	01368950	0	0	0	--	--	--	--
5	01377000	0	0	0	--	--	--	--
6	01379000	0	0	0	--	--	--	--
7	01379500	0	0	0	--	--	--	--
8	01380500	0	0	0	--	--	--	--
9	01381200	0	0	0	--	--	--	--
10	01381500	0	0	0	--	--	--	--
11	01381800	0	0	0	--	--	--	--
12	01382000	0	0	0	--	--	--	--
13	01382500	0	0	0	--	--	--	--
14	01387500	0	0	0	--	--	--	--
15	01388000	0	0	0	--	--	--	--
16	01388600	0	0	0	--	--	--	--
17	01389005	0	0	0	--	--	--	--
18	01389500	51	47	0	3	250	360	2,300
19	01389880	0	0	0	--	--	--	--
20	01391500	0	0	0	--	--	--	--
21	01393450	0	0	0	--	--	--	--
22	01394500	0	0	0	--	--	--	--
23	01395000	0	0	0	--	--	--	--
24	01396280	0	0	0	--	--	--	--
25	01396535	0	0	0	--	--	--	--
26	01396588	0	0	0	--	--	--	--
27	01396660	0	0	0	--	--	--	--
28	01397000	0	0	0	--	--	--	--
29	01397400	0	0	0	--	--	--	--
30	01398000	0	0	0	--	--	--	--
31	01398260	0	0	0	--	--	--	--
32	01399120	0	0	0	--	--	--	--
33	01399500	0	0	0	--	--	--	--
34	01399700	0	0	0	--	--	--	--
35	01399780	0	0	0	--	--	--	--
36	01400500	0	0	0	--	--	--	--
37	01400540	0	0	0	--	--	--	--
38	01400650	0	0	0	--	--	--	--
39	01401000	0	0	0	--	--	--	--
40	01401600	0	0	0	--	--	--	--
41	01402000	0	0	0	--	--	--	--
42	01403300	37	33	0	4	250	450	2,100
43	01405302	0	0	0	--	--	--	--
44	01405340	0	0	0	--	--	--	--
45	01408000	0	0	0	--	--	--	--
46	01408500	44	42	4.8	<5	27	59	270
47	01409387	0	0	0	--	--	--	--
48	01409416	0	0	0	--	--	--	--
49	01409500	0	0	0	--	--	--	--

Table 16a. Summary statistics for fecal coliform (COL) bacteria at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in bacterial colonies per 100 milliliters and are rounded to two significant figures or, if less than two significant figures, values are rounded to 1 colony per 100 milliliters; <, less than; --, not applicable]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
50	01410150	0	0	0	--	--	--	--
51	01410784	0	0	0	--	--	--	--
52	01411000	0	0	0	--	--	--	--
53	01411110	0	0	0	--	--	--	--
54	01411500	50	49	2.0	<1	25	51	250
55	01412800	0	0	0	--	--	--	--
56	01438500	0	0	0	--	--	--	--
57	01440000	0	0	0	--	--	--	--
58	01443000	0	0	0	--	--	--	--
59	01443440	0	0	0	--	--	--	--
60	01443500	0	0	0	--	--	--	--
61	01445500	0	0	0	--	--	--	--
62	01447000	0	0	0	--	--	--	--
63	01455200	0	0	0	--	--	--	--
64	01456200	0	0	0	--	--	--	--
65	01457000	0	0	0	--	--	--	--
66	01457400	0	0	0	--	--	--	--
67	01457500	0	0	0	--	--	--	--
68	01461000	0	0	0	--	--	--	--
69	01463500	36	35	2.9	<66	26	72	650
70	01463620	0	0	0	--	--	--	--
71	01464000	0	0	0	--	--	--	--
72	01464500	0	0	0	--	--	--	--
73	01464515	0	0	0	--	--	--	--
74	01465850	0	0	0	--	--	--	--
75	01466500	102	99	43.4	<1	1	7	260
76	01467000	0	0	0	--	--	--	--
77	01467069	0	0	0	--	--	--	--
78	01467081	0	0	0	--	--	--	--
79	01467150	0	0	0	--	--	--	--
80	01467329	0	0	0	--	--	--	--
81	01477120	0	0	0	--	--	--	--
82	01477510	0	0	0	--	--	--	--
83	01482500	0	0	0	--	--	--	--

Table 16b. Summary of trends in fecal coliform (COL) bacteria at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, colonies per 100 milliliters; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NT	NT	NT	--	--	--	--	--	--	--	--
2	01367910	NT	NT	NT	--	--	--	--	--	--	--	--
3	01368000	NT	NT	NT	--	--	--	--	--	--	--	--
4	01368950	NT	NT	NT	--	--	--	--	--	--	--	--
5	01377000	NT	NT	NT	--	--	--	--	--	--	--	--
6	01379000	NT	NT	NT	--	--	--	--	--	--	--	--
7	01379500	NT	NT	NT	--	--	--	--	--	--	--	--
8	01380500	NT	NT	NT	--	--	--	--	--	--	--	--
9	01381200	NT	NT	NT	--	--	--	--	--	--	--	--
10	01381500	NT	NT	NT	--	--	--	--	--	--	--	--
11	01381800	NT	NT	NT	--	--	--	--	--	--	--	--
12	01382000	NT	NT	NT	--	--	--	--	--	--	--	--
13	01382500	NT	NT	NT	--	--	--	--	--	--	--	--
14	01387500	NT	NT	NT	--	--	--	--	--	--	--	--
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	NT	NT	NT	--	--	--	--	--	--	--	--
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	NSIG	NSIG	SKEN	35	-15	-4.3	.626	35	- .59	- .17	1.000
19	01389880	NT	NT	NT	--	--	--	--	--	--	--	--
20	01391500	NT	NT	NT	--	--	--	--	--	--	--	--
21	01393450	NT	NT	NT	--	--	--	--	--	--	--	--
22	01394500	NT	NT	NT	--	--	--	--	--	--	--	--
23	01395000	NT	NT	NT	--	--	--	--	--	--	--	--
24	01396280	NT	NT	NT	--	--	--	--	--	--	--	--
25	01396535	NT	NT	NT	--	--	--	--	--	--	--	--
26	01396588	NT	NT	NT	--	--	--	--	--	--	--	--
27	01396660	NT	NT	NT	--	--	--	--	--	--	--	--
28	01397000	NT	NT	NT	--	--	--	--	--	--	--	--
29	01397400	NT	NT	NT	--	--	--	--	--	--	--	--
30	01398000	NT	NT	NT	--	--	--	--	--	--	--	--
31	01398260	NT	NT	NT	--	--	--	--	--	--	--	--
32	01399120	NT	NT	NT	--	--	--	--	--	--	--	--
33	01399500	NT	NT	NT	--	--	--	--	--	--	--	--
34	01399700	NT	NT	NT	--	--	--	--	--	--	--	--
35	01399780	NT	NT	NT	--	--	--	--	--	--	--	--
36	01400500	NT	NT	NT	--	--	--	--	--	--	--	--
37	01400540	NT	NT	NT	--	--	--	--	--	--	--	--
38	01400650	NT	NT	NT	--	--	--	--	--	--	--	--
39	01401000	NT	NT	NT	--	--	--	--	--	--	--	--
40	01401600	NT	NT	NT	--	--	--	--	--	--	--	--
41	01402000	NT	NT	NT	--	--	--	--	--	--	--	--
42	01403300	NSIG	NSIG	SKEN	33	-9.1	-2.0	.953	33	19	4.2	.596
43	01405302	NT	NT	NT	--	--	--	--	--	--	--	--
44	01405340	NT	NT	NT	--	--	--	--	--	--	--	--
45	01408000	NT	NT	NT	--	--	--	--	--	--	--	--
46	01408500	NT	NT	NT	--	--	--	--	--	--	--	--

Table 16b. Summary of trends in fecal coliform (COL) bacteria at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, colonies per 100 milliliters; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
47	01409387	NT	NT	NT	--	--	--	--	--	--	--	--
48	01409416	NT	NT	NT	--	--	--	--	--	--	--	--
49	01409500	NT	NT	NT	--	--	--	--	--	--	--	--
50	01410150	NT	NT	NT	--	--	--	--	--	--	--	--
51	01410784	NT	NT	NT	--	--	--	--	--	--	--	--
52	01411000	NT	NT	NT	--	--	--	--	--	--	--	--
53	01411110	NT	NT	NT	--	--	--	--	--	--	--	--
54	01411500	UP	NSIG	SKEN	34	6.5	13	.090	34	3.7	7.4	.284
55	01412800	NT	NT	NT	--	--	--	--	--	--	--	--
56	01438500	NT	NT	NT	--	--	--	--	--	--	--	--
57	01440000	NT	NT	NT	--	--	--	--	--	--	--	--
58	01443000	NT	NT	NT	--	--	--	--	--	--	--	--
59	01443440	NT	NT	NT	--	--	--	--	--	--	--	--
60	01443500	NT	NT	NT	--	--	--	--	--	--	--	--
61	01445500	NT	NT	NT	--	--	--	--	--	--	--	--
62	01447000	NT	NT	NT	--	--	--	--	--	--	--	--
63	01455200	NT	NT	NT	--	--	--	--	--	--	--	--
64	01456200	NT	NT	NT	--	--	--	--	--	--	--	--
65	01457000	NT	NT	NT	--	--	--	--	--	--	--	--
66	01457400	NT	NT	NT	--	--	--	--	--	--	--	--
67	01457500	NT	NT	NT	--	--	--	--	--	--	--	--
68	01461000	NT	NT	NT	--	--	--	--	--	--	--	--
69	01463500	NSIG	NSIG	SKEN	35	-2.0	-2.8	.388	35	- .70	- .98	.668
70	01463620	NT	NT	NT	--	--	--	--	--	--	--	--
71	01464000	NT	NT	NT	--	--	--	--	--	--	--	--
72	01464500	NT	NT	NT	--	--	--	--	--	--	--	--
73	01464515	NT	NT	NT	--	--	--	--	--	--	--	--
74	01465850	NT	NT	NT	--	--	--	--	--	--	--	--
75	01466500	NSIG	NT	TOBT	97	.45	6.4	.130	--	--	--	--
76	01467000	NT	NT	NT	--	--	--	--	--	--	--	--
77	01467069	NT	NT	NT	--	--	--	--	--	--	--	--
78	01467081	NT	NT	NT	--	--	--	--	--	--	--	--
79	01467150	NT	NT	NT	--	--	--	--	--	--	--	--
80	01467329	NT	NT	NT	--	--	--	--	--	--	--	--
81	01477120	NT	NT	NT	--	--	--	--	--	--	--	--
82	01477510	NT	NT	NT	--	--	--	--	--	--	--	--
83	01482500	NT	NT	NT	--	--	--	--	--	--	--	--

Appendix 17. Summary statistics and results of trend tests for specific conductance at selected surface-water-quality stations in New Jersey, water years 1986-95

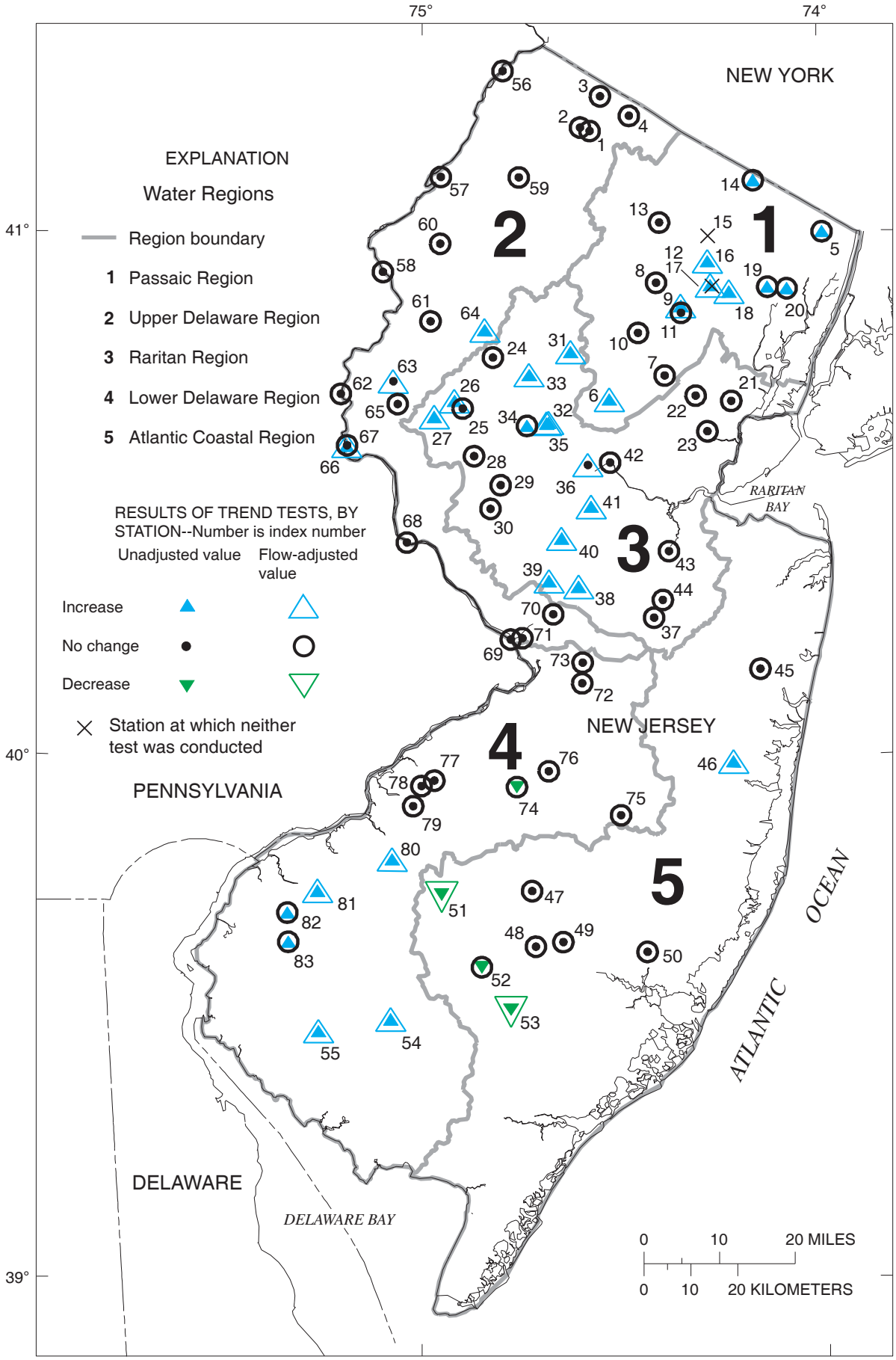

Figure 17-1. Results of trend tests for specific conductance at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 17a. Summary statistics for specific conductance at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in microsiemens per centimeter at 25 degrees Celsius and are rounded to three significant figures or, if less than three significant figures, values are rounded to 1 microsiemen per centimeter]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	55	55	0	116	445	452	636
2	01367910	55	55	0	190	260	274	369
3	01368000	42	42	0	187	372	371	534
4	01368950	55	55	0	326	570	572	806
5	01377000	56	54	0	168	414	415	737
6	01379000	55	55	0	139	246	247	459
7	01379500	55	55	0	157	412	441	1,030
8	01380500	49	46	0	155	233	248	490
9	01381200	55	53	0	200	336	351	556
10	01381500	55	55	0	111	326	318	560
11	01381800	55	53	0	150	404	413	776
12	01382000	134	109	0	157	415	439	1,040
13	01382500	43	43	0	113	194	195	308
14	01387500	55	54	0	160	348	376	578
15	01388000	125	100	0	173	332	329	546
16	01388600	134	108	0	163	302	305	665
17	01389005	116	93	0	180	401	414	687
18	01389500	220	110	0	183	365	393	667
19	01389880	43	43	0	208	424	431	744
20	01391500	55	54	0	332	610	595	778
21	01393450	54	54	0	172	643	738	3,890
22	01394500	55	55	0	240	553	607	2,240
23	01395000	55	54	0	155	470	470	1,100
24	01396280	55	55	0	142	254	257	654
25	01396535	55	55	0	143	253	247	352
26	01396588	55	54	0	123	170	169	227
27	01396660	55	54	0	125	200	194	255
28	01397000	42	42	0	152	228	226	282
29	01397400	55	55	0	168	275	270	388
30	01398000	55	55	0	164	334	368	867
31	01398260	55	54	0	151	250	250	390
32	01399120	55	55	0	136	250	243	354
33	01399500	55	54	0	122	240	235	303
34	01399700	55	55	0	117	223	226	365
35	01399780	56	56	0	107	233	230	385
36	01400500	55	54	0	162	238	244	368
37	01400540	55	55	0	76	114	116	216
38	01400650	55	55	0	89	201	204	374
39	01401000	60	55	0	125	230	245	542
40	01401600	60	58	0	92	239	253	682
41	01402000	43	43	0	110	226	233	339
42	01403300	87	40	0	99	257	256	365
43	01405302	56	55	0	93	258	276	490
44	01405340	55	55	0	87	128	131	183
45	01408000	43	43	0	134	207	204	298
46	01408500	101	56	0	54	71	70	85
47	01409387	55	55	0	29	45	46	71
48	01409416	55	54	0	79	127	134	266
49	01409500	55	54	0	25	44	44	85

Table 17a. Summary statistics for specific conductance at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in microsiemens per centimeter at 25 degrees Celsius and are rounded to three significant figures or, if less than three significant figures, values are rounded to 1 microsiemen per centimeter]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
50	01410150	55	55	0	30	43	44	69
51	01410784	56	54	0	56	79	95	226
52	01411000	42	42	0	50	64	67	113
53	01411110	55	54	0	45	55	56	75
54	01411500	139	59	0	60	79	79	96
55	01412800	55	55	0	160	210	210	247
56	01438500	42	42	0	59	84	88	161
57	01440000	33	33	0	72	185	188	294
58	01443000	54	54	0	67	94	96	125
59	01443440	55	54	0	238	434	438	605
60	01443500	55	55	0	236	380	385	515
61	01445500	42	42	0	318	487	481	608
62	01447000	55	55	0	86	144	143	190
63	01455200	55	54	0	130	227	222	313
64	01456200	53	53	0	199	331	345	497
65	01457000	43	43	0	190	350	341	460
66	01457400	55	55	0	256	346	344	425
67	01457500	42	42	0	101	181	183	242
68	01461000	55	55	0	91	180	183	286
69	01463500	115	48	0	95	176	177	256
70	01463620	55	55	0	84	130	129	168
71	01464000	41	41	0	122	284	297	640
72	01464500	55	55	0	98	165	166	244
73	01464515	55	55	0	112	170	167	242
74	01465850	55	55	0	59	80	82	120
75	01466500	115	105	0	27	47	49	91
76	01467000	55	55	0	41	50	52	77
77	01467069	55	55	0	179	281	307	1,090
78	01467081	55	55	0	136	364	371	1,100
79	01467150	44	44	0	129	206	233	552
80	01467329	54	54	0	101	155	155	214
81	01477120	55	55	0	153	191	194	236
82	01477510	55	55	0	124	196	190	245
83	01482500	55	55	0	129	232	228	275

