



**NJ Department of Environmental Protection
Water Monitoring and Standards**



AMBIENT BIOMONITORING NETWORK



Atlantic Water Region

**Watershed Management Areas 12, 13, 14, 15, and 16
Round 3 Benthic Macroinvertebrate Data
Volume 1 of 2**



October 2010

State of New Jersey
Chris Christie, Governor
Kim Guadagno, Lt. Governor

NJ Department of Environmental Protection
Bob Martin, Commissioner



NJ Department of Environmental Protection

Water Resource Management
John Plonski, Assistant Commissioner

Water Monitoring and Standards
Leslie J. McGeorge, Administrator

Bureau of Freshwater & Biological Monitoring
Alfred L. Korndoerfer, Jr., Chief

October 2010

AMBIENT BIOMONITORING NETWORK

Atlantic Water Region

Watershed Management Areas 12, 13, 14, 15, and 16

Round 3 Benthic Macroinvertebrate Data

Volume 1 of 2

Water Monitoring Report Prepared By:

Water Monitoring & Standards
Bureau of Freshwater and Biological Monitoring

Sampling and Data Analysis:

Victor Poretti, Project Manager-Sampling Coordination
Dean Bryson, Project Manager-Laboratory Operations
Thomas Miller
Anna Signor

Report Preparation:

Thomas Miller

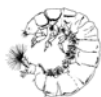
Map Preparation:

John Sell

Edited By:

Alfred Korndoerfer
Leslie McGeorge
Alena Baldwin-Brown

[cover photo: Site AN0168, Haynes Creek at Himmelein Rd, Burlington County, NJ.]



AMBIENT BIOMONITORING NETWORK

Watershed Management Areas 12, 13, 14, 15, and 16

Atlantic Water Region

Round 3 Benthic Macroinvertebrate Data

Volume 1 of 2

TABLE OF CONTENTS

	page
Executive Summary	1
Introduction	3
Rationale for Biological Monitoring	3
Advantages of Using Benthic Macroinvertebrates	3
Limitations of Biological Monitoring	3
Benthic Macroinvertebrates Usually Indicative of Good Water Quality	4
Benthic Macroinvertebrates Usually Indicative of Poor Water Quality	5
Study Design	6
Data Quality Objectives	6
Site Selection	6
Field and Laboratory Methods	7
Sample Collection	7
Sample Processing and Sorting	8
Macroinvertebrate Identification and Quality Control	8
Data Analysis	8
Multimetric Index Development	9
High Gradient and Low Gradient Streams	9
Pinelands Streams	9
Trend Analysis	11
Supplemental Analyses/Evaluation Methods	11
Morphological Abnormalities	11
Habitat Assessment	11
Chemical Monitoring	12

Results and Discussion	14
Summary of Statewide AMNET Data	14
Results & Trends	15
Regional Results	16
Evaluation by WMA	17
Watershed Management Area # 12	17
Watershed Management Area # 13	18
Watershed Management Area # 14	19
Watershed Management Area # 15	20
Watershed Management Area # 16	21
Macroinvertebrate Abnormalities	22
Causes and Conditions of Impairment Condition	23
Habitat Assessment vs. Biological Assessment	23
Additional Information	24
REFERENCES	25
Table 1	

Ambient Biomonitoring Network

Watershed Management Areas 12, 13, 14, 15, and 16

Atlantic Water Region

Round 3 Benthic Macroinvertebrate Data

Volume 1 of 2

EXECUTIVE SUMMARY

Biological monitoring of freshwater systems in New Jersey provides an effective means of gauging long-term trends in surface water quality throughout the State. The Ambient Biomonitoring Network (AMNET) is one of the major ongoing monitoring programs. This statewide network of over 800 AMNET stations employs sampling and taxonomic analysis of in-stream macroinvertebrate communities to assess the ecological condition at each station. An integrated index of "biometrics", based on community composition and pollution tolerance levels of individual taxa, is used to assign assessment ratings.

Previously, a single statewide index, the New Jersey Impairment Score (NJIS), was used in assigning one of three assessment ratings, non-impaired, moderately impaired, and severely impaired. The NJIS was limited in that it used family level taxonomic identification for calculating scores and did not account for geographical differences in macroinvertebrate community structures. To resolve these limitations, three indices are now used for assessments; High Gradient Macroinvertebrate Index (HGMI), Coastal Plain Macroinvertebrate Index (CPMI), and Pinelands Macroinvertebrate Index (PMI). These indices account for the State's geophysically different ecoregions and use genus level taxonomic identification for calculating scores. The higher level of identification allows for more resolute and accurate results at four assessment rating levels (rather than the three previously used); "excellent", "good", "fair", and "poor". The results are considered reflective of the water and/or habitat quality at each site. This information is used by the Department, primarily in assessing progress toward the goals of the Clean Water Act via the Integrated Water Quality Monitoring and Assessment Report. AMNET data are also integral for designation of Category 1 waters, based on exceptional ecological significance.

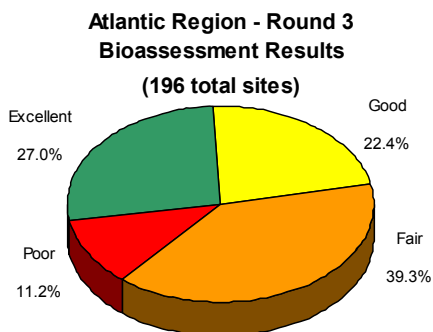


Figure 1

Results are reported separately for each of New Jersey's five major drainage basins or "Water Regions" (Lower Delaware, Upper Delaware/Northwest, Northeast, Raritan, and Atlantic), each encompassing several sub-basins ("Watershed Management Areas"). The Water Regions, with an average of 153 AMNET sites each, are sampled in consecutive years on a five-year rotational basis. The most recent results, and Round by Round comparisons, can be found at:

<http://www.state.nj.us/dep/wms/bfbm/amnetRnd4.html>

The present study area comprises the Atlantic Water Region, and includes those sub-basins that drain

to the coastal bays or ocean; including the Raritan and Sandy Hook Bays, and the Delaware Bay Capeshore area. The study area of the present report includes WMA #'s 12 (Monmouth Watersheds), 13 (Barnegat Bay Watersheds), 14 (Mullica, Wading River), 15 (Great Egg Harbor, Tuckahoe) and 16 (Cape May Watersheds) . This report presents the results for the biological monitoring conducted from October 2004 - August 2006. The sampling of the Atlantic Water Region marks the third round of data collection for this basin. The results obtained in the current, third, round are similar to those of the previous (second round) of sampling. Currently, of the 196 AMNET sites sampled in the Atlantic Water Region, 53 (27.0%) were found to exhibit “excellent” benthic macroinvertebrate communities, with 44 (22.4%) exhibiting “good”, 77 (39.3%) “fair”, and 22 (11.2%) exhibiting “poor” benthic communities (See Figure 1).

In order to generate trend information, results from the current (Round 3) sampling were compared to those from the same sites sampled in the earlier round (Round 2). For the purposes of comparing the two rounds, Round 2 results were re-assessed using the new indices. Of the 196 AMNET sites sampled in the Atlantic Water Region, the Round 3 samplings yielded sites with more “excellent” (27.0%) and “good” (22.4%) ratings than did the second round sampling (25.4%, 20.8% respectively).

Conversely, the number of “poor” rated sites (11.2%) observed in the Round 3 sampling has declined since the Round 2 sampling (14.7%). The number of “fair” (39.3%) sites has remained the same. Figure 2 displays the percentage of change in rating among the same 196 AMNET sites in the Atlantic Water Region that were sampled during the second round study period, and again during the current (Round 3) study period. The green indicates sites that have undergone a positive change, yellow indicates no change, and red indicates a negative change. Positive change is defined as an improved rating from the previous Round’s rating, while a negative change is defined as a downgraded rating from the previous Round.

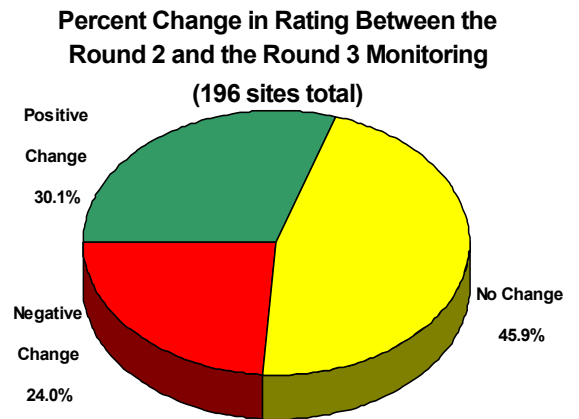


Figure 2

As reflected in the present study results, human land uses and practices, superimposed on the undisturbed physical terrain, play a major role in controlling the degree of pollution or degradation in a stream system. The relationship between benthic macroinvertebrate community impairment has been statistically related to different physiographic land types, land uses and other anthropogenic factors, on a statewide basis*. These findings strongly indicate that human land uses and practices play a major role in the degree of pollution or degradation in a stream system.

To determine what factors are contributing to impairments, or changes in impairment ratings, the Department has established a Stressor Identification (SI) process. The purpose of the Stressor Identification (SI) process as developed by USEPA is to identify the principle stressor(s), including but not limited to specific pollutants, responsible for the degraded biological condition. Identifying whether the principal stressor(s) is a *pollutant* or, if a specific pollutant(s) cannot be identified, is due to generic *pollution* is the first step towards deciding whether a TMDL or other appropriate management measures will be taken to remediate the impairment.

* Kennen, J.G. 1998. Relation of benthic macroinvertebrate community impairment to basin characteristics in New Jersey streams. Fact Sheet FS-057-98. U.S. Geological Survey. West Trenton, NJ

INTRODUCTION

Rationale for Biological Monitoring

Biological monitoring of freshwater systems in New Jersey provides an effective means of gauging long-term trends in surface water quality throughout the State. The Ambient Biomonitoring Network (AMNET) is one of the major ongoing monitoring programs. This statewide network of over 800 AMNET stations employs sampling and taxonomic analysis of in-stream macroinvertebrate communities to assess the ecological condition at each station. An integrated index of "biometrics", based on community composition and pollution tolerance levels of individual taxa, is used to assign assessment ratings. Biological monitoring, as referenced in this report, pertains to the collection and analysis of stream macroinvertebrate communities as indicators of water or habitat quality. Macroinvertebrates are larger-than-microscopic, primarily benthic (bottom-dwelling) fauna, which are generally ubiquitous in freshwater and estuarine environments, and play an integral role in the aquatic food web. Insects (largely immature forms) are especially characteristic of freshwaters; other major groups include worms, mollusks (snails, clams) and crustaceans (scuds, shrimp, crayfish, etc.). They are more readily collected and quantified than either fish or periphyton communities. Species comprising the in-stream community occupy various niches, based on functional adaptation or feeding mode (e.g. predators, filter or detritus feeders, scavengers); their presence and relative abundance is governed by environmental conditions (which may determine available food supply), and by pollution tolerance levels of the respective taxa. The overall community thus is holistically reflective of conditions in its environment. Assessments of ambient water / habitat quality can then be made based upon standardized procedures, which can show perturbations measured as changes or differences in community structure [1]. While development of a "multitrophic" approach, to include finfish and periphyton communities with invertebrates is being investigated, the primary means of assessment to date has been through macroinvertebrate community analysis.

Advantages of Using Benthic Macroinvertebrates:

1. They are good indicators of localized conditions of water quality due to their limited mobility. As such, they are well suited for the assessment of site-specific pollution impacts.
2. They are sensitive to environmental impacts from both point and non-point sources of pollution.
3. They integrate the effects of short-term environmental variations, such as oil spills and intermittent discharges.
4. Sampling is relatively easy and inexpensive.
5. They are holistic indicators of overall water quality, even for substances that may be present but at lower than detectable levels.
6. They are normally abundant in New Jersey waters as well as aquatic environments in general.
7. They serve as the primary food source for many species of commercially and recreationally important fishes.
8. Unlike chemical monitoring, where impacts to the environment tend to be by inference, not direct determination, they provide a direct measure of water quality in a manner consistent with the goals of the Clean Water Act.
9. They can be used to assess nonchemical impacts to the aquatic habitat, such as by thermal pollution, excessive sediment loading (siltation), or eutrophication.
10. To the general public, impacts to resident benthic macroinvertebrate communities are more tangible measurements of water quality than more esoteric listings of chemical test results.
11. When monitored together with relevant chemical/physical parameters, benthic macroinvertebrate communities can be used to identify sources of impairment.

Limitations of Biological Monitoring:

Biological monitoring cannot replace chemical monitoring, toxicity testing, and other standard environmental measurements. Each of these tools provides the analyst with specific information available only through its respective methodology.

The following illustrations provide an overview of the major macroinvertebrate indicator groups employed in making biological water quality assessments.

Benthic Macroinvertebrates Usually Indicative of Good Water Quality



Mayfly nymphs are often abundant wherever the water is clean. They are sensitive to various types of water pollution, including low dissolved oxygen, ammonia, biocides, and metals.

Stonefly nymphs are usually found only in cool, well-oxygenated waters free of pollution. Though not usually found in the numbers characteristic of mayflies, the presence of even a few stoneflies is indicative of good water quality.



Most caddisfly larvae, many of which build portable cases of stones, sticks, sand, and other detritus, are intolerant of water pollution.

Aquatic beetles are common in well-oxygenated, swiftly running waters; many species are referred to as “riffle beetles.” They are usually indicative of clean water since they are sensitive to wetting agents (soaps and detergents) and other



All photographs taken by D.Bryson, NJDEP

Benthic Macroinvertebrates Usually Indicative of Poor Water Quality

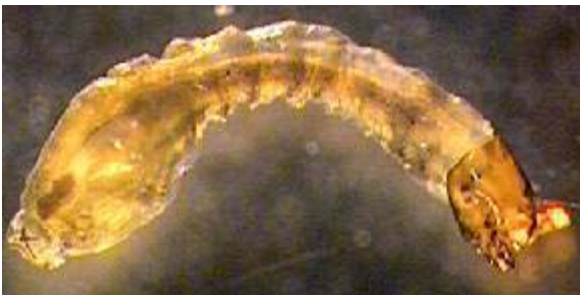


Midges (chironomids) are among the most common of aquatic invertebrates. They occupy a variety of aquatic habitats, including lakes, ponds, bogs, rivers, creeks, and marshes. They even exploit manmade habitats such as sewage treatment plants, water treatment plants, fish pools, irrigation ditches, and birdbaths. Many species are very tolerant of pollution.

Aquatic sowbugs, or freshwater isopods, are abundant in waters enriched with organic nutrients and low in dissolved oxygen. They are commonly observed in the recovery areas below sewage treatment plants.



Leeches and other segmented worms are very common in our lakes and streams, though not often noticed. They are tolerant of poor water quality and severe pollution.



Black fly larvae are filter feeders, capturing and ingesting plankton and bacteria from the surrounding water with specialized antennae. Some species are very tolerant of poor water quality and thus can be used as indicators of pollution.

STUDY DESIGN

Data Quality Objectives

The major goal of AMNET is to provide a long-term, cost-efficient means of gauging the quality of surface waters and watershed areas throughout the State. This is accomplished through biological sampling and analysis from a network of stream sites that adequately represents New Jersey's five major drainage basins and NJDEP's Watershed Management Areas (WMA). Administratively, a total of 21 WMA's have been delineated within New Jersey's five basins. Each major basin constitutes a "Water Region"; a major sub-basin forms each WMA. Within each WMA are several smaller sub-basins, delineated by the United States Geological Survey (USGS) as "hydrologic units," scale 11 (HUC11). The present study area comprises the Atlantic Water Region, and includes those sub-basins that drain to the coastal bays or ocean, Raritan and Sandy Hook Bays, and the Delaware Bay Capeshore area. The study area of the present report includes WMA #'s 12 (Monmouth Watersheds), 13 (Barnegat Bay Watersheds), 14 (Mullica, Wading River), 15 (Great Egg Harbor, Tuckahoe) and 16 (Cape May Watersheds) (see Maps 1 - 14, Volume 2). The standard sampling interval of five years, reflects a realistic temporal lag between cessation of an environmental perturbation and recovery of the impacted biological community. The Integrated Water Quality Monitoring and Assessment Report [2], which re-examines changes in New Jersey's stream systems on a two-year cycle, has indicated that five years is an optimum period for long-term biomonitoring. An ample network of stations is required for the creation of a long-term database, which in turn, is necessary for trend analysis and operation of water quality predictive models.

The AMNET program is designed to monitor a Water Region's complement of stations within a 12 to 15 month time period (depending on the size of the Water Region) giving DEP's modelers and planners a snapshot of ambient biological impacts during that continuous time interval. Administratively this sampling time interval starts at the beginning of the State's Fiscal Year in July. Sampling continues from that point, but only during the sampling index months of April - November, until all of the sites of the respective Water Region are visited. Sampling is curtailed through the coldest months (December to March), because of difficulties encountered in obtaining representative samples during this period.

SITE SELECTION

Sites were selected essentially to provide representative coverage of each Water Region, as well as the entire State. To ensure enough flow for sampling, sites on "first-order" streams are situated at least three miles downstream of headwaters (first order streams are those with no tributaries). Since most streams at this level have very little (or only intermittent) flow, most of the AMNET sites are situated on second-order streams (with only first-order streams as tributaries) and higher (with a greater hierarchy of tributaries). All sites are located in reasonably accessible and primarily wadeable segments, proceeding downstream to the head-of-tide. Sites are numbered in approximate upstream to downstream order, from the mainstem of each major sub-basin to each adjacent tributary, and then to the next adjacent sub-basin. This is in an approximate north to south order within the Atlantic Water Region.

To maximize data correlation, AMNET, wherever possible, incorporates existing stations of the Ambient Surface Water Chemical Monitoring Network, which is administered jointly by NJDEP and the USGS [3]. Furthermore, so as to gauge the effects of major tributaries and larger lakes, many AMNET sites are located near their confluence or outlet. An attempt is made when selecting sites to obtain a sample

representative of the stream's total water quality. Sites are placed downstream of features such as: known sources of contamination (e.g. point-source discharges, agricultural operations); significant natural features such as wetlands, parks or wildlife management areas when it is determined that these features have a dominant impact (positively or negatively) on the stream.

Exact AMNET site locations were determined via the Global Positioning System (GPS) using Trimble Pathfinder units and the appropriate correction sources utilized by NJDEP. All positions were logged into the DEP's Geographical Information System (GIS) (see Maps 1 – 14, Appendix A, Volume 2). For the first round of AMNET, a total of 197 stations had been established in the Atlantic basin [4]. A total of 213 sites were established for the second round of AMNET sampling in the Atlantic Water Region [5]. This area (shown in Figure 3) primarily includes all New Jersey sub-basins draining to the Atlantic Ocean (WMA's #12, 13, 14, 15, and 16). For the second round of AMNET, the original study area was realigned to conform with the boundary between the more recently established Water Regions [5]. Added to the last study (Round 2) was the Cape May drainage basin (WMA 16), which was previously included in the Lower Delaware Region [6]. The present Atlantic study area (Figure 3) includes a total of 196 sampling sites, AN0456 – 652 and AN0765 – 771 (see Table 2, Volume 2). A total of 16 sites were removed from the current list of sampling sites because they were either dry or were discovered to be tidal sites and were therefore not reported. Those sites are: AN0463, AN0474, AN0478, AN0498, AN0516, AN0553, AN0558, AN0576, AN0588, AN0589, AN0608, AN0609, AN0641, AN0767, AN0768 and AN0770.

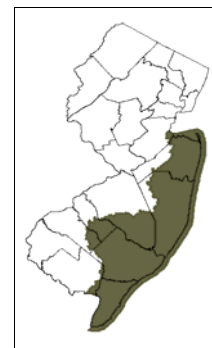


Figure 3

Map of Round 3 study area

FIELD & LABORATORY METHODS

Benthic macroinvertebrate sampling and analysis is performed in accordance with the NJDEP Field Procedures Manual [7], Rapid Bioassessment Protocol (RBP) guidelines of the USEPA [8] and Standard Operating Procedures (SOP) (see http://www.state.nj.us/dep/wms/bfbm/download/AMNET_SOP.pdf) of the NJDEP Aquatic Biomonitoring Laboratory [9]. As detailed in the SOP and in the quality assurance work plan [10], a thorough quality control program, with emphasis on macroinvertebrate taxonomy, is practiced.

Sample Collection

In general, a "multi-habitat" approach is used, focusing on the more productive habitat types [8]. The usual sampling device is a D-frame kick net of 800 x 900 um mesh size and one foot width (a Surber sampler or Ponar dredge may be employed when conditions require). In high-gradient streams, where the predominant substrate is cobble, the riffle/run area is the preferred sampling habitat; other likely habitat types are sampled when present. The kick net is held firmly against the hard bottom, and an area approximately one foot upstream of the net is disturbed using feet and/or hands. This procedure is repeated, sampling all velocity/depth regimes at the site, including at least one riffle-run-riffle sequence (if present). In the low-gradient Coastal Plain streams, bottoms generally consist of sand or mud without dominant cobble/riffle areas; therefore, a variety of stable substrates including woody debris, submerged macrophytes and portions of banks, are sampled. The "jab and sweep" method [11] is employed; a minimum of 20 jabs/sweeps are taken, proportioned approximately to the numbers of each habitat type present. In all cases, stream distance sampled approaches, but does not exceed, 100 Meters. Level of effort is consistent for all sites. Where possible, sampling is done upstream of bridges, sufficiently

removed from the influence of any associated channel alterations. The entire sample is sieved using a #30 mesh sieve bucket, put into wide-mouthed (1-L) jars, and preserved with 5 to 10% formalin (to 20% in cases of excessive organic loading). Both the sieve bucket and net are examined for adhering organisms. Any found are removed with forceps and placed into the sample jar. During the field operations, qualitative observations of habitat, surrounding land use, potential pollution sources, and presence of other aquatic biota are recorded (Appendix D, Volume 2); a visual-based qualitative habitat assessment [8] is also performed (see Supplemental Analyses/Evaluation Methods). These observations/evaluations, however do not factor into the final bioassessment rating.

Sample Processing and Sorting

In the laboratory, after rinsing in a #30 mesh sieve to remove the preservative, the composited sample is evenly distributed in a light-colored pan marked with grids of equal size. Using low-power magnification (6.3x), all organisms greater than 2mm in size are then removed from each randomly selected grid until a total of at least 100 organisms is obtained. Colonial groups (e.g. Bryozoa and Porifera), vertebrates, and terrestrial organisms are not included in the subsample. Organisms retained are reasonably intact to allow for accurate identification.

Macroinvertebrate Identification and Quality Control

The individuals from the subsample are identified to the lowest practicable taxonomic level, usually genus or species, using 7 to 30X stereozoom and 40 to 400X compound magnification. Leica Model MZ6 stereomicroscopes and Leica Models DMLS and DME compound microscopes are currently used. A computerized digital camera system projects and records microscope images of selected specimens to aid in their identification. A comprehensive collection of taxonomic keys and other references, including functional (or niche) descriptions and pollution tolerance classifications for most species, is maintained. An indexed list of these is given in the Laboratory SOP [9]. Pertinent new reference material is added when available. Taxonomists confer with each other regarding species in question. The International Taxonomic Information System (ITIS) (www.itis.gov) is monitored for possible changes in nomenclature or groupings. Consultation with other scientists in the field, particularly from agencies involved in similar programs (e.g. New York Department of Environmental Conservation, USGS, USEPA), provides added assistance and confirmation when needed. For verification, 10% of the samples are sent to a qualified independent consultant for parallel identifications. A macroinvertebrate specimen reference collection is also maintained.

Data Analysis

Biological impairment may be caused by several major factors such as organic enrichment, habitat degradation, or toxicological effects. It may be manifested in several aspects of the benthic macroinvertebrate community; these include absence of pollution-sensitive taxa, especially the EPT group, i.e., Ephemeroptera (mayflies), Plecoptera (stoneflies) and Trichoptera (caddisflies); excessive dominance of pollution-tolerant taxa such as Chironomidae (midges) and Oligochaeta (worms); low overall taxa numbers, or other perceptible differences in community structure relative to a reference condition.

The data analysis is an important part of the RBP protocol, developed under USEPA auspices as an expedient and cost-effective monitoring tool. It recognizes the use of community metrics and the pollution indicator concept. “Biometrics” measure different components of community structure, including population and functional parameters, each with a different range of sensitivity to pollution

stresses [1, 12]. The use of a variety of biometrics assures a more robust or valid assessment; therefore, an anomaly in any one metric is less likely to invalidate the study findings. The results are integrated through common scoring criteria, derived from an established comparable database, to determine a final numerical rating and consequent biological assessment category (see Table 1). This provides the analyst with an easily communicated evaluation of relative impairment, referred to in this report as the “bioassessment rating.” For RBP protocols, results are based on 100 organism sub-samples. Scoring criteria for RBP protocols [1] are calibrated for genus level taxonomy, giving four final rating categories (“excellent”, “good”, “fair”, and “poor”).

Multimetric Index Development

Previously, a single statewide index, the New Jersey Impairment Score (NJIS), was used in assigning one of three assessment ratings, non-impaired, moderately impaired, and severely impaired. The NJIS was limited in that it used family level taxonomic identification for calculating scores and did not account for geographical differences in macroinvertebrate community structures. To resolve these limitations, three indices are now used for assessments; High Gradient Macroinvertebrate Index (HGMI), Coastal Plain Macroinvertebrate Index (CPMI), and Pinelands Macroinvertebrate Index (PMI). These indices account for the State’s geographically different regions and use genus level taxonomic identification for calculating scores. The higher level of identification allows for more resolute and accurate results at four assessment rating levels (rather than the three previously used); “excellent”, “good”, “fair”, and “poor”. The results are considered reflective of the water and/or habitat quality at each site. This information is used by the Department, primarily in assessing progress toward the goals of the Clean Water Act via the Integrated Water Quality Monitoring and Assessment Report. AMNET data are also integral for designation of Category 1 waters, based on exceptional ecological significance. New Jersey’s benthic macroinvertebrate communities can be statistically grouped into three distinct structures based on geographical regions: high gradient (above the Fall Line), low gradient (Coastal Plain excluding the Pinelands), and Pinelands. To accurately assess biological conditions, a multimetric index was developed using genus-level taxonomic identifications for each distinct region using guidelines outlined in USEPA *Rapid Bioassessment Protocols (RBP) for Use in Wadeable Streams and Rivers* (see <http://www.epa.gov/bioindicators/html/rbps.html>) [8]. Previously, a single index was used statewide, the New Jersey Impairment Score (NJIS), which is based on family level taxonomic identifications. All current assessments use one of the three genus level indices.

High Gradient and Low Gradient Streams

Two of the indices (see Table 1) to be employed in New Jersey, the High Gradient Macroinvertebrate Index (HGMI) [13] and Coastal Plain Macroinvertebrate Index (CPMI) [14], were developed using guidelines outlined in USEPA *Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers* [8]. The resolution of index scoring thresholds was further enhanced by establishing a graphical relationship between the scores for each index and the tiers these scores represent in the context of a Biological Condition Gradient (BCG). The final index scoring thresholds serves to assess each site from two perspectives: the condition of the macroinvertebrate community and the regulatory use attainment.

The final index scores were derived in coordination with professional staff from Water Monitoring and Standards’ Bureau of Freshwater and Biological Monitoring, Water Monitoring and Standards’ Bureau of Water Quality Standards and Assessment, USEPA, United States Geological Survey (USGS), and the

Delaware River Basin Commission (DRBC). For each index, four descriptive categories were established at break points along the statistical distribution of scores from reference to degraded conditions, coordinated to the BCG to increase the accuracy; “excellent”, “good”, “fair”, and “poor” (see Table A1). “Excellent” and “good” fall into the acceptable regulatory range of fully attaining the aquatic life use. “fair” and “poor” fall below the acceptable regulatory range and are considered impaired, from a Federal Clean Water Act (CWA) perspective, and not attaining the use.

Pinelands Streams

The Pinelands Macroinvertebrate Index (PMI) [15] was developed using the same USEPA guidelines and professional coordination as above. However, since a BCG was not developed, and not necessary from a regulatory standpoint, a graphical relationship between index scores and the BCG tiers was not generated. As with the high and low gradient indices, four descriptive categories were established at break points along the statistical distribution of scores from reference to degraded conditions “excellent”, “good”, “fair”, and “poor” (see Table A1). For waters with a Surface Water Classification of “PL”, “excellent” and “good” are classified as reference or natural conditions of Pineland waters and fall into the acceptable regulatory range of fully attaining the aquatic life use. “Fair” and “poor” fall below the acceptable regulatory range of PL waters and are considered impaired, from a CWA perspective, and not attaining the use.

The unique chemical, physical, and biological properties characteristic of waters contained within the Pinelands area are also present for varying distances outside this jurisdictional delineation. To assess these Pinelands-like waters outside the Pinelands boundary, the Department delineated a 5 kilometer buffer around the Pinelands Area and will apply the PMI to this region. Pinelands-like waters outside the jurisdictional delineation, however, have a Surface Water Classification of FW2 and not PL. From a regulatory standpoint FW2 waters are held to a somewhat lower level of biological expectation than the Outstanding National Resource Waters (ONRW) waters contained within the PL designated area. Because of this lower regulatory expectation for FW2 waters, the PMI category of “fair” and above will be regarded as fully attaining the aquatic life use, i.e. biologically *nonimpaired* from a regulatory perspective. FW2 waters in this buffer region assessed as “poor” will be regarded as *impaired* and not supporting the aquatic life use.

Trend Analysis

In evaluating the current AMNET data against that of the previous round, a significant improvement or decline is considered to have occurred if the difference in AMNET scores have changed the bioassessment rating. A complete list of site-by-site comparisons is presented in Table 2, Volume 2 where a (+) indicates a significant improvement, a (–) indicates a significant decline, and a (/) indicates no change in rating. If a site was only sampled once in concurrent rounds, the change will have "nd" meaning there was "no data" available for a comparison.

Table A1: Descriptive and regulatory thresholds for Fresh Water High Gradient (Highlands, Ridge and Valley, Piedmont), Low Gradient (Coastal Plain, Excluding Pinelands Waters) and Pinelands Waters.

High Gradient Macroinvertebrate Index (HGMI) (Highlands, Ridge and Valley, Piedmont)		
Assessment category	Index Score	Regulatory Threshold
Excellent	63 - 100	Full Attainment
Good	< 63-42	Full Attainment
Fair	< 42-21	Non-Attainment
Poor	< 21	Non-Attainment
Coastal Plain Macroinvertebrate Index (CPMI)		
Assessment category	Index Score	Regulatory Threshold
Excellent	22 - 30	Full Attainment
Good	20 - 12	Full Attainment
Fair	10 - 6	Non-Attainment
Poor	< 6	Non-Attainment
Pinelands Macroinvertebrate Index (PMI)		
Assessment category	Index Score	Regulatory Threshold
Excellent	63 - 100	Full Attainment
Good	< 63-56	Full Attainment
Fair	< 56-34	Non-Attainment(PL) Full Attainment(FW2)
Poor	< 34	Non-Attainment

SUPPLEMENTAL ANALYSES / EVALUATION METHODS

Morphological Abnormalities

Occasionally, morphological abnormalities have been found in individual macroinvertebrates recovered in WM&S/BFBM's AMNET collections. These deformities have been most readily detected in the Chironomidae (midges), where they occur primarily in the head appendages (antennae) and mouth parts (mentum and mandibles). While the incidence has been most frequent in the chironomids (especially those species categorized as detritivores, herbivores or periphyton feeders), abnormalities have also been observed in individuals of other taxonomic groups. Although this is not a factor in the data analysis, such features are noted as they may signify possible contaminants or stressful conditions in the respective drainages.

Abnormalities observed in the course of identification are noted; these results are summarized by sample site in Table 3, Volume 2. For Chironomidae, the data are displayed as # of chironomids with abnormalities / # of chironomids examined. For all other taxa, just the number of individuals with abnormalities is presented. Photographic examples of abnormalities in midge larvae and amphipods (scuds) are presented in Appendix B, Volume 2.

Habitat Assessment

The physical attributes of habitat play an integral role in the health of the macroinvertebrate community. Where stations are physically comparable, differences in impairment can be attributed to water quality factors; however, physical habitat degradation alone can account for biological impairment in a stream [1]. Parameters evaluated include in-stream substrate, channel morphology, bank structural features, and riparian vegetation. The area evaluated includes the sample site and its immediate surroundings, particularly upstream, usually within a 100 – 200 foot radius. The visual-based qualitative habitat assessment results in one of four condition categories: optimal, suboptimal, marginal or poor, as outlined in the revised USEPA criteria [8].

The habitat assessment is separated into two basic approaches; one designed for high gradient streams and one designed for low gradient streams [8]. Examples of assessment forms for each approach can be found in Appendix C, Volume 2. Streams in the northern regions of New Jersey are generally considered to be “high gradient” streams, having substrates of rock and cobble of various sizes, and with relatively swift flow. Those in the Coastal Plain and Pinelands regions of southern New Jersey are considered as “low gradient” streams, having slower flow and more homogeneous substrates, primarily of sand or gravel and finer sediments. Habitat assessments may be temporarily downgraded by adverse weather conditions, such as excessive rainfall or prolonged drought. It should also be noted that habitat assessments are performed independently of the macroinvertebrate community analysis; thus, they do not factor into the final impairment score, but are used primarily as supplementary information.

Chemical Monitoring

WM&S' Bureau of Water Quality Standards and Assessment (WM&S/BWQSA) is responsible for the development, adoption, and administration of New Jersey's Surface Quality Standards (SWQS) and Ground Water Quality Standards (GWQS) [16]. This includes the development of water quality criteria to protect aquatic life and human health, the assignment of stream classifications to reflect existing and designated uses, and the promulgation of antidegradation policies to protect and maintain the quality of surface and ground waters of the State. The SWQS are used by many DEP programs including: the New Jersey Pollutant Discharge Elimination System Program, Site Remediation Program, and the Division of Land Use Regulation (including the Stream Encroachment Program).

The SWQS form the basis for monitoring the degree of impairment of surface water bodies and for calculating total maximum daily loads (TMDLs), which represent the assimilative capacity of surface water for a given parameter of concern. The development of TMDLs includes balancing the impacts from point sources, non-point sources and natural background conditions. TMDLs are developed on a watershed basis to aid watershed management planning efforts.

WM&S/BWQSA is also responsible for conducting and coordinating water quality assessments of all waters of the State. These assessments are reported through the New Jersey Integrated Water Quality Monitoring and Assessment Report (Integrated Report). [2] Historically, the Department summarized statewide water quality in a biennial report entitled, "New Jersey's Water Quality Inventory Report" (also known as the "305(b) Report") and proposed a separate "303(d) list" or "List of Impaired Waters". The current USEPA format for these reports (instituted in 2002) integrates the reporting requirements of Sections 303(d) and 305(b) of the Federal Clean Water Act into one comprehensive, integrated water quality monitoring and assessment report.

To prepare the Integrated Report, WM&S/BWQSA compiles available monitoring data from various agencies and organizations that collect measurements from the State's streams. The physical/chemical data is compared to water quality criteria outlined in the SWQS. Values for each measured parameter are evaluated and used to determine whether the waterway is in "full attainment of aquatic life use" or in "non-attainment of aquatic life use" based upon the levels outlined in those standards.

AMNET results were compared to WM&S/BWQSA's use attainment designations as assessed using physical / chemical specific criterion. A list of AMNET sites corresponding to stream segments designated by BWQSA between Round 2 and Round 3 as "non-attainment of aquatic life use", based upon physical/chemical criterion can be found in Table 5, Volume 2. Out of 196 sites in the Atlantic Water Region, chemical sampling was performed on 133 sites between Round 2 - Round 3, as part of the various water monitoring networks conducted by WM&S. All 133 sites were designated as "non-attainment of aquatic life use" for at least one physical / chemical parameter. Of these sites, 28 were "excellent", 28 were "good", 58 were "fair" and 19 sites were "poor" for biological impairments (see Table 5, Volume 2). The most common exceedances were for pH, Dissolved Oxygen (DO), Total Phosphorus (Tot Phos), Total Suspended Solids (TSS), and Temperature. Special attention should be given to the nonimpaired sites that demonstrated exceedances of standards. Continued degradation of the water quality will likely downgrade the nonimpaired assessment in the future.

The Department will attempt to identify the potential sources of impairment using the Stressor Identification (SI) process. The purpose of the Stressor Identification (SI) process is to identify the principle stressor(s), including but not limited to specific pollutants, responsible for the degraded biological condition. Identifying whether the principal stressor(s) is a *pollutant** or due to more generic landscape changes caused by human activities, is the first step towards deciding whether a pollutant(s) specific TMDL or other appropriate management measures will be taken to remediate the impairment. At present, no sites have been targeted in this Basin for the SI process.

* As defined in the N.J. Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and the Federal Water Pollution Control Act, aka "Clean Water Act" (33 U.S.C. 1251-1376)

RESULTS AND DISCUSSION

Summary of Statewide AMNET Data

The current study marks the third round of sampling for the Atlantic Basin AMNET study. For the purpose of comparing Rounds, Round 2 results were re-assessed using the new indices. The Atlantic Basin has shown considerable changes since the previous rounds by virtue of using the more geographically specific assessment. The percentage of Round 3 sites considered non-impaired using the NJIS was 31.9% . Using the new multimetric assessments, the percentage of Round 3 sites in the non-impaired range (“excellent” or “good”) has risen to 49.4%. The use of the PMI in particular can be attributed for this change in assessment. By using genus level taxonomic identifications to calculate scores, and accounting for the unique macroinvertebrate community of the Pinelands, a significantly more accurate assessment has been made. The number of “excellent” and “good” sites has shown a slight increase, while the number of “poor” sites has shown a slight decline. The number of “fair” sites has remained the same. The table below presents the proportions of “excellent”, “good”, “fair”, and “poor” AMNET sites for all New Jersey Water Regions in the second AMNET round, plus the third round for the Atlantic, Raritan, Northeast and Upper Delaware/Northwest Water Region. Round 3 assessments for the Lower Delaware have not been completed as of the publication of this report.

Region	Number of sites				
	Excellent	Good	Fair	Poor	Total sites
Third round					
Upper Delaware	33 (23.4%)	48 (34.0%)	43 (30.5%)	17 (12.1%)	141
Northeast	8 (7.8%)	13 (12.7%)	56 (54.9%)	25 (24.5%)	102
Raritan	27 (20.8%)	38 (29.2%)	64 (40.0%)	31 (23.8%)	160
Atlantic	53 (27.0%)	44 (22.4%)	77 (39.3%)	22 (11.2%)	196
Second round					
Upper Delaware	45 (32.9%)	43 (31.4%)	40 (29.2%)	9 (6.7%)	137
Northeast	12 (11.8%)	13 (12.8%)	51 (50.0%)	26 (25.5%)	102
Raritan	30 (18.6%)	44 (27.3%)	52 (32.3%)	35 (21.7%)	161
Atlantic	50 (25.4%)	41 (20.8%)	77 (39.1%)	29 (14.7%)	197
Lower Delaware	15 (9.4%)	39 (24.4%)	73 (45.6%)	33 (20.6%)	160

Results and Trends

Overall, the bioassessment ratings for each of the monitoring stations are best estimates of the in-stream biological impairment based upon the data obtained in the current AMNET survey. Detailed taxonomic and statistical data, bioassessment ratings, habitat assessment scores and observations for each AMNET site are given in Table 2 and Appendix D, Volume 2.

Figure 4 depicts the overall results for the Round 3 study in the Atlantic Water Region. Of the 196 monitoring stations sampled during this study period, 53 (27.0%) were found “excellent”, 44 (22.4%) “good”, 77 (39.3%) “fair”, and 22 (11.2%) “poor” (see Table 2, Volume 2).

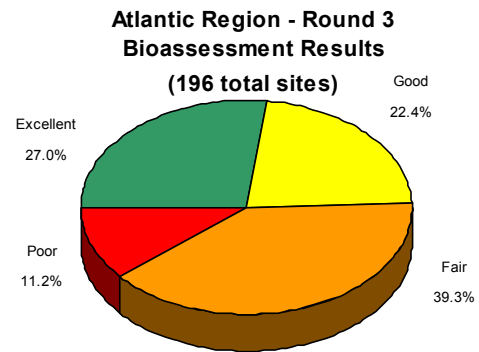


Figure 4

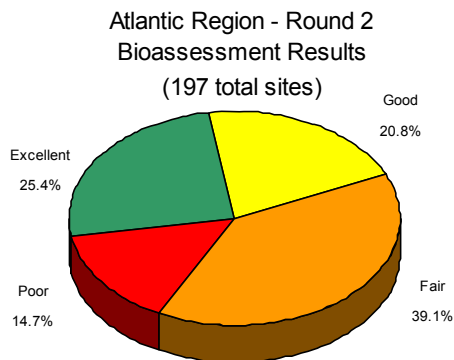


Figure 5

and the number of “poor” sites were slightly lower. The number of “fair” sites remained the same [4].

Figure 6 displays the percentage of change in rating among the same 196 AMNET sites in the Atlantic Water Region that were sampled during the second round study period [5], and again during the current (Round 3) study period (see “Site Selection” & Table 2, Volume 2).

The green indicates sites that have undergone a positive change, yellow indicates no change, and red indicates a negative change. Positive change is defined as an improved rating from the previous Round’s rating, while a negative change is defined as a downgraded rating from the previous Round (see Table 2, Volume 2).

