State of New Jersey
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AMBIENT BIOMONITORING NETWORK

Raritan River Drainage Basin

1993 - 94 Benthic Macroinvertebrate Data

New Jersey Department of Environmental Protection
ROBERT C. SHINN, JR.
COMMISSIONER

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Introduction

Historical Perspective

Since the early 1970's, the Bureau of Water Monitoring has been conducting biomonitoring studies on the state's waterbodies. Biomonitoring conducted by the bureau has included both long-term ambient monitoring and intensive surveys.

Between 1977 and 1988 the ***Ambient Station Biomonitoring Network*** was sampled in cooperation with USEPA (Region II and Headquarters) and USGS. The resulting biological data was utilized by the 305(b) program in its evaluations of waterbody impairment. After 1988, funding for ambient biomonitoring was severely curtailed, resulting in the abandonment of routine ambient biomonitoring in the State.

In 1991, the bureau received numerous requests from the Office of Regulatory Policy to reactivate the Ambient Biomonitoring Network. The network stations have not been sampled since 1988 and a revisiting of the entire network was overdue. Long-term monitoring data from this network will be most beneficial to the generation of the 305(b) biennial report, to the updating of the 303(d) list, to providing the department with the baseline data necessary to make sound environmental policy decisions in watershed management, and to direct permit activities.

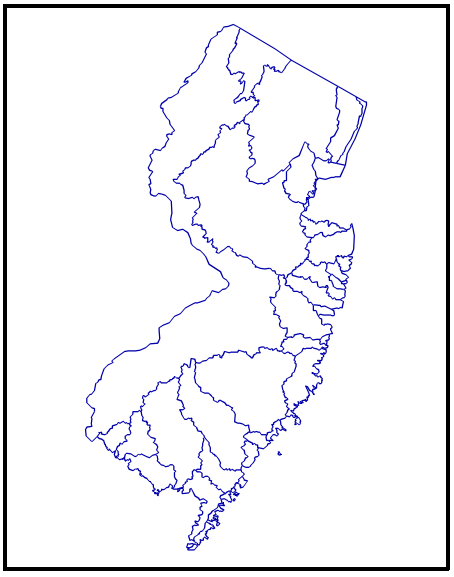


Figure 1 - **Major Drainage Basins in N.J.**

Data Quality Objectives

Accordingly, in 1992 (NJ fiscal year 93), the bureau designed and initiated the ***Ambient Biomonitoring Network (AMNET)***. The goal of the program is to establish a network of lotic (running water) stations in each major watershed drainage basin (see Figure 1). Each watershed drainage basin will be biomonitored for benthic macroinvertebrate populations on a five to six year rotation. The frequency of sampling is reflective of a realistic temporal lag between the cessation of a perturbation and a biological community's recovery from said perturbation. Experience in the 305(b) program, which reexamines the responses of N.J.'s biological communities to changes in water quality on a two year cycle, has indicated that five years is the optimum frequency for long-term biomonitoring.

Based upon existing database deficiencies, the Raritan River Drainage Basin was selected to be monitored. The basin was sampled from the sources of its many tributaries in Union, Morris, Hunterdon, Mercer and Monmouth counties down to the confluence with the South River in Middlesex County.

Site Selection

At least one monitoring station has been located on every second order stream and all first order streams at least three miles in length. Stream order is defined as a measure of the position of a stream in the hierarchy of tributaries. First order streams are those with no tributaries, while second order streams are those that have as tributaries only first order streams.

To the greatest extent possible, the network incorporated existing USGS and NJDEP ambient monitoring stations so that correlation of the data sets could be maximized. Furthermore, the network was designed with mainstem (second or third order) stations located before the confluence of major tributaries and with stations located so as to assess the impacts of larger lakes. Known sources of contamination, and significant natural features (i.e., freshwater wetlands, preserves, FG&W Management Areas, etc.) were also considered when selecting the sampling locations. **Monitoring station locations in the study area are indicated on the G.I.S. Maps # 1 through 16.** All stations were positioned via the Global Positioning System, using Trimble Pathfinder Basic Plus global positioning units. Position data was corrected via the NJDEP and University of Rhode Island base station data sets. ***Appendix A contains a compilation of all station locations as generated by the GPS.***

Since the objectives of this monitoring network are to provide long-term basin wide biological impact data, the geographical dispersion of the stations was deemed adequate. However, it is likely that the monitoring resolution will not be sufficient to adequately assess the impact of any one point source of pollution. The development of site specific biological impact data is best handled by conducting an intensive biomonitoring survey.

While biological monitoring using benthic macroinvertebrate community structure is an excellent water quality monitoring tool, it is only one branch of water quality monitoring. Additional tools include water column chemistry, sediment chemistry, toxicity testing, fish tissue analysis, and fish community analysis. The most comprehensive evaluation would incorporate all of these elements. However, financial constraints make such monitoring difficult to perform. The frugality of benthic macroinvertebrate analysis provides the water pollution control professional with a holistic assessment of water quality at a reasonable cost.

Methods

Benthic Macroinvertebrate Sampling

The benthic macroinvertebrate sampling was performed in accordance with the procedures delineated in Chapter 7, section K. of the department's "Field Procedures Manual, NJDEP, May 1992" and, with the following modifications for application to New Jersey's waters, the USEPA's Rapid Bioassessment Protocol II as given in "U.S. Environmental Protection Agency (EPA), 1989, Rapid Bioassessment

Protocols For Use In Streams and Rivers, EPA/4444/4-89-001, Assessment and Watershed Protection Division, Washington D.C." The rapid bioassessment was based upon an evaluation of relatively few samples collected at each station. AMNET's goal is to perform an evaluation of overall biological integrity by capitalizing upon the ability of benthic communities to holistically reflect environmental perturbations. It was imperative, therefore, that sampling be conducted when most of the benthic macroinvertebrates had both attained a size range likely to be retained during standard sieving and sorting, and when in a life stage most conducive to accurate identification. Since most emergence and reproduction occur in the spring and fall, a time when about 80 percent of the macroinvertebrates would be too small to be captured by conventional methods, the period between early June and early September was selected as the optimal collection period. In cases where fall emergence and reproduction were not an issue, sampling could continue into late fall / early winter.

Protocol II of the Rapid Bioassessment (RBPII) employs a systematic field collection of benthic macroinvertebrates and the subsequent analysis of the samples for major taxa. Semiquantitative samples of benthic macroinvertebrates were collected from three different locations at each sampling station. Both riffle/run area samples and Coarse Particulate Organic Matter (CPOM) samples were included in a composite sample for a given station. Using composite samples ameliorates the effects of habitat inconsistency between stations. Samples were collected either with a Surber Sampler, Kick Net, Petite Ponar, or by hand picking. During the field investigation, qualitative observations of habitat, surrounding land use, obvious sources of pollution, and observations of other aquatic biota were made and recorded.

The entire sample collected was sieved through a #30 mesh sieve, put into an appropriate container, preserved with between 5% - 10% formalin (up to 20% formalin was used in cases of excessive organic loading), and transported to the bureau's biomonitoring laboratory for sorting and identification.

Sample Sorting and Identification

The samples were placed on a grid in a small pan with a light colored bottom for the sorting and enumeration of a 100-organism subsample, as per the protocol. The subsampling procedure consisted of evenly distributing the composite sample into the pan. Grids were randomly selected and all organisms within those grids were removed until 100 had been counted. All organisms in the subsample were identified to at least family, though in most cases the identifications were taken to the species level.

Data Analysis

Benthic community biological impairment may be manifested by the absence of pollution sensitive macroinvertebrate taxa (such as Ephemeroptera [mayfly], Plecoptera [stonefly], and Trichoptera [caddisfly]); by excessive dominance by certain taxon (especially pollution tolerant groups such as some Chironomidae [midge] and Oligochaeta [aquatic worm]); by low overall taxa richness; or by perceptible shifts in community structure relative to a reference condition. All of these indicators were utilized in evaluating the RBPII sampling data generated during this study.

The RBPII data analysis protocol is a standardized bioassessment protocol developed by the USEPA in response to a need for a cost effective biomonitoring tool. The RBPII data analysis protocol integrates

several community, population, and functional parameters into one easily comprehended evaluation of biological integrity. This integrated approach to data analysis recognizes that each parameter, or biometric, has different ranges of sensitivity to pollution stresses. An integrated assessment provides increased assurance of validity due to the variety of biometrics evaluated. A deficiency in any one metric for a particular environmental situation is, therefore, less likely to invalidate the study conclusions. The integrated assessment results in each station being given a biological condition category rating, providing the analyst with an easily communicated assessment of relative impairment; this assessment is referred to in this report as the ***Bioassessment Rating***.

The USEPA RBPII data analysis protocol, with some revision, was utilized to evaluate the 1993-94 sample data. Sample station data was evaluated by comparison to a historical database, consisting of 200 benthic macroinvertebrate samples collected in the state, using the impairment criteria developed by Mr. J. Kurtenbach, USEPA - Region II (A Method for Rapid Bioassessment of Streams in New Jersey Using Benthic Macroinvertebrates, Annual Meeting of the North American Benthological Society, Santa Fe, 1991). The bioassessment scores resulting from said analyses are referred to as ***NJ Impairment Scores (NJIS)***.

The biometrics used in the assessments are based on family level taxonomy. The NJIS was developed, using the aforementioned database, for evaluating New Jersey biomonitoring stations. Community metric criteria were established for three categories of water quality bioassessment; ***non-impaired***, ***moderately impaired***, and ***severely impaired*** (Table 1), using the following metrics: **Taxa Richness,** which reflects the health of a community through a measure of the total taxa; **E + P + T**; the total number of the intolerant forms: *Ephemeroptera*, *Plecoptera*, and *Tricoptera*; **%EPT** (including the hydropsychid family); **%Contribution of the Dominant Family** (%CDF), a measure of community balance based upon the abundance of the numerically dominant taxon relative to the entire population; and **Modified Family Biotic Index** (FBI), which summarizes FTV (Family Tolerance Values) into a single score reflective of organic pollution.

In addition to the metrics listed above, any abnormalities observed in chironomid detritovores, herbivores, and periphyton feeders, demonstrated by number of abnormalities per number of chironomids analyzed for abnormalities, were also used, qualitatively, when developing the final evaluation of biological impairment.

Results and Discussion

The bioassessment ratings developed for each of the monitoring stations were used as the basis for evaluating the degree of biological impairment in the stream segments. In each subbasin, starting from the most downstream station, estimated stream segment bioassessment ratings were assigned by interpolating from the downstream station to the next contiguous upstream station. **The estimated stream segment bioassessment ratings are presented as color coded highlighted segments on each of the G.I.S. Maps # 1 through 16**. These ratings are best estimates of the instream biological impairment based upon the available data. For any given segment the actual instream conditions may be different due to unknown sources of degradation.

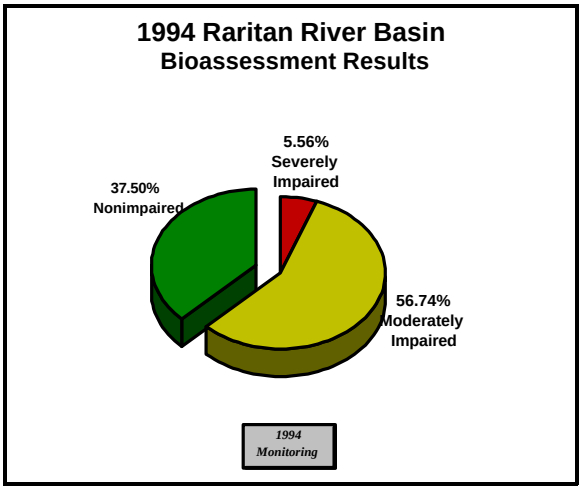


Figure 2

Overall, out of 144 monitoring stations sampled during this study period, (two, AN0454 and AN0455, were not sampled due to inaccessibility) **37.5%** were rated as ***NONIMPAIRED***, **56.74%** were rated as ***MODERATELY IMPAIRED***, and **5.56%** were rated as ***SEVERELY IMPAIRED*** (Figure 2).

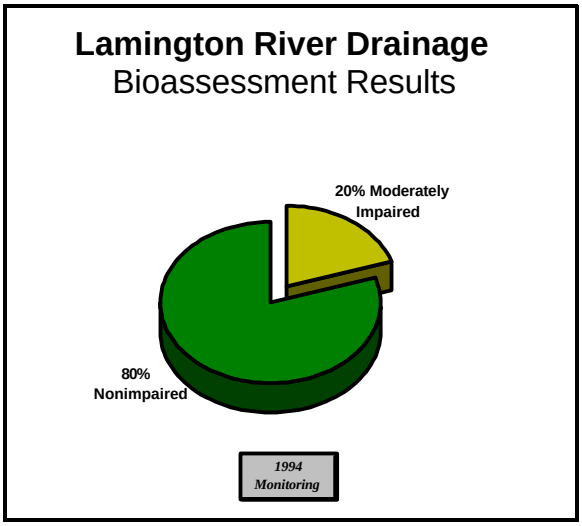


Figure 3

When the Raritan River Drainage Basin is examined by subbasin, different patterns of biological impairment emerge. The Lamington River drainage is depicted in Figure 3 (map 1). The majority of sites (80%) were rated as nonimpaired. The remaining sites (20%) were rated as moderately impaired.

The North Branch Raritan River drainage is depicted in Figure 4 (maps 2 & 3). No impairment was indicated at 81.25% of the sites, while moderate impairment was found at 18.75%.

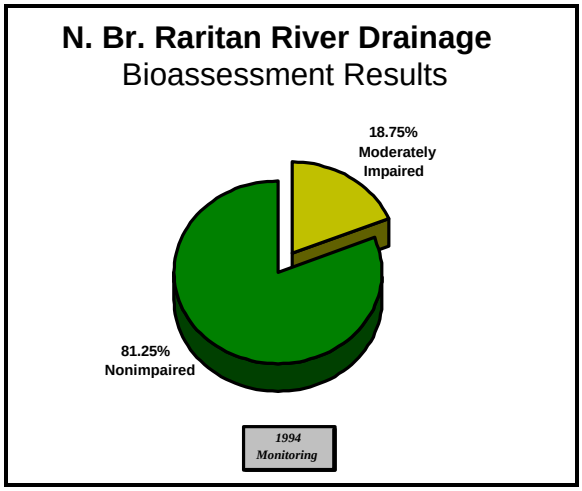


Figure 4

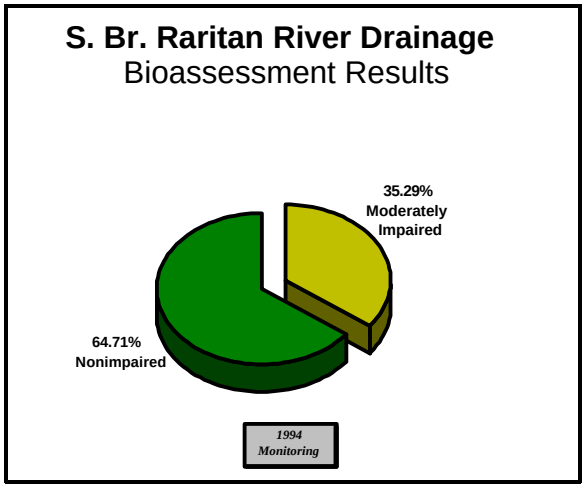


Figure 5

The South Branch Raritan River drainage is depicted in Figure 5 (maps 4, 5, 6 & 7). Nonimpaired ratings were given to 64.71% of the sites. Moderate impairment was determined at the remaining 35.29% of the sites.

The Millstone River drainage is depicted in Figure 6 (maps 8, 9 & 10). The majority of the sites (83.78%) were rated as moderately impaired. No impairment was found at 10.81% of the sites while severe impairment was determined at 5.41% of the sites.

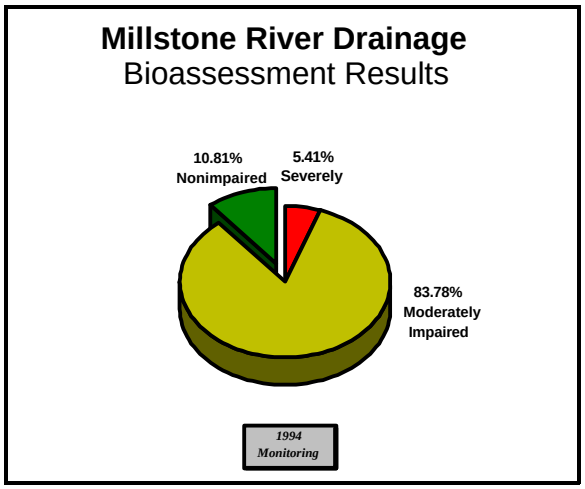


Figure 6

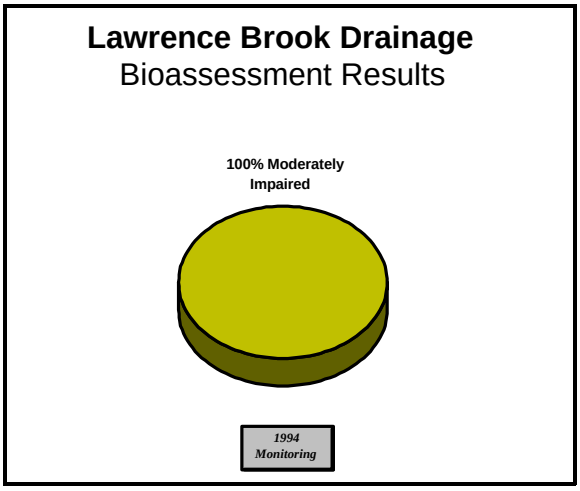


Figure 7

The Lawrence Brook drainage is depicted in Figure 7 (map 11). The results revealed that 100% of the sites were moderately impaired.

The South River drainage is depicted in Figure 8 (maps 12, 13, & 14). No impairment was indicated at 5.88% of the sites. The majority of the sites (70.59%) were rated as moderately impaired while 23.53% were rated as severely impaired.

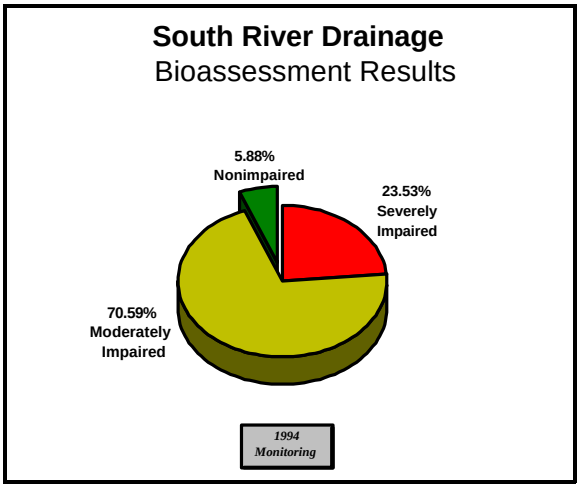


Figure 8

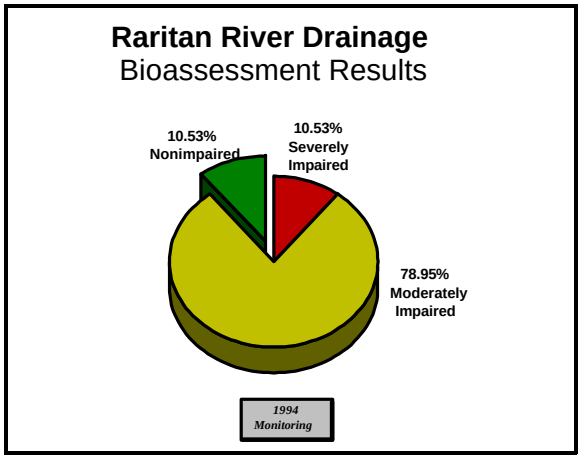


Figure 9

The Raritan River mainstem drainage with its associated smaller tributaries is depicted in Figure 9 (maps 14, 15 & 16). The majority of the sites (78.95%) were rated as moderately impaired. No impairment was found at 10.53% of the sites while the remaining 10.53% of the sites were rated as severely impaired.

The raw taxonomic data, statistical analyses, and biological assessment ratings for each station are located in ***Appendix B***.

References

Kurtenbach, J., *A Method for Rapid Bioassessment of Streams in New Jersey Using Benthic Macroinvertebrates*, Bulletin of the North American Benthological Society, 8(1):129., 1990.

New Jersey Department of Environmental Protection, Bureau of Water Monitoring, *Standard Operating Procedures Manual for Biomonitoring Laboratory*, 1990.

New Jersey Department of Environmental Protection and Energy, *Field Sampling Procedures Manual* NJDEPE, 1992.

U.S. Environmental Protection Agency, *Rapid Bioassessment Protocols For The Use In Streams And Rivers* USEPA, 1989.

TABLE 1

CRITERIA FOR SCREENING WATER QUALITY IN NEW JERSEY STREAMS

Scoring Criteria For Rapid Bioassessments[1]

Biometrics	6	3	0
Taxa Richness (total Families)	> 10	10-5	4-0
E + P + T Index (EPT)	> 5	5-3	2-0
Percent Dominance (%CDF)	< 40	40-60	> 60
Percent EPT[2] (%EPT)	> 35	35-10	< 10
Modified Family Biotic Index[3] (FBI)	0-4	4-6	6-10

Biological Assessment	**Total Score**
Non-impaired	24-30
Moderately Impaired	9-21
Severely Impaired	0-6

Attributes

Non-impaired: Benthic community comparable to other undisturbed streams within the region. A community characterized by a maximum taxa richness, balanced taxa groups and good representation of intolerant individuals.

Moderately Impaired: Macroinvertebrate richness is reduced, in particular EPT taxa. Taxa composition changes result in reduced community balance and intolerant taxa become absent.

Severely Impaired: A dramatic change in the benthic community has occurred. Macroinvertebrates are dominated by a few taxa which are very abundant. Tolerant taxa are the only individuals present.

[1] Based on 100 organism subsamples
[2] Including the hydropsychid family
[3] Also known as the Hilsenhoff Biotic Index

APPENDIX A

Raritan Basin GPS Data

Station	Waterbody	Longitude	Latitude
AN0310	S Br Raritan River	74 45'35.854"W	40 51'37.094"N
AN0311	Drakes Bk	74 40'41.956"W	40 51'21.932"N
AN0312	Drakes Bk	74 43'45.689"W	40 48'43.555"N
AN0313	Stony Bk	74 45'03.008"W	40 48'18.444"N
AN0314	Electric Bk	74 46'34.952"W	40 47'23.423"N
AN0315	S Br Raritan River	74 46 48.068"W	40 47'06.051"N
AN0316	S Br Raritan River	74 50 30.437"W	40 43 07.160"N
AN0317	S Br Raritan River	74 52'18.904"W	40 41 48.921"N
AN0318	Spruce Run	74 54'33.994"W	40 43'29.440"N
AN0319	Spruce Run	74 56'02.431"W	40 41'13.965"N
AN0320	Willoughby Bk	74 54'54.388"W	40 40'17.910"N
AN0321	Mulhockaway Ck	74 58'07.677"W	40 38'50.889"N
AN0322	S Br Raritan River	74 54'41.665"W	40 38'06.966"N
AN0323	Beaver Bk	74 51'55.159"W	40 40'03.182"N
AN0324	Beaver Bk	74 54'34.759"W	40 38'10.799"N
AN0325	Cakepoulin Ck	74 54'56.769"W	40 36'28.147"N
AN0326	S Br Raritan River	74 52'04.310"W	40 34'20.716"N
AN0327	Prescott Bk	74 51'48.234"W	40 34'24.249"N
AN0328	Assiscong Ck	74 50 49.303"W	40 32'23.181"N
AN0329	S Br Raritan River	74 48'06.911"W	40 31'01.180"N
AN0330	First Neshanic River	74 51'44.174"W	40 29'22.982"N
AN0331	Second Neshanic River	74 51'49.423"W	40 28'59.461"N
AN0332	Third Neshanic River	74 51'46.023"W	40 28'29.339"N
AN0333	Neshanic River	74 49'39.483"W	40 28'24.360
AN0334	Back Bk	74 50'50.907"W	40 25'46.280"N
AN0335	Back Bk	74 48'22.644"W	40 27'33.733"N
AN0336	Furmans Bk	74 47'09.998"W	40 27'50.648"N
AN0337	Neshanic River	74 45'11.866"W	40 29'36.452"N
AN0338	S Br Raritan River	74 43'37.036"W	40 30'33.765"N
AN0339	Pleasant Run	74 47'37.118"W	40 33'42.941"N

Station	Waterbody	Longitude	Latitude
AN0340	Pleasant Run	74 44'08.481"W	40 31'12.166"N
AN0341	S Br Raritan River	74 41'47.348"W	40 32'48.659"N
AN0342	Holland Bk	74 46'33.607"W	40 34'44.840"N
AN0343	Holland Bk	74 42'01.971"W	40 33'11.473"N
AN0344	India Bk	74 36'00.921"W	40 49'41.598"N
AN0345	India Bk	74 37'13.896"W	40 47'10.332"N
AN0346	N Br Raritan River	74 37'32.833"W	40 46'16.431"N
AN0347	Dawsons Bk	74 37'41.071"W	40 48'15.845"N
AN0348	Burnetts Bk	74 38'42.290"W	40 46'57.039"N
AN0349	Peapack Bk	74 40'50.428"W	40 45'16.418"N
AN0350	Peapack Bk	74 38'52.271"W	40 41'29.592"N
AN0351	N Br Raritan River	74 38'18.657"W	40 40'58.337"N
AN0352	Mine Bk	74 34'45.474"W	40 42'44.667"N
AN0353	Mine Bk	74 37'48.227"W	40 40'56.332"N
AN0354	Middle Bk	74 40'42.730"W	40 41'37.919"N
AN0355	Middle Bk	74 40'51.794"W	40 38'50.859"N
AN0356	Lamington River	74 38'40.546"W	40 50'06.932"N
AN0357	Tanners Bk	74 43'32.431"W	40 47'17.943"N
AN0358	Lamington River	74 43'18.019"W	40 46'43.453"N
AN0359	Trout Bk	74 43'55.187"W	40 45'16.396"N
AN0360	Lamington River	74 43'17.630"W	40 42'56.246"N
AN0361	Unnamed Tributary to Lamington River	74 42'59.361"W	40 42'24.643"N
AN0362	Cold Bk	74 44'16.069"W	40 40'30.024"N
AN0363	Lamington River	74 43'44.250"W	40 39'38.381"N
AN0364	N Br Rockaway Ck	74 47'10.077"W	40 43'31.244"N
AN0365	N Br Rockaway Ck	74 48'39.928"W	40 41'23.540"N
AN0366	N Br Rockaway Ck	74 45'57.240"W	40 39'42.387"N
AN0367	S Br Rockaway Ck	74 48'58.420"W	40 38'22.213"N
AN0368	S Br Rockaway Ck	74 45'59.963"W	40 37'24.551"N
AN0369	Rockaway Ck	74 43'15.131"W	40 37'23.975"N

APPENDIX A

Raritan Basin GPS Data

Station	Waterbody	Longitude	Latitude
AN0370	Lamington River	74 41'12.197"W	40 38'04.804"N
AN0371	Chambers(B) Bk	74 39'46.916"W	40 37'26.183"N
AN0372	Chambers(A) Bk	74 44'43.402"W	40 36'18.705"N
AN0373	Chambers(A) Bk	74 40'58.840"W	40 35'32.488"N
AN0374	N Br Raritan River	74 40'41.493"W	40 34'11.002"N
AN0375	Dukes Bk	74 36'48.227"W	40 33'14.314"N
AN0376	Peters Bk	74 36'18.868"W	40 34'01.277"N
AN0377	Raritan River	74 34'05.421"W	40 32'39.200"N
AN0378	Millstone River	74 24'04.832"W	40 14'28.495"N
AN0379	Millstone River	74 25'12.305"W	40 15'43.051"N
AN0380	Rocky Bk	74 26'22.149"W	40 13'38.371"N
AN0381	Rocky Bk	74 31'21.855"W	40 16'13.026"N
AN0382	Millstone River	74 36'28.695"W	40 19'19.653"N
AN0383	Big Bear Bk	74 34'36.982"W	40 16'41.201"N
AN0384	Bear Bk	74 36'44.554"W	40 19'05.323"N
AN0385	Cranbury Bk	74 28'23.669"W	40 18'18.858"N
AN0386	Cranbury Bk	74 36'09.714"W	40 19'35.979"N
AN0387	Devils Bk	74 32'42.028"W	40 21'42.428"N
AN0388	Shallow Bk	74 33'25.879"W	40 20'48.608"N
AN0389	Devils Bk	74 35'21.073"W	40 20'35.129"N
AN0390	Camp Harmony Br of Stony Bk	74 48'06.008"W	40 24'12.202"N
AN0391	Stony Bk	74 47'37.479"W	40 22'26.598"N
AN0392	Stony Bk	74 46'01.800"W	40 19'52.630"N
AN0393	Stony Bk	74 40'55.949"W	40 19'59.682"N
AN0394	Duck Pond Run	74 40'04.668"W	40 18'23.496"N
AN0395	Heathcote Bk	74 34'04.740"W	40 22'57.502"N
AN0396	Heathcote Bk	74 36'56.978"W	40 22'11.952"N
AN0397	Millstone River	74 37'12.787"W	40 22'25.677"N
AN0398	Bedens Bk	74 44'25.474"W	40 23'03.999"N
AN0399	Rock Bk	74 44'21.646"W	40 26'23.130"N