Table 17b. Summary of trends in specific conductance at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, microsiemens per centimeter at 25 degrees Celsius; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	40	5.1	1.1	0.371	40	2.4	0.52	0.823
2	01367910	NSIG	NSIG	SKEN	40	1.4	.52	.687	40	5.3	1.9	.395
3	01368000	NSIG	NSIG	SKEN	36	9.0	2.4	.106	36	7.7	2.1	.434
4	01368950	NSIG	NSIG	SKEN	40	-1.2	- .21	.788	39	-2.1	- .37	.926
5	01377000	UP	NSIG	SKEN	40	10	2.5	.002	40	12	2.9	.195
6	01379000	UP	UP	SKEN	40	7.2	2.9	.003	40	9.5	3.8	.036
7	01379500	NSIG	NSIG	SKEN	40	10	2.3	.140	40	8.9	2.0	.447
8	01380500	NSIG	NSIG	SKEN	34	3.4	1.4	.245	34	5.7	2.3	.347
9	01381200	UP	UP	SKEN	40	9.4	2.7	.018	40	6.2	1.8	.081
10	01381500	NSIG	NSIG	SKEN	40	1.8	.57	.823	40	3.9	1.2	.447
11	01381800	NSIG	NSIG	SKEN	40	4.7	1.1	.244	40	1.5	.37	.964
12	01382000	UP	UP	SKEN	40	26	5.9	.007	40	22	5.1	.011
13	01382500	NSIG	NSIG	SKEN	36	2.4	1.2	.200	36	- .20	- .10	1.000
14	01387500	UP	NSIG	SKEN	40	10	2.7	.039	40	1.9	.49	.823
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	UP	UP	SKEN	40	8.5	2.8	.002	40	11	3.5	.014
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	UP	UP	SKEN	40	23	5.7	.000	40	28	7.0	.000
19	01389880	UP	NSIG	SKEN	36	9.7	2.3	.067	36	10	2.4	.222
20	01391500	UP	NSIG	SKEN	40	8.1	1.4	.054	40	7.2	1.2	.227
21	01393450	NSIG	NSIG	SKEN	39	14	1.9	.431	39	25	3.4	.309
22	01394500	NSIG	NSIG	SKEN	40	9.3	1.5	.194	40	5.0	.82	.502
23	01395000	NSIG	NSIG	SKEN	40	5.4	1.1	.720	40	-16	-3.3	.348
24	01396280	NSIG	NSIG	SKEN	40	3.7	1.4	.165	40	- .34	- .13	.929
25	01396535	NSIG	NSIG	SKEN	40	2.6	1.1	.227	40	4.1	1.7	.227
26	01396588	UP	UP	SKEN	40	2.5	1.5	.028	40	7.8	4.6	.044
27	01396660	UP	UP	SKEN	40	3.5	1.8	.004	40	9.8	5.1	.008
28	01397000	NSIG	NSIG	SKEN	33	3.1	1.3	.220	33	3.6	1.6	.164
29	01397400	NSIG	NSIG	SKEN	40	3.0	1.1	.264	40	4.4	1.6	.348
30	01398000	NSIG	NSIG	SKEN	40	-5.0	-1.4	.371	40	12	3.2	.623
31	01398260	UP	UP	SKEN	40	10	4.1	.001	40	16	6.5	.011
32	01399120	UP	UP	SKEN	40	7.2	3.0	.001	40	11	4.5	.005
33	01399500	UP	UP	SKEN	40	5.3	2.3	.004	40	12	5.2	.006
34	01399700	UP	NSIG	SKEN	40	3.9	1.7	.049	40	3.5	1.6	.395
35	01399780	UP	UP	SKEN	40	6.6	2.9	.014	39	11	4.8	.026
36	01400500	NSIG	UP	SKEN	40	5.0	2.1	.140	40	5.8	2.4	.044
37	01400540	NSIG	NSIG	SKEN	40	.45	.39	.590	40	-2.4	-2.0	.502
38	01400650	UP	UP	SKEN	40	6.6	3.3	.004	40	7.8	3.8	.081
39	01401000	UP	UP	SKEN	40	8.5	3.5	.003	40	40	16	.008
40	01401600	UP	UP	SKEN	40	16	6.4	.003	40	22	8.7	.067
41	01402000	UP	UP	SKEN	34	10	4.3	.013	34	12	5.3	.023
42	01403300	NSIG	NSIG	SKEN	40	3.6	1.4	.371	40	6.1	2.4	.304
43	01405302	NSIG	NSIG	SKEN	40	1.9	.68	.501	40	2.4	.87	.823
44	01405340	NSIG	NSIG	SKEN	40	1.7	1.3	.209	40	1.2	.92	.720
45	01408000	NSIG	NSIG	SKEN	34	-2.9	-1.4	.203	34	-4.0	-2.0	.245
46	01408500	UP	UP	SKEN	40	1.5	2.1	.000	40	1.6	2.3	.001

Table 17b. Summary of trends in specific conductance at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, microsiemens per centimeter at 25 degrees Celsius; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
47	01409387	NSIG	NSIG	SKEN	40	.36	.79	.445	40	- .76	-1.7	.264
48	01409416	NSIG	NSIG	SKEN	40	-1.5	-1.1	.193	40	- .28	- .21	.964
49	01409500	NSIG	NSIG	SKEN	40	- .36	- .82	.559	40	- .70	-1.6	.395
50	01410150	NSIG	NSIG	SKEN	40	.37	.84	.369	40	- .41	- .94	.447
51	01410784	DOWN	DOWN	SKEN	40	-6.5	-6.9	.000	40	-4.5	-4.7	.044
52	01411000	DOWN	NSIG	SKEN	34	-2.0	-3.0	.016	34	-1.6	-2.4	.167
53	01411110	DOWN	DOWN	SKEN	40	- .74	-1.3	.065	40	- .66	-1.2	.039
54	01411500	UP	UP	SKEN	40	1.3	1.6	.000	40	1.8	2.3	.002
55	01412800	UP	UP	SKEN	40	2.7	1.3	.012	40	3.5	1.7	.098
56	01438500	NSIG	NSIG	SKEN	34	.52	.59	.404	34	.62	.70	.472
57	01440000	NSIG	NSIG	SKEN	27	3.4	1.8	.443	27	1.0	.54	.702
58	01443000	NSIG	NSIG	SKEN	39	.45	.47	.816	39	.17	.18	.926
59	01443440	NSIG	NSIG	SKEN	40	7.9	1.8	.447	40	9.6	2.2	.447
60	01443500	NSIG	NSIG	SKEN	40	2.5	.64	.395	40	8.0	2.1	.561
61	01445500	NSIG	NSIG	SKEN	33	4.2	.88	.275	33	11	2.2	.303
62	01447000	NSIG	NSIG	SKEN	40	- .42	- .30	.720	40	- .82	- .58	.561
63	01455200	NSIG	UP	SKEN	40	2.3	1.1	.420	40	9.9	4.4	.054
64	01456200	UP	UP	SKEN	38	5.5	1.6	.016	38	10	2.9	.002
65	01457000	NSIG	NSIG	SKEN	33	4.4	1.3	.731	33	5.4	1.6	.109
66	01457400	UP	UP	SKEN	40	4.2	1.2	.081	40	5.0	1.4	.067
67	01457500	NSIG	NSIG	SKEN	31	.75	.41	.754	31	1.8	.98	.574
68	01461000	NSIG	NSIG	SKEN	40	.38	.21	.929	40	- .081	- .044	1.000
69	01463500	NSIG	NSIG	SKEN	40	1.3	.75	.654	40	1.9	1.0	.447
70	01463620	NSIG	NSIG	SKEN	40	- .72	- .55	.444	38	-1.1	- .89	.597
71	01464000	NSIG	NSIG	SKEN	33	19	6.2	.192	33	9.6	3.2	.192
72	01464500	NSIG	NSIG	SKEN	40	- .91	- .55	.501	40	-1.6	- .95	.348
73	01464515	NSIG	NSIG	SKEN	40	.56	.34	.530	40	-1.7	-1.0	.348
74	01465850	DOWN	NSIG	SKEN	40	- .90	-1.1	.059	40	-1.6	-2.0	.210
75	01466500	NSIG	NSIG	SKEN	40	- .87	-1.8	.194	39	.35	.71	.853
76	01467000	NSIG	NSIG	SKEN	40	0	0	.786	40	.42	.80	.591
77	01467069	NSIG	NSIG	SKEN	40	.61	.20	.893	40	13	4.1	.304
78	01467081	NSIG	NSIG	SKEN	40	-3.8	-1.0	.502	40	18	4.9	.118
79	01467150	NSIG	NSIG	SKEN	34	-2.8	-1.2	.516	34	3.5	1.5	.450
80	01467329	UP	UP	SKEN	40	1.8	1.2	.003	40	5.7	3.7	.001
81	01477120	UP	UP	SKEN	40	4.1	2.1	.000	40	4.3	2.2	.081
82	01477510	UP	NSIG	SKEN	40	2.9	1.5	.073	40	3.2	1.7	.447
83	01482500	UP	NSIG	SKEN	40	2.7	1.2	.028	40	5.2	2.3	.152

Appendix 18. Summary statistics and results of trend tests for dissolved solids at selected surface-water-quality stations in New Jersey, water years 1986-95

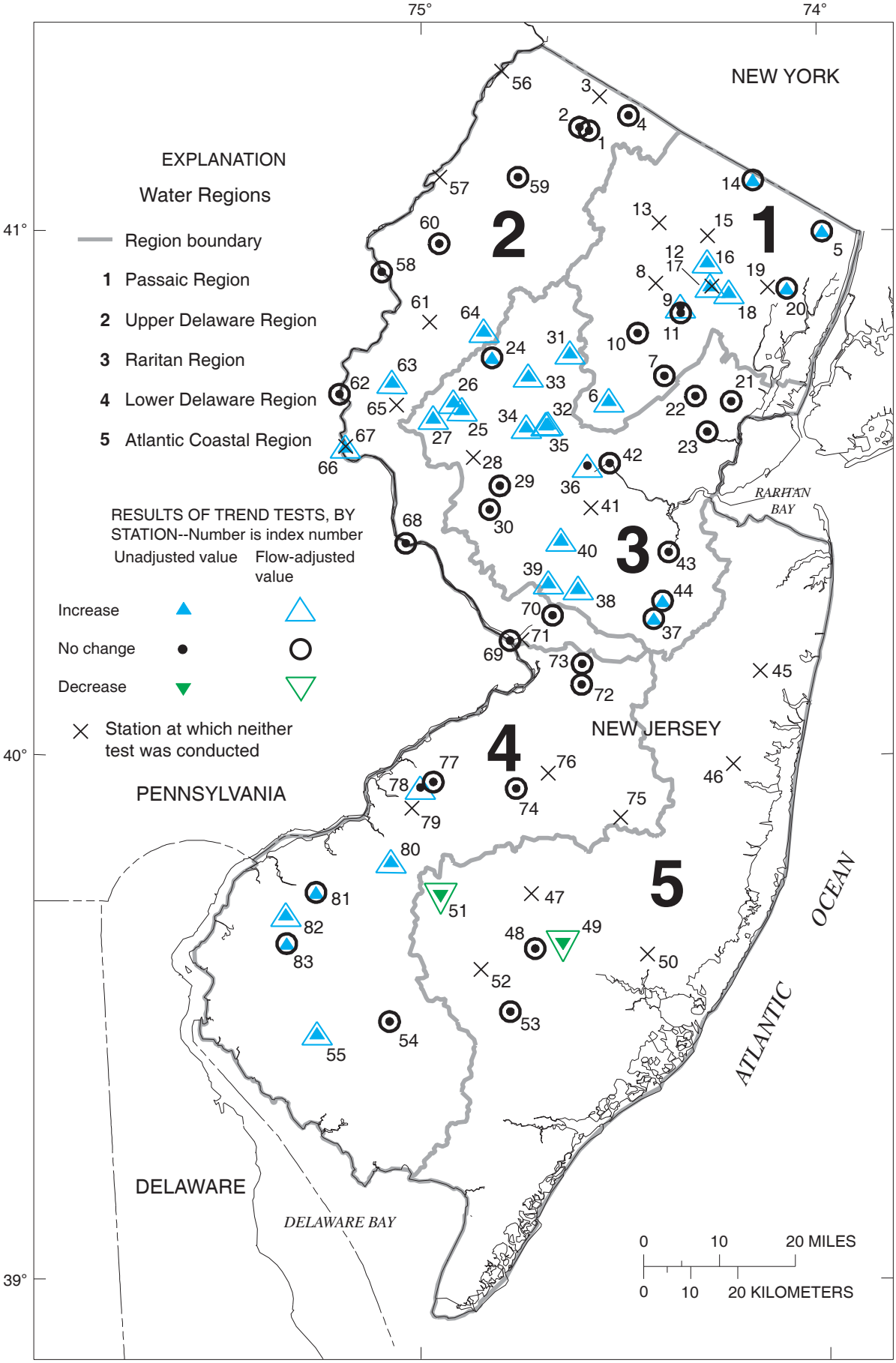

Figure 18-1. Results of trend tests for dissolved solids at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 18a. Summary statistics for dissolved solids at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter and are rounded to three significant figures or, if less than three significant figures, values are rounded to 1 milligram per liter; --, not applicable]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	53	53	0	127	243	246	363
2	01367910	55	55	0	101	138	144	237
3	01368000	20	20	0	130	207	202	267
4	01368950	54	54	0	175	305	303	400
5	01377000	53	52	0	129	214	216	365
6	01379000	55	55	0	79	137	138	243
7	01379500	55	55	0	87	220	237	548
8	01380500	28	27	0	84	123	129	189
9	01381200	54	52	0	105	160	184	300
10	01381500	55	55	0	68	177	174	291
11	01381800	54	53	0	76	222	220	404
12	01382000	132	108	0	88	227	240	538
13	01382500	21	21	0	61	107	105	152
14	01387500	55	54	0	85	183	194	309
15	01388000	123	99	0	101	171	173	283
16	01388600	134	108	0	86	159	161	336
17	01389005	113	92	0	104	210	224	383
18	01389500	139	110	0	94	205	215	378
19	01389880	21	21	0	126	246	248	352
20	01391500	55	54	0	164	320	314	412
21	01393450	53	53	0	78	359	408	2,060
22	01394500	54	54	0	134	299	325	1,270
23	01395000	55	54	0	83	257	253	533
24	01396280	55	55	0	87	132	136	334
25	01396535	55	55	0	85	133	131	187
26	01396588	54	53	0	73	102	100	123
27	01396660	55	54	0	73	111	111	144
28	01397000	21	21	0	87	126	121	150
29	01397400	55	55	0	89	138	142	222
30	01398000	52	52	0	86	184	198	448
31	01398260	55	54	0	70	137	137	207
32	01399120	55	55	0	76	132	131	173
33	01399500	54	53	0	71	131	128	171
34	01399700	54	54	0	67	124	124	187
35	01399780	54	54	0	62	129	125	210
36	01400500	55	54	0	88	130	131	205
37	01400540	53	53	0	52	63	64	93
38	01400650	55	55	0	47	96	106	184
39	01401000	60	55	0	64	126	133	263
40	01401600	60	58	0	64	132	141	387
41	01402000	21	21	0	86	150	139	184
42	01403300	40	40	0	67	148	147	203
43	01405302	49	48	0	49	143	150	254
44	01405340	54	54	0	51	72	72	92
45	01408000	21	21	0	81	123	119	138
46	01408500	34	34	0	31	41	40	48
47	01409387	20	20	0	15	23	23	33
48	01409416	48	47	0	32	68	68	105
49	01409500	40	40	0	17	24	24	32

Table 18a. Summary statistics for dissolved solids at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter and are rounded to three significant figures or, if less than three significant figures, values are rounded to 1 milligram per liter; --, not applicable]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
50	01410150	8	8	0	--	--	--	--
51	01410784	55	54	0	30	47	51	104
52	01411000	20	20	0	28	35	35	44
53	01411110	48	47	0	27	32	33	42
54	01411500	59	59	0	38	47	47	60
55	01412800	55	55	0	71	105	107	140
56	01438500	21	21	0	36	45	48	88
57	01440000	10	10	0	--	--	--	--
58	01443000	52	52	0	36	49	51	69
59	01443440	55	54	0	122	229	233	343
60	01443500	53	53	0	121	199	202	281
61	01445500	21	21	0	166	278	270	321
62	01447000	54	54	0	47	77	76	105
63	01455200	54	53	0	75	121	121	183
64	01456200	51	51	0	105	172	181	269
65	01457000	20	20	0	105	193	187	219
66	01457400	54	54	0	128	180	180	224
67	01457500	20	20	0	55	99	98	129
68	01461000	52	52	0	54	98	97	138
69	01463500	58	48	0	53	94	96	141
70	01463620	54	54	0	50	68	67	96
71	01464000	21	21	0	97	166	171	280
72	01464500	54	54	0	50	91	91	132
73	01464515	54	54	0	65	89	88	119
74	01465850	49	49	0	32	46	46	59
75	01466500	2	2	0	--	--	--	--
76	01467000	27	27	0	22	27	28	40
77	01467069	52	52	0	95	155	166	550
78	01467081	55	55	0	73	192	194	530
79	01467150	21	21	0	91	110	120	309
80	01467329	53	53	0	52	80	80	110
81	01477120	55	55	0	73	103	105	140
82	01477510	55	55	0	61	105	102	140
83	01482500	54	54	0	81	119	121	153

Table 18b. Summary of trends in dissolved solids at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	39	3.8	1.6	0.211	39	1.4	0.56	0.853
2	01367910	NSIG	NSIG	SKEN	40	1.6	1.1	.263	40	3.3	2.3	.264
3	01368000	NT	NT	NT	--	--	--	--	--	--	--	--
4	01368950	NSIG	NSIG	SKEN	40	- .088	- .029	1.000	39	-1.8	- .58	.926
5	01377000	UP	NSIG	SKEN	39	5.0	2.3	.005	39	4.4	2.0	.165
6	01379000	UP	UP	SKEN	40	2.9	2.1	.015	40	4.3	3.1	.054
7	01379500	NSIG	NSIG	SKEN	40	5.3	2.2	.264	40	5.0	2.1	.447
8	01380500	NT	NT	NT	--	--	--	--	--	--	--	--
9	01381200	NSIG	UP	SKEN	39	5.7	3.1	.105	39	5.2	2.8	.046
10	01381500	NSIG	NSIG	SKEN	40	1.2	.69	.687	40	1.5	.86	.502
11	01381800	NSIG	NSIG	SKEN	40	3.2	1.4	.303	40	1.2	.53	.754
12	01382000	UP	UP	SKEN	40	16	6.8	.018	40	11	4.6	.014
13	01382500	NT	NT	NT	--	--	--	--	--	--	--	--
14	01387500	UP	NSIG	SKEN	40	5.8	3.0	.060	40	.26	.14	.964
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	UP	UP	SKEN	40	4.4	2.7	.004	40	4.8	3.0	.018
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	UP	UP	SKEN	40	13	6.2	.000	40	12	5.6	.000
19	01389880	NT	NT	NT	--	--	--	--	--	--	--	--
20	01391500	UP	NSIG	SKEN	40	4.8	1.5	.032	40	5.1	1.6	.140
21	01393450	NSIG	NSIG	SKEN	39	5.4	1.3	.458	39	12	3.0	.459
22	01394500	NSIG	NSIG	SKEN	40	4.7	1.5	.140	40	3.8	1.2	.502
23	01395000	NSIG	NSIG	SKEN	40	3.5	1.4	.720	40	-7.9	-3.1	.502
24	01396280	UP	NSIG	SKEN	40	2.5	1.8	.006	40	- .086	- .063	.964
25	01396535	UP	UP	SKEN	40	1.8	1.3	.034	40	3.1	2.4	.036
26	01396588	UP	UP	SKEN	39	1.8	1.8	.003	39	4.1	4.1	.064
27	01396660	UP	UP	SKEN	40	2.7	2.5	.000	40	5.5	5.0	.014
28	01397000	NT	NT	NT	--	--	--	--	--	--	--	--
29	01397400	NSIG	NSIG	SKEN	40	2.1	1.5	.420	40	2.8	2.0	.195
30	01398000	NSIG	NSIG	SKEN	39	-1.6	- .81	.643	39	5.8	3.0	.644
31	01398260	UP	UP	SKEN	40	6.5	4.7	.002	40	10	7.5	.028
32	01399120	UP	UP	SKEN	40	2.8	2.1	.008	40	4.5	3.4	.054
33	01399500	UP	UP	SKEN	40	3.2	2.5	.054	40	7.6	5.9	.028
34	01399700	UP	UP	SKEN	40	3.5	2.8	.007	40	3.2	2.6	.067
35	01399780	UP	UP	SKEN	40	2.7	2.1	.054	39	5.5	4.4	.064
36	01400500	NSIG	UP	SKEN	40	1.8	1.4	.194	40	2.7	2.0	.054
37	01400540	UP	NSIG	SKEN	40	.98	1.5	.031	40	- .54	- .84	.893
38	01400650	UP	UP	SKEN	40	5.8	5.4	.001	40	6.8	6.4	.006
39	01401000	UP	UP	SKEN	40	4.1	3.1	.005	40	17	13	.006
40	01401600	UP	UP	SKEN	40	9.3	6.6	.001	40	12	8.6	.044
41	01402000	NT	NT	NT	--	--	--	--	--	--	--	--
42	01403300	NSIG	NSIG	SKEN	40	.41	.28	.893	40	- .14	- .092	.964
43	01405302	NSIG	NSIG	SKEN	39	2.8	1.9	.331	39	1.9	1.3	.517
44	01405340	UP	NSIG	SKEN	39	1.1	1.5	.018	39	.81	1.1	.355
45	01408000	NT	NT	NT	--	--	--	--	--	--	--	--
46	01408500	NT	NT	NT	--	--	--	--	--	--	--	--