Figure 5 shows the results obtained from 197 non-tidal AMNET sites within the Atlantic Water Region that were sampled during the previous (Round 2) Atlantic study (see “Site Selection” p.6 & Table 2, Volume 2). While the results for Round 3 were similar to those for Round 2, for the current sampling period the numbers of “excellent” and “good” sites were slightly higher,

Percent Change in Rating Between the Round 2 and the Round 3 Monitoring (196 sites total)

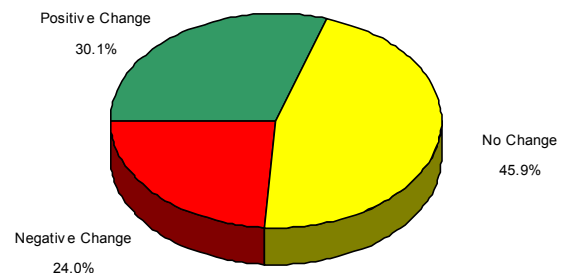


Figure 6

Regional Results

A USGS study, using data generated from NJDEP's AMNET program [17], statistically related levels of impairment to physiographic land types, corresponding land uses, and other anthropogenic factors on a statewide scale. A non-impaired community was most positively related to the area of forested and undeveloped land in its watershed upstream, and to the total underlying terrain in the steeper gradient ecoregions of northwestern New Jersey (i.e. Reading Prong/Highlands). Conversely, an impaired community was most positively related to the area of urban land, and to the total volume of wastewater (point source) discharge [17]. The table below presents the proportion of “excellent”, “good”, “fair”, and “poor” AMNET sites, based on the current data, in each of the Atlantic Watershed Management Areas.

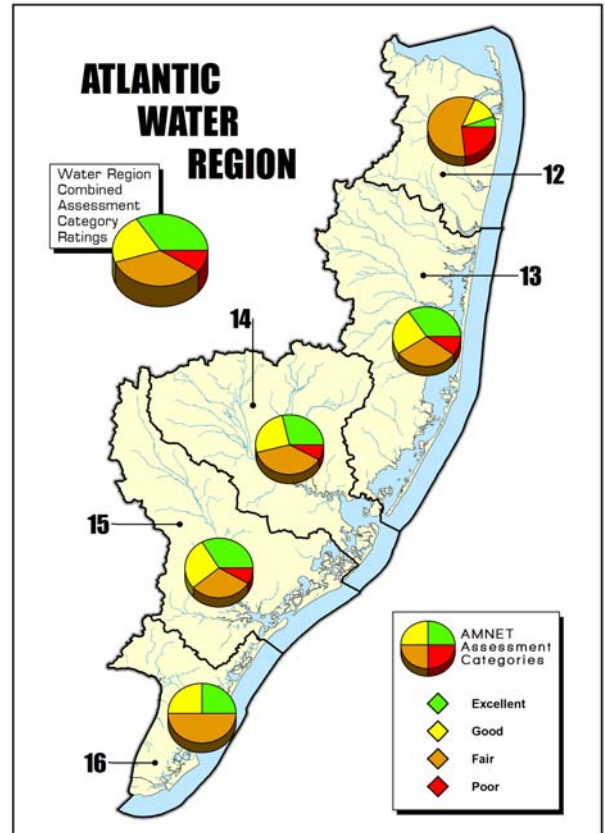


Figure 7

WMA	Sub-basins	Excellent	Good	Fair	Poor	Total sites
12	Monmouth system	2 (5.1%)	5 (12.8%)	23 (59.0%)	9 (23.1%)	39
13	Barnegat Bay system	22 (34.9%)	15 (23.8%)	20 (31.7%)	6 (9.5%)	63
14	Mullica River system	15 (28.8%)	13 (25.0%)	20 (38.5%)	4 (7.7%)	52
15	Great Egg Harbor system	13 (34.2%)	10 (26.3%)	12 (31.6%)	3 (7.9%)	38
16	Cape May system	1 (25.0%)	1 (25.0%)	2 (50.0%)	---	4
	Totals:	53 (27.0%)	44 (22.4%)	77 (39.3%)	22 (11.2%)	196

Figure 7 illustrates the proportions of “excellent”, “good”, “fair”, and “poor” sites in each WMA of the Atlantic Water Region for the current AMNET round.

Evaluation by WMA

Watershed Management Area #12 includes a total of 39 AMNET sites in the Raritan/Sandy Hook Bay, Navesink, Shrewsbury, Whale Pond Brook/Shark River/Wreck Pond Brook, and the Manasquan River watersheds, in Middlesex and Monmouth Counties (see Maps 2 & 3, Volume 2). Four sites - AN0463, AN0474, AN0478 and AN0498 - were not sampled because they were determined to be freshwater tidal sites and NJ’s protocol states that only “non-tidal” streams are sampled. Figure 8 shows the current site rating summaries for WMA #12 with 5.1% (2 sites) “excellent”, 12.8% (5 sites) “good”, 59.0% (23 sites) “fair”, and 23.1% (9 sites) “poor”.

Watershed Management Area 12
Round 3 Bioassessment Results
(39 total sites)

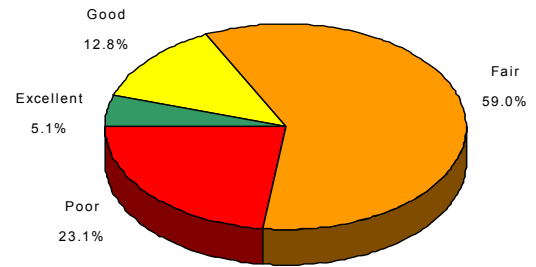


Figure 8

Watershed Management Area 12
Round 2 Bioassessment Results
(39 total sites)

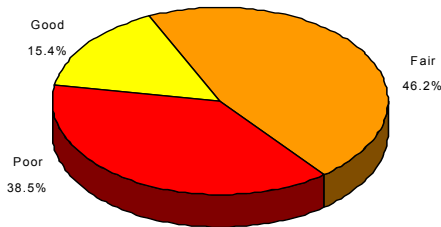


Figure 9

Figure 9 depicts the results obtained from 39 sites sampled during the earlier (Round 2) survey [5]. Comparing the current results to the earlier results, a significant improvement is seen at 16 sites and a significant decline at 7 sites (see Table 2, Volume 2). The number of “excellent” and “fair” sites is slightly higher than the earlier data, and the number of “poor” and “good” sites have declined. The majority (71.8%) of habitat scores are in the suboptimal range, with 12.8% receiving an optimal score and 15.4% receiving a marginal score. Abnormalities in chironomid larvae and other invertebrate families were found at nine sites (Mahoras Bk, Nut Swamp Bk, Hop Bk, Willow Bk, Big Bk, Yellow Bk, Pine Bk, Debois Ck, and Marsh Bog Bk) (see Maps 2 & 3, Table 3, Volume 2). None of these sites displayed chronic abnormalities (see Table 3, Volume 2). The table below presents a synopsis of AMNET data for WMA #12; AMNET site locations and bioassessment ratings within WMA #12 are shown in Figure 10.

Figure 9 depicts the results obtained from 39 sites sampled during the earlier (Round 2) survey [5]. Comparing the current results to the earlier results, a significant improvement is seen at 16 sites and a significant decline at 7 sites (see Table 2, Volume 2). The number of “excellent” and “fair” sites is slightly higher than the earlier data, and the number of “poor” and “good” sites have declined. The majority (71.8%) of habitat scores are in the suboptimal range, with 12.8% receiving an optimal score and 15.4% receiving a marginal score. Abnormalities in chironomid larvae and other invertebrate families were found at nine sites (Mahoras Bk, Nut Swamp Bk, Hop Bk, Willow Bk, Big Bk, Yellow Bk, Pine Bk, Debois Ck, and Marsh Bog Bk) (see Maps 2 & 3, Table 3, Volume 2). None of these sites displayed chronic abnormalities (see Table 3, Volume 2). The table below presents a synopsis of AMNET data for WMA #12; AMNET site locations and bioassessment ratings within WMA #12 are shown in Figure 10.

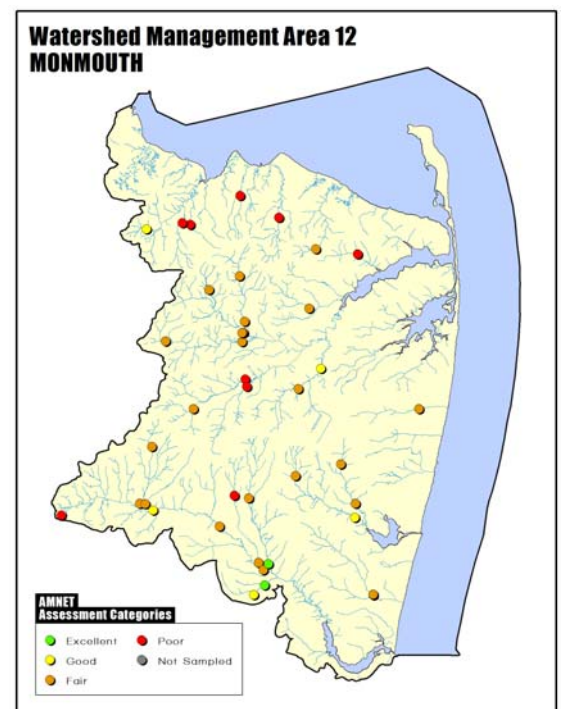


Figure 10

WMA # 12 Combined Results Table

Bio Rating	Round 2		Round 3		Habitat Assessment	Round 3	
Excellent	---	---	2	5.1%	Optimal	5	12.8%
Good	6	15.4%	5	12.8%	Suboptimal	28	71.8%
Fair	18	46.1%	23	59.0%	Marginal	6	15.4%
Poor	15	38.5%	9	23.1%	Poor	---	---
Total sites	39		39			39	

Watershed Management Area #13 includes a total of 63 AMNET sites in the Cedar Creek, Kettle Creek, Forked River, Metedeconk River, Manahawkin River, Toms River, and Little Egg Harbor watersheds, in Monmouth and Ocean Counties (see Maps 4, 5, & 6, Volume 2). Three sites - AN0516, AN0553, and AN0558 - were not sampled because they were determined to be freshwater tidal sites and NJ's protocol states that only "non-tidal" streams are sampled. Figure 11 shows the current site rating summaries for WMA # 13: 34.9% (22 sites) "excellent", 23.8% (15 sites) "good", 31.7% (20 sites) "fair", and 9.5% (6 sites) "poor".

Watershed Management Area 13
Round 3 Bioassessment Results
(63 total sites)

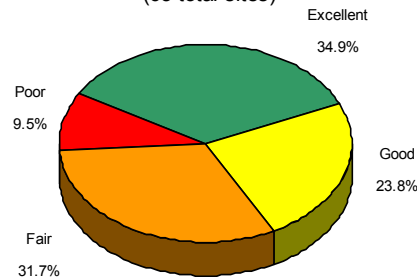


Figure 11

Figure 12 depicts the results obtained from 63 sites sampled during the earlier (Round 2) survey [5]. Comparing the current (Round 3) results to the earlier (Round 2) results, a significant improvement is apparent at 18 sites while 12 sites exhibited a decline in impairment rating (see Table 2, Volume 2). The number of "fair" and "poor" sites decreased slightly, while the number of "good" sites increased slightly, since the earlier sampling.

Watershed Management Area 13
Round 2 Bioassessment Results
(63 total sites)

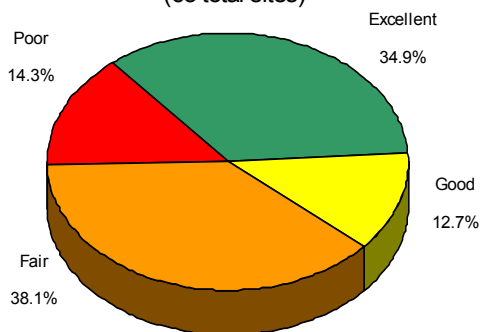


Figure 12

The number of "excellent" sites remaining the same (see Table 2, Volume 2). The majority (61.9%) of habitat scores are in the optimal range with 34.9% receiving a suboptimal and 3.2% receiving a marginal score. Abnormalities in chironomid larvae and other invertebrate families were found at seven sites (two on Toms River, and one each on S Br Metedeconk River, Maple Root Br, Ridgeway Br, Cedar Run, and Mill Br) (see Maps 4, 5, & 6, Table 3, Volume 2). One of these sites displayed chronic abnormalities (see Table 3, Volume 2). The table below presents a synopsis of AMNET data for WMA #13; AMNET site locations and bioassessment ratings within WMA #13 are shown in Figure 13.

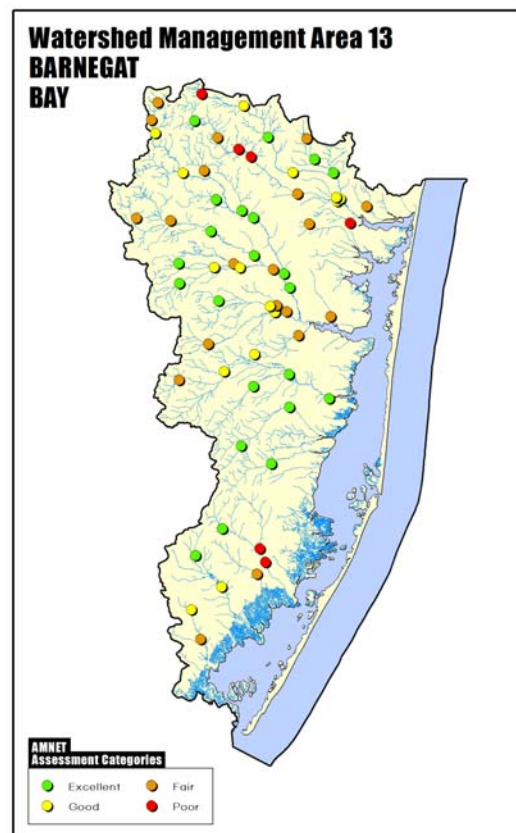


Figure 13

WMA # 13 Combined Results Table

Bio Rating	Round 2		Round 3		Habitat Assessment	Round 3	
Excellent	22	34.9%	22	34.9%	Optimal	39	61.9%
Good	8	12.7%	15	23.8%	Suboptimal	22	34.9%
Fair	24	38.1%	20	31.7%	Marginal	2	3.2%
Poor	9	14.3%	6	9.5%	Poor	---	---
Total sites	63		63			63	

Watershed Management Area #14 includes a total of 52 AMNET sites in the Batsto, Mullica, Oswego, Wading and Great Bay watersheds, in Atlantic, Burlington, Camden and Ocean Counties (see Maps 7, 8, & 9, Volume 2). Figure 14 shows the current site rating summaries for WMA # 14: 28.8% (15 sites) “excellent”, 25.0% (13 sites) “good”, 38.5% (20 sites) “fair”, and 7.7% (4 site) “poor”. Site AN0598 was not sampled because the site was dry at time of visit. Five sites - AN0576, AN0588, AN0589, AN0608, and AN0609 -

Watershed Management Area 14
Round 3 Bioassessment Results
(52 total sites)

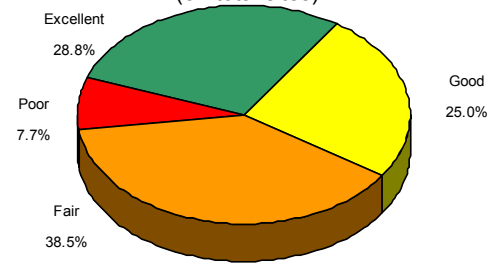


Figure 14

were not sampled because they were determined to be freshwater tidal sites and NJ’s protocol states that only “non-tidal” streams are sampled. Figure 15 depicts the results obtained from 53 sites sampled during the earlier (Round 2) survey [5]. Comparing the current to the earlier results, a significant improvement is seen at 10 sites, and a significant decline at 19

Watershed Management Area 14
Round 2 Bioassessment Results
(53 total sites)

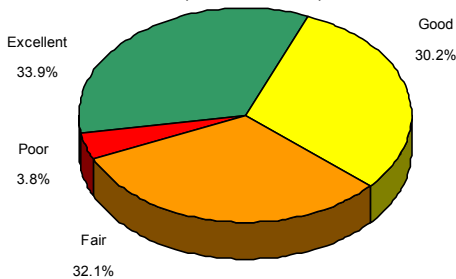


Figure 15

sites (see Table 2, Volume 2). The number of “excellent” and “good” sites decreased slightly from that of the earlier sampling, and the number of “fair” and “poor” sites is slightly increased (see Table

2, Volume 2). The majority of sites (71.2%) received an optimal habitat score, with 28.8% receiving a suboptimal score. Abnormalities in chironomid larvae and other invertebrate families were found at 11 sites (two on Tulpehocken Ck and one each on Mullica River, Wesickaman Ck, Hammonton Ck, Roberts Br, Springers Bk, Indian Cabin Ck, Wading River, Oswego River, and Mattix Run) (Maps 7, 8, & 9, Table 3, Volume 2). Three of these sites displayed chronic abnormalities (see Table 3, Volume 2). The table below presents a synopsis of AMNET data for WMA #14; AMNET site locations and bioassessment ratings within WMA # 14 are shown in Figure 16.

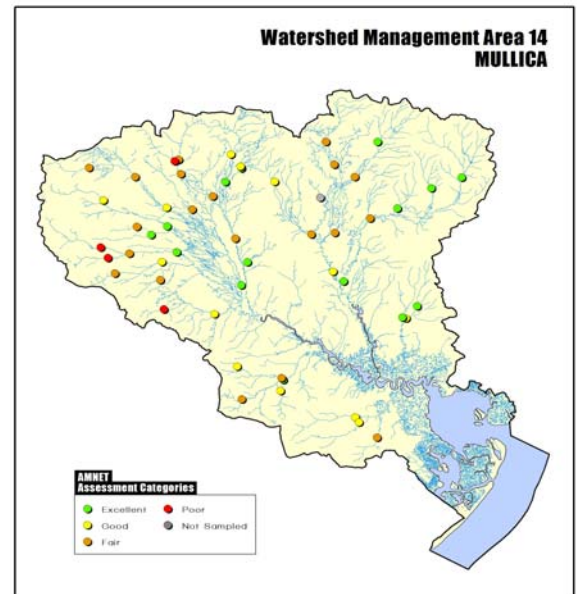


Figure 16

WMA # 14 Combined Results Table

Bio Rating	Round 2		Round 3		Habitat Assessment	Round 3	
	Count	Percentage	Count	Percentage		Count	Percentage
Excellent	18	33.9%	15	28.8%	Optimal	37	71.2%
Good	16	30.2%	13	25.0%	Suboptimal	15	28.8%
Fair	17	32.1%	20	38.5%	Marginal	---	---
Poor	2	3.8%	4	7.7%	Poor	---	---
Total sites	53		52			52	

Watershed Management Area #15 includes a total of 38 AMNET sites in the Absecon Creek, Patcong Creek, Tuckahoe River and Great Egg Harbor River watersheds, in Atlantic, Camden, Cape May, Cumberland, and Gloucester Counties (see Maps 10, 11, 12 & 13, Volume 2). One site - AN0641 - was not sampled because the site was determined to be a freshwater tidal site and NJ’s protocol states that only “non-tidal” streams are sampled. Figure 17 shows the current site rating summaries for WMA # 15: 34.2% (13 sites) “excellent”, 26.3% (10 sites) “good”, 31.6% (12 sites) “fair” and 7.9% (3 sites) “poor”. Figure 18 depicts the results obtained from 38 sites sampled during the earlier (Round 2) survey [5]. Comparing the current to the earlier results, a significant improvement is seen at 14 sites and a significant decline at 8 sites (see Table 2, Volume 2). The number of “excellent”, “good”, and “poor” sites increased slightly from that of the earlier

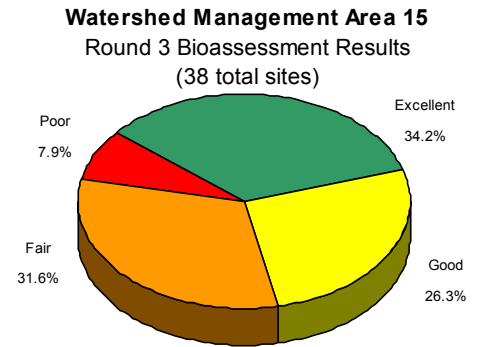


Figure 17

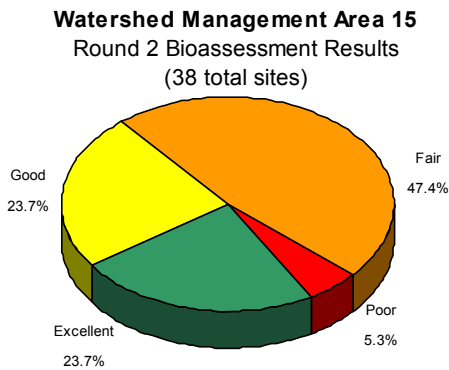


Figure 18

sampling, and the number of “fair” sites is slightly reduced (see Table 2, Volume 2). The majority of sites (63.2%) received an optimal habitat score, with 36.8%

receiving a suboptimal score. Abnormalities in chironomid larvae and other invertebrate families were found at four sites (one each on Deep Run, Jack Pudding Br, Mill Ck, and White Oak Br) (see Maps 10, 11, 12 & 13, Table 3, Volume 2). None of these sites displayed chronic abnormalities (see Table 3, Volume 2). The table below presents a synopsis of AMNET data for WMA #15; AMNET site locations and bioassessment ratings within WMA # 15 are shown in Figure 19.

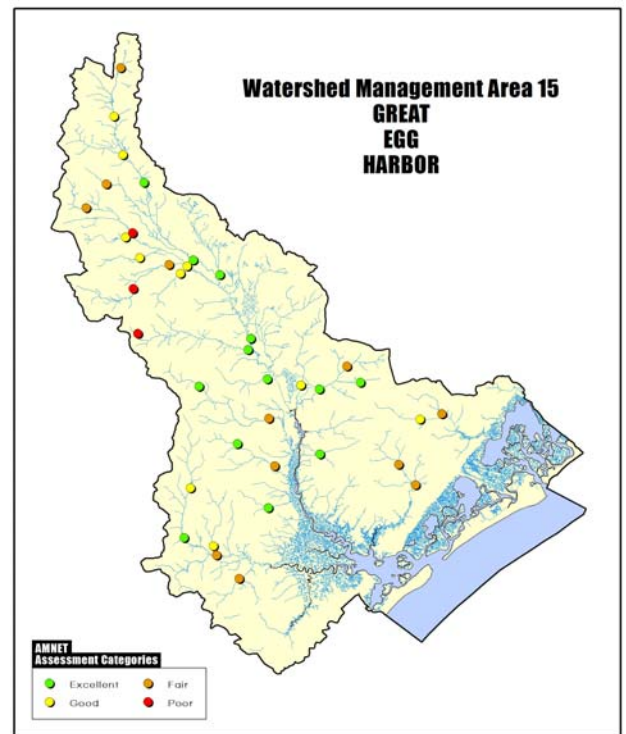


Figure 19

WMA # 15 Combined Results Table

Bio Rating	Round 2		Round 3		Habitat Assessment	Round 3	
	Count	Percentage	Count	Percentage		Count	Percentage
Excellent	9	23.7%	13	34.2%	Optimal	24	63.2%
Good	9	23.7%	10	26.3%	Suboptimal	14	36.8%
Fair	18	47.4%	12	31.6%	Marginal	---	---
Poor	2	5.3%	3	7.9%	Poor	---	---
Total sites	38		38			38	

Watershed Management Area #16 includes a total of 4 AMNET sites in the Cape May and Cumberland Counties area (see Map 14, Volume 2). Figure 20 shows the current site rating summaries for WMA # 16: 25.0% (1 site) “excellent”, 25.0% (1 site) “good”, and 50.0% (2 sites) “fair”. Three sites - AN0767, AN0768, and AN0770 - were not sampled because they were determined to be freshwater tidal sites and NJ’s protocol states that only “non-tidal” streams are sampled. Figure 21 depicts the results obtained from 4 sites sampled during the earlier (Round 2) survey [5]. Comparing the current to the earlier results, a significant improvement is seen at one site, and a significant decline, at one site (see Table 2, Volume 2). The number of “good” and “poor” sites decreased slightly from that of the earlier sampling, with the number of “fair” sites slightly increased. The number of “excellent” sites remaining unchanged (see Table 2, Volume 2). 75% of sites received an optimal habitat score and the other 25% received a suboptimal score.

Watershed Management Area 16

Round 3 Bioassessment Results
(4 total sites)

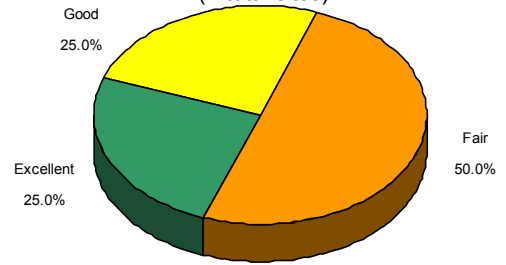


Figure 20

Watershed Management Area 16

Round 2 Bioassessment Results
(4 total sites)

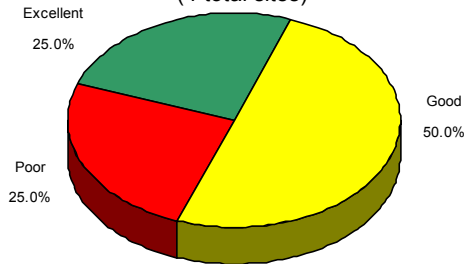


Figure 21

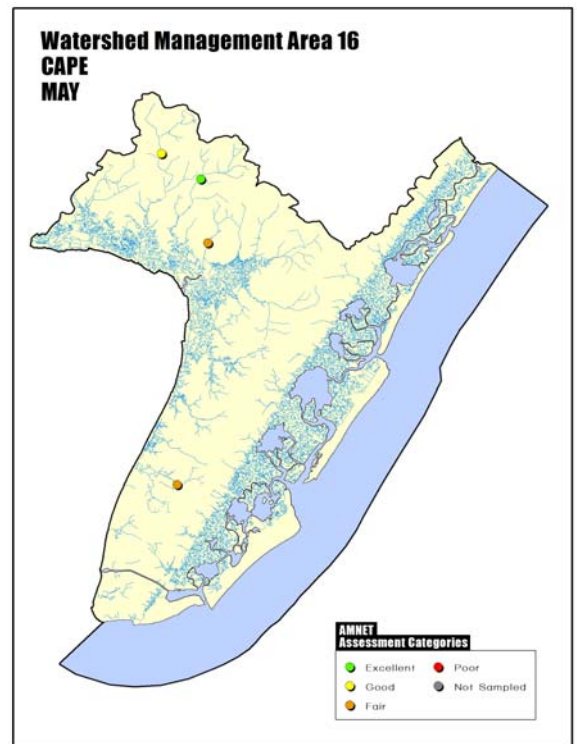


Figure 22

The table below presents a synopsis of AMNET data for WMA #16; AMNET site locations and bioassessment ratings within WMA # 16 are shown in Figure 22.

WMA # 16 Combined Results Table

Bio Rating	Round 2		Round 3		Habitat Assessment	Round 3	
	Count	Percentage	Count	Percentage		Count	Percentage
Excellent	1	25.0%	1	25.0%	Optimal	3	75.0%
Good	2	50.0%	1	25.0%	Suboptimal	1	25.0%
Fair	---	---	2	50.0%	Marginal	---	---
Poor	1	25.0%	---	---	Poor	---	---
Total sites	4		4			4	

Macroinvertebrate Abnormalities

Occasionally, morphological abnormalities have been found in individual macroinvertebrates recovered in WM&S/BFBM's AMNET collections. These deformities have been most often detected in larval organisms belonging to the insect family Chironomidae (midges), where they occur primarily in the head appendages (antennae) and mouthparts (mentum and mandibles).

Abnormalities have also been observed in individuals of other taxonomic groups (such as Amphipoda), but they are most often noted in the mouthparts and antennae of Chironomidae because these features are key characteristics used in identification. Chironomidae larvae often comprise a large component of the benthic community of a stream or river, particularly in those affected by human disturbances, and they are part of the diet of predatory invertebrates and fish. As a result, chironomids are an important transfer vector linking the movement of contaminants from sediments to higher trophic levels [18].

Hamilton and Saether [19] noted deformed specimens (Chironomidae) occurred in areas of industrial or agricultural chemical input, but not in areas receiving only domestic effluents. Subsequent studies have supported this finding. But the presence of deformed organisms in a sample is difficult to interpret. Not all genera appear to react to the presence of contaminants in the same manner [20].

Most of the research has been focused on a few genera. The North Carolina Division of Environmental Management [21] has developed an index to evaluate deformities, using the frequency and severity of deformities observed in Chironomidae larvae of just the genus *Chironomus*.

Secondly, morphological deformities undoubtedly occur in Chironomidae larvae living in uncontaminated environments. Even robust, healthy populations of any fauna are likely to include a certain proportion of physiologically weaker individuals which, for various reasons, may be more prone or genetically predisposed to malformation [20]. With a lack of baseline data of deformities in more pristine environments, the level at which these deformities becomes significant is somewhat uncertain. Currently, although not an indicator of specific contaminants, the occurrence of abnormal chironomid larvae can serve as an economical and long-term monitor of the benthic environment, and can suggest where more intensive bioassays and chemical testing would be most effectively employed [22].

Bearing in mind that the primary focus of the AMNET sampling is not to find morphological abnormalities, a listing of all AMNET sites in the Atlantic Water Region exhibiting these deformities is presented in Table 3, Volume 2. The data are displayed as # of chironomids with abnormalities/# of chironomids examined. For all other taxa, just the number of individuals with abnormalities is presented. The significance of these abnormalities has not been statistically evaluated. Deformities are called "chronic" if they were observed in more than one round of sampling at a given site. Also, the presence of abnormalities is not factored into the index scoring, but used to identify sites where additional investigations are needed.

An increase in the number of abnormalities are seen in the current sampling than in the previous (Round 2) sampling [5]. From the current sampling of 196 sites, 31 (14.8%) contained organisms with abnormalities (Maps 2 - 14 , Volume 2). Six of the sites exhibited a "chronic" presence of abnormalities (Table 3, Volume 2). Notably, the majority of these "chronic" sites are situated in areas where a higher percentage of urban land use occurs (Maps 2 - 14, Volume 2). Further study is needed to establish the significance of the presence of abnormalities.

Causes and Conditions of Impairment

Biological impairment, as determined through RBP analysis, is manifested by alterations or differences in macroinvertebrate community structure, compared to a reference or "ideal" condition. In an impaired situation, taxa of pollution-tolerant groups (such as worms and midges) tend to dominate over pollution-intolerant forms (e.g., mayflies, stoneflies, etc.), with an overall depression in species diversity. Such discrepancies are typically due to degraded instream environmental conditions, which may be caused by various human activities or land uses and, in some cases, by natural features or events. Environmental factors that may adversely affect stream biology, including both chemical and physical parameters, are listed below:

1. Degraded habitat (see Table 4, Volume 2)
 - a. lack of stable and varied substrate
 - b. lack of bank vegetation/canopy (= poor bank stability, lack of shade)
 - c. excessive sedimentation (= poor substrate and water clarity)
 - d. lack of streamflow (= low water level, low dissolved oxygen, possible sedimentation, undesirable vegetation)
2. Eutrophication (= excessive nutrients promoting undesirable vegetation or algal blooms, and increased turbidity)
3. Domestic (organic) waste (promotes hypoxia, turbidity, eutrophication)
4. Physiochemical water quality factors which, alone or in combination, can have adverse effects
 - a. higher than normal temperature
 - b. excessive turbidity
 - c. lack of dissolved oxygen
 - d. presence of toxicants (in various chemical forms)

Inter-related human activities or practices, land uses, and natural features or events contributing to degraded stream quality:

1. Deforestation/development/construction (largely via runoff from non-point sources)
2. Urbanization/industrialization (largely via runoff from non-point sources)
3. Agricultural operations (largely via runoff from non-point sources)
4. Municipal or industrial wastewater discharge (from point source)
5. Artificial channelization or habitat alteration
6. Upstream impoundment, lake or pond
7. Drought conditions

Habitat Assessment vs. Biological Assessment

The relationship between habitat assessment scores and corresponding biological assessment scores were plotted, and a coefficient of determination (R^2) value calculated for each WMA (Appendix C, Volume 2). The R^2 has a value ranging from zero to one, and is a fraction of the variance shared by two variables graphed along an X and Y axis. For example, if $R^2 = 0.59$, then 59% of the variance in X can be explained by the variance in Y, or vice versa. The higher the R^2 value, the more likely the variance in one variable can be explained by the variance of another. In this case the variables are habitat assessments vs. biological assessment. The R^2 values were calculated to determine if general trends in habitat degradation could explain general trends in biological impairment. For all sites in the Atlantic Water Region, an overall R^2 value of 0.21 was calculated when comparing the assessments. This can be interpreted that for all sites in this region, a strong direct correlation between assessments existed

21% of the time. An R^2 value was also calculated, individually, for the five WMA's in this Water Region. The R^2 values for WMA 12, 13, 14, 15, and 16, were 0.03, 0.12, 0.24, 0.07, and 0.17 respectively. Again, this indicates that a strong direct correlation between habitat and biological impairment existed 3% - 24% of the time.

The R^2 values suggest that other factors, which may include land use and/or water quality, are likely contributing to the observed biological assessments. Sites with a “fair” or “poor” biological assessment, but with a relatively high habitat assessment score, could be impacted by point and/or nonpoint sources outside the range of the visual based habitat assessment. Also, an intermittent or short term impact may have occurred which left no obvious visual evidence at the site. In these cases, further investigation is needed to determine the source of impairment that is affecting the biota. Some sites assessed with an “excellent” or “good” biological assessment may have a relatively degraded habitat assessment. This could be due to a temporary degradation, such as drought or flooding (near to the time of the assessment), which was not severe enough to effect the biota. It is also possible that a temporary or recent degradation may not have immediate observable effects on the biota. In either case these sites should be studied further to avoid future impairment to the biota. Due to the prevalence of multiple stressors throughout the State, it is further suggested that the relationship between habitat assessments and biological assessments be studied on a site by site basis.

As reflected in the present study results, human land uses and practices, superimposed on the undisturbed physical terrain, play a major role in controlling the degree of pollution or degradation in a stream system [17]. The relationship between benthic macroinvertebrate community impairment has been statistically related to different physiographic land types, land uses and other anthropogenic factors, on a statewide basis [17]. These findings strongly indicate that human land uses and practices play a major role in the degree of pollution or degradation in a stream system. Data analysis from Ayers et al., 2000 [23] for instance, concludes the following:

- 1) Fish and invertebrate communities are commonly impaired in urban streams;
- 2) Invertebrate community impairment was related to total urban land and total wastewater flow upstream of a site;
- 3) Changes in aquatic community structure were statistically related to environmental variables along the urban gradient – that is to say that such things as impervious surfaces were related to a negative response in the aquatic invertebrate community.

Conversely, the same Ayers data analysis also demonstrated that the area of forest and wetland in a stream's drainage basin was a strong mitigating factor in protecting invertebrate community health.

Additional Information

For more information, please contact:

Department of Environmental Protection
Alfred L. Korndoerfer, Jr., Chief
Water Monitoring & Standards
Bureau of Freshwater and Biological Monitoring
P. O. Box 427
Trenton, NJ 08625-0427

website:

<http://www.state.nj.us/dep/wms/bfbm>

REFERENCES

1. Plafkin, J.L., M.T. Barbour, K.D. Porter, S.K. Gross and R.M. Hughes, 1989. Rapid bioassessment protocols for use in streams and rivers—benthic macroinvertebrates and fish. EPA/44/4-89-002. US Environmental Protection Agency. Washington, D.C.
2. New Jersey Department of Environmental Protection. 2006. New Jersey integrated water quality monitoring and assessment report. Water Monitoring and Standards. Trenton, NJ.
3. New Jersey Department of Environmental Protection. Data report, 1998. New Jersey's modernized ambient chemical monitoring network. Division of Watershed Management. Trenton, NJ.
4. New Jersey Department of Environmental Protection. Data report, 1996. Ambient biomonitoring network, Atlantic Region. Bureau of Water Monitoring. Trenton, NJ.
5. New Jersey Department of Environmental Protection. Data report, 2001. Ambient biomonitoring network Atlantic Region. Bureau of Water Monitoring. Trenton, NJ.
6. New Jersey Department of Environmental Protection. Data report, 1996. Ambient biomonitoring network, Lower Delaware River drainage basin. Bureau of Water Monitoring. Trenton, NJ
7. New Jersey Department of Environmental Protection. 2005. Field sampling procedures manual. NJDEP. Trenton, NJ.
8. Barbour, M.T., J. Gerritson, B.D. Snyder and J.B. Stribling. 1999. Rapid bioassessment protocols for use in wadeable streams and rivers: Periphyton, Benthic Macroinvertebrates, and Fish, 2nd ed. USEPA 841-B-99-002. Chps. 1–11 and appendices.
9. New Jersey Department of Environmental Protection. Laboratory report, 2007. Standard operating procedures, Ambient biological monitoring using benthic macroinvertebrates, Field, lab, and assessment methods. Bureau of Freshwater & Biological Monitoring. Trenton, NJ.
10. New Jersey Department of Environmental Protection. Report, 2005. Work/quality assurance project plan: Ambient Biomonitoring Network (AMNET), Atlantic Region, FY05-06. Bureau of Freshwater and Biological Monitoring. Trenton, NJ.
11. U.S. Environmental Protection Agency. 1997. Field and laboratory methods for macroinvertebrate and habitat assessment of low gradient nontidal streams. Mid-Atlantic Coastal Streams Workgroup, Environmental Services Division, Region 3. Wheeling, WV.
12. Klemm, D.J., P.A. Lewis, F. Fulk and J.M. Lazorchak. 1990. Macroinvertebrate field and laboratory methods for evaluating the biological integrity of surface waters. EPA/600/4-90/030. U.S. Environmental Protection Agency. Cincinnati, OH.
13. Jessup, B., 2007. Development of the New Jersey High Gradient Benthic Index (HGMI). Tetra Tech, Inc. Owings Mills, MD.
14. Maxted, J.R., M.T. Barbour, J. Gerritsen, 2000. Assessment framework for mid-Atlantic coastal plain streams using benthic macroinvertebrates, J.N. American Benthological Society, 19(1):128-144.
15. Jessup, B., S.Moegenburg, D.Bryson, V.Poretti, 2005. Development of the New Jersey Pinelands Macroinvertebrate Index (PMI). Tetra Tech, Inc. Owings Mills, MD & NJDEP. Trenton, NJ.
16. New Jersey Department of Environmental Protection. 2006. Surface and Ground Water Quality Standards. Water Monitoring and Standards. Trenton, NJ.
17. Kennen, J.G. 1998. Relation of benthic macroinvertebrate community impairment to basin characteristics in New Jersey streams. Fact Sheet FS-057-98. U.S. Geological Survey. West Trenton, NJ.
18. Dickman, M., I. Brindle, and M. Benson, 1992. Evidence of teratogens in sediments of the Niagara River Watershed as reflected by chironomid (Diptera: Chironomidae) deformities. Journal of Great Lakes Res. 18(3):467-480.
19. Hamilton, A.L. and O.A. Saether, 1971. The occurrence of characteristic deformities in the chironomid larvae of several Canadian lakes. Canadian Entomologist 103:363-368.
20. Warwick, W.F., 1985. Morphological abnormalities in Chironomidae (Diptera) larvae as measures of toxic stress in freshwater ecosystems: indexing antennal deformities in *Chironomus* Meigen. Canadian Journal of Fisheries and Aquatic Sciences 42:1881-1914.
21. Lenat, David R., 1993. Using mentum deformities of *Chironomus* larvae to evaluate the effects of toxicity and organic loading in streams. Journal of N. Am. Benthol. Soc. 12(3):265-269.
22. Diggins, T.P. and K.M. Stewart, 1993. Deformities of aquatic larval midges (Chironomidae: Diptera) in the sediments of the Buffalo River, New York. Journal of Great Lakes Res. 19(4):648-659
23. Ayers, M., Kennen, J., Stackleberg, P., Kauffman, L. 2000. Building a stronger scientific basis for landuse planning and watershed management effects on water quality and aquatic communities in NJ streams. USGS. West Trenton, NJ.

Table 1

Coastal Plain Macroinvertebrate Index (CPMI)¹

Study area: southern New Jersey, below the geologic fall-line; Middle Atlantic Coastal Plain ecoregion, excluding the Pinelands National Reserve. See figure A1.

Index Metrics

1. Total number of genera
2. Total number of EPT genera
3. Percent Ephemeroptera genera
4. Hilsenhoff Biotic Index
5. Percent Clinger genera

Index Metric	Score			
	6	4	2	0
Number of genera	>25	17-25	9-16	<9
Number of EPT genera	>9	7-9	4-6	<4
% of Ephemeroptera	>29	20-29	10-19	<10
Hilsenhoff Biotic Index	<4.9	4.9-6.0	6.1-7.3	>7.3
% Clingers	>51	34-51	17-33	<17

Assessment Rating	Score
Excellent	22-30
Good	12-20
Fair	10-6
Poor	< 6

Reference

J.R. Maxted, et al. Assessment framework for mid-Atlantic coastal plain streams using benthic macroinvertebrates. J.N. Am. Benthol. Soc. 2000, 19(1):128-144.

Attributes

Excellent: Minimal changes in structure of biological community and minimal changes in ecosystem function. Virtually all native taxa are maintained with some changes to biomass and/or abundance; ecosystem functions are fully maintained within the range of natural variability.

Good: Some evident changes in structure of the biotic community and minimal changes in ecosystem function. Some changes in structure due to loss of some rare native taxa; shifts in relative abundance of taxa but sensitive-ubiquitous taxa are common and abundant; ecosystem functions are fully maintained.