Station	Waterbody	Longitude	Latitude
AN0400	Rock Bk	74 41'02.493"W	40 24'46.881"N
AN0401	Bedens Bk	74 39 01.533"W	40 24'52.520"N
AN0402	Pike Run	74 39'25.494"W	40 28'26.673"N
AN0403	Cruser Bk	74 39'36.505"W	40 27'15.949"N
AN0404	Back Bk	74 39'34.796"W	40 25'57.702"N
AN0405	Pike Run	74 38'25.663"W	40 25'12.408"N
AN0406	Simonson Bk	74 36'46.689"W	40 26'18.513"N
AN0407	Ten Mile Run	74 35'08.581"W	40 27'23.093"N
AN0408	Six Mile Run	74 30'52.166"W	40 27'18.952"N
AN0409	Six Mile Run	74 34'16.033"W	40 28'22.389"N
AN0410	Millstone River	74 34'34.587"W	40 28'30.495"N
AN0411	Royce Bk	74 38'50.800"W	40 29'47.714"N
AN0412	Royce Bk Br	74 37'57.560"W	40 30'40.115"N
AN0413	Royce Bk	74 35'22.668"W	40 32'13.363"N
AN0414	Millstone River	74 34'07.554"W	40 32'30.924"N
AN0415	Cuckels Bk	74 34'10.841"W	40 34'07.355"N
AN0416	W Br Middle Bk	74 35'25.710"W	40 36'43.383"N
AN0417	W Br Middle Bk	74 33'48.395"W	40 35'21.701"N
AN0418	E Br Middle Bk	74 29'47.454"W	40 36'47.621"N
AN0419	E Br Middle Bk	74 33'18.072"W	40 35'29.891"N
AN0420	Middle Bk	74 33'12.661"W	40 34'05.056"N
AN0421	Green Bk	74 24'49.425"W	40 38'27.731"N
AN0422	Stony Bk	74 26'45.891"W	40 36'50.903"N
AN0423	Green Bk	74 26'59.268"W	40 36'19.635"N
AN0424	Bound Bk	74 29'57.414"W	40 34'50.497"N
AN0425	Ambrose Bk	74 31'12.003"W	40 34'03.434"N
AN0426	Green Bk	74 31'28.350"W	40 33'42.746"N
AN0427	Unnamed Tributary to Raritan River	74 31'08.009"W	40 32'43.133"N
AN0428	Raritan River	74 30'45.415"W	40 32'27.225"N
AN0429	Mile Run	74 28'02.071"W	40 30'20.042"N

APPENDIX A

Raritan Basin GPS Data

Station	Waterbody	Longitude	Latitude
AN0430	Lawrence Bk	74 32'37.700"W	40 22'51.506"N
AN0431	Lawrence Bk	74 29'36.930"W	40 24'58.850"N
AN0432	Oakeys Bk	74 29'52.230"W	40 25'06.100"N
AN0433	Ireland Bk	74 29'05.490"W	40 25'13.409"N
AN0434	Lawrence Bk	74 26'46.339"W	40 26'55.734"N
AN0435	Sawmill Bk	74 25'31.092"W	40 27'30.816"N
AN0436	Mill Bk	74 22'41.572"W	40 30'19.531"N
AN0437	Manalapan Bk	74 22'37.976"W	40 12'03.912"N
AN0438	Manalapan Bk	74 20'58.593"W	40 15'11.336
AN0439	Manalapan Bk	74 23'52.302"W	40 17'46.133"N
AN0440	Manalapan Bk	74 24'55.526"W	40 22'29.077"N
AN0441	Weamaconk Ck	74 17'39.011"W	40 16'16.554"N
AN0442	Wemrock Bk	74 18'48.562"W	40 15'38.376"N
AN0443	Weamaconk Ck	74 21'41.881"W	40 17'50.467"N
AN0444	McGellairds Bk	74 17'40.200"W	40 16'46.999"N
AN0445	Tepehemus Bk	74 19'11.045"W	40 17'45.840"N
AN0446	Milford Bk	74 19'10.375"W	40 18'04.840"N
AN0447	McGellairds Bk	74 21'24.895"W	40 18'06.501"N
AN0448	Matchaponix Bk	74 21'42.425"W	40 18'51.593"N
AN0449	Pine Bk	74 21'00.198"W	40 18'55.566"N
AN0450	Barclay Bk	74 21'25.188"W	40 20'54.059"N
AN0451	Matchaponix Bk	74 22'03.691"W	40 21'35.558"N
AN0452	Iresick Bk	74 21'33.397"W	40 23'35.113"N
AN0453	Deep Run	74 18'28.741"W	40 23'05.771"N
AN0454	Deep Run	74 20'45.052"W	40 24'35.749"N
AN0455	Tennent Bk	74 20'39.356"W	40 25'40.902"N

Map 1

LAMINGTON RIVER WATERSHED

BIOLOGICAL IMPAIRMENT LEVEL COLOR CODES

- Non-Impaired
- Moderately Impaired
- Severely Impaired

Water Monitoring Management
Bureau of Water Monitoring

0 1 2 3 4 5
MILES

Map 2

NORTH BRANCH RARITAN RIVER WATERSHED IN PART

BIOLOGICAL IMPAIRMENT LEVEL
COLOR CODES

- Non-Impaired
- Moderately Impaired
- Severely Impaired

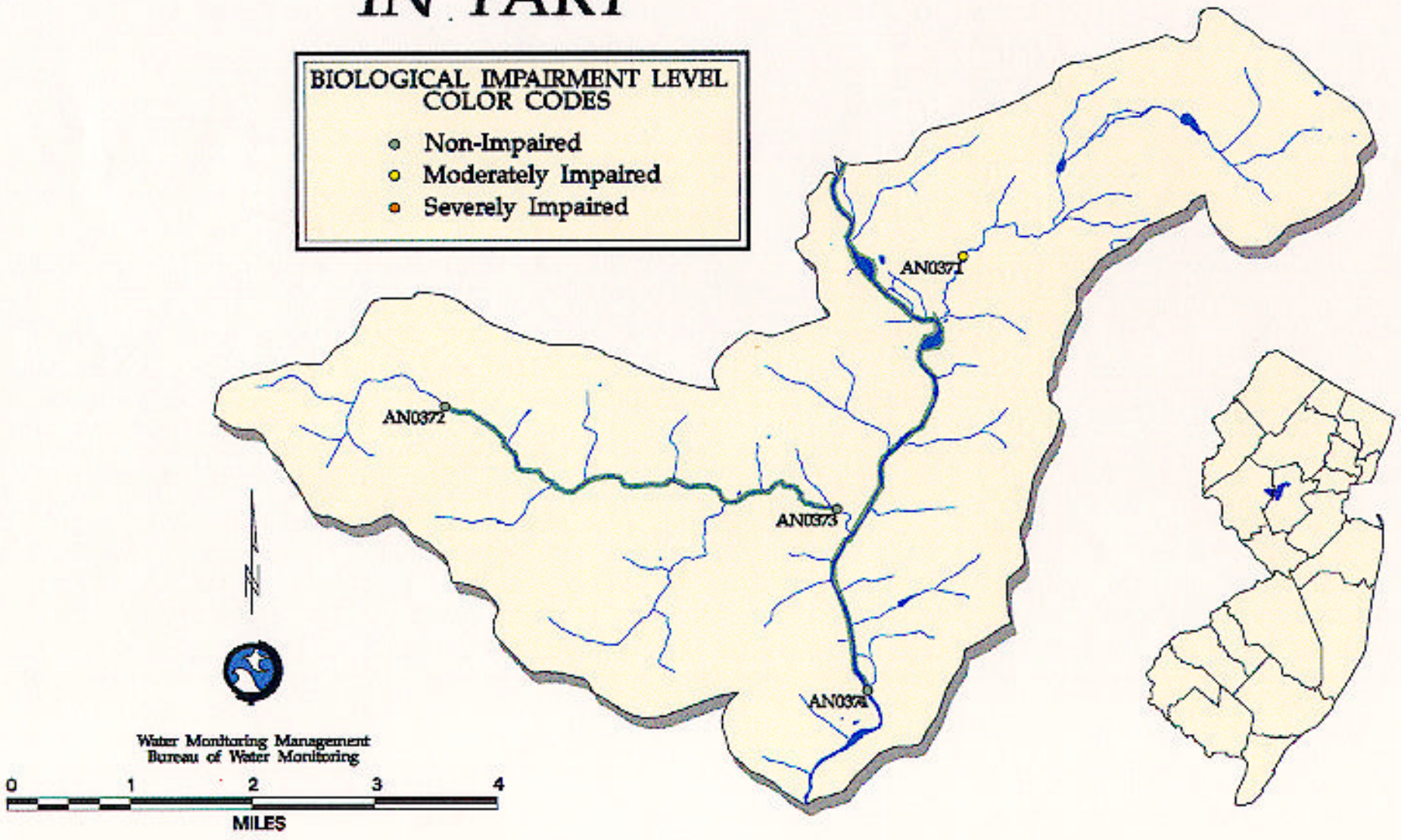
Water Monitoring Management
Bureau of Water Monitoring

0 1 2 3 4 5

MILES

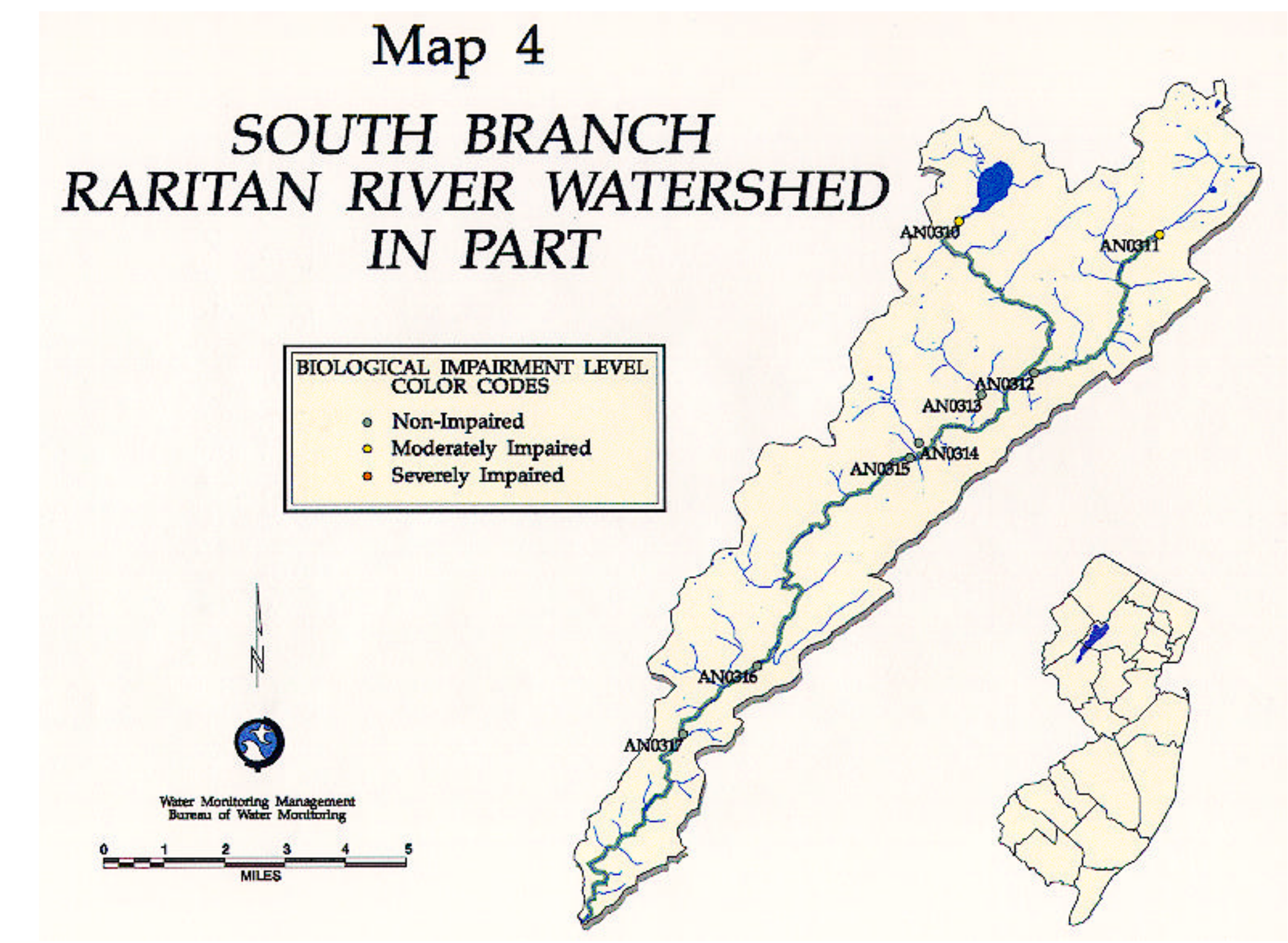
Map 3

NORTH BRANCH RARITAN RIVER WATERSHED IN PART



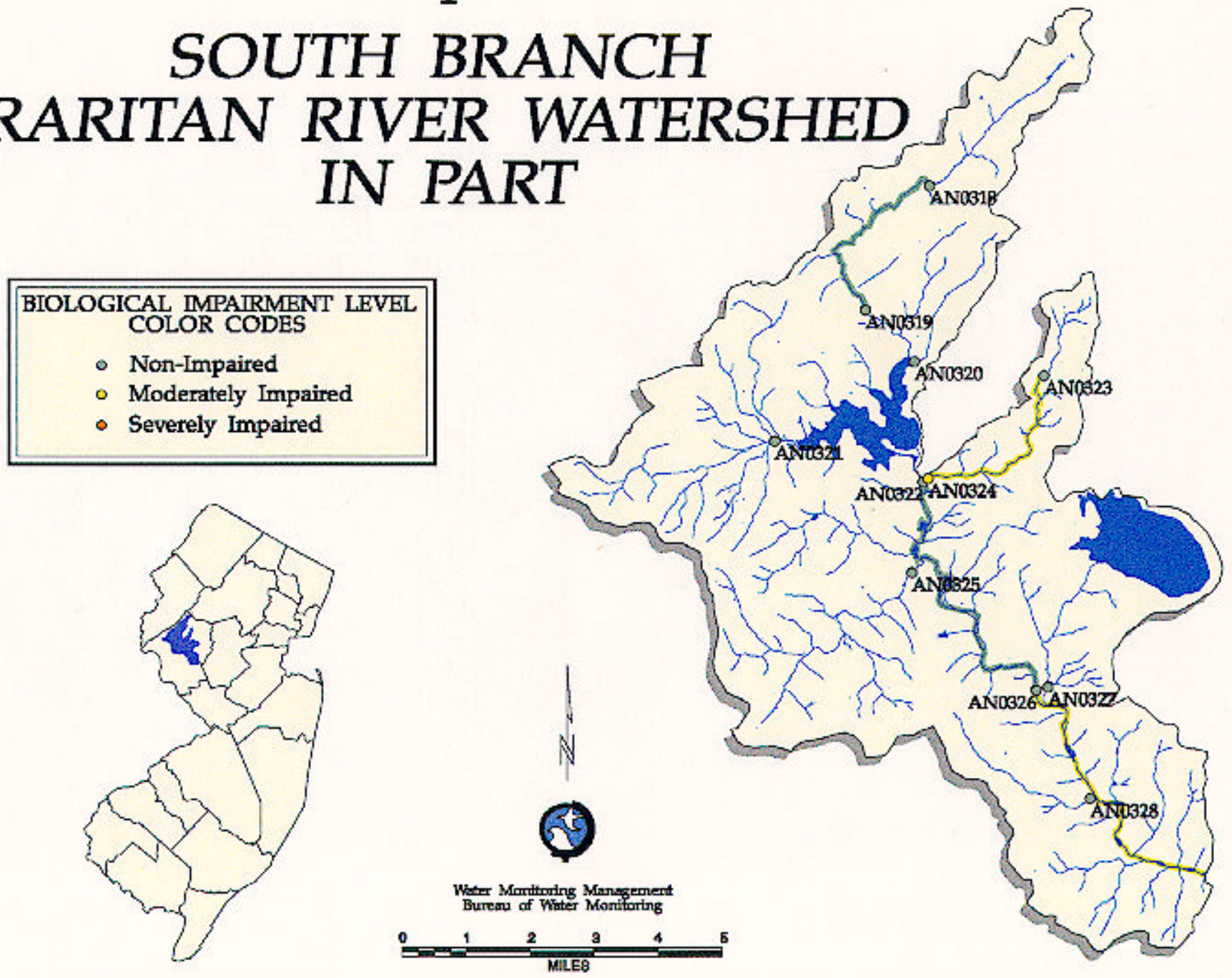
Map 4

SOUTH BRANCH RARITAN RIVER WATERSHED IN PART



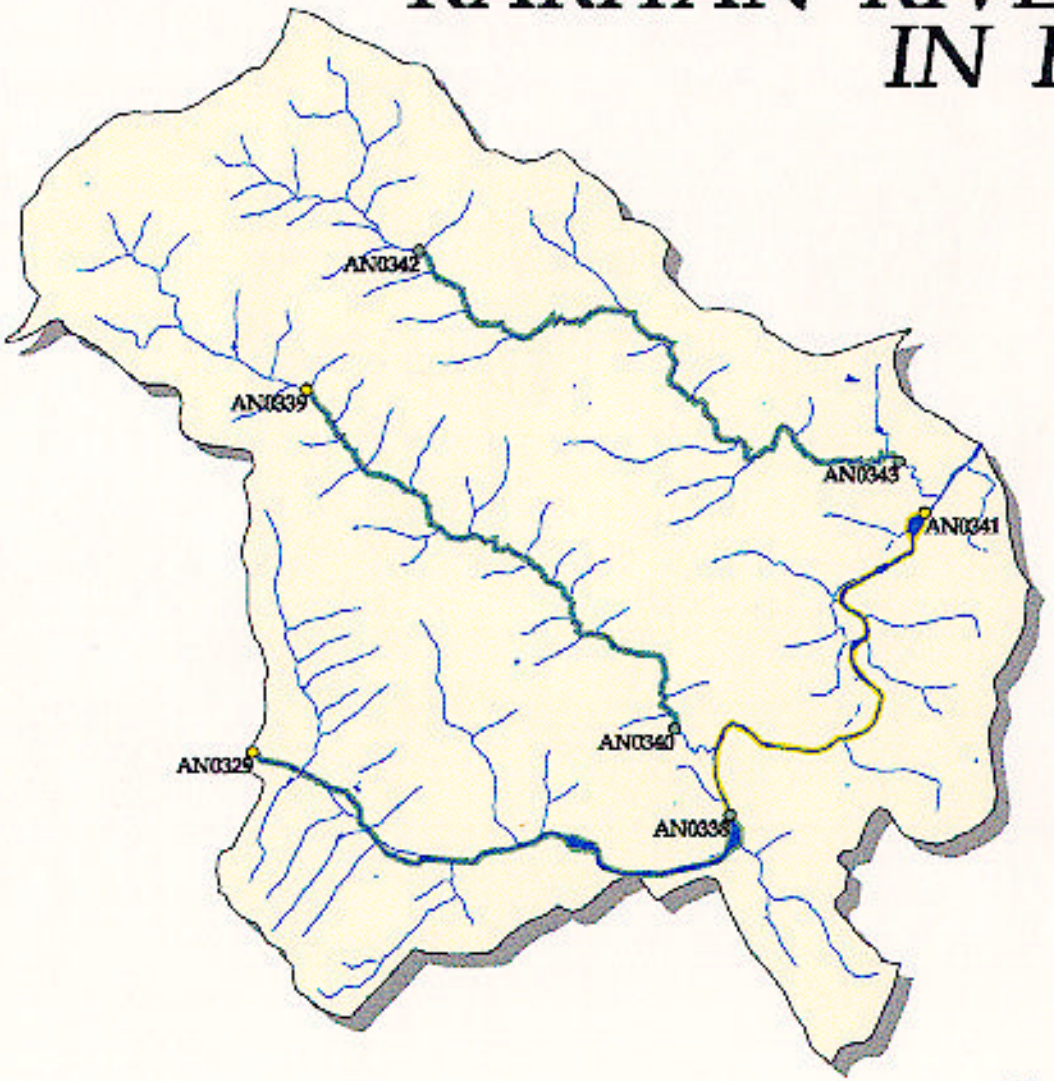
Map 5

SOUTH BRANCH RARITAN RIVER WATERSHED IN PART



Map 6

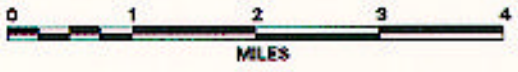
SOUTH BRANCH RARITAN RIVER WATERSHED IN PART



BIOLOGICAL IMPAIRMENT LEVEL COLOR CODES

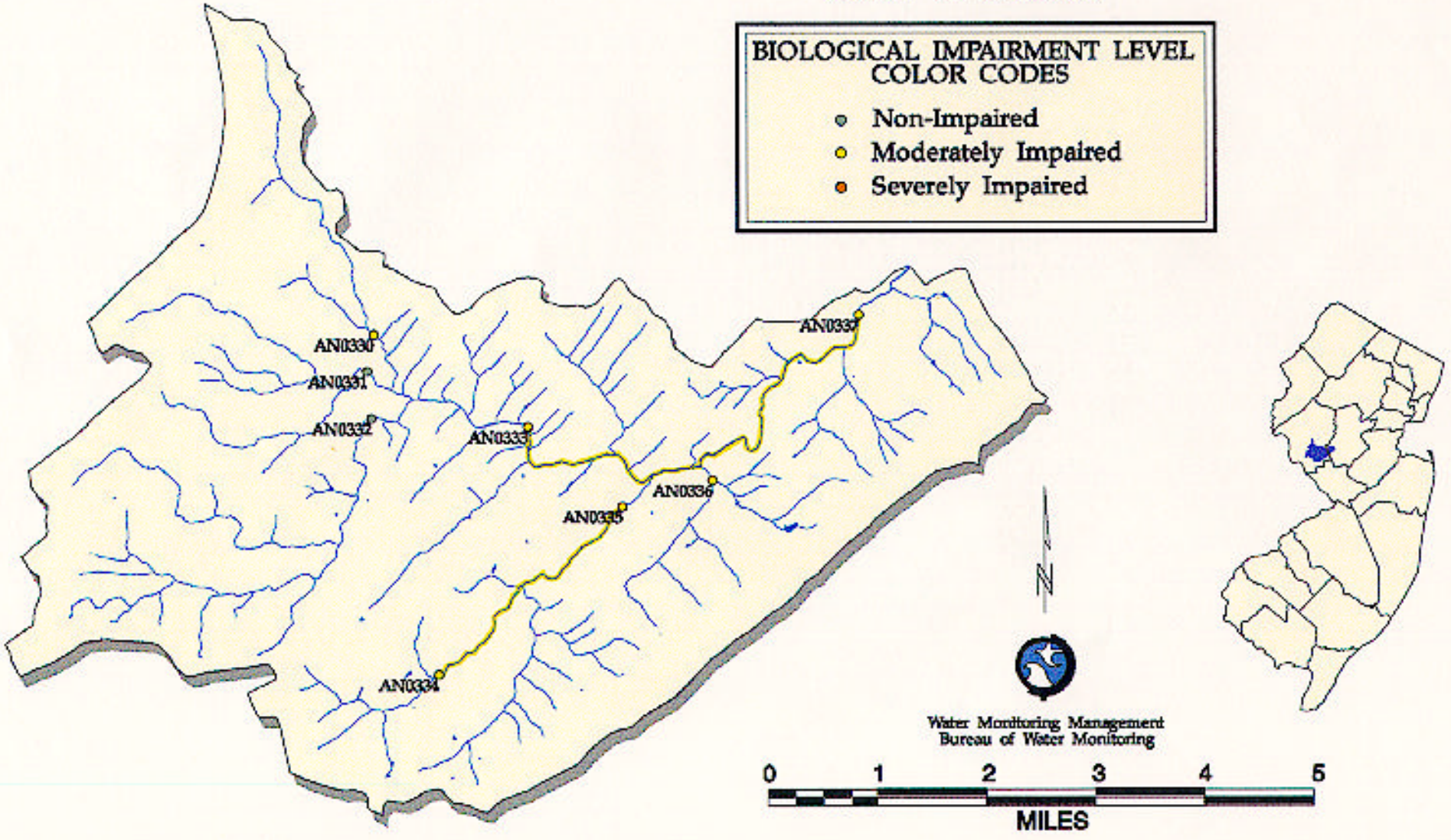
- Non-Impaired
- Moderately Impaired
- Severely Impaired