Table 18b. Summary of trends in dissolved solids at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
47	01409387	NT	NT	NT	--	--	--	--	--	--	--	--
48	01409416	NSIG	NSIG	SKEN	37	.59	.86	.433	37	1.5	2.3	.353
49	01409500	DOWN	DOWN	SKEN	33	- .37	-1.5	.027	33	- .51	-2.2	.016
50	01410150	NT	NT	NT	--	--	--	--	--	--	--	--
51	01410784	DOWN	DOWN	SKEN	40	-2.6	-5.2	.000	40	-1.6	-3.1	.081
52	01411000	NT	NT	NT	--	--	--	--	--	--	--	--
53	01411110	NSIG	NSIG	SKEN	38	- .30	- .91	.187	38	- .37	-1.1	.195
54	01411500	NSIG	NSIG	SKEN	40	- .22	- .47	.276	40	- .074	- .16	.893
55	01412800	UP	UP	SKEN	40	3.8	3.5	.000	40	3.8	3.6	.000
56	01438500	NT	NT	NT	--	--	--	--	--	--	--	--
57	01440000	NT	NT	NT	--	--	--	--	--	--	--	--
58	01443000	NSIG	NSIG	SKEN	38	0	0	.923	38	.002	.004	1.000
59	01443440	NSIG	NSIG	SKEN	40	5.7	2.4	.152	40	5.8	2.5	.264
60	01443500	NSIG	NSIG	SKEN	38	1.5	.73	.472	38	1.8	.87	.666
61	01445500	NT	NT	NT	--	--	--	--	--	--	--	--
62	01447000	NSIG	NSIG	SKEN	39	- .22	- .29	.963	39	- .089	- .12	.926
63	01455200	UP	UP	SKEN	39	2.3	1.9	.023	39	4.7	3.9	.042
64	01456200	UP	UP	SKEN	36	3.8	2.1	.020	36	6.4	3.5	.005
65	01457000	NT	NT	NT	--	--	--	--	--	--	--	--
66	01457400	UP	UP	SKEN	39	3.1	1.7	.003	39	3.0	1.6	.010
67	01457500	NT	NT	NT	--	--	--	--	--	--	--	--
68	01461000	NSIG	NSIG	SKEN	37	.95	.98	.483	37	.86	.89	.424
69	01463500	NSIG	NSIG	SKEN	40	0	0	1.000	40	.34	.36	.754
70	01463620	NSIG	NSIG	SKEN	40	.15	.22	.556	38	- .30	- .44	.962
71	01464000	NT	NT	NT	--	--	--	--	--	--	--	--
72	01464500	NSIG	NSIG	SKEN	40	- .066	- .072	1.000	40	- .46	- .50	.687
73	01464515	NSIG	NSIG	SKEN	40	.55	.63	.473	40	- .19	- .22	.893
74	01465850	NSIG	NSIG	SKEN	36	- .13	- .27	.366	36	- .54	-1.2	.569
75	01466500	NT	NT	NT	--	--	--	--	--	--	--	--
76	01467000	NT	NT	NT	--	--	--	--	--	--	--	--
77	01467069	NSIG	NSIG	SKEN	40	0	0	1.000	40	2.9	1.7	.264
78	01467081	NSIG	UP	SKEN	40	2.0	1.0	.303	40	12	6.3	.098
79	01467150	NT	NT	NT	--	--	--	--	--	--	--	--
80	01467329	UP	UP	SKEN	40	1.9	2.4	.000	40	3.3	4.2	.000
81	01477120	UP	NSIG	SKEN	40	2.5	2.4	.001	40	2.4	2.3	.118
82	01477510	UP	UP	SKEN	40	2.3	2.2	.009	40	3.4	3.3	.054
83	01482500	UP	NSIG	SKEN	39	2.2	1.8	.071	39	3.2	2.6	.195

Appendix 19. Summary statistics and results of trend tests for dissolved sodium at selected surface-water-quality stations in New Jersey, water years 1986-95

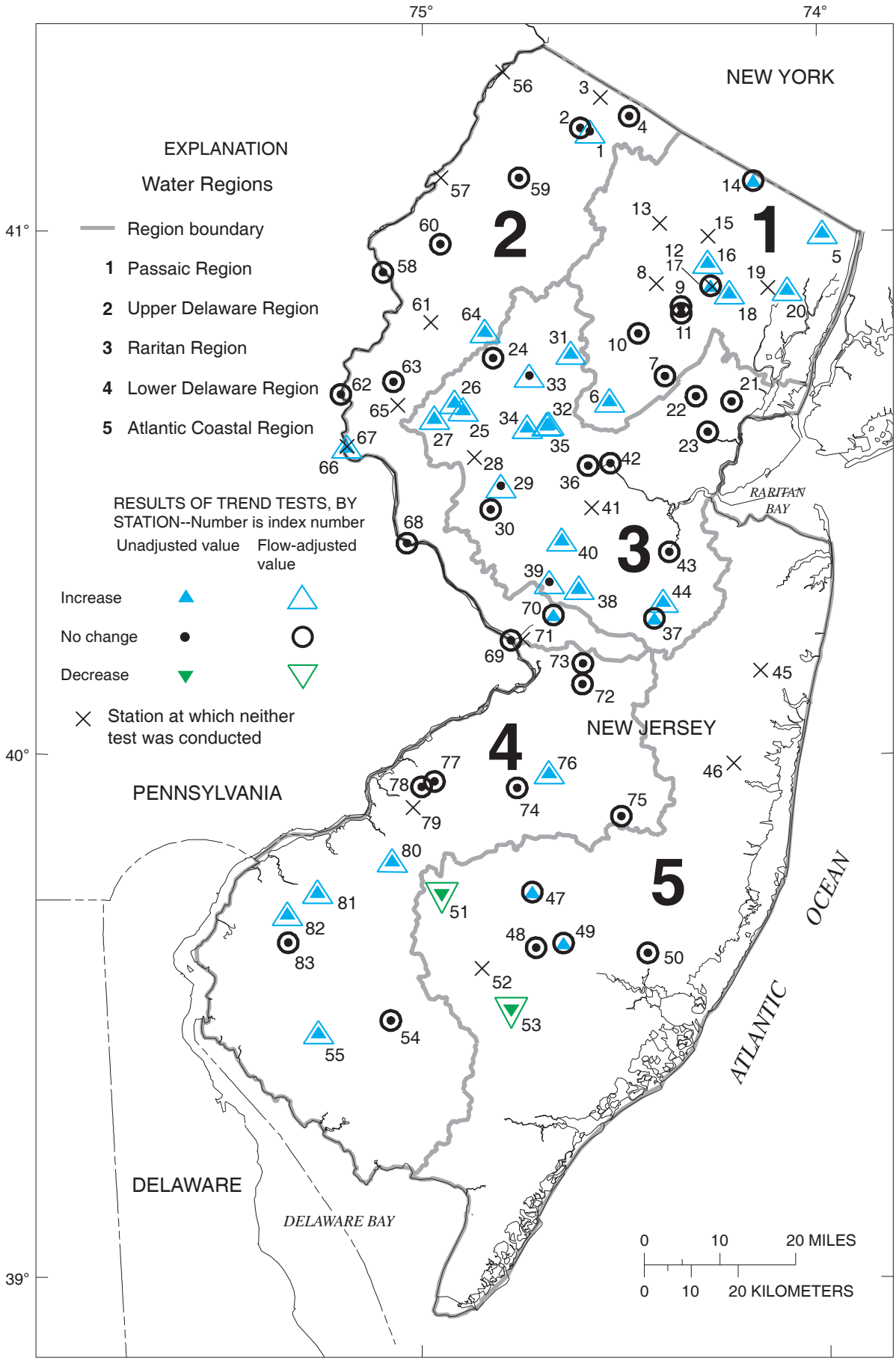

Figure 19-1. Results of trend tests for dissolved sodium at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 19a. Summary statistics for dissolved sodium at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter as Na and are rounded to two significant figures]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	53	53	0	14	23	24	40
2	01367910	55	55	0	11	15	15	20
3	01368000	26	26	0	14	20	20	27
4	01368950	54	54	0	14	32	31	48
5	01377000	55	54	0	10	35	36	86
6	01379000	55	55	0	9.5	19	20	43
7	01379500	55	55	0	14	42	49	150
8	01380500	33	31	0	11	17	18	26
9	01381200	54	52	0	14	25	28	46
10	01381500	55	55	0	6.8	23	24	67
11	01381800	54	53	0	8.9	31	33	96
12	01382000	133	109	0	12	36	41	140
13	01382500	25	25	0	8.5	16	16	24
14	01387500	55	54	0	12	32	35	63
15	01388000	125	100	0	13	27	28	62
16	01388600	135	109	0	13	24	26	81
17	01389005	114	92	0	13	34	38	76
18	01389500	139	110	0	13	32	35	90
19	01389880	26	26	0	17	40	40	69
20	01391500	55	54	0	23	45	46	86
21	01393450	54	54	0	13	46	72	670
22	01394500	55	55	0	13	35	53	410
23	01395000	55	54	0	8.4	28	36	140
24	01396280	55	55	0	8.0	13	13	22
25	01396535	55	55	0	6.5	12	12	30
26	01396588	55	54	0	6.9	9.3	9.4	13
27	01396660	55	54	0	6.0	8.3	8.9	18
28	01397000	25	25	0	6.8	12	12	20
29	01397400	55	55	0	8.3	16	17	32
30	01398000	54	54	0	11	17	21	67
31	01398260	55	54	0	7.5	16	18	50
32	01399120	55	55	0	8.1	14	15	33
33	01399500	55	54	0	10	18	18	26
34	01399700	55	55	0	5.9	11	11	29
35	01399780	55	55	0	5.7	14	14	34
36	01400500	55	54	0	8.2	14	14	37
37	01400540	55	55	0	4.7	6.3	6.7	18
38	01400650	55	55	0	4.1	14	16	38
39	01401000	60	55	0	9.0	15	17	55
40	01401600	60	58	0	5.7	14	16	43
41	01402000	26	26	0	9.8	19	18	32
42	01403300	40	40	0	4.9	17	17	32
43	01405302	56	55	0	4.0	18	20	52
44	01405340	54	54	0	4.4	7.0	7.4	11
45	01408000	26	26	0	6.2	7.7	8.3	14
46	01408500	46	46	0	3.0	5.8	5.7	7.7
47	01409387	55	55	0	1.9	3.0	3.0	4.5
48	01409416	54	53	0	3.4	11	12	25
49	01409500	55	54	0	1.8	2.6	2.6	4.1
50	01410150	53	53	0	1.5	3.0	3.0	3.9
51	01410784	55	54	0	3.7	6.5	8.0	27

Table 19a. Summary statistics for dissolved sodium at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter as Na and are rounded to two significant figures]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
52	01411000	25	25	0	3.8	5.1	5.5	10
53	01411110	55	54	0	2.9	4.5	4.5	7.4
54	01411500	59	59	0	4.3	5.2	5.2	6.5
55	01412800	55	55	0	6.5	11	12	21
56	01438500	26	26	0	3.9	5.5	5.7	9.4
57	01440000	15	15	0	3.5	8.0	7.6	11
58	01443000	53	53	0	2.9	5.4	5.5	8.8
59	01443440	55	54	0	14	23	24	41
60	01443500	55	55	0	13	18	18	26
61	01445500	25	25	0	10	15	16	26
62	01447000	55	55	0	4.0	7.2	7.2	12
63	01455200	55	54	0	5.5	9.9	10	16
64	01456200	53	53	0	14	21	22	33
65	01457000	26	26	0	11	17	17	22
66	01457400	55	55	0	9.4	15	15	23
67	01457500	25	25	0	4.8	9.2	9.6	15
68	01461000	55	55	0	4.7	9.0	9.1	23
69	01463500	59	48	0	4.9	8.8	9.0	14
70	01463620	55	55	0	3.1	6.3	6.5	11
71	01464000	27	27	0	13	23	24	52
72	01464500	54	54	0	4.3	8.1	8.5	16
73	01464515	55	55	0	3.8	7.4	7.6	18
74	01465850	54	54	0	3.2	4.6	4.6	6.8
75	01466500	113	103	0	1.2	1.8	1.9	3.0
76	01467000	55	55	0	2.6	3.3	3.4	5.6
77	01467069	54	54	0	7.0	15	21	160
78	01467081	55	55	0	6.9	26	28	150
79	01467150	26	26	0	9.0	11	15	78
80	01467329	54	54	0	4.2	10	11	20
81	01477120	55	55	0	4.7	7.1	7.5	12
82	01477510	55	55	0	4.1	5.2	5.3	7.6
83	01482500	54	54	0	4.3	7.6	7.5	18

Table 19b. Summary of trends in dissolved sodium at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter as Na; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	UP	SKEN	39	0.41	1.7	0.122	39	0.52	2.1	0.096
2	01367910	NSIG	NSIG	SKEN	40	0	0	.552	40	.065	.44	.531
3	01368000	NT	NT	NT	--	--	--	--	--	--	--	--
4	01368950	NSIG	NSIG	SKEN	40	0	0	.857	39	.41	1.3	.579
5	01377000	UP	UP	SKEN	40	1.2	3.2	.043	40	1.1	3.1	.044
6	01379000	UP	UP	SKEN	40	.75	3.8	.031	40	.92	4.7	.018
7	01379500	NSIG	NSIG	SKEN	40	1.4	2.8	.395	40	1.0	2.1	.502
8	01380500	NT	NT	NT	--	--	--	--	--	--	--	--
9	01381200	NSIG	NSIG	SKEN	39	.69	2.4	.121	39	.66	2.4	.105
10	01381500	NSIG	NSIG	SKEN	40	- .16	- .68	.787	40	.003	.014	1.000
11	01381800	NSIG	NSIG	SKEN	40	.47	1.4	.281	40	.34	1.0	.348
12	01382000	UP	NSIG	SKEN	40	2.7	6.4	.025	40	1.2	2.8	.195
13	01382500	NT	NT	NT	--	--	--	--	--	--	--	--
14	01387500	UP	NSIG	SKEN	40	.84	2.4	.079	40	.71	2.0	.166
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	UP	UP	SKEN	40	1.0	3.9	.002	40	.91	3.5	.002
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	UP	UP	SKEN	40	2.2	6.2	.001	40	2.2	6.3	.000
19	01389880	NT	NT	NT	--	--	--	--	--	--	--	--
20	01391500	UP	UP	SKEN	40	.60	1.3	.027	40	.72	1.6	.044
21	01393450	NSIG	NSIG	SKEN	39	0	0	1.000	39	- .18	- .25	1.000
22	01394500	NSIG	NSIG	SKEN	40	.45	.84	.366	40	.054	.10	.964
23	01395000	NSIG	NSIG	SKEN	40	0	0	.893	40	-1.2	-3.5	.227
24	01396280	NSIG	NSIG	SKEN	40	0	0	.209	40	.029	.22	.893
25	01396535	UP	UP	SKEN	40	.17	1.4	.084	40	.27	2.2	.028
26	01396588	UP	UP	SKEN	40	.23	2.4	.003	40	.43	4.6	.020
27	01396660	UP	UP	SKEN	40	.20	2.2	.008	40	.29	3.2	.008
28	01397000	NT	NT	NT	--	--	--	--	--	--	--	--
29	01397400	NSIG	UP	SKEN	40	.47	2.8	.223	40	.52	3.1	.081
30	01398000	NSIG	NSIG	SKEN	40	- .32	-1.5	.500	40	.16	.80	.687
31	01398260	UP	UP	SKEN	40	.64	3.5	.027	40	.91	5.0	.044
32	01399120	UP	UP	SKEN	40	.43	2.9	.029	40	.61	4.1	.044
33	01399500	NSIG	UP	SKEN	40	.39	2.1	.113	40	.66	3.6	.054
34	01399700	UP	UP	SKEN	40	.39	3.4	.004	40	.42	3.7	.007
35	01399780	UP	UP	SKEN	40	.38	2.7	.051	39	.41	3.0	.042
36	01400500	NSIG	NSIG	SKEN	40	.11	.76	.360	40	.19	1.4	.128
37	01400540	UP	NSIG	SKEN	40	.099	1.5	.064	40	- .003	- .050	1.000
38	01400650	UP	UP	SKEN	40	1.2	7.2	.001	40	1.3	8.1	.001
39	01401000	NSIG	UP	SKEN	40	.46	2.7	.131	40	1.5	8.5	.028
40	01401600	UP	UP	SKEN	40	1.2	7.7	.005	40	1.3	7.9	.023
41	01402000	NT	NT	NT	--	--	--	--	--	--	--	--
42	01403300	NSIG	NSIG	SKEN	40	.38	2.2	.418	40	.32	1.8	.140
43	01405302	NSIG	NSIG	SKEN	40	0	0	.649	40	.021	.11	1.000
44	01405340	UP	UP	SKEN	40	.32	4.4	.001	40	.26	3.6	.054
45	01408000	NT	NT	NT	--	--	--	--	--	--	--	--
46	01408500	NT	NT	NT	--	--	--	--	--	--	--	--

Table 19b. Summary of trends in dissolved sodium at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter as Na; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
47	01409387	UP	NSIG	SKEN	39	.075	2.5	.019	39	.040	1.3	.179
48	01409416	NSIG	NSIG	SKEN	40	- .32	-2.7	.146	40	- .33	-2.8	.140
49	01409500	UP	NSIG	SKEN	40	.032	1.2	.075	40	.025	.98	.325
50	01410150	NSIG	NSIG	SKEN	39	0	0	.888	39	- .018	- .61	.211
51	01410784	DOWN	DOWN	SKEN	40	- .81	-10	.000	40	- .58	-7.3	.000
52	01411000	NT	NT	NT	--	--	--	--	--	--	--	--
53	01411110	DOWN	DOWN	SKEN	40	- .055	-1.2	.046	40	- .052	-1.2	.067
54	01411500	NSIG	NSIG	SKEN	40	0	0	.522	40	.001	.012	.964
55	01412800	UP	UP	SKEN	40	.25	2.1	.036	40	.23	2.0	.032
56	01438500	NT	NT	NT	--	--	--	--	--	--	--	--
57	01440000	NT	NT	NT	--	--	--	--	--	--	--	--
58	01443000	NSIG	NSIG	SKEN	39	.085	1.5	.193	39	.073	1.3	.309
59	01443440	NSIG	NSIG	SKEN	40	.44	1.8	.189	40	.54	2.3	.195
60	01443500	NSIG	NSIG	SKEN	40	0	0	.820	40	.071	.39	.823
61	01445500	NT	NT	NT	--	--	--	--	--	--	--	--
62	01447000	NSIG	NSIG	SKEN	40	.068	.94	.559	40	.077	1.1	.166
63	01455200	NSIG	NSIG	SKEN	40	.039	.39	.588	40	.090	.90	.304
64	01456200	UP	UP	SKEN	38	.60	2.7	.032	38	.57	2.6	.039
65	01457000	NT	NT	NT	--	--	--	--	--	--	--	--
66	01457400	UP	UP	SKEN	40	.36	2.4	.000	40	.41	2.7	.001
67	01457500	NT	NT	NT	--	--	--	--	--	--	--	--
68	01461000	NSIG	NSIG	SKEN	40	.14	1.6	.303	40	.10	1.1	.447
69	01463500	NSIG	NSIG	SKEN	40	.064	.71	.364	40	.073	.81	.348
70	01463620	UP	NSIG	SKEN	40	.21	3.2	.005	38	.19	2.9	.137
71	01464000	NT	NT	NT	--	--	--	--	--	--	--	--
72	01464500	NSIG	NSIG	SKEN	40	- .27	-3.2	.179	40	- .28	-3.3	.118
73	01464515	NSIG	NSIG	SKEN	40	.13	1.6	.244	40	.051	.67	.687
74	01465850	NSIG	NSIG	SKEN	40	.026	.56	.391	40	.022	.48	.591
75	01466500	NSIG	NSIG	SKEN	39	0	0	.773	38	.003	.18	.810
76	01467000	UP	UP	SKEN	39	.060	1.8	.008	39	.037	1.1	.016
77	01467069	NSIG	NSIG	SKEN	40	0	0	.682	40	.32	1.5	.687
78	01467081	NSIG	NSIG	SKEN	40	0	0	.964	40	1.0	3.5	.395
79	01467150	NT	NT	NT	--	--	--	--	--	--	--	--
80	01467329	UP	UP	SKEN	40	.27	2.5	.001	40	.43	4.1	.000
81	01477120	UP	UP	SKEN	40	.41	5.5	.000	40	.42	5.7	.001
82	01477510	UP	UP	SKEN	40	.14	2.5	.000	40	.17	3.1	.008
83	01482500	NSIG	NSIG	SKEN	39	.078	1.0	.228	39	.14	1.8	.195

Appendix 20. Summary statistics and results of trend tests for dissolved potassium at selected surface-water-quality stations in New Jersey, water years 1986-95