Fair: Moderate to major changes in structure of biological community and moderate changes in ecosystem function. Sensitive taxa are markedly diminished; conspicuously unbalanced distribution of major groups from that expected; organism condition shows signs of physiological stress; system function shows reduced complexity.

Poor: Extreme changes in structure of biological community and major loss of ecosystem function. Extreme changes in structure; wholesale changes in taxonomic composition; extreme alterations from normal densities and distributions; organism condition is often poor; ecosystem functions are severely altered.

¹ Based on 100 organism subsample, genus level taxonomy

Table 1 (cont)

Pinelands Macroinvertebrate Index (PMI)¹

Study area: southern New Jersey, below the geologic fall-line within the Pinelands National Reserve and extending 5 kilometers outside the Reserve boundary. See figure A1.

Index Metrics

1. Number of Insect genera
2. Number of Non-insect genera
3. Percent Plecoptera (P) and Trichoptera (T)
4. Percent Diptera genera excluding Tanytarsini
5. Percent Mollusca and Amphipoda
6. Beck's Biotic Index
7. Percent Filterers

<u>Assessment Rating</u>	<u>Score</u>
Excellent	≥ 63
Good	< 63-56
Fair	< 56-34
Poor	< 34

Reference

Benjamin Jessup, et al. Report. Development of the New Jersey Pinelands macroinvertebrate index (PMI). TetraTech, Inc. Owings Mills, MD. March, 2005.

Attributes

Excellent: Minimal changes in structure of biological community and minimal changes in ecosystem function.

Virtually all native taxa are maintained with some changes to biomass and/or abundance; ecosystem functions are fully maintained within the range of natural variability.

Good: Some evident changes in structure of the biotic community and minimal changes in ecosystem function. Some changes in structure due to loss of some rare native taxa; shifts in relative abundance of taxa but sensitive-ubiquitous taxa are common and abundant; ecosystem functions are fully maintained.

Fair: Moderate to major changes in structure of biological community and moderate changes in ecosystem function. Sensitive taxa are markedly diminished; conspicuously unbalanced distribution of major groups from that expected; organism condition shows signs of physiological stress; system function shows reduced complexity.

Poor: Extreme changes in structure of biological community and major loss of ecosystem function. Extreme changes in structure; wholesale changes in taxonomic composition; extreme alterations from normal densities and distributions; organism condition is often poor; ecosystem functions are severely altered.

¹ Based on 100 organism subsample, genus level taxonomy

Table 1 (cont)

High Gradient Benthic Index (HGMI)¹

Study area: northern New Jersey, above the geologic fall-line including the following ecoregions: North Central Appalachians, Central Appalachian Ridges and Valleys, Northeastern Highlands, Northeastern Coastal Zone, and Northern Piedmont. See figure A1.

Index Metrics

1. Total number of genera_{adj} = $26.53 + \text{Metric} - [22.776 + 4.173 \cdot \log_{10}(\text{areasqkm})]$
2. Percent of genera that are not insects
3. Percent sensitive EPT (excluding Hydropyschidae, including Diplectrona)_{adj}
= $37.49 + \text{Metric} - [49.922 - 13.800 \cdot \log_{10}(\text{areasqkm})]$
4. Number of scraper genera_{adj} = $5.44 + \text{Metric} - [3.889 + 1.724 \cdot \log_{10}(\text{areasqkm})]$
5. Hilsenhoff Biotic Index_{adj} = $4.23 + \text{Metric} - [3.407 + 0.918 \cdot \log_{10}(\text{areasqkm})]$
6. Number of New Jersey TALU attribute 2 genera
7. Number of New Jersey TALU attribute 3 genera

ADJ (Adjusted metric value) = Mean_{reference} + Metric_{observed} - Metric_{predicted}, where predictions are based on linear regression analysis of reference metric values on catchment size.

<u>Assessment Rating</u>	<u>Score</u>
Excellent	≥ 63
Good	< 63 - 42
Fair	< 42 - 21
Poor	< 21

Reference

Benjamin Jessup, et al. Report. Development of the New Jersey high gradient macroinvertebrate index (HGMI). TetraTech, Inc. Owings Mills, MD. February, 2007.

Attributes

Excellent: Minimal changes in structure of biological community and minimal changes in ecosystem function.

Virtually all native taxa are maintained with some changes to biomass and/or abundance; ecosystem functions are fully maintained within the range of natural variability.

Good: Some evident changes in structure of the biotic community and minimal changes in ecosystem function.

Some changes in structure due to loss of some rare native taxa; shifts in relative abundance of taxa but sensitive-ubiquitous taxa are common and abundant; ecosystem functions are fully maintained.

Fair: Moderate to major changes in structure of biological community and moderate changes in ecosystem function. Sensitive taxa are markedly diminished; conspicuously unbalanced distribution of major groups from that expected; organism condition shows signs of physiological stress; system function shows reduced complexity.

Poor: Extreme changes in structure of biological community and major loss of ecosystem function. Extreme changes in structure; wholesale changes in taxonomic composition; extreme alterations from normal densities and distributions; organism condition is often poor; ecosystem functions are severely altered.

¹ Based on 100 organism subsample, genus level taxonomy

New Jersey State Boundaries

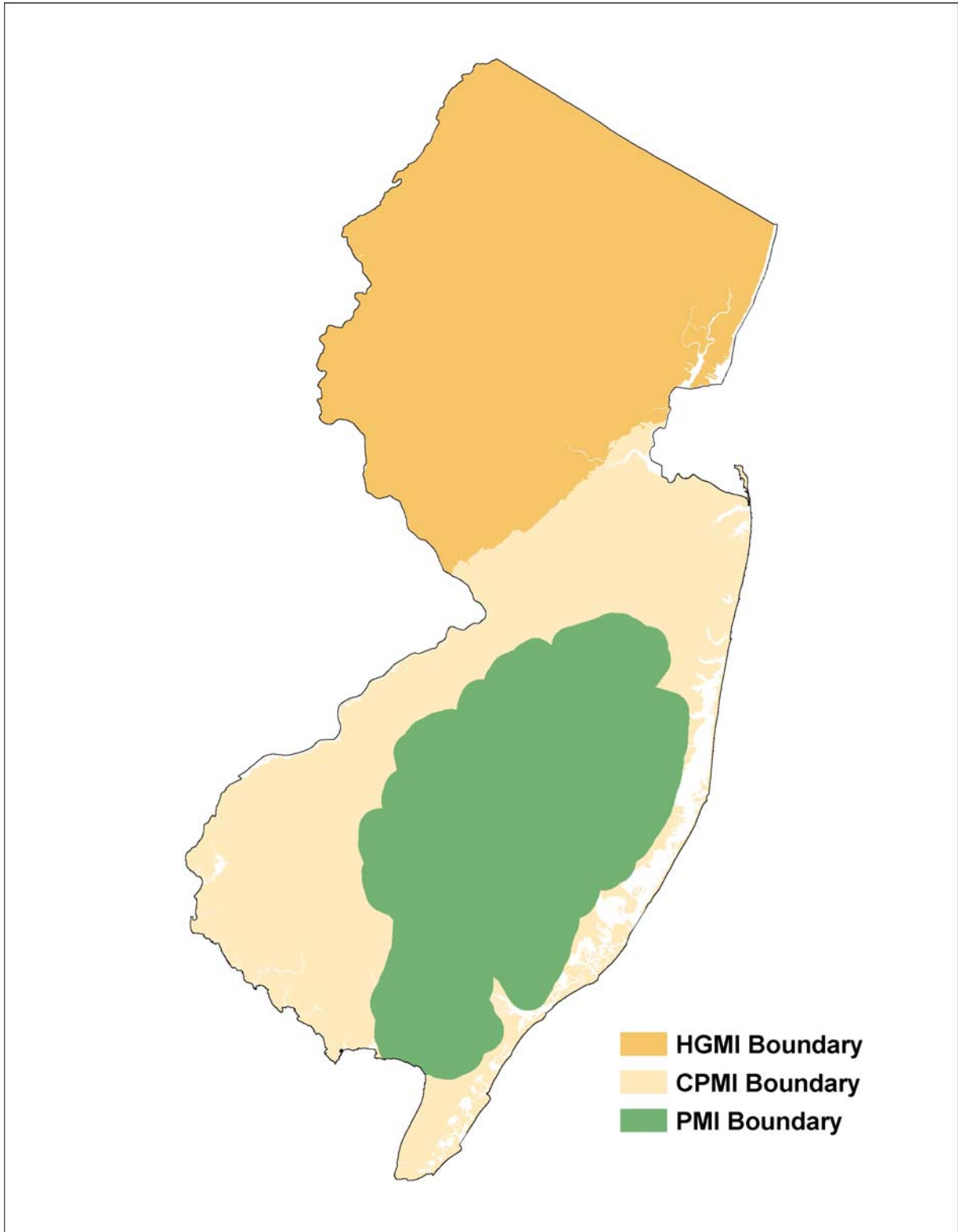


Figure A1. Boundaries for generic level index use.



**NJ Department of Environmental Protection
Water Monitoring and Standards**



AMBIENT BIOMONITORING NETWORK

Atlantic Water Region



**Watershed Management Areas 12, 13, 14, 15, and 16
Round 3 Benthic Macroinvertebrate Data
Volume 2 of 2**



October 2010

State of New Jersey
Chris Christie, Governor
Kim Guadagno, Lt. Governor

NJ Department of Environmental Protection
Bob Martin, Commissioner



NJ Department of Environmental Protection
Water Resource Management
John Plonski, Assistant Commissioner

Water Monitoring and Standards
Leslie McGeorge, Administrator

Bureau of Freshwater & Biological Monitoring
Alfred L. Korndoerfer, Jr., Chief

October 2010

AMBIENT BIOMONITORING NETWORK

Atlantic Water Region
Watershed Management Areas 12, 13, 14, 15, and 16

Round 3 Benthic Macroinvertebrate Data

Volume 2 of 2

Water Monitoring Report Prepared By:
Water Monitoring & Standards
Bureau of Freshwater and Biological Monitoring

Sampling and Data Analysis:
Victor Poretti, Project Manager-Sampling Coordination
Dean Bryson, Project Manager-Laboratory Operations
Thomas Miller
Anna Signor

Report Preparation:
Thomas Miller

Map Preparation:
John Sell

Edited By:
Alfred Korndoerfer
Leslie McGeorge
Alena Baldwin-Brown

[cover photo: Site AN0168, Haynes Creek at Himmelein Rd, Burlington County, NJ.]



AMBIENT BIOMONITORING NETWORK

Watershed Management Areas 12, 13, 14, 15, and 16

Atlantic Water Region

Round 3 Benthic Macroinvertebrate Data

Volume 2 of 2

TABLE OF CONTENTS

	page
MAPS (AMNET Site Locations)	
Atlantic Water region	Map 1
Watershed Management Area # 12	Maps 2-3
Watershed Management Area # 13	Maps 4-6
Watershed Management Area # 14	Maps 7-9
Watershed Management Area # 15	Maps 10-13
Watershed Management Area # 16	Map 14
TABLE 2. Comparative Scores / Ratings	
TABLE 3. Macroinvertebrates Abnormalities	
TABLE 4. Habitat Assessment	
TABLE 5. List of AMNET sites with Parameters that did not attain standards	
APPENDIX A. Station Numbers and Locations	A
APPENDIX B. Pictures of Morphological Abnormalities	B
APPENDIX C. Graphical Comparison of Habitat Score vs. Biological Assessment Rating	C
APPENDIX D. Taxonomic and Statistical Data, Biological Assessments, Habitat Assessment Scores and Observations	D

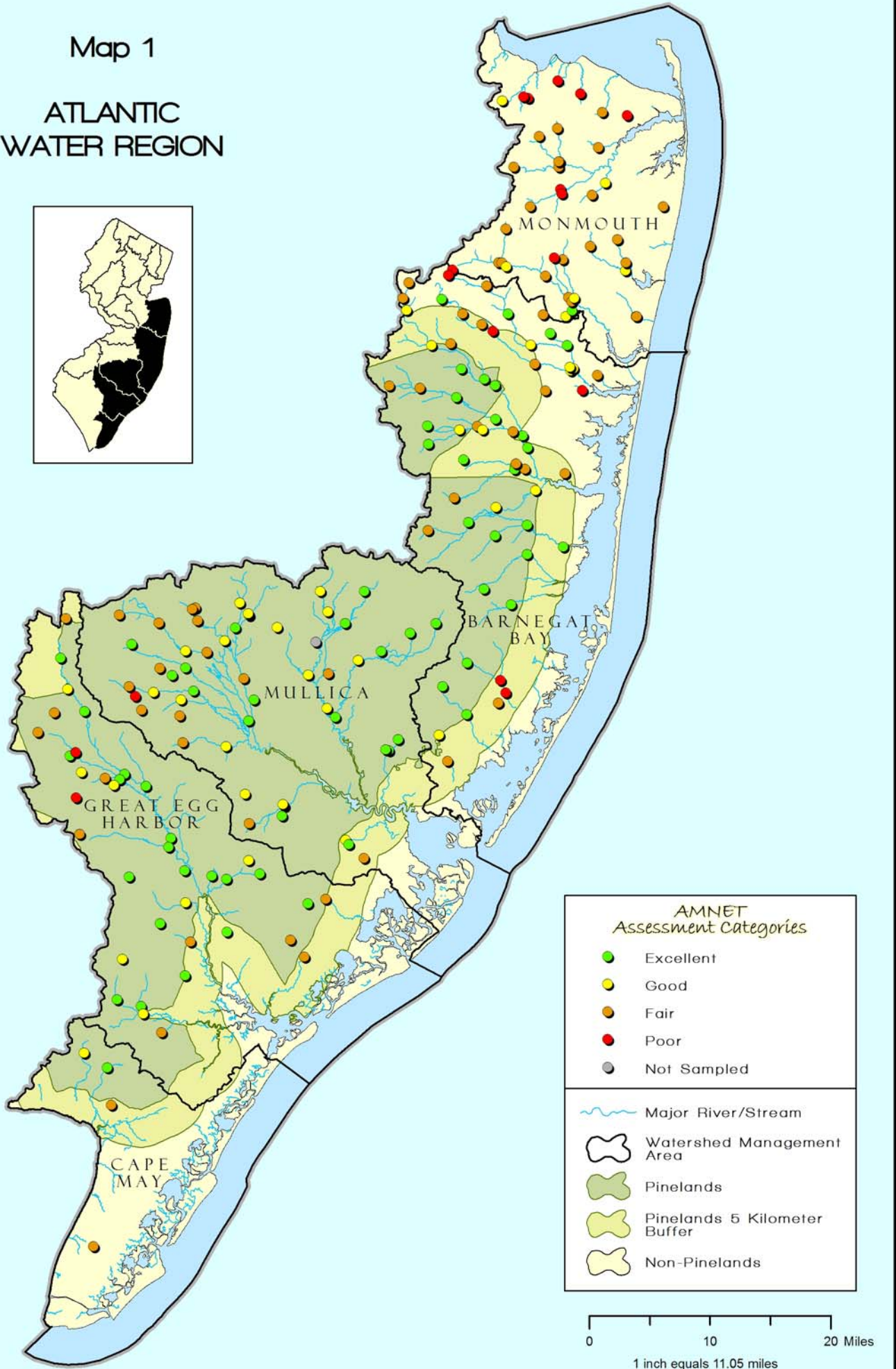
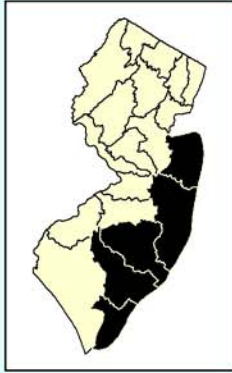
MAPS

Round 3 Atlantic Region AMNET Study WMA's 12, 13, 14, 15, & 16

AMNET site locations and their respective biological ratings, for each major sub-basin, are shown in maps 1-14. Also identified are sites that exhibited significant and chronic macroinvertebrate abnormalities.

Map 1

ATLANTIC WATER REGION



AMNET Assessment Categories

- Excellent
- Good
- Fair
- Poor
- Not Sampled

— Major River/Stream

⬡ Watershed Management Area

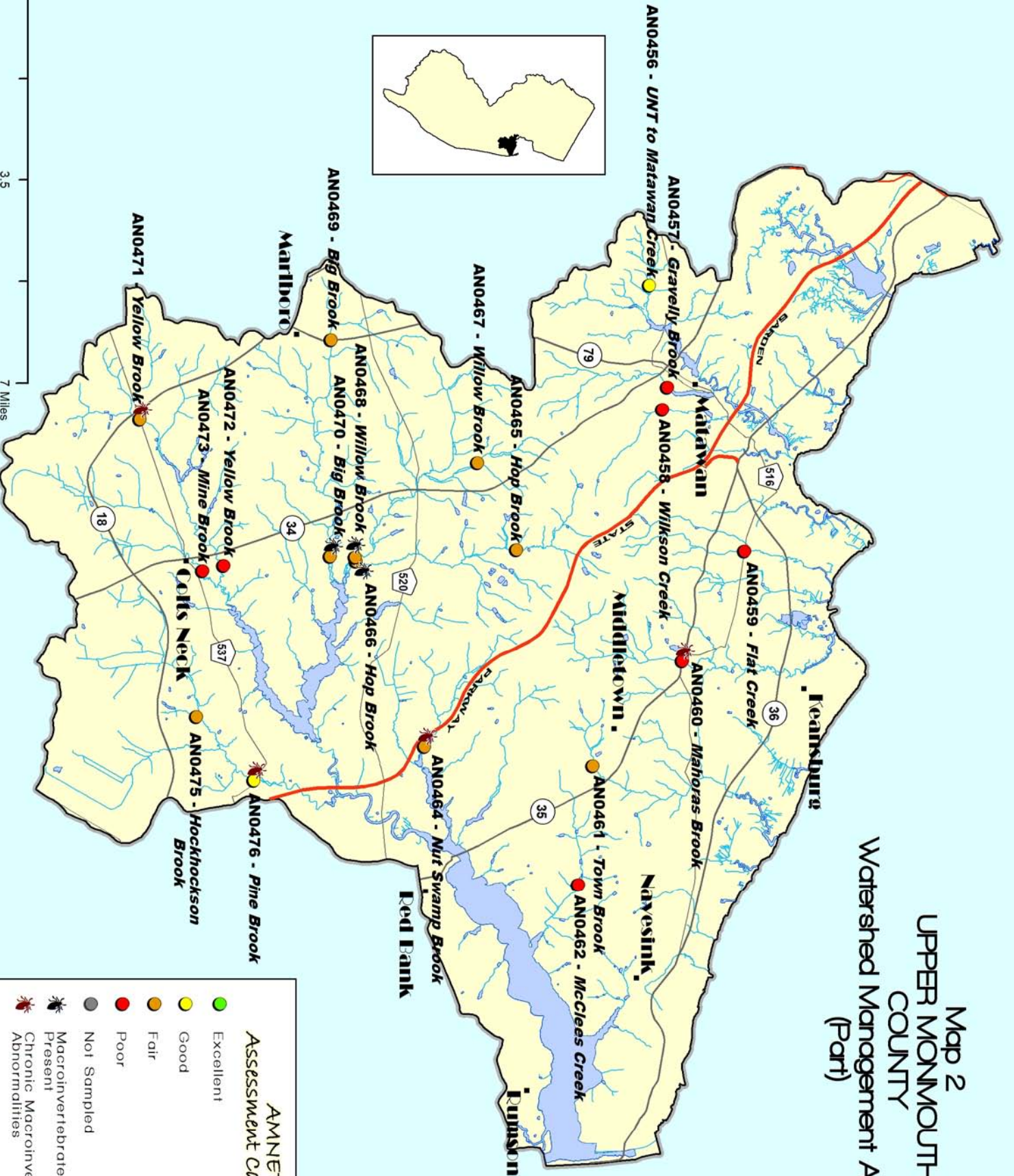
■ Pinelands

■ Pinelands 5 Kilometer Buffer

□ Non-Pinelands

0 10 20 Miles
1 inch equals 11.05 miles

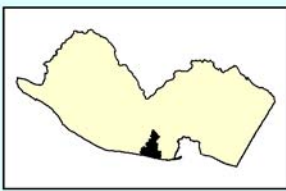
Map 2 UPPER MONMOUTH COUNTY Watershed Management Area 12 (Part)



ANNET Assessment Categories	
	Excellent
	Good
	Fair
	Poor
	Not Sampled
	Macroinvertebrate Abnormalities Present
	Chronic Macroinvertebrate Abnormalities

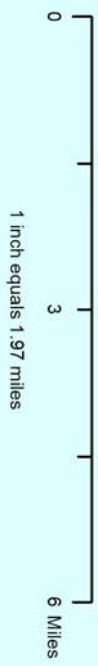
0 3.5 7 Miles
1 inch equals 2.27 miles

Map 3 LOWER MONMOUTH COUNTY Watershed Management Area 12 (Part)

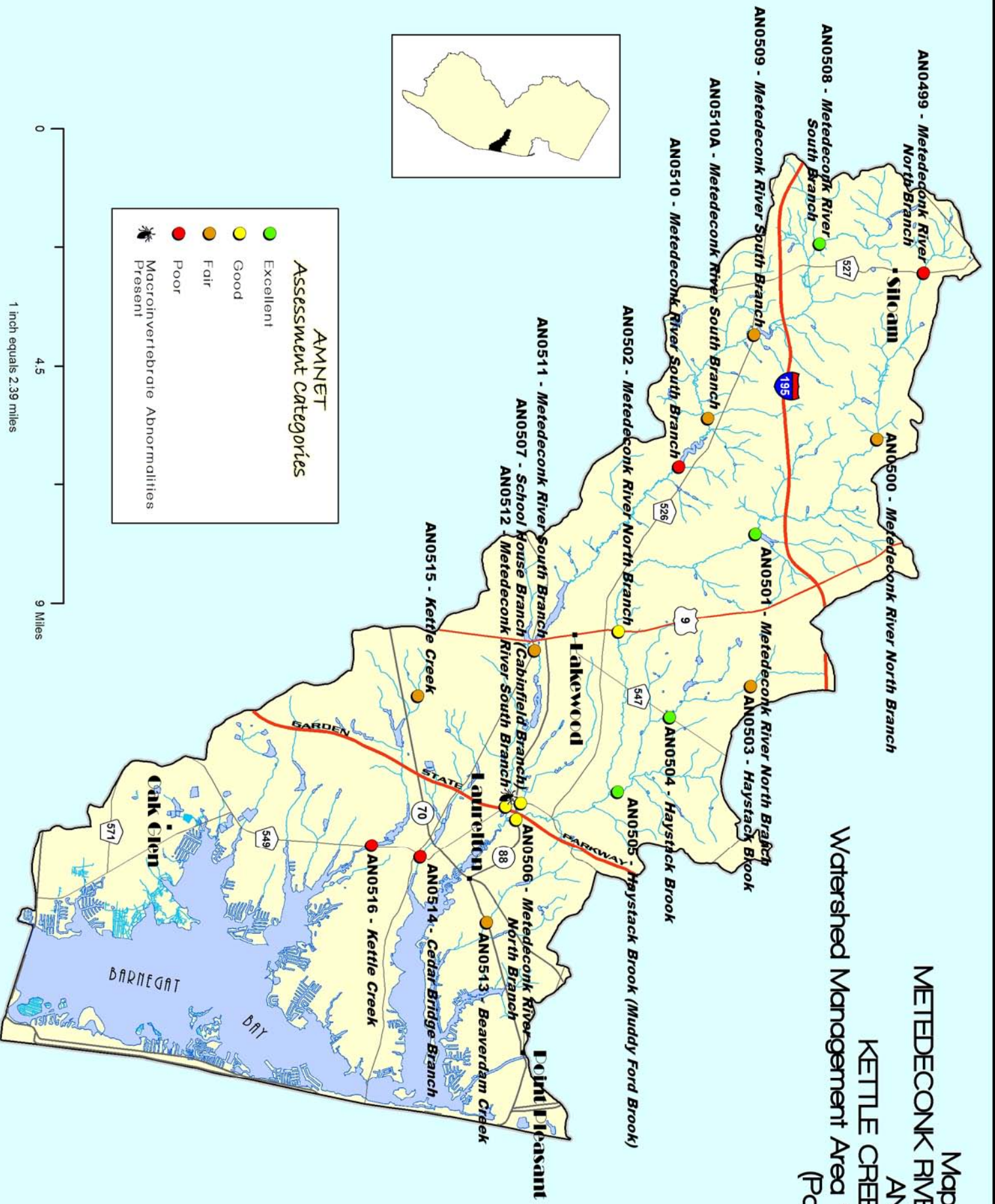


AMNET
Assessment Categories

- Excellent
- Good
- Fair
- Poor
- Macroinvertebrate Abnormalities Present



Map 4
**METEDECONK RIVER
 AND
 KETTLE CREEK
 Watershed Management Area 13
 (Part)**

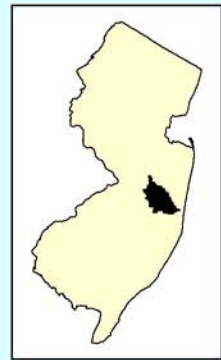


**AMNET
 Assessment Categories**

- Excellent
- Good
- Fair
- Poor
- Macroinvertebrate Abnormalities Present



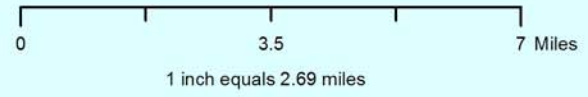
Map 5 TOMS RIVER Watershed Management Area 13 (Part)



**AMNET
Assessment Categories**

- Excellent
- Good
- Fair
- Poor
- Macroinvertebrate Abnormalities Present
- Chronic Macroinvertebrate Abnormalities

- Pinelands
- Pinelands 5 Kilometer Buffer
- Non-Pinelands



Map 6
 SOUTHERN OCEAN COUNTY
 Watershed Management Area 13
 (Part)



0 4 8 Miles

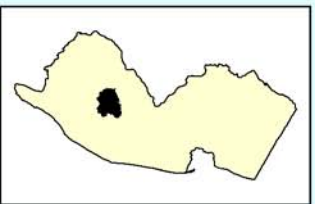
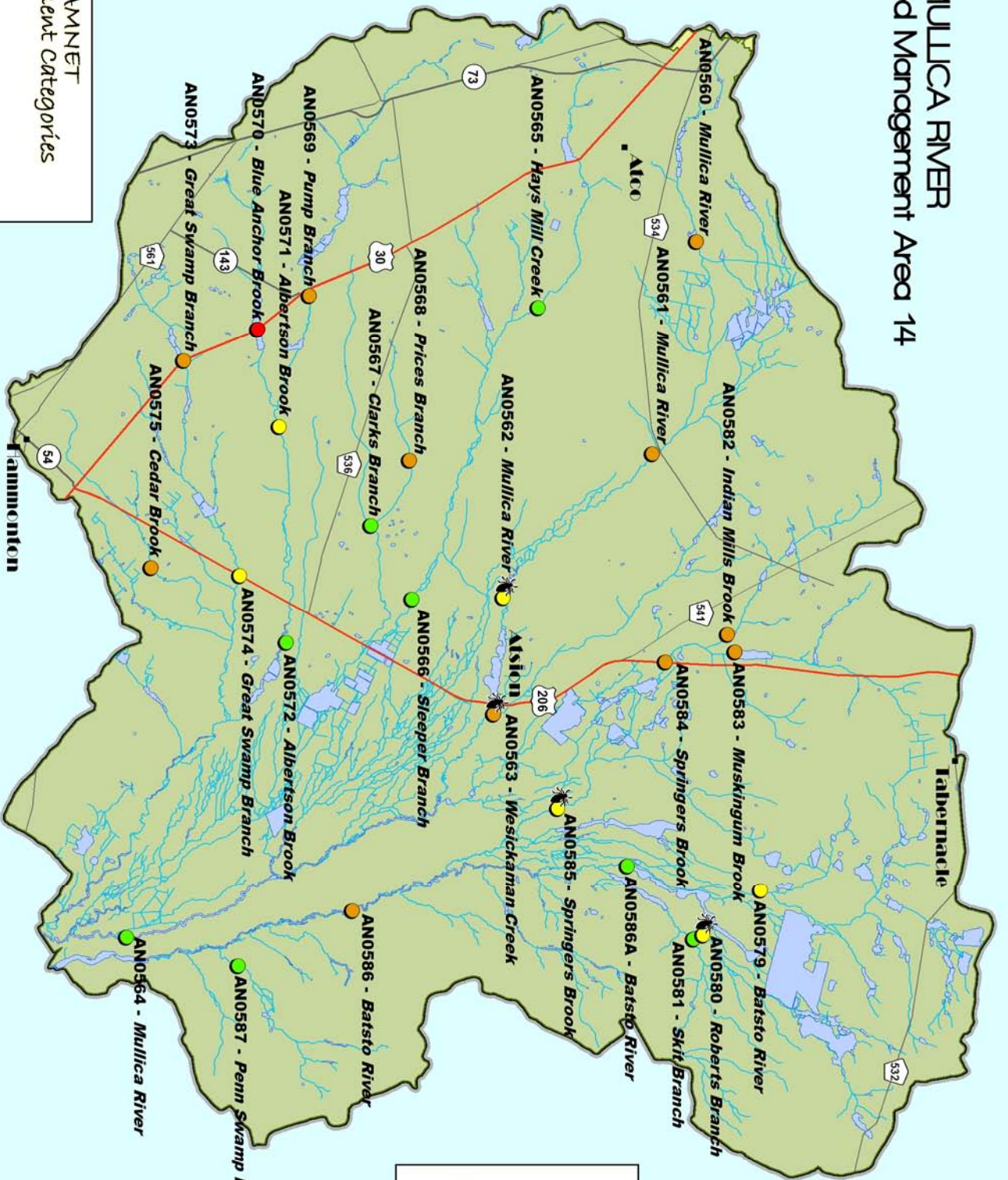
1 inch equals 3.12 miles

AMNET
 Assessment Categories

- Excellent
- Good
- Fair
- Poor
- Macroinvertebrate Abnormalities Present

- Pinelands
- Pinelands 5 Kilometer Buffer
- Non-Pinelands

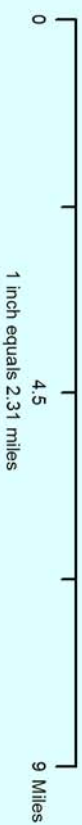
Map 7 UPPER MULLICA RIVER Watershed Management Area 14 (Part)



AMNET Assessment Categories

- Excellent
- Good
- Fair
- Poor
- 🐛 Macroinvertebrate Abnormalities Present

- Pinelands
- Pinelands 5 Kilometer Buffer



Map 8 LOWER MULUCA RIVER Watershed Management Area 14 (Part)

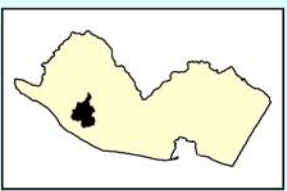
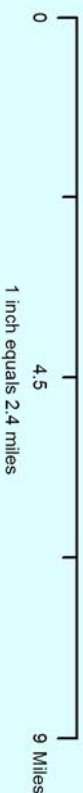


**AMNET
Assessment Categories**

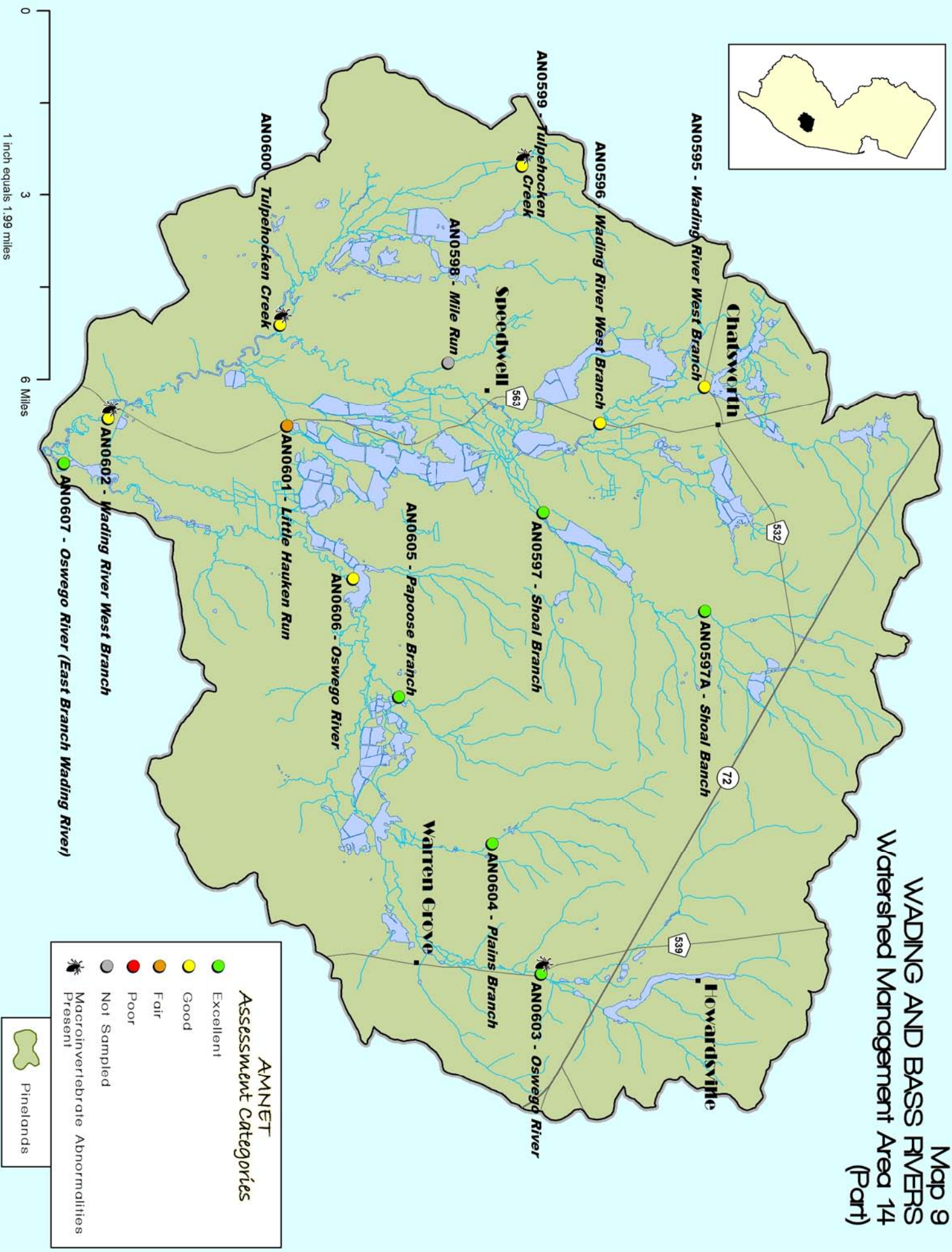
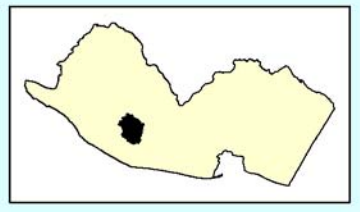
- Excellent
- Good
- Fair
- Poor

● Macroinvertebrate Abnormalities Present
● Chronic Macroinvertebrate Abnormalities

 Pinelands
 Pinelands 5 Kilometer Buffer



Map 9 WADING AND BASS RIVERS Watershed Management Area 14 (Part)

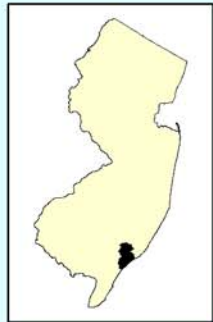


**AMNET
Assessment Categories**

- Excellent
- Good
- Fair
- Poor
- Not Sampled
- Macroinvertebrate Abnormalities Present

Pinelands

Map 10
 EASTERN
 ATLANTIC
 COUNTY
 Watershed
 Management
 Area
 15
 (Part)



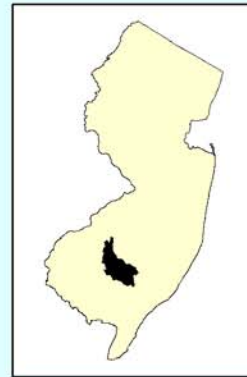
**AMNET
 Assessment Categories**

- Excellent
- Good
- Fair
- Poor

- Pinelands
- Pinelands 5 Kilometer Buffer
- Non-Pinelands

0 2 4 Miles
 1 inch equals 1.68 miles

Map 11 UPPER GREAT EGG HARBOR RIVER Watershed Management Area 15 (Part)



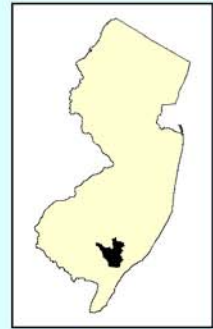
**AMNET
Assessment Categories**

- Excellent
- Good
- Fair
- Poor
- Macroinvertebrate Abnormalities Present

- Pinelands
- Pinelands 5 Kilometer Buffer

0 3.5 7 Miles
1 inch equals 2.62 miles

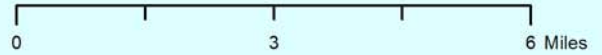
Map 12
 LOWER GREAT EGG HARBOR RIVER
 Watershed
 Management
 Area
 15
 (Part)



**AMNET
 Assessment Categories**

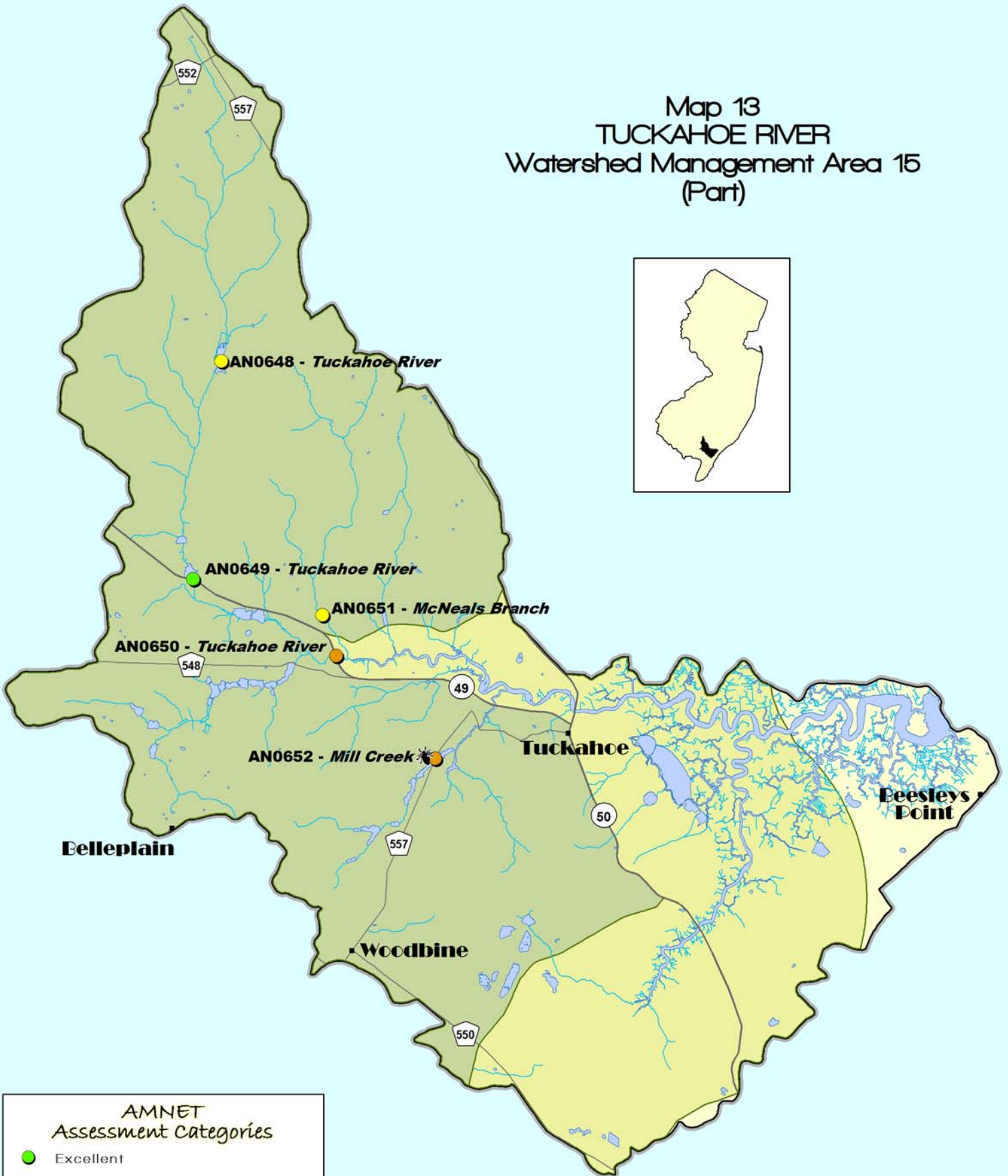
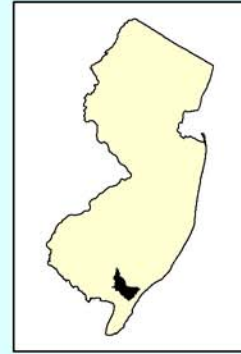
- Excellent
- Good
- Fair
- Poor
- Macroinvertebrate Abnormalities Present

- Pinelands
- Pinelands 5 Kilometer Buffer
- Non-Pinelands



1 inch equals 2.24 miles

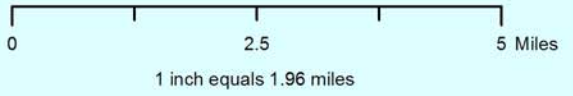
Map 13 TUCKAHOE RIVER Watershed Management Area 15 (Part)