Water Monitoring Management
Bureau of Water Monitoring



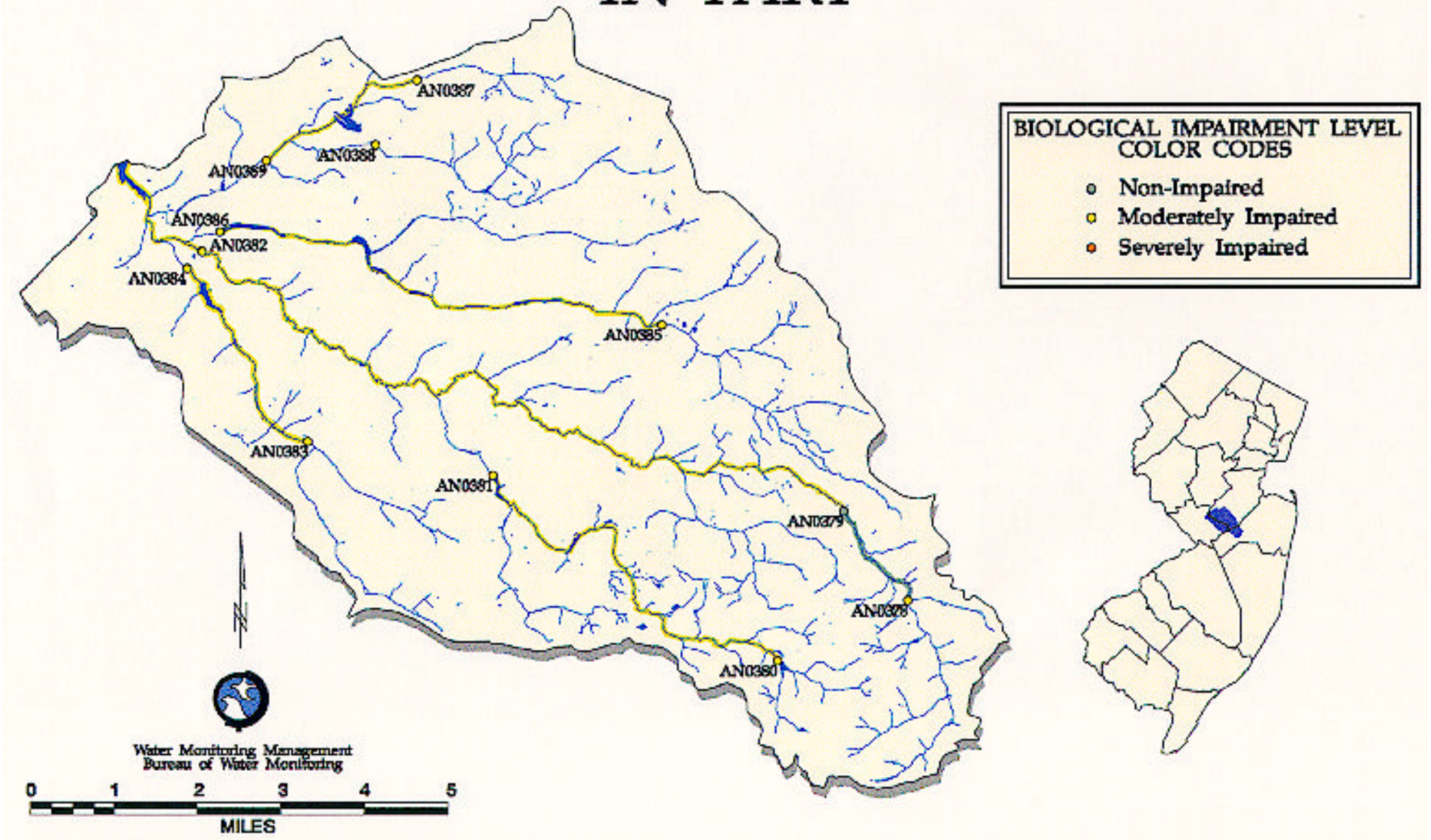
Map 7

SOUTH BRANCH RARITAN RIVER WATERSHED IN PART



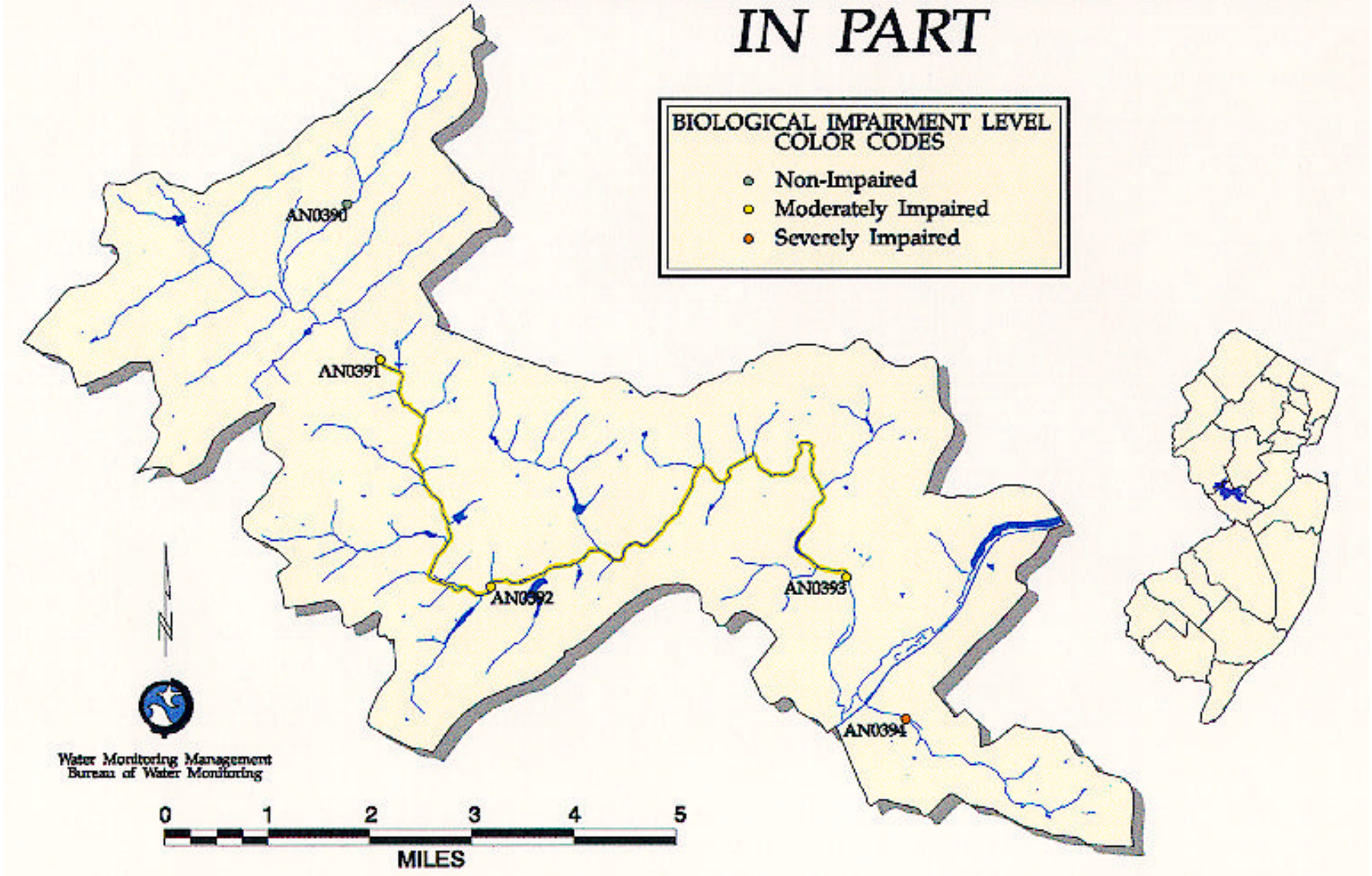
Map 8

MILLSTONE RIVER WATERSHED IN PART



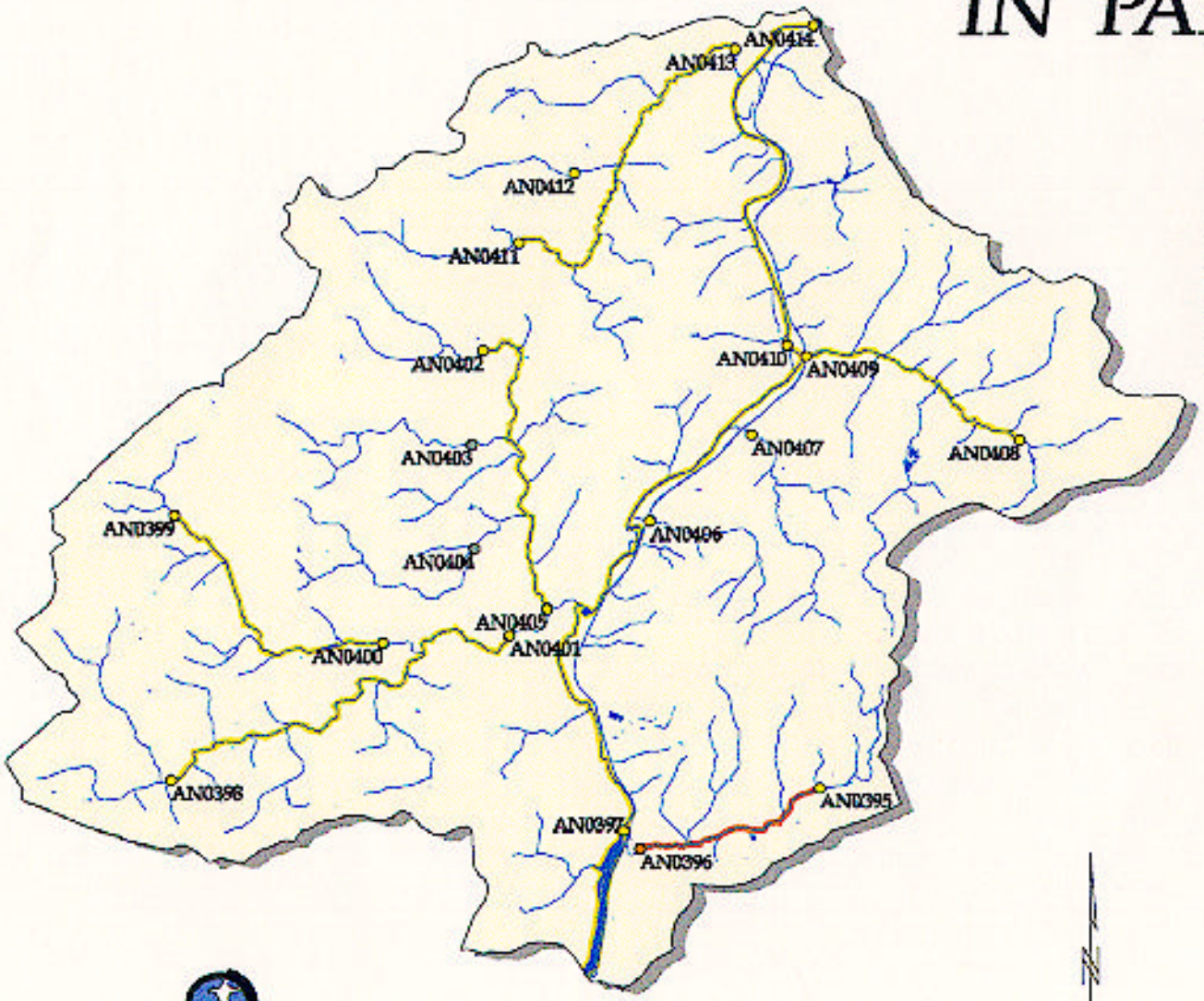
Map 9

MILLSTONE RIVER WATERSHED IN PART



Map 10

MILLSTONE RIVER WATERSHED IN PART



BIOLOGICAL IMPAIRMENT LEVEL COLOR CODES

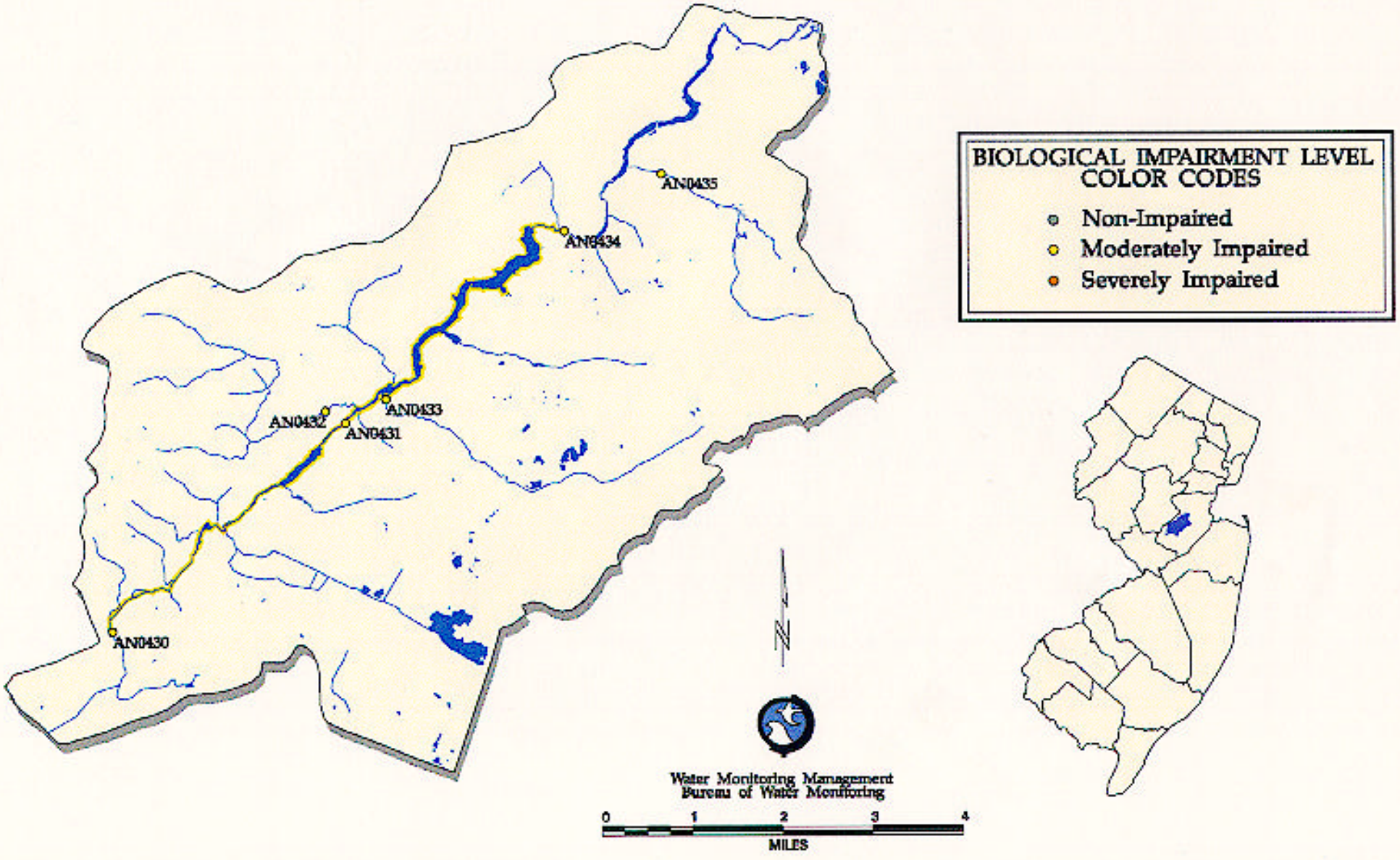
- Non-Impaired
- Moderately Impaired
- Severely Impaired

Water Monitoring Management
Bureau of Water Monitoring

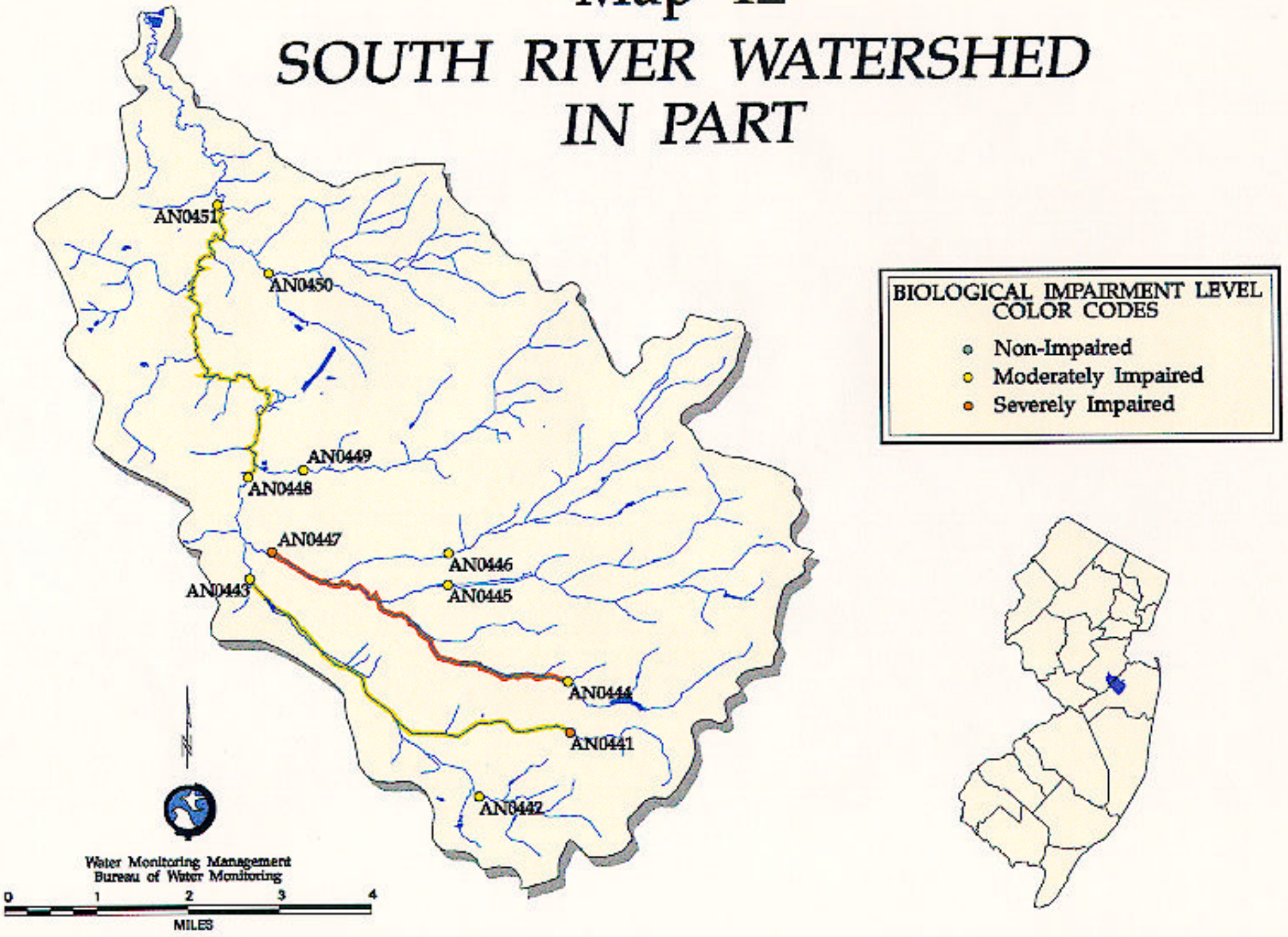
0 1 2 3 4 5
MILES

Map 11

LAWRENCE BROOK WATERSHED



Map 12
SOUTH RIVER WATERSHED
IN PART



Map 13

SOUTH RIVER WATERSHED IN PART

BIOLOGICAL IMPAIRMENT LEVEL COLOR CODES

- Non-Impaired
- Moderately Impaired
- Severely Impaired

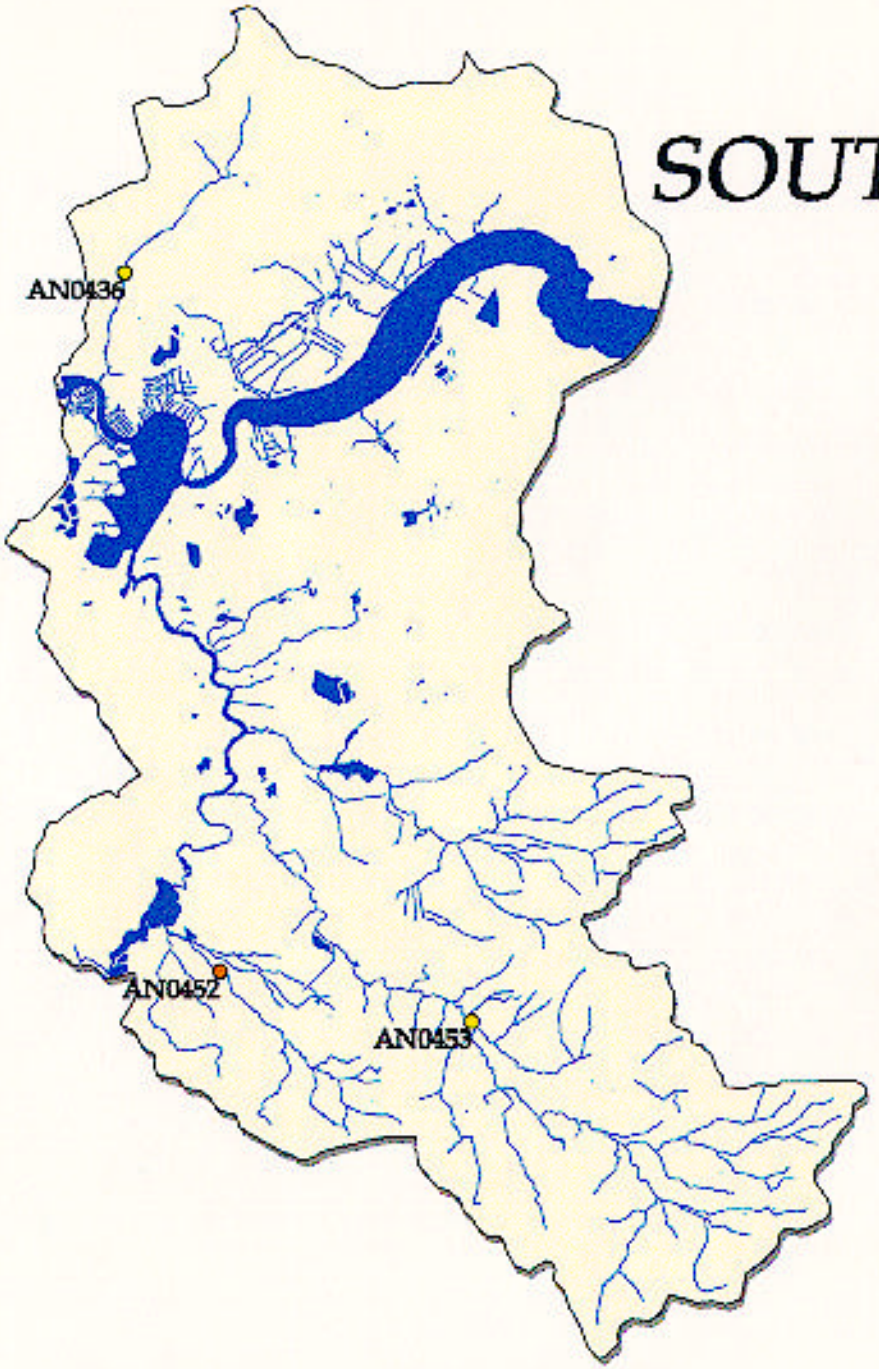
Water Monitoring Management
Bureau of Water Monitoring

0 1 2 3 4 5

MILES

Map 14

SOUTH RIVER WATERSHED IN PART



BIOLOGICAL IMPAIRMENT LEVEL COLOR CODES

- Non-Impaired
- Moderately Impaired
- Severely Impaired

Water Monitoring Management
Bureau of Water Monitoring

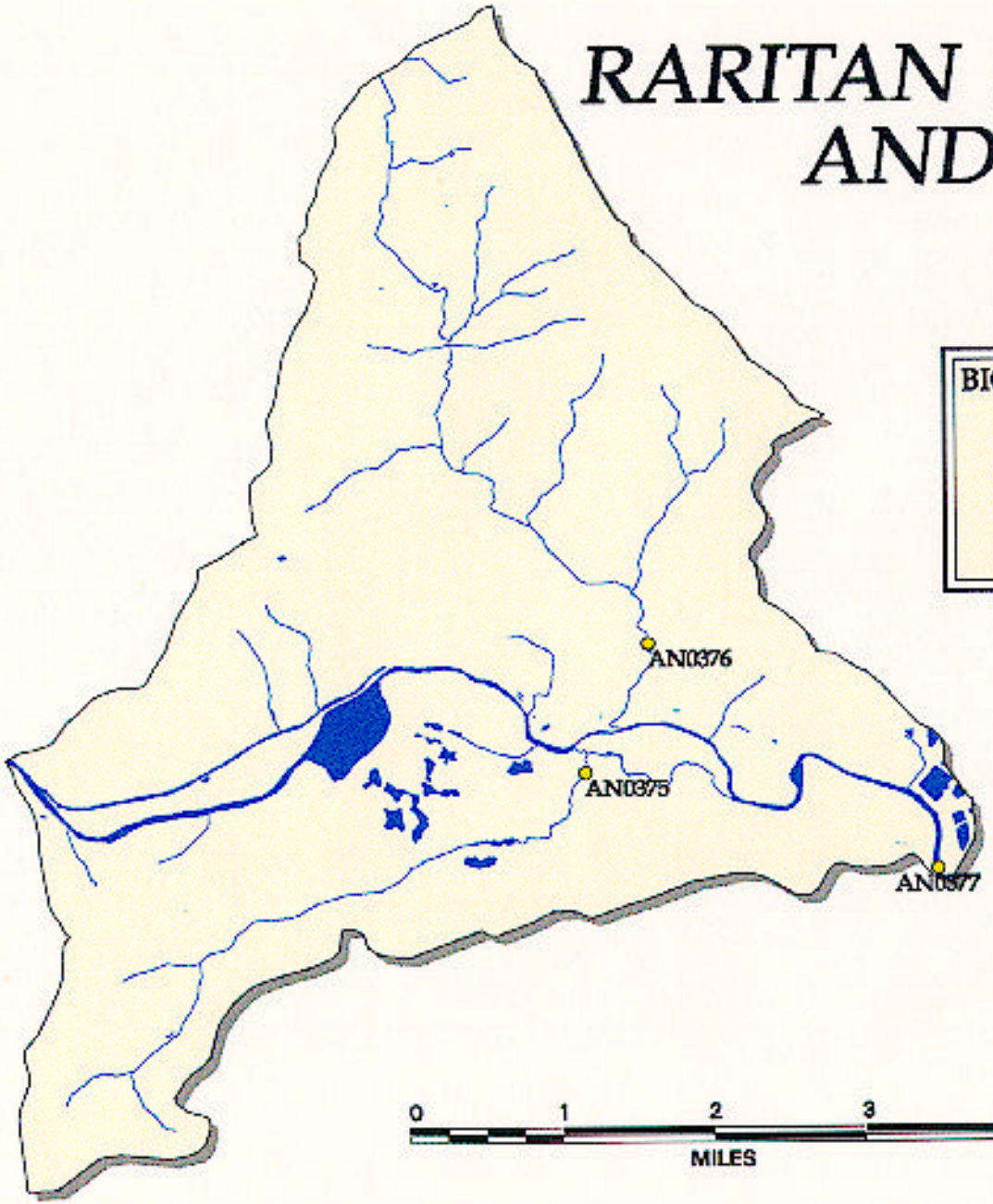
0 1 2 3 4 5

MILES

* Site AN0436 is in the Raritan River Watershed

Map 15

RARITAN RIVER WATERSHED AND TRIBUTARIES IN PART



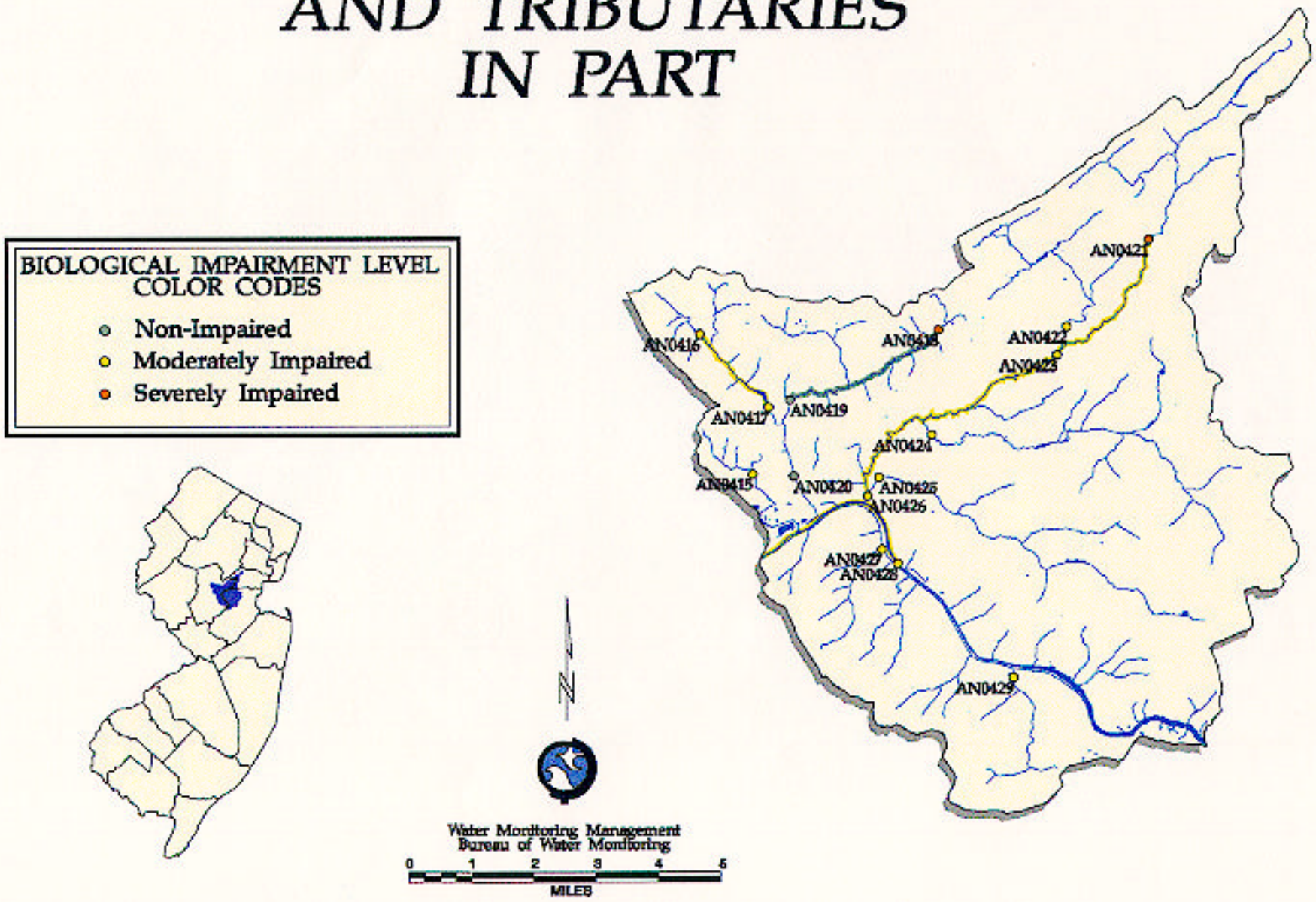
BIOLOGICAL IMPAIRMENT LEVEL COLOR CODES

- Non-Impaired
- Moderately Impaired
- Severely Impaired

Water Monitoring Management
Bureau of Water Monitoring

Map 16

RARITAN RIVER WATERSHED AND TRIBUTARIES IN PART



APPENDIX B

Raritan Basin - Hackettstown USGS Quadrangle
Station AN0310
South Branch Raritan River, Smithtown Road, Mount Olive Township
July 7, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Simuliidae	43	6
Asellidae	21	8
Chironomidae	11	6
Tipulidae	3	3
Gastropoda	2	7
Empididae	1	6
Tubificidae	4	10
Gammaridae	7	4
Hydropsychidae	5	4
Hirudinea	3	10

Statistical Analysis

Number of Taxa: 10
Total Number of Individuals: 100
% Contribution of Dominant Family: 43.00
Family Biotic Index: 6.39
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.01
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 5.00
EPT/C*: 0.45 *(Chironomidae)
NJIS Score: 9
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: moderate…Width/Depth(ft): 6-8/1-2…Substrate: cobble/sand…Streambank Vegetation/Stability: good/good…Canopy: partly shaded…Other: wooded/commercial; sewage odor