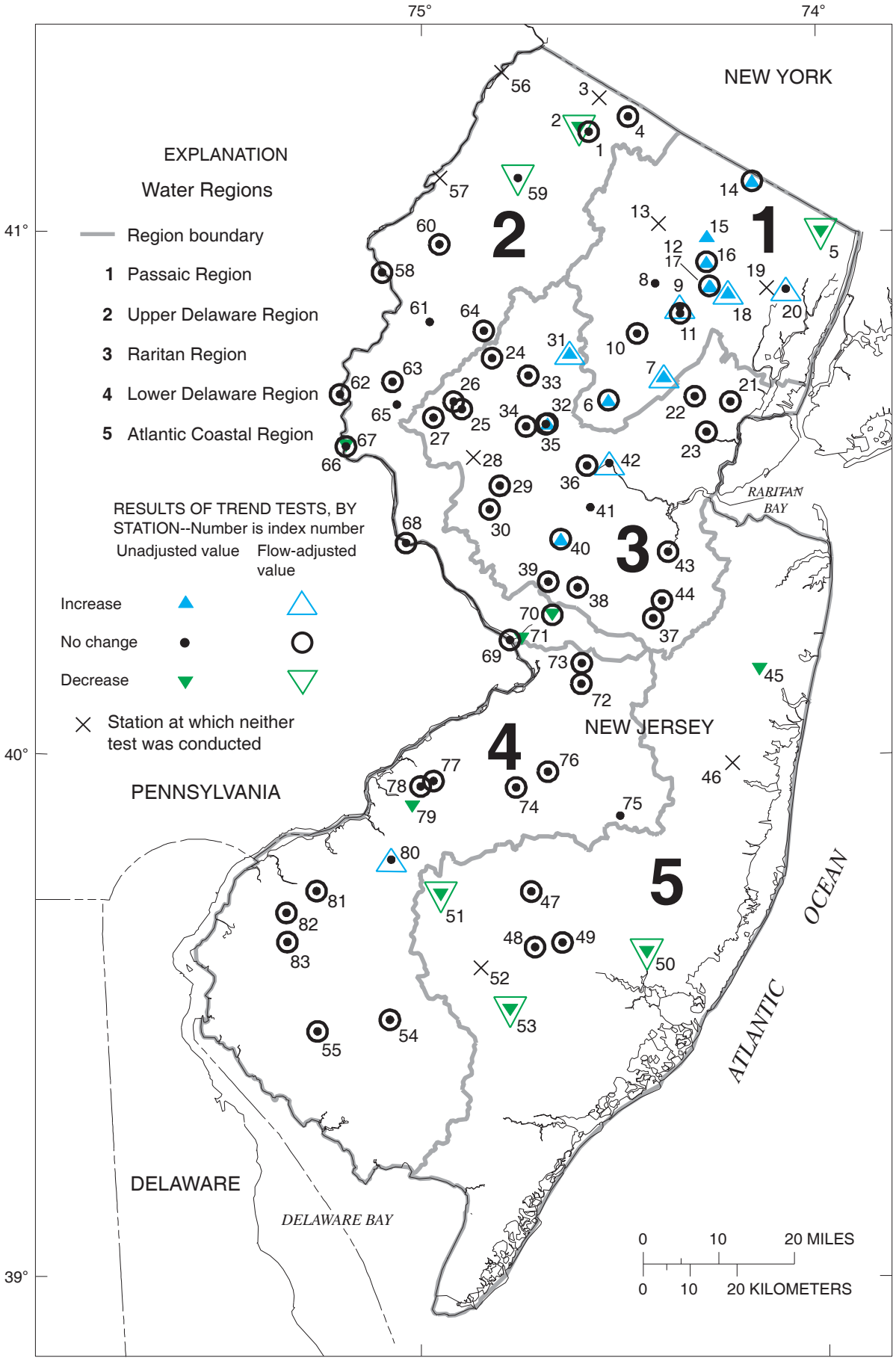

Figure 20-1. Results of trend tests for dissolved potassium at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 20a. Summary statistics for dissolved potassium at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter as K and are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.1 milligrams per liter; <, less than]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	53	53	0	0.8	1.6	1.9	4.5
2	01367910	55	55	0	1.1	1.8	2.0	3.5
3	01368000	26	26	0	1.3	2.2	2.2	3.7
4	01368950	54	54	0	.8	1.5	1.6	3.8
5	01377000	55	54	0	1.3	1.8	1.9	2.5
6	01379000	55	55	0	.6	1.6	1.7	3.3
7	01379500	55	55	0	1.3	2.3	2.6	5.4
8	01380500	33	31	0	.8	1.1	1.2	1.7
9	01381200	54	52	0	1.0	2.6	2.9	5.6
10	01381500	55	55	0	1.4	2.1	2.3	3.6
11	01381800	55	53	0	1.5	2.6	2.8	4.3
12	01382000	133	109	.9	< .1	3.0	3.5	7.4
13	01382500	25	25	0	.4	.8	.9	1.5
14	01387500	55	54	0	.8	1.4	1.7	3.4
15	01388000	124	100	0	.6	1.4	1.4	3.2
16	01388600	135	109	0	.7	1.5	1.5	2.7
17	01389005	115	93	0	1.3	2.8	3.0	7.7
18	01389500	139	110	0	1.2	2.8	2.9	7.3
19	01389880	26	26	0	1.3	3.5	3.3	6.0
20	01391500	55	54	0	2.1	3.9	4.0	6.3
21	01393450	54	54	0	1.0	2.4	2.5	6.0
22	01394500	55	55	0	1.1	2.1	2.1	4.0
23	01395000	55	54	0	1.3	2.0	2.0	3.8
24	01396280	55	55	0	.5	1.5	1.5	3.0
25	01396535	55	55	0	.5	1.4	1.5	3.1
26	01396588	55	54	0	.9	1.3	1.4	2.4
27	01396660	55	54	0	1.0	1.3	1.4	2.5
28	01397000	25	25	0	1.2	1.5	1.8	4.2
29	01397400	55	55	0	.9	2.0	2.1	5.6
30	01398000	55	55	0	1.3	2.1	2.4	11.
31	01398260	55	54	0	1.2	1.9	1.9	3.4
32	01399120	55	55	0	1.0	1.7	1.9	6.6
33	01399500	55	54	0	1.0	1.7	1.9	7.5
34	01399700	55	55	0	1.1	1.7	1.8	4.0
35	01399780	55	55	0	.3	1.6	1.9	7.6
36	01400500	55	54	0	1.1	1.8	1.9	3.1
37	01400540	55	55	0	1.9	2.3	2.5	3.5
38	01400650	55	55	0	1.4	3.5	3.6	5.5
39	01401000	60	55	0	1.4	2.4	2.5	4.2
40	01401600	60	58	0	1.3	2.2	2.4	4.5
41	01402000	26	26	0	1.9	3.5	3.5	5.5
42	01403300	40	40	0	1.4	2.6	2.8	4.1
43	01405302	56	55	1.8	< .1	4.0	4.2	6.2
44	01405340	55	55	0	1.8	2.6	2.7	3.6
45	01408000	26	26	0	1.1	2.9	2.9	6.0
46	01408500	47	47	0	.7	1.1	1.2	2.5
47	01409387	55	55	1.8	< .1	.8	.9	1.8
48	01409416	55	54	0	2.0	3.9	3.7	5.2
49	01409500	55	54	0	.5	.8	.9	1.7

Table 20a. Summary statistics for dissolved potassium at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter as K and are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.1 milligrams per liter; <, less than]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
50	01410150	54	54	0	.3	.6	.7	11.
51	01410784	55	54	0	1.2	1.9	2.1	6.7
52	01411000	25	25	0	.7	1.1	1.3	2.8
53	01411110	55	54	0	.7	1.1	1.2	1.6
54	01411500	59	59	0	1.4	1.9	1.8	2.4
55	01412800	55	55	0	2.5	4.3	4.5	6.3
56	01438500	26	26	0	.1	.9	.9	1.3
57	01440000	15	15	6.7	< .1	.6	.7	1.3
58	01443000	53	53	0	.6	.8	.9	1.6
59	01443440	55	54	0	1.0	1.8	1.8	3.5
60	01443500	55	55	0	.9	1.4	1.5	2.6
61	01445500	26	26	0	1.2	1.9	2.0	3.6
62	01447000	55	55	0	.5	1.1	1.1	1.6
63	01455200	55	54	0	1.3	1.9	2.0	3.7
64	01456200	53	53	0	1.0	1.4	1.6	2.8
65	01457000	26	26	0	1.1	1.6	1.6	2.8
66	01457400	54	54	0	1.1	1.6	1.7	2.8
67	01457500	25	25	0	.9	1.4	1.4	2.8
68	01461000	55	55	0	.8	1.4	1.6	22.
69	01463500	59	48	0	.7	1.4	1.4	2.3
70	01463620	55	55	0	1.9	2.6	2.7	13.
71	01464000	27	27	0	2.1	4.1	4.3	6.6
72	01464500	55	55	0	1.3	2.8	2.9	4.6
73	01464515	55	55	0	2.2	3.5	3.6	5.5
74	01465850	53	53	0	1.0	1.6	1.7	3.1
75	01466500	112	102	5.9	< .1	.2	.3	1.2
76	01467000	54	54	0	.4	.8	.9	1.6
77	01467069	55	55	0	3.1	4.8	4.8	7.3
78	01467081	55	55	0	3.3	7.9	8.0	13.
79	01467150	26	26	0	1.9	4.1	4.2	10.
80	01467329	54	54	0	2.0	2.7	2.8	3.8
81	01477120	55	55	0	2.8	3.9	3.9	5.4
82	01477510	55	55	0	2.6	3.7	3.8	5.4
83	01482500	54	54	0	3.5	5.8	5.8	9.8

Table 20b. Summary of trends in dissolved potassium at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter as K; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	39	0	0	0.851	39	-0.029	-1.6	0.355
2	01367910	DOWN	DOWN	SKEN	40	- .057	-2.8	.027	40	- .084	-4.2	.004
3	01368000	NT	NT	NT	--	--	--	--	--	--	--	--
4	01368950	NSIG	NSIG	SKEN	40	- .008	- .46	.465	39	- .011	- .65	.459
5	01377000	DOWN	DOWN	SKEN	40	- .054	-2.9	.000	40	- .048	-2.6	.000
6	01379000	UP	NSIG	SKEN	40	.034	2.0	.084	40	.031	1.8	.118
7	01379500	UP	UP	SKEN	40	.046	1.8	.097	40	.043	1.7	.067
8	01380500	NSIG	NT	TOBT	31	- .012	- .98	.402	--	--	--	--
9	01381200	NSIG	UP	SKEN	39	.051	1.7	.118	39	.038	1.3	.046
10	01381500	NSIG	NSIG	SKEN	40	0	0	.854	40	0	.001	1.000
11	01381800	NSIG	NSIG	SKEN	40	- .018	- .66	.471	40	- .014	- .52	.561
12	01382000	UP	NSIG	SKEN	40	.19	5.3	.017	40	.058	1.7	.210
13	01382500	NT	NT	NT	--	--	--	--	--	--	--	--
14	01387500	UP	NSIG	SKEN	40	.057	3.4	.064	40	.017	.99	.623
15	01388000	UP	NT	TOBT	100	.031	2.2	.066	--	--	--	--
16	01388600	UP	NSIG	SKEN	40	.027	1.8	.012	40	.006	.39	.687
17	01389005	UP	NT	TOBT	93	.11	3.6	.066	--	--	--	--
18	01389500	UP	UP	SKEN	40	.19	6.6	.000	40	.089	3.0	.001
19	01389880	NT	NT	NT	--	--	--	--	--	--	--	--
20	01391500	NSIG	UP	SKEN	40	.057	1.4	.501	40	.045	1.1	.081
21	01393450	NSIG	NSIG	SKEN	39	.028	1.1	.514	39	.026	1.0	.579
22	01394500	NSIG	NSIG	SKEN	40	0	0	.750	40	.008	.36	.687
23	01395000	NSIG	NSIG	SKEN	40	.023	1.1	.237	40	.021	1.0	.166
24	01396280	NSIG	NSIG	SKEN	40	0	0	.816	40	- .024	-1.6	.179
25	01396535	NSIG	NSIG	SKEN	40	0	0	.582	40	.005	.36	.823
26	01396588	NSIG	NSIG	SKEN	40	0	0	.582	40	- .010	- .70	.788
27	01396660	NSIG	NSIG	SKEN	40	0	0	.353	40	- .015	-1.0	.371
28	01397000	NT	NT	NT	--	--	--	--	--	--	--	--
29	01397400	NSIG	NSIG	SKEN	40	0	0	.964	40	- .006	- .31	.823
30	01398000	NSIG	NSIG	SKEN	40	- .024	-1.0	.415	40	- .028	-1.2	.447
31	01398260	UP	UP	SKEN	40	.049	2.5	.051	40	.039	2.0	.044
32	01399120	UP	NSIG	SKEN	40	.024	1.3	.081	40	.027	1.5	.140
33	01399500	NSIG	NSIG	SKEN	40	.022	1.2	.389	40	.016	.84	.561
34	01399700	NSIG	NSIG	SKEN	40	.015	.84	.619	40	.017	.95	.348
35	01399780	NSIG	NSIG	SKEN	40	0	0	.963	39	- .007	- .39	.711
36	01400500	NSIG	NSIG	SKEN	40	- .029	-1.6	.172	40	- .021	-1.1	.195
37	01400540	NSIG	NSIG	SKEN	40	0	0	.964	40	.002	.066	.964
38	01400650	NSIG	NSIG	SKEN	40	0	0	.857	40	.003	.082	1.000
39	01401000	NSIG	NSIG	SKEN	40	.025	1.0	.367	40	.024	.95	.283
40	01401600	UP	NSIG	SKEN	40	.067	2.8	.029	40	.007	.29	.561
41	01402000	NSIG	NT	TOBT	26	- .027	- .76	.736	--	--	--	--
42	01403300	NSIG	UP	SKEN	40	.050	1.8	.190	40	.058	2.1	.011
43	01405302	NSIG	NSIG	SKEN	40	.095	2.3	.282	40	.047	1.1	.561
44	01405340	NSIG	NSIG	SKEN	40	0	0	.679	40	- .004	- .14	.788
45	01408000	DOWN	NT	TOBT	26	- .18	-6.0	.002	--	--	--	--
46	01408500	NT	NT	NT	--	--	--	--	--	--	--	--

Table 20b. Summary of trends in dissolved potassium at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter as K; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; TOBT, Tobit regression; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
47	01409387	NSIG	NSIG	SKEN	40	0	0	.205	40	- .011	-1.4	.166
48	01409416	NSIG	NSIG	SKEN	40	0	0	.857	40	.010	.26	.687
49	01409500	NSIG	NSIG	SKEN	40	0	0	.609	40	- .004	- .49	.474
50	01410150	DOWN	DOWN	SKEN	38	- .013	-1.8	.007	38	- .011	-1.5	.084
51	01410784	DOWN	DOWN	SKEN	40	- .15	-7.1	.000	40	- .15	-7.0	.000
52	01411000	NT	NT	NT	--	--	--	--	--	--	--	--
53	01411110	DOWN	DOWN	SKEN	40	- .021	-1.8	.000	40	- .023	-2.0	.000
54	01411500	NSIG	NSIG	SKEN	40	0	0	.400	40	.002	.12	.754
55	01412800	NSIG	NSIG	SKEN	40	.032	.72	.175	40	.024	.54	.348
56	01438500	NT	NT	NT	--	--	--	--	--	--	--	--
57	01440000	NT	NT	NT	--	--	--	--	--	--	--	--
58	01443000	NSIG	NSIG	SKEN	39	- .015	-1.7	.183	39	- .015	-1.6	.267
59	01443440	NSIG	DOWN	SKEN	40	- .011	- .62	.217	40	- .019	-1.0	.067
60	01443500	NSIG	NSIG	SKEN	40	0	0	.431	40	- .012	- .84	.140
61	01445500	NSIG	NT	TOBT	26	- .052	-2.6	.190	--	--	--	--
62	01447000	NSIG	NSIG	SKEN	40	0	0	.848	40	- .002	- .16	.893
63	01455200	NSIG	NSIG	SKEN	40	0	0	.714	40	.003	.14	.823
64	01456200	NSIG	NSIG	SKEN	38	.018	1.2	.262	38	.008	.52	.533
65	01457000	NSIG	NT	TOBT	26	- .027	-1.7	.315	--	--	--	--
66	01457400	NSIG	NSIG	SKEN	39	0	0	.700	39	- .005	- .31	.677
67	01457500	DOWN	NT	TOBT	25	- .069	-4.8	.008	--	--	--	--
68	01461000	NSIG	NSIG	SKEN	39	0	0	.775	39	- .022	-1.4	.116
69	01463500	NSIG	NSIG	SKEN	40	0	0	.677	40	- .007	- .52	.687
70	01463620	DOWN	NSIG	SKEN	40	- .040	-1.5	.026	38	- .017	- .63	.414
71	01464000	DOWN	NT	TOBT	27	- .18	-4.3	.034	--	--	--	--
72	01464500	NSIG	NSIG	SKEN	40	.015	.51	.524	40	- .008	- .26	.823
73	01464515	NSIG	NSIG	SKEN	40	- .012	- .35	.526	40	- .003	- .078	.893
74	01465850	NSIG	NSIG	SKEN	39	0	0	.775	39	.010	.61	.579
75	01466500	NSIG	NT	TOBT	102	- .014	-2.5	.159	--	--	--	--
76	01467000	NSIG	NSIG	SKEN	39	0	0	.809	39	- .007	- .83	.487
77	01467069	NSIG	NSIG	SKEN	40	- .040	- .83	.301	40	- .033	- .67	.264
78	01467081	NSIG	NSIG	SKEN	40	.098	1.2	.163	40	.11	1.4	.283
79	01467150	DOWN	NT	TOBT	26	- .23	-5.4	.005	--	--	--	--
80	01467329	NSIG	UP	SKEN	40	.016	.58	.166	40	.025	.88	.012
81	01477120	NSIG	NSIG	SKEN	40	.029	.73	.471	40	.016	.42	.754
82	01477510	NSIG	NSIG	SKEN	40	0	0	.583	40	0	- .007	1.000
83	01482500	NSIG	NSIG	SKEN	39	.12	2.0	.104	39	.12	2.1	.229

Appendix 21. Summary statistics and results of trend tests for total hardness at selected surface-water-quality stations in New Jersey, water years 1986-95