**AMNET
Assessment Categories**

- Excellent
- Good
- Fair
- Poor
- Macroinvertebrate Abnormalities Present

- Pinelands
- Pinelands 5 Kilometer Buffer
- Non-Pinelands



Map 14
 CAPE MAY COUNTY
 Watershed
 Management
 Area
 16
 (Part)



AMNET Assessment Categories

- Excellent
- Good
- Fair
- Poor
- Not Sampled

- Pinelands
- Pinelands 5 Kilometer Buffer
- Non-Pinelands

Table 2
Comparative Scores / Ratings (see notes)

Watershed Management Areas 12, 13, 14, 15, and 16

Station	Index name	Rnd 2 Score	Rnd 3 Score	Rnd 2 Rating	Rnd 3 Rating	Change in Rating	Rnd 3 Habitat Score	WMA	Station	Index name	Rnd 2 Score	Rnd 3 Score	Rnd 2 Rating	Rnd 3 Rating	Change in Rating	Rnd 3 Habitat Score	WMA
456	CPMI	4	14	Poor	Good	+	121	12	500	CPMI	8	14	Fair	Good	+	133	13
457	CPMI	0	0	Poor	Poor	/	112	12	501	CPMI	10	24	Fair	Excellent	+	154	13
458	CPMI	4	2	Poor	Poor	/	135	12	502	CPMI	14	18	Good	Good	/	133	13
459	CPMI	4	2	Poor	Poor	/	94	12	503	CPMI	4	6	Poor	Fair	+	120	13
460	CPMI	12	4	Good	Poor	-	90	12	504	CPMI	6	24	Fair	Excellent	+	147	13
461	CPMI	4	6	Poor	Fair	+	108	12	505	CPMI	24	24	Excellent	Excellent	/	167	13
462	CPMI	6	4	Fair	Poor	-	144	12	506	CPMI	20	16	Good	Good	/	166	13
464	CPMI	6	6	Fair	Fair	/	101	12	507	CPMI	10	16	Fair	Good	+	157	13
465	CPMI	4	6	Poor	Fair	+	144	12	508	CPMI	10	24	Fair	Excellent	+	169	13
466	CPMI	10	8	Fair	Fair	/	125	12	509	PMI	36.83	36.59	Fair	Fair	/	119	13
467	CPMI	6	6	Fair	Fair	/	132	12	510	PMI	32.23	30.15	Poor	Poor	/	161	13
468	CPMI	8	6	Fair	Fair	/	115	12	510A	PMI	53.33	29.12	Fair	Poor	-	159	13
469	CPMI	10	6	Fair	Fair	/	103	12	511	PMI	42.49	37.39	Fair	Fair	/	180	13
470	CPMI	12	10	Good	Fair	-	145	12	512	CPMI	10	16	Fair	Good	+	150	13
471	CPMI	8	6	Fair	Fair	/	117	12	513	CPMI	2	6	Poor	Fair	+	149	13
472	CPMI	8	4	Fair	Poor	-	133	12	514	CPMI	2	4	Poor	Poor	/	79	13
473	CPMI	6	4	Fair	Poor	-	154	12	515	CPMI	8	6	Fair	Fair	/	171	13
475	CPMI	4	6	Poor	Fair	+	143	12	517	CPMI	4	8	Poor	Fair	+	169	13
476	CPMI	10	12	Fair	Good	+	127	12	518	CPMI	4	8	Poor	Fair	+	146	13
477	CPMI	0	8	Poor	Fair	+	146	12	519	PMI	70.71	57.76	Excellent	Good	-	164	13
479	CPMI	4	8	Poor	Fair	+	150	12	519A	CPMI	12	12	Good	Good	/	155	13
480	CPMI	10	6	Fair	Fair	/	154	12	520	PMI	69.71	50.84	Excellent	Fair	-	162	13
481	CPMI	8	8	Fair	Fair	/	114	12	521	PMI	63.70	64.56	Excellent	Excellent	/	172	13
482	CPMI	8	14	Fair	Good	+	151	12	522	PMI	66.78	68.29	Excellent	Excellent	/	175	13
483	CPMI	2	10	Poor	Fair	+	168	12	523	PMI	68.09	66.11	Excellent	Excellent	/	174	13
484	CPMI	10	8	Fair	Fair	/	167	12	524	CPMI	22	26	Excellent	Excellent	/	179	13
485	CPMI	2	2	Poor	Poor	/	172	12	525A	PMI	48.89	38.08	Fair	Fair	/	180	13
486	CPMI	2	8	Poor	Fair	+	122	12	526	PMI	49.52	37.63	Fair	Fair	/	184	13
487	CPMI	2	8	Poor	Fair	+	132	12	527	PMI	55.55	70.74	Fair	Excellent	+	171	13
488	CPMI	2	8	Poor	Fair	+	146	12	528	PMI	50.93	70.91	Fair	Excellent	+	152	13
489	CPMI	6	16	Fair	Good	+	95	12	529	PMI	69.41	70.24	Excellent	Excellent	/	188	13
490	CPMI	14	8	Good	Fair	-	139	12	530	PMI	55.35	59.11	Fair	Good	+	169	13
491	CPMI	2	4	Poor	Poor	/	151	12	531	PMI	68.50	68.15	Excellent	Excellent	/	187	13
492	CPMI	20	8	Good	Fair	-	158	12	532	PMI	45.76	43.08	Fair	Fair	/	156	13
493	CPMI	10	10	Fair	Fair	/	145	12	533	PMI	55.05	59.86	Fair	Good	+	168	13
494	CPMI	8	10	Fair	Fair	/	160	12	534	PMI	61.23	51.37	Good	Fair	-	170	13
495	CPMI	16	26	Good	Excellent	+	176	12	535	PMI	65.87	67.89	Excellent	Excellent	/	177	13
496	CPMI	10	18	Fair	Good	+	152	12	536	PMI	74.58	76.25	Excellent	Excellent	/	181	13
497	CPMI	20	28	Good	Excellent	+	153	12	537	PMI	53.16	62.12	Fair	Good	+	128	13
499	CPMI	2	4	Poor	Poor	/	181	13	538	PMI	56.75	49.97	Good	Fair	-	117	13

NOTES:

Comparison of NJ impairment score results between earliest and latest sampling dates:

- nd no data
- + indicates positive change in rating
- indicates negative change in rating
- / indicates no change in rating

CPMI	Value	PMI	Value	HGMI	Value	Habitat Score	Value
Excellent	22.0-30.0	Excellent	63.0-100.0	Excellent	63.0-100.0	Optimal	160 - 200
Good	11.0-21.0	Good	56.0-62.99	Good	42.0-62.99	Sub-optimal	110 - 159
Fair	6.0-10.0	Fair	34.0-55.99	Fair	21.0-41.99	Marginal	60 - 109
Poor	0-5.99	Poor	0-33.99	Poor	0-20.99	Poor	< 60

New Jersey AMNET Study — Round 3 Atlantic Region

Table 2
Comparative Scores / Ratings (see notes)

Watershed Management Areas 12, 13, 14, 15, and 16

Station	Index name	Rnd 2 Score	Rnd 3 Score	Rnd 2 Rating	Rnd 3 Rating	Change in Rating	Rnd 3 Habitat Score	WMA	Station	Index name	Rnd 2 Score	Rnd 3 Score	Rnd 2 Rating	Rnd 3 Rating	Change in Rating	Rnd 3 Habitat Score	WMA
539	PMI	62.78	50.64	Good	Fair	—	153	13	578	PMI	55.18	56.64	Fair	Good	+	173	14
540	PMI	50.00	47.91	Fair	Fair	/	167	13	579	PMI	62.93	59.85	Good	Good	/	160	14
541	PMI	67.91	61.24	Excellent	Good	—	163	13	580	PMI	51.12	61.98	Fair	Good	+	167	14
542	PMI	49.00	58.69	Fair	Good	+	154	13	581	PMI	62.47	64.17	Good	Excellent	+	172	14
543	PMI	47.91	52.77	Fair	Fair	/	152	13	582	PMI	41.94	31.31	Fair	Poor	—	161	14
544	PMI	30.05	46.31	Poor	Fair	+	119	13	583	PMI	38.46	46.14	Fair	Fair	/	135	14
545	PMI	48.92	44.33	Fair	Fair	/	160	13	584	PMI	58.21	43.83	Good	Fair	—	154	14
546	PMI	68.10	60.87	Excellent	Good	—	181	13	585	PMI	43.72	51.86	Fair	Fair	/	159	14
547	PMI	68.38	68.87	Excellent	Excellent	/	181	13	586	PMI	72.93	51.92	Excellent	Fair	—	167	14
548	PMI	70.33	64.17	Excellent	Excellent	/	183	13	586A	PMI	72.39	69.88	Excellent	Excellent	/	156	14
549	PMI	69.30	63.06	Excellent	Excellent	/	174	13	587	PMI	60.35	67.49	Good	Excellent	+	166	14
550	PMI	61.04	63.61	Good	Excellent	+	181	13	590	PMI	41.21	54.72	Fair	Fair	/	150	14
551	PMI	72.36	68.09	Excellent	Excellent	/	149	13	591	PMI	62.76	62.78	Good	Good	/	167	14
552	PMI	74.73	77.75	Excellent	Excellent	/	189	13	592	PMI	77.48	72.90	Excellent	Excellent	/	177	14
554	PMI	45.86	20.39	Fair	Poor	—	173	13	593	PMI	64.62	61.28	Excellent	Good	—	162	14
555	PMI	20.38	23.95	Poor	Poor	/	155	13	594	PMI	57.23	55.02	Good	Fair	—	154	14
555A	PMI	68.41	66.57	Excellent	Excellent	/	177	13	595	PMI	49.73	54.81	Fair	Fair	/	156	14
556	PMI	53.53	44.83	Fair	Fair	/	174	13	596	PMI	56.17	51.80	Good	Fair	—	183	14
557	PMI	63.17	60.71	Excellent	Good	—	149	13	597	PMI	59.53	52.01	Good	Fair	—	174	14
557A	PMI	74.11	71.96	Excellent	Excellent	/	174	13	597A	PMI	55.00	68.06	Fair	Excellent	+	178	14
559	PMI	56.30	54.05	Good	Fair	—	177	13	598	PMI	58.46	nd	Good	no sample	nd		14
559A	PMI	72.94	59.07	Excellent	Good	—	145	13	599	PMI	67.04	58.41	Excellent	Good	—	184	14
560	PMI	43.65	35.88	Fair	Fair	/	154	14	600	PMI	59.84	45.33	Good	Fair	—	174	14
561	PMI	61.93	54.90	Good	Fair	—	175	14	601	PMI	49.29	46.64	Fair	Fair	/	175	14
562	PMI	67.68	61.76	Excellent	Good	—	183	14	602	PMI	65.99	57.73	Excellent	Good	—	164	14
563	PMI	65.81	54.82	Excellent	Fair	—	132	14	603	PMI	62.42	66.79	Good	Excellent	+	180	14
564	PMI	64.28	73.37	Excellent	Excellent	/	173	14	604	PMI	72.09	69.81	Excellent	Excellent	/	175	14
565	PMI	67.48	56.35	Excellent	Good	—	177	14	605	PMI	73.72	70.11	Excellent	Excellent	/	185	14
566	PMI	67.91	70.92	Excellent	Excellent	/	189	14	606	PMI	65.36	52.08	Excellent	Fair	—	186	14
567	PMI	57.83	64.17	Good	Excellent	+	183	14	607	PMI	59.28	64.17	Good	Excellent	+	179	14
568	PMI	46.57	39.55	Fair	Fair	/	192	14	610	PMI	64.61	65.21	Excellent	Excellent	/	185	14
569	PMI	46.75	32.88	Fair	Poor	—	174	14	611	PMI	63.37	63.17	Excellent	Excellent	/	177	14
570	PMI	37.67	28.90	Fair	Poor	—	163	14	612	PMI	66.90	62.92	Excellent	Good	—	178	14
571	PMI	26.21	50.88	Poor	Fair	+	188	14	613	PMI	61.79	59.07	Good	Good	/	146	14
572	PMI	54.82	68.44	Fair	Excellent	+	179	14	614	PMI	65.34	59.08	Excellent	Good	—	172	14
573	PMI	52.23	38.86	Fair	Fair	/	154	14	615	PMI	43.59	50.16	Fair	Fair	/	141	14
574	PMI	59.78	57.99	Good	Good	/	141	14	616	PMI	53.25	43.13	Fair	Fair	/	138	15
575	PMI	52.38	44.33	Fair	Fair	/	148	14	617	PMI	55.82	60.96	Fair	Good	+	130	15
577	PMI	29.51	32.28	Poor	Poor	/	158	14	618	PMI	41.57	49.36	Fair	Fair	/	167	15

NOTES:

Comparison of NJ impairment score results between earliest and latest sampling dates:

- nd no data
- + indicates positive change in rating
- indicates negative change in rating
- / indicates no change in rating

<u>CPMI</u>	<u>Value</u>	<u>PMI</u>	<u>Value</u>	<u>HGMI</u>	<u>Value</u>	<u>Habitat Score</u>	<u>Value</u>
Excellent	22.0-30.0	Excellent	63.0-100.0	Excellent	63.0-100.0	Optimal	160 - 200
Good	11.0-21.0	Good	56.0-62.99	Good	42.0-62.99	Sub-optimal	110 - 159
Fair	6.0-10.0	Fair	34.0-55.99	Fair	21.0-41.99	Marginal	60 - 109
Poor	0-5.99	Poor	0-33.99	Poor	0-20.99	Poor	< 60

Table 2
Comparative Scores / Ratings (see notes)

Watershed Management Areas 12, 13, 14, 15, and 16

Station	Index name	Rnd 2 Score	Rnd 3 Score	Rnd 2 Rating	Rnd 3 Rating	Change in Rating	Rnd 3 Habitat Score	WMA	Station	Index name	Rnd 2 Score	Rnd 3 Score	Rnd 2 Rating	Rnd 3 Rating	Change in Rating	Rnd 3 Habitat Score	WMA
619	PMI	47.10	41.98	Fair	Fair	/	149	15	765	PMI	62.25	59.21	Good	Good	/	163	16
620	PMI	26.37	42.48	Poor	Fair	+	156	15	766	PMI	80.88	68.47	Excellent	Excellent	/	171	16
621	PMI	57.36	61.07	Good	Good	/	187	15	769	PMI	60.95	49.34	Good	Fair	—	178	16
622	PMI	50.77	59.29	Fair	Good	+	178	15	771	CPMI	2	8	Poor	Fair	+	121	16
623	PMI	66.70	75.47	Excellent	Excellent	/	182	15									
624	PMI	41.07	42.90	Fair	Fair	/	169	15									
625	PMI	60.78	78.36	Good	Excellent	+	156	15									
626	PMI	73.37	71.62	Excellent	Excellent	/	173	15									
627	PMI	60.93	46.03	Good	Fair	—	152	15									
628	PMI	37.52	19.83	Fair	Poor	—	141	15									
629	PMI	55.87	60.02	Fair	Good	+	167	15									
630	PMI	47.74	60.90	Fair	Good	+	179	15									
631	PMI	30.64	21.23	Poor	Poor	/	170	15									
632	PMI	55.88	43.03	Fair	Fair	/	161	15									
633	PMI	47.20	59.64	Fair	Good	+	136	15									
634	PMI	43.87	58.33	Fair	Good	+	161	15									
635	PMI	67.56	71.75	Excellent	Excellent	/	165	15									
636	PMI	42.77	33.60	Fair	Poor	—	140	15									
637	PMI	54.79	77.25	Fair	Excellent	+	172	15									
638	PMI	62.00	68.63	Good	Excellent	+	159	15									
639	PMI	64.12	61.91	Excellent	Good	—	134	15									
640	PMI	68.87	69.44	Excellent	Excellent	/	175	15									
640A	PMI	66.84	67.07	Excellent	Excellent	/	162	15									
640B	PMI	59.74	55.98	Good	Fair	—	153	15									
642	PMI	55.80	63.97	Fair	Excellent	+	171	15									
643	PMI	68.56	72.83	Excellent	Excellent	/	169	15									
644	PMI	65.57	51.17	Excellent	Fair	—	162	15									
645	PMI	62.38	66.20	Good	Excellent	+	161	15									
646	PMI	41.71	38.79	Fair	Fair	/	132	15									
647	PMI	72.15	64.49	Excellent	Excellent	/	185	15									
648	PMI	53.70	56.32	Fair	Good	+	156	15									
649	PMI	50.19	68.04	Fair	Excellent	+	164	15									
650	PMI	58.08	55.46	Good	Fair	—	164	15									
651	PMI	62.63	58.52	Good	Good	/	175	15									
652	PMI	59.78	46.51	Good	Fair	—	181	15									

NOTES:

Comparison of NJ impairment score results between earliest and latest sampling dates:

- nd no data
- + indicates positive change in rating
- indicates negative change in rating
- / indicates no change in rating

<u>CPMI</u>	<u>Value</u>	<u>PMI</u>	<u>Value</u>	<u>HGMI</u>	<u>Value</u>	<u>Habitat Score</u>	<u>Value</u>
Excellent	22.0-30.0	Excellent	63.0-100.0	Excellent	63.0-100.0	Optimal	160 - 200
Good	11.0-21.0	Good	56.0-62.99	Good	42.0-62.99	Sub-optimal	110 - 159
Fair	6.0-10.0	Fair	34.0-55.99	Fair	21.0-41.99	Marginal	60 - 109
Poor	0-5.99	Poor	0-33.99	Poor	0-20.99	Poor	< 60

Table 3

Macroinvertebrate Abnormalities (see notes)

Watershed Management Areas 12, 13, 14, 15, and 16

Station	2000	2005	WMA		Station	2000	2005	WMA				
456	1/20		12		600		1/8	14				
457	1/14		12		602		1/65	14				
459	1/22		12		603		3	14				
460	1/78	+1	12		605	1/28		14				
464	1/46	1/45	12		615		2/48	14				
466		2/60	12		627	2/70		15				
467	2/37		12		628	1/40		15				
468		1/57	12		630		1/97	15				
470		2/52	12		637		1	15				
471	2/34	1/47	12		640B		1/65	15				
476	1/37	1/26	12		642	1/45		15				
482	1/15		12		646	1/44		15				
487		1/54	12		652		1/96	15				
491		1/56	12									
498	2/19		12									
504	2/45		13									
507	1		13									
512		+1	13									
519		2/71	13									
519A		1/53	13									
521		2/99	13									
528	2/58	1/16	13									
529	2/38		13									
538	1/33		13									
556		1/33	13									
559A		3/106	13									
562		2/47	14									
563		4/61	14									
570	1/38		14									
575	2/70		14									
578		1/29	14									
580		1/87	14									
585		+1	14									
592	2/63		14									
593	1/68	3/44	14									
599		2	14									

NOTES:

chironomids with deformities / # chironomids examined

+ — indicates the number of non-chironomids having abnormalities

abnormalities are considered chronic if they appear in both the 2000 and the 2005 columns

Table 4 — HABITAT ASSESSMENT FOR HIGH GRADIENT STREAMS

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Velocity/Depth Regimes	All 4 velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (slow is <0.3 m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity / depth regime (usually slow-deep).
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yrs.) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. In stream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Bank Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, under story shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

HABITAT SCORES	VALUE
OPTIMAL	160 X 200
SUB-OPTIMAL	110 X 159
MARGINAL	60 X 109
POOR	< 60

Table 4 (cont.) — HABITAT ASSESSMENT FOR *LOW GRADIENT STREAMS*

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and not transient).	30-50% mix of stable habitat; well suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% <20% for low-gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yrs.) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. In stream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 2 to 1 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Bank Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, under story shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally. Note: determine left or right side by facing downstream.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

HABITAT SCORES	VALUE
OPTIMAL	160 X 200
SUB-OPTIMAL	110 X 159
MARGINAL	60 X 109
POOR	< 60

Table 5 - List of AMNET sites with Parameters that did not attain standards:

Amnet#	Stream Name	Station Location	Non-Attaining Parameter(s)
AN0456*	UNT to Matawan Ck	Morganville Rd, Madison Twp	pH
AN0457	Gravelly Bk	Church Rd, Aberdeen Twp	DO, pH, Tot Phos
AN0458	Wilkson Ck	Church Rd, Aberdeen Twp	DO, pH, Tot Phos
AN0459	Flat Ck	Rt 516 (Middle Rd), Hazlet Twp	DO
AN0460	Mahoras Bk	Rt 35, Holmdel Twp	DO
AN0461	Town Bk	Spruce Dr, Middletown Twp	DO
AN0462	McClees Ck	Whipporwill Rd, Middletown Twp	DO, pH, Turbidity
AN0465	Hop Bk	Roberts Rd, Holmdel Twp	Temp, Tot Phos, TSS
AN0466	Hop Bk	Willow Brook Rd, Holmdel Twp	Temp, Tot Phos, TSS
AN0467	Willow Bk	Schank Rd, Holmdel Twp	Tot Phos, TSS
AN0468	Willow Bk	Willow Brook Rd, Colts Neck Twp	Tot Phos, TSS
AN0469	Big Bk	Rt 79, Marlboro Twp	Tot Phos
AN0470	Big Bk	Cross Rd, Colts Neck Twp	Tot Phos
AN0473	Mine Bk	Creamery Rd, Colts Neck Twp	pH
AN0475	Hockhockson Bk	Hockhockson Rd, Colts Neck Twp	pH
AN0476*	Pine Bk	Rt 537 (Tinton Ave), Shrewsbury Twp	pH
AN0477	Whale Pond Bk	Larchwood Ave, Ocean Twp	pH
AN0479	Jumping Bk	Essex Rd, New Shrewsbury Boro	pH
AN0480	Jumping Bk	Rt. 33 / Corlies Ave, Neptune Twp	pH
AN0482*	Shark R	Remsen Mill Rd, Neptune Twp	DO, pH
AN0483	Wreck Pd Bk	Old Mill Rd, Wall Twp	pH
AN0484	Hannabrand Bk	Old Mill Rd, Wall Twp	pH
AN0486	Debois Ck	Rt 33, Freehold Twp	Tot Phos, TSS
AN0487	Debois Ck	Strickland Rd, Howell Twp	Tot Phos, TSS
AN0488	UNT to Manasquan R	Strickland Rd, Howell Twp	Tot Phos, TSS
AN0489*	Manasquan R	Rt 9, Howell Twp	pH, Temp, Tot Phos, TSS
AN0490	Manasquan R	West Farms Rd, Howell Twp	pH, Tot Phos, TSS
AN0491	Marsh Bog Bk	Cranbury Rd, Howell Twp	pH, Tot Phos
AN0492	Marsh Bog Bk	Yellow Brook Rd, Howell Twp	pH, Tot Phos
AN0493	Manasquan R	Rt 547, Howell Twp	pH, Tot Phos, TSS
AN0494	Mingamahone Bk	Cranbury Rd, Howell Twp	pH, TSS, Turbidity
AN0496*	Stan Bk	Easy St, Howell Twp	pH
AN0497*	Squankum Bk	Rt 549, Howell Twp	pH
AN0499	Metedeconk R N Br	Rt 527, Freehold Twp	DO, pH, Tot Phos
AN0500*	Metedeconk R N Br	Jackson Mills Rd (CR23), Freehold Twp	DO, pH, Tot Phos
AN0501*	Metedeconk R N Br	Aldrich Rd, Howell Twp	DO, pH, Temp, Tot Phos
AN0502*	Metedeconk R N Br	Rt 9, Lakewood Twp	pH, Temp
AN0503	Haystack Bk	Southard Rd, Howell Twp	pH, Tot Phos
AN0504*	Haystack Bk	Rt 547, Howell Twp	pH, Tot Phos
AN0505*	Haystack Bk (Muddy Ford Bk)	Ramtown-Greenville Rd, Howell Twp	pH, Tot Phos, TSS
AN0506*	Metedeconk R N Br	Rt 88, Brick Twp	pH, Temp
AN0507*	School House Br (Cabinfield Br)	Lanes Mill Rd, Lakewood Twp	pH, Temp
AN0508*	Metedeconk R S Br	Leesville-Siloam Rd (Diamond Rd), Jackson Twp	pH
AN0509	Metedeconk R S Br	Jacksons Mill Rd (out. Jacksons Mill Pond), Jackson Twp	pH
AN0510	Metedeconk R S Br	Bennetts Mill Rd (out. Lake Enno), Jackson Twp	pH, Tot Phos
AN0510A	S Br Metedeconk R	Cooks Bridge Rd, Jackson Twp	pH
AN0511	Metedeconk R S Br	Cedar Bridge Ave, Lakewood Twp	pH
AN0512*	Metedeconk R S Br	Chambers Bridge Rd, Brick Twp	pH

* Excellent or Good AMNET site

Table 5 (cont.) - List of AMNET sites with Parameters that did not attain standards:

Amnet#	Stream Name	Station Location	Non-Attaining Parameter(s)
AN0514	Cedar Bridge Br	Moore Rd (Brick Blvd), Brick Twp	pH
AN0517	Toms R	Paint Island Rd, Millstone Twp	pH, Tot Phos
AN0518	Toms R	Rt 571, Millstone Twp	pH, Tot Phos
AN0519*	Toms R	Rt 528, Jackson Twp	pH
AN0519A*	Toms R	Anderson Rd, Jackson Twp	pH, Tot Phos
AN0520	Toms R trib	Rt 528, Jackson Twp	pH
AN0523*	Toms R	S Hope Chapel Rd, Jackson Twp	pH
AN0524*	Toms R	Rt 571, Dover Twp	pH
AN0525A	UNT to Ridgeway Br	Colliers Mill WMA (outlet of Turn Mill Pond), Jackson	pH
AN0526	Shannae Bk	Colliers Mill Wildlife Area (out. Lake Success), Jackson	pH
AN0528*	Ridgeway Br	Rt 70, Manchester Twp	pH
AN0530*	Blacks Br	Rt 70, Manchester Twp	pH
AN0533*	Union Br	Colonial Dr, Manchester Twp	pH
AN0534	Union Br	Beacon Ave in Pine Lakes Park, Manchester Twp	pH
AN0535*	Toms R	Oak Ridge Pkwy, Dover Twp	pH
AN0537*	Wrangel Bk	Mule Rd (Rt 642), Berkeley Twp	pH
AN0538	Sunken Br	Mule Rd (Rt 642), Berkeley Twp	pH
AN0539	Wrangel Bk	Southampton Rd, Berkeley Twp	pH
AN0542*	Jakes Br	Dover Rd (Rt 618), Berkeley Twp	DO
AN0543	Jakes Br	Double Trouble Rd, Berkeley Twp	DO
AN0549*	Cedar Ck	Rt 9 (USGS gage), Lacey Twp	pH
AN0550*	Long Br	Lacey Twp nr. Ironside Gun Club, Ocean Twp	DO
AN0552*	Oyster Ck	Rt 532 USGS gauge, Ocean Twp	DO
AN0555	Mill Ck	Rt 72, Stafford Twp	pH
AN0555A*	Mill Ck	off Hay Rd, Stafford Twp	pH
AN0556	Cedar Run	Rt 9, Stafford Twp	pH
AN0559	Mill Br of Tuckerton Ck	Nugentown Rd, Little Egg Harbor Twp	pH
AN0560	Mullica R	Medford Rd, Shamong Twp	DO, pH
AN0561	Mullica R	off Jackson Rd, Shamong Twp	DO
AN0562*	Mullica R	Burnt House Rd (nr Goshen Pond outlet), Shamong Twp	DO
AN0564*	Mullica R	Constable Bridge, Mullica Twp	pH
AN0565*	Hays Mill Ck	Tremont Ave, Waterford Twp	pH
AN0566*	Sleeper Br	Parkdale, Waterford Twp	pH
AN0569	Pump Br	Old White Horse Pike, Winslow Twp	pH
AN0570	Blue Anchor Bk	Rt 30, Winslow Twp	pH, Temp
AN0571	Albertson Bk	off Wharton Ave (Fleming Pike), Winslow Twp	pH
AN0572*	Albertson Bk	Old Bridge Crossing, Hammonton	pH
AN0573	Gr Swamp Br	Rt 30, Winslow Twp	pH, Nitrate
AN0574*	Gr Swamp Br	Rt 206, Hammonton	pH, Nitrate
AN0575	Cedar Bk	Myrtle Ave (Columbia Rd), Hammonton	pH, Nitrate
AN0577	Hammonton Ck	Boyer Rd, Hammonton	pH, Tot Phos, Nitrate
AN0579*	Batsto R	Carranza Rd, Shamong Twp	pH
AN0582	Indian Mills Bk	Willow Grove Rd, Shamong Twp	pH
AN0583	Muskingum Bk	Willow Grove Rd (outlet of lake), Shamong Twp	pH
AN0584	Springers Bk	Rt 206, Shamong Twp	pH
AN0585	Springers Bk	Hampton Rd, Shamong Twp	pH
AN0586	Batsto R	Quaker Bridge, Washington Twp	pH
AN0586A*	Batsto R	Hampton Furnace, Tabernacle Twp	pH
AN0593*	Indian Cabin Ck	Fifth Ave, Mullica Twp	DO

* Excellent or Good AMNET site

Table 5 (cont.) - List of AMNET sites with Parameters that did not attain standards:

Amnet#	Stream Name	Station Location	Non-Attaining Parameter(s)
AN0601	Little Hauken Run	Rt 563, Washington Twp	Tot Phos
AN0602*	Wading R W Br	downstream of Rt 563, Washington Twp	Tot Phos
AN0615	Mattix Run (Frenches Ditch)	Moss Mill Rd, Galloway Twp	pH
AN0616	Absecon Ck N Br	Garden State Pkwy (north) near Mile Post 39.5, Hamilton Twp	pH
AN0618	Patcong Ck	Spruce Ave (CR 684), Egg Harbor	pH
AN0619	Maple Run (Asbury Run)	Mill Rd (CR 662), Northfield	pH
AN0620	Gr Egg Harbor R	Watsonstown-New Freedom Rd, Berlin	pH
AN0621*	Gr Egg Harbor R	Williamstown-New Freedom Rd, Winslow Twp	pH
AN0622*	Four Mile Br	Malaga Rd, Monroe Twp	pH
AN0623*	Gr Egg Harbor R	Winslow Rd, Winslow Twp	pH
AN0624	Squankum Br	Malaga Rd, Monroe Twp	pH
AN0625*	Gr Egg Harbor R	Rt 54, Folsom Boro	pH
AN0626*	Penny Pot Stream	Eighth Ave, Folsom Boro	pH
AN0627	Hospitality Br	Blue Bell Rd, Monroe Twp	pH
AN0628	Hospitality Br	Rt 538, Monroe Twp	pH
AN0629*	Faraway Br	Jackson Rd, Monroe Twp	pH
AN0631	Marsh Lake Br (Collings Br)	Unexpected Rd, Franklin Twp	pH
AN0632	Marsh Lake Br (Collings Br)	Blue Anchor Rd, Buena Vista Twp	pH
AN0633*	Hospitality Br	Rt 54, Folsom Boro	pH
AN0635*	Gr Egg Harbor R	Rt 559, Weymouth Twp	pH
AN0636	UNT to Deep Run	Rt 54, Buena Boro	pH
AN0637*	Deep Run	Rt 559, Hamilton Twp	pH
AN0638*	Mare Run	Rt 559, Hamilton Twp	pH
AN0639*	Watering Race	Rt 50 (Cape May Ave), Hamilton Twp	pH
AN0640*	Babcock Ck	Rt 322, Hamilton Twp	pH
AN0640A*	Babcock Ck	Holly St, Hamilton Twp	pH
AN0640B	Jack Pudding Br	Cologne Ave, Hamilton Twp	pH
AN0643*	South R	Estelle Ave, Hamilton Twp	pH
AN0644	South R	Forty Wire Rd, Weymouth Twp	pH
AN0645*	Stephens Ck	11th Ave, Estelle Manor	pH
AN0646	Stephens Ck	Rt 50, Estelle Manor	pH
AN0648*	Tuckahoe R	Cumberland Ave (Rt637), Estelle Manor	pH
AN0649*	Tuckahoe R	Rt 49 (Hunters Mill), Estelle Manor	pH
AN0650	Tuckahoe R	Rt 49 (Head of River), Estelle Manor	DO
AN0769	Old Robins Br	Beaver Causeway, Dennis Twp	pH
AN0771	Fishing Ck	Rt 47, Middle Twp	pH

* Excellent or Good AMNET site

Appendix A — Station Numbers and Locations for the Round 3 Atlantic Region AMNET Study

Site	Stream	Latitude Longitude	Watershed Management Area
AN0456	UNT to Matawan Ck	40 24'12.735"N 74 15'42.577"W	12
AN0457	Gravelly Bk	40 24'28.377"N 74 13'42.797"W	12
AN0458	Wilkson Ck	40 24'24.215"N 74 13'16.701"W	12
AN0459	Flat Ck	40 25'37.403"N 74 10'29.561"W	12
AN0460	Mahoras Bk	40 24'41.014"N 74 08'20.746"W	12
AN0461	Town Bk	40 23'20.121"N 74 06'17.813"W	12
AN0462	McClees Ck	40 23'06.687"N 74 03'58.023"W	12
AN0464	Nut Swamp Bk	40 20'48.837"N 74 06'41.162"W	12
AN0465	Hop Bk	40 22'12.645"N 74 10'32.421"W	12
AN0466	Hop Bk	40 19'48.015"N 74 10'19.853"W	12
AN0467	Willow Bk	40 21'37.789"N 74 12'14.399"W	12
AN0468	Willow Bk	40 19'47.304"N 74 10'24.318"W	12
AN0469	Big Bk	40 19'26.412"N 74 14'39.876"W	12
AN0470	Big Bk	40 19'24.881"N 74 10'25.215"W	12
AN0471	Yellow Bk	40 16'33.719"N 74 13'07.024"W	12
AN0472	Yellow Bk	40 17'49.057"N 74 10'14.063"W	12
AN0473	Mine Bk	40 17'30.242"N 74 10'09.093"W	12
AN0475	Hockhockson Bk	40 17'24.123"N 74 07'17.497"W	12
AN0476	Pine Bk	40 18'15.425"N 74 06'02.660"W	12
AN0477	Whale Pond Bk	40 16'31.284"N 74 00'35.573"W	12
AN0479	Jumping Bk	40 14'10.903"N 74 04'56.910"W	12
AN0480	Jumping Bk	40 12'11.845"N 74 03'51.907"W	12
AN0481	Shark River	40 13'42.032"N 74 07'28.261"W	12
AN0482	Shark River	40 11'55.088"N 74 04'11.362"W	12

Site	Stream	Latitude Longitude	Watershed Management Area
AN0483	Wreck Pond Bk	40 08'38.240"N 74 03'11.170"W	12
AN0484	Hannabrand Bk	40 08'36.888"N 74 03'11.801"W	12
AN0485	Manasquan River	40 12'02.761"N 74 20'28.054"W	12
AN0486	Debois Ck	40 14'58.026"N 74 15'26.422"W	12
AN0487	Debois Ck	40 12'32.333"N 74 16'07.114"W	12
AN0488	UNT to Manasquan River (Killtime Bk)	40 12'32.120"N 74 15'48.845"W	12
AN0489	Manasquan River	40 12'15.745"N 74 15'22.766"W	12
AN0490	Manasquan River	40 11'33.921"N 74 11'42.422"W	12
AN0491	Marsh Bog Bk	40 12'52.149"N 74 10'52.465"W	12
AN0492	Marsh Bog Bk	40 10'01.260"N 74 09'32.215"W	12
AN0493	Manasquan River	40 09'42.051"N 74 09'16.348"W	12
AN0494	Mingamahone Bk	40 12'45.620"N 74 10'04.877"W	12
AN0495	Mingamahone Bk	40 09'57.503"N 74 08'59.733"W	12
AN0496	Stan Bk	40 08'39.281"N 74 09'48.259"W	12
AN0497	Squankum Bk	40 09'03.496"N 74 09'12.710"W	12
AN0499	N Br Metedeconk River	40 11'39.202"N 74 20'49.876"W	13
AN0500	N Br Metedeconk River	40 10'52.799"N 74 17'15.151"W	13
AN0501	N Br Metedeconk River	40 08'51.913"N 74 15'13.826"W	13
AN0502	N Br Metedeconk River	40 06'36.253"N 74 13'08.040"W	13
AN0503	Haystack Bk	40 08'46.678"N 74 11'57.276"W	13
AN0504	Haystack Bk	40 07'26.667"N 74 11'17.514"W	13
AN0505	Haystack Bk(Muddy Ford Bk)	40 06'34.545"N 74 09'41.915"W	13
AN0506	N Br Metedeconk River	40 04'53.908"N 74 09'06.501"W	13
AN0507	School House Br (Cabinfield Br)	40 04'58.896"N 74 09'27.740"W	13

Appendix A — Station Numbers and Locations for the Round 3 Atlantic Region AMNET Study

Site	Stream	Latitude Longitude	Watershed Management Area
AN0508	S Br Metedeconk River	40 09'42.417"N 74 21'41.889"W	13
AN0509	S Br Metedeconk River	40 08'51.224"N 74 19'30.814"W	13
AN0510	S Br Metedeconk River	40 07'36.448"N 74 16'40.381"W	13
AN0510A	S Br Metedeconk River	40 08'04.570"N 74 17'43.790"W	13
AN0511	S Br Metedeconk River	40 05'12.980"N 74 12'43.838"W	13
AN0512	S Br Metedeconk River	40 04'43.762"N 74 09'23.207"W	13
AN0513	Beaverdam Ck	40 04'24.382"N 74 06'53.325"W	13
AN0514	Cedar Bridge Br	40 03'19.213"N 74 08'18.571"W	13
AN0515	Kettle Ck	40 03'17.311"N 74 11'45.941"W	13
AN0517	Toms River	40 11'06.329"N 74 24'32.297"W	13
AN0518	Toms River	40 09'58.700"N 74 25'05.315"W	13
AN0519	Toms River	40 06'35.239"N 74 22'25.318"W	13
AN0519A	Toms River	40 09'08.063"N 74 24'45.707"W	13
AN0520	UNT to Toms River	40 06'43.052"N 74 20'38.031"W	13
AN0521	Maple Root Br	40 04'52.484"N 74 19'37.719"W	13
AN0522	Dove Mill Br	40 04'08.821"N 74 17'28.182"W	13
AN0523	Toms River	40 03'42.060"N 74 16'28.461"W	13
AN0524	Toms River	40 00'05.063"N 74 13'53.627"W	13
AN0525A	UNT to Ridgeway Br	40 03'40.087"N 74 26'23.513"W	13
AN0526	Shannae Bk	40 03'31.479"N 74 23'29.576"W	13
AN0527	Ridgeway Br	40 02'50.290"N 74 20'04.829"W	13
AN0528	Ridgeway Br	40 01'16.602"N 74 16'25.455"W	13
AN0529	Blacks Br	40 00'46.737"N 74 22'47.782"W	13
AN0530	Blacks Br	40 00'30.662"N 74 19'47.856"W	13

Site	Stream	Latitude Longitude	Watershed Management Area
AN0531	Old Hurricane Br	39 59'28.903"N 74 22'44.706"W	13
AN0532	Manapaqua Br	40 00'44.351"N 74 18'08.892"W	13
AN0533	Union Br	40 00'29.381"N 74 17'37.405"W	13
AN0534	Union Br	40 00'22.763"N 74 14'48.685"W	13
AN0535	Toms River	39 59'11.738"N 74 13'25.468"W	13
AN0536	Wrangel Bk	39 58'22.141"N 74 19'26.457"W	13
AN0537	Wrangel Bk	39 57'53.690"N 74 14'36.988"W	13
AN0538	Sunken Br	39 58'02.914"N 74 14'31.134"W	13
AN0539	Wrangel Bk	39 57'39.477"N 74 13'41.257"W	13
AN0540	Davenport Br	39 55'35.966"N 74 20'17.971"W	13
AN0541	Davenport Br	39 57'37.775"N 74 14'40.168"W	13
AN0542	Jakes Br	39 54'55.658"N 74 16'24.661"W	13
AN0543	Jakes Br	39 56'07.451"N 74 12'41.579"W	13
AN0544	UNT to Toms River (Long Swamp Ck)	39 57'19.937"N 74 09'57.889"W	13
AN0545	Webbs Mill Br	39 53'16.503"N 74 22'46.543"W	13
AN0546	Cedar Ck	39 53'50.254"N 74 18'58.633"W	13
AN0547	Factory Br	39 52'52.182"N 74 16'30.652"W	13
AN0548	Cedar Ck	39 53'38.637"N 74 13'30.747"W	13
AN0549	Cedar Ck	39 52'03.701"N 74 10'08.079"W	13
AN0550	Long Br of N Br Forked River	39 49'02.140"N 74 17'34.177"W	13
AN0551	N Br Forked River	39 51'31.375"N 74 13'29.853"W	13
AN0552	Oyster Ck	39 47'53.907"N 74 15'00.327"W	13
AN0554	Four Mile Br	39 42'26.783"N 74 16'00.961"W	13
AN0555	Mill Ck	39 41'33.720"N 74 15'31.934"W	13

Appendix A — Station Numbers and Locations for the Round 3 Atlantic Region AMNET Study