Raritan Basin - Chester USGS Quadrangle
Station AN0311
Drakes Brook, Emans Road, Cary
June 16, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	46	4
Gammaridae	28	4
Perlodidae	3	2
Corydalidae	5	0
Philopotamidae	5	3
Chironomidae	11	6
Elmidae	1	4
Simulidae	1	6

Statistical Analysis

Number of Taxa: 8
Total Number of Individuals: 100
% Contribution of Dominant Family: 46.00
Family Biotic Index: 3.93
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.04
E + P + T*: 3 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 54.00
EPT/C*: 4.91 *(Chironomidae)
NJIS Score: 21
Biological Condition: moderately impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: fast…Width/Depth(ft): 12/1…Substrate: rock/sand…Streambank Vegetation/Stability: fair/fair…Canopy: half open…Other: tree-lined/residential; siltation; periphyton; macrophytes

Raritan Basin - Chester USGS Quadrangle
Station AN0312
Drakes Brook, Bartley Long Valley Road, Four Bridges
June 28, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Heptageniidae	3	4
Hydropsychidae	15	4
Asellidae	33	8
Elmidae	7	4
Gammaridae	10	4
Philopotamidae	1	3
Tipulidae	1	3
Chironomidae	14	6
Siphlonuridae	1	7
Nemertea	1	5
Psephenidae	3	4
Glossosomatidae	2	0
Ephemerellidae	3	1
Baetidae	2	4
Turbellaria	1	4
BloodRedChironomidae	1	8
Perlidae	1	1
Rhyacophilidae	1	0

Statistical Analysis

Number of Taxa: 18
Total Number of Individuals: 100
% Contribution of Dominant Family: 33.00
Family Biotic Index: 5.42
Scraper/Filterer Collector Ratio: 0.25
Shredder/Total Ratio: 0.14
E + P + T*: 9 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 29.00
EPT/C*: 1.93 *(Chironomidae)
NJIS Score: 24
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: fast…Width/Depth(ft): 4/ < 1…Substrate: cobble/stone/sand…Streambank Vegetation/Stability: good/good…Canopy: mostly closed…Other: wooded/residential

Raritan Basin - Hackettstown USGS Quadrangle
Station AN0313
Stony Brook, Fairview Avenue, Washington Township
July 7, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	14	4
Ephemerellidae	8	1
Perlodidae	2	2
Simuliidae	7	6
Philopotamidae	7	3
Perlidae	6	1
Baetidae	21	4
Glossosomatidae	6	0
Leuctridae	5	0
Peltoperlidae	1	1
Siphlonuridae	3	7
Tipulidae	1	3
Pteronarcyidae	9	0
Polycentropodidae	1	6
Heptageniidae	1	4
Chironomidae	6	6
Dryopidae	1	5
Lepidostomatidae	1	1
Psephenidae	1	4

Statistical Analysis

Number of Taxa: 19
Total Number of Individuals: 101
% Contribution of Dominant Family: 20.79
Family Biotic Index: 2.99
Scraper/Filterer Collector Ratio: 0.26
Shredder/Total Ratio: 0.31
E + P + T*: 13 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 83.17
EPT/C*: 14.00 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 10-15/1…Substrate: cobble/boulders…Streambank Vegetation/Stability: good/good….Canopy: mostly shaded…Other: wooded; some periphyton; wild trout stream

Raritan Basin - Hackettstown USGS Quadrangle
Station AN0314
Electric Brook, Fairview Avenue, Long Valley
July 7, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Psephenidae	3	4
Lumbricidae	4	10
Hydropsychidae	26	4
Rhyacophilidae	12	0
Limnephilidae	3	4
Perlidae	8	1
Lumbriculidae	7	8
Glossosomatidae	5	0
Chironomidae	5	6
Lepidostomatidae	5	1
Heptageniidae	3	4
Tipulidae	2	3
Elmidae	1	4
Cambarinae	1	6
Peltoperlidae	1	1

Statistical Analysis

Number of Taxa: 15
Total Number of Individuals: 86
% Contribution of Dominant Family: 30.23
Family Biotic Index: 3.44
Scraper/Filterer Collector Ratio: 0.42
Shredder/Total Ratio: 0.15
E + P + T*: 7 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 72.09
EPT/C*: 12.40 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 6-8/1…Substrate: cobble/boulders…Streambank Vegetation/Stability: good/good (rock retaining wall on right bank)…Canopy: mostly closed…Other: tree-lined/residential; minnows

Raritan Basin - Hackettstown USGS Quadrangle
Station AN0315
South Branch Raritan River, Route 517, Long Valley
July 7, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	6	6
Hydropsychidae	22	4
Perlidae	11	1
Leuctridae	1	0
Baetidae	1	4
Psephenidae	6	4
Lumbriculidae	2	8
Ephemerellidae	15	1
Siphlonuridae	10	7
Heptageniidae	2	4
Gammaridae	5	4
Cambarinae	1	6
Elmidae	10	4
Philopotamidae	3	3
Athericidae	1	2
Caenidae	1	7
Asellidae	1	8
Simuliidae	1	6
Gomphidae	1	1

Statistical Analysis

Number of Taxa: 19
Total Number of Individuals: 100
% Contribution of Dominant Family: 22.00
Family Biotic Index: 3.71
Scraper/Filterer Collector Ratio: 0.16
Shredder/Total Ratio: 0.24
E + P + T*: 9 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 66.00
EPT/C*: 11.00 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: slightly turbid…Flow: moderate…Width/Depth(ft): 40/1-2….Substrate: cobble/sand…Streambank Vegetation/Stability: fair/fair (retaining wall on left bank) …Canopy: partly shaded…Other: residential/commercial

Raritan Basin - Califon USGS Quadrangle
Station AN0316
South Branch Raritan River, Route 512, Califon
May 11, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	21	6
Ephemerellidae	43	1
Elmidae	7	4
Gammaridae	2	4
Psephenidae	4	4
Corydalidae	1	0
Perlidae	4	1
Tipulidae	2	3
Heptageniidae	2	4
Hydropsychidae	3	4
Siphlonuridae	3	7
Cambarinae	1	6
Brachycentridae	1	1
Gastropoda	1	7
Coenagrionidae	1	9
Nematoda	1	6
Naididae	1	7
Caenidae	1	7
Asellidae	1	8

Statistical Analysis

Number of Taxa: 19
Total Number of Individuals: 100
% Contribution of Dominant Family: 43.00
Family Biotic Index: 3.23
Scraper/Filterer Collector Ratio: 0.83
Shredder/Total Ratio: 0.54
E + P + T*: 7 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 57.00
EPT/C*: 2.71 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: slightly turbid…Flow: moderate…Width/Depth(ft): 50/2…Substrate: cobble/gravel…Streambank Vegetation/Stability: fair/fair…Canopy: mostly open…Other: tree-lined/low residential; crayfish; fish

Raritan Basin - Califon USGS Quadrangle
Station AN0317
South Branch Raritan River, Ken Lockwood Gorge, Lebanon
May 11, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Siphlonuridae	9	7
Hydropsychidae	11	4
Ephemerellidae	59	1
Heptageniidae	3	4
Lumbricidae	1	10
Nemouridae	2	2
Rhyacophilidae	2	0
Leptoceridae	1	4
Psephenidae	2	4
Chironomidae	6	6
Caenidae	1	7
Lumbriculidae	1	8
Perlidae	2	1

Statistical Analysis

Number of Taxa: 13
Total Number of Individuals: 100
% Contribution of Dominant Family: 59.00
Family Biotic Index: 2.57
Scraper/Filterer Collector Ratio: 0.10
Shredder/Total Ratio: 0.61
E + P + T*: 9 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 90.00
EPT/C*: 15.00 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: slightly turbid…Flow: moderate-fast…Width/Depth(ft): 40-50/2-3…Substrate: cobble/boulders…Streambank Vegetation/Stability: good/good…Canopy: mostly open… Other: wooded; fish

Raritan Basin - Highbridge USGS Quadrangle
Station AN0318
Spruce Run, Newport Road, Newport
May 10, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Ephemerellidae	49	1
Hydropsychidae	9	4
Simuliidae	1	6
Rhyacophilidae	1	0
Chironomidae	7	6
Baetidae	16	4
Tipulidae	1	3
Nemouridae	4	2
Perlidae	2	1
Lumbricidae	1	10
Heptageniidae	2	4
Chloroperlidae	1	1
Philopotamidae	2	3
Limnephilidae	2	4
Siphlonuridae	1	7
Psephenidae	1	4

Statistical Analysis

Number of Taxa: 16
Total Number of Individuals: 100
% Contribution of Dominant Family: 49.00
Family Biotic Index: 2.54
Scraper/Filterer Collector Ratio: 0.25
Shredder/Total Ratio: 0.67
E + P + T*: 11 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 89.00
EPT/C*: 12.71 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 20-25/1-2… Substrate: cobble/boulders…Streambank Vegetation/Stability: good/good.. Canopy: partly closed…Other: wooded; fish

Raritan Basin - Highbridge USGS Quadrangle
Station AN0319
Spruce Run, Rt 31, Glen Gardner
May 10, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Baetidae	45	4
Psephenidae	5	4
Chironomidae	2	6
Ephemerellidae	35	1
Perlidae	1	1
Lepidostomatidae	1	1
Nemouridae	1	2
Limnephilidae	2	4
Rhyacophilidae	3	0
Hydropsychidae	1	4
Tipulidae	2	3
Heptageniidae	2	4

Statistical Analysis

Number of Taxa: 12
Total Number of Individuals: 100
% Contribution of Dominant Family: 45.00
Family Biotic Index: 2.77
Scraper/Filterer Collector Ratio: 7.00
Shredder/Total Ratio: 0.83
E + P + T*: 9 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 91.00
EPT/C*: 45.50 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 20-25/1-2… Substrate: cobble/boulders…Streambank Vegetation/Stability: good/good.. .Canopy: mostly closed…Other: wooded; stream and banks litter strewn

Raritan Basin - Highbridge USGS Quadrangle
Station AN0320
Willoughby Brook, Rt 31, Clinton
May 10, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Baetidae	12	4
Ephemerellidae	26	1
Siphlonuridae	5	7
Corydalidae	1	0
Hydropsychidae	2	4
Dytiscidae	1	4
Psephenidae	3	4
Chloroperlidae	5	1
Heptageniidae	4	4
Philopotamidae	3	3
Lumbriculidae	1	8
Gammaridae	8	4
Coenagrionidae	1	9
Diplopoda	1	5
Lumbricidae	1	10
Limnephilidae	2	4
Rhyacophilidae	4	0
Gastropoda	1	7
Nemouridae	1	2
Lepidostomatidae	1	1

Statistical Analysis

Number of Taxa: 20
Total Number of Individuals: 83
% Contribution of Dominant Family: 31.33
Family Biotic Index: 2.95
Scraper/Filterer Collector Ratio: 0.80
Shredder/Total Ratio: 0.57
E + P + T*: 11 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 78.31
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: slow-moderate…Width/Depth(ft): 10-15/1-2…Substrate: cobble/gravel…Streambank Vegetation/Stability: good/good… Canopy: mostly closed…Other: wooded/commercial

Raritan Basin - Highbridge USGS Quadrangle
Station AN0321
Mulhockaway Creek, Route 635, Van Syckel
May 10, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	12	4
Baetidae	18	4
Ephemerellidae	24	1
Chironomidae	23	6
Nemouridae	4	2
Rhyacophilidae	2	0
Gammaridae	1	4
Philopotamidae	2	3
Psephenidae	5	4
Perlidae	1	1
Leptoceridae	1	4
Heptageniidae	4	4
Limnephilidae	1	4
Elmidae	1	4
Tipulidae	1	3

Statistical Analysis

Number of Taxa: 15
Total Number of Individuals: 100
% Contribution of Dominant Family: 24.00
Family Biotic Index: 3.52
Scraper/Filterer Collector Ratio: 0.50
Shredder/Total Ratio: 0.48
E + P + T*: 10 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 69.00
EPT/C*: 3.00 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 20-30/1… Substrate: cobble/boulders…Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: wooded (Wildlife Management Area); periphyton

Raritan Basin - Highbridge USGS Quadrangle
Station AN0322
South Branch Raritan River, Route 173 (CR513), Clinton
May 10, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	37	4
Chironomidae	14	6
Ephemerellidae	23	1
Simuliidae	4	6
Gastropoda	3	7
Turbellaria	2	4
Psephenidae	1	4
Elmidae	3	4
Sphaeriidae	1	8
Siphlonuridae	4	7
Limnephilidae	2	4
Nematoda	2	6
Empididae	1	6
Lumbriculidae	1	8
Stratiomyidae	1	10
Baetidae	1	4

Statistical Analysis

Number of Taxa: 16
Total Number of Individuals: 100
% Contribution of Dominant Family: 37.00
Family Biotic Index: 4.08
Scraper/Filterer Collector Ratio: 0.13
Shredder/Total Ratio: 0.24
E + P + T*: 5 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 67.00
EPT/C*: 4.79 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: slightly turbid…Flow: moderate…Width/Depth(ft): 100-125/1-2…Substrate: cobble/boulders…Streambank Vegetation/Stability: fair/fair…Canopy: mostly open…Other: commercial; periphyton

Raritan Basin - Califon USGS Quadrangle
Station AN0323
Beaver Brook, Herman Thau Road, Clinton
May 11, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Baetidae	24	4
Hydropsychidae	5	4
Ephemerellidae	49	1
Chironomidae	1	6
Siphlonuridae	3	7
Nemouridae	6	2
Tipulidae	1	3
Rhyacophilidae	5	0
Perlidae	3	1
Heptageniidae	1	4
Psephenidae	1	4
Simuliidae	1	6

Statistical Analysis

Number of Taxa: 12
Total Number of Individuals: 100
% Contribution of Dominant Family: 49.00
Family Biotic Index: 2.24
Scraper/Filterer Collector Ratio: 0.14
Shredder/Total Ratio: 0.72
E + P + T*: 8 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 96.00
EPT/C*: 96.00 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear… Flow: moderate… Width/Depth(ft): 10/1… Substrate: cobble… Streambank Vegetation/Stability: good/good… Canopy: mostly covered… Other: wooded; sewer construction adjacent to stream

Raritan Basin - Highbridge USGS Quadrangle
Station AN0324
Beaver Brook, Lehigh Street, Clinton
May 10, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	42	6
Ephemerellidae	4	1
Simuliidae	40	6
Gammaridae	2	4
Psephenidae	2	4
Hydropsychidae	6	4
Elmidae	2	4
Lumbricidae	2	10

Statistical Analysis

Number of Taxa: 8
Total Number of Individuals: 100
% Contribution of Dominant Family: 42.00
Family Biotic Index: 5.64
Scraper/Filterer Collector Ratio: 0.04
Shredder/Total Ratio: 0.06
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 10.00
EPT/C*: 0.24 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 10-15/1… Substrate: cobble/sand…Streambank Vegetation/Stability: fair/fair (crumbling retaining wall on left bank)…Canopy: mostly covered…Other: none

Raritan Basin - Pittstown USGS Quadrangle
Station AN0325
Cakepoulin Creek, Lower Lansdown Road, Franklin Township
May 10, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	5	6
Glossosomatidae	8	0
Ephemerellidae	45	1
Naididae	8	7
Corydalidae	1	0
Hydropsychidae	8	4
Philopotamidae	1	3
Psephenidae	4	4
Nemouridae	2	2
Perlidae	3	1
Tipulidae	2	3
Heptageniidae	4	4
Elmidae	1	4
Baetidae	6	4
Siphlonuridae	2	7

Statistical Analysis

Number of Taxa: 15
Total Number of Individuals: 100
% Contribution of Dominant Family: 45.00
Family Biotic Index: 2.53
Scraper/Filterer Collector Ratio: 1.09
Shredder/Total Ratio: 0.57
E + P + T*: 9 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 79.00
EPT/C*: 15.80 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 15-20/1-2… Substrate: cobble/gravel… Streambank Vegetation/Stability: good/good… Canopy: partly covered… Other: wooded; minnows

Raritan Basin - Flemington USGS Quadrangle
Station AN0326
South Branch Raritan River, Stanton Station
May 5, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Ephemerellidae	7	1
Gastropoda	10	7
Gammaridae	6	4
Heptageniidae	6	4
Limnephilidae	18	4
Hydropsychidae	7	4
Tubificidae	3	10
Simuliidae	10	6
Chironomidae	7	6
Lepidostomatidae	16	1
Unionidae	1	8
Lumbricidae	1	10
Psephenidae	2	4
Elmidae	1	4
Naididae	1	7
Turbellaria	1	4
Pyralidae	1	5
Gomphidae	1	1
Potamanthidae	1	4

Statistical Analysis

Number of Taxa: 19
Total Number of Individuals: 100
% Contribution of Dominant Family: 18.00
Family Biotic Index: 4.24
Scraper/Filterer Collector Ratio: 1.50
Shredder/Total Ratio: 0.28
E + P + T*: 6 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 55.00
EPT/C*: 7.86 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 50-75/2… Substrate: gravel/cobble…Streambank Vegetation/Stability: good/good…
Canopy: mostly open…Other: wooded; crayfish; minnows

Raritan Basin - Flemington USGS Quadrangle
Station AN0327
Prescott Brook, Stanton Station
May 5, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Psephenidae	6	4
Gammaridae	11	4
Chironomidae	12	6
Nemouridae	17	2
Gyrinidae	2	3
Limnephilidae	15	4
Ephemerellidae	18	1
Simuliidae	6	6
Corydalidae	1	0
Elmidae	3	4
Lumbriculidae	1	8
Heptageniidae	3	4
Turbellaria	1	4
Hydropsychidae	2	4
Naididae	1	7
Gastropoda	1	7

Statistical Analysis

Number of Taxa: 16
Total Number of Individuals: 100
% Contribution of Dominant Family: 18.00
Family Biotic Index: 3.52
Scraper/Filterer Collector Ratio: 2.22
Shredder/Total Ratio: 0.22
E + P + T*: 5 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 55.00
EPT/C*: 4.58 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 20-25/1… Substrate: rocks/stones…Streambank Vegetation/Stability: good/good…
Canopy: partly open…Other: wooded; periphyton; macrophytes; crayfish; fish

Raritan Basin - Flemington USGS Quadrangle
Station AN0328
Assiscong Creek, River Road, Bartles Corner
May 5, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Ephemerellidae	48	1
Heptageniidae	2	4
Limnephilidae	4	4
Chironomidae	14	6
Hydropsychidae	3	4
Nemouridae	25	2
Siphlonuridae	3	7
Psephenidae	1	4
Perlodidae	6	2
Polycentropodidae	1	6
Baetidae	2	4

Statistical Analysis

Number of Taxa: 11
Total Number of Individuals: 109
% Contribution of Dominant Family: 44.04
Family Biotic Index: 2.47
Scraper/Filterer Collector Ratio: 0.25
Shredder/Total Ratio: 0.52
E + P + T*: 9 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 86.24
EPT/C*: 6.71 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 6/0.5-2…Substrate: cobble/stones…Streambank Vegetation/Stability: fair/fair…Canopy: mostly closed…Other: wooded/Assiscong Marsh Reserve; filamentous algae; suckers; sunfish; eels; snapping turtles

Raritan Basin - Hopewell USGS Quadrangle
Station AN0329
South Branch Raritan River, Route 613, Three Bridges
May 5, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Potamanthidae	2	4
Chironomidae	70	6
Elmidae	1	4
Heptageniidae	3	4
Gammaridae	3	4
Tipulidae	1	3
Psephenidae	3	4
Turbellaria	1	4
BloodRedChironomidae	1	8
Gastropoda	2	7
Lepidostomatidae	2	1
Empididae	2	6
Hydropsychidae	4	4
Dryopidae	1	5
Lumbriculidae	1	8
Ephemerellidae	1	1
Leptoceridae	1	4
Nemouridae	1	2

Statistical Analysis

Number of Taxa: 18
Total Number of Individuals: 100
% Contribution of Dominant Family: 70.00
Family Biotic Index: 5.47
Scraper/Filterer Collector Ratio: 1.50
Shredder/Total Ratio: 0.11
E + P + T*: 7 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 14.00
EPT/C*: 0.20 *(Chironomidae)
NJIS Score: 18
Biological Condition: moderately impaired
Deficiency(s) noted: Chironomidae overwhelmingly dominant

Observations

Streamwater: clear…Flow: fast…Width/Depth(ft): 60/1-2…Substrate: sand/gravel/rock…Streambank Vegetation/Stability: poor/poor…Canopy: open…Other: agricultural/wooded; filamentous algae; minnows

Raritan Basin - Hopewell USGS Quadrangle
Station AN0330
First Neshanic River, Route 31, Raritan Township
April 14, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	2	6
Simuliidae	6	6
Empididae	2	6
Lumbricidae	3	10
Limnephilidae	1	4
Lumbriculidae	1	8
Siphlonuridae	2	7

Statistical Analysis

Number of Taxa: 7
Total Number of Individuals: 17
% Contribution of Dominant Family: 35.29
Family Biotic Index: 6.82
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.18
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 17.65
EPT/C*: 1.50 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid (rained previous night)…Flow: fast…Width/ Depth(ft)…12/ < 1…Substrate: cobble/gravel…Streambank Vegetation/Stability: poor/poor…Canopy: mostly open…Other: tree-lined; Midas Muffler Shop upstr; ongoing development in surrounding area

Raritan Basin - Hopewell USGS Quadrangle
Station AN0331
Second Neshanic River, Route 31, Raritan Township
April 27, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Ephemerellidae	23	1
Chironomidae	28	6
Siphlonuridae	16	7
Gastropoda	9	7
Heptageniidae	2	4
Simuliidae	15	6
Gammaridae	3	4
Elmidae	2	4
Nemouridae	7	2
Naididae	1	7
Tubificidae	1	10

Statistical Analysis

Number of Taxa: 11
Total Number of Individuals: 107
% Contribution of Dominant Family: 26.17
Family Biotic Index: 4.81
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.40
E + P + T*: 4 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 44.86
EPT/C*: 1.71 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 6-20/1… Substrate: cobble…Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: commercial/wooded; periphtyon; minnows

Raritan Basin - Hopewell USGS Quadrangle
Station AN0332
Third Neshanic River, Route 31, Copper Hill
April 27, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Ephemerellidae	3	1
Elmidae	24	4
Asellidae	4	8
Psephenidae	3	4
Chironomidae	20	6
Hirudinea	1	10
Sphaeriidae	4	8
Caenidae	1	7
Empididae	2	6
Baetidae	3	4
Simuliidae	15	6
Capniidae	1	1
Unionidae	1	8
Hydropsychidae	3	4
Turbellaria	1	4
Nemouridae	2	2
Gammaridae	2	4
Philopotamidae	3	3
Heptageniidae	1	4
Tubificidae	1	10
BloodRedChironomidae	1	8
Gastropoda	3	7
Hemiptera	1	8

Statistical Analysis

Number of Taxa: 23
Total Number of Individuals: 100
% Contribution of Dominant Family: 24.00
Family Biotic Index: 5.23
Scraper/Filterer Collector Ratio: 0.11
Shredder/Total Ratio: 0.08
E + P + T*: 8 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 17.00
EPT/C*: 0.81 *(Chironomidae)
NJIS Score: 24
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 15-20/1… Substrate: cobble/gravel…Streambank Vegetation/Stability: good/good…
Canopy: mostly open…Other: commercial/residential; minnows

Raritan Basin - Hopewell USGS Quadrangle
Station AN0333
Neshanic River, Reaville-Everitt Road, Reaville
April 27, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Gammaridae	13	4
Chironomidae	48	6
BloodRedChironomidae	10	8
Simulidae	3	6
Siphlonuridae	7	7
Lumbriculidae	5	8
Dytiscidae	2	4
Tubificidae	1	10
Ephemerellidae	3	1
Gastropoda	1	7
Empididae	2	6
Naididae	1	7
Psephenidae	2	4
Baetidae	1	4
Asellidae	1	8

Statistical Analysis

Number of Taxa: 15
Total Number of Individuals: 100
% Contribution of Dominant Family: 48.00
Family Biotic Index: 5.94
Scraper/Filterer Collector Ratio: 0.33
Shredder/Total Ratio: 0.25
E + P + T*: 3 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 11.00
EPT/C*: 0.19 *(Chironomidae)
NJIS Score: 18
Biological Condition: moderately impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 30-40/1-2… Substrate: bedrock/cobble…Streambank Vegetation/Stability: good/good… Canopy: mostly open…Other: farm/residential; periphyton; minnows

Raritan Basin - Hopewell USGS Quadrangle
Station AN0334
Back Brook, Wertsville Road, East Amwell
April 27, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	71	6
Hydropsychidae	8	4
Simuliidae	5	6
Hydrophilidae	1	5
Psephenidae	5	4
Gammaridae	1	4
Gastropoda	2	7
Naididae	1	7
Turbellaria	1	4
Caenidae	1	7
Heptageniidae	1	4
Coenagrionidae	1	9
Siphlonuridae	1	7
Tubificidae	1	10

Statistical Analysis

Number of Taxa: 14
Total Number of Individuals: 100
% Contribution of Dominant Family: 71.00
Family Biotic Index: 5.79
Scraper/Filterer Collector Ratio: 0.29
Shredder/Total Ratio: 0.19
E + P + T*: 4 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 11.00
EPT/C*: 0.15 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: Chironomidae overwhelmingly dominant

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 6/1…Substrate: cobble…Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: farm; siltation; periphyton; filamentous algae

Raritan Basin - Hopewell USGS Quadrangle
Station AN0335
Back Brook, Route 609, East Amwell Township
April 27, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Elmidae	13	4
Chironomidae	48	6
Nemouridae	8	2
Talitridae	2	8
Caenidae	1	7
Tipulidae	2	3
Simuliidae	6	6
Hydrophilidae	1	5
Megascolecidae	1	10
Naididae	1	7
BloodRedChironomidae	1	8
Gammaridae	2	4
Hydropsychidae	1	4
Lumbriculidae	1	8
Coenagrionidae	1	9
Siphlonuridae	2	7
Haliplidae	1	5
Empididae	2	6
Sphaeriidae	2	8
Ceratopogonidae	1	6
Nematoda	1	6
Nepidae	1	8
Baetidae	1	4
Libellulidae	1	9
Dytiscidae	1	4
Psephenidae	6	4
Ephemerellidae	1	1
Perlodidae	1	2

Statistical Analysis

Number of Taxa: 28
Total Number of Individuals: 110
% Contribution of Dominant Family: 43.64
Family Biotic Index: 5.37
Scraper/Filterer Collector Ratio: 0.60
Shredder/Total Ratio: 0.09
E + P + T*: 7 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 13.64
EPT/C*: 0.31 *(Chironomidae)
NJIS Score: 21
Biological Condition: moderately impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 10-30/1-2… Substrate: stones/gravel/clay…Streambank Vegetation/Stability: fair/fair…Canopy: mostly open…Other: commercial nursery/farm; crayfish; minnows

)))

Raritan Basin - Hopewell USGS Quadrangle
Station AN0336
Furmans Creek, Wilisewitz Road, Furmans Corner
April 14, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Siphlonuridae	4	7
Simuliidae	73	6
Limnephilidae	5	4
Nemouridae	7	2
Chironomidae	6	6
Lumbriculidae	1	8
Perlodidae	7	2
Tipulidae	3	3
Asellidae	1	8
Heptageniidae	1	4
Empididae	2	6

Statistical Analysis

Number of Taxa: 11
Total Number of Individuals: 110
% Contribution of Dominant Family: 66.36
Family Biotic Index: 5.37
Scraper/Filterer Collector Ratio: 0.05
Shredder/Total Ratio: 0.05
E + P + T*: 5 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 21.82
EPT/C*: 4.00 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: Simuliidae overwhelmingly dominant

Observations

Streamwater: clear…Flow: fast…Width/Depth(ft): 15/ < 1…Substrate: rocks/stones…Streambank Vegetation/Stability: fair/fair…Canopy: half open…Other: tree-lined;low residential

Raritan Basin - Hopewell USGS Quadrangle
Station AN0337
Neshanic River, Route 514, Hillsborough Township
April 27, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	23	6
Gammaridae	3	4
Gastropoda	8	7
Perlodidae	1	2
Simuliidae	4	6
Lumbriculidae	1	8
Sphaeriidae	3	8
Psephenidae	1	4
Nemouridae	1	2
Elmidae	2	4
Asellidae	1	8
Sialidae	1	4

Statistical Analysis

Number of Taxa: 12
Total Number of Individuals: 49
% Contribution of Dominant Family: 46.94
Family Biotic Index: 5.92
Scraper/Filterer Collector Ratio: 1.00
Shredder/Total Ratio: 0.16
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 4.08
EPT/C*: 0.09 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 40-50/1-2… Substrate: rocks/gravel/silt…Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: wooded; minnows