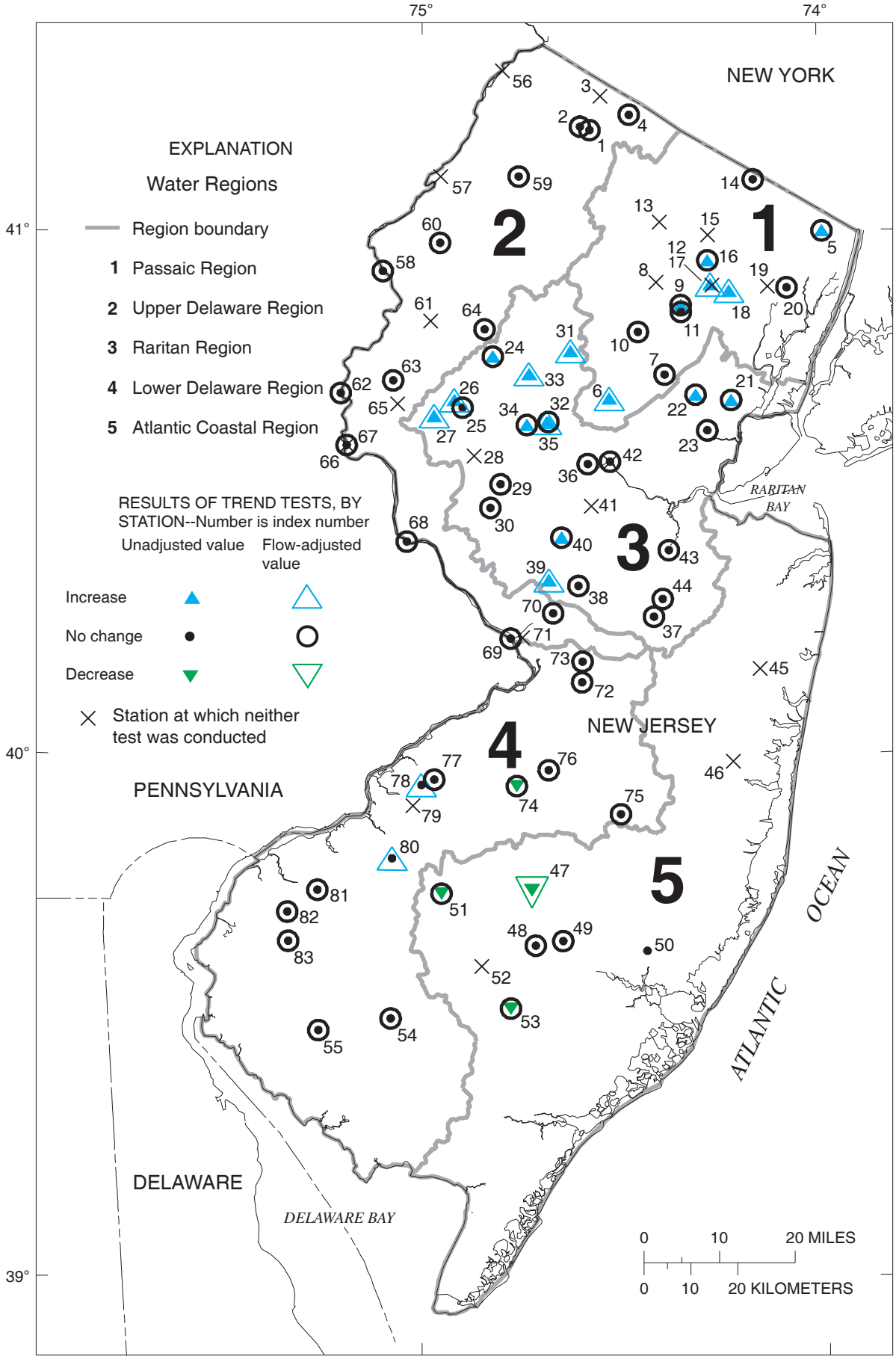

Figure 21-1. Results of trend tests for total hardness at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 21a. Summary statistics for total hardness at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter as CaCO3 and are rounded to two significant figures or, if less than two significant figures, values are rounded to 1 milligram per liter]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	53	53	0	82	170	170	250
2	01367910	55	55	0	56	85	90	140
3	01368000	26	26	0	80	150	140	200
4	01368950	54	54	0	120	220	220	280
5	01377000	55	54	0	76	110	110	150
6	01379000	55	55	0	41	73	71	110
7	01379500	55	55	0	42	92	90	160
8	01380500	33	31	0	41	63	70	120
9	01381200	54	52	0	48	88	95	150
10	01381500	55	55	0	35	91	90	130
11	01381800	54	53	0	43	110	110	170
12	01382000	133	109	0	45	100	100	180
13	01382500	25	25	0	28	51	52	77
14	01387500	55	54	0	40	89	93	140
15	01388000	125	100	0	47	86	87	130
16	01388600	135	109	0	48	81	80	110
17	01389005	114	92	0	52	97	100	170
18	01389500	139	110	0	46	96	99	170
19	01389880	26	26	0	59	110	110	170
20	01391500	55	54	0	99	190	180	210
21	01393450	54	54	0	37	200	180	280
22	01394500	55	55	0	46	180	160	220
23	01395000	55	54	0	41	150	140	210
24	01396280	55	55	0	46	87	84	120
25	01396535	55	55	0	48	87	87	130
26	01396588	55	54	0	37	54	53	68
27	01396660	55	54	0	39	69	69	100
28	01397000	25	25	0	48	76	75	100
29	01397400	55	55	0	46	85	83	120
30	01398000	54	54	0	45	120	120	240
31	01398260	55	54	0	30	68	68	110
32	01399120	55	55	0	46	76	76	100
33	01399500	55	54	0	34	67	66	91
34	01399700	55	55	0	39	73	77	110
35	01399780	55	55	0	35	75	74	110
36	01400500	55	54	0	42	82	80	100
37	01400540	55	55	0	25	30	30	39
38	01400650	55	55	0	23	47	45	56
39	01401000	60	55	0	28	70	72	110
40	01401600	60	58	0	34	71	77	230
41	01402000	26	26	0	36	67	66	94
42	01403300	40	40	0	33	81	77	110
43	01405302	56	55	0	21	60	64	100
44	01405340	54	54	0	24	34	34	40
45	01408000	26	26	0	39	73	71	90
46	01408500	46	46	0	8	11	11	15
47	01409387	55	55	0	4	6	7	13
48	01409416	54	53	0	13	23	22	32
49	01409500	55	54	0	4	8	8	17

Table 21a. Summary statistics for total hardness at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter as CaCO3 and are rounded to two significant figures or, if less than two significant figures, values are rounded to 1 milligram per liter]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
50	01410150	53	53	0	2	4	4	12
51	01410784	55	54	0	11	17	18	34
52	01411000	25	25	0	10	11	12	18
53	01411110	55	54	0	8	10	10	14
54	01411500	59	59	0	14	19	19	22
55	01412800	55	55	0	41	57	57	64
56	01438500	26	26	0	15	24	25	54
57	01440000	15	15	0	22	75	73	110
58	01443000	53	53	0	17	28	29	42
59	01443440	55	54	0	78	160	160	240
60	01443500	55	55	0	83	150	150	210
61	01445500	25	25	0	130	230	220	270
62	01447000	55	55	0	26	49	48	70
63	01455200	55	54	0	39	80	78	140
64	01456200	53	53	0	58	110	110	170
65	01457000	26	26	0	59	130	130	210
66	01457400	55	55	0	82	130	130	170
67	01457500	25	25	0	31	61	61	91
68	01461000	55	55	0	33	61	61	92
69	01463500	59	48	0	32	60	61	95
70	01463620	55	55	0	23	38	37	46
71	01464000	27	27	0	40	74	77	130
72	01464500	54	54	0	25	50	49	69
73	01464515	55	55	0	31	50	49	63
74	01465850	54	54	0	11	20	20	31
75	01466500	113	103	0	2	3	3	9
76	01467000	55	55	0	6	8	8	14
77	01467069	54	54	0	44	80	78	98
78	01467081	55	55	0	36	88	84	110
79	01467150	26	26	0	37	58	56	67
80	01467329	54	54	0	33	42	40	45
81	01477120	55	55	0	49	63	63	74
82	01477510	55	55	0	34	68	65	90
83	01482500	54	54	0	46	80	79	94

Table 21b. Summary of trends in total hardness at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter as CaCO3; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no signifiant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	39	0	0	0.705	39	0.49	0.28	0.711
2	01367910	NSIG	NSIG	SKEN	40	.39	.44	.556	40	.63	.71	.531
3	01368000	NT	NT	NT	--	--	--	--	--	--	--	--
4	01368950	NSIG	NSIG	SKEN	40	-1.2	- .54	.525	39	-3.1	-1.4	.781
5	01377000	UP	NSIG	SKEN	40	1.9	1.7	.004	40	2.1	1.9	.195
6	01379000	UP	UP	SKEN	40	2.0	2.8	.014	40	1.8	2.6	.098
7	01379500	NSIG	NSIG	SKEN	40	1.4	1.5	.124	40	1.1	1.2	.195
8	01380500	NT	NT	NT	--	--	--	--	--	--	--	--
9	01381200	UP	NSIG	SKEN	39	1.4	1.5	.088	39	1.1	1.1	.547
10	01381500	NSIG	NSIG	SKEN	40	.97	1.1	.294	40	1.4	1.6	.210
11	01381800	NSIG	NSIG	SKEN	40	0	0	.963	40	- .27	- .23	.687
12	01382000	UP	UP	SKEN	40	5.9	5.6	.035	40	3.3	3.2	.036
13	01382500	NT	NT	NT	--	--	--	--	--	--	--	--
14	01387500	NSIG	NSIG	SKEN	40	0	0	.552	40	- .31	- .34	.754
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	UP	NSIG	SKEN	40	1.8	2.2	.034	40	1.4	1.7	.304
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	UP	UP	SKEN	40	4.8	4.9	.001	40	4.5	4.5	.001
19	01389880	NT	NT	NT	--	--	--	--	--	--	--	--
20	01391500	NSIG	NSIG	SKEN	40	0	0	.376	40	1.3	.72	.420
21	01393450	UP	NSIG	SKEN	39	3.4	1.8	.083	39	4.4	2.4	.195
22	01394500	UP	NSIG	SKEN	40	3.1	1.9	.049	40	3.0	1.8	.106
23	01395000	NSIG	NSIG	SKEN	40	3.0	2.2	.162	40	- .38	- .27	1.000
24	01396280	UP	NSIG	SKEN	40	1.5	1.8	.082	40	- .57	- .68	.561
25	01396535	NSIG	NSIG	SKEN	40	1.1	1.3	.237	40	.97	1.1	.179
26	01396588	UP	UP	SKEN	40	.85	1.6	.017	40	1.9	3.5	.044
27	01396660	UP	UP	SKEN	40	1.5	2.3	.005	40	2.3	3.4	.023
28	01397000	NT	NT	NT	--	--	--	--	--	--	--	--
29	01397400	NSIG	NSIG	SKEN	40	.092	.11	.964	40	.58	.70	.591
30	01398000	NSIG	NSIG	SKEN	39	0	0	.743	39	2.5	2.1	.579
31	01398260	UP	UP	SKEN	40	2.9	4.2	.000	40	4.1	6.0	.002
32	01399120	UP	NSIG	SKEN	40	1.3	1.7	.064	40	1.3	1.8	.166
33	01399500	UP	UP	SKEN	40	1.8	2.8	.013	40	3.2	4.9	.006
34	01399700	UP	NSIG	SKEN	40	1.1	1.4	.058	40	1.5	1.9	.227
35	01399780	UP	UP	SKEN	40	1.3	1.7	.097	39	2.9	3.9	.012
36	01400500	NSIG	NSIG	SKEN	40	.61	.76	.720	40	.36	.45	.561
37	01400540	NSIG	NSIG	SKEN	40	0	0	.263	40	- .24	- .79	.720
38	01400650	NSIG	NSIG	SKEN	40	.27	.60	.258	40	.62	1.4	.561
39	01401000	UP	UP	SKEN	40	1.8	2.5	.031	40	6.5	9.0	.009
40	01401600	UP	NSIG	SKEN	40	3.8	4.9	.031	40	3.9	5.1	.166
41	01402000	NT	NT	NT	--	--	--	--	--	--	--	--
42	01403300	NSIG	NSIG	SKEN	40	- .27	- .35	.858	40	- .14	- .18	.823
43	01405302	NSIG	NSIG	SKEN	40	.59	.92	.471	40	.14	.22	.893
44	01405340	NSIG	NSIG	SKEN	39	0	0	.604	39	- .13	- .40	.610
45	01408000	NT	NT	NT	--	--	--	--	--	--	--	--
46	01408500	NT	NT	NT	--	--	--	--	--	--	--	--
47	01409387	DOWN	DOWN	SKEN	40	.000	.000	.072	40	- .11	-1.7	.089

Table 21b. Summary of trends in total hardness at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter as CaCO3; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no signifiant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
48	01409416	NSIG	NSIG	SKEN	39	.14	.64	.343	39	.31	1.4	.379
49	01409500	NSIG	NSIG	SKEN	40	0	0	1.000	40	- .11	-1.4	.395
50	01410150	NSIG	NT	SKEN	39	0	0	.166	--	--	--	--
51	01410784	DOWN	NSIG	SKEN	40	- .69	-3.8	.000	40	- .42	-2.3	.325
52	01411000	NT	NT	NT	--	--	--	--	--	--	--	--
53	01411110	DOWN	NSIG	SKEN	40	.000	.000	.097	40	- .11	-1.0	.166
54	01411500	NSIG	NSIG	SKEN	40	0	0	.118	40	.11	.55	.395
55	01412800	NSIG	NSIG	SKEN	40	0	0	.523	40	.18	.31	.754
56	01438500	NT	NT	NT	--	--	--	--	--	--	--	--
57	01440000	NT	NT	NT	--	--	--	--	--	--	--	--
58	01443000	NSIG	NSIG	SKEN	39	0	0	.743	39	- .14	- .49	.579
59	01443440	NSIG	NSIG	SKEN	40	2.3	1.4	.317	40	3.5	2.2	.304
60	01443500	NSIG	NSIG	SKEN	40	0	0	.553	40	1.8	1.2	.623
61	01445500	NT	NT	NT	--	--	--	--	--	--	--	--
62	01447000	NSIG	NSIG	SKEN	40	- .67	-1.4	.384	40	- .63	-1.3	.264
63	01455200	NSIG	NSIG	SKEN	40	.57	.72	.300	40	2.2	2.8	.166
64	01456200	NSIG	NSIG	SKEN	38	1.2	1.1	.355	38	1.9	1.7	.149
65	01457000	NT	NT	NT	--	--	--	--	--	--	--	--
66	01457400	NSIG	NSIG	SKEN	40	0	0	.548	40	.26	.20	.687
67	01457500	NT	NT	NT	--	--	--	--	--	--	--	--
68	01461000	NSIG	NSIG	SKEN	40	.15	.25	.787	40	.24	.40	.687
69	01463500	NSIG	NSIG	SKEN	40	0	0	.964	40	.20	.33	.754
70	01463620	NSIG	NSIG	SKEN	40	- .12	- .32	.526	38	- .38	-1.0	.313
71	01464000	NT	NT	NT	--	--	--	--	--	--	--	--
72	01464500	NSIG	NSIG	SKEN	40	.31	.64	.620	40	.001	.002	1.000
73	01464515	NSIG	NSIG	SKEN	40	- .46	- .94	.207	40	- .42	- .86	.561
74	01465850	DOWN	NSIG	SKEN	40	- .29	-1.4	.067	40	- .26	-1.3	.348
75	01466500	NSIG	NSIG	SKEN	39	0	0	.914	38	.025	.81	.596
76	01467000	NSIG	NSIG	SKEN	40	0	0	.421	40	.014	.17	.621
77	01467069	NSIG	NSIG	SKEN	40	.76	.97	.175	40	1.6	2.0	.140
78	01467081	NSIG	UP	SKEN	40	.81	.97	.345	40	3.0	3.5	.067
79	01467150	NT	NT	NT	--	--	--	--	--	--	--	--
80	01467329	NSIG	UP	SKEN	40	.14	.35	.102	40	.98	2.4	.011
81	01477120	NSIG	NSIG	SKEN	40	.48	.75	.192	40	.74	1.2	.304
82	01477510	NSIG	NSIG	SKEN	40	.87	1.3	.165	40	1.2	1.8	.304
83	01482500	NSIG	NSIG	SKEN	39	.87	1.1	.103	39	.70	.89	.487

Appendix 22. Summary statistics and results of trend tests for dissolved calcium at selected surface-water-quality stations in New Jersey, water years 1986-95

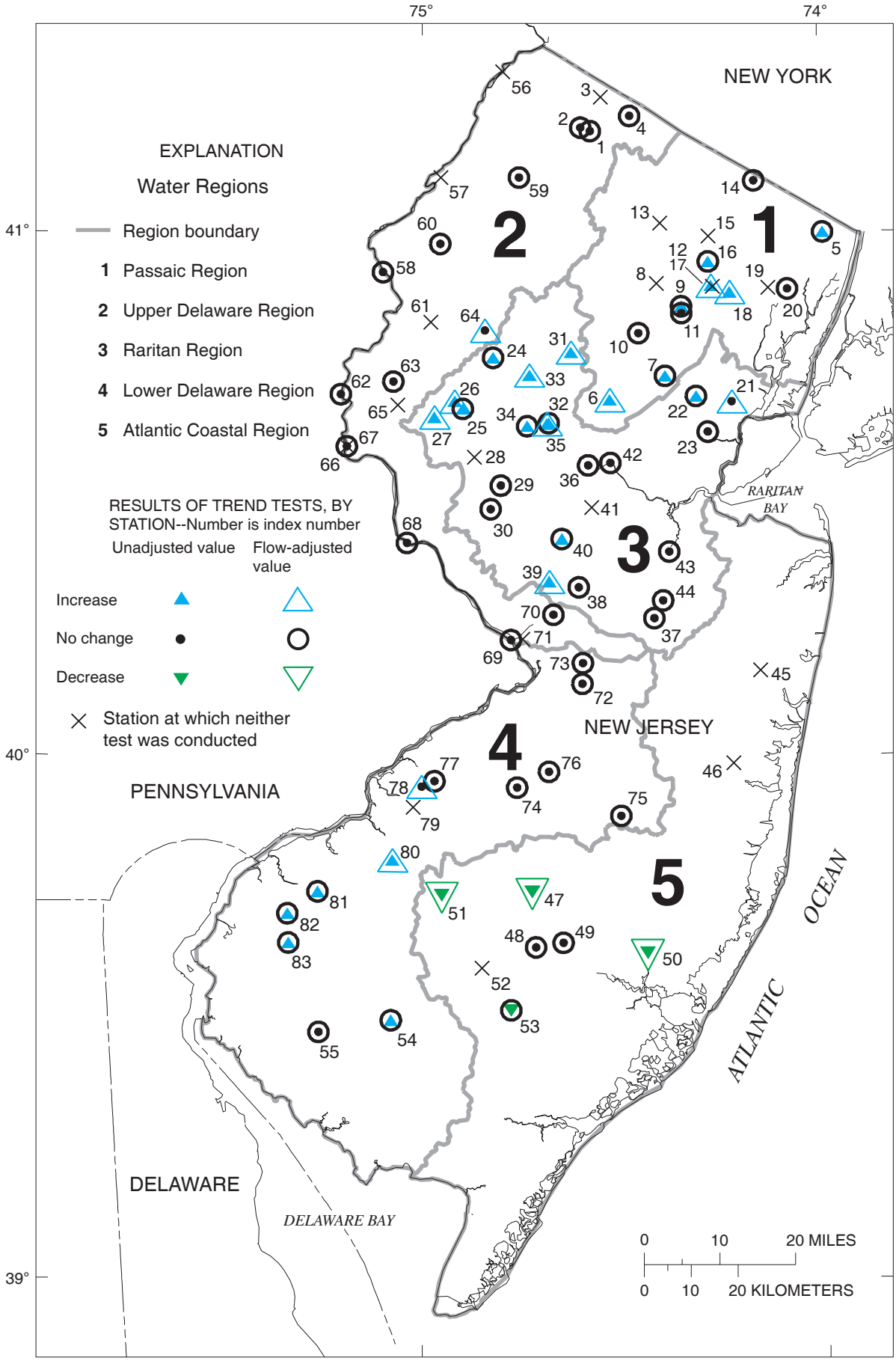

Figure 22-1. Results of trend tests for dissolved calcium at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 22a. Summary statistics for dissolved calcium at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter as Ca and are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.1 milligrams per liter]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	53	53	0	20	41	41	54
2	01367910	55	55	0	17	27	29	45
3	01368000	26	26	0	21	38	36	48
4	01368950	54	54	0	30	51	50	65
5	01377000	55	54	0	23	34	34	46
6	01379000	55	55	0	10	18	17	27
7	01379500	55	55	0	10	23	22	39
8	01380500	33	31	0	10	16	17	28
9	01381200	54	52	0	12	22	24	36
10	01381500	55	55	0	8.9	23	23	34
11	01381800	55	53	0	11	29	29	44
12	01382000	133	109	0	12	26	26	47
13	01382500	25	25	0	6.8	13	13	19
14	01387500	55	54	0	11	24	25	39
15	01388000	125	100	0	13	24	24	37
16	01388600	135	109	0	13	22	22	30
17	01389005	114	92	0	14	25	26	42
18	01389500	139	110	0	12	25	26	43
19	01389880	26	26	0	16	30	29	43
20	01391500	55	54	0	27	51	49	59
21	01393450	54	54	0	12	64	58	89
22	01394500	55	55	0	13	55	49	69
23	01395000	55	54	0	12	46	43	66
24	01396280	55	55	0	11	19	19	26
25	01396535	55	55	0	11	19	19	27
26	01396588	55	54	0	9.2	13	13	17
27	01396660	55	54	0	10	18	18	25
28	01397000	25	25	0	11	18	18	24
29	01397400	55	55	0	11	20	20	28
30	01398000	54	54	0	11	31	32	65
31	01398260	55	54	0	7.4	17	17	27
32	01399120	55	55	0	12	19	19	26
33	01399500	55	54	0	8.1	16	16	22
34	01399700	55	55	0	9.9	18	19	27
35	01399780	55	55	0	8.6	18	18	28
36	01400500	55	54	0	10	20	20	25
37	01400540	55	55	0	5.4	6.4	6.4	9.7
38	01400650	55	55	0	5.7	11	11	14
39	01401000	60	55	0	6.4	16	17	27
40	01401600	60	58	0	7.9	17	18	54
41	01402000	26	26	0	8.4	16	15	21
42	01403300	40	40	0	8.1	20	19	27
43	01405302	56	55	0	5.9	18	20	33
44	01405340	54	54	0	5.6	7.9	7.8	9.4
45	01408000	26	26	0	12	25	23	32
46	01408500	47	47	0	1.8	2.5	2.5	3.5
47	01409387	55	55	0	1.0	1.4	1.5	3.1
48	01409416	54	53	0	3.1	5.4	5.5	8.5
49	01409500	55	54	0	.9	1.9	1.8	4.0