Site	Stream	Latitude Longitude	Watershed Management Area
AN0555A	Mill Ck	39 43'43.456"N 74 19'10.678"W	13
AN0556	Cedar Run	39 40'48.951"N 74 16'15.046"W	13
AN0557	Westecunk Ck	39 39'59.592"N 74 19'12.923"W	13
AN0557A	Westecunk Ck	39 41' 59.527"N 74 21'25.862"W	13
AN0559	Mill Br of Tuckerton Ck	39 36'37.501"N 74 20'59.833"W	13
AN0559A	Mill Br	39 38'31.54"N 74 21'48.16W	13
AN0560	Mullica River	39 47'09.311"N 74 51'36.670"W	14
AN0561	Mullica River	39 46'34.587"N 74 47'55.514"W	14
AN0562	Mullica River	39 44'35.026"N 74 45'25.637"W	14
AN0563	Wesickaman Ck	39 44'27.878"N 74 43'24.077"W	14
AN0564	Mullica River	39 39'33.315"N 74 39'30.917"W	14
AN0565	Hays Mill Ck	39 45'02.448"N 74 50'27.301"W	14
AN0566	Sleeper Br	39 43'21.979"N 74 45'23.637"W	14
AN0567	Clarks Br	39 42'48.684"N 74 46'40.249"W	14
AN0568	Prices Br	39 43'19.550"N 74 47'47.944"W	14
AN0569	Pump Br	39 41'58.655"N 74 50'39.208"W	14
AN0570	Blue Anchor Bk	39 41'17.490"N 74 50'04.093"W	14
AN0571	Albertson Bk	39 41'35.070"N 74 48'22.624"W	14
AN0572	Albertson Bk	39 41'40.910"N 74 44'38.276"W	14
AN0573	Great Swamp Bk	39 40'18.019"N 74 49'30.981"W	14
AN0574	Great Swamp Bk	39 41'03.368"N 74 45'47.927"W	14
AN0575	Cedar Bk	39 39'52.436"N 74 45'56.055"W	14
AN0577	Hammonton Ck	39 37'57.912"N 74 45'37.641"W	14
AN0578	Hammonton Ck	39 37'40.762"N 74 41'36.744"W	14

Site	Stream	Latitude Longitude	Watershed Management Area
AN0579	Batsto River	39 48'02.393"N 74 40'20.754"W	14
AN0580	Roberts Br	39 47'16.213"N 74 39'33.924"W	14
AN0581	Skit Br	39 47'08.597"N 74 39'29.778"W	14
AN0582	Indian Mills Bk	39 47'35.360"N 74 44'47.794"W	14
AN0583	Muskingum Bk	39 47'41.517"N 74 44'29.657"W	14
AN0584	Springers Bk	39 46'45.701"N 74 44'18.819"W	14
AN0585	Springers Bk	39 45'19.474"N 74 41'46.395"W	14
AN0586	Batsto River	39 42'34.668"N 74 39'58.838"W	14
AN0586A	Batsto River	39 46'15.486"N 74 40'47.569"W	14
AN0587	Pen Swamp Br	39 41'02.959"N 74 39'01.352"W	14
AN0590	Landing Ck	39 32'08.751"N 74 39'26.918"W	14
AN0591	Elliot's Ck	39 32'41.029"N 74 36'22.910"W	14
AN0592	Landing Ck	39 33'24.529"N 74 36'10.286"W	14
AN0593	Indian Cabin Ck	39 34'15.793"N 74 39'50.060"W	14
AN0594	Indian Cabin Ck	39 33'31.228"N 74 36'17.837"W	14
AN0595	West Br Wading River	39 48'52.036"N 74 32'49.311"W	14
AN0596	West Br Wading River	39 47'23.466"N 74 32'08.800"W	14
AN0597	Shoal Br	39 46'35.273"N 74 30'30.785"W	14
AN0597A	Shoal Br	39 48'51.989"N 74 28'43.608"W	14
AN0598	Mile Run	39 45'14.431"N 74 33'15.274"W	14
AN0599	Tulpehocken Ck	39 46'17.049"N 74 36'52.225"W	14
AN0600	Tulpehocken Ck	39 42'51.783"N 74 33'57.169"W	14
AN0601	Little Hauken Run	39 42'57.765"N 74 32'05.993"W	14
AN0602	Wading River	39 40'26.247"N 74 32'13.815"W	14

Appendix A — Station Numbers and Locations for the Round 3 Atlantic Region AMNET Study

Site	Stream	Latitude Longitude	Watershed Management Area
AN0603	Oswego River	39 46'32.771"N 74 22'04.117"W	14
AN0604	Plains Br	39 45'51.390"N 74 24'28.223"W	14
AN0605	Papoose Br	39 44'32.151"N 74 27'09.681"W	14
AN0606	Oswego River	39 43'53.532"N 74 29'19.798"W	14
AN0607	Oswego River (E Br Wading River)	39 39'48.457"N 74 31'24.552"W	14
AN0610	West Br Bass River	39 37'27.357"N 74 26'45.044"W	14
AN0611	Dans Bridge Br	39 38'12.016"N 74 25'34.679"W	14
AN0612	East Br Bass River	39 37'24.146"N 74 26'28.020"W	14
AN0613	Clarks Mill Stream	39 30'57.885"N 74 30'28.201"W	14
AN0614	Morses Mill Stream	39 30'39.081"N 74 30'11.840"W	14
AN0615	Mattix Run (Frenches Ditch)	39 29'39.424"N 74 28'45.286"W	14
AN0616	N Br Absecon Ck	39 26'42.079"N 74 32'20.056"W	15
AN0617	S Br Absecon Ck	39 26'23.385"N 74 33'58.793"W	15
AN0618	Mill Br (Fenton's Mill)	39 23'44.571"N 74 35'35.497"W	15
AN0619	Maple Run (Asbury Run)	39 22'32.351"N 74 34'18.285"W	15
AN0620	Great Egg Harbor River	39 46'52.071"N 74 56'35.204"W	15
AN0621	Great Egg Harbor River	39 44'01.753"N 74 57'05.024"W	15
AN0622	Four Mile Br	39 41'47.628"N 74 56'23.787"W	15
AN0623	Great Egg Harbor River	39 40'10.371"N 74 54'48.289"W	15
AN0624	Squankum Br	39 40'04.359"N 74 57'38.194"W	15
AN0625	Great Egg Harbor River	39 35'39.832"N 74 51'04.227"W	15
AN0626	Penny Pot Stream	39 34'48.229"N 74 49'02.597"W	15
AN0627	Hospitality Br	39 38'40.179"N 74 59'08.709"W	15
AN0628	Hospitality Br	39 37'14.233"N 74 55'37.429"W	15

Site	Stream	Latitude Longitude	Watershed Management Area
AN0629	Faraway Br	39 36'58.367"N 74 56'09.741"W	15
AN0630	White Oak Br	39 35'47.012"N 74 55'05.246"W	15
AN0631	Marsh Lake Br (Collings Br)	39 33'57.943"N 74 55'33.719"W	15
AN0632	Marsh Lake Br (Collings Br)	39 35'23.355"N 74 52'53.270"W	15
AN0633	Hospitality Br	39 35'18.515"N 74 51'31.545"W	15
AN0634	Three Pond Bk	39 34'51.890"N 74 52'02.117"W	15
AN0635	Great Egg Harbor River	39 31'05.251"N 74 46'43.162"W	15
AN0636	UNT to Deep Run	39 31'20.641"N 74 55'11.740"W	15
AN0637	Deep Run	39 30'26.186"N 74 46'54.885"W	15
AN0638	Mare Run	39 28'43.593"N 74 45'26.992"W	15
AN0639	Watering Race	39 28'21.891"N 74 42'54.977"W	15
AN0640	Babcock Ck	39 28'08.225"N 74 41'33.057"W	15
AN0640A	Babcock Ck	39 28'32.244"N 74 38'29.456"W	15
AN0640B	Jack Pudding Br	39 29'27.912"N 74 39'29.807"W	15
AN0642	Miry Run	39 24'20.259"N 74 41'29.242"W	15
AN0643	South River	39 28'16.176"N 74 50'35.343"W	15
AN0644	South River	39 26'25.336"N 74 45'20.120"W	15
AN0645	Stephens Ck	39 24'56.173"N 74 47'41.893"W	15
AN0646	Stephens Ck	39 23'37.822"N 74 44'53.539"W	15
AN0647	Gibson Ck	39 21'11.307"N 74 45'22.319"W	15
AN0648	Tuckahoe River	39 22'20.030"N 74 51'12.404"W	15
AN0649	Tuckahoe River	39 19'26.042"N 74 51'40.518"W	15
AN0650	Tuckahoe River	39 18'25.426"N 74 49'13.234"W	15
AN0651	McNeals Br	39 18'57.708"N 74 49'27.551"W	15

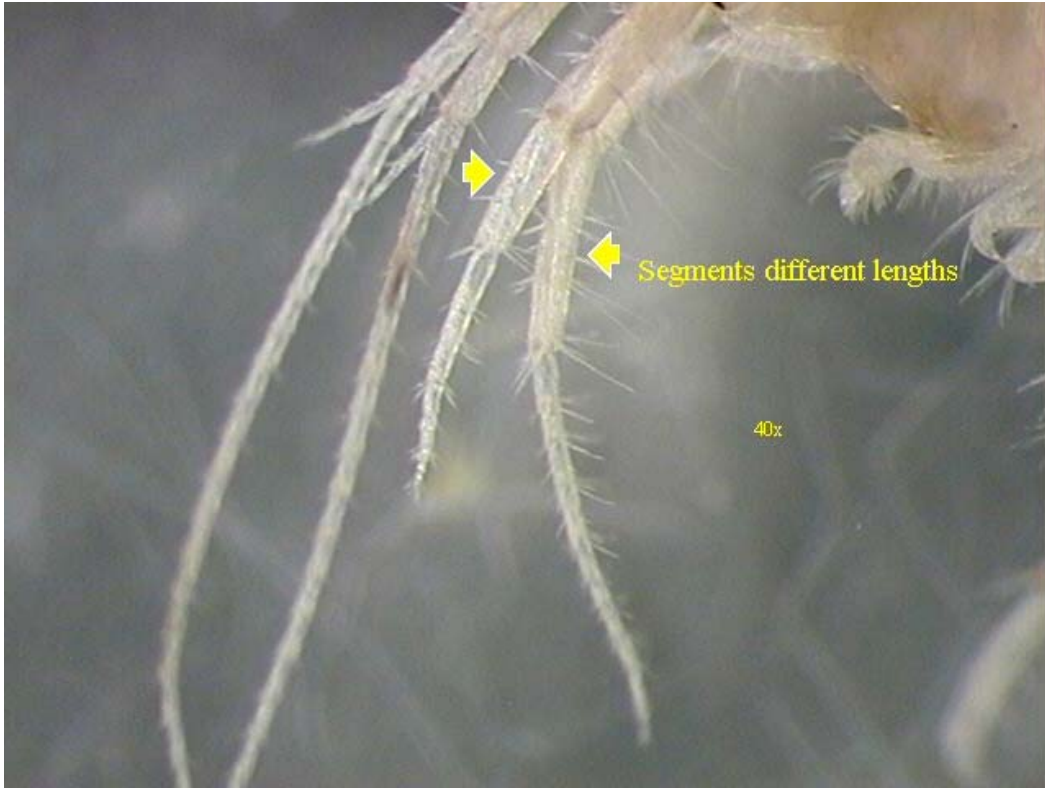
Appendix A — Station Numbers and Locations for the Round 3 Atlantic Region AMNET Study

Site	Stream	Latitude Longitude	Watershed Management Area
AN0652	Mill Ck	39 17'03.613"N 74 47'31.199"W	15
AN0765	West Ck	39 15'35.447"N 74 54'42.379"W	16
AN0766	Savages Run (East Ck)	39 14'31.592"N 74 52'34.424"W	16
AN0769	Old Robins Br	39 11'49.963"N 74 52'10.158"W	16
AN0771	Fishing Ck	39 01'39.817"N 74 53'47.128"W	16

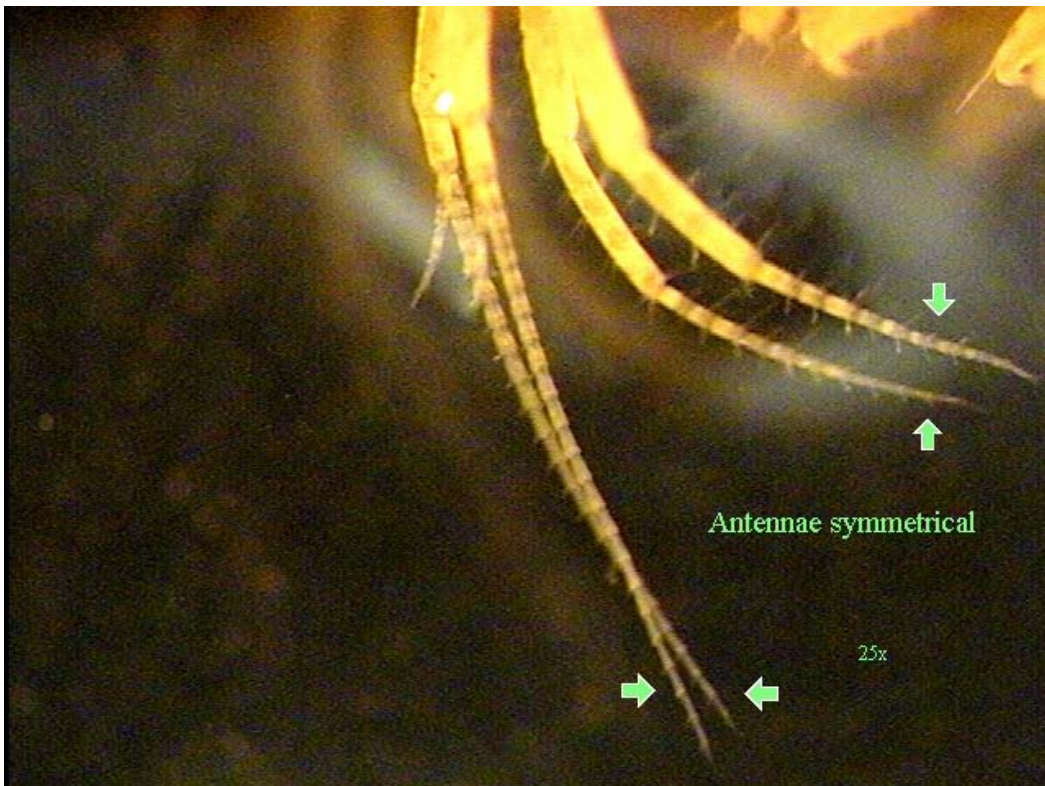
APPENDIX B

Pictures of Morphological Abnormalities in Larval Chironomidae
and Amphipoda Recovered in Recent AMNET Surveys

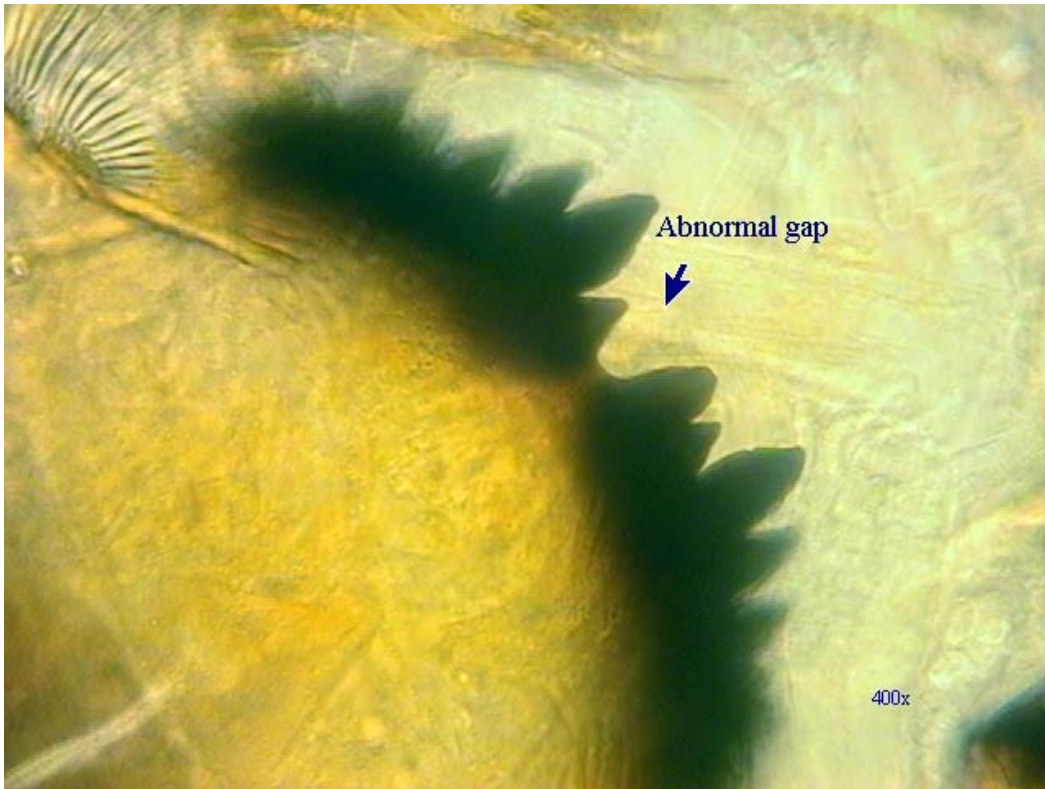
Gammarus fasciatus with second antennae showing different lengths



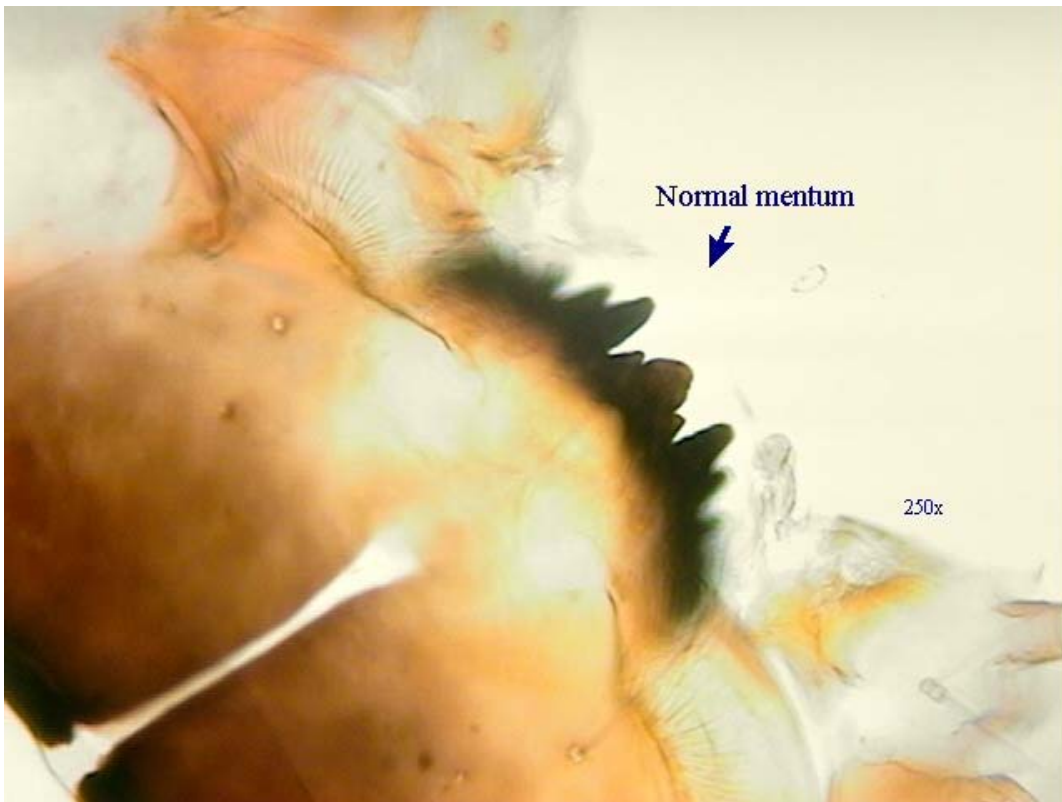
Gammarus fasciatus with normal antennae (showing antennal pairs of same length)



Chironomus species with mentum abnormality



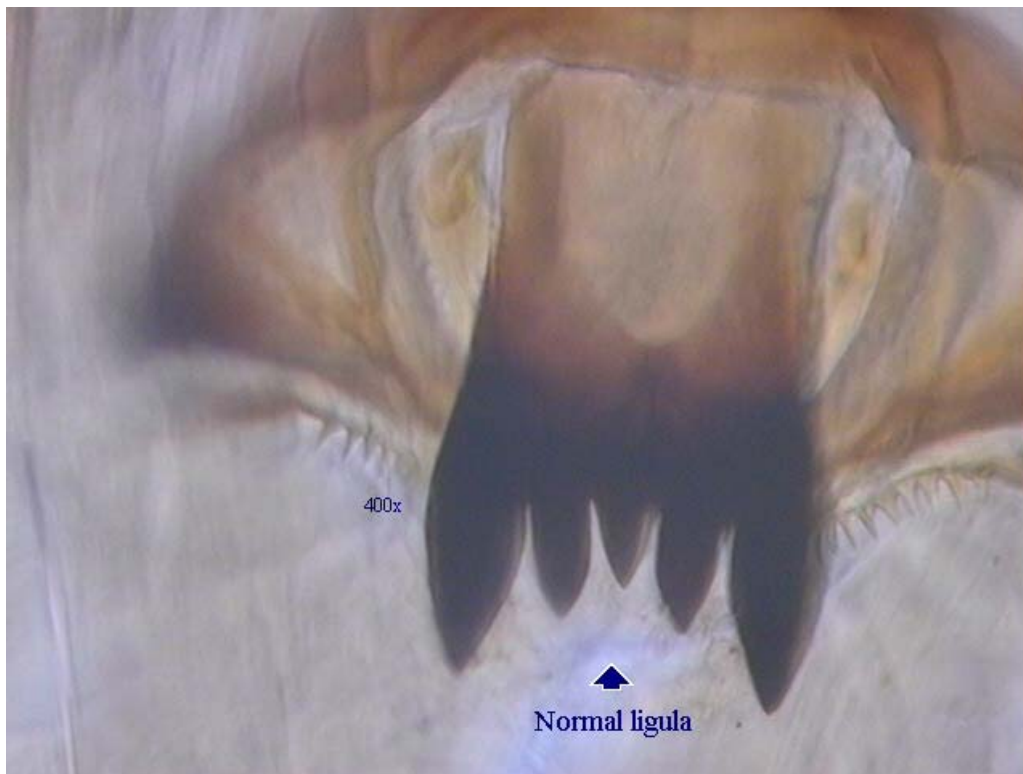
Chironomus species with normal mentum



Procladius species with abnormal ligula



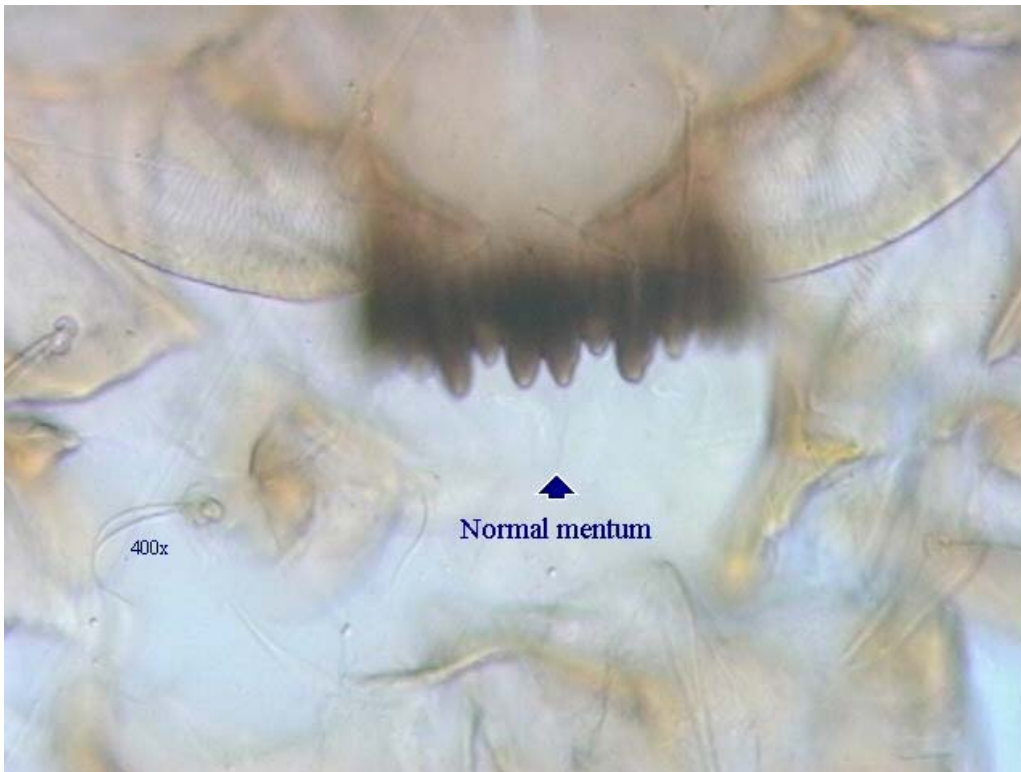
Procladius species with normal ligula



Polypedilum species with abnormal mentum



Polypedilum species with normal mentum

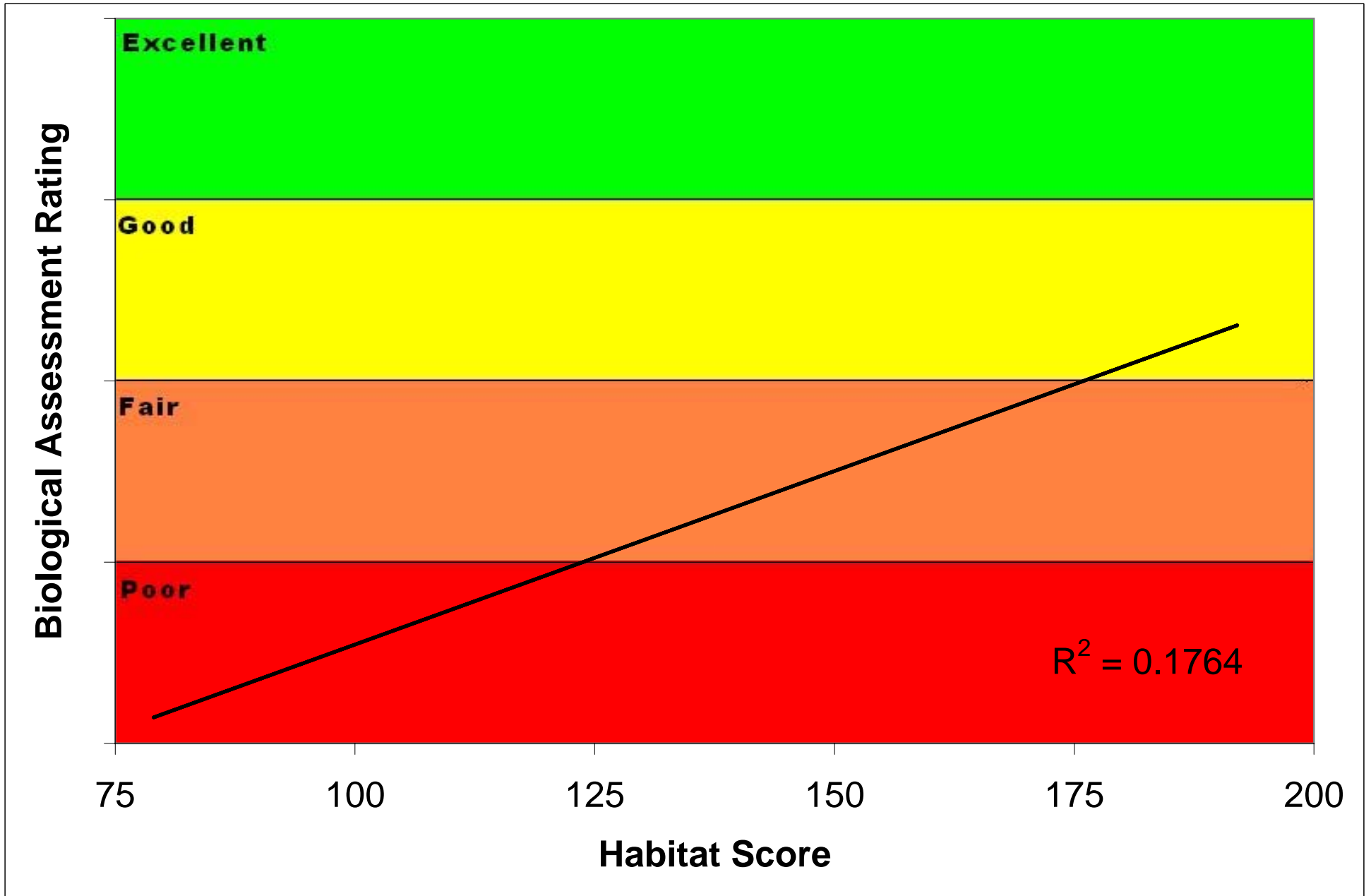


APPENDIX C

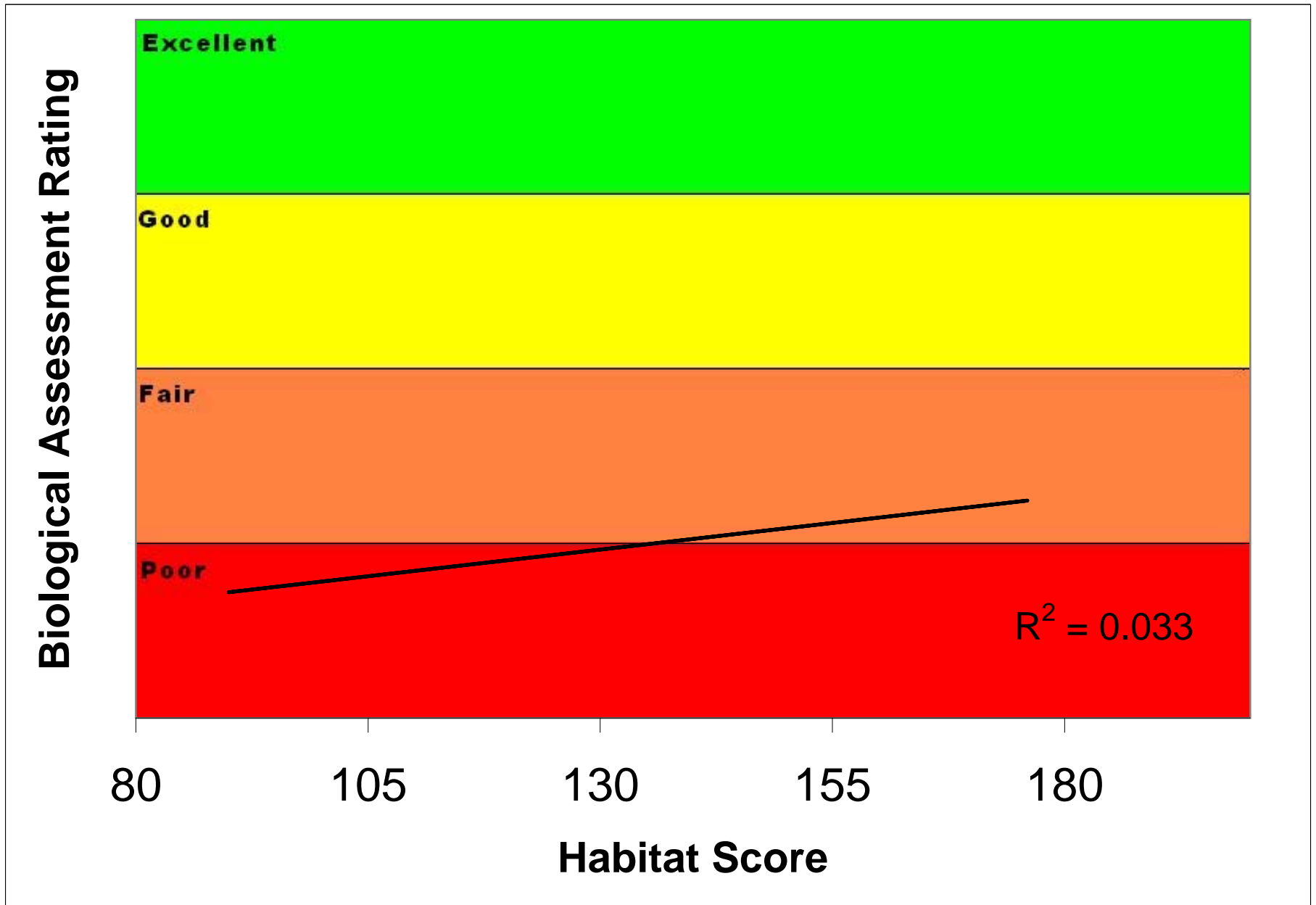
Graphical Comparison of Habitat Assessment Scores versus Biological Assessment Ratings from the Round 3 Atlantic Region AMNET Study

Comparative Scores of
Biological Assessment Rating vs. Habitat Score

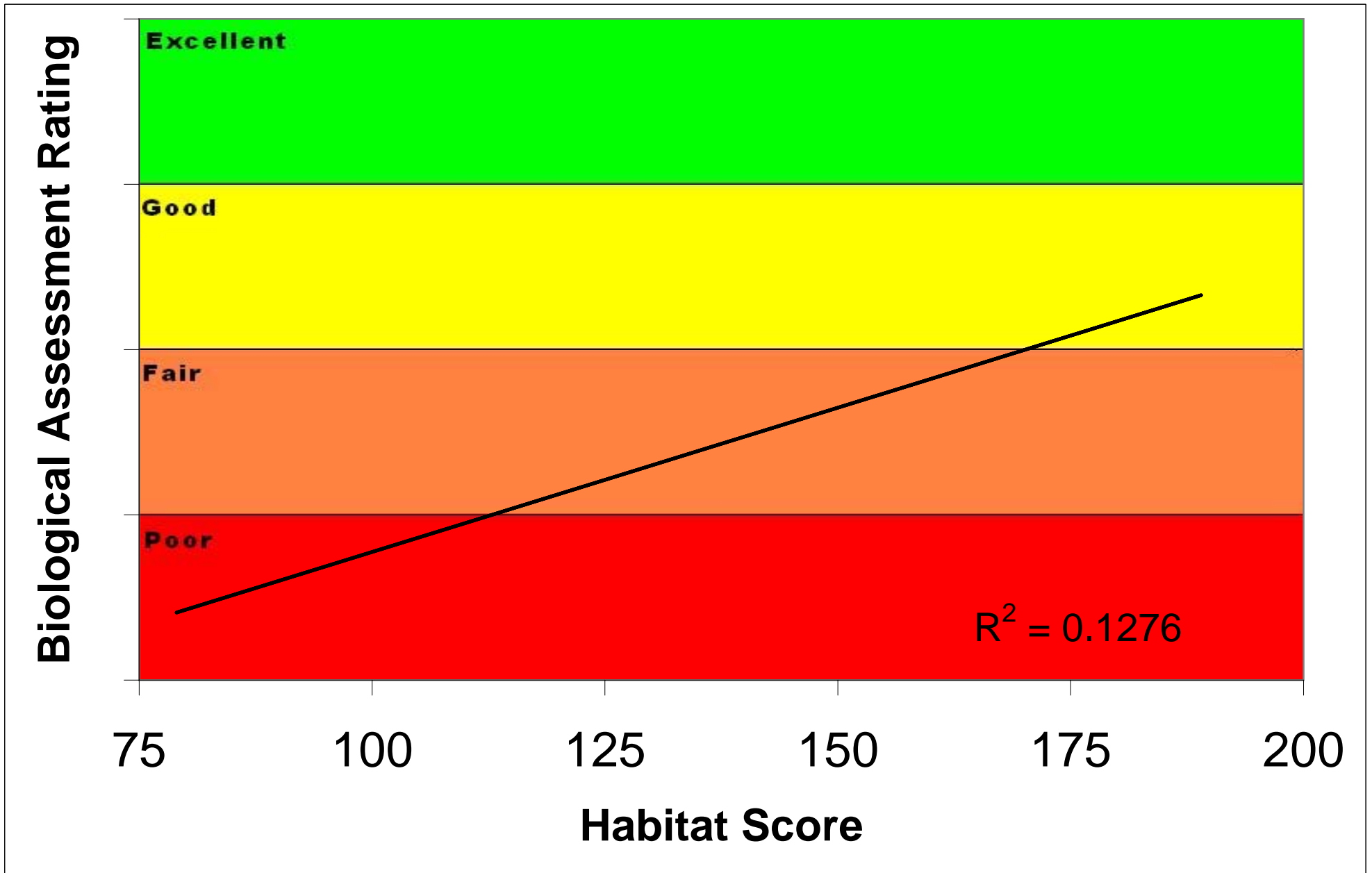
Combined
Round 3



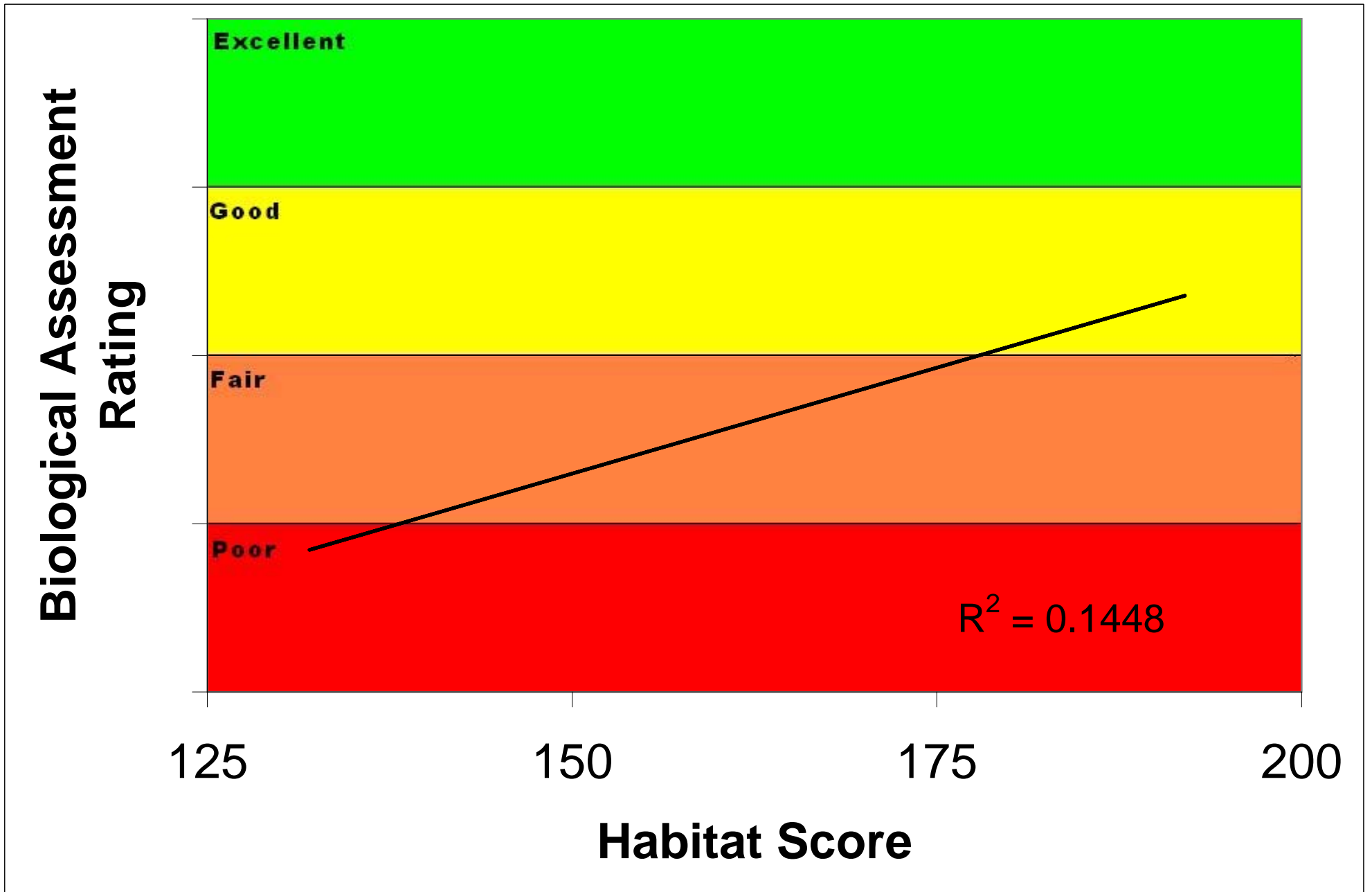
Comparative Scores of
Biological Assessment Rating vs. Habitat Score
WMA 12
Round 3



Comparative Scores of
Biological Assessment Rating vs. Habitat Score
WMA 13
Round 3