Raritan Basin - Raritan USGS Quadrangle
Station AN0338
South Branch Raritan River, Elm Street, Neshanic Station
May 23, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Gastropoda	3	7
Gammaridae	9	4
Elmidae	4	4
Ephemerellidae	2	1
Baetidae	52	4
Chironomidae	19	6
Coenagrionidae	1	9
Helicopsychidae	2	3
Sphaeriidae	1	8
Nematoda	1	6
Heptageniidae	2	4
Perlidae	1	1
Hydroptilidae	1	4
Lepidostomatidae	1	1
Naididae	1	7
Psephenidae	4	4
Simuliidae	2	6
Gyrinidae	1	3
Nemouridae	1	2
Corydalidae	1	0

Statistical Analysis

Number of Taxa: 20
Total Number of Individuals: 109
% Contribution of Dominant Family: 47.71
Family Biotic Index: 4.40
Scraper/Filterer Collector Ratio: 3.00
Shredder/Total Ratio: 0.51
E + P + T*: 8 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 56.88
EPT/C*: 3.26 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 75-100/2… Substrate: cobble…Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: wooded; dead fish

Raritan Basin - Flemington USGS Quadrangle
Station AN0339
Pleasant Run, Pleasant Run Road, Pleasant Run
May 5, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	72	6
Caenidae	1	7
Nematoda	1	6
Psephenidae	10	4
Nemouridae	5	2
Ephemerellidae	4	1
Siphlonuridae	2	7
Perlodidae	3	2
Tipulidae	1	3
Elmidae	2	4
Empididae	1	6
Gomphidae	1	1
Heptageniidae	1	4

Statistical Analysis

Number of Taxa: 13
Total Number of Individuals: 104
% Contribution of Dominant Family: 69.23
Family Biotic Index: 5.20
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.10
E + P + T*: 6 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 15.38
EPT/C*: 0.22 *(Chironomidae)
NJIS Score: 18
Biological Condition: moderately impaired
Deficiency(s) noted: Chironomidae overwhelmingly dominant

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 12/ < 1…Substrate: cobble/stones…Streambank Vegetation/Stability: good/good…Canopy: half open…Other: tree-lined/residential; filamentous algae

Raritan Basin - Raritan USGS Quadrangle
Station AN0340
Pleasant Run, South Branch Road, Neshanic Station
May 12, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Elmidae	5	4
Simuliidae	34	6
Nemouridae	22	2
Ephemerellidae	19	1
Chironomidae	6	6
Baetidae	1	4
Psephenidae	5	4
Hydropsychidae	1	4
Caenidae	2	7
Empididae	2	6
Philopotamidae	1	3
Gammaridae	1	4
Tipulidae	1	3

Statistical Analysis

Number of Taxa: 13
Total Number of Individuals: 100
% Contribution of Dominant Family: 34.00
Family Biotic Index: 3.87
Scraper/Filterer Collector Ratio: 0.14
Shredder/Total Ratio: 0.23
E + P + T*: 6 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 46.00
EPT/C*: 7.67 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: fast…Width/Depth(ft): 5/ < 1…Substrate: rocks/mud…Streambank Vegetation/Stability: poor/poor…Canopy: open… Other: cow/horse pastures/farmland; periphyton; minnows

Raritan Basin - Raritan USGS Quadrangle
Station AN0341
South Branch Raritan River, Studdiford Drive, South Branch
May 12, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	45	6
Gastropoda	5	7
Gammaridae	7	4
Elmidae	5	4
Naididae	3	7
Ephemerellidae	2	1
Potamanthidae	4	4
Baetidae	7	4
BloodRedChironomidae	1	8
Simuliidae	6	6
Corydalidae	1	0
Psephenidae	1	4
Nematoda	5	6
Hydropsychidae	2	4
Lepidostomatidae	1	1
Tipulidae	1	3
Perlidae	2	1
Empididae	1	6
Caenidae	1	7

Statistical Analysis

Number of Taxa: 19
Total Number of Individuals: 100
% Contribution of Dominant Family: 45.00
Family Biotic Index: 5.25
Scraper/Filterer Collector Ratio: 0.55
Shredder/Total Ratio: 0.15
E + P + T*: 7 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 19.00
EPT/C*: 0.41 *(Chironomidae)
NJIS Score: 21
Biological Condition: moderately impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: fast…Width/Depth(ft): 50/ > 2…Substrate: cobble/rocks…Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: tree-lined/cow pasture/residential; periphyton; macrophytes

Raritan Basin - Flemington USGS Quadrangle
Station AN0342
Holland Brook, Holland Brook Road, Readington Township
May 5, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Ephemerellidae	12	1
Perlidae	1	1
Tubificidae	1	10
Nemouridae	3	2
Tipulidae	2	3
Hydropsychidae	3	4
Chironomidae	2	6
Baetidae	1	4
Empididae	1	6
Leptoceridae	1	4

Statistical Analysis

Number of Taxa: 10
Total Number of Individuals: 27
% Contribution of Dominant Family: 44.44
Family Biotic Index: 2.70
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.48
E + P + T*: 6 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 77.78
EPT/C*: 10.50 *(Chironomidae)
NJIS Score: 24
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 10/ < 1…Substrate: sand/gravel…Streambank Vegetation/Stability: fair/fair…Canopy: mostly open…Other: tree-lined; floating algae; filamentous algae; minnows

Raritan Basin - Raritan USGS Quadrangle
Station AN0343
Holland Brook, South Branch Road, Branchburg Township
May 12, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Baetidae	31	4
Simuliidae	6	6
Nemouridae	15	2
Perlodidae	6	2
Nematoda	6	6
Heptageniidae	2	4
Hydropsychidae	4	4
Psephenidae	3	4
Chironomidae	12	6
Gammaridae	2	4
Ephemerellidae	5	1
Hirudinea	1	10
Caenidae	2	7
Naididae	2	7
Gastropoda	1	7
Lumbriculidae	1	8
Siphlonuridae	1	7

Statistical Analysis

Number of Taxa: 17
Total Number of Individuals: 100
% Contribution of Dominant Family: 31.00
Family Biotic Index: 4.19
Scraper/Filterer Collector Ratio: 0.30
Shredder/Total Ratio: 0.40
E + P + T*: 8 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 66.00
EPT/C*: 5.50 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: fast…Width/Depth(ft): 8/ ~ 1…Substrate: gravel/stones/mud…Streambank Vegetation/Stability: poor/poor…Canopy: mostly open…Other: cow pasture/farm; car rear axle; rusted 55 gallon drum; cow manure; periphyton; some macrophytes; minnows; sunfish

Raritan Basin - Mendham USGS Quadrangle
Station AN0344
India Brook, Calais Road, Randolph Township
November 30, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Siphlonuridae	3	7
Capniidae	9	1
Tubificidae	2	10
Tipulidae	11	3
Limnephilidae	11	4
Peltoperlidae	2	1
Gomphidae	3	1
Naididae	1	7
Leptophlebiidae	12	2
Hydropsychidae	4	4
Chironomidae	10	6
Sphaeriidae	5	8
Taeniopterygidae	5	2
Leuctridae	3	0
Aeshnidae	1	3
Phryganeidae	2	4
Hydrophilidae	1	5
Simuliidae	3	6
Psychomyiidae	1	2
Cordulegastridae	1	3
Corydalidae	1	0
Ephemerellidae	1	1
Philoptamidae	2	3
Goeridae	1	0
Sialidae	1	4
Ptychopteridae	1	8
Ptilodactylidae	2	1
Rhyacophilidae	1	0

Statistical Analysis

Number of Taxa: 28
Total Number of Individuals: 100
% Contribution of Dominant Family: 12.00
Family Biotic Index: 3.49
Scraper/Filterer Collector Ratio: 0.12
Shredder/Total Ratio: 0.34
E + P + T*: 13 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 55.00
EPT/C*: 5.50 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 6-8/1…Substrate: sand/gravel/cobble/ boulders…Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: residential; macrophytes; salamander

Raritan Basin - Mendham USGS Quadrangle
Station AN0345
India Brook, Mountainside Road, Mendham Township
November 30, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Capniidae	44	1
Taeniopterygidae	26	2
Hydropsychidae	2	4
Lumbricidae	1	10
Gammaridae	1	4
Chironomidae	3	6
Pteronarcyidae	2	0
Limnephilidae	1	4
Peltoperlidae	2	1
Simuliidae	1	6
Siphlonuridae	6	7
Lumbriculidae	2	8
Rhyacophilidae	4	0
Heptageniidae	2	4
Tipulidae	2	3
Ephemerellidae	1	1

Statistical Analysis

Number of Taxa: 16
Total Number of Individuals: 100
% Contribution of Dominant Family: 44.00
Family Biotic Index: 2.21
Scraper/Filterer Collector Ratio: 0.11
Shredder/Total Ratio: 0.52
E + P + T*: 9 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 88.00
EPT/C*: 29.33 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 10-15/1…Substrate: cobble/ boulders/ sand/ gravel…Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: wooded; crayfish

Raritan Basin - Chester USGS Quadrangle
Station AN0346
North Branch Raritan River, Route 24, Ralston
November 30, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Capniidae	13	1
Limnephilidae	11	4
Ephemerellidae	4	1
Heptageniidae	12	4
Hydropsychidae	6	4
Rhyacophilidae	1	0
Asellidae	3	8
Chironomidae	12	6
Siphlonuridae	6	7
Gammaridae	15	4
Elmidae	1	4
Lumbriculidae	2	8
Tubificidae	2	10
Psychomyiidae	4	2
Philopotamidae	4	3
Taeniopterygidae	5	2
Psephenidae	3	4
Pteronarcyidae	1	0
Perlidae	1	1

Statistical Analysis

Number of Taxa: 19
Total Number of Individuals: 106
% Contribution of Dominant Family: 14.15
Family Biotic Index: 3.91
Scraper/Filterer Collector Ratio: 0.41
Shredder/Total Ratio: 0.23
E + P + T*: 12 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 64.15
EPT/C*: 5.67 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 20/1-2…Substrate: sand/gravel/cobble…Streambank Vegetation/Stability: fair/fair…Canopy: mostly open…Other: residential/wooded; crayfish; minnows

Raritan Basin - Chester USGS Quadrangle
Station AN0347
Dawsons Brook, Ironia and South Road, Mendham Township
November 30, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Taeniopterygidae	10	2
Siphlonuridae	4	7
Tubificidae	5	10
Limnephilidae	9	4
Philopotamidae	4	3
Perlidae	9	1
Tipulidae	6	3
Gomphidae	2	1
Hydropsychidae	8	4
Lumbriculidae	1	8
Pteronarcyidae	1	0
Heptageniidae	1	4
Capniidae	2	1
Cordulegastridae	1	3

Statistical Analysis

Number of Taxa: 14
Total Number of Individuals: 63
% Contribution of Dominant Family: 15.87
Family Biotic Index: 3.56
Scraper/Filterer Collector Ratio: 0.42
Shredder/Total Ratio: 0.13
E + P + T*: 9 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 76.19
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 10/1-2…Substrate: sand/gravel/cobble…Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: residential

Raritan Basin - Chester USGS Quadrangle
Station AN0348
Burnetts Brook, Old Mill Road, Mendham Township
December 7, 1992

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	4	4
Taeniopterygidae	21	2
Limnephilidae	18	4
Chironomidae	4	6
Heptageniidae	7	4
Ceratopogonidae	1	6
Tipulidae	3	3
Capniidae	11	1
Leuctridae	2	0
Pteronarcyidae	1	0
Rhyacophilidae	2	0
Peltoperlidae	2	1
Perlodidae	1	2
Glossosomatidae	1	0
Philopotamidae	1	3
Lumbriculidae	7	8
Gomphidae	2	1
Simuliidae	1	6
Pyralidae	1	5
Psephenidae	1	4
Baetidae	2	4
Ephemerellidae	2	1
Siphlonuridae	2	7
Sphaeriidae	1	8
Empididae	1	6
Elmidae	1	4

Statistical Analysis

Number of Taxa: 26
Total Number of Individuals: 100
% Contribution of Dominant Family: 21.00
Family Biotic Index: 3.30
Scraper/Filterer Collector Ratio: 2.00
Shredder/Total Ratio: 0.27
E + P + T*: 14 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 75.00
EPT/C*: 18.75 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: fast…Width/Depth(ft): 15/ < 1…Substrate: rocks/cobble/gravel…Streambank Vegetation/Stability: good/good…
Canopy: half open…Other: wooded; some periphyton; crayfish; fish

)))

Raritan Basin - Chester USGS Quadrangle
Station AN0349
Peapack Brook, Fox Chase Road, Chester Township
June 16, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Philopotamidae	34	3
Rhyacophilidae	3	0
Perlidae	10	1
Baetidae	16	4
Lumbriculidae	17	8
Corydalidae	1	0
Cambarinae	1	6
Perlodidae	1	2
Hydropsychidae	3	4
Tipulidae	3	3
Ephemerellidae	1	1
Chironomidae	4	6
Gammaridae	1	4
Sialidae	1	4
Pteronarcyidae	1	0
Asellidae	2	8
Glossosomatidae	1	0

Statistical Analysis

Number of Taxa: 17
Total Number of Individuals: 100
% Contribution of Dominant Family: 34.00
Family Biotic Index: 3.90
Scraper/Filterer Collector Ratio: 0.03
Shredder/Total Ratio: 0.02
E + P + T*: 9 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 70.00
EPT/C*: 17.50 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: fast…Width/Depth(ft): 15/ < 1…Substrate: rocks/cobble…Streambank Vegetation/Stability: good/good…Canopy: mostly closed…Other: tree-lined/low residential; macrophytes; minnows; salamander

Raritan Basin - Gladstone USGS Quadrangle
Station AN0350
Peapack Brook, Old Dutch Road, Bedminster Township
June 16, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Baetidae	18	4
Chironomidae	20	6
Hydropsychidae	8	4
Simuliidae	32	6
Glossosomatidae	2	0
Ephemerellidae	12	1
Turbellaria	2	4
Psephenidae	2	4
Elmidae	2	4
Philopotamidae	1	3
Perlidae	1	1

Statistical Analysis

Number of Taxa: 11
Total Number of Individuals: 100
% Contribution of Dominant Family: 32.00
Family Biotic Index: 4.56
Scraper/Filterer Collector Ratio: 0.09
Shredder/Total Ratio: 0.27
E + P + T*: 6 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 42.00
EPT/C*: 2.10 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: fast…Width/Depth(ft): 35/ < 1…Substrate: rocks/cobble…Streambank Vegetation/Stability: good/good…Canopy: mostly closed…Other: tree-lined/residential

Raritan Basin - Gladstone USGS Quadrangle
Station AN0351
North Branch Raritan River, Route 202, Far Hills
June 19, 1990

Family	Number of Individuals	Family Tolerance Value (FTV)
Gammaridae	1	4
Perlidae	5	1
Ephemerellidae	23	1
Baetidae	6	4
Limnephilidae	7	4
Hydropsychidae	19	4
Glossosomatidae	5	0
Psychomyiidae	2	2
Psephenidae	2	4
Elmidae	4	4
Tipulidae	2	3
Simuliidae	5	6
Chironomidae	20	6

Statistical Analysis

Number of Taxa: 13
Total Number of Individuals: 101
% Contribution of Dominant Family: 22.77
Family Biotic Index: 3.41
Scraper/Filterer Collector Ratio: 0.52
Shredder/Total Ratio: 0.31
E + P + T*: 7 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 66.34
EPT/C*: 3.35 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: slightly turbid…Flow: fast…Width/Depth(ft): 50/1.5…Substrate: cobble/gravel/sand…Streambank Vegetation/Stability: good/good…Canopy: partly closed…Other: wooded/fields; rain previous night

Raritan Basin - Bernardsville USGS Quadrangle
Station AN0352
Mine Brook, Bernardsville Road, Bernardsville
December 2, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	74	4
Turbellaria	18	4
Sphaeriidae	3	8
Chironomidae	2	6
Tipulidae	1	3
Simuliidae	1	6
Corydalidae	1	0

Statistical Analysis

Number of Taxa: 7
Total Number of Individuals: 100
% Contribution of Dominant Family: 74.00
Family Biotic Index: 4.13
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.01
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 74.00
EPT/C*: 37.00 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: Hydropsychidae overwhelmingly dominant paucity of clean water organisms

Observations

Streamwater: clear…Flow: slow-moderate…Width/Depth(ft): 10/ < 1… Substrate: rocks/gravel/sand/cobble…Streambank Vegetation/Stability: good/good…Canopy: half open…Other: tree-lined/ballfield/junkyard (old cars)/quarry

Raritan Basin - Gladstone USGS Quadrangle
Station AN0353
Mine Brook, Route 512, Far Hills
December 2, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	20	4
Turbellaria	20	4
Glossosomatidae	1	0
Gammaridae	5	4
Psephenidae	8	4
Elmidae	13	4
Philopotamidae	14	3
Sphaeriidae	1	8
Heptageniidae	4	4
Simuliidae	2	6
Asellidae	2	8
Corydalidae	4	0
Ephemerellidae	3	1
Siphlonuridae	3	7
Tipulidae	3	3
Chironomidae	2	6
Coenagrionidae	1	9

Statistical Analysis

Number of Taxa: 17
Total Number of Individuals: 106
% Contribution of Dominant Family: 18.87
Family Biotic Index: 3.89
Scraper/Filterer Collector Ratio: 0.22
Shredder/Total Ratio: 0.10
E + P + T*: 6 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 42.45
EPT/C*: 22.50 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 15/1…Substrate: shale bedrock/ gravel/ rocks/ sand …Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: residential/farmfield; darter

Raritan Basin - Gladstone USGS Quadrangle
Station AN0354
Middle Brook, Spook Hollow Road, Bedminster
December 2, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Philopotamidae	7	3
Capniidae	6	1
Hydropsychidae	56	4
Lumbriculidae	5	8
Heptageniidae	13	4
Tipulidae	3	3
Rhyacophilidae	1	0
Simuliidae	1	6
Chironomidae	5	6
Peltoperlidae	1	1
Taeniopterygidae	1	2
Limnephilidae	4	4
Elmidae	3	4
Corydalidae	1	0
Psephenidae	1	4
Gastropoda	1	7
Ephemerellidae	1	1

Statistical Analysis

Number of Taxa: 17
Total Number of Individuals: 110
% Contribution of Dominant Family: 50.91
Family Biotic Index: 3.92
Scraper/Filterer Collector Ratio: 0.06
Shredder/Total Ratio: 0.13
E + P + T*: 8 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 80.91
EPT/C*: 17.80 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: fast…Width/Depth(ft): 20/ < 1…Substrate: red shale bedrock/ cobble/ rocks/ stones/ sand…Streambank Vegetation/Stability: fair/fair…Canopy: half open…Other: wooded; salamander

Raritan Basin - Gladstone USGS Quadrangle
Station AN0355
Middle Brook, River Road, Bedminster
May 5, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	69	6
Simuliidae	4	6
Gammaridae	5	4
Ephemerellidae	15	1
Siphlonuridae	1	7
Baetidae	1	4
Limnephilidae	1	4
Elmidae	2	4
Heptageniidae	2	4

Statistical Analysis

Number of Taxa: 9
Total Number of Individuals: 100
% Contribution of Dominant Family: 69.00
Family Biotic Index: 5.04
Scraper/Filterer Collector Ratio: 0.17
Shredder/Total Ratio: 0.17
E + P + T*: 5 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 20.00
EPT/C*: 0.29 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: Chironomidae overwhelmingly dominant

Observations

Streamwater: clear…Flow: slow-moderate…Width/Depth(ft): 20/ < 1…Substrate: rubble/ sand/ gravel/ clay…Streambank Vegetation/Stability: poor/poor…Canopy: open…Other: tree-lined; sparse periphyton; crayfish; fish

Raritan Basin - Chester USGS Quadrangle
Station AN0356
Lamington River, Ironia Road, Chester
June 16, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Elmidae	2	4
Gammaridae	89	4
Chironomidae	1	6
Gastropoda	5	7
Asellidae	3	8

Statistical Analysis

Number of Taxa: 5
Total Number of Individuals: 100
% Contribution of Dominant Family: 89.00
Family Biotic Index: 4.29
Scraper/Filterer Collector Ratio: 3.00
Shredder/Total Ratio: 0.00
E + P + T*: 0 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 0.00
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 9
Biological Condition: moderately impaired
Deficiency(s) noted: Gammaridae overwhelmingly dominant paucity of clean water organisms

Observations

Streamwater: clear, dark (nearly black)…Flow: slow…Width/Depth(ft): 30/1.5…Substrate: rocks/ mud …Streambank Vegetation/Stability: -/-… Canopy: mostly open…Other: swampy/wooded/low residential; spadderdock; macrophytes; crayfish; water snake

Raritan Basin - Chester USGS Quadrangle
Station AN0357
Tanners Brook, Tanners Brook Road, Chester
June 28, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Gammaridae	69	4
Simuliidae	2	6
Limnephilidae	5	4
Lumbriculidae	19	8
Lumbricidae	1	10
Chironomidae	2	6
Tubificidae	1	10
Baetidae	1	4

Statistical Analysis

Number of Taxa: 8
Total Number of Individuals: 100
% Contribution of Dominant Family: 69.00
Family Biotic Index: 4.96
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.07
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 6.00
EPT/C*: 3.00 *(Chironomidae)
NJIS Score: 9
Biological Condition: moderately impaired
Deficiency(s) noted: Gammaridae overwhelmingly dominant paucity of clean water organisms

Observations

Streamwater: clear…Flow: fast…Width/Depth(ft): 4/0.5…Substrate: sand/stones…Streambank Vegetation/ Stability: poor/poor…Canopy: open…Other: wooded/farms; macrophytes

Raritan Basin - Chester USGS Quadrangle
Station AN0358
Lamington River, Route 24, Milltown
June 28, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Elmidae	2	4
Philopotamidae	20	3
Lumbricidae	1	10
Chironomidae	3	6
Baetidae	2	4
Lumbriculidae	5	8
Hydropsychidae	14	4
Gammaridae	44	4
Glossosomatidae	9	0
Heptageniidae	1	4
Brachycentridae	2	1
Siphlonuridae	1	7

Statistical Analysis

Number of Taxa: 12
Total Number of Individuals: 104
% Contribution of Dominant Family: 42.31
Family Biotic Index: 3.74
Scraper/Filterer Collector Ratio: 0.25
Shredder/Total Ratio: 0.02
E + P + T*: 7 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 47.12
EPT/C*: 16.33 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: fast…Width/Depth(ft): 30-40/ > 1…Substrate: boulders/sand/gravel…Streambank Vegetation/Stability: good/good…Canopy: mostly closed…Other: wooded/park; algae; periphyton; macrophytes; minnows; water snake

Raritan Basin - Chester USGS Quadrangle
Station AN0359
Trout Brook, Hacklebarney Road, Chester Township
June 28, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	4	4
Tipulidae	2	3
Chironomidae	9	6
Lumbriculidae	7	8
Gammaridae	34	4
Glossosomatidae	5	0
Philopotamidae	25	3
Lumbricidae	4	10
Baetidae	1	4
Limnephilidae	2	4
Coenagrionidae	1	9
Simuliidae	2	6
Rhyacophilidae	1	0
Elmidae	1	4
Leuctridae	1	0
Cambarinae	1	6

Statistical Analysis

Number of Taxa: 16
Total Number of Individuals: 100
% Contribution of Dominant Family: 34.00
Family Biotic Index: 4.26
Scraper/Filterer Collector Ratio: 0.22
Shredder/Total Ratio: 0.07
E + P + T*: 7 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 39.00
EPT/C*: 4.33 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: turbid…Flow: fast…Width/Depth(ft): 10/0.5-1… Substrate: cobble/rock…Streambank Vegetation/Stability: good/good…
Canopy: mostly closed…Other: wooded/few houses

Raritan Basin - Gladstone USGS Quadrangle
Station AN0360
Lamington River, Route 512, Pottersville
May 23, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	59	6
Hydroptilidae	7	4
Philopotamidae	9	3
Ephemerellidae	4	1
Psephenidae	3	4
Brachycentridae	5	1
Baetidae	4	4
Tipulidae	1	3
Perlidae	4	1
Empididae	1	6
Hydropsychidae	1	4
Glossosomatidae	1	0
Nemouridae	1	2

Statistical Analysis

Number of Taxa: 13
Total Number of Individuals: 100
% Contribution of Dominant Family: 59.00
Family Biotic Index: 4.65
Scraper/Filterer Collector Ratio: 1.10
Shredder/Total Ratio: 0.10
E + P + T*: 9 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 36.00
EPT/C*: 0.61 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 20-25/1-2…Substrate: cobble…Streambank Vegetation/Stability: good/good…Canopy: partly open…Other: residential/commercial

Raritan Basin - Gladstone USGS Quadrangle
Station AN0361
Lamington River Unnamed Tributary, Black River Road, Pottersville
May 23, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Baetidae	19	4
Ephemerellidae	29	1
Tipulidae	6	3
Psephenidae	3	4
Hydropsychidae	1	4
BloodRedChironomidae	1	8
Chironomidae	10	6
Elmidae	2	4
Polycentropodidae	1	6
Glossosomatidae	2	0
Perlidae	2	1
Lumbriculidae	4	8
Lepidostomatidae	2	1
Nemouridae	5	2
Rhyacophilidae	2	0
Heptageniidae	5	4
Helicopsychidae	1	3
Empididae	1	6
Nematoda	2	6
Hydroptilidae	1	4
Perlodidae	1	2

Statistical Analysis

Number of Taxa: 21
Total Number of Individuals: 100
% Contribution of Dominant Family: 29.00
Family Biotic Index: 3.14
Scraper/Filterer Collector Ratio: 7.00
Shredder/Total Ratio: 0.56
E + P + T*: 13 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 71.00
EPT/C*: 6.45 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 8-10/1-2…Substrate: sand/cobble…Streambank Vegetation/Stability: good/good…Canopy: mostly closed…Other: wooded/residential; crayfish; fish

Raritan Basin - Gladstone USGS Quadrangle
Station AN0362
Cold Brook, Vliettown Road, Oldwick
May 23, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Ephemerellidae	27	1
Elmidae	4	4
Chironomidae	11	6
Glossosomatidae	4	0
Gammaridae	12	4
Tipulidae	3	3
Simuliidae	19	6
Baetidae	9	4
Hydropsychidae	2	4
Corydalidae	1	0
Philopotamidae	2	3
Goeridae	1	0
Tabanidae	1	6
Rhyacophilidae	2	0
Empididae	1	6
Heptageniidae	1	4

Statistical Analysis

Number of Taxa: 16
Total Number of Individuals: 100
% Contribution of Dominant Family: 27.00
Family Biotic Index: 3.46
Scraper/Filterer Collector Ratio: 0.18
Shredder/Total Ratio: 0.35
E + P + T*: 8 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 48.00
EPT/C*: 4.36 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 6-8/1…Substrate: sand/cobble…Streambank Vegetation/Stability: good/good…Canopy: partly closed…Other: wooded; crayfish; fish

Raritan Basin - Gladstone USGS Quadrangle
Station AN0363
Lamington River, Route 523, Lamington
May 23, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Ephemerellidae	44	1
Heptageniidae	3	4
Corydalidae	2	0
Helicopsychidae	3	3
Philopotamidae	3	3
Gammaridae	6	4
Chironomidae	14	6
Baetidae	6	4
Elmidae	3	4
Lepidostomatidae	5	1
Sphaeriidae	1	8
Nematoda	1	6
Lumbriculidae	1	8
Hydropsychidae	2	4
Siphlonuridae	1	7
Tipulidae	1	3
Brachycentridae	1	1
Limnephilidae	1	4
Perlidae	1	1
Blephariceridae	1	0

Statistical Analysis

Number of Taxa: 20
Total Number of Individuals: 100
% Contribution of Dominant Family: 44.00
Family Biotic Index: 2.69
Scraper/Filterer Collector Ratio: 0.38
Shredder/Total Ratio: 0.61
E + P + T*: 11 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 70.00
EPT/C*: 5.00 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 30-40/1…Substrate: sand/cobble…Streambank Vegetation/Stability: good/good…Canopy: partly closed…Other: wooded/farm

Raritan Basin - Califon USGS Quadrangle
Station AN0364
North Branch Rockaway Creek, Route 512, Fairmount
May 11, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Cambarinae	2	6
Lumbriculidae	27	8
Ephemerellidae	32	1
Limnephilidae	21	4
Hydropsychidae	4	4
Heptageniidae	4	4
Baetidae	4	4
Lepidostomatidae	3	1
Tipulidae	3	3
Rhyacophilidae	3	0
Nemouridae	2	2
Peltoperlidae	1	1
Perlidae	2	1
Chironomidae	1	6
Leptoceridae	1	4

Statistical Analysis

Number of Taxa: 15
Total Number of Individuals: 110
% Contribution of Dominant Family: 29.09
Family Biotic Index: 3.83
Scraper/Filterer Collector Ratio: 0.50
Shredder/Total Ratio: 0.56
E + P + T*: 10 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 69.09
EPT/C*: 76.00 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: slow-moderate…Width/Depth(ft): 5-7/1-2…Substrate: sand/cobble…Streambank Vegetation/Stability: good/good…Canopy: partly open…Other: tree-lined/farm; crayfish; fish