Table 22a. Summary statistics for dissolved calcium at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter as Ca and are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.1 milligrams per liter]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
50	01410150	54	54	0	.4	.6	.7	2.8
51	01410784	55	54	0	3.0	4.1	4.5	8.6
52	01411000	25	25	0	2.0	2.4	2.6	4.3
53	01411110	55	54	0	1.7	2.1	2.1	2.9
54	01411500	59	59	0	3.0	4.1	4.1	5.1
55	01412800	55	55	0	8.5	11	11	13
56	01438500	26	26	0	4.4	7.3	7.7	19
57	01440000	15	15	0	6.6	22	21	32
58	01443000	53	53	0	5.0	8.3	8.6	12
59	01443440	55	54	0	21	42	42	59
60	01443500	55	55	0	21	37	36	50
61	01445500	25	25	0	31	51	49	61
62	01447000	55	55	0	7.2	13	13	20
63	01455200	55	54	0	9.8	19	18	33
64	01456200	53	53	0	14	25	26	39
65	01457000	26	26	0	14	29	29	37
66	01457400	55	55	0	17	29	29	37
67	01457500	25	25	0	8.3	16	16	21
68	01461000	55	55	0	8.8	16	16	23
69	01463500	59	48	0	8.8	15	16	24
70	01463620	55	55	0	5.1	8.1	8.0	11
71	01464000	27	27	0	8.3	18	19	38
72	01464500	55	55	0	7.0	15	15	22
73	01464515	55	55	0	7.7	12	12	19
74	01465850	54	54	0	2.8	5.8	5.6	8.2
75	01466500	113	103	0	.2	.5	.5	1.5
76	01467000	55	55	0	1.3	1.8	1.9	4.1
77	01467069	54	54	0	12	22	21	28
78	01467081	55	55	0	10	24	23	31
79	01467150	26	26	0	9.1	16	16	20
80	01467329	54	54	0	9.4	12	11	13
81	01477120	55	55	0	12	18	18	23
82	01477510	55	55	0	9.6	19	19	27
83	01482500	54	54	0	9.9	18	18	22

Table 22b. Summary of trends in dissolved calcium at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter as Ca; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	39	0	0	0.708	39	0.16	0.38	0.711
2	01367910	NSIG	NSIG	SKEN	40	.27	.96	.499	40	.10	.35	.395
3	01368000	NT	NT	NT	--	--	--	--	--	--	--	--
4	01368950	NSIG	NSIG	SKEN	40	- .26	- .52	.587	39	- .57	-1.1	.579
5	01377000	UP	NSIG	SKEN	40	.61	1.8	.006	40	.49	1.4	.166
6	01379000	UP	UP	SKEN	40	.49	2.8	.012	40	.47	2.7	.036
7	01379500	UP	NSIG	SKEN	40	.50	2.3	.085	40	.30	1.4	.166
8	01380500	NT	NT	NT	--	--	--	--	--	--	--	--
9	01381200	UP	NSIG	SKEN	39	.52	2.2	.062	39	.29	1.2	.179
10	01381500	NSIG	NSIG	SKEN	40	.17	.73	.292	40	.29	1.3	.244
11	01381800	NSIG	NSIG	SKEN	40	.23	.79	.418	40	.004	.015	.964
12	01382000	UP	UP	SKEN	40	1.3	5.1	.035	40	.80	3.0	.028
13	01382500	NT	NT	NT	--	--	--	--	--	--	--	--
14	01387500	NSIG	NSIG	SKEN	40	.25	1.0	.392	40	- .088	- .35	.964
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	UP	NSIG	SKEN	40	.46	2.1	.047	40	.28	1.3	.325
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	UP	UP	SKEN	40	1.2	4.6	.002	40	.99	3.8	.001
19	01389880	NT	NT	NT	--	--	--	--	--	--	--	--
20	01391500	NSIG	NSIG	SKEN	40	0	0	.585	40	.14	.29	.561
21	01393450	NSIG	UP	SKEN	39	1.3	2.2	.104	39	1.7	2.9	.096
22	01394500	UP	NSIG	SKEN	40	.81	1.7	.065	40	.86	1.8	.128
23	01395000	NSIG	NSIG	SKEN	40	.78	1.8	.152	40	- .029	- .068	.964
24	01396280	UP	NSIG	SKEN	40	.41	2.2	.028	40	- .004	- .022	.893
25	01396535	UP	NSIG	SKEN	40	.37	1.9	.092	40	.29	1.5	.140
26	01396588	UP	UP	SKEN	40	.22	1.7	.009	40	.40	3.1	.025
27	01396660	UP	UP	SKEN	40	.41	2.3	.002	40	.48	2.7	.008
28	01397000	NT	NT	NT	--	--	--	--	--	--	--	--
29	01397400	NSIG	NSIG	SKEN	40	0	0	.892	40	.12	.59	.502
30	01398000	NSIG	NSIG	SKEN	39	0	0	.926	39	.064	.20	1.000
31	01398260	UP	UP	SKEN	40	.77	4.6	.000	40	1.0	6.0	.000
32	01399120	UP	NSIG	SKEN	40	.37	2.0	.033	40	.34	1.8	.166
33	01399500	UP	UP	SKEN	40	.45	2.9	.006	40	.60	3.8	.002
34	01399700	UP	NSIG	SKEN	40	.35	1.8	.037	40	.40	2.1	.178
35	01399780	UP	UP	SKEN	40	.41	2.3	.056	39	.56	3.1	.033
36	01400500	NSIG	NSIG	SKEN	40	0	0	.617	40	.056	.29	.623
37	01400540	NSIG	NSIG	SKEN	40	0	0	.856	40	- .055	- .86	.420
38	01400650	NSIG	NSIG	SKEN	40	0	0	.638	40	.082	.76	.687
39	01401000	UP	UP	SKEN	40	.50	2.9	.020	40	1.3	7.6	.006
40	01401600	UP	NSIG	SKEN	40	1.1	6.1	.008	40	.87	4.7	.195
41	01402000	NT	NT	NT	--	--	--	--	--	--	--	--
42	01403300	NSIG	NSIG	SKEN	40	0	0	.786	40	- .014	- .072	.964
43	01405302	NSIG	NSIG	SKEN	40	.30	1.5	.389	40	.13	.68	.823
44	01405340	NSIG	NSIG	SKEN	39	0	0	.816	39	- .067	- .86	.644
45	01408000	NT	NT	NT	--	--	--	--	--	--	--	--
46	01408500	NT	NT	NT	--	--	--	--	--	--	--	--

Table 22b. Summary of trends in dissolved calcium at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter as Ca; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
47	01409387	DOWN	DOWN	SKEN	40	- .028	-2.0	.039	40	- .028	-1.9	.073
48	01409416	NSIG	NSIG	SKEN	39	.050	.91	.305	39	.041	.74	.547
49	01409500	NSIG	NSIG	SKEN	40	0	0	.927	40	- .029	-1.6	.118
50	01410150	DOWN	DOWN	SKEN	39	- .028	-4.0	.037	39	- .029	-4.1	.052
51	01410784	DOWN	DOWN	SKEN	40	- .20	-4.4	.000	40	- .14	-3.0	.008
52	01411000	NT	NT	NT	--	--	--	--	--	--	--	--
53	01411110	DOWN	NSIG	SKEN	40	- .028	-1.3	.083	40	- .025	-1.2	.118
54	01411500	UP	NSIG	SKEN	40	.031	.77	.051	40	.031	.76	.140
55	01412800	NSIG	NSIG	SKEN	40	0	0	.389	40	.044	.39	.720
56	01438500	NT	NT	NT	--	--	--	--	--	--	--	--
57	01440000	NT	NT	NT	--	--	--	--	--	--	--	--
58	01443000	NSIG	NSIG	SKEN	39	0	0	.963	39	- .038	- .44	.517
59	01443440	NSIG	NSIG	SKEN	40	.43	1.0	.301	40	.70	1.7	.264
60	01443500	NSIG	NSIG	SKEN	40	.070	.19	.586	40	.33	.91	.395
61	01445500	NT	NT	NT	--	--	--	--	--	--	--	--
62	01447000	NSIG	NSIG	SKEN	40	0	0	.463	40	- .11	- .87	.264
63	01455200	NSIG	NSIG	SKEN	40	.21	1.1	.167	40	.42	2.3	.107
64	01456200	NSIG	UP	SKEN	38	.35	1.3	.265	38	.43	1.6	.093
65	01457000	NT	NT	NT	--	--	--	--	--	--	--	--
66	01457400	NSIG	NSIG	SKEN	40	.12	.42	.361	40	.21	.72	.226
67	01457500	NT	NT	NT	--	--	--	--	--	--	--	--
68	01461000	NSIG	NSIG	SKEN	40	0	0	.855	40	.011	.073	.823
69	01463500	NSIG	NSIG	SKEN	40	0	0	.617	40	.15	.97	.561
70	01463620	NSIG	NSIG	SKEN	40	- .036	- .46	.654	38	- .074	- .93	.195
71	01464000	NT	NT	NT	--	--	--	--	--	--	--	--
72	01464500	NSIG	NSIG	SKEN	40	.051	.34	.383	40	.028	.19	.561
73	01464515	NSIG	NSIG	SKEN	40	0	0	.643	40	- .055	- .46	.720
74	01465850	NSIG	NSIG	SKEN	40	- .062	-1.1	.149	40	- .072	-1.3	.304
75	01466500	NSIG	NSIG	SKEN	39	- .010	-1.8	.377	38	- .013	-2.4	.414
76	01467000	NSIG	NSIG	SKEN	40	.005	.28	.555	40	.007	.34	.929
77	01467069	NSIG	NSIG	SKEN	40	.25	1.2	.187	40	.32	1.5	.166
78	01467081	NSIG	UP	SKEN	40	.12	.50	.336	40	.81	3.5	.054
79	01467150	NT	NT	NT	--	--	--	--	--	--	--	--
80	01467329	UP	UP	SKEN	40	.000	.000	.100	40	.23	2.0	.011
81	01477120	UP	NSIG	SKEN	40	.23	1.3	.076	40	.23	1.3	.244
82	01477510	UP	NSIG	SKEN	40	.37	2.0	.068	40	.67	3.6	.244
83	01482500	UP	NSIG	SKEN	39	.15	.87	.060	39	.18	1.0	.458

Appendix 23. Summary statistics and results of trend tests for dissolved magnesium at selected surface-water-quality stations in New Jersey, water years 1986-95

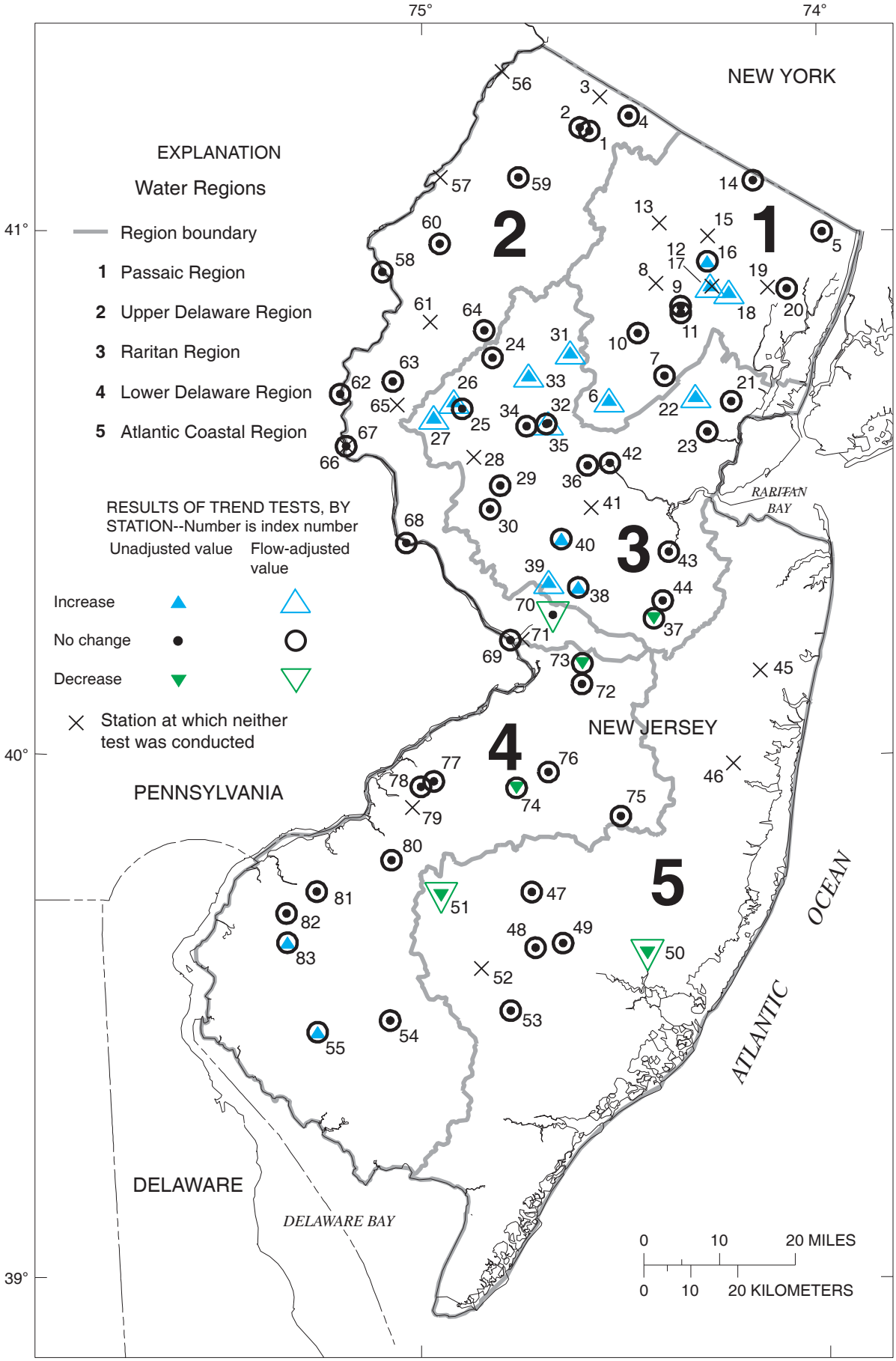

Figure 23-1. Results of trend tests for dissolved magnesium at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 23a. Summary statistics for dissolved magnesium at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter as Mg and are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.1 milligrams per liter]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	53	53	0	7.9	17	18	28
2	01367910	55	55	0	3.1	4.2	4.4	7.1
3	01368000	26	26	0	6.7	12	12	19
4	01368950	54	54	0	12	23	22	29
5	01377000	55	54	0	3.2	6.4	6.4	9.3
6	01379000	55	55	0	4.0	6.9	6.7	10
7	01379500	55	55	0	4.1	8.6	8.4	14
8	01380500	33	31	0	4.0	5.7	6.5	12
9	01381200	54	52	0	4.3	8.0	8.6	14
10	01381500	55	55	0	3.0	7.9	7.9	12
11	01381800	55	53	0	3.8	9.8	10	15
12	01382000	133	109	0	3.7	8.9	9.2	16
13	01382500	25	25	0	2.6	4.5	4.7	7.1
14	01387500	55	54	0	3.1	6.9	7.1	11
15	01388000	125	100	0	3.5	6.5	6.7	10
16	01388600	135	109	0	3.7	6.4	6.2	9.0
17	01389005	114	92	0	4.2	8.2	8.6	15
18	01389500	139	110	0	3.9	8.1	8.4	15
19	01389880	26	26	0	4.7	8.9	8.9	14
20	01391500	55	54	0	7.2	14	13	17
21	01393450	54	54	0	1.7	11	9.6	15
22	01394500	55	55	0	3.3	10	9.4	13
23	01395000	55	54	0	2.6	8.4	7.8	12
24	01396280	55	55	0	4.5	9.5	9.2	13
25	01396535	55	55	0	4.9	9.5	9.5	14
26	01396588	55	54	0	3.5	5.2	5.2	6.3
27	01396660	55	54	0	3.0	6.0	6.0	9.1
28	01397000	25	25	0	4.9	7.5	7.6	10
29	01397400	55	55	0	4.5	8.0	8.0	11
30	01398000	54	54	0	4.2	9.6	10	18
31	01398260	55	54	0	2.7	6.2	6.3	9.2
32	01399120	55	55	0	4.0	7.0	7.0	9.3
33	01399500	55	54	0	3.3	6.6	6.5	8.8
34	01399700	55	55	0	3.4	7.1	7.2	10
35	01399780	55	55	0	3.2	7.4	7.0	10
36	01400500	55	54	0	4.1	7.7	7.6	10
37	01400540	55	55	0	2.9	3.5	3.5	4.2
38	01400650	55	55	0	2.2	4.6	4.4	5.5
39	01401000	60	55	0	2.8	7.0	7.3	12
40	01401600	60	58	0	3.4	7.1	7.6	22
41	01402000	26	26	0	3.6	6.6	6.8	10
42	01403300	40	40	0	3.1	7.4	7.1	9.9
43	01405302	56	55	0	1.6	3.8	3.7	4.7
44	01405340	54	54	0	2.3	3.5	3.4	4.1
45	01408000	26	26	0	2.1	3.0	3.0	4.8
46	01408500	47	47	0	.7	1.1	1.1	1.4
47	01409387	55	55	0	.5	.7	.7	1.3
48	01409416	54	53	0	1.2	2.1	2.1	2.7
49	01409500	55	54	0	.4	.9	.9	1.6

Table 23a. Summary statistics for dissolved magnesium at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter as Mg and are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.1 milligrams per liter]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
50	01410150	54	54	0	.3	.5	.5	1.3
51	01410784	55	54	0	.9	1.7	1.7	3.0
52	01411000	25	25	0	1.1	1.3	1.4	1.9
53	01411110	55	54	0	.7	1.1	1.1	1.7
54	01411500	59	59	0	1.6	2.3	2.3	2.6
55	01412800	55	55	0	4.8	7.0	7.0	7.8
56	01438500	26	26	0	1.0	1.5	1.5	1.9
57	01440000	15	15	0	1.4	5.4	5.0	8.5
58	01443000	53	53	0	1.0	1.7	1.7	2.9
59	01443440	55	54	0	6.3	14	14	23
60	01443500	55	55	0	7.4	13	14	21
61	01445500	25	25	0	13	23	23	31
62	01447000	55	55	0	1.9	3.7	3.8	6.0
63	01455200	55	54	0	3.6	8.0	7.9	15
64	01456200	53	53	0	5.5	11	12	20
65	01457000	26	26	0	5.9	14	14	31
66	01457400	55	55	0	8.3	14	14	20
67	01457500	25	25	0	2.5	5.3	5.2	9.2
68	01461000	55	55	0	2.6	5.3	5.3	8.3
69	01463500	59	48	0	2.4	5.3	5.3	8.4
70	01463620	55	55	0	2.5	4.2	4.0	5.1
71	01464000	27	27	0	3.7	6.9	7.2	14
72	01464500	55	55	0	1.7	2.8	2.7	3.4
73	01464515	55	55	0	2.7	4.8	4.7	5.7
74	01465850	54	54	0	1.0	1.5	1.5	2.6
75	01466500	113	103	0	.2	.4	.4	1.2
76	01467000	55	55	0	.6	.8	.9	1.4
77	01467069	54	54	0	3.5	6.1	6.0	7.5
78	01467081	55	55	0	2.7	6.8	6.6	8.1
79	01467150	26	26	0	2.7	4.4	4.2	4.7
80	01467329	54	54	0	1.9	2.9	2.8	3.3
81	01477120	55	55	0	3.3	4.1	4.3	6.4
82	01477510	55	55	0	2.4	4.6	4.5	5.5
83	01482500	54	54	0	5.1	8.8	8.5	10