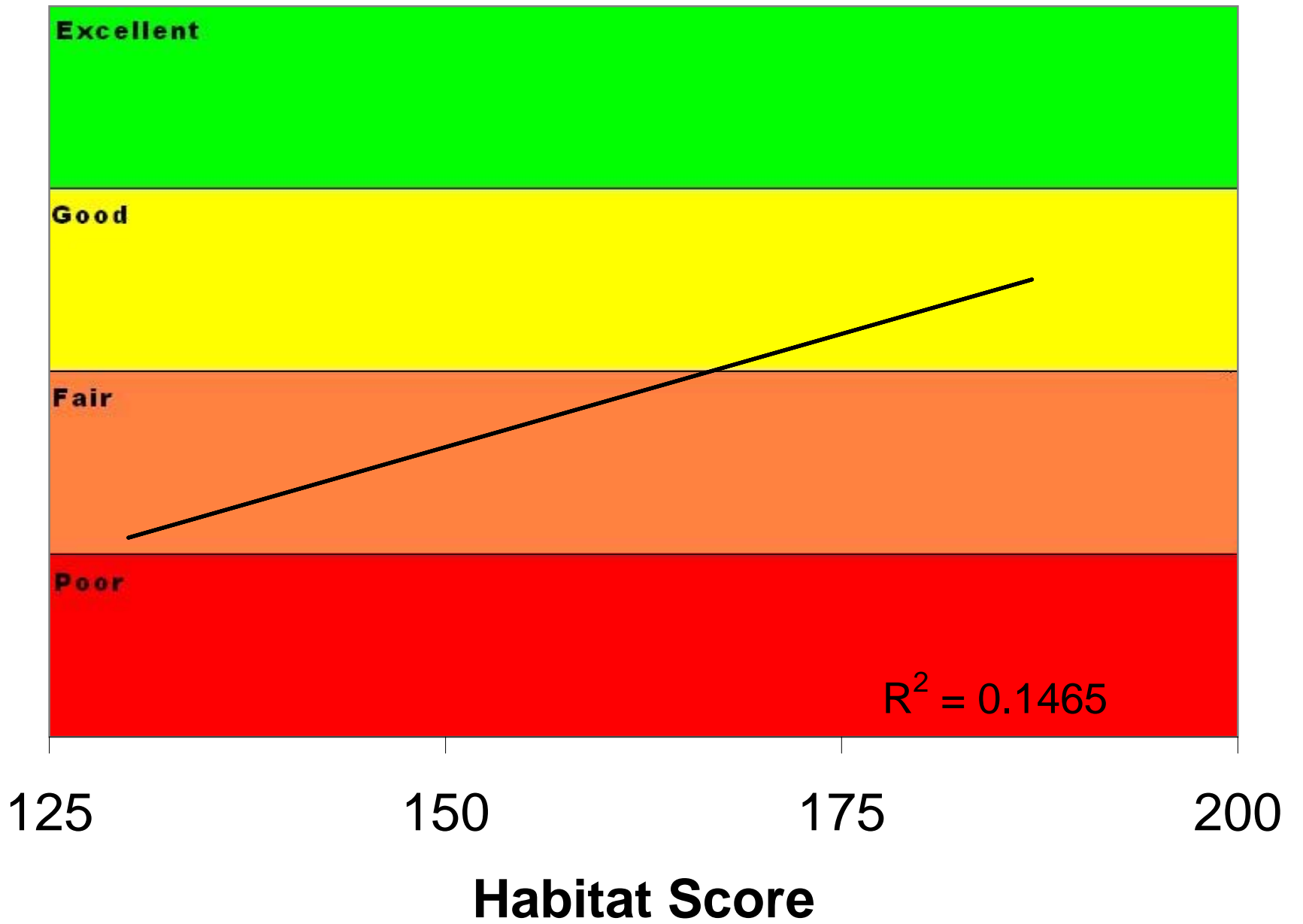


Comparative Scores of
Biological Assessment Rating vs. Habitat Score
WMA 14
Round 3

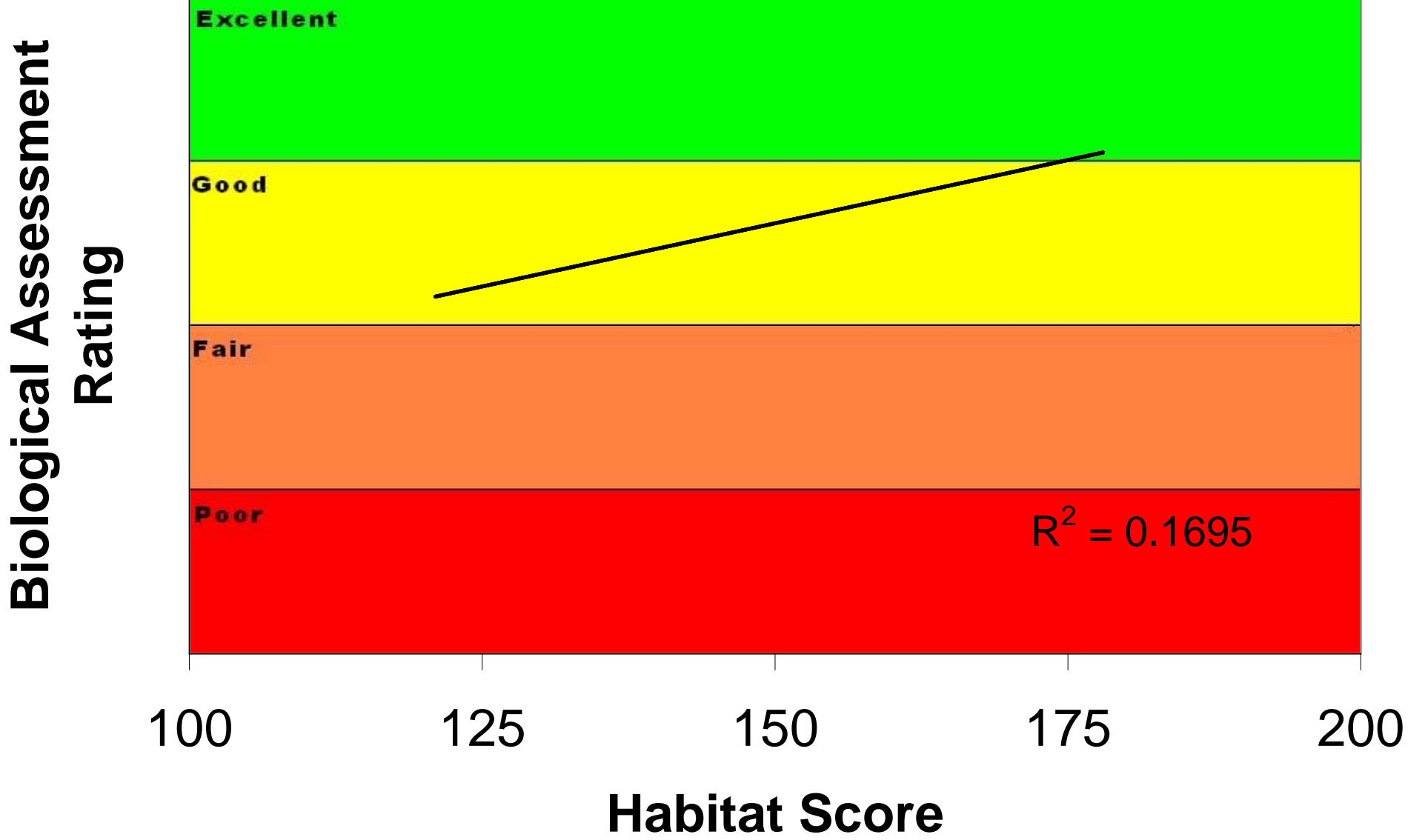


Comparative Scores of
Biological Assessment Rating vs. Habitat Score
WMA 15
Round 3

Biological Assessment
Rating



Comparative Scores of
Biological Assessment Rating vs. Habitat Score
WMA 16
Round 3



APPENDIX D

Taxonomic and Statistical Data, Biological Assessments, Habitat Assessment Scores and Observations from the Round 3 Atlantic Region AMNET Study

(Site numbers, locations, sample dates, and USGS topographic quadrangle, top of page.)

Notes/Definitions:

Statistical data includes those biometric results that are applied to the following ratings.

CPMI	PMI	HGMI
<ol style="list-style-type: none"> 1. Total # of Taxa 2. # of EPT taxa 3. % Ephemeroptera 4. Hilsenhoff Biotic Index (HBI) 5. % clingers 	<ol style="list-style-type: none"> 1. Insect taxa 2. Non-insect taxa 3. % Plecoptera + Trichoptera 4. % Diptera excluding Tanytarsini 5. % Mollusca + Amphipoda 6. Beck's Biotic Index (BBI) 7. % filterers 	<ol style="list-style-type: none"> 1. # of genera 2. % non-insect genera 3. % sensitive EPT 4. # of scraper genera 5. Hilsenhoff Biotic Index (HBI) 6. # of Attribute 2 genera 7. # of Attribute 3 genera

See METHODS, Table 1, Volume 1.

Other notes:

1. Ck – Creek, Bk – Brook, Br – Branch, R – River, UNT – un-named tributary
2. Habitat observations supplement the habitat assessment scores in Table 2 and Appendix C; Open Canopy = overhead vegetation; water quality measurements taken in field include temperature (°C), pH, dissolved oxygen, conductivity.

AMNET Site # AN0456

Stream Name: UNT to Matawan Ck

Location: Morganville Rd; Madison Twp; Middlesex County

Collection Date: 4/12/2005 USGS Topo Map: South Amboy

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Limnodrilus	10	12
* Diplectrona	0	8
Nais	8	8
* Cheumatopsyche	5	5
Tipula	4	5
Lumbriculus	8	4
Enchytraeidae	10	2
Gyraulid	6	2
* Hydropsyche	4	2
Microvelia	6	2
* Ostrocerca	2	2
Pisidium	6.8	2
* Ptilostomis	5	2
Calopteryx	6	1
Chironomus	10	1
Cricotopus	7	1
Dugesia	4	1
Endochironomus	10	1
Hydrobaenus	8	1
Mooreobdella	7.8	1
Notonecta	5	1
* Platycentropus	4	1
* Polycentropus	6	1
Polypedilum	6	1
Probezzia	6	1
Tipulidae	3	1
Tribelos	5	1
* (EPT organism)	<i>Taxa Richness:</i> 27	<i>Population:</i> 70

%Dominance / Dominant Taxon(s): 17.1% Limnodrilus

Hilsenhoff Biotic Index (HBI): 6.12

%Clingers: 28.57%

* E+P+T: 7 () Ephemeroptera, (1) Plecoptera, (6) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 14 Good

Habitat Analysis: 121 Suboptimal USEPA Protocol

Observations: Water temp: 8.6 C; Cond: 309 umhos; DO: 11.2 mg/L; pH: 7.4 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 12' / 1'; Substrate: cobbles, gravel

Canopy: open; Bank Stability: fair; Bank Vegetation: weeds, trees

Stream Gradient: Low Gradient Stream; Land Uses: suburban, forested

Other: concrete bank protection; new bridge built in 1999

AMNET Site # AN0457

Stream Name: Gravelly Bk

Location: Church Rd; Aberdeen Twp; Monmouth County

Collection Date: 4/14/2005 USGS Topo Map: Keyport

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Limnodrilus	10	20
Polypedilum	6	3
Acentria	5	2
Stylodrilus	10	2
Hydrovatus	5	1
Micropsectra	7	1
<hr/>		
* (EPT organism)	<i>Taxa Richness:</i> 6	<i>Population:</i> 29

%Dominance / Dominant Taxon(s): 69.0% Limnodrilus

Hilsenhoff Biotic Index (HBI): 8.97

%Clingers: 0.00%

* *E+P+T:* 0 () Ephemeroptera, () Plecoptera, () Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 0 Poor

Habitat Analysis: 112 Suboptimal USEPA Protocol

Observations: Water temp: 9.9 C; Cond: 732 umhos; DO: 10.4 mg/L; pH: 3.5 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 20.5' / <1.0 - 1'; Substrate: sand, silt, snags

Canopy: mostly closed; Bank Stability: poor; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewer flowing

Other: brown-orange floc

AMNET Site # AN0458

Stream Name: Wilkson Ck

Location: Church Rd; Aberdeen Twp; Monmouth County

Collection Date: 4/14/2005 USGS Topo Map: Keyport

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Polypedilum	6	4
Limnodrilus	10	2
Stylodrilus	10	2
Tipulidae	3	2
Acentria	5	1
Enchytraeidae	10	1
Rheotanytarsus	6	1
Tvetenia	5	1
* (EPT organism)	<i>Taxa Richness:</i> 8	<i>Population:</i> 14

%Dominance / Dominant Taxon(s): 28.6% Polypedilum

Hilsenhoff Biotic Index (HBI): 6.86

%Clingers: 7.14%

* *E+P+T:* 0 () Ephemeroptera, () Plecoptera, () Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 2 Poor

Habitat Analysis: 135 Suboptimal USEPA Protocol

Observations: Water temp: 10 C; Cond: 645 umhos; DO: 10.7 mg/L; pH: 3.9 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 19' / < 1.0'; Substrate: cobbles, gravel, sand, silt

Canopy: partly open; Bank Stability: poor; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers flowing, left bank

Other: ducks, litter, undercut banks, heavy siltation, orange floc present

AMNET Site # AN0459

Stream Name: Flat Ck

Location: Rt 516 (Middle Rd); Hazlet Twp; Monmouth County

Collection Date: 4/6/2005 USGS Topo Map: Keyport

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Limnodrilus	10	40
Tubifex	10	5
Polypedilum	6	4
Tribelos	5	4
Sphaerium	8	2
Ablabesmyia	8	1
Bezzia	6	1
Brillia	5	1
Hydrovatus	5	1
Nematoda	6	1
Orthocladus	6	1
Stylodrilus	10	1
Tipula	4	1

* (EPT organism) Taxa Richness: 13 Population: 63

%Dominance / Dominant Taxon(s): 63.5% Limnodrilus

Hilsenhoff Biotic Index (HBI): 8.89 %Clingers: 0.00%

* E+P+T: 0 () Ephemeroptera, () Plecoptera, () Trichoptera %Ephemeroptera: 0.00%

CPMI Rating: 2 Poor

Habitat Analysis: 94 Marginal USEPA Protocol

Observations: Water temp: 10.3 C; Cond: 292 umhos; DO: 10.5 mg/L; pH: 7 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 6' / 1'; Substrate: gravel, sand, silt

Canopy: mostly open; Bank Stability: fair; Bank Vegetation: trees, shrubs, vines

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: pipe flowing upstream of bridge

Other: trash

AMNET Site # AN0460

Stream Name: Mahoras Bk

Location: Rt 35; Holmdel Twp; Monmouth County

Collection Date: 4/6/2005 USGS Topo Map: Keyport

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Gammarus	6	22
Enchytraeidae	10	12
Limnodrilus	10	9
Calopteryx	6	3
Phaenopsectra	7	3
Corixidae	9	2
Lumbricidae	10	2
Lumbriculus	8	2
Diplocladius	8	1
Dytiscidae	5	1
Hydrobaenus	8	1
* Hydropsyche	4	1
* Ironoquia	3	1
Macronychus	2	1
Parachaetocladius	2	1
Sperchopsis	5	1
Thienemannimyia	6	1
Tipula	4	1
Tipulidae	3	1

* (EPT organism) Taxa Richness: 19 Population: 66

%Dominance / Dominant Taxon(s): 33.3% Gammarus

Hilsenhoff Biotic Index (HBI): 7.35

%Clingers: 9.09%

* E+P+T: 2 () Ephemeroptera, () Plecoptera, (2) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 4 Poor

Habitat Analysis: 90 Marginal USEPA Protocol

Observations: Water temp: 10.6 C; Cond: 354 umhos; DO: 10.8 mg/L; pH: 7.2 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 18' / <1.0 - 1'; Substrate: gravel, sand

Canopy: open; Bank Stability: fair; Bank Vegetation: trees, vines, grass

Stream Gradient: Low Gradient Stream; Land Uses: urban

AMNET Site # AN0461

Stream Name: Town Bk

Location: Spruce Dr; Middletown Twp; Monmouth County

Collection Date: 4/6/2005 USGS Topo Map: Sandy Hook

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Pisidium	6.8	27
Lumbriculus	8	24
Gammarus	6	16
Aulodrilus	8	6
Polypedilum	6	4
Physella	9.1	3
Tipula	4	3
Crangonyx	8	2
Enchytraeidae	10	2
Limnodrilus	10	2
Boyeria	2	1
Brillia	5	1
Caecidotea	8	1
Chrysops	6	1
Cryptochironomus	8	1
Gerris	8	1
* Hydropsyche	4	1
Limnophila	3	1
Lumbricidae	10	1
Lymnaeidae	6	1
Orthocladus	6	1
Parametriochnemus	5	1
Tubifex	10	1

* (EPT organism) Taxa Richness: 23 Population: 102

%Dominance / Dominant Taxon(s): 26.5% Pisidium

Hilsenhoff Biotic Index (HBI): 7.06

%Clingers: 0.98%

* E+P+T: 1 () Ephemeroptera, () Plecoptera, (1) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 6 Fair

Habitat Analysis: 108 Marginal USEPA Protocol

Observations: Water temp: 13.1 C; Cond: 267 umhos; DO: 9.6 mg/L; pH: 7.2 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 5' / <1.0'; Substrate: mud, silt

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: Phragmites, trees, weeds

Stream Gradient: Low Gradient Stream; Land Uses: suburban, forested

Other: ducks, painted turtles

AMNET Site # AN0462

Stream Name: McClees Ck

Location: Whipporwill Rd; Middletown Twp; Monmouth County

Collection Date: 4/14/2005 USGS Topo Map: Sandy Hook

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Limnodrilus	10	61
Tubifex	10	8
Nais	8	6
Aulodrilus	8	5
Pisidium	6.8	5
Gammarus	6	3
Dubiraphia	6	2
Slavina	7	2
Stylaria	8	2
Ablabesmyia	8	1
Amnicola	4.8	1
Cricotopus	7	1
Cryptochironomus	8	1
Dytiscidae	5	1
Hydrobaenus	8	1
Paratendipes	8	1
Pelodytes	5	1
Polypedilum	6	1
Tanytarsus	6	1

* (EPT organism) Taxa Richness: 19 Population: 104

%Dominance / Dominant Taxon(s): 58.7% Limnodrilus

Hilsenhoff Biotic Index (HBI): 9.02

%Clingers: 2.88%

* E+P+T: 0 () Ephemeroptera, () Plecoptera, () Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 4 Poor

Habitat Analysis: 144 Suboptimal USEPA Protocol

Observations: Water temp: 11.3 C; Cond: 430 umhos; DO: 10.8 mg/L; pH: 5.8 SU

Clarity: slightly turbid; Flow Rate: moderate; Width/Depth: 14.5' / 1-1.5'; Substrate: gravel, sand, silt, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural

Downstream of Impoundment: downstream of Haskell Pond

Other: stream redirected to turn a waterwheel, recent bridge and culvert construction, small ditch draining into stream on left bank, filamentous algae, goose nesting

AMNET Site # AN0464

Stream Name: Nut Swamp Bk

Location: nr. Normandy Rd; Middletown Twp; Monmouth County

Collection Date: 4/21/2005 USGS Topo Map: Long Branch

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Limnodrilus	10	23
Polypedilum	6	21
Cricotopus	7	10
Nais	8	7
Calopteryx	6	4
Enchytraeidae	10	4
Gammarus	6	4
Tribelos	5	4
Lumbriculus	8	3
Boyeria	2	2
Chironomus	10	2
Pisidium	6.8	2
Saetheria	4	2
Aulodrilus	8	1
Caecidotea	8	1
Endochironomus	10	1
Hydrobaenus	8	1
Hydrophilidae	5	1
Microvelia	6	1
Orthocladius	6	1
Paratendipes	8	1
Peltodytes	5	1
Pseudorthocladius	0	1
Rheocricotopus	6	1
Sialis	4	1
Tabanidae	6	1
Tubifex	10	1

* (EPT organism) Taxa Richness: 27 Population: 102

%Dominance / Dominant Taxon(s): 22.5% Limnodrilus

Hilsenhoff Biotic Index (HBI): 7.35

%Clingers: 10.78%

* E+P+T: 0 () Ephemeroptera, () Plecoptera, () Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 6 Fair

Habitat Analysis: 101 Marginal USEPA Protocol

Observations: Water temp: 13.8 C; Cond: 532 umhos; DO: 10.2 mg/L; pH: 7.4 SU

Clarity: clear, gray haze; Flow Rate: moderate; Width/Depth: 14' / <1.0 - 1.5'; Substrate: sand, mud, silt

Canopy: partly open; Bank Stability: poor; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewer flowing

Other: orange floc present, stream channelized through pipe adjacent to RR tracks

AMNET Site # AN0465

Stream Name: Hop Bk

Location: Roberts Rd; Holmdel Twp; Monmouth County

Collection Date: 4/14/2005 USGS Topo Map: Marlboro

Genus	Tolerance Value	Amount
Cricotopus	7	40
Limnodrilus	10	35
Nais	8	5
Polypedilum	6	3
Chironomini	6	2
Eclipidrilus	8	2
Lumbriculus	8	2
Tipula	4	2
Antocha	3	1
Aulodrilus	8	1
Calopteryx	6	1
* Diplectrona	0	1
Enchytraeidae	10	1
Lumbricidae	10	1
Microvelia	6	1

* (EPT organism) Taxa Richness: 15 Population: 98

%Dominance / Dominant Taxon(s): 40.8% Cricotopus

Hilsenhoff Biotic Index (HBI): 7.99 %Clingers: 42.86%

* E+P+T: 1 () Ephemeroptera, () Plecoptera, (1) Trichoptera %Ephemeroptera: 0.00%

CPMI Rating: 6 Fair

Habitat Analysis: 144 Suboptimal USEPA Protocol

Observations: Water temp: 13.6 C; Cond: 711 umhos; DO: 9.2 mg/L; pH: 6 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 21' / <1.0 -1'; Substrate: gravel, sand, silt

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers flowing

Other: fish, eels, frogs

AMNET Site # AN0466

Stream Name: Hop Bk

Location: Willow Brook Rd; Holmdel Twp; Monmouth County

Collection Date: 4/20/2005 USGS Topo Map: Marlboro

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Cricotopus	7	36
Nais	8	22
Polypedilum	6	15
Limnodrilus	10	10
Gammarus	6	5
Diamesa	5	3
Rheotanytarsus	6	3
Slavina	7	3
Aulodrilus	8	2
Boyeria	2	2
Calopteryx	6	2
Hydrobaenus	8	2
Macronychus	2	2
Ancyronyx	2	1
Enchytraeidae	10	1
Micropsectra	7	1

* (EPT organism) Taxa Richness: 16 Population: 110

%Dominance / Dominant Taxon(s): 32.7% Cricotopus

Hilsenhoff Biotic Index (HBI): 7.03

%Clingers: 38.18%

* E+P+T: 0 () Ephemeroptera, () Plecoptera, () Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 8 Fair

Habitat Analysis: 125 Suboptimal USEPA Protocol

Observations: Water temp: 17.4 C; Cond: 342 umhos; DO: 10.7 mg/L; pH: 7.3 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 31' / <1.0'; Substrate: silt, sand

Canopy: partly open; Bank Stability: poor; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-livestock, rural

AMNET Site # AN0467

Stream Name: Willow Bk

Location: Schank Rd; Holmdel Twp; Monmouth County

Collection Date: 4/21/2005 USGS Topo Map: Marlboro

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Polypedilum	6	35
Limnodrilus	10	23
Cricotopus	7	6
Rheotanytarsus	6	6
Aulodrilus	8	5
Gammarus	6	5
Heterotrissocladius	0	5
Orthocladius	6	3
Rheocricotopus	6	3
Bezzia	6	2
Enchytraeidae	10	2
Hydrobaenus	8	2
Microvelia	6	2
Naididae	7	2
Hydroporus	5	1
* Ironoquia	3	1
Micropsectra	7	1
Parachaetocladius	2	1
Phaenopsectra	7	1
Thienemannimyia	6	1

* (EPT organism) Taxa Richness: 20 Population: 107

%Dominance / Dominant Taxon(s): 32.7% Polypedilum

Hilsenhoff Biotic Index (HBI): 6.80

%Clingers: 12.15%

* E+P+T: 1 () Ephemeroptera, () Plecoptera, (1) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 6 Fair

Habitat Analysis: 132 Suboptimal USEPA Protocol

Observations: Water temp: 14.1 C; Cond: 260 umhos; DO: 9.6 mg/L; pH: 7.4 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 10' / 1-1.5'; Substrate: sand, silt, snags

Canopy: partly open; Bank Stability: poor; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural

Other: eels, fish

AMNET Site # AN0468

Stream Name: Willow Bk

Location: Willow Brook Rd; Colts Neck Twp; Monmouth County

Collection Date: 4/20/2005 USGS Topo Map: Marlboro

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Polypedilum	6	20
Cricotopus	7	15
Rheocricotopus	6	15
Nais	8	12
Limnodrilus	10	11
Gammarus	6	6
Calopteryx	6	3
Micropsectra	7	3
Enchytraeidae	10	2
Physella	9.1	2
Slavina	7	2
Aulodrilus	8	1
* Cheumatopsyche	5	1
Corduliidae	5	1
Cryptochironomus	8	1
Gyrinus	4	1
Hydrobaenus	8	1
Lampyridae	6	1
Orthocladius	6	1
Pseudorthocladius	0	1
Stratiomyidae	10	1
Stylaria	8	1
Tubifex	10	1

* (EPT organism) Taxa Richness: 23 Population: 103

%Dominance / Dominant Taxon(s): 19.4% Polypedilum

Hilsenhoff Biotic Index (HBI): 7.05

%Clingers: 15.53%

* E+P+T: 1 () Ephemeroptera, () Plecoptera, (1) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 6 Fair

Habitat Analysis: 115 Suboptimal USEPA Protocol

Observations: Water temp: 16.3 C; Cond: 301 umhos; DO: 10.5 mg/L; pH: 7.3 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 20' / 1.5-2.5'; Substrate: sand, silt

Canopy: partly open; Bank Stability: poor; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-livestock, rural

Other: USGS gage station, sedimentation extensive, deep along banks, strong creosote odor

AMNET Site # AN0469

Stream Name: Big Bk

Location: Rt 79; Marlboro Twp; Monmouth County

Collection Date: 4/26/2005 USGS Topo Map: Marlboro

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Cricotopus	7	25
Nais	8	19
Polypedilum	6	18
Orthocladius	6	10
Rheocricotopus	6	10
Chironomidae	6	4
Enchytraeidae	10	2
Limnodrilus	10	2
Pristinella	10	2
Stylodrilus	10	2
Tubifex	10	2
Calopteryx	6	1
Gammarus	6	1
Molophilus	3	1
Psectrocladius	8	1

* (EPT organism) Taxa Richness: 15 Population: 100

%Dominance / Dominant Taxon(s): 25.0% Cricotopus

Hilsenhoff Biotic Index (HBI): 7.02

%Clingers: 25.00%

* E+P+T: 0 () Ephemeroptera, () Plecoptera, () Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 6 Fair

Habitat Analysis: 103 Marginal USEPA Protocol

Observations: Water temp: 10.7 C; Cond: 308 umhos; DO: 11.1 mg/L; pH: 7.2 SU

Clarity: clear, grey haze; Flow Rate: moderate; Width/Depth: 15' / <1.0 - 1.5'; Substrate: gravel, sand, silt

Canopy: mostly closed; Bank Stability: fair; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Other: downstream of sewage pumping station, severe erosion, debris along right bank, fish

AMNET Site # AN0470

Stream Name: Big Bk

Location: Cross Rd; Colts Neck Twp; Monmouth County

Collection Date: 4/20/2005 USGS Topo Map: Marlboro

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Polypedilum	6	37
* Cheumatopsyche	5	13
Limnodrilus	10	7
Macronychus	2	7
Boyeria	2	5
Nais	8	5
Orthocladius	6	5
Ancyronyx	2	3
Rheotanytarsus	6	3
Stenelmis	5	3
Brillia	5	2
Calopteryx	6	2
Cricotopus	7	2
Gammarus	6	2
Rheocricotopus	6	2
Aulodrilus	8	1
Hydrobaenus	8	1
Menetus	6	1
Orconectes	6	1
Slavina	7	1

* (EPT organism) Taxa Richness: 20 Population: 103

%Dominance / Dominant Taxon(s): 35.9% Polypedilum

Hilsenhoff Biotic Index (HBI): 5.68

%Clingers: 30.10%

* E+P+T: 1 () Ephemeroptera, () Plecoptera, (1) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 10 Fair

Habitat Analysis: 145 Suboptimal USEPA Protocol

Observations: Water temp: 15.3 C; Cond: 351 umhos; DO: 10.7 mg/L; pH: 7.2 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 17.5' / 2.5-4'; Substrate: mud, silt

Canopy: partly open; Bank Stability: fair; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-livestock, rural, forested

Pipes / Ditches: storm sewers flowing

AMNET Site # AN0471

Stream Name: Yellow Bk

Location: School Rd E; Freehold Twp; Monmouth County

Collection Date: 4/26/2005 USGS Topo Map: Marlboro

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Polypedilum	6	12
Rheocricotopus	6	10
Cricotopus	7	6
Enchytraeidae	10	5
Hydrobaenus	8	4
Parachaetocladus	2	4
Parametrioctenus	5	3
Phaenopsectra	7	3
Aulodrilus	8	2
Brillia	5	2
Thienemannimyia	6	2
Tubifex	10	2
Gammarus	6	1
Gyrinus	4	1
Limnodrilus	10	1
Lumbriculidae	8	1
* Lype	2	1
Microvelia	6	1
Orconectes	6	1
Paratendipes	8	1
* Pycnopsyche	4	1
Tipula	4	1
Tipulidae	3	1

* (EPT organism) Taxa Richness: 23 Population: 66

%Dominance / Dominant Taxon(s): 18.2% Polypedilum

Hilsenhoff Biotic Index (HBI): 6.35

%Clingers: 15.15%

* E+P+T: 2 () Ephemeroptera, () Plecoptera, (2) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 6 Fair

Habitat Analysis: 117 Suboptimal USEPA Protocol

Observations: Water temp: 12.3 C; Cond: 239 umhos; DO: 9.5 mg/L; pH: 7.3 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 10' / <1.0 - 1.5'; Substrate: snags, silt

Canopy: open; Bank Stability: poor; Bank Vegetation: shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: severe erosion, orange iron floc

AMNET Site # AN0472

Stream Name: Yellow Bk

Location: Creamery Rd; Colts Neck Twp; Monmouth County

Collection Date: 4/20/2005 USGS Topo Map: Marlboro

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Nais	8	31
Tubifex	10	13
Limnodrilus	10	12
Calopteryx	6	10
Macronychus	2	6
Ancyronyx	2	3
Chironomidae	6	3
Prostoma	7	3
Rheotanytarsus	6	3
Gammarus	6	2
Polypedilum	6	2
Tanytarsus	6	2
Ablabesmyia	8	1
Aeshna	5	1
Cricotopus	7	1
Halipilus	5	1
Hemerodromia	6	1
Orthocladius	6	1
Peltodytes	5	1
Physella	9.1	1
Psectrocladius	8	1
Sphaerium	8	1

* (EPT organism) Taxa Richness: 22 Population: 100

%Dominance / Dominant Taxon(s): 31.0% Nais

Hilsenhoff Biotic Index (HBI): 7.36 %Clingers: 13.00%

* E+P+T: 0 () Ephemeroptera, () Plecoptera, () Trichoptera %Ephemeroptera: 0.00%

CPMI Rating: 4 Poor

Habitat Analysis: 133 Suboptimal USEPA Protocol

Observations: Water temp: 14.8 C; Cond: 252 umhos; DO: 10.1 mg/L; pH: 7.1 SU

Clarity: clear, grayish; Flow Rate: moderate; Width/Depth: 20' / 1.5 - 2.5'; Substrate: sand, silt

Canopy: partly open; Bank Stability: fair; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Pipes / Ditches: storm sewers

Other: trout stocked stream

AMNET Site # AN0473

Stream Name: Mine Bk

Location: Creamery Rd; Colts Neck Twp; Monmouth County

Collection Date: 4/20/2005 USGS Topo Map: Marlboro

Genus	Tolerance Value	Amount
Nais	8	65
Cricotopus	7	5
Parakiefferiella	4	4
Polypedilum	6	4
Limnodrilus	10	3
Psectrocladius	8	3
* Lype	2	2
Rheotanytarsus	6	2
Slavina	7	2
Tribelos	5	2
Aulodrilus	8	1
Calopteryx	6	1
Chironomini	6	1
Enchytraeidae	10	1
Hexatoma	2	1
Hydrobaenus	8	1
Lumbriculidae	8	1
Nigronia	2	1
Paratendipes	8	1
Phaenopsectra	7	1
Stenochironomus	5	1
Tanytarsus	6	1

* (EPT organism) Taxa Richness: 22 Population: 104

%Dominance / Dominant Taxon(s): 62.5% Nais

Hilsenhoff Biotic Index (HBI): 7.36

%Clingers: 11.54%

* E+P+T: 1 () Ephemeroptera, () Plecoptera, (1) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 4 Poor

Habitat Analysis: 154 Suboptimal USEPA Protocol

Observations: Water temp: 13.8 C; Cond: 151 umhos; DO: 10.4 mg/L; pH: 7.3 SU

Clarity: slightly turbid-cloudy-grey; Flow Rate: moderate; Width/Depth: 16' / 1 - 2'; Substrate: gravel, silt

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, grass, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Other: orange floc, oily sheen on surface, creosote odor

AMNET Site # AN0475

Stream Name: Hockhockson Bk

Location: Hockhockson Rd; Colts Neck Twp; Monmouth County

Collection Date: 4/28/2005 USGS Topo Map: Long Branch

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Caecidotea	8	13
Enchytraeidae	10	7
Tipulidae	3	6
Lumbriculus	8	4
Cordulegaster	3	2
Orthoclaadiinae	5	2
Polypedilum	6	2
Tipula	4	2
Chrysops	6	1
Dicranota	3	1
Dineutus	4	1
Gammarus	6	1
Hydroporus	5	1
Lumbricidae	10	1
* Lype	2	1
Paratendipes	8	1
Pisidium	6.8	1
Stenochironomus	5	1
Thienemannimyia	6	1

* (EPT organism) *Taxa Richness:* 19 *Population:* 49

%Dominance / Dominant Taxon(s): 26.5% Caecidotea

Hilsenhoff Biotic Index (HBI): 6.57

%Clingers: 2.04%

* *E+P+T:* 1 () Ephemeroptera, () Plecoptera, (1) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 6 Fair

Habitat Analysis: 143 Suboptimal USEPA Protocol

Observations: Water temp: 12.5 C; Cond: 132 umhos; DO: 8.4 mg/L; pH: 6.8 SU

Clarity: turbid, brown; Flow Rate: moderate; Width/Depth: 17' / 2.5 - 3'; Substrate: silt

Canopy: partly open; Bank Stability: poor; Bank Vegetation: grasses, trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-livestock (horses), rural, forested

Other: new home construction, cement along left bank, wetlands extensive

AMNET Site # AN0476

Stream Name: Pine Bk

Location: Rt 537 (Tinton Ave); Shrewsbury Twp; Monmouth County

Collection Date: 4/28/2005 USGS Topo Map: Long Branch

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Nais	8	17
Rheocricotopus	6	10
Corixidae	9	8
Gammarus	6	7
Cricotopus	7	6
* Oecetis	8	5
Antocha	3	4
Promoesia	2	4
* Eurylophella	4	3
Pisidium	6.8	3
Aulodrilus	8	2
Caecidotea	8	2
Calopteryx	6	2
Mooreobdella	7.8	2
* Mystacides	4	2
Orthoclaadiinae	5	2
Sialis	4	2
Tanytarsus	6	2
Ancyronyx	2	1
Boyeria	2	1
Chironominae	6	1
Collembola	10	1
Dugesia	4	1
Enchytraeidae	10	1
* Hydropsyche	4	1
Lumbriculus	8	1
Lymnaeidae	6	1
Macronychus	2	1
Micropsectra	7	1
Paratendipes	8	1
* Platycentropus	4	1
Polypedilum	6	1
Prostoma	7	1
Psychodidae	10	1
Simulium	6	1
Thienemannimyia	6	1
Tvetenia	5	1

*(EPT organism) Taxa Richness: 37 Population: 102

%Dominance / Dominant Taxon(s): 16.7% Nais

Hilsenhoff Biotic Index (HBI): 6.42

%Clingers: 25.49%

* E+P+T: 5 (1) Ephemeroptera, () Plecoptera, (4) Trichoptera

%Ephemeroptera: 2.94%

CPMI Rating: 12 Good

Habitat Analysis: 127 Suboptimal USEPA Protocol

Observations: Water temp: 12 C; Cond: 131 umhos; DO: 9.9 mg/L; pH: 7.6 SU

Clarity: slightly turbid, brown; Flow Rate: moderate; Width/Depth: 31' / 1 - 2.5'; Substrate: cobble, gravel, sand, silt

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, grasses, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers flowing

Other: filamentous algae, green stabilization netting on left bank, recent bridge construction; trout stocked

AMNET Site # AN0477

Stream Name: Whale Pond Bk

Location: Larchwood Ave; Ocean Twp; Monmouth County

Collection Date: 5/3/2005 USGS Topo Map: Long Branch

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Lumbriculidae	8	40
Caecidotea	8	20
Polypedilum	6	10
Gammarus	6	6
Prodiamesa	3	4
Enchytraeidae	10	3
Nanocladius	3	3
Brillia	5	2
* Ironoquia	3	2
* Lepidostoma	1	2
* Lype	2	2
Microvelia	6	2
Thienemannimyia	6	2
Cricotopus	7	1
Limnodrilus	10	1
Molophilus	3	1
Nais	8	1
Orthoclaadiinae	5	1
* Platycentropus	4	1
Probezzia	6	1

* (EPT organism) Taxa Richness: 20 Population: 105

%Dominance / Dominant Taxon(s): 38.1% Lumbriculidae

Hilsenhoff Biotic Index (HBI): 6.82 %Clingers: 2.86%

* E+P+T: 4 () Ephemeroptera, () Plecoptera, (4) Trichoptera %Ephemeroptera: 0.00%

CPMI Rating: 8 Fair

Habitat Analysis: 146 Suboptimal USEPA Protocol

Observations: Water temp: 10.9 C; Cond: 180 umhos; DO: 7.4 mg/L; pH: 6.9 SU

Clarity: slightly turbid, grey haze; Flow Rate: moderate; Width/Depth: 27' /1 - 2'; Substrate: gravel, sand, silt

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: brick and stone wall constructed on downstream left bank

AMNET Site # AN0479

Stream Name: Jumping Bk

Location: Essex Rd; New Shrewsbury Boro; Monmouth County

Collection Date: 4/28/2005 USGS Topo Map: Asbury Park

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Pisidium	6.8	22
Slavina	7	19
* Cheumatopsyche	5	9
Nais	8	9
Cricotopus	7	8
Simulium	6	7
Polypedilum	6	5
Berosus	5	3
Enchytraeidae	10	3
Ischnura	9	3
Lumbricidae	10	3
Lumbriculus	8	3
Argia	6	2
Orthoclaadiinae	5	2
Prostoma	7	2
Rheocricotopus	6	2
Rheotanytarsus	6	2
Ablabesmyia	8	1
Dolichopodidae	4	1
Menetus	6	1
Stenelmis	5	1
Tipula	4	1

* (EPT organism) Taxa Richness: 22 Population: 109

%Dominance / Dominant Taxon(s): 20.2% Pisidium

Hilsenhoff Biotic Index (HBI): 6.79 %Clingers: 26.61%

* E+P+T: 1 () Ephemeroptera, () Plecoptera, (1) Trichoptera %Ephemeroptera: 0.00%

CPMI Rating: 8 Fair

Habitat Analysis: 150 Suboptimal USEPA Protocol

Observations: Water temp: 13.2 C; Cond: 386 umhos; DO: 7.8 mg/L; pH: 6.8 SU

Clarity: turbid; Flow Rate: moderate; Width/Depth: 6' / 2'; Substrate: sand, snags

Canopy: closed; Bank Stability: fair; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: stream culverted to two pipes under road; old erosion fence on left bank; 15' cement wall on right bank

AMNET Site # AN0480

Stream Name: Jumping Bk

Location: Rt. 33 / Corlies Ave; Neptune Twp; Monmouth County

Collection Date: 4/28/2005 USGS Topo Map: Asbury Park

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Lumbriculidae	8	51
Pisidium	6.8	17
Polypedilum	6	6
Ancyronyx	2	3
Nais	8	3
Tubifex	10	3
Calopteryx	6	2
Limnodrilus	10	2
Tabanidae	6	2
Tribelos	5	2
Boyeria	2	1
Cordulegaster	3	1
Culicoides	10	1
* Hydropsyche	4	1
* Maccaffertium	3	1
Rheocricotopus	6	1
Rheotanytarsus	6	1
Slavina	7	1
Thienemannimyia	6	1

* (EPT organism) Taxa Richness: 19 Population: 100

%Dominance / Dominant Taxon(s): 51.0% Lumbriculidae

Hilsenhoff Biotic Index (HBI): 7.21

%Clingers: 6.00%

* E+P+T: 2 (1) Ephemeroptera, () Plecoptera, (1) Trichoptera

%Ephemeroptera: 1.00%

CPMI Rating: 6 Fair

Habitat Analysis: 154 Suboptimal USEPA Protocol

Observations: Water temp: 14.4 C; Cond: 368 umhos; DO: 8.5 mg/L; pH: 6.9 SU

Clarity: turbid; Flow Rate: moderate; Width/Depth: 10' / 2.5'; Substrate: sand, silt, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, moss

Stream Gradient: Low Gradient Stream; Land Uses: suburban

AMNET Site # AN0481

Stream Name: Shark River

Location: Shark River Rd; Wall Twp; Monmouth County

Collection Date: 4/26/2005 USGS Topo Map: Asbury Park

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Sialis	4	2
Ablabesmyia	8	1
Cricotopus	7	1
Dicranota	3	1
Heterotrissocladius	0	1
Microvelia	6	1
Orthoclaadiinae	5	1
* Polycentropus	6	1
Psectrocladius	8	1
Simulium	6	1
<hr/>		
* (EPT organism)	<i>Taxa Richness:</i> 10	<i>Population:</i> 11

%Dominance / Dominant Taxon(s): 18.2% Sialis

Hilsenhoff Biotic Index (HBI): 5.18

%Clingers: 27.27%

* *E+P+T:* 1 () Ephemeroptera, () Plecoptera, (1) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 8 Fair