Raritan Basin - Califon USGS Quadrangle
Station AN0365
North Branch Rockaway Creek, Rockaway Road, Mountainville
May 11, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Baetidae	18	4
Ephemerellidae	54	1
Chironomidae	4	6
Psephenidae	1	4
Rhyacophilidae	4	0
Heptageniidae	1	4
Siphlonuridae	1	7
Lepidostomatidae	2	1
Lumbriculidae	4	8
BloodRedChironomidae	1	8
Tipulidae	1	3
Philopotamidae	2	3
Nemouridae	3	2
Hydropsychidae	2	4
Simuliidae	1	6
Leptoceridae	1	4

Statistical Analysis

Number of Taxa: 16
Total Number of Individuals: 100
% Contribution of Dominant Family: 54.00
Family Biotic Index: 2.40
Scraper/Filterer Collector Ratio: 0.20
Shredder/Total Ratio: 0.78
E + P + T*: 10 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 88.00
EPT/C*: 17.60 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 15-20/1-2…Substrate: cobble/ gravel…Streambank Vegetation/Stability: fair/fair (bank spottily reinforced w/boulders) …Canopy: partly closed…Other: tree-lined/residential; fish

Raritan Basin - Califon USGS Quadrangle
Station AN0366
North Branch Rockaway Creek, Rockaway Road, McCrea's Mill
May 11, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Ephemerellidae	53	1
Chironomidae	4	6
Philopotamidae	10	3
Siphlonuridae	6	7
BloodRedChironomidae	1	8
Rhyacophilidae	1	0
Elmidae	1	4
Athericidae	1	2
Perlidae	8	1
Simuliidae	3	6
Heptageniidae	3	4
Baetidae	7	4
Polycentropodidae	1	6
Chloroperlidae	1	1
Corydalidae	1	0
Lumbricidae	1	10
Hydropsychidae	3	4
Nemertea	1	5
Psephenidae	2	4
Nemouridae	1	2

Statistical Analysis

Number of Taxa: 20
Total Number of Individuals: 109
% Contribution of Dominant Family: 48.62
Family Biotic Index: 2.50
Scraper/Filterer Collector Ratio: 0.09
Shredder/Total Ratio: 0.58
E + P + T*: 11 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 86.24
EPT/C*: 18.80 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate-fast…Width/Depth(ft): 30/1-2…Substrate: cobble/boulders…Streambank Vegetation/Stability: fair/fair…Canopy: mostly open…Other: wooded/commercial; fish

Raritan Basin - Califon USGS Quadrangle
Station AN0367
South Branch Rockaway Creek, Windy Acres Farm, Lebanon
May 11, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	25	6
Ephemerellidae	6	1
Hydropsychidae	15	4
Turbellaria	1	4
Psephenidae	1	4
Empididae	1	6
BloodRedChironomidae	3	8
Gammaridae	5	4
Philopotamidae	25	3
Sphaeriidae	1	8
Elmidae	6	4
Nemouridae	1	2
Cambarinae	1	6
Rhyacophilidae	6	0
Limnephilidae	2	4
Lumbriculidae	1	8

Statistical Analysis

Number of Taxa: 16
Total Number of Individuals: 100
% Contribution of Dominant Family: 25.00
Family Biotic Index: 4.05
Scraper/Filterer Collector Ratio: 0.02
Shredder/Total Ratio: 0.15
E + P + T*: 6 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 55.00
EPT/C*: 1.96 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 10-12/1-2…Substrate: cobbles/sand…Streambank Vegetation/Stability: fair/fair…Canopy: mostly open…Other: wooded/farm; crayfish

Raritan Basin - Flemington USGS Quadrangle
Station AN0368
South Branch Rockaway Creek, Route 22, Whitehouse
May 23, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Tubificidae	3	10
Sphaeriidae	11	8
Bryozoa	10	7
Elmidae	11	4
Gastropoda	12	7
Chironomidae	23	6
Simuliidae	4	6
Gammaridae	14	4
Turbellaria	4	4
Heptageniidae	2	4
Lumbricidae	1	10
Perlidae	1	1
Ephemerellidae	1	1
BloodRedChironomidae	2	8
Naididae	1	7

Statistical Analysis

Number of Taxa: 15
Total Number of Individuals: 100
% Contribution of Dominant Family: 23.00
Family Biotic Index: 5.93
Scraper/Filterer Collector Ratio: 0.39
Shredder/Total Ratio: 0.04
E + P + T*: 3 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 4.00
EPT/C*: 0.16 *(Chironomidae)
NJIS Score: 18
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 20-25/1-2…Substrate: mud/sand/cobble…Streambank Vegetation/Stability: good/good (stablilized with cobbles at bridge)…Canopy: mostly open…Other: wooded/ commercial; filamentous algae; macrophytes; fish; tadpoles

Raritan Basin - Gladstone USGS Quadrangle
Station AN0369
Rockaway Creek, Island Road, Readington Township
July 6, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Elmidae	15	4
Sphaeriidae	12	8
Baetidae	3	4
Potamanthidae	13	4
Gammaridae	7	4
Siphlonuridae	1	7
Hemiptera	3	8
Gastropoda	18	7
Hydropsychidae	10	4
Psephenidae	5	4
Tricorythide	3	4
Chironomidae	1	6
Glossosomatidae	1	0
Lumbriculidae	4	8
Perlidae	4	1
Philopotamidae	1	3
Caenidae	1	7
Gyrinidae	1	3
Bryozoa	1	7
BloodRedChironomidae	1	8

Statistical Analysis

Number of Taxa: 20
Total Number of Individuals: 105
% Contribution of Dominant Family: 17.14
Family Biotic Index: 5.21
Scraper/Filterer Collector Ratio: 0.38
Shredder/Total Ratio: 0.20
E + P + T*: 9 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 35.24
EPT/C*: 18.50 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: slightly turbid…Flow: slow…Width/Depth(ft): 40-50/1-2… Substrate: cobble/sand/gravel… Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: farm/wooded; macrophytes

Raritan Basin - Gladstone USGS Quadrangle
Station AN0370
Lamington River, Walsh Road, Burnt Mills
July 6, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Gammaridae	10	4
Baetidae	14	4
Chironomidae	5	6
Glossosomatidae	1	0
Lumbriculidae	1	8
Potamanthidae	1	4
Siphlonuridae	13	7
Elmidae	27	4
Tricorythidae	4	4
Sphaeriidae	4	8
Ephemerellidae	2	1
Polymitarcidae	3	2
Hydropsychidae	3	4
Simuliidae	1	6
Gastropoda	5	7
Lepidostomatidae	1	1
Philopotamidae	1	3
Perlidae	1	1
Turbellaria	2	4
Psephenidae	1	4

Statistical Analysis

Number of Taxa: 20
Total Number of Individuals: 100
% Contribution of Dominant Family: 27.00
Family Biotic Index: 4.63
Scraper/Filterer Collector Ratio: 0.29
Shredder/Total Ratio: 0.25
E + P + T*: 11 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 44.00
EPT/C*: 8.80 *(Chironomidae)
NJIS Score: 30
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 150/1-2… Substrate: cobble/gravel…Streambank Vegetation/Stability: good/good…
Canopy: mostly open…Other: wooded/residential; macrophytes; fish

Raritan Basin - Raritan USGS Quadrangle
Station AN0371
Chambers(B) Brook, Love Road, Bedminster Township
December 2, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Elmidae	45	4
Psephenidae	3	4
Hydropsychidae	23	4
Heptageniidae	3	4
Philopotamidae	6	3
Lumbriculidae	1	8
Simuliidae	1	6
Coenagrionidae	1	9
Turbellaria	14	4
Sialidae	1	4
Chironomidae	1	6
Gastropoda	1	7

Statistical Analysis

Number of Taxa: 12
Total Number of Individuals: 100
% Contribution of Dominant Family: 45.00
Family Biotic Index: 4.10
Scraper/Filterer Collector Ratio: 0.10
Shredder/Total Ratio: 0.03
E + P + T*: 3 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 32.00
EPT/C*: 32.00 *(Chironomidae)
NJIS Score: 21
Biological Condition: moderately impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 20/1…Substrate: rock/stones/sand…Streambank Vegetation/Stability: poor/poor…Canopy: mostly open…Other: tree-lined/meadow/residential/small airport

Raritan Basin - Raritan USGS Quadrangle
Station AN0372
Chambers(A) Brook, Coddington Road, Readington Township
May 12, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Nemouridae	51	2
Chironomidae	10	6
Heptageniidae	4	4
Empididae	3	6
Glossosomatidae	9	0
Baetidae	2	4
Perlodidae	4	2
Philopotamidae	1	3
Elmidae	5	4
Nematoda	4	6
Naididae	1	7
Caenidae	1	7
Hydropsychidae	2	4
Ephemerellidae	2	1
Psephenidae	1	4

Statistical Analysis

Number of Taxa: 15
Total Number of Individuals: 100
% Contribution of Dominant Family: 51.00
Family Biotic Index: 2.87
Scraper/Filterer Collector Ratio: 3.33
Shredder/Total Ratio: 0.05
E + P + T*: 9 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 76.00
EPT/C*: 7.60 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 10/ < 1…Substrate: mud/sand/gravel…Streambank Vegetation/Stability: fair/fair…Canopy: mostly closed…Other: tree-lined/residential

Raritan Basin - Raritan USGS Quadrangle
Station AN0373
Chambers(A) Brook, Station Road, North Branch Depot
December 2, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	7	4
Cambarinae	1	6
Gammaridae	39	4
Elmidae	8	4
Gastropoda	3	7
Psephenidae	15	4
Heptageniidae	16	4
Taeniopterygidae	1	2
Corydalidae	1	0
Coenagrionidae	3	9
Turbellaria	4	4
Sialidae	1	4
Tipulidae	1	3

Statistical Analysis

Number of Taxa: 13
Total Number of Individuals: 100
% Contribution of Dominant Family: 39.00
Family Biotic Index: 4.19
Scraper/Filterer Collector Ratio: 2.29
Shredder/Total Ratio: 0.11
E + P + T*: 3 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 24.00
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 24
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 25/1.5…Substrate: rock/cobble/stones…Streambank Vegetation/Stability: poor/poor…Canopy: mostly open…Other: tree-lined

Raritan Basin - Raritan USGS Quadrangle
Station AN0374
North Branch Raritan River, Route 202, Milltown
June 19, 1990

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	12	6
Simuliidae	3	6
Potamanthidae	47	4
Psephenidae	10	4
Gammaridae	3	4
Caenidae	3	7
Polymitarcidae	2	2
Elmidae	11	4
Baetidae	1	4
Turbellaria	1	4
Perlidae	3	1
Hydropsychidae	3	4
Heptageniidae	1	4

Statistical Analysis

Number of Taxa: 13
Total Number of Individuals: 100
% Contribution of Dominant Family: 47.00
Family Biotic Index: 4.26
Scraper/Filterer Collector Ratio: 0.77
Shredder/Total Ratio: 0.54
E + P + T*: 7 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 60.00
EPT/C*: 5.00 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 300/1…Substrate: gravel/rubble…Streambank Vegetation/Stability: good/good…Canopy: open…Other: tree-lined/low residential

Raritan Basin - Bound Brook USGS Quadrangle
Station AN0375
Dukes Brook, Dukes Parkway, Hillsborough Township
September 15, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Asellidae	63	8
BloodRedChironomidae	1	8
Hydropsychidae	12	4
Chironomidae	5	6
Gastropoda	10	7
Gammaridae	1	4
Cambarinae	1	6
Simuliidae	1	6
Coenagrionidae	2	9
Hirudinea	2	10
Turbellaria	1	4
Unionidae	1	8

Statistical Analysis

Number of Taxa: 12
Total Number of Individuals: 100
% Contribution of Dominant Family: 63.00
Family Biotic Index: 7.26
Scraper/Filterer Collector Ratio: 0.44
Shredder/Total Ratio: 0.02
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 12.00
EPT/C*: 2.00 *(Chironomidae)
NJIS Score: 9
Biological Condition: moderately impaired
Deficiency(s) noted: Asellidae overwhelmingly dominant, paucity of clean water organisms, significant organic pollution

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 15/1-2…Substrate: Substrate: mud/stone…Streambank Vegetation/Stability: good/good…Canopy: mostly closed…Other: wooded; algae; macrophytes; minnows

Raritan Basin - Bound Brook USGS Quadrangle
Station AN0376
Peters Brook, Route 28, Somerville
September 14, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	71	4
Chironomidae	4	6
Turbellaria	2	4
Elmidae	15	4
Psephenidae	4	4
Gammaridae	1	4
Hydrophilidae	2	5
Gastropoda	1	7

Statistical Analysis

Number of Taxa: 8
Total Number of Individuals: 100
% Contribution of Dominant Family: 71.00
Family Biotic Index: 4.13
Scraper/Filterer Collector Ratio: 0.06
Shredder/Total Ratio: 0.01
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 71.00
EPT/C*: 17.75 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: Hydropsychidae overwhelmingly dominant, paucity of clean water organisms

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 25/ < 1…Substrate: rocks/stones…Streambank Vegetation/Stability: fair/fair…Canopy: half open…Other: tree-lined; bicycle tires; shopping cart; assorted trash; filamentous algae; leeches; minnows; darters

Raritan Basin - Bound Brook USGS Quadrangle
Station AN0377
Raritan River, above Millstone River confluence, Manville
July 11, 1990

Family	Number of Individuals	Family Tolerance Value (FTV)
Gammaridae	5	4
Perlidae	2	1
Heptageniidae	3	4
Caenidae	1	7
Tricorythodes	4	4
Baetidae	4	4
Potamanthidae	4	4
Hydropsychidae	10	4
Pyralidae	2	5
Elmidae	13	4
Simuliidae	3	6
Chironomidae	47	6
BloodRedChironomidae	2	8
Gastropoda	2	7

Statistical Analysis

Number of Taxa: 14
Total Number of Individuals: 102
% Contribution of Dominant Family: 46.08
Family Biotic Index: 5.11
Scraper/Filterer Collector Ratio: 0.07
Shredder/Total Ratio: 0.18
E + P + T*: 7 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 27.45
EPT/C*: 0.57 *(Chironomidae)
NJIS Score: 21
Biological Condition: moderately impaired
Deficiency(s) noted: none

Observations

Streamwater: turbid…Flow: moderate…Width/Depth(ft): 50/1…Substrate: gravel/rubble…Streambank Vegetation/Stability: good/good…Canopy: open Other: tree-lined

Raritan Basin - Roosevelt USGS Quadrangle
Station AN0378
Millstone River, Baird Road, Millstone
April 8, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Simuliidae	39	6
Hydropsychidae	5	4
Ephemerellidae	1	1
Chironomidae	36	6
Lumbriculidae	2	8
Tipulidae	6	3
Nematoda	5	6
Asellidae	1	8
Bryozoa	1	7
Tubificidae	1	10
Lumbricidae	1	10
Gastropoda	1	7
Nemertea	1	5

Statistical Analysis

Number of Taxa: 13
Total Number of Individuals: 100
% Contribution of Dominant Family: 39.00
Family Biotic Index: 5.82
Scraper/Filterer Collector Ratio: 0.02
Shredder/Total Ratio: 0.08
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 6.00
EPT/C*: 0.17 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: moderate…Width/Depth(ft): 10/ < 1…Substrate: sand/some cobbles…Streambank Vegetation/Stability: good/good…Canopy: open…Other: brush-lined (tree-lined upstr of bridge); silt

Raritan Basin - Jamesburg USGS Quadrangle
Station AN0379
Millstone River, Route 33, Bergen Mills
July 25, 1990

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	25	4
Chironomidae	6	6
Heptageniidae	15	4
Tubificidae	7	10
Dytiscidae	4	4
Bryozoa	18	7
Cordulegastridae	1	3
Gastropoda	3	7
Nemertea	5	5
Ephemerellidae	1	1
Corydalidae	2	0
Tipulidae	4	3
BloodRedChironomidae	3	8
Sphaeriidae	2	8
Gomphidae	1	1
Aeshnidae	2	3
Elmidae	1	4

Statistical Analysis

Number of Taxa: 17
Total Number of Individuals: 100
% Contribution of Dominant Family: 25.00
Family Biotic Index: 5.21
Scraper/Filterer Collector Ratio: 0.02
Shredder/Total Ratio: 0.22
E + P + T*: 3 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 41.00
EPT/C*: 4.56 *(Chironomidae)
NJIS Score: 24
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: slightly turbid…Flow: moderate…Width/Depth(ft): 15/ < 1…Substrate: gravel…Streambank Vegetation/Stability: good/good…Canopy: open…Other: brush-lined/commercial

Raritan Basin - Roosevelt USGS Quadrangle
Station AN0380
Rocky Brook, Perrineville Road, Perrineville
August 31, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	71	4
Chironomidae	16	6
Turbellaria	2	4
Simuliidae	5	6
Sphaeriidae	2	8
Bryozoa	4	7

Statistical Analysis

Number of Taxa: 6
Total Number of Individuals: 100
% Contribution of Dominant Family: 71.00
Family Biotic Index: 4.62
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.00
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 71.00
EPT/C*: 4.44 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: Hydropsychidae overwhelmingly dominant, paucity of clean water organisms

Observations

Streamwater: slightly turbid…Flow: slow…Width/Depth(ft): 10/ < 1…Substrate: gravel…Streambank Vegetation/Stability: poor/poor…Canopy: half open…Other: wooded/rural/residential; algae; sunfish

Raritan Basin - Hightstown USGS Quadrangle
Station AN0381
Rocky Brook, Route 33, Hightstown
October 6, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Tubificidae	4	10
Elmidae	1	4
Gammaridae	24	4
Hydropsychidae	48	4
Bryozoa	10	7
Sphaeriidae	3	8
Chironomidae	4	6
Lumbricidae	2	10
Turbellaria	3	4
Asellidae	1	8

Statistical Analysis

Number of Taxa: 10
Total Number of Individuals: 100
% Contribution of Dominant Family: 71.00
Family Biotic Index: 4.90
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.00
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 48.00
EPT/C*: 12.00 *(Chironomidae)
NJIS Score: 18
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: mod…Width/Depth(ft): 20/ < 1…Substrate: sand/gravel/rubble…Streambank Vegetation/Stability: good/good…Canopy: open…Other: tree-lined/commercial; just downstr of Peddie Lake; darter

Raritan Basin - Hightstown USGS Quadrangle
Station AN0382
Millstone River, Grovers Mills Rd, Grovers Mills
July 24, 1990

Family	Number of Individuals	Family Tolerance Value (FTV)
Tubificidae	2	10
Chironomidae	22	6
Gastropoda	15	7
Gammaridae	13	4
Coenagrionidae	6	9
Bryozoa	7	7
BloodRedChironomidae	9	8
Hemiptera	9	8
Elmidae	5	4
Turbellaria	1	4
Naididae	7	7
Talitridae	3	8
Caenidae	1	7

Statistical Analysis

Number of Taxa: 13
Total Number of Individuals: 100
% Contribution of Dominant Family: 22.00
Family Biotic Index: 6.60
Scraper/Filterer Collector Ratio: 0.06
Shredder/Total Ratio: 0.06
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 1.00
EPT/C*: 0.03 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: slow…Width/Depth(ft): 100/ > 1…Substrate: sand/gravel/some cobbles…Streambank Vegetation/Stability: good/good…Canopy: open…Other: some trees/meadow; kabomba; nymphula; arrowheads

Raritan Basin - Hightstown USGS Quadrangle
Station AN0383
Big Bear Bk, Route 535, West Windsor Township
October 7, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Gastropoda	47	7
Hydropsychidae	24	4
Sphaeriidae	11	8
Elmidae	3	4
Coenagrionidae	5	9
Hirudinea	1	10
Tubificidae	1	10
Lumbriculidae	2	8
Tipulidae	2	3
Haliplidae	1	5
Asellidae	1	8
Hydrophilidae	1	5
Chironomidae	1	6

Statistical Analysis

Number of Taxa: 13
Total Number of Individuals: 100
% Contribution of Dominant Family: 47.00
Family Biotic Index: 6.36
Scraper/Filterer Collector Ratio: 1.20
Shredder/Total Ratio: 0.02
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 24.00
EPT/C*: 24.00 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: slow…Width/Depth(ft): 30/ < 1…Substrate: sand…Streambank Vegetation/Stability: good/good…Canopy: half open…Other: tree-lined/agricultural; macrophytes

Raritan Basin - Hightstown USGS Quadrangle
Station AN0384
Bear Brook, Stobbe Lane, Princeton Junction
July 23, 1990

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	39	4
Chironomidae	41	6
Bryozoa	2	7
Turbellaria	5	4
Nemertea	1	5
Gammaridae	5	4
Naididae	3	7
Hydroptilidae	1	4
Heptageniidae	1	4
Polychaeta	1	5
Sphaeriidae	1	8

Statistical Analysis

Number of Taxa: 11
Total Number of Individuals: 100
% Contribution of Dominant Family: 41.00
Family Biotic Index: 5.03
Scraper/Filterer Collector Ratio: 0.02
Shredder/Total Ratio: 0.00
E + P + T*: 3 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 41.00
EPT/C*: 1.00 *(Chironomidae)
NJIS Score: 21
Biological Condition: moderately impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 15/ < 1…Substrate: cobble/gravel…Streambank Vegetation/Stability: good/good…Canopy: mostly closed…Other: wooded/rural; periphyton; milfoil

Raritan Basin - Jamesburg USGS Quadrangle
Station AN0385
Cranbury Brook, Applegarth Road, Monroe
July 25, 1990

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	18	6
Simuliidae	23	6
Asellidae	5	8
Naididae	10	7
Coenagrionidae	3	9
Cambarinae	2	6
Hydropsychidae	28	4
Ephydridae	1	6
BloodRedChironomidae	2	8
Tubificidae	2	10
Sialidae	2	4
Pyralidae	2	5
Sphaeriidae	1	8
Corydalidae	1	0

Statistical Analysis

Number of Taxa: 14
Total Number of Individuals: 100
% Contribution of Dominant Family: 28.00
Family Biotic Index: 5.75
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.04
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 28.00
EPT/C*: 1.40 *(Chironomidae)
NJIS Score: 18
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: slow…Width/Depth(ft): 30/1…Substrate: gravel/sand…Streambank Vegetation/Stability: good/good…Canopy: open….Other: macrophytes

Raritan Basin - Hightstown USGS Quadrangle
Station AN0386
Cranbury Brook, Edgemere Avenue, Plainsboro
July 24, 1990

Family	Number of Individuals	Family Tolerance Value (FTV)
Turbellaria	3	4
Hemiptera	3	8
Chironomidae	48	6
BloodRedChironomidae	34	8
Gastropoda	1	7
Naididae	4	7
Sphaeriidae	1	8
Hydrophilidae	1	5
Hydroptilidae	1	4
Coenagrionidae	2	9
Gammaridae	1	4
Haliplidae	1	5

Statistical Analysis

Number of Taxa: 12
Total Number of Individuals: 100
% Contribution of Dominant Family: 48.00
Family Biotic Index: 6.75
Scraper/Filterer Collector Ratio: 0.03
Shredder/Total Ratio: 0.04
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 1.00
EPT/C*: 0.01 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: negligible…Width/Depth(ft): 50/1…Substrate: boulders/gravel/sand…Streambank Vegetation/Stability: good/good…Canopy: open…Other: kabomba; nymphula; arrowheads

Raritan Basin - Hightstown USGS Quadrangle
Station AN0387
Devils Brook, New Road, South Brunswick Township
October 6, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Dytiscidae	6	4
Gammaridae	6	4
Diplopoda	2	5
Sphaeriidae	3	8
Hemiptera	3	8
Asellidae	1	8
Gastropoda	2	7
Tabanidae	1	6
Elmidae	2	4
Lumbriculidae	1	8
Naididae	1	7

Statistical Analysis

Number of Taxa: 11
Total Number of Individuals: 28
% Contribution of Dominant Family: 21.43
Family Biotic Index: 5.61
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.07
E + P + T*: 0 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 0.00
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: negligible…Width/Depth(ft): 10/ < 1… Substrate: sand/gravel/concrete…Streambank Vegetation/Stability: fair/fair…Canopy: mostly open…Other: tree-lined; slime; algae; macrophytes; fish

Raritan Basin - Hightstown USGS Quadrangle
Station AN0388
Shallow Brook, North of Scotts Corner, South Brunswick Township
October 6, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
BloodRedChironomidae	6	8
Turbellaria	8	4
Lumbriculidae	7	8
Asellidae	36	8
Hirudinea	11	10
Sphaeriidae	6	8
Gomphidae	1	1
Chironomidae	5	6
Diplopoda	1	5
Coenagrionidae	1	9
Gastropoda	5	7
Tipulidae	7	3
Simuliidae	1	6
Hydrophilidae	1	5
Tubificidae	2	10
Cambarinae	1	6
Sialidae	1	4
Dytiscidae	1	4
Elmidae	1	4

Statistical Analysis

Number of Taxa: 19
Total Number of Individuals: 102
% Contribution of Dominant Family: 35.29
Family Biotic Index: 7.18
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.10
E + P + T*: 0 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 0.00
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms, significant organic pollution

Observations

Streamwater: clear…Flow: negligible…Width/Depth(ft): 15/ < 1…Substrate: sand/gravel/rubble…Streambank Vegetation/Stability: good/good…Canopy: open…Other: tree-lined/rural; impounded upstream; macrophytes

Raritan Basin - Hightstown USGS Quadrangle
Station AN0389
Devils Brook, Schalks Road, Plainsboro
October 6, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Coenagrionidae	6	9
Gammaridae	68	4
Hydrophilidae	1	5
Hemiptera	4	8
Taltridae	4	8
Polycentridae	4	6
Gastropoda	4	7
Chironomidae	2	6
Aeshnidae	2	3
Tubificidae	1	10
Naididae	2	7
Elmidae	1	4
Turbellaria	1	4

Statistical Analysis

Number of Taxa: 13
Total Number of Individuals: 100
% Contribution of Dominant Family: 68.00
Family Biotic Index: 4.97
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.00
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 4.00
EPT/C*: 2.00 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: Gammaridae overwhelmingly dominant, paucity of clean water organisms

Observations

Streamwater: slightly turbid…Flow: negligible…Width/Depth(ft): 100/ > 5…Substrate: sand/gravel…Streambank Vegetation/Stability: good/good…Canopy: open…Other: wooded/swamp; macrophytes

Raritan Basin - Hopewell USGS Quadrangle
Station AN0390
Camp Harmony, Van Dyke Road, Hopewell
April 5, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Gammaridae	5	4
Nemouridae	11	2
Baetidae	2	4
Simuliidae	15	6
Siphlonuridae	9	7
Lumbriculidae	3	8
Sphaeriidae	31	8
Limnephilidae	2	4
Hemiptera	1	8
Psephenidae	1	4
Chironomidae	6	6
Capniidae	1	1
Dryopidae	1	5
Rhyacophilidae	1	0
Gomphidae	2	1
Gastropoda	2	7
Corydalidae	2	0
Perlodidae	1	2
Leptophlebidae	1	2
Asellidae	1	8
Sialidae	1	4
Talitridae	1	8

Statistical Analysis

Number of Taxa: 22
Total Number of Individuals: 100
% Contribution of Dominant Family: 31.00
Family Biotic Index: 5.77
Scraper/Filterer Collector Ratio: 0.04
Shredder/Total Ratio: 0.16
E + P + T*: 8 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 28.00
EPT/C*: 4.67 *(Chironomidae)
NJIS Score: 24
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 15-20/1…Substrate: sand/cobble…Streambank Vegetation/Stability: good/good…Canopy: partly open…Other: wooded/few homes; algae and detritus on substrate; fish

Raritan Basin - Hopewell USGS Quadrangle
Station AN0391
Stony Brook, Mine Road, Hopewell
April 27, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Ephemerellidae	8	1
Simuliidae	68	6
Gastropoda	1	7
Nematoda	1	6
Siphlonuridae	13	7
Perlodidae	2	2
Chironomidae	3	6
Nemouridae	2	2
Baetidae	1	4
Gomphidae	1	1

Statistical Analysis

Number of Taxa: 10
Total Number of Individuals: 100
% Contribution of Dominant Family: 68.00
Family Biotic Index: 5.51
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.09
E + P + T*: 5 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 26.00
EPT/C*: 8.67 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: Simuliidae overwhelmingly dominant

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 10-15/1-2…Substrate: cobble…Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: farm/residential; periphyton, minnows

Raritan Basin - Pennington USGS Quadrangle
Station AN0392
Stony Brook, Old Mill Road, Pennington
May 12, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Simuliidae	74	6
Naididae	5	7
Ephemerellidae	5	1
Tubificidae	2	10
Caenidae	3	7
Chironomidae	7	6
Nematoda	1	6
Nemouridae	1	2
Perlidae	1	1
Turbellaria	1	4

Statistical Analysis

Number of Taxa: 10
Total Number of Individuals: 100
% Contribution of Dominant Family: 74.00
Family Biotic Index: 5.80
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.08
E + P + T*: 4 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 10.00
EPT/C*: 1.43 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: Simuliidae overwhelmingly dominant