Table 23b. Summary of trends in dissolved magnesium at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter as Mg; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	39	0	0	0.812	39	0.15	0.83	0.781
2	01367910	NSIG	NSIG	SKEN	40	.035	.80	.529	40	- .007	- .16	.687
3	01368000	NT	NT	NT	--	--	--	--	--	--	--	--
4	01368950	NSIG	NSIG	SKEN	40	0	0	.927	39	- .17	- .76	.579
5	01377000	NSIG	NSIG	SKEN	40	.026	.41	.341	40	.010	.16	.893
6	01379000	UP	UP	SKEN	40	.18	2.7	.009	40	.15	2.3	.025
7	01379500	NSIG	NSIG	SKEN	40	.11	1.3	.301	40	.062	.73	.502
8	01380500	NT	NT	NT	--	--	--	--	--	--	--	--
9	01381200	NSIG	NSIG	SKEN	39	.12	1.3	.134	39	.11	1.2	.267
10	01381500	NSIG	NSIG	SKEN	40	.057	.72	.588	40	.067	.84	.395
11	01381800	NSIG	NSIG	SKEN	40	0	0	1.000	40	- .031	- .31	.823
12	01382000	UP	UP	SKEN	40	.45	4.9	.025	40	.21	2.3	.018
13	01382500	NT	NT	NT	--	--	--	--	--	--	--	--
14	01387500	NSIG	NSIG	SKEN	40	.031	.45	.500	40	- .072	-1.0	.687
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	UP	NSIG	SKEN	40	.14	2.3	.048	40	.044	.70	.304
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	UP	UP	SKEN	40	.37	4.4	.001	40	.30	3.5	.004
19	01389880	NT	NT	NT	--	--	--	--	--	--	--	--
20	01391500	NSIG	NSIG	SKEN	40	.11	.82	.212	40	.099	.76	.227
21	01393450	NSIG	NSIG	SKEN	39	.18	1.9	.142	39	.20	2.1	.246
22	01394500	UP	UP	SKEN	40	.13	1.3	.088	40	.19	2.0	.044
23	01395000	NSIG	NSIG	SKEN	40	.097	1.2	.471	40	- .022	- .28	.858
24	01396280	NSIG	NSIG	SKEN	40	.12	1.2	.298	40	- .078	- .85	.474
25	01396535	NSIG	NSIG	SKEN	40	0	0	.650	40	.050	.52	.654
26	01396588	UP	UP	SKEN	40	.061	1.2	.058	40	.10	2.0	.023
27	01396660	UP	UP	SKEN	40	.15	2.5	.010	40	.12	1.9	.044
28	01397000	NT	NT	NT	--	--	--	--	--	--	--	--
29	01397400	NSIG	NSIG	SKEN	40	0	0	1.000	40	.013	.16	.823
30	01398000	NSIG	NSIG	SKEN	39	- .083	- .83	.607	39	.067	.67	.781
31	01398260	UP	UP	SKEN	40	.23	3.6	.000	40	.32	5.1	.000
32	01399120	NSIG	UP	SKEN	40	.094	1.3	.138	40	.081	1.2	.081
33	01399500	UP	UP	SKEN	40	.18	2.7	.039	40	.15	2.3	.005
34	01399700	NSIG	NSIG	SKEN	40	.083	1.1	.136	40	.050	.69	.447
35	01399780	NSIG	NSIG	SKEN	40	.094	1.3	.177	39	.12	1.7	.165
36	01400500	NSIG	NSIG	SKEN	40	.036	.47	.501	40	.053	.70	.348
37	01400540	DOWN	NSIG	SKEN	40	- .029	- .83	.028	40	- .050	-1.4	.195
38	01400650	UP	NSIG	SKEN	40	.072	1.6	.047	40	.062	1.4	.140
39	01401000	UP	UP	SKEN	40	.17	2.4	.054	40	.41	5.7	.016
40	01401600	UP	NSIG	SKEN	40	.31	4.1	.043	40	.083	1.1	.447
41	01402000	NT	NT	NT	--	--	--	--	--	--	--	--
42	01403300	NSIG	NSIG	SKEN	40	- .030	- .42	.753	40	- .034	- .48	.823
43	01405302	NSIG	NSIG	SKEN	40	.032	.86	.135	40	.027	.73	.561
44	01405340	NSIG	NSIG	SKEN	40	- .019	- .55	.201	40	- .023	- .67	.395
45	01408000	NT	NT	NT	--	--	--	--	--	--	--	--
46	01408500	NT	NT	NT	--	--	--	--	--	--	--	--

Table 23b. Summary of trends in dissolved magnesium at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter as Mg; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
47	01409387	NSIG	NSIG	SKEN	40	- .007	- .99	.207	40	- .009	-1.2	.118
48	01409416	NSIG	NSIG	SKEN	39	.020	.94	.203	39	.022	1.0	.116
49	01409500	NSIG	NSIG	SKEN	40	0	0	.822	40	- .007	- .75	.395
50	01410150	DOWN	DOWN	SKEN	39	- .010	-1.9	.031	39	- .009	-1.7	.026
51	01410784	DOWN	DOWN	SKEN	40	- .052	-3.1	.006	40	- .050	-3.0	.004
52	01411000	NT	NT	NT	--	--	--	--	--	--	--	--
53	01411110	NSIG	NSIG	SKEN	40	0	0	.158	40	- .009	- .77	.166
54	01411500	NSIG	NSIG	SKEN	40	0	0	.156	40	.010	.45	.371
55	01412800	UP	NSIG	SKEN	40	.042	.60	.038	40	.053	.76	.304
56	01438500	NT	NT	NT	--	--	--	--	--	--	--	--
57	01440000	NT	NT	NT	--	--	--	--	--	--	--	--
58	01443000	NSIG	NSIG	SKEN	39	- .024	-1.4	.260	39	- .013	- .75	.165
59	01443440	NSIG	NSIG	SKEN	40	.33	2.4	.298	40	.23	1.6	.227
60	01443500	NSIG	NSIG	SKEN	40	.13	.97	.525	40	.10	.72	.502
61	01445500	NT	NT	NT	--	--	--	--	--	--	--	--
62	01447000	NSIG	NSIG	SKEN	40	- .065	-1.7	.206	40	- .050	-1.3	.195
63	01455200	NSIG	NSIG	SKEN	40	.089	1.1	.277	40	.083	1.0	.348
64	01456200	NSIG	NSIG	SKEN	38	.14	1.2	.307	38	.21	1.8	.270
65	01457000	NT	NT	NT	--	--	--	--	--	--	--	--
66	01457400	NSIG	NSIG	SKEN	40	0	0	.681	40	.048	.34	.446
67	01457500	NT	NT	NT	--	--	--	--	--	--	--	--
68	01461000	NSIG	NSIG	SKEN	40	- .020	- .38	.858	40	- .024	- .45	.754
69	01463500	NSIG	NSIG	SKEN	40	- .035	- .66	.654	40	- .012	- .22	.893
70	01463620	NSIG	DOWN	SKEN	40	- .038	- .93	.162	38	- .053	-1.3	.019
71	01464000	NT	NT	NT	--	--	--	--	--	--	--	--
72	01464500	NSIG	NSIG	SKEN	40	- .022	- .83	.204	40	- .027	-1.0	.195
73	01464515	DOWN	NSIG	SKEN	40	- .083	-1.8	.009	40	- .088	-1.9	.264
74	01465850	DOWN	NSIG	SKEN	40	- .019	-1.2	.074	40	- .017	-1.1	.348
75	01466500	NSIG	NSIG	SKEN	39	.002	.57	.545	38	- .004	- .86	.737
76	01467000	NSIG	NSIG	SKEN	40	.005	.64	.395	40	.004	.50	.687
77	01467069	NSIG	NSIG	SKEN	40	.058	.98	.444	40	.071	1.2	.140
78	01467081	NSIG	NSIG	SKEN	40	.022	.33	.621	40	.12	1.9	.227
79	01467150	NT	NT	NT	--	--	--	--	--	--	--	--
80	01467329	NSIG	NSIG	SKEN	40	0	0	.781	40	.018	.65	.194
81	01477120	NSIG	NSIG	SKEN	40	0	0	.716	40	- .020	- .48	.474
82	01477510	NSIG	NSIG	SKEN	40	0	0	.892	40	.042	.93	.561
83	01482500	UP	NSIG	SKEN	39	.086	1.0	.084	39	.11	1.3	.379

Appendix 24. Summary statistics and results of trend tests for dissolved chloride at selected surface-water-quality stations in New Jersey, water years 1986-95

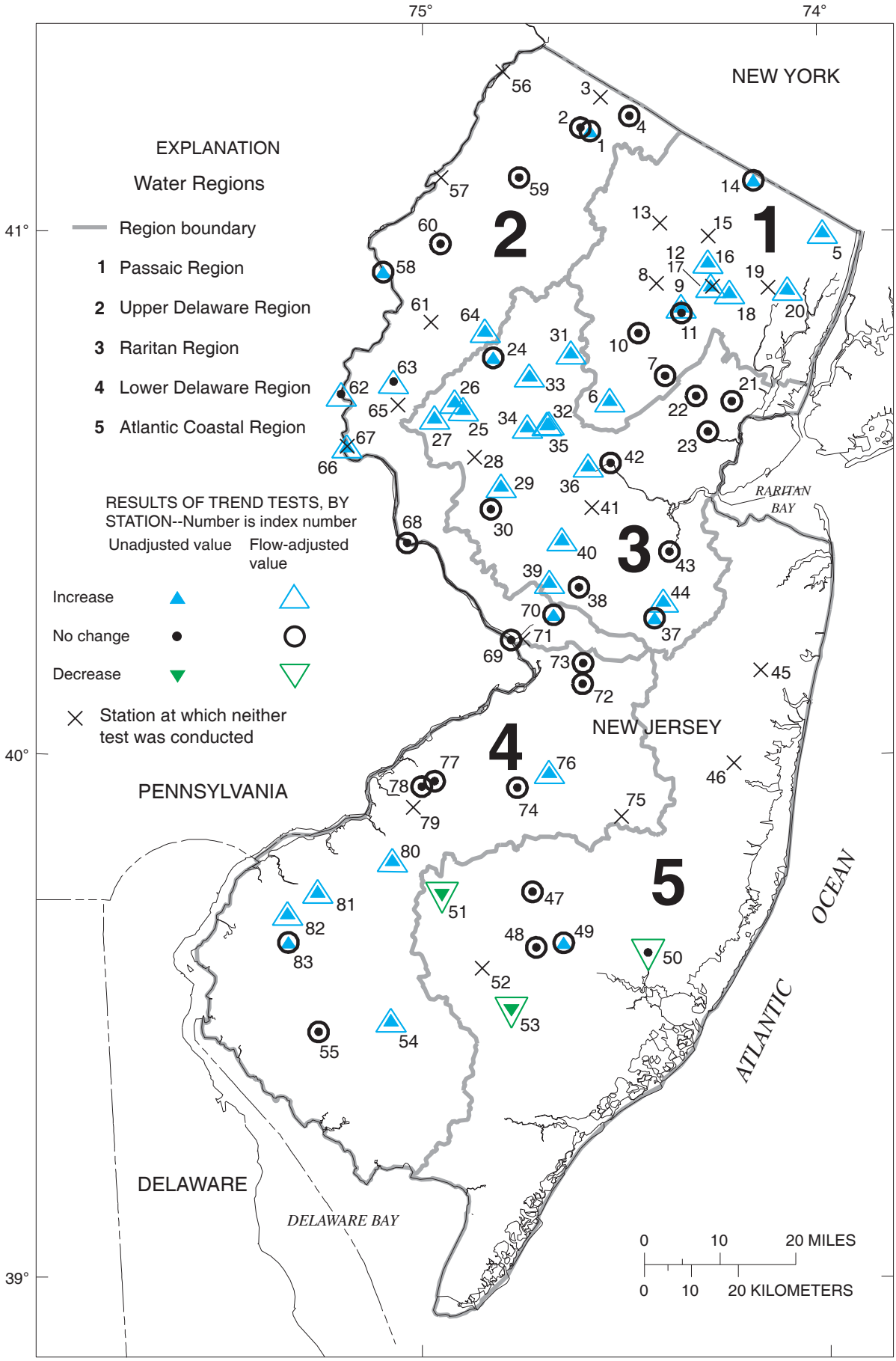

Figure 24-1. Results of trend tests for dissolved chloride at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 24a. Summary statistics for dissolved chloride at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter as Cl and are rounded to two significant figures]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	54	54	0	22	44	46	83
2	01367910	55	55	0	19	26	27	42
3	01368000	27	27	0	25	37	38	53
4	01368950	54	54	0	26	59	59	87
5	01377000	54	53	0	20	64	66	150
6	01379000	55	55	0	12	30	33	84
7	01379500	55	55	0	17	61	72	210
8	01380500	34	32	0	17	33	33	51
9	01381200	55	53	0	21	45	47	74
10	01381500	55	55	0	11	46	48	130
11	01381800	55	53	0	15	56	60	180
12	01382000	134	109	0	17	60	67	240
13	01382500	27	27	0	15	30	30	49
14	01387500	55	54	0	21	57	60	110
15	01388000	125	100	0	25	52	52	110
16	01388600	135	109	0	20	43	47	150
17	01389005	115	93	0	25	56	62	140
18	01389500	139	110	0	19	53	58	160
19	01389880	27	27	0	23	64	66	120
20	01391500	55	54	0	37	80	83	160
21	01393450	54	54	0	19	89	140	1,200
22	01394500	55	55	0	22	81	110	700
23	01395000	55	54	0	16	60	69	240
24	01396280	55	55	0	16	25	25	39
25	01396535	55	55	0	13	21	22	55
26	01396588	55	54	0	9.6	15	15	24
27	01396660	55	54	0	5.6	13	14	36
28	01397000	26	26	0	11	21	20	38
29	01397400	55	55	0	15	23	25	49
30	01398000	54	54	0	10	27	41	190
31	01398260	55	54	0	16	31	36	88
32	01399120	55	55	0	12	25	27	62
33	01399500	55	54	0	14	32	32	50
34	01399700	55	55	0	8.1	15	16	34
35	01399780	54	54	0	8.1	21	22	50
36	01400500	55	54	0	13	22	23	71
37	01400540	55	55	0	10	13	13	33
38	01400650	55	55	0	8.3	23	24	63
39	01401000	60	55	0	12	21	26	110
40	01401600	60	58	0	6.6	20	23	61
41	01402000	27	27	0	12	26	26	56
42	01403300	40	40	0	8.1	24	25	55
43	01405302	55	54	0	7.8	25	29	89
44	01405340	55	55	0	9.6	15	15	23
45	01408000	27	27	0	13	16	17	22
46	01408500	47	47	0	6.4	9.5	9.7	14
47	01409387	55	55	0	3.0	5.4	5.4	8.9
48	01409416	54	53	0	6.2	15	15	24
49	01409500	55	54	0	3.0	5.0	5.1	7.7
50	01410150	54	54	0	4.0	5.4	5.4	6.5
51	01410784	55	54	0	5.5	11	11	27

Table 24a. Summary statistics for dissolved chloride at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter as Cl and are rounded to two significant figures]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
52	01411000	26	26	0	5.9	8.3	8.3	11
53	01411110	55	54	0	5.7	8.1	8.1	11
54	01411500	59	59	0	7.2	9.2	9.2	14
55	01412800	55	55	0	15	25	25	34
56	01438500	27	27	0	4.0	9.0	9.1	18
57	01440000	16	16	0	6.4	14	13	18
58	01443000	53	53	0	5.0	8.9	9.0	17
59	01443440	55	54	0	21	42	43	74
60	01443500	55	55	0	16	31	32	47
61	01445500	26	26	0	16	29	28	45
62	01447000	55	55	0	6.4	11	11	20
63	01455200	55	54	0	7.6	16	16	25
64	01456200	53	53	0	25	40	42	58
65	01457000	26	26	0	22	32	32	42
66	01457400	55	55	0	13	28	28	44
67	01457500	26	26	0	8.4	14	14	25
68	01461000	55	55	0	7.0	14	14	30
69	01463500	59	48	0	7.4	13	13	20
70	01463620	55	55	0	7.0	14	14	29
71	01464000	27	27	0	16	33	34	84
72	01464500	55	55	0	8.7	15	16	25
73	01464515	55	55	0	9.5	17	17	27
74	01465850	54	54	0	6.6	8.2	8.4	11
75	01466500	112	102	0	2.1	3.6	3.5	4.7
76	01467000	55	55	0	4.0	5.9	6.0	8.6
77	01467069	55	55	0	14	28	38	270
78	01467081	55	55	0	11	32	39	260
79	01467150	27	27	0	11	22	26	130
80	01467329	54	54	0	7.2	16	17	36
81	01477120	55	55	0	11	16	16	22
82	01477510	55	55	0	10	16	16	23
83	01482500	55	55	0	11	21	20	28

Table 24b. Summary of trends in dissolved chloride at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter as Cl; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	UP	NSIG	SKEN	39	0.99	2.2	0.070	39	0.73	1.6	0.355
2	01367910	NSIG	NSIG	SKEN	40	.16	.59	.498	40	.044	.16	.893
3	01368000	NT	NT	NT	--	--	--	--	--	--	--	--
4	01368950	NSIG	NSIG	SKEN	40	0	0	1.000	39	.65	1.1	.644
5	01377000	UP	UP	SKEN	39	2.3	3.6	.016	39	2.3	3.6	.064
6	01379000	UP	UP	SKEN	40	1.9	6.0	.000	40	1.9	5.9	.004
7	01379500	NSIG	NSIG	SKEN	40	2.3	3.2	.501	40	1.3	1.8	.502
8	01380500	NT	NT	NT	--	--	--	--	--	--	--	--
9	01381200	UP	UP	SKEN	40	1.8	3.7	.048	40	1.3	2.8	.036
10	01381500	NSIG	NSIG	SKEN	40	.77	1.6	.370	40	.81	1.7	.502
11	01381800	NSIG	NSIG	SKEN	40	1.7	2.9	.128	40	1.4	2.4	.166
12	01382000	UP	UP	SKEN	40	4.7	7.1	.012	40	3.4	5.0	.023
13	01382500	NT	NT	NT	--	--	--	--	--	--	--	--
14	01387500	UP	NSIG	SKEN	40	1.8	2.9	.087	40	2.1	3.4	.166
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	UP	UP	SKEN	40	2.4	5.1	.002	40	2.1	4.5	.004
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	UP	UP	SKEN	40	4.4	7.6	.001	40	4.7	8.2	.000
19	01389880	NT	NT	NT	--	--	--	--	--	--	--	--
20	01391500	UP	UP	SKEN	40	2.6	3.2	.007	40	2.5	3.0	.054
21	01393450	NSIG	NSIG	SKEN	39	0	0	1.000	39	2.3	1.7	.610
22	01394500	NSIG	NSIG	SKEN	40	2.6	2.5	.209	40	2.7	2.5	.304
23	01395000	NSIG	NSIG	SKEN	40	0	0	.964	40	-1.9	-2.7	.304
24	01396280	UP	NSIG	SKEN	40	.60	2.4	.025	40	.41	1.6	.107
25	01396535	UP	UP	SKEN	40	.52	2.4	.038	40	.75	3.4	.001
26	01396588	UP	UP	SKEN	40	.50	3.2	.033	40	.88	5.7	.028
27	01396660	UP	UP	SKEN	40	.63	4.5	.000	40	.86	6.1	.001
28	01397000	NT	NT	NT	--	--	--	--	--	--	--	--
29	01397400	UP	UP	SKEN	40	1.3	5.0	.017	40	1.4	5.4	.003
30	01398000	NSIG	NSIG	SKEN	40	- .46	-1.1	.753	40	.46	1.1	.623
31	01398260	UP	UP	SKEN	40	2.4	6.8	.000	40	3.4	9.6	.005
32	01399120	UP	UP	SKEN	40	1.3	4.6	.001	40	1.6	5.8	.004
33	01399500	UP	UP	SKEN	40	1.6	4.8	.000	40	2.2	6.7	.000
34	01399700	UP	UP	SKEN	40	.79	4.8	.002	40	.87	5.3	.001
35	01399780	UP	UP	SKEN	40	1.1	5.1	.002	39	1.4	6.0	.005
36	01400500	UP	UP	SKEN	40	.69	3.0	.038	40	.77	3.3	.023
37	01400540	UP	NSIG	SKEN	40	.33	2.5	.001	40	.092	.69	.687
38	01400650	NSIG	NSIG	SKEN	40	.24	1.0	.440	40	.20	.85	.561
39	01401000	UP	UP	SKEN	40	1.2	4.7	.022	40	2.5	9.6	.002
40	01401600	UP	UP	SKEN	40	1.6	6.7	.009	40	2.1	8.8	.073
41	01402000	NT	NT	NT	--	--	--	--	--	--	--	--
42	01403300	NSIG	NSIG	SKEN	40	.55	2.2	.225	40	.67	2.6	.166
43	01405302	NSIG	NSIG	SKEN	40	.79	2.7	.280	40	.35	1.2	.754
44	01405340	UP	UP	SKEN	40	.67	4.4	.000	40	.58	3.9	.018
45	01408000	NT	NT	NT	--	--	--	--	--	--	--	--
46	01408500	NT	NT	NT	--	--	--	--	--	--	--	--