Habitat Analysis: 114 Suboptimal USEPA Protocol

Observations: Water temp: 12.7 C; Cond: 183 umhos; DO: 6.7 mg/L; pH: 6.9 SU

Clarity: turbid, orange; Flow Rate: moderate; Width/Depth: 18' / <1.0 - 2'; Substrate: cobbles, gravel, sand, silt

Canopy: partly open; Bank Stability: fair; Bank Vegetation: shrubs, grass, trees

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-livestock (horses), suburban, forested, industrial

Other: stream channelized through two pipes, rip-rap along banks, orange floc abundant; new road and bridge construction

AMNET Site # AN0482

Stream Name: Shark River

Location: Remsen Mill Rd; Neptune Twp; Monmouth County

Collection Date: 5/3/2005 USGS Topo Map: Asbury Park

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tribelos	5	27
Rheocricotopus	6	9
Cricotopus	7	7
* Eurylophella	4	6
Polypedilum	6	5
Limnodrilus	10	4
Orthocladius	6	4
* Brachycentrus	1	3
Hexatoma	2	3
* Hydropsyche	4	3
Boyeria	2	2
Macronychus	2	2
Nais	8	2
Rheotanytarsus	6	2
Thienemannimyia	6	2
Chauliodes	4	1
Chironomidae	6	1
Chrysops	6	1
Hyalella	8	1
Hydrovatus	5	1
* Leuctra	0	1
* Maccaffertium	3	1
Microvelia	6	1
Pilaria	7	1
* Polycentropodidae	6	1
Procladius	9	1
Promoresia	2	1
Psectrocladius	8	1
Slavina	7	1
Stenelmis	5	1
Tipula	4	1
Tubificidae	10	1

* (EPT organism) Taxa Richness: 32 Population: 98

%Dominance / Dominant Taxon(s): 27.6% Tribelos

Hilsenhoff Biotic Index (HBI): 5.32 %Clingers: 29.59%

* E+P+T: 6 (2) Ephemeroptera, (1) Plecoptera, (3) Trichoptera %Ephemeroptera: 7.14%

CPMI Rating: 14 Good

Habitat Analysis: 151 Suboptimal USEPA Protocol

Observations: Water temp: 11.4 C; Cond: 214 umhos; DO: 9.5 mg/L; pH: 7 SU

Clarity: turbid; Flow Rate: moderate; Width/Depth: 21' / 2'; Substrate: gravel, mud, silt

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Other: ducks, geese

AMNET Site # AN0483

Stream Name: Wreck Pond Bk

Location: Old Mill Rd; Wall Twp; Monmouth County

Collection Date: 5/5/2005 USGS Topo Map: Asbury Park

Genus	Tolerance Value	Amount
Stylaria	8	22
Amnicola	4.8	14
Gammarus	6	12
Caecidotea	8	7
* Triaenodes	6	6
Cricotopus	7	5
Dubiraphia	6	5
Ischnura	9	4
Stenelmis	5	4
Hyalella	8	3
Ancyronyx	2	2
Corixidae	9	2
Polypedilum	6	2
Ablabesmyia	8	1
* Caenis	7	1
Dero	10	1
* Eurylophella	4	1
* Leptocerus	3	1
Lumbriculus	8	1
* Mystacides	4	1
* Oecetis	8	1
Pisidium	6.8	1
Planorbidae	6	1
Thienemanniella	6	1

* (EPT organism) Taxa Richness: 24 Population: 100

%Dominance / Dominant Taxon(s): 22.0% Stylaria

Hilsenhoff Biotic Index (HBI): 6.64 %Clingers: 18.00%

* E+P+T: 6 (2) Ephemeroptera, () Plecoptera, (4) Trichoptera %Ephemeroptera: 2.00%

CPMI Rating: 10 Fair

Habitat Analysis: 168 Optimal USEPA Protocol

Observations: Water temp: 12.6 C; Cond: 232 umhos; DO: 9.5 mg/L; pH: 7 SU

Clarity: clear, brown; Flow Rate: moderate; Width/Depth: 34' / 1 - 2'; Substrate: gravel, sand, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Downstream of Impoundment: Old Mill Pond upstream

Other: ducks, geese, crayfish; resident landscaped up to right bank

AMNET Site # AN0484

Stream Name: Hannabrand Bk

Location: Old Mill Rd; Wall Twp; Monmouth County

Collection Date: 5/5/2005 USGS Topo Map: Asbury Park

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Polypedilum	6	33
Cricotopus	7	14
Nais	8	14
Tvetenia	5	8
Stenelmis	5	7
Gammarus	6	4
Rheotanytarsus	6	4
Limnodrilus	10	3
Rheocricotopus	6	3
Thienemannimyia	6	3
* Eurylophella	4	2
Slavina	7	2
Amnicola	4.8	1
Chironomus	10	1
Microtendipes	7	1
Oulimnius	4	1
* Polycentropus	6	1
Promoresia	2	1
Tribelos	5	1
Tubifex	10	1
Vejdovskyella	4	1

* (EPT organism) Taxa Richness: 21 Population: 106

%Dominance / Dominant Taxon(s): 31.1% Polypedilum

Hilsenhoff Biotic Index (HBI): 6.34

%Clingers: 29.25%

* E+P+T: 2 (1) Ephemeroptera, () Plecoptera, (1) Trichoptera

%Ephemeroptera: 1.89%

CPMI Rating: 8 Fair

Habitat Analysis: 167 Optimal USEPA Protocol

Observations: Water temp: 10.7 C; Cond: 221 umhos; DO: 9.8 mg/L; pH: 6.9 SU

Clarity: slightly turbid; Flow Rate: moderate; Width/Depth: 20' / 1 - 2'; Substrate: gravel, sand, silt, snags

Canopy: mostly open; Bank Stability: good; Bank Vegetation: grasses, shrubs, trees

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: fish, frogs; adjacent to pumping station

AMNET Site # AN0485

Stream Name: Manasquan River

Location: off Turkey Swamp Rd (headwaters); Freehold Twp; Monmouth County

Collection Date: 4/4/2006 USGS Topo Map: Adelpia

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Caecidotea	8	51
Lumbriculus	8	23
Enchytraeidae	10	8
Crangonyx	8	4
Hydroporus	5	2
Orthoclaadiinae	5	2
Thienemannimyia	6	2
Bezzia	6	1
Parametriochnemus	5	1
Psectrocladius	8	1
* Ptilostomis	5	1
Rheocricotopus	6	1
Sialis	4	1
Tribelos	5	1
Tubifex	10	1

* (EPT organism) *Taxa Richness:* 15 *Population:* 100

%Dominance / Dominant Taxon(s): 51.0% Caecidotea

Hilsenhoff Biotic Index (HBI): 7.85

%Clingers: 0.00%

* *E+P+T:* 1 () Ephemeroptera, () Plecoptera, (1) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 2 Poor

Habitat Analysis: 172 Optimal USEPA Protocol

Observations: Water temp: 9.6 C; Cond: 112 umhos; DO: 4.5 mg/L; pH: 4.8 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 6', <1'; Substrate: mud, silt

Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs, moss

Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # AN0486

Stream Name: Debois Ck

Location: Rt 33; Freehold Twp; Monmouth County

Collection Date: 4/20/2005 USGS Topo Map: Adelpia

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Cricotopus	7	30
Limnodrilus	10	14
Chironomidae	6	9
Polypedilum	6	9
Tubifex	10	8
Rheocricotopus	6	7
Pisidium	6.8	6
Heterotrissocladius	0	4
Nais	8	4
Stylodrilus	10	3
Ancyronyx	2	1
Antocha	3	1
Calopteryx	6	1
Gammarus	6	1
Hydrobaenus	8	1
Hydrovatus	5	1
Musculium	5	1
Orthocladius	6	1
Paratendipes	8	1
Thienemannimyia	6	1
Tribelos	5	1

* (EPT organism) Taxa Richness: 21 Population: 105

%Dominance / Dominant Taxon(s): 28.6% Cricotopus

Hilsenhoff Biotic Index (HBI): 7.07

%Clingers: 30.48%

* E+P+T: 0 () Ephemeroptera, () Plecoptera, () Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 8 Fair

Habitat Analysis: 122 Suboptimal USEPA Protocol

Observations: Water temp: 13.5 C; Cond: 315 umhos; DO: 10.1 mg/L; pH: 7.2 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 14' / < 1.0 - 1.5'; Substrate: gravel, silt, snags

Canopy: mostly closed; Bank Stability: poor; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-livestock, suburban

Other: orange iron floc

AMNET Site # AN0487

Stream Name: Debois Ck

Location: Strickland Rd; Howell Twp; Monmouth County

Collection Date: 5/12/2005 USGS Topo Map: Adelpia

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Cricotopus	7	28
Nais	8	22
Pseudorthocladius	0	8
Enchytraeidae	10	7
Lumbriculus	8	7
Limnodrilus	10	6
Saetheria	4	6
Ancyronyx	2	3
Chironomus	10	3
Polypedilum	6	3
Aulodrilus	8	2
Crangonyx	8	2
Orthoclaadiinae	5	2
Stenochironomus	5	2
Brillia	5	1
* Cheumatopsyche	5	1
Macronychus	2	1
Parakiefferiella	4	1
Pisidium	6.8	1
Simulium	6	1
Tetragoneuria	8.5	1

* (EPT organism) Taxa Richness: 21 Population: 108

%Dominance / Dominant Taxon(s): 25.9% Cricotopus

Hilsenhoff Biotic Index (HBI): 6.72

%Clingers: 31.48%

* E+P+T: 1 () Ephemeroptera, () Plecoptera, (1) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 8 Fair

Habitat Analysis: 132 Suboptimal USEPA Protocol

Observations: Water temp: 17.0 C; Cond: 306 umhos; DO: 9.5 mg/L; pH: 6.7 SU

Clarity: slightly turbid; Flow Rate: moderate; Width/Depth: 23' / 1 - 2'; Substrate: gravel, sand, mud, silt, snags

Canopy: mostly open; Bank Stability: fair; Bank Vegetation: grasses, trees, vines

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

AMNET Site # AN0488

Stream Name: UNT to Manasquan River (Killtime Bk)

Location: Strickland Rd; Howell Twp; Monmouth County

Collection Date: 4/21/2005 USGS Topo Map: Adelpia

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Nais	8	27
Cricotopus	7	17
* Cheumatopsyche	5	6
Lumbriculus	8	6
Polypedilum	6	6
* Hydropsyche	4	4
Eukiefferiella	8	2
Argia	6	1
Lumbricidae	10	1
Slavina	7	1
<hr/>		
* (EPT organism)	<i>Taxa Richness:</i> 10	<i>Population:</i> 71

%Dominance / Dominant Taxon(s): 38.0% Nais

Hilsenhoff Biotic Index (HBI): 7.10

%Clingers: 39.44%

* *E+P+T:* 2 () Ephemeroptera, () Plecoptera, (2) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 8 Fair

Habitat Analysis: 146 Suboptimal USEPA Protocol

Observations: Water temp: 16.8 C; Cond: 333 umhos; DO: 11.6 mg/L; pH: 7.3 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 4' / < 1.0 - 2'; Substrate: gravel, sand, silt, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: algae, orange floc

AMNET Site # AN0489

Stream Name: Manasquan River

Location: Rt 9; Howell Twp; Monmouth County

Collection Date: 4/4/2006 USGS Topo Map: Adelpia

Genus	Tolerance Value	Amount
* Hydropsyche	4	21
* Cheumatopsyche	5	19
Ancyronyx	2	12
Rheotanytarsus	6	8
Calopteryx	6	5
* Lype	2	4
Tanytarsus	6	4
Tribelos	5	4
Limnodrilus	10	3
Macronychus	2	3
Orthocladius	6	3
Boyeria	2	2
Heterotrissocladius	0	2
Chironomidae	6	1
Cricotopus	7	1
Dromogomphus	4	1
Gammarus	6	1
Hexatoma	2	1
Macromia	2	1
Prostoma	7	1
Stylodrilus	10	1
Thienemanniella	6	1
Tipula	4	1

* (EPT organism) Taxa Richness: 23 Population: 100

%Dominance / Dominant Taxon(s): 21.0% Hydropsyche

Hilsenhoff Biotic Index (HBI): 4.45

%Clingers: 68.00%

* E+P+T: 3 () Ephemeroptera, () Plecoptera, (3) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 16 Good

Habitat Analysis: 95 Marginal USEPA Protocol

Observations: Water temp: 9.8 C; Cond: 287 umhos; DO: 8.6 mg/L; pH: 6.9 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 36',2'; Substrate: gravel, sand, mud, silt, snags

Canopy: partly open; Bank Stability: poor; Bank Vegetation: trees, bare soil

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: right bank- landscaping service, iron precipitate

AMNET Site # AN0490

Stream Name: Manasquan River

Location: West Farms Rd; Howell Twp; Monmouth County

Collection Date: 5/12/2005 USGS Topo Map: Farmingdale

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Nais	8	18
Orthocladius	6	16
Brillia	5	15
Cricotopus	7	11
Heterotrissocladius	0	9
Chironomidae	6	7
Saetheria	4	5
Tubifex	10	4
Paratanytarsus	6	2
Polypedilum	6	2
Tribelos	5	2
Boyeria	2	1
Calopteryx	6	1
Eukiefferiella	8	1
Gammarus	6	1
Limnodrilus	10	1
Macronychus	2	1
Robackia	6	1
Stenochironomus	5	1
Thienemanniella	6	1
Tvetenia	5	1

* (EPT organism) Taxa Richness: 21 Population: 101

%Dominance / Dominant Taxon(s): 17.8% Nais

Hilsenhoff Biotic Index (HBI): 5.78

%Clingers: 11.88%

* E+P+T: 0 () Ephemeroptera, () Plecoptera, () Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 8 Fair

Habitat Analysis: 139 Suboptimal USEPA Protocol

Observations: Water temp: 15.3 C; Cond: 258 umhos; DO: 8.8 mg/L; pH: 6.1 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 60' / 1 - 2'; Substrate: cobbles, gravel, sand, silt, snags

Canopy: mostly open; Bank Stability: fair; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural

Pipes / Ditches: storm sewer flowing

Other: filamentous algae

AMNET Site # AN0491

Stream Name: Marsh Bog Bk

Location: Cranbury Rd; Howell Twp; Monmouth County

Collection Date: 4/26/2005 USGS Topo Map: Farmingdale

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tribelos	5	40
Caecidotea	8	13
Lumbriculus	8	9
Polypedilum	6	9
Cnephia	4	7
Crangonyx	8	7
Hydroporus	5	3
Thienemannimyia	6	3
Apsectrotanypus	5	2
Enchytraeidae	10	2
Probezzia	6	2
Sialis	4	2
Cryptochironomus	8	1
Limnophyes	8	1
* Ptilostomis	5	1

* (EPT organism) Taxa Richness: 15 Population: 102

%Dominance / Dominant Taxon(s): 39.2% Tribelos

Hilsenhoff Biotic Index (HBI): 6.06

%Clingers: 6.86%

* E+P+T: 1 () Ephemeroptera, () Plecoptera, (1) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 4 Poor

Habitat Analysis: 151 Suboptimal USEPA Protocol

Observations: Water temp: 14.7 C; Cond: 69 umhos; DO: 8.6 mg/L; pH: 5.7 SU

Clarity: clear, cedar-brown; Flow Rate: moderate; Width/Depth: 7' / 1 - 2'; Substrate: sand, silt, muck

Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested (nr US Naval Ammunition Depot)

Other: filamentous algae

AMNET Site # AN0492

Stream Name: Marsh Bog Bk

Location: Yellow Brook Rd; Howell Twp; Monmouth County

Collection Date: 5/5/2005 USGS Topo Map: Farmingdale

Genus	Tolerance Value	Amount
Nais	8	36
Cricotopus	7	16
Enchytraeidae	10	11
Limnodrilus	10	5
* Eurylophella	4	4
Antocha	3	3
Lumbriculidae	8	3
Orthocladinae	5	3
Pisidium	6.8	3
Aulodrilus	8	2
Thienemannimyia	6	2
Ancyronyx	2	1
Bezzia	6	1
Hydroporus	5	1
* Hydropsyche	4	1
* Maccaffertium	3	1
Nigronia	2	1
Optioservus	4	1
Paratendipes	8	1
Polypedilum	6	1
Potthastia	2	1
Prostoma	7	1
Rheocricotopus	6	1
Tvetenia	5	1

* (EPT organism) Taxa Richness: 24 Population: 101

%Dominance / Dominant Taxon(s): 35.6% Nais

Hilsenhoff Biotic Index (HBI): 7.25 %Clingers: 28.71%

* E+P+T: 3 (2) Ephemeroptera, () Plecoptera, (1) Trichoptera %Ephemeroptera: 4.95%

CPMI Rating: 8 Fair

Habitat Analysis: 158 Suboptimal USEPA Protocol

Observations: Water temp: 12.5 C; Cond: 102 umhos; DO: 9.1 mg/L; pH: 7.3 SU

Clarity: slightly turbid; Flow Rate: moderate; Width/Depth: 7' / 1 - 2'; Substrate: sand, mud, silt, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, grass, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers flowing

AMNET Site # AN0493

Stream Name: Manasquan River

Location: Rt 547; Howell Twp; Monmouth County

Collection Date: 5/5/2005 USGS Topo Map: Farmingdale

Genus	Tolerance Value	Amount
Nais	8	36
Cricotopus	7	27
* Hydropsyche	4	7
Limnodrilus	10	6
Simulium	6	4
Boyeria	2	3
Polypedilum	6	3
Tvetenia	5	3
Calopteryx	6	2
Dineutus	4	2
Gammarus	6	2
* Cheumatopsyche	5	1
Cryptochironomus	8	1
Gomphus	5	1
Hydrobaenus	8	1
Lumbricillus	10	1
Parachaetocladus	2	1
* Platycentropus	4	1
Potthastia	2	1
Robackia	6	1
Stenochironomus	5	1

* (EPT organism) Taxa Richness: 21 Population: 105

%Dominance / Dominant Taxon(s): 34.3% Nais

Hilsenhoff Biotic Index (HBI): 6.81

%Clingers: 37.14%

* E+P+T: 3 () Ephemeroptera, () Plecoptera, (3) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 10 Fair

Habitat Analysis: 145 Suboptimal USEPA Protocol

Observations: Water temp: 13 C; Cond: 229 umhos; DO: 10.3 mg/L; pH: 7 SU

Clarity: turbid; Flow Rate: fast; Width/Depth: 30' / 1 - 2.5'; Substrate: gravel, sand, snags

Canopy: partly open; Bank Stability: fair; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Downstream of Impoundment: present

Other: USGS gage station; trout stocked stream

AMNET Site # AN0494

Stream Name: Mingamahone Bk

Location: Cranbury Rd; Howell Twp; Monmouth County

Collection Date: 4/4/2006 USGS Topo Map: Farmingdale

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Polypedilum	6	25
Gammarus	6	12
Musculium	5	12
Sphaerium	8	11
Corydalis	4	7
* Platycentropus	4	5
Sialis	4	5
Lumbriculus	8	3
Ablabesmyia	8	2
Hydroporus	5	2
* Leptophlebia	4	2
* Polycentropus	6	2
* Pycnopsyche	4	2
Gomphus	5	1
Heterotrissocladius	0	1
Nematoda	6	1
Tipula	4	1
Tribelos	5	1

* (EPT organism) Taxa Richness: 18 Population: 95

%Dominance / Dominant Taxon(s): 26.3% Polypedilum

Hilsenhoff Biotic Index (HBI): 5.64

%Clingers: 9.47%

* E+P+T: 4 (1) Ephemeroptera, () Plecoptera, (3) Trichoptera

%Ephemeroptera: 2.11%

CPMI Rating: 10 Fair

Habitat Analysis: 160 Optimal USEPA Protocol

Observations: Water temp: 9.7 C; Cond: 128 umhos; DO: 7.7 mg/L; pH: 6.5 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 16', 1'; Substrate: gravel, sand, mud, silt, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban, forested

Pipes / Ditches: storm sewers

Other: iron precipitate

AMNET Site # AN0495

Stream Name: Mingamahone Bk

Location: Rt 524; Howell Twp; Monmouth County

Collection Date: 5/3/2005 USGS Topo Map: Farmingdale

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Simulium	6	22
* Maccaffertium	3	20
Tvetenia	5	7
* Micrasema	2	6
* Hydropsyche	4	4
Optioservus	4	4
* Pycnopsyche	4	4
Calopteryx	6	3
* Cheumatopsyche	5	3
Cricotopus	7	3
Lumbriculus	8	3
Nais	8	3
* Eurylophella	4	2
* Oecetis	8	2
Potthastia	2	2
Ancyronyx	2	1
Dubiraphia	6	1
Gammarus	6	1
Lumbricidae	10	1
Microvelia	6	1
Nigronia	2	1
Phaenopsectra	7	1
Physella	9.1	1
* Plauditus	4	1
Prostoma	7	1
Rheotanytarsus	6	1
Thienemannimyia	6	1

* (EPT organism) Taxa Richness: 27 Population: 100

%Dominance / Dominant Taxon(s): 22.0% Simulium

Hilsenhoff Biotic Index (HBI): 4.88 %Clingers: 72.00%

* E+P+T: 8 (3) Ephemeroptera, () Plecoptera, (5) Trichoptera %Ephemeroptera: 23.00%

CPMI Rating: 26 Excellent

Habitat Analysis: 176 Optimal USEPA Protocol

Observations: Water temp: 12.8 C; Cond: 114 umhos; DO: 9.6 mg/L; pH: 6.9 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 19' / 1 - 2'; Substrate: gravel, sand

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested (Allaire State Park)

Other: trout stocked stream

AMNET Site # AN0496

Stream Name: Stan Bk

Location: Easy St; Howell Twp; Monmouth County

Collection Date: 5/5/2005 USGS Topo Map: Farmingdale

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Simulium	6	28
Rheocricotopus	6	11
Pisidium	6.8	9
* Eurylophella	4	8
* Lepidostoma	1	6
* Ironoquia	3	4
Thienemannimyia	6	4
* Neophylax	3	3
Polypedilum	6	3
* Pycnopsyche	4	3
Tanytarsus	6	3
Tubifex	10	3
Cricotopus	7	2
* Hydropsyche	4	2
Pentaneura	6	2
Prostoma	7	2
Aulodrilus	8	1
Bezzia	6	1
Dicranota	3	1
Dubiraphia	6	1
Hydroporus	5	1
Lumbriculidae	8	1
Micropsectra	7	1
Microvelia	6	1
Nais	8	1
Nigronia	2	1
* Oecetis	8	1
Phaenopsectra	7	1
* Platycentropus	4	1
Potthastia	2	1
Tabanidae	6	1

* (EPT organism) Taxa Richness: 31 Population: 108

%Dominance / Dominant Taxon(s): 25.9% Simulium

Hilsenhoff Biotic Index (HBI): 5.46 %Clingers: 44.44%

* E+P+T: 8 (1) Ephemeroptera, () Plecoptera, (7) Trichoptera %Ephemeroptera: 7.41%

CPMI Rating: 18 Good

Habitat Analysis: 152 Suboptimal USEPA Protocol

Observations: Water temp: 13 C; Cond: 77 umhos; DO: 8 mg/L; pH: 6.9 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 6' / < 1.0 - 1'; Substrate: gravel

Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-cropland, rural

Pipes / Ditches: pipe draining road

Other: algae, fish; stream culverted under road through pipe; overgrown on upstream side

AMNET Site # AN0497

Stream Name: Squankum Bk

Location: Rt 549; Howell Twp; Monmouth County

Collection Date: 5/6/2005 USGS Topo Map: Farmingdale

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Eurylophella	4	15
Tvetenia	5	12
* Maccaffertium	3	10
Dubiraphia	6	8
Polypedilum	6	8
Optioservus	4	6
Calopteryx	6	5
Pisidium	6.8	5
Brillia	5	4
Stenelmis	5	4
* Cheumatopsyche	5	3
Macronychus	2	3
Thienemannimyia	6	3
Limnodrilus	10	2
Potthastia	2	2
Ancyronyx	2	1
Aulodrilus	8	1
Boyeria	2	1
Gomphus	5	1
Hydrobaenus	8	1
* Lepidostoma	1	1
* Leptophlebiidae	2	1
* Lype	2	1
* Mystacides	4	1
Nais	8	1
Nigronia	2	1
* Oecetis	8	1
* Pycnopsyche	4	1
Simulium	6	1
Tanytarsus	6	1
* Triaenodes	6	1
Tribelos	5	1

* (EPT organism) Taxa Richness: 32 Population: 107

%Dominance / Dominant Taxon(s): 14.0% Eurylophella

Hilsenhoff Biotic Index (HBI): 4.82 %Clingers: 51.40%

* E+P+T: 10 (3) Ephemeroptera, () Plecoptera, (7) Trichoptera %Ephemeroptera: 24.30%

CPMI Rating: 28 Excellent

Habitat Analysis: 153 Suboptimal USEPA Protocol

Observations: Water temp: 10.8 C; Cond: 128 umhos; DO: 9.8 mg/L; pH: 5.9 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 10' / 1 - 2'; Substrate: gravel, sand, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested, rural (horse riding stable on left bank)

Other: trash along stream bank

AMNET Site # AN0499

Stream Name: N Br Metedeconk River

Location: Rt 527; Freehold Twp; Monmouth County

Collection Date: 5/10/2005 USGS Topo Map: Adelpia

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Caecidotea	8	17
Thienemannimyia	6	16
Lumbriculus	8	12
Tribelos	5	10
Musculium	5	8
Chironomidae	6	6
Gammarus	6	5
Ablabesmyia	8	3
Hydroporus	5	2
Limnodrilus	10	2
Dineutus	4	1
Perithemis	4	1

* (EPT organism) Taxa Richness: 12 Population: 83

%Dominance / Dominant Taxon(s): 20.5% Caecidotea

Hilsenhoff Biotic Index (HBI): 6.58 %Clingers: 0.00%

* E+P+T: 0 () Ephemeroptera, () Plecoptera, () Trichoptera %Ephemeroptera: 0.00%

CPMI Rating: 4 Poor

Habitat Analysis: 181 Optimal USEPA Protocol

Observations: Water temp: 12.5 C; Cond: 129 umhos; DO: 7.9 mg/L; pH: 5.4 SU

Clarity: clear, cedar-brown; Flow Rate: slow; Width/Depth: 14' / 2'; Substrate: sand, mud, silt, snags, root mats

Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

AMNET Site # AN0500

Stream Name: N Br Metedeconk River

Location: Jackson Mills Rd (CR23); Freehold Twp; Monmouth County

Collection Date: 5/12/2005 USGS Topo Map: Adelpia

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Cheumatopsyche	5	21
Musculium	5	11
* Pycnopsyche	4	7
Pisidium	6.8	6
Polypedilum	6	6
Caecidotea	8	5
* Ironoquia	3	3
Brillia	5	2
Calopteryx	6	2
Enchytraeidae	10	2
Hexatoma	2	2
* Leuctra	0	2
Lumbriculus	8	2
* Triaenodes	6	2
Tubificidae	10	2
* Agarodes	3	1
Heterotrissocladius	0	1
* Lepidostoma	1	1
Limnodrilus	10	1
Limnophila	3	1
* Lype	2	1
* Maccaffertium	3	1
Nais	8	1
Saetheria	4	1
Tipula	4	1

* (EPT organism) Taxa Richness: 25 Population: 85

%Dominance / Dominant Taxon(s): 24.7% Cheumatopsyche

Hilsenhoff Biotic Index (HBI): 5.24 %Clingers: 29.41%

* E+P+T: 9 (1) Ephemeroptera, (1) Plecoptera, (7) Trichoptera %Ephemeroptera: 1.18%

CPMI Rating: 14 Good

Habitat Analysis: 133 Suboptimal USEPA Protocol

Observations: Water temp: 16.2 C; Cond: 97 umhos; DO: 8.2 mg/L; pH: 6.6 SU

Clarity: clear, cedar-brown; Flow Rate: moderate; Width/Depth: 13' / 2'; Substrate: sand, mud, silt

Canopy: closed; Bank Stability: fair; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

AMNET Site # AN0501

Stream Name: N Br Metedeconk River

Location: Aldrich Rd; Howell Twp; Monmouth & Ocean County

Collection Date: 5/17/2005 USGS Topo Map: Adelpia

Genus	Tolerance Value	Amount
* Micrasema	2	19
Musculium	5	13
Cardiocladius	5	9
* Acerpenna	4	8
Gammarus	6	6
Heterotrissocladius	0	6
* Oecetis	8	6
Caecidotea	8	5
Promoresia	2	5
Thienemanniella	6	5
* Acentrella	4	3
* Cheumatopsyche	5	3
* Hydropsyche	4	3
* Maccaffertium	3	3
* Baetidae	4	2
* Perlesta	4	2
Tanytarsus	6	2
* Brachycentrus	1	1
* Ceraclea	3	1
Corydalus	4	1
Dubiraphia	6	1
Limnodrilus	10	1
* Lype	2	1
Macronychus	2	1
Nais	8	1
Simulium	6	1
Stenelmis	5	1
* (EPT organism)	Taxa Richness: 27	Population: 110

%Dominance / Dominant Taxon(s): 17.3% Micrasema

Hilsenhoff Biotic Index (HBI): 4.25 %Clingers: 43.64%

* E+P+T: 12 (4) Ephemeroptera, (1) Plecoptera, (7) Trichoptera %Ephemeroptera: 14.55%

CPMI Rating: 24 Excellent

Habitat Analysis: 154 Suboptimal USEPA Protocol

Observations: Water temp: 14.5 C; Cond: 167 umhos; DO: 8.8 mg/L; pH: 6.2 SU

Clarity: slightly turbid, cedar-brown; Flow Rate: moderate; Width/Depth: 41' / 1'; Substrate: cobble, gravel, sand, snags, root mats

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban, forested

Other: macrophytes, fish, crayfish, geese, trash; adj to pumping station

AMNET Site # AN0502

Stream Name: N Br Metedeconk River

Location: Rt 9; Lakewood Twp; Ocean & Monmouth County

Collection Date: 5/17/2005 USGS Topo Map: Lakewood

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Pisidium	6.8	16
Limnodrilus	10	15
* Plauditus	4	14
Dubiraphia	6	6
* Maccaffertium	3	6
Gammarus	6	5
Rheotanytarsus	6	5
Slavina	7	4
Stylaria	8	4
Ischnura	9	3
Lumbriculus	8	3
Cricotopus	7	2
Menetus	6	2
* Triaenodes	6	2
Amnicola	4.8	1
Caecidotea	8	1
* Cheumatopsyche	5	1
* Eurylophella	4	1
Gomphus	5	1
Macronychus	2	1
Nais	8	1
* Nectopsyche	3	1
Psectrocladius	8	1
* Pycnopsyche	4	1
Rheocricotopus	6	1
Simulium	6	1
Tribelos	5	1
Vejdovskyella	4	1

* (EPT organism) Taxa Richness: 28 Population: 101

%Dominance / Dominant Taxon(s): 15.8% Pisidium

Hilsenhoff Biotic Index (HBI): 6.44 %Clingers: 22.77%

* E+P+T: 7 (3) Ephemeroptera, () Plecoptera, (4) Trichoptera %Ephemeroptera: 20.79%

CPMI Rating: 18 Good

Habitat Analysis: 133 Suboptimal USEPA Protocol

Observations: Water temp: 16.1 C; Cond: 199 umhos; DO: 8.8 mg/L; pH: 6.4 SU

Clarity: clear, cedar-brown; Flow Rate: moderate; Width/Depth: 40' / 1 - 4'; Substrate: gravel, sand, snags

Canopy: open; Bank Stability: fair; Bank Vegetation: trees, shrubs, weeds

Stream Gradient: Low Gradient Stream; Land Uses: urban

Pipes / Ditches: storm sewers

Other: filamentous algae, macrophytes, trash

AMNET Site # AN0503

Stream Name: Haystack Bk

Location: Southard Rd; Howell Twp; Monmouth County

Collection Date: 5/17/2005 USGS Topo Map: Farmingdale

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Sphaerium	8	26
Pisidium	6.8	13
Polypedilum	6	12
Brillia	5	6
Cryptotendipes	6	5
Pristinella	10	5
Cricotopus	7	4
Dubiraphia	6	4
Orthocladus	6	4
Chironomus	10	2
Rheotanytarsus	6	2
Tubificidae	10	2
Argia	6	1
Calopteryx	6	1
Eukiefferiella	8	1
Heterotrissocladius	0	1
Limnodrilus	10	1
Nais	8	1
Physella	9.1	1
Slavina	7	1
Tanytarsus	6	1
Thienemannimyia	6	1

* (EPT organism) Taxa Richness: 22 Population: 95

%Dominance / Dominant Taxon(s): 27.4% Sphaerium

Hilsenhoff Biotic Index (HBI): 7.08 %Clingers: 11.58%

* E+P+T: 0 () Ephemeroptera, () Plecoptera, () Trichoptera %Ephemeroptera: 0.00%

CPMI Rating: 6 Fair

Habitat Analysis: 120 Suboptimal USEPA Protocol

Observations: Water temp: 14.4 C; Cond: 249 umhos; DO: 9.4 mg/L; pH: 6.2 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 8' / < 1.0'; Substrate: sand, silt

Canopy: partly open; Bank Stability: fair; Bank Vegetation: trees, shrubs, weeds

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Pipes / Ditches: storm sewers

Other: macrophytes, filamentous algae, frogs; oily sheen on surface

AMNET Site # AN0504

Stream Name: Haystack Bk

Location: Rt 547; Howell Twp; Monmouth County

Collection Date: 5/6/2005 USGS Topo Map: Lakewood

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Maccaffertium	3	14
* Cheumatopsyche	5	10
* Lepidostoma	1	9
* Ceraclea	3	8
* Eurylophella	4	7
Stenelmis	5	7
Tvetenia	5	7
Ancyronyx	2	6
Gammarus	6	6
Nais	8	3
Polypedilum	6	3
Calopteryx	6	2
Cricotopus	7	2
Limnodrilus	10	2
Macronychus	2	2
* Triaenodes	6	2
Boyeria	2	1
Dugesia	4	1
Enchytraeidae	10	1
Gomphidae	1	1
* Hydropsyche	4	1
* Oecetis	8	1
Optioservus	4	1
Slavina	7	1
Thienemanniella	6	1
Tribelos	5	1

* (EPT organism) Taxa Richness: 26 Population: 100

%Dominance / Dominant Taxon(s): 14.0% Maccaffertium

Hilsenhoff Biotic Index (HBI): 4.26 %Clingers: 51.00%

* E+P+T: 8 (2) Ephemeroptera, () Plecoptera, (6) Trichoptera %Ephemeroptera: 21.00%

CPMI Rating: 24 Excellent

Habitat Analysis: 147 Suboptimal USEPA Protocol

Observations: Water temp: 11.9 C; Cond: 192 umhos; DO: 10.2 mg/L; pH: 5.9 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 14' / 1 - 2'; Substrate: gravel, sand, silt, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: rural, suburban (trailer park adj to both banks)

Pipes / Ditches: storm sewer flowing

Other: macrophytes; recent bridge construction (2004); erosion control measures taken

AMNET Site # AN0505

Stream Name: Haystack Bk(Muddy Ford Bk)

Location: Ramtown-Greenville Rd; Howell Twp; Monmouth County

Collection Date: 5/19/2005 USGS Topo Map: Lakewood

Genus	Tolerance Value	Amount
Rheotanytarsus	6	13
* Lepidostoma	1	12
Stenelmis	5	10
Tvetenia	5	9
Nais	8	7
* Eurylophella	4	6
Macronychus	2	6
* Acentrella	4	5
* Maccaffertium	3	5
* Cheumatopsyche	5	3
Polypedilum	6	3
Gammarus	6	2
Pisidium	6.8	2
Promoresia	2	2
Tanytarsus	6	2
* Triaenodes	6	2
* Agnetina	2	1
Boyeria	2	1
Calopteryx	6	1
Cricotopus	7	1
* Leuctra	0	1
Musculium	5	1
Nigronia	2	1
Orthoclaadiinae	5	1
Pentaneura	6	1
* Perlesta	4	1
* Pycnopsyche	4	1
* (EPT organism)	Taxa Richness: 27	Population: 100

%Dominance / Dominant Taxon(s): 13.0% Rheotanytarsus

Hilsenhoff Biotic Index (HBI): 4.42 %Clingers: 51.00%

* E+P+T: 10 (3) Ephemeroptera, (3) Plecoptera, (4) Trichoptera %Ephemeroptera: 16.00%

CPMI Rating: 24 Excellent

Habitat Analysis: 167 Optimal USEPA Protocol

Observations: Water temp: 13.5 C; Cond: 159 umhos; DO: 9.7 mg/L; pH: 5.8 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 10' / 2'; Substrate: gravel, sand, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: suburban, forested

Pipes / Ditches: storm sewers

Other: retaining wall on left bank upstream

AMNET Site # AN0506

Stream Name: N Br Metedeconk River

Location: Rt 88; Brick Twp; Ocean County

Collection Date: 5/19/2005 USGS Topo Map: Lakewood

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Rheotanytarsus	6	68
Gammarus	6	8
* Maccaffertium	3	6
Cricotopus	7	4
* Eurylophella	4	3
* Acentrella	4	2
* Lepidostoma	1	2
Limnodrilus	10	2
Gomphidae	1	1
* Micrasema	2	1
* Nectopsyche	3	1
Orthoclaadiinae	5	1
Stylo-drilus	10	1
* (EPT organism)	<i>Taxa Richness:</i> 13	<i>Population:</i> 100

%Dominance / Dominant Taxon(s): 68.0% Rheotanytarsus

Hilsenhoff Biotic Index (HBI): 5.65 %Clingers: 82.00%

* E+P+T: 6 (3) Ephemeroptera, () Plecoptera, (3) Trichoptera %Ephemeroptera: 11.00%

CPMI Rating: 16 Good

Habitat Analysis: 166 Optimal USEPA Protocol

Observations: Water temp: 13.9 C; Cond: 192 umhos; DO: 9.4 mg/L; pH: 6.1 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 34' / 3'; Substrate: sand, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: macrophytes, frogs, fish; NJ Gas & Electric pumping station adj to site

AMNET Site # AN0507

Stream Name: School House Br (Cabinfield Br)

Location: Lanes Mill Rd; Lakewood Twp; Ocean County

Collection Date: 5/19/2005 USGS Topo Map: Lakewood

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Sphaeriidae	8	28
Psectrocladius	8	10
Caecidotea	8	5
Dubiraphia	6	5
* Eurylophella	4	5
Cricotopus	7	4
* Hydropsyche	4	4
Lumbriculus	8	4
Polypedilum	6	4
Rheotanytarsus	6	4
Ancyronyx	2	3
Stenelmis	5	3
Stylaria	8	3
* Ceraclea	3	2
* Maccaffertium	3	2
* Oecetis	8	2
Planorbidae	6	2
* Polycentropus	6	2
Thienemannimyia	6	2
* Triaenodes	6	2
Batracobdella	8	1
* Cheumatopsyche	5	1
Enchytraeidae	10	1
* Lepidostoma	1	1
Pentaneura	6	1
Physella	9.1	1
Tribelos	5	1
Tvetenia	5	1

* (EPT organism) Taxa Richness: 28 Population: 104

%Dominance / Dominant Taxon(s): 26.9% Sphaeriidae

Hilsenhoff Biotic Index (HBI): 6.62 %Clingers: 33.65%

* E+P+T: 9 (2) Ephemeroptera, () Plecoptera, (7) Trichoptera %Ephemeroptera: 6.73%

CPMI Rating: 16 Good

Habitat Analysis: 157 Suboptimal USEPA Protocol

Observations: Water temp: 14.6 C; Cond: 147 umhos; DO: 8.4 mg/L; pH: 5.9 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 5' / < 1.0 - 2'; Substrate: gravel, sand, silt, snags

Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: urban

Other: litter; siltation further downstream

AMNET Site # AN0508

Stream Name: S Br Metedeconk River

Location: Leesville-Siloam Rd (Diamond Rd); Jackson Twp; Ocean County

Collection Date: 4/4/2006 USGS Topo Map: Adelpia

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Sphaeriidae	8	14
* Diplectrona	0	10
Cnephia	4	9
* Brachycentrus	1	6
Thienemannimyia	6	6
Cricotopus	7	5
Nigronia	2	5
* Polycentropus	6	5
* Pycnopsyche	4	4
Nais	8	3
* Oecetis	8	3
* Phylocentropus	5	3
Polypedilum	6	3
* Isoperla	2	2
* Leuctra	0	2
Lumbriculus	8	2
* Mystacides	4	2
Sialis	4	2
Chrysops	6	1
Cordulegaster	3	1
Erythemis	10	1
* Heteroplectron	3	1
Hexatoma	2	1
* Leptophlebiidae	2	1
* Lype	2	1
* Molanna	6	1
Psectrocladius	8	1
* Ptilostomis	5	1
Tipula	4	1
Tubifex	10	1

* (EPT organism) Taxa Richness: 30 Population: 98

%Dominance / Dominant Taxon(s): 14.3% Sphaeriidae

Hilsenhoff Biotic Index (HBI): 4.68 %Clingers: 54.08%

* E+P+T: 14 (1) Ephemeroptera, (2) Plecoptera, (11) Trichoptera %Ephemeroptera: 1.02%

CPMI Rating: 24 Excellent

Habitat Analysis: 169 Optimal USEPA Protocol

Observations: Water temp: 10.1 C; Cond: 58 umhos; DO: 8.3 mg/L; pH: 5.9 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 10', 1'; Substrate: sand, mud, silt, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: scrap metal dumped on right bank