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 35/1-2…Substrate: cobbles/stones…Streambank Vegetation/Stability: good/good…Canopy: half open…Other: tree-lined

Raritan Basin - Princeton USGS Quadrangle
Station AN0393
Stony Brook, Route 206, Princeton
April 12, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Simuliidae	61	6
Psephenidae	10	4
Gastropoda	2	7
Heptageniidae	2	4
Chironomidae	2	6
Elmidae	14	4
Empididae	2	6
Ephemerellidae	1	1
Baetidae	1	4
Limnephilidae	1	4
Sphaeridae	1	8
Nemouridae	1	2
Capniidae	1	1
Hydropsychidae	1	4

Statistical Analysis

Number of Taxa: 14
Total Number of Individuals: 100
% Contribution of Dominant Family: 61.00
Family Biotic Index: 5.32
Scraper/Filterer Collector Ratio: 0.22
Shredder/Total Ratio: 0.03
E + P + T*: 7 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 8.00
EPT/C*: 4.00 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: Simuliidae overwhelmingly dominant, paucity of clean water organisms

Observations

Streamwater: slightly turbid…Flow: moderate…Width/Depth(ft): 50-60/1-2…Substrate: cobble/sand…Streambank Vegetation/Stability: fair/fair…Canopy: mostly open…Other: wooded/residential; catfish

Raritan Basin - Princeton USGS Quadrangle
Station AN0394
Duck Pond Run, Route 1, West Windsor
April 12, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Tubificidae	45	10
Lumbricidae	5	10
Chironomidae	43	6
Naididae	2	7
Sphaeriidae	1	8
Gammaridae	2	4
Hirudinea	1	10
Ceratopogonidae	1	6

Statistical Analysis

Number of Taxa: 8
Total Number of Individuals: 100
% Contribution of Dominant Family: 45.00
Family Biotic Index: 8.04
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.14
E + P + T*: 0 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 0.00
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 6
Biological Condition: severely impaired
Deficiency(s) noted: paucity of clean water organisms, significant organic pollution

Observations

Streamwater: slightly turbid…Flow: slow…Width/Depth(ft): 6-8/1…Substrate: sand/muck/cobble…Streambank Vegetation/Stability: fair/fair…Canopy: mostly open…Other: wooded/commercial; filamentous algae; minnows

Raritan Basin - Monmouth Junction USGS Quadrangle
Station AN0395
Heathcote Brook, Stouts Lane, South Brunswick
October 6, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydroptilidae	1	4
Gammaridae	10	4
Asellidae	28	8
Psephenidae	5	4
Gastropoda	31	7
Dytiscidae	1	4
Hemiptera	2	8
Coenagrionidae	4	9
Tubificidae	1	10
Sialidae	4	4
Elmidae	3	4
Heptageniidae	2	4
Chironomidae	4	6
Hydropsychidae	1	4
Turbellaria	2	4
Caenidae	1	7

Statistical Analysis

Number of Taxa: 16
Total Number of Individuals: 100
% Contribution of Dominant Family: 31.00
Family Biotic Index: 6.50
Scraper/Filterer Collector Ratio: 28.00
Shredder/Total Ratio: 0.03
E + P + T*: 4 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 5.00
EPT/C*: 1.25 *(Chironomidae)
NJIS Score: 18
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 6/ < 1…Substrate: gravel/cobble…Streambank Vegetation/Stability: fair/fair…Canopy: half open…Other: tree-lined; macrophytes; fish

Raritan Basin - Hightstown USGS Quadrangle
Station AN0396
Heathcote Brook, Academy Street, Kingston
October 6, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	1	4
Hirudinea	1	10
Gastropoda	83	7
Sphaeriidae	8	8
Tipulidae	4	3
Simuliidae	1	6
Coenagrionidae	1	9
Lumbricidae	4	10
Turbellaria	1	4

Statistical Analysis

Number of Taxa: 9
Total Number of Individuals: 104
% Contribution of Dominant Family: 79.81
Family Biotic Index: 7.02
Scraper/Filterer Collector Ratio: 5.30
Shredder/Total Ratio: 0.03
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 0.96
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 3
Biological Condition: severely impaired
Deficiency(s) noted: Gastropoda overwhelmingly dominant, paucity of clean water organisms, significant organic pollution

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 20/ < 1…Substrate: sand/gravel/cobble…Streambank Vegetation/Stability: good/good…Canopy: half open…Other: tree-lined; macrophytes

Raritan Basin - Hightstown USGS Quadrangle
Station AN0397
Millstone River, off Route 27, Kingston
October 6, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Turbellaria	27	4
Gastropoda	39	7
Elmidae	10	4
Gammaridae	3	4
Sphaeriidae	5	8
Lumbriculidae	3	8
BloodRedChironomidae	6	8
Asellidae	2	8
Hydropsychidae	5	4

Statistical Analysis

Number of Taxa: 9
Total Number of Individuals: 100
% Contribution of Dominant Family: 39.00
Family Biotic Index: 5.81
Scraper/Filterer Collector Ratio: 2.31
Shredder/Total Ratio: 0.00
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 5.00
EPT/C*: 0.83 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: fast…Width/Depth(ft): 100/1…Substrate: sand/gravel…Streambank Vegetation/Stability: poor/poor…Canopy: open…Other: a few trees; below Carnegie Lake outlet; retaining wall on right side; macrophytes; eel; darter

Raritan Basin - Rocky Hill USGS Quadrangle
Station AN0398
Bedens Brook, Aunt Molly Road, Hopewell
April 5, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Simuliidae	69	6
Siphlonuridae	11	7
Nemouridae	6	2
Ephemerellidae	4	1
Hydropsychidae	2	4
Heptageniidae	2	4
Chironomidae	3	6
Sphaeriidae	1	8
Limnephilidae	1	4
Nematoda	1	6

Statistical Analysis

Number of Taxa: 10
Total Number of Individuals: 100
% Contribution of Dominant Family: 69.00
Family Biotic Index: 5.59
Scraper/Filterer Collector Ratio: 0.01
Shredder/Total Ratio: 0.11
E + P + T*: 6 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 26.00
EPT/C*: 8.67 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: Simuliidae overwhelmingly dominant

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 30/1-2…Substrate: cobble/sand…Streambank Vegetation/Stability: good/good…Canopy: open…Other: wooded; STP downstream; minnows

Raritan Basin - Rocky Hill USGS Quadrangle
Station AN0399
Rock Brook, Long Hill Road, Zion
April 5, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Simuliidae	69	6
Nemouridae	14	2
Siphlonuridae	7	7
Chironomidae	1	6
Empididae	2	6
Gastropoda	2	7
Perlidae	1	1
Limnephilidae	2	4
Lumbricidae	1	10
Baetidae	1	4

Statistical Analysis

Number of Taxa: 10
Total Number of Individuals: 100
% Contribution of Dominant Family: 69.00
Family Biotic Index: 5.46
Scraper/Filterer Collector Ratio: 0.03
Shredder/Total Ratio: 0.15
E + P + T*: 5 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 25.00
EPT/C*: 25.00 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: Simuliidae overwhelmingly dominant

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 15/ < 1…Substrate: cobble…Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: wooded/few homes; minnows

Raritan Basin - Rocky Hill USGS Quadrangle
Station AN0400
Rock Brook, Burnt Hill Road, Montgomery
April 5, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	35	6
Gammaridae	11	4
Siphlonuridae	8	7
Simuliidae	31	6
Lumbricidae	3	10
Empididae	4	6
Lumbriculidae	2	8
Asellidae	1	8
Nemouridae	3	2
Sphaeriidae	1	8
Limnephilidae	1	4

Statistical Analysis

Number of Taxa: 11
Total Number of Individuals: 100
% Contribution of Dominant Family: 35.00
Family Biotic Index: 5.92
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.04
E + P + T*: 3 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 12.00
EPT/C*: 0.34 *(Chironomidae)
NJIS Score: 21
Biological Condition: moderately impaired
Deficiency(s) noted: none

Observations

Streamwater: turbid…Flow: slow…Width/Depth(ft): 20-30/1-2…Substrate: cobble/gravel/bedrock…Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: residential/wooded/State psychiatric facility land; periphyton; tadpole; fish

Raritan Basin - Rocky Hill USGS Quadrangle
Station AN0401
Bedens Brook, Route 206, Montgomery
April 5, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Simuliidae	65	6
Chironomidae	11	6
Gammaridae	4	4
Siphlonuridae	9	7
Psephenidae	3	4
Empididae	1	6
Hydrophilidae	1	5
Tipulidae	3	3
Nemouridae	1	2
Elmidae	1	4
Lumbriculidae	1	8

Statistical Analysis

Number of Taxa: 11
Total Number of Individuals: 100
% Contribution of Dominant Family: 65.00
Family Biotic Index: 5.81
Scraper/Filterer Collector Ratio: 0.05
Shredder/Total Ratio: 0.04
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 10.00
EPT/C*: 0.91 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: Simuliidae overwhelmingly dominant, paucity of clean water organisms

Observations

Streamwater: slightly turbid…Flow: moderate…Width/Depth(ft): 40-50/1-2…Substrate: cobble/sand…Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: wooded; periphyton

Raritan Basin - Rocky Hill USGS Quadrangle
Station AN0402
Pike Run, Route 206, Belle Mead
November 10, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Psephenidae	11	4
Elmidae	51	4
Gammaridae	13	4
Hydropsychidae	3	4
Turbellaria	6	4
Heptageniidae	2	4
Sphaeriidae	4	8
Lumbriculidae	4	8
Philopotamidae	4	3
Chironomidae	1	6
Dryopidae	1	5

Statistical Analysis

Number of Taxa: 11
Total Number of Individuals: 100
% Contribution of Dominant Family: 51.00
Family Biotic Index: 4.31
Scraper/Filterer Collector Ratio: 1.09
Shredder/Total Ratio: 0.00
E + P + T*: 3 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 9.00
EPT/C*: 9.00 *(Chironomidae)
NJIS Score: 18
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 20/1…Substrate: mud/sand/shale chips/rocks…Streambank Vegetation/Stability: good/good…Canopy: open…Other: tree-lined

Raritan Basin - Rocky Hill USGS Quadrangle
Station AN0403
Cruser Brook, Route 206, Harlingen
November 10, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	31	4
Lumbriculidae	3	8
Elmidae	12	4
Tubificidae	3	10
Helicopsychidae	10	3
Caenidae	1	7
Psephenidae	10	4
Heptageniidae	7	4
Gammaridae	2	4
Chironomidae	2	6
Turbellaria	4	4
Gastropoda	5	7
Sphaeriidae	6	8
BloodRedChironomidae	1	8
Hydrophilidae	1	5
Sialidae	1	4
Coenagrionidae	1	9

Statistical Analysis

Number of Taxa: 17
Total Number of Individuals: 100
% Contribution of Dominant Family: 31.00
Family Biotic Index: 4.76
Scraper/Filterer Collector Ratio: 0.54
Shredder/Total Ratio: 0.02
E + P + T*: 4 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 49.00
EPT/C*: 16.33 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: slightly turbid…Flow: slow…Width/Depth(ft): 15/1…Substrate: sand/rubble/cobble…Streambank Vegetation/Stability: good/good….Canopy: open…Other: tree-lined; mosses; darters

Raritan Basin - Rocky Hill USGS Quadrangle
Station AN0404
Back Brook, Route 206, Montgomery
June 14, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	31	4
Bryozoa	6	7
Chironomidae	16	6
BloodRedChironomidae	1	8
Asellidae	8	8
Elmidae	26	4
Perlidae	8	1
Baetidae	1	4
Psephenidae	2	4
Turbellaria	1	4

Statistical Analysis

Number of Taxa: 10
Total Number of Individuals: 100
% Contribution of Dominant Family: 31.00
Family Biotic Index: 4.62
Scraper/Filterer Collector Ratio: 0.04
Shredder/Total Ratio: 0.01
E + P + T*: 3 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 40.00
EPT/C*: 2.35 *(Chironomidae)
NJIS Score: 24
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 20/ < 1…Substrate: Substrate: mud…Streambank Vegetation/Stability: fair/fair…Canopy: mostly closed…Other: wooded

Raritan Basin - Rocky Hill USGS Quadrangle
Station AN0405
Pike Run, Route 533, Montgomery
April 5, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Tubificidae	9	10
Elmidae	1	4
Chironomidae	8	6
Diplopoda	1	5
Sialidae	2	4
Sphaeriidae	4	8
Asellidae	2	8
Gammaridae	4	4
Philopotamidae	1	3
Psephenidae	1	4
Heptageniidae	1	4

Statistical Analysis

Number of Taxa: 11
Total Number of Individuals: 34
% Contribution of Dominant Family: 26.47
Family Biotic Index: 6.76
Scraper/Filterer Collector Ratio: 0.17
Shredder/Total Ratio: 0.09
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 5.88
EPT/C*: 0.25 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: slightly turbid…Flow: slow-moderate…Width/Depth(ft): 30-40/1-2.5…Substrate: cobble/sand…Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: wooded; periphyton

Raritan Basin - Monmouth Junction USGS Quadrangle
Station AN0406
Simonson Brook, Canal Road, Griggstown
October 5, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Psephenidae	13	4
Simuliidae	2	6
Gastropoda	50	7
Hydropsychidae	17	4
Gammaridae	4	4
Chironomidae	1	6
Elmidae	8	4
Sialidae	1	4
Lumbricidae	2	10
Tipulidae	1	3
Philopotamidae	1	3

Statistical Analysis

Number of Taxa: 11
Total Number of Individuals: 100
% Contribution of Dominant Family: 50.00
Family Biotic Index: 5.66
Scraper/Filterer Collector Ratio: 0.65
Shredder/Total Ratio: 0.02
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 18.00
EPT/C*: 18.00 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: mod…Width/Depth(ft): 6/ < 1…Substrate: shale/gravel…Streambank Vegetation/Stability: fair/fair…Canopy: half open…Other: tree-lined; filamentous algae; macrophytes

Raritan Basin - Monmouth Junction USGS Quadrangle
Station AN0407
Ten Mile Run, Canal Road, Franklin
October 5, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Psephenidae	54	4
Elmidae	27	4
Turbellaria	1	4
Chironomidae	2	6
Tabanidae	1	6
Hydropsychidae	8	4
Asellidae	2	8
Hirudinea	2	10
Heptageniidae	3	4

Statistical Analysis

Number of Taxa: 9
Total Number of Individuals: 100
% Contribution of Dominant Family: 54.00
Family Biotic Index: 4.26
Scraper/Filterer Collector Ratio: 6.75
Shredder/Total Ratio: 0.01
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 11.00
EPT/C*: 5.50 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: mod…Width/Depth(ft): 10/ < 1…Substrate: shale chips…Streambank Vegetation/Stability: good/good…Canopy: open…Other: tree-lined; periphyton; crayfish; fish

Raritan Basin - Monmouth Junction USGS Quadrangle
Station AN0408
Six Mile Run, Route 27, Franklin
October 5, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Tubificidae	43	10
Turbellaria	6	4
Hydropsychidae	40	4
Gammaridae	7	4
Chironomidae	1	6
Gomphidae	1	1
Sphaeriidae	1	8
Gastropoda	1	7

Statistical Analysis

Number of Taxa: 8
Total Number of Individuals: 100
% Contribution of Dominant Family: 43.00
Family Biotic Index: 6.64
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.00
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 40.00
EPT/C*: 40.00 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 20/ < 1…Substrate: mud/rubble…Streambank Vegetation/Stability: fair/fair…Canopy: open…Other: tree-lined; siltation; darters

Raritan Basin - Monmouth Junction USGS Quadrangle
Station AN0409
Six Mile Run, Canal Road, Blackwells Mills
October 5, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	18	4
Elmidae	14	4
Gastropoda	1	7
Psephenidae	29	4
Tabanidae	4	6
Corydalidae	2	0
Asellidae	2	8
Heptageniidae	13	4
Gammaridae	6	4
Nemertea	1	5
Chironomidae	3	6
Lumbriculidae	4	8
Hydrophilidae	1	5
Sialidae	1	4
Tubificidae	1	10

Statistical Analysis

Number of Taxa: 15
Total Number of Individuals: 100
% Contribution of Dominant Family: 29.00
Family Biotic Index: 4.41
Scraper/Filterer Collector Ratio: 1.67
Shredder/Total Ratio: 0.10
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 31.00
EPT/C*: 10.33 *(Chironomidae)
NJIS Score: 21
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 30/ < 1…Substrate: shale chips/rubble…Streambank Vegetation/Stability: poor/poor…Canopy: half open…Other: tree-lined; darters

Raritan Basin - Monmouth Junction USGS Quadrangle
Station AN0410
Millstone River, Blackwells Mills Road, Blackwells Mills
July 23, 1990

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	80	4
Gammaridae	2	4
Chironomidae	15	6
Turbellaria	1	4
Elmidae	1	4
Tricorythidae	1	4

Statistical Analysis

Number of Taxa: 6
Total Number of Individuals: 100
% Contribution of Dominant Family: 80.00
Family Biotic Index: 4.30
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.01
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 81.00
EPT/C*: 5.40 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: Hydropsychidae overwhelmingly dominant, paucity of clean water organisms

Observations

Streamwater: slightly turbid…Flow: slow…Width/Depth(ft): 80/1…Substrate: boulders/sand…Streambank Vegetation/Stability: fair/fair…Canopy: open…Other: tree-lined; periphyton; macrophytes

Raritan Basin - Rocky Hill USGS Quadrangle
Station AN0411
Royce Brook, Route 206, Bloomingdale
November 10, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Sphaeriidae	8	8
Psephenidae	32	4
Elmidae	24	4
Hydropsychidae	11	4
Asellidae	11	8
Turbellaria	5	4
Gammaridae	1	4
Hydrophilidae	1	5
Hemiptera	1	8
Gastropoda	2	7
Simuliidae	3	6
Hirudinea	1	10

Statistical Analysis

Number of Taxa: 12
Total Number of Individuals: 100
% Contribution of Dominant Family: 32.00
Family Biotic Index: 4.99
Scraper/Filterer Collector Ratio: 1.50
Shredder/Total Ratio: 0.00
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 11.00
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 21
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 20/ < 1…Substrate: sand/cobbles…Streambank Vegetation/Stability: good/good…Canopy: open…Other: sparsely tree-lined; leaf litter; siltation; periphyton; darter

Raritan Basin - Raritan USGS Quadrangle
Station AN0412
Royce Brook, Route 206, Hillsborough
November 10, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Tubificidae	6	10
Coenagrionidae	4	9
Lumbriculidae	2	8
Turbellaria	3	4
Elmidae	1	4
Lumbricidae	1	10
Sialidae	1	4

Statistical Analysis

Number of Taxa: 7
Total Number of Individuals: 18
% Contribution of Dominant Family: 33.33
Family Biotic Index: 7.89
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.00
E + P + T*: 0 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 0.00
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 9
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms, significant organic pollution

Observations

Streamwater: slightly turbid…Flow: slow…Width/Depth(ft): 10/1…Substrate: gravel (shale chips)…Streambank Vegetation/Stability: fair/fair…Canopy: open…Other: tree-lined; siltation

Raritan Basin - Bound Brook USGS Quadrangle
Station AN0413
Royce Brook, Route 533, Manville
November 10, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Elmidae	20	4
Gammaridae	22	4
Gastropoda	10	7
Turbellaria	4	4
Chironomidae	1	6
Asellidae	17	8
Sphaeriidae	8	8
Psephenidae	2	4
Hirudinea	1	10
Heptageniidae	12	4
Tubificidae	3	10

Statistical Analysis

Number of Taxa: 11
Total Number of Individuals: 100
% Contribution of Dominant Family: 22.00
Family Biotic Index: 5.56
Scraper/Filterer Collector Ratio: 1.25
Shredder/Total Ratio: 0.00
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 12.00
EPT/C*: 12.00 *(Chironomidae)
NJIS Score: 18
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 40/1…Substrate: shale chips…Streambank Vegetation/Stability: good/good…Canopy: open…Other: tree-lined; trash; fish

Raritan Basin - Bound Brook USGS Quadrangle
Station AN0414
Millstone River, above Raritan River confluence, Manville
July 11, 1990

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	34	4
Gammaridae	46	4
Chironomidae	15	6
Empididae	1	6
Nematoda	1	6
Turbellaria	2	4
Tricorythidae	1	4

Statistical Analysis

Number of Taxa: 7
Total Number of Individuals: 100
% Contribution of Dominant Family: 46.00
Family Biotic Index: 4.34
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.01
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 35.00
EPT/C*: 2.33 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: moderate…Width/Depth(ft): 60/1…Substrate: rubble/sand/gravel…Streambank Vegetation/Stability: good/good…Canopy: open…Other: tree-lined; mosses; macrophytes

Raritan Basin - Bound Brook USGS Quadrangle
Station AN0415
Cuckels Brook, Route 28, Bridgewater Township
September 14, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Gammaridae	32	4
Baetidae	11	4
Turbellaria	9	4
Chironomidae	16	6
Aeshnidae	4	3
Coenagrionidae	9	9
Gastropoda	1	7
Tubificidae	2	10
Corduliidae	1	5
Sphaeriidae	2	8
Lumbriculidae	1	8
Sialidae	3	4
BloodRedChironomidae	2	8
Asellidae	1	8
Haliplidae	1	5
Elmidae	3	4
Hirudinea	1	10
Dytiscidae	1	4

Statistical Analysis

Number of Taxa: 18
Total Number of Individuals: 100
% Contribution of Dominant Family: 32.00
Family Biotic Index: 5.20
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.15
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 11.00
EPT/C*: 0.61 *(Chironomidae)
NJIS Score: 18
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 6/ < 1…Substrate: rocks/gravel…Streambank Vegetation/Stability: good/good…Canopy: closed…Other: tree-lined/residential; banks reinforced with rocks encased in wire; filamentous algae; minnows

Raritan Basin - Bound Brook USGS Quadrangle
Station AN0416
Middle Brook (West Branch), Crim Road, Bridgewater Township
September 15, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Elmidae	3	4
Hydropsychidae	6	4
Gastropoda	23	7
Chironomidae	31	6
Sialidae	2	4
Hemiptera	6	8
Haliplidae	2	5
Psephenidae	6	4
Dytiscidae	1	4
Gammaridae	4	4
Coenagrionidae	1	9
Lumbriculidae	6	8
Corydalidae	1	0
Tubificidae	1	10
Heptageniidae	3	4
Hydrophilidae	1	5
Libellulidae	1	9
Baetidae	1	4
Tabanidae	1	6

Statistical Analysis

Number of Taxa: 19
Total Number of Individuals: 100
% Contribution of Dominant Family: 31.00
Family Biotic Index: 5.96
Scraper/Filterer Collector Ratio: 0.30
Shredder/Total Ratio: 0.04
E + P + T*: 3 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 10.00
EPT/C*: 0.32 *(Chironomidae)
NJIS Score: 21
Biological Condition: moderately impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 10/ < 1…Substrate: cobble/gravel…Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: residential/school; USGS Gage upstream; crayfish; minnows

Raritan Basin - Bound Brook USGS Quadrangle
Station AN0417
Middle Brook (West Branch), Chimney Rock Road, Bridgewater Township
September 15, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	22	6
Asellidae	13	8
Hydropsychidae	18	4
Heptageniidae	11	4
Gastropoda	11	7
Gammaridae	13	4
Coenagrionidae	9	9
Turbellaria	1	4
BloodRedChironomidae	2	8

Statistical Analysis

Number of Taxa: 9
Total Number of Individuals: 100
% Contribution of Dominant Family: 22.00
Family Biotic Index: 5.82
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.22
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 29.00
EPT/C*: 1.21 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 10-15/1…Substrate: cobble/sand/gravel…Streambank Vegetation/Stability: good/good…Canopy: partly closed…Other: wooded; just below Washington Valley Reservoir; oil sheen in spots; macrophytes; frogs; minnows

Raritan Basin - Bound Brook USGS Quadrangle
Station AN0418
Middle Brook (East Branch), Green Valley Road, Warren Township
September 14, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Gastropoda	33	7
Elmidae	3	4
Hirudinea	3	10
Sphaeriidae	2	8
Gammaridae	2	4
Dytiscidae	1	4
Psephenidae	1	4
Hydropsychidae	1	4
Chironomidae	2	6
Gomphidae	1	1

Statistical Analysis

Number of Taxa: 10
Total Number of Individuals: 49
% Contribution of Dominant Family: 67.35
Family Biotic Index: 6.57
Scraper/Filterer Collector Ratio: 0.20
Shredder/Total Ratio: 0.00
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 2.04
EPT/C*: 0.50 *(Chironomidae)
NJIS Score: 6
Biological Condition: severely impaired
Deficiency(s) noted: Gastropoda overwhelmingly dominant, paucity of clean water organisms

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 4/ < 1…Substrate: rubble/sand/gravel…Streambank Vegetation/Stability: good/good…Canopy: mostly closed…Other: tree-lined/residential/marshland; Warren Brook Golf Course upstream at Route 651; algae; macrophytes; minnows

Raritan Basin - Bound Brook USGS Quadrangle
Station AN0419
Middle Brook (East Branch), Gilbride Road, Bridgewater Township
September 14, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Siphlonuridae	12	7
Elmidae	6	4
Psephenidae	12	4
Hydropsychidae	27	4
Chironomidae	25	6
Heptageniidae	14	4
Gammaridae	2	4
Pyralidae	1	5
Gomphidae	1	1

Statistical Analysis

Number of Taxa: 9
Total Number of Individuals: 100
% Contribution of Dominant Family: 27.00
Family Biotic Index: 4.84
Scraper/Filterer Collector Ratio: 0.29
Shredder/Total Ratio: 0.19
E + P + T*: 3 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 53.00
EPT/C*: 2.12 *(Chironomidae)
NJIS Score: 24
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 30/ < 1…Substrate: rubble/sand/gravel…Streambank Vegetation/Stability: fair/fair…Canopy: mostly open…Other: tree-lined; periphyton; filamentous algae; minnows; frogs

Raritan Basin - Bound Brook USGS Quadrangle
Station AN0420
Middle Brook, Talmage Avenue, Bridgewater
September 14, 1993

Family	Number of Individual	Family Tolerance Value (FTV)
Pyralidae	2	5
Hydropsychidae	56	4
Chironomidae	6	6
Psephenidae	13	4
Elmidae	4	4
Nematoda	1	6
Baetidae	5	4
Turbellaria	7	4
Siphlonuridae	3	7
Gammaridae	2	4
Ephemerellidae	1	1

Statistical Analysis

Number of Taxa: 11
Total Number of Individuals: 100
% Contribution of Dominant Family: 56.00
Family Biotic Index: 4.22
Scraper/Filterer Collector Ratio: 0.25
Shredder/Total Ratio: 0.03
E + P + T*: 4 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 65.00
EPT/C*: 10.83 *(Chironomidae)
NJIS Score: 24
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear…Flow: fast…Width/Depth(ft): 30/1.5…Substrate: bedrock/cobble/rock…Streambank Vegetation/Stability: good/good…Canopy: mostly open…Other: tree-lined/residential; filamentous algae; minnows; darters

Raritan Basin - Chatham USGS Quadrangle
Station AN0421
Green Brook, Raymond Avenue, Watchung
February 27, 1992

Family	Number of Individuals	Family Tolerance Value (FTV)
Lumbricidae	3	10
Chironomidae	2	6
Gastropoda	4	7
Hydropsychidae	1	4

Statistical Analysis

Number of Taxa: 4
Total Number of Individuals: 10
% Contribution of Dominant Family: 40.00
Family Biotic Index: 7.40
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.00
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 10.00
EPT/C*: 0.50 *(Chironomidae)
NJIS Score: 6
Biological Condition: severely impaired
Deficiency(s) noted: low diversity, paucity of clean water organisms, significant organic pollution

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 50/ < 1…Substrate: sand/gravel/rubble…Streambank Vegetation/Stability: poor/poor…Canopy: open…Other: residential/commercial

Raritan Basin - Plainfield USGS Quadrangle
Station AN0422
Stony Brook, Westend Avenue, North Plainfield
February 26, 1992

Family	Number of Individuals	Family Tolerance Value (FTV)
Gammaridae	30	4
Tubificidae	12	10
Turbellaria	1	4
Tipulidae	1	3
Chironomidae	4	6
Hydropsychidae	5	4
Lumbricidae	3	10
Hirudinea	1	10
Elmidae	1	4

Statistical Analysis

Number of Taxa: 9
Total Number of Individuals: 58
% Contribution of Dominant Family: 51.72
Family Biotic Index: 5.78
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.02
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 8.62
EPT/C*: 1.25 *(Chironomidae)
NJIS Score: 9
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: slightly turbid…Flow: moderate…Width/Depth(ft): 20/ < 1…Substrate: sand/gravel…Streambank Vegetation/Stability: poor/poor…Canopy: open…Other: residential

Raritan Basin - Plainfield USGS Quadrangle
Station AN0423
Green Brook, Clinton Avenue, Plainfield
February 26, 1992