Table 24b. Summary of trends in dissolved chloride at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter as Cl; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
47	01409387	NSIG	NSIG	SKEN	40	.095	1.8	.163	40	0	- .006	1.000
48	01409416	NSIG	NSIG	SKEN	40	.15	.98	.438	40	.31	2.0	.152
49	01409500	UP	NSIG	SKEN	40	.073	1.4	.080	40	.058	1.1	.227
50	01410150	NSIG	DOWN	SKEN	39	- .054	-1.0	.205	39	- .062	-1.1	.033
51	01410784	DOWN	DOWN	SKEN	40	- .59	-5.2	.001	40	- .43	-3.8	.023
52	01411000	NT	NT	NT	--	--	--	--	--	--	--	--
53	01411110	DOWN	DOWN	SKEN	40	- .067	- .83	.094	40	- .098	-1.2	.036
54	01411500	UP	UP	SKEN	40	.12	1.3	.003	40	.10	1.1	.011
55	01412800	NSIG	NSIG	SKEN	40	0	0	.964	40	0	- .001	1.000
56	01438500	NT	NT	NT	--	--	--	--	--	--	--	--
57	01440000	NT	NT	NT	--	--	--	--	--	--	--	--
58	01443000	UP	NSIG	SKEN	39	.26	2.8	.076	39	.27	3.0	.116
59	01443440	NSIG	NSIG	SKEN	40	.50	1.2	.282	40	.75	1.7	.264
60	01443500	NSIG	NSIG	SKEN	40	.40	1.2	.472	40	.20	.61	.561
61	01445500	NT	NT	NT	--	--	--	--	--	--	--	--
62	01447000	NSIG	UP	SKEN	40	.24	2.2	.111	40	.28	2.5	.098
63	01455200	NSIG	UP	SKEN	40	.22	1.4	.100	40	.41	2.6	.081
64	01456200	UP	UP	SKEN	38	1.2	2.8	.023	38	1.3	3.1	.009
65	01457000	NT	NT	NT	--	--	--	--	--	--	--	--
66	01457400	UP	UP	SKEN	40	.96	3.4	.001	40	.92	3.2	.002
67	01457500	NT	NT	NT	--	--	--	--	--	--	--	--
68	01461000	NSIG	NSIG	SKEN	40	.22	1.6	.292	40	.24	1.7	.140
69	01463500	NSIG	NSIG	SKEN	40	.23	1.7	.237	40	.28	2.1	.107
70	01463620	UP	NSIG	SKEN	40	.20	1.4	.080	38	.094	.67	.737
71	01464000	NT	NT	NT	--	--	--	--	--	--	--	--
72	01464500	NSIG	NSIG	SKEN	40	- .28	-1.8	.174	40	- .30	-1.9	.152
73	01464515	NSIG	NSIG	SKEN	40	0	0	.554	40	- .13	- .79	.623
74	01465850	NSIG	NSIG	SKEN	39	.033	.39	.577	39	.033	.39	.711
75	01466500	NSIG	NSIG	SKEN	39	0	0	.851	38	.056	1.6	.313
76	01467000	UP	UP	SKEN	40	.12	2.1	.004	40	.081	1.4	.023
77	01467069	NSIG	NSIG	SKEN	40	.40	1.1	.499	40	1.4	3.8	.325
78	01467081	NSIG	NSIG	SKEN	40	- .087	- .22	.822	40	.88	2.2	.623
79	01467150	NT	NT	NT	--	--	--	--	--	--	--	--
80	01467329	UP	UP	SKEN	40	.72	4.4	.000	40	.83	5.0	.000
81	01477120	UP	UP	SKEN	40	.49	3.0	.001	40	.43	2.6	.009
82	01477510	UP	UP	SKEN	40	.50	3.0	.003	40	.63	3.8	.044
83	01482500	UP	NSIG	SKEN	40	.44	2.2	.011	40	.44	2.1	.152

Appendix 25. Summary statistics and results of trend tests for dissolved sulfate at selected surface-water-quality stations in New Jersey, water years 1986-95

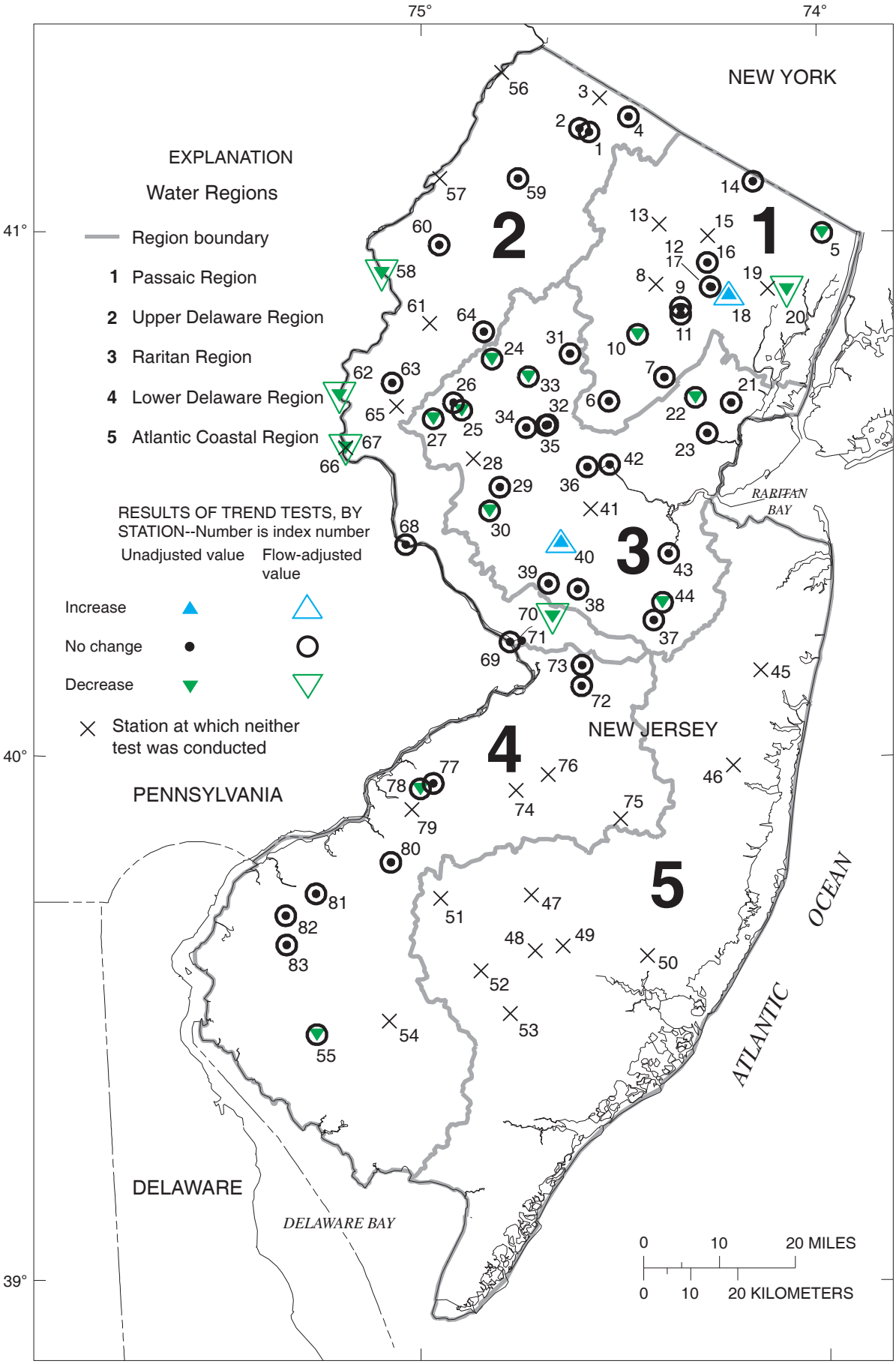

Figure 25-1. Results of trend tests for dissolved sulfate at selected surface-water-quality stations in New Jersey, water years 1986-95.

Table 25a. Summary statistics for dissolved sulfate at selected surface-water-quality stations in New Jersey, water years 1986-95

[Values are in milligrams per liter as SO4 and are rounded to two significant figures; --, not available]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
1	01367770	54	54	0	12	18	20	49
2	01367910	55	55	0	12	22	24	60
3	01368000	27	27	0	15	22	24	51
4	01368950	54	54	0	12	18	20	48
5	01377000	54	53	0	10	17	17	24
6	01379000	55	55	0	5.0	16	17	54
7	01379500	55	55	0	12	27	32	89
8	01380500	34	32	0	9.4	14	15	21
9	01381200	55	53	0	11	22	22	33
10	01381500	55	55	0	8.4	18	18	26
11	01381800	55	53	0	10	26	26	51
12	01382000	134	109	0	11	28	30	57
13	01382500	27	27	0	7.4	12	12	28
14	01387500	55	54	0	9.9	18	18	29
15	01388000	125	100	0	11	16	16	24
16	01388600	135	109	0	12	18	18	27
17	01389005	115	93	0	11	26	28	56
18	01389500	139	110	0	12	25	27	54
19	01389880	27	27	0	11	29	30	83
20	01391500	55	54	0	19	30	30	47
21	01393450	54	54	0	11	48	45	77
22	01394500	55	55	0	12	33	31	47
23	01395000	55	54	0	13	33	32	46
24	01396280	55	55	0	6.5	12	12	16
25	01396535	55	55	0	9.8	13	13	19
26	01396588	55	54	0	14	18	18	22
27	01396660	55	54	0	12	16	17	23
28	01397000	26	26	0	11	14	15	26
29	01397400	55	55	0	12	22	23	45
30	01398000	55	55	0	16	46	49	110
31	01398260	55	54	0	11	14	15	24
32	01399120	55	55	0	11	17	17	24
33	01399500	55	54	0	6.9	13	14	25
34	01399700	55	55	0	12	20	20	35
35	01399780	54	54	0	11	17	17	30
36	01400500	55	54	0	12	21	21	31
37	01400540	54	54	0	8.4	14	14	22
38	01400650	54	54	0	12	22	22	35
39	01401000	60	55	0	9.8	24	24	36
40	01401600	60	58	0	15	27	33	160
41	01402000	27	27	0	13	29	28	39
42	01403300	40	40	0	9.8	29	30	48
43	01405302	56	55	0	21	48	48	62
44	01405340	55	55	0	14	20	21	29
45	01408000	29	29	0	21	30	30	38
46	01408500	--	--	--	--	--	--	--
47	01409387	--	--	--	--	--	--	--
48	01409416	--	--	--	--	--	--	--
49	01409500	--	--	--	--	--	--	--
50	01410150	--	--	--	--	--	--	--
51	01410784	--	--	--	--	--	--	--

Table 25a. Summary statistics for dissolved sulfate at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[Values are in milligrams per liter as SO4 and are rounded to two significant figures; --, not available]

Station index	Station number	Number of available measure-ments	Summary statistics of measurements selected for trend tests					
			Number of measure-ments	Percent censored	Minimum	Median	Mean	Maximum
52	01411000	--	--	--	--	--	--	--
53	01411110	--	--	--	--	--	--	--
54	01411500	--	--	--	--	--	--	--
55	01412800	55	55	0	16	23	23	30
56	01438500	26	26	0	4.3	8.9	9.0	15
57	01440000	15	15	0	8.2	14	16	28
58	01443000	53	53	0	6.8	11	11	17
59	01443440	55	54	0	8.3	23	25	65
60	01443500	55	55	0	12	20	21	39
61	01445500	26	26	0	2.0	27	27	60
62	01447000	55	55	0	8.0	15	15	25
63	01455200	55	54	0	9.3	18	18	22
64	01456200	52	52	0	10	17	18	30
65	01457000	25	25	0	11	17	18	32
66	01457400	55	55	0	12	20	20	30
67	01457500	25	25	0	12	20	21	34
68	01461000	55	55	0	12	20	20	39
69	01463500	59	48	0	11	19	20	34
70	01463620	54	54	0	11	18	18	29
71	01464000	27	27	0	19	31	32	45
72	01464500	55	55	0	13	23	22	34
73	01464515	55	55	0	12	20	21	33
74	01465850	--	--	--	--	--	--	--
75	01466500	--	--	--	--	--	--	--
76	01467000	--	--	--	--	--	--	--
77	01467069	54	54	0	33	58	54	72
78	01467081	55	55	0	22	46	46	61
79	01467150	27	27	0	13	25	25	45
80	01467329	54	54	0	8.8	13	14	21
81	01477120	55	55	0	18	25	25	31
82	01477510	55	55	0	9.5	25	24	36
83	01482500	55	55	0	19	33	32	45

Table 25b. Summary of trends in dissolved sulfate at selected surface-water-quality stations in New Jersey, water years 1986-95

[UNITS, milligrams per liter as SO4; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
1	01367770	NSIG	NSIG	SKEN	39	-0.13	-0.65	0.674	39	-0.080	-0.40	0.853
2	01367910	NSIG	NSIG	SKEN	40	- .071	- .30	.752	40	- .053	- .23	.893
3	01368000	NT	NT	NT	--	--	--	--	--	--	--	--
4	01368950	NSIG	NSIG	SKEN	40	0	0	1.000	39	- .005	- .024	1.000
5	01377000	DOWN	NSIG	SKEN	39	- .34	-2.0	.033	39	- .29	-1.7	.139
6	01379000	NSIG	NSIG	SKEN	40	- .14	- .83	.718	40	- .15	- .91	.687
7	01379500	NSIG	NSIG	SKEN	40	.93	2.9	.208	40	.80	2.5	.395
8	01380500	NT	NT	NT	--	--	--	--	--	--	--	--
9	01381200	NSIG	NSIG	SKEN	40	0	0	.964	40	- .17	- .75	.687
10	01381500	DOWN	NSIG	SKEN	40	- .49	-2.7	.053	40	- .38	-2.1	.166
11	01381800	NSIG	NSIG	SKEN	40	0	0	.786	40	- .42	-1.6	.264
12	01382000	NSIG	NSIG	SKEN	40	1.1	3.5	.178	40	.24	.78	.687
13	01382500	NT	NT	NT	--	--	--	--	--	--	--	--
14	01387500	NSIG	NSIG	SKEN	40	0	0	.648	40	- .23	-1.3	.227
15	01388000	NT	NT	NT	--	--	--	--	--	--	--	--
16	01388600	NSIG	NSIG	SKEN	40	0	0	.751	40	.067	.37	.893
17	01389005	NT	NT	NT	--	--	--	--	--	--	--	--
18	01389500	UP	UP	SKEN	40	.91	3.4	.006	40	.66	2.5	.054
19	01389880	NT	NT	NT	--	--	--	--	--	--	--	--
20	01391500	DOWN	DOWN	SKEN	40	- .98	-3.2	.017	40	- .96	-3.2	.008
21	01393450	NSIG	NSIG	SKEN	39	.57	1.3	.516	39	.69	1.5	.459
22	01394500	DOWN	NSIG	SKEN	40	- .53	-1.7	.058	40	- .27	- .87	.263
23	01395000	NSIG	NSIG	SKEN	40	0	0	.892	40	-1.0	-3.2	.140
24	01396280	DOWN	NSIG	SKEN	40	- .15	-1.3	.033	40	- .12	-1.0	.140
25	01396535	DOWN	NSIG	SKEN	40	- .24	-1.8	.000	40	- .13	- .98	.118
26	01396588	NSIG	NSIG	SKEN	40	0	0	.377	40	.24	1.3	.447
27	01396660	DOWN	NSIG	SKEN	40	- .33	-2.0	.009	40	0	.002	1.000
28	01397000	NT	NT	NT	--	--	--	--	--	--	--	--
29	01397400	NSIG	NSIG	SKEN	40	- .20	- .86	.719	40	- .19	- .82	.823
30	01398000	DOWN	NSIG	SKEN	40	-3.0	-6.1	.009	40	-1.9	-3.8	.348
31	01398260	NSIG	NSIG	SKEN	40	- .15	-1.0	.316	40	.048	.33	.893
32	01399120	NSIG	NSIG	SKEN	40	0	0	.890	40	.089	.52	.687
33	01399500	DOWN	NSIG	SKEN	40	- .26	-1.9	.034	40	- .22	-1.6	.227
34	01399700	NSIG	NSIG	SKEN	40	0	0	.781	40	.019	.093	1.000
35	01399780	NSIG	NSIG	SKEN	40	- .31	-1.8	.173	39	- .059	- .35	.579
36	01400500	NSIG	NSIG	SKEN	40	- .33	-1.5	.134	40	- .27	-1.3	.227
37	01400540	NSIG	NSIG	SKEN	40	- .17	-1.2	.412	40	- .27	-1.9	.140
38	01400650	NSIG	NSIG	SKEN	39	.16	.74	.281	39	.51	2.3	.139
39	01401000	NSIG	NSIG	SKEN	40	0	0	1.000	40	1.5	6.3	.118
40	01401600	UP	UP	SKEN	40	1.8	5.4	.011	40	1.5	4.4	.067
41	01402000	NT	NT	NT	--	--	--	--	--	--	--	--
42	01403300	NSIG	NSIG	SKEN	40	- .34	-1.1	.651	40	- .50	-1.7	.348
43	01405302	NSIG	NSIG	SKEN	40	0	0	.964	40	.16	.33	.823
44	01405340	DOWN	NSIG	SKEN	40	- .29	-1.4	.026	40	- .26	-1.3	.395
45	01408000	NT	NT	NT	--	--	--	--	--	--	--	--
46	01408500	NT	NT	NT	--	--	--	--	--	--	--	--

Table 25b. Summary of trends in dissolved sulfate at selected surface-water-quality stations in New Jersey, water years 1986-95--Continued

[UNITS, milligrams per liter as SO4; trend slopes are rounded to two significant figures or, if less than two significant figures, values are rounded to 0.001 UNITS per year or 0.001 percent of mean per year; SKEN, Seasonal Kendall uncensored test; NT, not tested; UP, increasing value; DOWN, decreasing value; NSIG, no significant change; --, not applicable]

		Summary of trend tests		Tests for trend in unadjusted values					Tests for trend in flow-adjusted values			
						Trend slope				Trend slope		
Station index	Station number	Unadjusted value	Flow-adjusted value	Method	Number of measurements	UNITS per year	Percent of mean per year	Significance level	Number of measurements	UNITS per year	Percent of mean per year	Significance level
47	01409387	NT	NT	NT	--	--	--	--	--	--	--	--
48	01409416	NT	NT	NT	--	--	--	--	--	--	--	--
49	01409500	NT	NT	NT	--	--	--	--	--	--	--	--
50	01410150	NT	NT	NT	--	--	--	--	--	--	--	--
51	01410784	NT	NT	NT	--	--	--	--	--	--	--	--
52	01411000	NT	NT	NT	--	--	--	--	--	--	--	--
53	01411110	NT	NT	NT	--	--	--	--	--	--	--	--
54	01411500	NT	NT	NT	--	--	--	--	--	--	--	--
55	01412800	DOWN	NSIG	SKEN	40	- .20	- .87	.081	40	- .15	- .63	.623
56	01438500	NT	NT	NT	--	--	--	--	--	--	--	--
57	01440000	NT	NT	NT	--	--	--	--	--	--	--	--
58	01443000	DOWN	DOWN	SKEN	39	- .30	-2.8	.004	39	- .28	-2.6	.005
59	01443440	NSIG	NSIG	SKEN	40	.31	1.2	.499	40	.30	1.2	.561
60	01443500	NSIG	NSIG	SKEN	40	- .16	- .76	.498	40	- .14	- .66	.687
61	01445500	NT	NT	NT	--	--	--	--	--	--	--	--
62	01447000	DOWN	DOWN	SKEN	40	- .32	-2.1	.092	40	- .41	-2.7	.054
63	01455200	NSIG	NSIG	SKEN	40	- .17	- .96	.251	40	- .038	- .21	.720
64	01456200	NSIG	NSIG	SKEN	37	0	0	.643	37	.042	.24	.653
65	01457000	NT	NT	NT	--	--	--	--	--	--	--	--
66	01457400	DOWN	DOWN	SKEN	40	- .29	-1.5	.050	40	- .29	-1.4	.081
67	01457500	NT	NT	NT	--	--	--	--	--	--	--	--
68	01461000	NSIG	NSIG	SKEN	40	- .43	-2.2	.160	40	- .29	-1.5	.166
69	01463500	NSIG	NSIG	SKEN	40	- .35	-1.8	.233	40	- .21	-1.1	.348
70	01463620	DOWN	DOWN	SKEN	40	- .61	-3.3	.002	38	- .78	-4.2	.014
71	01464000	NT	NT	NT	--	--	--	--	--	--	--	--
72	01464500	NSIG	NSIG	SKEN	40	- .18	- .80	.133	40	- .19	- .83	.531
73	01464515	NSIG	NSIG	SKEN	40	- .26	-1.3	.162	40	- .25	-1.2	.447
74	01465850	NT	NT	NT	--	--	--	--	--	--	--	--
75	01466500	NT	NT	NT	--	--	--	--	--	--	--	--
76	01467000	NT	NT	NT	--	--	--	--	--	--	--	--
77	01467069	NSIG	NSIG	SKEN	40	0	0	1.000	40	.41	.76	.687
78	01467081	DOWN	NSIG	SKEN	40	-1.5	-3.2	.006	40	.35	.76	.964
79	01467150	NT	NT	NT	--	--	--	--	--	--	--	--
80	01467329	NSIG	NSIG	SKEN	40	- .21	-1.6	.108	40	- .038	- .28	.929
81	01477120	NSIG	NSIG	SKEN	40	0	0	.550	40	- .22	- .89	.591
82	01477510	NSIG	NSIG	SKEN	40	.053	.22	.787	40	.23	.95	.447
83	01482500	NSIG	NSIG	SKEN	40	- .21	- .66	.414	40	1.0	3.2	.166

Hickman, R.E., and Barringer, T.H.—TRENDS IN WATER QUALITY OF NEW JERSEY STREAMS, WATER YEARS 1986-95—U.S. Geological Survey Water--Resources Investigations Report 98-4204