Family	Number of Individuals	Family Tolerance Value (FTV)
Gammaridae	8	4
Hydropsychidae	17	4
Lumbricidae	2	10
Naididae	3	7
Tipulidae	2	3
Gastropoda	1	7

Statistical Analysis

Number of Taxa: 6
Total Number of Individuals: 33
% Contribution of Dominant Family: 51.52
Family Biotic Index: 4.67
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.06
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 51.52
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 18
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: fast…Width/Depth(ft): 20/ < 1…Substrate: sand/gravel…Streambank Vegetation/Stability: poor/poor…Canopy: open…Other: Green Brook Park; below Stony Brook confluence

Raritan Basin - Plainfield USGS Quadrangle
Station AN0424
Bound Brook, Bound Brook Road, Middlesex
February 26, 1992

Family	Number of Individuals	Family Tolerance Value (FTV)
Gammaridae	48	4
Asellidae	3	8
Tubificidae	14	10
Lumbricidae	6	10
Gastropoda	2	7
Nematoda	1	6
Chironomidae	2	6
Sphaeriidae	9	8

Statistical Analysis

Number of Taxa: 8
Total Number of Individuals: 85
% Contribution of Dominant Family: 56.47
Family Biotic Index: 6.12
Scraper/Filterer Collector Ratio: 0.11
Shredder/Total Ratio: 0.00
E + P + T*: 0 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 0.00
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 9
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: slow…Width/Depth(ft): 50/1…Substrate: sand/rocks…Streambank Vegetation/Stability: poor/poor…Canopy: open…Other: tree-lined/commercial

Raritan Basin - Bound Brook USGS Quadrangle
Station AN0425
Ambrose Brook, Raritan Avenue, Middlesex
February 25, 1992

Family	Number of Individuals	Family Tolerance Value (FTV)
Gammaridae	56	4
Chironomidae	2	6
Hydropsychidae	16	4
Sphaeriidae	8	8
Tubificidae	12	10
Cambarinae	1	6
Turbellaria	2	4
Nematoda	1	6
Asellidae	1	8
Heptageniidae	1	4

Statistical Analysis

Number of Taxa: 10
Total Number of Individuals: 100
% Contribution of Dominant Family: 56.00
Family Biotic Index: 5.16
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.00
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 17.00
EPT/C*: 8.50 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 30/ < 1…Substrate: sand/rocks…Streambank Vegetation/Stability: poor/poor…Canopy: open…Other: residential; odor of oil

Raritan Basin - Bound Brook USGS Quadrangle
Station AN0426
Green Brook, Main Street, Bound Brook
February 25, 1992

Family	Number of Individuals	Family Tolerance Value (FTV)
Gammaridae	13	4
Hydropsychidae	38	4
Naididae	34	7
Chironomidae	11	6
Sphaeriidae	1	8
Elmidae	1	4
Simuliidae	2	6

Statistical Analysis

Number of Taxa: 7
Total Number of Individuals: 100
% Contribution of Dominant Family: 38.00
Family Biotic Index: 5.32
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.00
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 38.00
EPT/C*: 3.45 *(Chironomidae)
NJIS Score: 18
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: slightly turbid…Flow: moderate…Width/Depth(ft): 40/ < 1…Substrate: sand/rocks…Streambank Vegetation/Stability: poor/poor…Canopy: open…Other: commercial

Raritan Basin - Bound Brook USGS Quadrangle
Station AN0427
Raritan River, unnamed tributary, Route 527, South Bound Brook
October 5, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Asellidae	46	8
Gammaridae	15	4
Hydropsychidae	23	4
Elmidae	1	4
Sphaeriidae	5	8
Tubificidae	4	10
Hirudinea	1	10
Lumbriculidae	1	8
Gastropoda	3	7
Heptageniidae	1	4

Statistical Analysis

Number of Taxa: 10
Total Number of Individuals: 100
% Contribution of Dominant Family: 46.00
Family Biotic Index: 6.47
Scraper/Filterer Collector Ratio: 0.04
Shredder/Total Ratio: 0.00
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 24.00
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 15/ < 1…Substrate: rubble…Streambank Vegetation/Stability: fair/poor…Canopy: mostly closed…Other: tree-lined

Raritan Basin - Bound Brook USGS Quadrangle
Station AN0428
Raritan River, Fieldville Dam (I287), Piscataway
July 11, 1990

Family	Number of Individuals	Family Tolerance Value (FTV)
Turbellaria	4	4
Gammaridae	33	4
Corydalidae	1	0
Hydropsychidae	26	4
Psephenidae	1	4
Elmidae	9	4
Simuliidae	1	6
Chironomidae	37	6

Statistical Analysis

Number of Taxa: 8
Total Number of Individuals: 112
% Contribution of Dominant Family: 33.04
Family Biotic Index: 4.64
Scraper/Filterer Collector Ratio: 0.02
Shredder/Total Ratio: 0.00
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 23.21
EPT/C*: 0.70 *(Chironomidae)
NJIS Score: 18
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: moderate…Width/Depth(ft): 60/1…Substrate: shale chips/sand/gravel…Streambank Vegetation/Stability: good/good…Canopy: open…Other: tree-lined

Raritan Basin - Plainfield USGS Quadrangle
Station AN0429
Mile Run, Route 527, New Brunswick
October 5, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Heptageniidae	1	4
Naididae	2	7
Tubificidae	3	10
Chironomidae	2	6
Lumbricidae	1	10
Lumbriculidae	1	8

Statistical Analysis

Number of Taxa: 6
Total Number of Individuals: 10
% Contribution of Dominant Family: 30.00
Family Biotic Index: 7.80
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.00
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 10.00
EPT/C*: 0.50 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms, significant organic pollution

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 30/ < 1…Substrate: gravel/rubble…Streambank Vegetation/Stability: fair/fair…Canopy: half open…Other: tree-lined/urban; water covered with oil; sewage odor

Raritan Basin - Monmouth Junction USGS Quadrangle
Station AN0430
Lawrence Brook, Ridge Road, Monmouth Junction
September 30, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Gammaridae	67	4
Chironomidae	1	6
Gastropoda	2	7
Hydropsychidae	19	4
Simuliidae	6	6
Elmidae	1	4
Turbellaria	2	4
Ephemerellidae	1	1
Lumbriculidae	1	8

Statistical Analysis

Number of Taxa: 9
Total Number of Individuals: 100
% Contribution of Dominant Family: 67.00
Family Biotic Index: 4.21
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.01
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 20.00
EPT/C*: 20.00 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: Gammaridae overwhelmingly dominant, paucity of clean water organisms

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 3/ < 1…Substrate: cobble/sand/gravel…Streambank Vegetation/Stability: good/good…Canopy: open…Other: field/bushes/suburban; macrophytes

Raritan Basin - New Brunswick USGS Quadrangle
Station AN0431
Lawrence Brook, Davidson Mill Road, South Brunswick
September 30, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Naididae	57	7
Coenagrionidae	3	9
Turbellaria	6	4
Gastropoda	21	7
Sphaeriidae	3	8
Hirudinea	2	10
Palemonidae	1	6
Chironomidae	1	6
Caenidae	2	7
Hemiptera	1	8
Hydropsychidae	1	4
Libellulidae	2	9

Statistical Analysis

Number of Taxa: 12
Total Number of Individuals: 100
% Contribution of Dominant Family: 57.00
Family Biotic Index: 6.97
Scraper/Filterer Collector Ratio: 3.00
Shredder/Total Ratio: 0.02
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 3.00
EPT/C*: 3.00 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: moderate…Width/Depth(ft): 40/1…Substrate: sand/gravel…Streambank Vegetation/Stability: good/good…Canopy: open…Other: tree-lined; macrophytes

Raritan Basin - New Brunswick USGS Quadrangle
Station AN0432
Oakeys Brook, Davidsons Mill Road, South Brunswick
September 30, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Baetidae	14	4
Hydropsychidae	68	4
Elmidae	5	4
Turbellaria	1	4
Gastropoda	2	7
Coenagrionidae	2	9
Psephenidae	1	4
Nemertea	1	5
Corydalidae	1	0
Simuliidae	2	6
Caenidae	1	7
Chironomidae	2	6

Statistical Analysis

Number of Taxa: 12
Total Number of Individuals: 100
% Contribution of Dominant Family: 68.00
Family Biotic Index: 4.24
Scraper/Filterer Collector Ratio: 0.01
Shredder/Total Ratio: 0.16
E + P + T*: 3 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 83.00
EPT/C*: 41.50 *(Chironomidae)
NJIS Score: 21
Biological Condition: moderately impaired
Deficiency(s) noted: Hydropsychidae overwhelmingly dominant

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 20/ < 1…Substrate: cobble/sand/gravel…Streambank Vegetation/Stability: good/good…Canopy: mostly closed…Other: tree-lined/residential

Raritan Basin - New Brunswick USGS Quadrangle
Station AN0433
Ireland Brook, Riva Road, near Patrick's Corner
September 30, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	93	4
Chironomidae	4	6
Lumbricidae	1	10
Aeshnidae	1	3
Simuliidae	1	6

Statistical Analysis

Number of Taxa: 5
Total Number of Individuals: 100
% Contribution of Dominant Family: 93.00
Family Biotic Index: 4.15
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.00
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 93.00
EPT/C*: 23.25 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: Hydropsychidae overwhelmingly dominant, paucity of clean water organisms

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 15/ < 1…Substrate: bedrock/ cobble/ gravel/ sand…Streambank Vegetation/Stability: good/good…Canopy: open…Other: wooded; mosses; macrophytes

Raritan Basin - New Brunswick USGS Quadrangle
Station AN0434
Lawrence Brook, Riva Road, Milltown
September 30, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	39	4
Turbellaria	18	4
Tubificidae	6	10
Chironomidae	3	6
Sphaeriidae	4	8
Asellidae	4	8
Gammaridae	14	4
Lumbricidae	3	10
Tipulidae	2	3
Hirudinea	1	10
Naididae	1	7
Gastropoda	2	7
Lumbriculidae	2	8
Simuliidae	1	6

Statistical Analysis

Number of Taxa: 14
Total Number of Individuals: 100
% Contribution of Dominant Family: 39.00
Family Biotic Index: 5.15
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.02
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 39.00
EPT/C*: 13.00 *(Chironomidae)
NJIS Score: 21
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: moderate…Width/Depth(ft): 50/ < 1…Substrate: sand/gravel/cobble…Streambank Vegetation/Stability: good/good…Canopy: half open…Other: tree-lined/residential

Raritan Basin - New Brunswick USGS Quadrangle
Station AN0435
Sawmill Brook, Ryders Lane, Milltown
September 30, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Tubificidae	32	10
Chironomidae	9	6
Sphaeriidae	8	8
Tipulidae	9	3
Gastropoda	14	7
Hydropsychidae	9	4
Lumbriculidae	9	8
Coenagrionidae	1	9
Hirudinea	3	10
Pyralidae	1	5
Cambarinae	3	6
Hydrophilidae	2	5

Statistical Analysis

Number of Taxa: 12
Total Number of Individuals: 100
% Contribution of Dominant Family: 32.00
Family Biotic Index: 7.43
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.09
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 9.00
EPT/C*: 1.00 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms, significant organic pollution

Observations

Streamwater: turbid…Flow: slow…Width/Depth(ft): 20/ < 1…Substrate: sand/gravel…Streambank Vegetation/Stability: good/good …Canopy: open…Other: tree-lined/swamp/commercial/residential

Raritan Basin - Plainfield USGS Quadrangle
Station AN0436
Mill Brook, Woodbridge Ave, Piscataway
July 14, 1994

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	5	6
Hydropsychidae	2	4
BloodRedChironomidae	6	8
Naididae	1	7
Turbellaria	2	4
Gastropoda	2	7
Lumbricidae	3	10
Simuliidae	1	6
Tubificidae	1	10
Tipulidae	1	3

Statistical Analysis

Number of Taxa: 10
Total Number of Individuals: 24
% Contribution of Dominant Family: 25.00
Family Biotic Index: 6.83
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.38
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 8.33
EPT/C*: 0.18 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: mod…Width/Depth(ft): 20/1-2…Substrate: sand/rocks…Streambank Vegetation/Stability: good/good…Canopy: mostly shaded…Other: wooded/commercial/residential; periphyton; minnows

Raritan Basin - Roosevelt USGS Quadrangle
Station AN0437
Manalapan Brook, Route 524, Ely
September 29, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Lumbriculidae	3	8
Sphaeriidae	10	8
Elmidae	2	4
Hydropsychidae	38	4
Simuliidae	23	6
Nemertea	5	5
Hemiptera	2	8
Tipulidae	3	3
Baetidae	5	4
Phryganeidae	1	4
Ephemerellidae	1	1
Coenagrionidae	1	9
Haplotaxidae	1	8
Brachycentridae	1	1
Chironomidae	1	6
Tubificidae	1	10
Pyralidae	1	5
Psychomyiidae	1	2

Statistical Analysis

Number of Taxa: 18
Total Number of Individuals: 100
% Contribution of Dominant Family: 38.00
Family Biotic Index: 5.18
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.10
E + P + T*: 6 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 47.00
EPT/C*: 47.00 *(Chironomidae)
NJIS Score: 27
Biological Condition: non-impaired
Deficiency(s) noted: none

Observations

Streamwater: clear cedar…Flow: moderate…Width/Depth(ft): 10/ < 1…Substrate: sand/gravel…Streambank Vegetation/Stability: good/good…Canopy: half open…Other: tree-lined; fish

Raritan Basin - Freehold USGS Quadrangle
Station AN0438
Manalapan Brook, Route 33, Millhurst
September 29, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	94	4
Nemertea	1	5
Lumbriculidae	1	8
Tipulidae	2	3
Gastropoda	1	7
Nematoda	1	6

Statistical Analysis

Number of Taxa: 6
Total Number of Individuals: 100
% Contribution of Dominant Family: 94.00
Family Biotic Index: 4.08
Scraper/Filterer Collector Ratio: 0.01
Shredder/Total Ratio: 0.02
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 94.00
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: Hydropsychidae overwhelmingly dominant, paucity of clean water organisms

Observations

Streamwater: turbid…Flow: moderate…Width/Depth(ft): 20/1…Substrate: sand/gravel…Streambank Vegetation/Stability: good/fair…Canopy: half open…Other: tree-lined

Raritan Basin - Jamesburg USGS Quadrangle
Station AN0439
Manalapan Brook, Federal Road, Monroe Township
September 29, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Hemiptera	45	8
Chironomidae	5	6
Aeshnidae	2	3
Simuliidae	1	6
Libellulidae	1	9
Sphaeriidae	1	8
Pyralidae	1	5
Nemertea	1	5
Gastropoda	1	7

Statistical Analysis

Number of Taxa: 9
Total Number of Individuals: 58
% Contribution of Dominant Family: 77.59
Family Biotic Index: 7.52
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.00
E + P + T*: 0 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 0.00
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 3
Biological Condition: severely impaired
Deficiency(s) noted: Hemiptera overwhelmingly dominant, paucity of clean water organisms, significant organic pollution

Observations

Streamwater: turbid…Flow: moderate…Width/Depth(ft): 20/1…Substrate: sand/gravel/concrete stones…Streambank Vegetation/Stability: good/good…Canopy: open…Other: wooded/grass fields

Raritan Basin - New Brunswick USGS Quadrangle
Station AN0440
Manalapan Brook, Old Forge Road, Helmetta
October 7, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Lumbriculidae	17	8
Sphaeriidae	2	8
Hydropsychidae	5	4
Pyralidae	2	5
Tipulidae	1	3
Simuliidae	2	6
Tubificidae	1	10

Statistical Analysis

Number of Taxa: 7
Total Number of Individuals: 30
% Contribution of Dominant Family: 56.67
Family Biotic Index: 6.90
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.03
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 16.67
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 12
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 30/ < 1…Substrate: sand…Streambank Vegetation/Stability: good/good…Canopy: open…Other: tree-lined; a dead fish

Raritan Basin - Freehold USGS Quadrangle
Station AN0441
Weamaconk Creek, Route 9, Freehold
September 15, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Gammaridae	71	4
Tubificidae	22	10
Chironomidae	8	6
Hydropsychidae	1	4
Gastropoda	2	7
Pyralidae	3	5
Tipulidae	1	3
Sialidae	1	4

Statistical Analysis

Number of Taxa: 8
Total Number of Individuals: 109
% Contribution of Dominant Family: 65.14
Family Biotic Index: 5.43
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.02
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 0.92
EPT/C*: 0.13 *(Chironomidae)
NJIS Score: 6
Biological Condition: severely impaired
Deficiency(s) noted: Gammaridae overwhelmingly dominant, paucity of clean water organisms

Observations

Streamwater: slightly turbid…Flow: moderate…Width/Depth(ft): 6/ < 1…Substrate: sand…Streambank Vegetation/Stability: good/good…Canopy: mostly closed…Other: wooded/commercial

Raritan Basin - Freehold USGS Quadrangle
Station AN0442
Wemrock Brook, Wemrock Road, Freehold
September 15, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	27	6
Gammaridae	30	4
Tipulidae	9	3
Pyralidae	19	5
Simuliidae	4	6
Hydropsychidae	7	4
Aeshnidae	2	3
Empididae	1	6
Coenagrionidae	1	9

Statistical Analysis

Number of Taxa: 9
Total Number of Individuals: 100
% Contribution of Dominant Family: 30.00
Family Biotic Index: 4.77
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.09
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 7.00
EPT/C*: 0.26 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: slow-moderate…Width/Depth(ft): 10/ < 1…Substrate: sand…Streambank Vegetation/Stability: good/good…Canopy: mostly closed…Other: wooded/orchards; turbid downstream of bridge

Raritan Basin - Freehold USGS Quadrangle
Station AN0443
Weamaconk Creek, Water Street (Route 522), Englishtown
September 15, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Elmidae	11	4
Gammaridae	23	4
Hemiptera	5	8
Chironomidae	9	6
Tubificidae	14	10
Talitridae	17	8
Naididae	7	7
Sphaeriidae	1	8
Hydroptilidae	1	4
Caenidae	6	7
Coenagrionidae	3	9
Gastropoda	2	7
Sialidae	1	4
Libellulidae	1	9
Dytiscidae	1	4
Asellidae	1	8
Baetidae	1	4
Hydrophilidae	1	5

Statistical Analysis

Number of Taxa: 18
Total Number of Individuals: 105
% Contribution of Dominant Family: 21.90
Family Biotic Index: 6.51
Scraper/Filterer Collector Ratio: 2.00
Shredder/Total Ratio: 0.10
E + P + T*: 3 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 7.62
EPT/C*: 0.89 *(Chironomidae)
NJIS Score: 18
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: very turbid, green-brown: Flow: slow…Width/Depth(ft): 40/1 + …Substrate: sand/rock…Streambank Vegetation/Stability: fair/fair…Canopy: open…Other: tree-lined/commercial/residential; dense algae

Raritan Basin - Freehold USGS Quadrangle
Station AN0444
McGellairds Brook, Route 9, Freehold
September 15, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	48	6
Simuliidae	9	6
Hydropsychidae	28	4
Tipulidae	4	3
Lumbriculidae	2	8
Elmidae	2	4
BloodRedChironomidae	2	8
Gastropoda	1	7
Tubificidae	2	10
Turbellaria	1	4
Lumbricidae	1	10

Statistical Analysis

Number of Taxa: 11
Total Number of Individuals: 100
% Contribution of Dominant Family: 48.00
Family Biotic Index: 5.47
Scraper/Filterer Collector Ratio: 0.01
Shredder/Total Ratio: 0.07
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 28.00
EPT/C*: 0.56 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 10/ < 1…Substrate: sand/gravel…Streambank Vegetation/Stability: good/good…Canopy: mostly closed…Other: tree-lined/commercial

Raritan Basin - Freehold USGS Quadrangle
Station AN0445
Tepehemus Brook, Tennent Road, Manalapan Township
September 14, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Hemiptera	26	8
Hydropsychidae	4	4
Nemertea	1	5
Gastropoda	4	7
Lumbricidae	7	10
Aeshnidae	1	3
Coenagrionidae	5	9
Chironomidae	2	6
Pyralidae	1	5
Simuliidae	1	6
Tipulidae	3	3
Hydrophilidae	1	5
Cambarinae	1	6
Tubificidae	1	10

Statistical Analysis

Number of Taxa: 14
Total Number of Individuals: 58
% Contribution of Dominant Family: 44.83
Family Biotic Index: 7.38
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.05
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 6.90
EPT/C*: 2.00 *(Chironomidae)
NJIS Score: 9
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms, significant organic pollution

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 10/ < 1…Substrate: sand/gravel/clay…Streambank Vegetation/Stability: fair/poor…Canopy: mostly open…Other: tree-lined/rural; turtles; fish

Raritan Basin - Freehold USGS Quadrangle
Station AN0446
Milford Brook, Pease Road, Manalapan Township
September 14, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Hydropsychidae	48	4
Chironomidae	2	6
Simuliidae	15	6
Tipulidae	28	3
Empididae	1	6
Pyralidae	2	5
Diplopoda	2	5
Asellidae	2	8

Statistical Analysis

Number of Taxa: 8
Total Number of Individuals: 100
% Contribution of Dominant Family: 48.00
Family Biotic Index: 4.20
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.31
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 48.00
EPT/C*: 24.00 *(Chironomidae)
NJIS Score: 18
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: moderate…Width/Depth(ft): 20/ < 1…Substrate: gravel/cobble…Streambank Vegetation/Stability: poor/poor…Canopy: mostly open…Other: tree-lined/residential

Raritan Basin - Freehold USGS Quadrangle
Station AN0447
McGellairds Brook, Route 527, Englishtown
September 14, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Tubificidae	80	10
Sphaeriidae	1	8
Chironomidae	8	6
Gastropoda	2	7
Tipulidae	2	3
Nemertea	4	5
Sialidae	1	4
Hydropsychidae	1	4
Coenagrionidae	3	9
BloodRedChironomidae	1	8
Anthomyiidae	1	6
Elmidae	1	4

Statistical Analysis

Number of Taxa: 12
Total Number of Individuals: 105
% Contribution of Dominant Family: 76.19
Family Biotic Index: 9.04
Scraper/Filterer Collector Ratio: 1.00
Shredder/Total Ratio: 0.07
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 0.95
EPT/C*: 0.11 *(Chironomidae)
NJIS Score: 6
Biological Condition: severely impaired
Deficiency(s) noted: paucity of clean water organisms, Tubificidae overwhelmingly dominant, significant organic pollution

Observations

Streamwater: turbid…Flow: slow…Width/Depth(ft): 30/1…Substrate: sand/mud…Streambank Vegetation/Stability: fair/fair…Canopy: open…Other: tree-lined/suburban/residential; fish

Raritan Basin - Freehold USGS Quadrangle
Station AN0448
Matchaponix Brook, Route 527, Manalapan Twp
September 14, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Gammaridae	28	4
Coenagrionidae	12	9
Gastropoda	14	7
Hemiptera	4	8
Dryopidae	1	5
Chironomidae	9	6
Pyralidae	2	5
Hydropsychidae	3	4
Sphaeriidae	1	8
Nemertea	1	5
Tubificidae	4	10
Hirudinea	1	10
Aeshnidae	1	3

Statistical Analysis

Number of Taxa: 13
Total Number of Individuals: 81
% Contribution of Dominant Family: 34.57
Family Biotic Index: 6.14
Scraper/Filterer Collector Ratio: 1.20
Shredder/Total Ratio: 0.01
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 3.70
EPT/C*: 0.33 *(Chironomidae)
NJIS Score: 15
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: slow…Width/Depth(ft): 15/1…Substrate: sand/gravel…Streambank Vegetation/Stability: poor/poor…Canopy: mostly open…Other: tree-lined adjacent to Englishtown Auction; leech; darter

Raritan Basin - Freehold USGS Quadrangle
Station AN0449
Pine Brook, Pension Road, Clarks Mill
September 1, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Dytiscidae	9	4
Chironomidae	15	6
BloodRedChironomidae	28	8
Sialidae	3	4
Tubificidae	6	10
Coenagrionidae	2	9

Statistical Analysis

Number of Taxa: 6
Total Number of Individuals: 63
% Contribution of Dominant Family: 44.44
Family Biotic Index: 6.98
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.19
E + P + T*: 0 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 0.00
EPT/C*: 0.00 *(Chironomidae)
NJIS Score: 9
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: turbid…Flow: slow-moderate…Width/Depth(ft): 12/ < 1…Substrate: sand/gravel…Streambank Vegetation/Stability: good/good…Canopy: open…Other: tree-lined upstream and grass yards downstream of bridge; substrate covered with iron precipitate

Raritan Basin - Freehold USGS Quadrangle
Station AN0450
Barclay Brook, Route 527, Madison Township
September 1, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Hemiptera	9	8
Sialidae	22	4
Chironomidae	54	6
BloodRedChironomidae	6	8
Dytiscidae	3	4
Phryganeidae	2	4
Tubificidae	3	10
Polycentropodidae	1	6

Statistical Analysis

Number of Taxa: 8
Total Number of Individuals: 100
% Contribution of Dominant Family: 54.00
Family Biotic Index: 5.88
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.49
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 3.00
EPT/C*: 0.05 *(Chironomidae)
NJIS Score: 9
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 20/ < 1…Substrate: sand…Streambank Vegetation/Stability: poor/poor…Canopy: mostly closed…Other: tree-lined

Raritan Basin - Freehold USGS Quadrangle
Station AN0451
Matchaponix Brook, Texas Road, Texas
September 14, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Chironomidae	78	6
Sialidae	2	4
Tubificidae	3	10
Gastropoda	2	7
Nemertea	3	5
Coenagrionidae	2	9
Gomphidae	2	1
BloodRedChironomidae	1	8
Lumbriculidae	2	8
Hydropsychidae	1	4
Pyralidae	1	5
Cambarinae	1	6
Hemiptera	1	8
Ceratopogonidae	1	6

Statistical Analysis

Number of Taxa: 14
Total Number of Individuals: 100
% Contribution of Dominant Family: 78.00
Family Biotic Index: 6.08
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.63
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 1.00
EPT/C*: 0.01 *(Chironomidae)
NJIS Score: 9
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms, Chironomidae overwhelmingly dominant

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 50/1-3…Substrate: sand…Streambank Vegetation/Stability: good/fair…Canopy: open…Other: wooded; macrophytes

Raritan Basin - South Amboy USGS Quadrangle
Station AN0452
Iresick Brook, Route 527, Old Bridge Township
September 1, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Tubificidae	63	10
Chironomidae	38	6
BloodRedChironomidae	2	8
Limnephilidae	1	4
Hydropsychidae	1	4
Sialidae	1	4

Statistical Analysis

Number of Taxa: 6
Total Number of Individuals: 106
% Contribution of Dominant Family: 59.43
Family Biotic Index: 8.36
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.38
E + P + T*: 2 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 1.89
EPT/C*: 0.05 *(Chironomidae)
NJIS Score: 6
Biological Condition: severely impaired
Deficiency(s) noted: paucity of clean water organisms, significant organic pollution

Observations

Streamwater: clear…Flow: slow…Width/Depth(ft): 5/1…Substrate: sand…Streambank Vegetation/Stability: poor/poor…Canopy: mostly closed…Other: tree-lined; leaf litter; sunfish

Raritan Basin - South Amboy USGS Quadrangle
Station AN0453
Deep Run, Route 9, Madison Township
August 31, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)
Tubificidae	9	10
Chironomidae	12	6
Corydalidae	3	0
Sialidae	24	4
Polycentropodidae	2	6
Cordulegastridae	1	3

Statistical Analysis

Number of Taxa: 6
Total Number of Individuals: 51
% Contribution of Dominant Family: 47.06
Family Biotic Index: 5.35
Scraper/Filterer Collector Ratio: 0.00
Shredder/Total Ratio: 0.14
E + P + T*: 1 *(Ephemeroptera, Plecoptera and Trichoptera)
%EPT: 3.92
EPT/C*: 0.17 *(Chironomidae)
NJIS Score: 9
Biological Condition: moderately impaired
Deficiency(s) noted: paucity of clean water organisms

Observations

Streamwater: slightly turbid…Flow: slow…Width/Depth(ft): 25/1-3…Substrate: gravel/mud …Streambank Vegetation/Stability: poor/poor…Canopy: half closed…Other: wooded; substrate covered with iron precipitate

Raritan Basin - South Amboy USGS Quadrangle
Station AN0454
Deep Run, Route 516, South Old Bridge
September 1, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)

NO SAMPLE TAKEN, DEEP - NO FLOW, GREEN, TURBID, OIL SHEEN, SEWAGE ODOR

Raritan Basin - South Amboy USGS Quadrangle
Station AN0455
Tennent Brook, Old Bridge-South Amboy Road, Madison Township
August 31, 1993

Family	Number of Individuals	Family Tolerance Value (FTV)

NO SAMPLE TAKEN, Tidal, No Flow, Oil Covered, Macrophyte Filled, Bridge is near CONRAIL BROWNS YARD