AMNET Site # AN0509

Stream Name: S Br Metedeconk River

Location: Jacksons Mill Rd (out. Jacksons Mill Pond); Jackson Twp; Ocean County

Collection Date: 4/4/2006

USGS Topo Map: Adelphia

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Gillia	8	14
* Leptophlebia	4	12
Hyaella	8	11
Muscilium	5	11
Pisidium	6.8	9
Trichocorixa	9	8
Stylodrilus	10	5
Caecidotea	8	3
Cricotopus	7	3
* Polycentropus	6	3
Polypedilum	6	3
Pelocoris	8	2
Tribelos	5	2
Ablabesmyia	8	1
* Agrypnia	7	1
* Caenis	7	1
Chironomidae	6	1
Dicrotendipes	8	1
Dineutus	4	1
Dubiraphia	6	1
Erythemis	10	1
Helisoma	7	1
Hexatoma	2	1
Limnodrilus	10	1
Nais	8	1
Orthocladius	6	1
Thienemanniella	6	1

**(EPT organism)* *Taxa Richness:* 27 *Population:* 100

Becks Biotic Index (BBI): 3.00 *%Plecoptera +Trichoptera:* 4.00%

Insect Taxa: 18 *%Mollusca + Amphipoda:* 46.00%

Non-Insect Taxa: 9 *%Diptera - Tanytarsini:* 14.00%

%Filterers: 23.00%

PMI Rating: 36.59 Fair

Habitat Analysis: 119 Suboptimal USEPA Protocol

Observations: Water temp: 10 C; Cond: 95 umhos; DO: 9.2 mg/L; pH: 6.7 SU

Clarity: slightly turbid; Flow Rate: moderate; Width/Depth: 8',4'; Substrate: sand, mud, silt, snags

Canopy: partly open; Bank Stability: fair; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban, forested

Pipes / Ditches: storm sewers

Other: bridge and road construction in 2005

AMNET Site # AN0510

Stream Name: S Br Metedeconk River

Location: Bennetts Mill Rd (out. Lake Enno); Jackson Twp; Ocean County

Collection Date: 5/17/2005

USGS Topo Map: Adelphia

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Stylaria	8	34
Nais	8	18
Sphaeriidae	8	17
Gammarus	6	9
Ischnura	9	8
Dero	10	3
* Oecetis	8	3
Amnicola	4.8	2
Cricotopus	7	2
Dugesia	4	2
Argia	6	1
Caecidotea	8	1
* Caenis	7	1
Enchytraeidae	10	1
Planorbidae	6	1
Slavina	7	1
Stenelmis	5	1
Thienemanniella	6	1
Unionidae	8	1

* (EPT organism) *Taxa Richness:* 19 *Population:* 107

Becks Biotic Index (BBI): 1.00 *%Plecoptera +Trichoptera:* 2.80%

Insect Taxa: 7 *%Mollusca + Amphipoda:* 28.04%

Non-Insect Taxa: 12 *%Diptera - Tanytarsini:* 2.80%

%Filterers: 16.82%

PMI Rating: 30.15 Poor

Habitat Analysis: 161 Optimal USEPA Protocol

Observations: Water temp: 18.3 C; Cond: 148 umhos; DO: 8.5 mg/L; pH: 6 SU

Clarity: slightly turbid, cedar-brown; Flow Rate: moderate; Width/Depth: 20' / 1 - 2'; Substrate: gravel, sand, silt, root mats

Canopy: partly open; Bank Stability: fair; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban, forested

Downstream of Impoundment: downstream of lake

Other: macrophytes, mussels, fish, turtle, frogs

AMNET Site # AN0510A Stream Name: S Br Metedeconk River
Location: Cooks Bridge Rd; Jackson Twp; Ocean County
Collection Date: 5/17/2005 USGS Topo Map: Adelpia

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Pisidium	6.8	39
Nais	8	14
Cricotopus	7	13
Gammarus	6	13
Limnodrilus	10	3
Amnicola	4.8	2
* Lepidostoma	1	2
* Oecetis	8	2
Planorbidae	6	2
* Plauditus	4	2
Aulodrilus	8	1
Boyeria	2	1
Caecidotea	8	1
Cryptochironomus	8	1
Enchytraeidae	10	1
* Eurylophella	4	1
Hydrobiidae	8	1
Orthoclaadiinae	5	1
Parametriocnemus	5	1
Physella	9.1	1
Psectrocladius	8	1
Slavina	7	1
Tribelos	5	1

* (EPT organism) *Taxa Richness:* 23 *Population:* 105

Becks Biotic Index (BBI): 5.00 *%Plecoptera +Trichoptera:* 3.81%

Insect Taxa: 11 *%Mollusca + Amphipoda:* 55.24%

Non-Insect Taxa: 12 *%Diptera - Tanytarsini:* 17.14%

%Filterers: 37.14%

PMI Rating: 29.12 Poor

Habitat Analysis: 159 Suboptimal USEPA Protocol

Observations: Water temp: 15.4 C; Cond: 121 umhos; DO: 8.5 mg/L; pH: 5.7 SU

Clarity: slightly turbid; Flow Rate: moderate; Width/Depth: 25' / 1 - 3'; Substrate: gravel, sand, mud, silt, snags

Canopy: mostly closed; Bank Stability: fair; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban, forested

Pipes / Ditches: storm sewers flowing

Other: new development upstream of site

AMNET Site # AN0511 Stream Name: S Br Metedeconk River

Location: Cedar Bridge Ave; Lakewood Twp; Ocean County

Collection Date: 5/19/2005 USGS Topo Map: Lakewood

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Lirceus	8	29
Musculium	5	26
* Maccaffertium	3	7
Amnicola	4.8	5
* Cheumatopsyche	5	4
Stenelmis	5	4
* Oecetis	8	3
* Plauditus	4	3
Gammarus	6	2
Ischnura	9	2
Macronychus	2	2
* Nectopsyche	3	2
Argia	6	1
Caecidotea	8	1
Calopteryx	6	1
Diamesinae	2	1
Elmidae	4	1
Lumbriculus	8	1
* Macrostemum	3	1
Quistradrilus	10	1
Slavina	7	1
Tubifex	10	1
Tvetenia	5	1

* (EPT organism) Taxa Richness: 23 Population: 100

Becks Biotic Index (BBI): 7.00 %Plecoptera +Trichoptera: 10.00%

Insect Taxa: 14 %Mollusca + Amphipoda: 33.00%

Non-Insect Taxa: 9 %Diptera - Tanytarsini: 2.00%

%Filterers: 31.00%

PMI Rating: 37.39 Fair

Habitat Analysis: 180 Optimal USEPA Protocol

Observations: Water temp: 17.5 C; Cond: 148 umhos; DO: 7.9 mg/L; pH: 5.8 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 15' / 2'; Substrate: gravel, sand, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban, forested

Pipes / Ditches: storm sewers

Other: macropytes, crayfish; right bank has evidence of erosion (mostly healed)

AMNET Site # AN0512

Stream Name: S Br Metedeconk River

Location: Chambers Bridge Rd; Brick Twp; Ocean County

Collection Date: 5/19/2005 USGS Topo Map: Lakewood

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Rheotanytarsus	6	32
Gammarus	6	28
Tubifex	10	7
Limnodrilus	10	4
* Plauditus	4	4
Tribelos	5	4
* Brachycentrus	1	3
Caecidotea	8	3
Cricotopus	7	3
* Maccaffertium	3	3
* Pseudocloeon	4	3
Brillia	5	1
* Caenis	7	1
Enchytraeidae	10	1
* Eurylophella	4	1
Hyalella	8	1
Hydroporus	5	1
Micropsectra	7	1
* Nectopsyche	3	1
Polypedilum	6	1
Probezzia	6	1
Quistradrilus	10	1
Slavina	7	1

* (EPT organism) Taxa Richness: 23 Population: 106

%Dominance / Dominant Taxon(s): 30.2% Rheotanytarsus

Hilsenhoff Biotic Index (HBI): 6.16

%Clingers: 39.62%

* E+P+T: 7 (5) Ephemeroptera, () Plecoptera, (2) Trichoptera

%Ephemeroptera: 11.32%

CPMI Rating: 16 Good

Habitat Analysis: 150 Suboptimal USEPA Protocol

Observations: Water temp: 18.6 C; Cond: 153 umhos; DO: 8.2 mg/L; pH: 6.2 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 24' / 3 - > 4'; Substrate: sand, silt, mud, snags

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: macrophytes, very muddy banks (most of stream non-wadable, too deep)

AMNET Site # AN0513 **Stream Name: Beaverdam Ck**

Location: Rt 88; Wall Twp; Ocean County

Collection Date: 6/8/2005 **USGS Topo Map: Point Pleasant**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Limnodrilus	10	23
Gammarus	6	20
Cricotopus	7	15
Sphaeriidae	8	9
Hydroporus	5	5
Ischnura	9	5
Simulium	6	4
Lumbriculus	8	3
Planorbidae	6	2
Aeshnidae	3	1
Caecidotea	8	1
Dubiraphia	6	1
Helobdella	8	1
Nais	8	1
Paratanytarsus	6	1
Polypedilum	6	1
Potthastia	2	1
Psectrocladius	8	1
Slavina	7	1
Stenelmis	5	1
Stylaria	8	1

* (EPT organism) *Taxa Richness:* 21 *Population:* 98

%Dominance / Dominant Taxon(s): 23.5% Limnodrilus

Hilsenhoff Biotic Index (HBI): 7.47

%Clingers: 21.43%

* *E+P+T:* 0 () Ephemeroptera, () Plecoptera, () Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 6 Fair

Habitat Analysis: 149 Suboptimal USEPA Protocol

Observations: Water temp: 20.3 C; Cond: 181 umhos; DO: 7.4 mg/L; pH: 5.5 SU

Clarity: slightly turbid; Flow Rate: moderate; Width/Depth: 5', <1-2'; Substrate: sand, silt, snags

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, grasses

Stream Gradient: Low Gradient Stream; Land Uses: suburban (next to shopping center)

Pipes / Ditches: storm sewers

Other: fish, eels, macrophytes, filamentous algae, wetland

AMNET Site # AN0514

Stream Name: Cedar Bridge Br

Location: Moore Rd (Brick Blvd); Brick Twp; Ocean County

Collection Date: 6/23/2005 USGS Topo Map: Lakewood

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Limnodrilus	10	38
Gammarus	6	19
Physella	9.1	11
Sphaeriidae	8	11
Tubifex	10	5
Argia	6	2
Procladius	9	2
Aulodrilus	8	1
Bezzia	6	1
Chironomidae	6	1
Culicidae	8	1
Dubiraphia	6	1
Ischnura	9	1
Mooreobdella	7.8	1
Orthocladius	6	1
Peltodytes	5	1
Psectrocladius	8	1
Tanypodinae	7	1
Tetragoneuria	8.5	1

* (EPT organism) Taxa Richness: 19 Population: 100

%Dominance / Dominant Taxon(s): 38.0% Limnodrilus

Hilsenhoff Biotic Index (HBI): 8.47

%Clingers: 3.00%

* E+P+T: 0 () Ephemeroptera, () Plecoptera, () Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 4 Poor

Habitat Analysis: 79 Marginal USEPA Protocol

Observations: Water temp: 18.6 C; Cond: 157 umhos; DO: 7.1 mg/L; pH: 6 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 16', 1'; Substrate: gravel, sand, silt

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, grasses

Stream Gradient: Low Gradient Stream; Land Uses: urban (parking lot)

Other: macrophytes, turtle

AMNET Site # AN0515

Stream Name: Kettle Ck

Location: off Rt 70 (New Hampshire Ave); Lakewood Twp; Ocean County

Collection Date: 5/19/2005 USGS Topo Map: Lakewood

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Stylaria	8	31
Slavina	7	10
Hyalella	8	8
Pisidium	6.8	8
Caecidotea	8	7
Psectrocladius	8	7
* Leuctra	0	4
Menetus	6	4
Nais	8	3
Apsectrotanypus	5	2
Bezzia	6	2
Clinotanypus	8	2
Cricotopus	7	2
Phaenopsectra	7	2
Aulodrilus	8	1
Corixidae	9	1
Dero	10	1
Dugesia	4	1
Micropsectra	7	1
* Polycentropus	6	1
Prodiamesa	3	1
Unniella	6	1

* (EPT organism) Taxa Richness: 22 Population: 100

%Dominance / Dominant Taxon(s): 31.0% Stylaria

Hilsenhoff Biotic Index (HBI): 7.15

%Clingers: 9.00%

* E+P+T: 2 () Ephemeroptera, (1) Plecoptera, (1) Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 6 Fair

Habitat Analysis: 171 Optimal USEPA Protocol

Observations: Water temp: 15.6 C; Cond: 117 umhos; DO: 9.7 mg/L; pH: 6 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 5' / 1.5'; Substrate: gravel, sand, mud, snags

Canopy: closed; Bank Stability: good; Bank Vegetation: trees, grass

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Other: leaf litter; muddy and marshy upstream; stream channelized under road through a pipe

AMNET Site # AN0517

Stream Name: Toms River

Location: Paint Island Rd; Millstone Twp; Monmouth County

Collection Date: 6/2/2005 USGS Topo Map: Roosevelt

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Pisidium	6.8	25
Thienemannimyia	6	24
Cricotopus	7	14
Aulodrilus	8	12
Brillia	5	4
Limnodrilus	10	4
Prodiamesa	3	4
Dubiraphia	6	2
Lumbriculus	8	2
Ancyronyx	2	1
Enchytraeidae	10	1
Ephyridae	6	1
Micropsectra	7	1
Peltodytes	5	1
Pentaneura	6	1
Psectrocladius	8	1
Rheotanytarsus	6	1
Slavina	7	1

** (EPT organism) Taxa Richness: 18 Population: 100*

%Dominance / Dominant Taxon(s): 25.0% Pisidium

Hilsenhoff Biotic Index (HBI): 6.65 %Clingers: 18.00%

** E+P+T: 0 () Ephemeroptera, () Plecoptera, () Trichoptera %Ephemeroptera: 0.00%*

CPMI Rating: 8 Fair

Habitat Analysis: 169 Optimal USEPA Protocol

Observations: Water temp: 13.6 C; Cond: 287 umhos; DO: 7.7 mg/L; pH: 5.8 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 6', 1-2'; Substrate: cobble, gravel, sand, mud, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: rural

Pipes / Ditches: small drainage pipes

Other: fish, salamander, macrophytes, large rocks placed across to form a riffle, upstream slightly turbid, upstream on right bank some trees removed and mulch placed for aesthetics

AMNET Site # AN0518

Stream Name: Toms River

Location: Rt 571; Millstone Twp; Monmouth County

Collection Date: 6/2/2005 USGS Topo Map: Roosevelt

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Microtendipes	7	33
Phaenopsectra	7	13
Prodiamesa	3	11
Limnodrilus	10	7
Sphaerium	8	7
Tanytarsus	6	7
Cladotanytarsus	7	4
Menetus	6	4
Polypedilum	6	4
Thienemannimyia	6	3
Chironomus	10	2
Argia	6	1
Dero	10	1
Enallagma	9	1
Gyrinus	4	1
Rheotanytarsus	6	1

* (EPT organism) *Taxa Richness:* 16 *Population:* 100

%Dominance / Dominant Taxon(s): 33.0% Microtendipes

Hilsenhoff Biotic Index (HBI): 6.72 *%Clingers:* 48.00%

* *E+P+T:* 0 () Ephemeroptera, () Plecoptera, () Trichoptera *%Ephemeroptera:* 0.00%

CPMI Rating: 8 Fair

Habitat Analysis: 146 Suboptimal USEPA Protocol

Observations: Water temp: 13.5 C; Cond: 233 umhos; DO: 7.9 mg/L; pH: 5.4 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 21', 3-4'; Substrate: gravel, sand, mud, silt, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: frogs, wetland/pond upstream, very slow-almost no flow and ponded near bridge, oily sheen on surface, adjacent to autobody shop

AMNET Site # AN0519

Stream Name: Toms River

Location: Rt 528; Jackson Twp; Ocean County

Collection Date: 11/4/2004

USGS Topo Map: Lakehurst

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tribelos	5	52
Pisidium	6.8	20
Limnodrilus	10	6
* Lepidostoma	1	3
Aulodrilus	8	2
Calopteryx	6	2
Polypedilum	6	2
* Cheumatopsyche	5	1
Clinotanypus	8	1
Cricotopus	7	1
* Maccaffertium	3	1
* Oecetis	8	1
Parakiefferiella	4	1
Parametrioctenus	5	1
* Phyllocentropus	5	1
Probezzia	6	1
* Ptilostomis	5	1
* Pycnopsyche	4	1
* Taeniopteryx	2	1
Tvetenia	5	1

* (EPT organism) Taxa Richness: 20 Population: 100

Becks Biotic Index (BBI): 6.00 %Plecoptera +Trichoptera: 9.00%

Insect Taxa: 17 %Mollusca + Amphipoda: 20.00%

Non-Insect Taxa: 3 %Diptera - Tanytarsini: 60.00%

%Filterers: 22.00%

PMI Rating: 57.76 Good

Habitat Analysis: 164 Optimal USEPA Protocol

Observations: Water temp: 10 C; Cond: 149 umhos; DO: 9.8 mg/L; pH: 6.4 SU

Clarity: clear, cedar-brown; Flow Rate: slow; Width/Depth: 35' / 2 - 3'; Substrate: gravel, sand, mud, silt

Canopy: partly open; Bank Stability: good; Bank Vegetation: shrubs, trees, grass

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Pipes / Ditches: storm sewers

Other: macrophytes; oily sheen on surface

AMNET Site # AN0519A Stream Name: Toms River

Location: Anderson Rd; Jackson Twp; Ocean County

Collection Date: 6/2/2005 USGS Topo Map: Roosevelt

Genus	Tolerance Value	Amount
Polypedilum	6	24
* Brachycentrus	1	22
Phaenopsectra	7	9
* Phylocentropus	5	7
Sphaeriidae	8	5
Aulodrilus	8	4
Limnodrilus	10	4
Brillia	5	3
Chironomus	10	3
Caecidotea	8	2
Corixidae	9	2
Cricotopus	7	2
Hydroporus	5	2
Thienemanniella	6	2
Cryptochironomus	8	1
Dineutus	4	1
Halipilus	5	1
Microtendipes	7	1
Notonecta	5	1
Paratanytarsus	6	1
Potthastia	2	1
Slavina	7	1
Thienemannimyia	6	1

*(EPT organism) Taxa Richness: 23 Population: 100

%Dominance / Dominant Taxon(s): 24.0% Polypedilum

Hilsenhoff Biotic Index (HBI): 5.41 %Clingers: 34.00%

* E+P+T: 2 () Ephemeroptera, () Plecoptera, (2) Trichoptera %Ephemeroptera: 0.00%

CPMI Rating: 12 Good

Habitat Analysis: 155 Suboptimal USEPA Protocol

Observations: Water temp: 15.6 C; Cond: 217 umhos; DO: 6.5 mg/L; pH: 5.5 SU

Clarity: clear- cedar brown; Flow Rate: moderate; Width/Depth: 12', 1.5-3'; Substrate: mud, silt, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: forested, rural

Pipes / Ditches: storm sewers

Other: macrophytes, small trib feeding stream on left bank, fish

AMNET Site # AN0520 **Stream Name: UNT to Toms River**

Location: Rt 528; Jackson Twp; Ocean County

Collection Date: 5/10/2005 **USGS Topo Map: Lakehurst**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Polypedilum	6	18
Gammarus	6	14
Rheotanytarsus	6	12
Tubificidae	10	8
* Maccaffertium	3	5
Pisidium	6.8	5
Tribelos	5	5
* Brachycentrus	1	4
Oulimnius	4	4
Simulium	6	4
Ablabesmyia	8	2
Boyeria	2	2
Cricotopus	7	2
* Eurylophella	4	2
Physa	8	2
Argia	6	1
Caecidotea	8	1
Chrysops	6	1
Cordulegaster	3	1
Corydalus	4	1
Cura	4	1
Dicrotendipes	8	1
Enchytraeidae	10	1
Helisoma	7	1
Macronychus	2	1
Microcylloepus	2	1
* Oecetis	8	1
Optioservus	4	1

* (EPT organism) *Taxa Richness:* 28 *Population:* 102

Becks Biotic Index (BBI): 12.00 *%Plecoptera +Trichoptera:* 4.90%

Insect Taxa: 20 *%Mollusca + Amphipoda:* 21.57%

Non-Insect Taxa: 8 *%Diptera - Tanytarsini:* 32.35%

%Filterers: 24.51%

PMI Rating: **50.84 Fair**

Habitat Analysis: 162 Optimal USEPA Protocol

Observations: Water temp: 13.6 C; Cond: 182 umhos; DO: 10.1 mg/L; pH: 6.1 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 8' / 2'; Substrate: gravel, sand, mud, silt, snags, root mats, undercut banks

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: suburban, forested

Pipes / Ditches: storm sewers

Other: macrophytes

AMNET Site # AN0521 **Stream Name: Maple Root Br**
Location: Bowman Rd; Jackson Twp; Ocean County
Collection Date: 11/4/2004 **USGS Topo Map: Lakehurst**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tribelos	5	82
* Leptophlebiidae	2	4
Alotanypus	6	2
Caecidotea	8	2
* Pycnopsyche	4	2
Stenochironomus	5	2
Apsectrotanypus	5	1
Chrysops	6	1
* Lype	2	1
Mesovelgia	9	1
* Ptilostomis	5	1
Sialis	4	1

* (EPT organism) *Taxa Richness:* 12 *Population:* 100

Becks Biotic Index (BBI): 4.00 *%Plecoptera + Trichoptera:* 4.00%

Insect Taxa: 11 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 1 *%Diptera - Tanytarsini:* 88.00%

%Filterers: 0.00%

PMI Rating: 64.56 Excellent

Habitat Analysis: 172 Optimal USEPA Protocol

Observations: Water temp: 9.2 C; Cond: 71 umhos; DO: 5.8 mg/L; pH: 4.1 SU

Clarity: clear, cedar-brown; Flow Rate: slow; Width/Depth: 30' / 1.5 - 2.5'; Substrate: gravel, sand, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, grass, moss

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Other: fish, macrophytes; three pipes channeling stream under road

AMNET Site # AN0522 **Stream Name: Dove Mill Br**
Location: Grawtown Rd; Jackson Twp; Ocean County
Collection Date: 6/1/2005 **USGS Topo Map: Lakehurst**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Rheotanytarsus	6	16
* Brachycentrus	1	13
* Cheumatopsyche	5	10
* Maccaffertium	3	9
* Agarodes	3	6
Stenelmis	5	6
Parametrioctenus	5	4
Ancyronyx	2	3
Hexatoma	2	3
* Oecetis	8	3
Thienemannimyia	6	3
Anchytarsus	1	2
* Chimarra	4	2
* Lepidostoma	1	2
* Perlesta	4	2
Polypedilum	6	2
Tvetenia	5	2
Caacidotea	8	1
* Ceraclea	3	1
* Hydropsyche	4	1
* Leuctra	0	1
Lumbriculus	8	1
Paracladopelma	7	1
* Polycentropus	6	1
Tanytarsus	6	1
Tipula	4	1
Tipulidae	3	1

* (EPT organism) *Taxa Richness:* 27 *Population:* 98

Becks Biotic Index (BBI): 18.00 *%Plecoptera +Trichoptera:* 42.86%

Insect Taxa: 25 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 2 *%Diptera - Tanytarsini:* 17.35%

%Filterers: 44.90%

PMI Rating: **68.29** **Excellent**

Habitat Analysis: 175 Optimal USEPA Protocol

Observations: Water temp: 16.9 C; Cond: 90 umhos; DO: 7.6 mg/L; pH: 5.7 SU

Clarity: clear, cedar brown; Flow Rate: slow; Width/Depth: 10' / <1-2'; Substrate: gravel, sand, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: agriculture (horses, tree farm), rural, forested

Other: Muddy upstream of bridge with some increased deposition of fine materials

AMNET Site # AN0523

Stream Name: Toms River

Location: S Hope Chapel Rd; Jackson Twp; Ocean County

Collection Date: 6/1/2005

USGS Topo Map: Lakehurst

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Brachycentrus	1	20
Caecidotea	8	15
Stenelmis	5	8
* Lepidostoma	1	5
* Agarodes	3	4
* Maccaffertium	3	4
* Oecetis	8	4
Pisidium	6.8	3
Rheotanytarsus	6	3
Tanytarsus	6	3
* Triaenodes	6	3
* Acroneuria	0	2
Atherix	2	2
* Eurylophella	4	2
* Helicopsyche	3	2
Limnodrilus	10	2
Oulimnius	4	2
Parametrioctenus	5	2
Ancyronyx	2	1
Boyeria	2	1
Calopteryx	6	1
* Ceraclea	3	1
Chironomini	6	1
Gammarus	6	1
Hemerodromia	6	1
Hexatoma	2	1
Hydroporus	5	1
Macronychus	2	1
Nais	8	1
Psectrocladius	8	1
* Pseudocloeon	4	1
Tribelos	5	1

* (EPT organism) Taxa Richness: 32 Population: 100

Becks Biotic Index (BBI): 18.00 %Plecoptera +Trichoptera: 41.00%

Insect Taxa: 27 %Mollusca + Amphipoda: 4.00%

Non-Insect Taxa: 5 %Diptera - Tanytarsini: 9.00%

%Filterers: 29.00%

PMI Rating: 66.11 Excellent

Habitat Analysis: 174 Optimal USEPA Protocol

Observations: Water temp: 15.1 C; Cond: 114 umhos; DO: 8.2 mg/L; pH: 5.5 SU

Clarity: clear,cedar-brown; Flow Rate: moderate; Width/Depth: 20' / 2 - 3'; Substrate: gravel, sand, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-horse farm, rural

Pipes / Ditches: storm sewers

Other: macrophytes, fish; new bridge construction (White Bridge-2004); erosion along banks near bridge

AMNET Site # AN0524

Stream Name: Toms River

Location: Rt 571; Dover Twp; Ocean County

Collection Date: 6/8/2005 USGS Topo Map: Lakewood

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Optioservus	4	10
Anchytarsus	1	9
* Brachycentrus	1	9
* Maccaffertium	3	9
Elmidae	4	5
* Helicopsyche	3	5
Promoresia	2	5
* Lepidostoma	1	4
Sphaeriidae	8	4
Thienemannimyia	6	4
* Cheumatopsyche	5	3
* Goera	0	3
Parametrioctonus	5	3
Rheotanytarsus	6	3
Hexatoma	2	2
Lumbriculus	8	2
* Oecetis	8	2
* Polycentropus	6	2
Stenelmis	5	2
Tanytarsus	6	2
Chironominae	6	1
Enchytraeidae	10	1
* Eurylophella	4	1
Macronychus	2	1
Naididae	7	1
Nigronia	2	1
* Paraleptophlebia	1	1
Polypedilum	6	1
* Psilotreta	0	1
* Pycnopsyche	4	1
Rhagovelia	9	1
* Setodes	2	1

* (EPT organism) Taxa Richness: 32 Population: 100

%Dominance / Dominant Taxon(s): 10.0% Optioservus

Hilsenhoff Biotic Index (HBI): 3.61 %Clingers: 71.00%

* E+P+T: 13 (3) Ephemeroptera, () Plecoptera, (10) Trichoptera %Ephemeroptera: 11.00%

CPMI Rating: 26 Excellent

Habitat Analysis: 179 Optimal USEPA Protocol

Observations: Water temp: 21 C; Cond: 106 umhos; DO: N/A mg/L; pH: 6.2 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 34' / <2'; Substrate: gravel, sand, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban, forested

Pipes / Ditches: storm sewers

Other: eels, trout conservation; NOTE: DO meter malfunction

AMNET Site # AN0525A Stream Name: UNT to Ridgeway Br

Location: Colliers Mill WMA (outlet of Turn Mill Pond); Jackson Twp; Ocean County

Collection Date: 5/24/2005 USGS Topo Map: Cassville

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tanytarsus	6	23
Lirceus	8	21
Microtendipes	7	16
Dero	10	8
Palaemonetes	4	7
Ablabesmyia	8	3
Paratanytarsus	6	3
Rheotanytarsus	6	3
Sphaerium	8	3
Nais	8	2
* Caenis	7	1
Chironomus	10	1
Cryptotendipes	6	1
Enallagma	9	1
Limnodrilus	10	1
Musculium	5	1
Nanocladius	3	1
Parachironomus	10	1
Stylodrilus	10	1
Tanytarsini	6	1
Tubifex	10	1

**(EPT organism)* Taxa Richness: 21 Population: 100

Becks Biotic Index (BBI): 2.00 %Plecoptera +Trichoptera: 0.00%

Insect Taxa: 12 %Mollusca + Amphipoda: 4.00%

Non-Insect Taxa: 9 %Diptera - Tanytarsini: 23.00%

%Filterers: 46.00%

PMI Rating: 38.08 Fair

Habitat Analysis: 180 Optimal USEPA Protocol

Observations: Water temp: 17 C; Cond: 92 umhos; DO: 6.8 mg/L; pH: 5.9 SU

Clarity: clear, cedar-brown; Flow Rate: slow; Width/Depth: 50' / 2 - > 3'; Substrate: gravel, sand, snags, root mats

Canopy: open; Bank Stability: good; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested (Colliers Mill WMA)

Downstream of Impoundment: downstream of Turn Mill Pond

Other: macrophytes, grass shrimp, algae, waterfowl

AMNET Site # AN0526

Stream Name: Shannae Bk

Location: Colliers Mill Wildlife Area (out. Lake Success); Jackson Twp; Ocean County

Collection Date: 5/10/2005

USGS Topo Map: Cassville

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Rheotanytarsus	6	63
Stenelmis	5	19
* Cheumatopsyche	5	5
* Chimarra	4	3
Gomphus	5	2
* Oecetis	8	2
Bezzia	6	1
Caecidotea	8	1
* Hydropsyche	4	1
Limnodrilus	10	1
Naididae	7	1
Thienemannimyia	6	1

* (EPT organism) *Taxa Richness:* 12 *Population:* 100

Becks Biotic Index (BBI): 2.00 *%Plecoptera + Trichoptera:* 11.00%

Insect Taxa: 9 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 3 *%Diptera - Tanytarsini:* 2.00%

%Filterers: 72.00%

PMI Rating: 37.63 Fair

Habitat Analysis: 184 Optimal USEPA Protocol

Observations: Water temp: 17.1 C; Cond: 40 umhos; DO: 9.5 mg/L; pH: 4.3 SU

Clarity: clear, cedar-brown; Flow Rate: moderate; Width/Depth: 20' / 1'; Substrate: gravel, sand, snags

Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested (Colliers Mill WMA)

Downstream of Impoundment: downstream of Lake Success

Other: frogs

AMNET Site # AN0527

Stream Name: Ridgeway Br

Location: near Legler off Rt 571 (Box # 1142); Jackson Twp; Ocean County

Collection Date: 5/11/2006

USGS Topo Map: Lakehurst

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Phaenopsectra	7	17
Tribelos	5	15
* Oecetis	8	8
Enchytraeidae	10	7
Ablabesmyia	8	5
Tanytarsus	6	5
* Ceraclea	3	4
Thienemannimyia	6	4
Caecidotea	8	3
* Pycnopsyche	4	3
Apsectrotanypus	5	2
Argia	6	2
Clinotanypus	8	2
Limnodrilus	10	2
Sialis	4	2
Stenelmis	5	2
* Triaenodes	6	2
* Agarodes	3	1
Cricotopus	7	1
Gomphus	5	1
Hydroporus	5	1
* Hydropsyche	4	1
* Ironoquia	3	1
* Isoperla	2	1
* Lepidostoma	1	1
Lumbriculus	8	1
Orthocladiinae	5	1
* Platycentropus	4	1
* Polycentropus	6	1
Polypedilum	6	1
Probezzia	6	1
Psectrocladius	8	1

* (EPT organism) Taxa Richness: 32 Population: 100

Becks Biotic Index (BBI): 10.00 %Plecoptera +Trichoptera: 24.00%

Insect Taxa: 28 %Mollusca + Amphipoda: 0.00%

Non-Insect Taxa: 4 %Diptera - Tanytarsini: 50.00%

%Filterers: 7.00%

PMI Rating: 70.74 Excellent

Habitat Analysis: 171 Optimal USEPA Protocol

Observations: Water temp: 15.3 C; Cond: 94 umhos; DO: 7.6 mg/L; pH: 5.6 SU

Clarity: clear- cedar; Flow Rate: slow; Width/Depth: 20', 2-4'; Substrate: gravel, sand

Canopy: mostly closed; Bank Stability: fair; Bank Vegetation: shrubs, trees

Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # AN0528 **Stream Name: Ridgeway Br**
Location: Rt 70; Manchester Twp; Ocean County
Collection Date: 6/1/2005 **USGS Topo Map: Lakehurst**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Nais	8	8
* Oecetis	8	8
* Triaenodes	6	8
* Cheumatopsyche	5	7
Tribelos	5	7
Ancyronyx	2	6
Caecidotea	8	5
* Leuctra	0	5
Stenelmis	5	5
* Lepidostoma	1	4
Bezzia	6	3
Enchytraeidae	10	3
* Maccaffertium	3	3
* Pycnopsyche	4	3
* Brachycentrus	1	2
Calopteryx	6	2
* Chimarra	4	2
Hexatoma	2	2
* Lype	2	2
Rheotanytarsus	6	2
Thienemannimyia	6	2
* Agarodes	3	1
Boyeria	2	1
Chironominae	6	1
* Eurylophella	4	1
Gyraulid	6	1
Hemerodromia	6	1
Limnodrilus	10	1
* Perlesta	4	1
Psectrocladius	8	1
Tipula	4	1
Tvetenia	5	1

* (EPT organism) *Taxa Richness:* 32 *Population:* 100

Becks Biotic Index (BBI): 17.00 *%Plecoptera +Trichoptera:* 43.00%
Insect Taxa: 27 *%Mollusca + Amphipoda:* 1.00%
Non-Insect Taxa: 5 *%Diptera - Tanytarsini:* 19.00%
 %Filterers: 13.00%

PMI Rating: 70.91 Excellent

Habitat Analysis: 152 Suboptimal USEPA Protocol

Observations: Water temp: 15.6 C; Cond: 70 umhos; DO: 8 mg/L; pH: 5.1 SU

Clarity: clear, cedar-brown; Flow Rate: moderate; Width/Depth: 28.5' / 2 - 3'; Substrate: gravel, sand, snags, root mats

Canopy: partly open; Bank Stability: fair; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

AMNET Site # AN0529

Stream Name: Blacks Br

Location: Naval Air Station Boundary; Manchester Twp; Ocean County

Collection Date: 5/24/2005

USGS Topo Map: Cassville

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Hydroptila	6	17
Polypedilum	6	12
* Leuctra	0	10
Thienemannimyia	6	8
Cladotanytarsus	7	7
Cricotopus	7	6
* Oecetis	8	6
Dero	10	3
* Isoperla	2	3
* Maccaffertium	3	3
Tribelos	5	3
* Brachycentrus	1	2
Caecidotea	8	2
* Cheumatopsyche	5	2
Oulimnius	4	2
Tubificidae	10	2
Bezzia	6	1
Boyeria	2	1
* Eurylophella	4	1
Hexatoma	2	1
Nais	8	1
Orthocladius	6	1
Parachironomus	10	1
Promoresia	2	1
Prosimulium	2	1
Rheotanytarsus	6	1
Simulium	6	1
Stenelmis	5	1

* (EPT organism) Taxa Richness: 28 Population: 100

Becks Biotic Index (BBI): 12.00 %Plecoptera +Trichoptera: 40.00%

Insect Taxa: 24 %Mollusca + Amphipoda: 0.00%

Non-Insect Taxa: 4 %Diptera - Tanytarsini: 35.00%

%Filterers: 14.00%

PMI Rating: 70.24 Excellent

Habitat Analysis: 188 Optimal USEPA Protocol

Observations: Water temp: 12.9 C; Cond: 30 umhos; DO: 8.6 mg/L; pH: 5.4 SU

Clarity: clear, cedar-brown; Flow Rate: moderate; Width/Depth: 10' / 1 - 2'; Substrate: gravel, sand

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Other: macrophytes; bridge washed out - new bridge; wood debris from bridge in stream

AMNET Site # AN0530 **Stream Name: Blacks Br**
Location: Rt 70; Manchester Twp; Ocean County
Collection Date: 5/24/2005 **USGS Topo Map: Lakehurst**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Cricotopus	7	27
Psectrocladius	8	21
* Hydroptila	6	9
Naididae	7	4
Thienemannimyia	6	4
* Eurylophella	4	3
Limnodrilus	10	3
* Mystacides	4	3
Pisidium	6.8	3
Tubifex	10	3
Enchytraeidae	10	2
* Oecetis	8	2
Rheocricotopus	6	2
Slavina	7	2
Tribelos	5	2
Apsectrotanypus	5	1
Boyeria	2	1
Caecidotea	8	1
Calopteryx	6	1
Corixidae	9	1
Dero	10	1
Microvelia	6	1
Pagastiella	6	1
* Pycnopsyche	4	1
Simulium	6	1

* (EPT organism) *Taxa Richness:* 25 *Population:* 100

Becks Biotic Index (BBI): 4.00 *%Plecoptera + Trichoptera:* 15.00%
Insect Taxa: 17 *%Mollusca + Amphipoda:* 3.00%
Non-Insect Taxa: 8 *%Diptera - Tanytarsini:* 59.00%
 %Filterers: 4.00%

PMI Rating: 59.11 Good

Habitat Analysis: 169 Optimal USEPA Protocol

Observations: Water temp: 12.5 C; Cond: 41 umhos; DO: 7.7 mg/L; pH: 5 SU

Clarity: clear, cedar-brown; Flow Rate: slow; Width/Depth: 28' / 3'; Substrate: gravel, sand

Canopy: open; Bank Stability: good; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Other: macrophytes, fish; small dirt/gravel parking areas on both banks; dirt road along left bank

AMNET Site # AN0531

Stream Name: Old Hurricane Br

Location: Beckerville Rd (Central Ave); Manchester Twp; Ocean County

Collection Date: 6/2/2005

USGS Topo Map: Whiting

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Maccaffertium	3	15
Thienemannimyia	6	11
* Leuctra	0	9
Rheotanytarsus	6	8
Tvetenia	5	7
* Diplectrona	0	6
Enchytraeidae	10	5
Hemerodromia	6	5
* Lepidostoma	1	4
Simulium	6	4
* Isoperla	2	3
Nigronia	2	3
Calopteryx	6	2
Nais	8	2
* Oecetis	8	2
Psectrocladius	8	2
Pseudolimnophila	2	2
* Triaenodes	6	2
Bezzia	6	1
Cricotopus	7	1
Dicranota	3	1
Microtendipes	7	1
Oulimnius	4	1
* Phylocentropus	5	1
Rheocricotopus	6	1
Tanytarsini	6	1

* (EPT organism) Taxa Richness: 26 Population: 100

Becks Biotic Index (BBI): 12.00 %Plecoptera +Trichoptera: 27.00%

Insect Taxa: 24 %Mollusca + Amphipoda: 0.00%

Non-Insect Taxa: 2 %Diptera - Tanytarsini: 36.00%

%Filterers: 20.00%

PMI Rating: 68.15 Excellent

Habitat Analysis: 187 Optimal USEPA Protocol

Observations: Water temp: 13.3 C; Cond: 75 umhos; DO: 7.4 mg/L; pH: 4.5 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 14' / 1 - 2'; Substrate: gravel, sand, silt, snags

Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-livestock (horses), rural, forested

Other: sampled off of a short path upstream of road crossing

AMNET Site # AN0532 **Stream Name: Manapaqua Br**
Location: Rt 70; Lakehurst Boro; Ocean County
Collection Date: 6/1/2005 **USGS Topo Map: Lakehurst**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Caecidotea	8	67
Tubificidae	10	8
Cricotopus	7	3
Ancyronyx	2	2
Pristina	8	2
Pristinella	10	2
Prosimulium	2	2
Stenelmis	5	2
Tribelos	5	2
Dero	10	1
Enallagma	9	1
Enchytraeidae	10	1
Heterotrissocladius	0	1
Hydroporus	5	1
Limnodrilus	10	1
Lumbriculus	8	1
Nematoda	6	1
* Oecetis	8	1
Rheotanytarsus	6	1

* (EPT organism) *Taxa Richness:* 19 *Population:* 100

Becks Biotic Index (BBI): 4.00 *%Plecoptera +Trichoptera:* 1.00%
Insect Taxa: 10 *%Mollusca + Amphipoda:* 0.00%
Non-Insect Taxa: 9 *%Diptera - Tanytarsini:* 8.00%
 %Filterers: 3.00%

PMI Rating: 43.08 Fair

Habitat Analysis: 156 Suboptimal USEPA Protocol

Observations: Water temp: 15.7 C; Cond: 66 umhos; DO: 7.4 mg/L; pH: 5.4 SU
 Clarity: turbid; Flow Rate: slow; Width/Depth: 16' / 1.5 - 3.5'; Substrate: sand, mud, snags
 Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, grass
 Stream Gradient: Low Gradient Stream; Land Uses: suburban

 Other: macrophytes; trash on downstream side of bridge; swampy area adj. to stream

AMNET Site # AN0533 **Stream Name: Union Br**
Location: Colonial Dr; Manchester Twp; Ocean County
Collection Date: 6/2/2005 **USGS Topo Map: Lakehurst**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Psectrocladius	8	30
Caecidotea	8	22
Cricotopus	7	10
Stenelmis	5	8
Polypedilum	6	7
Thienemannimyia	6	4
Tribelos	5	4
* Oecetis	8	3
Cryptochironomus	8	2
Pisidium	6.8	2
* Agarodes	3	1
Clinotanytus	8	1
Enchytraeidae	10	1
* Hydropsyche	4	1
Lumbriculidae	8	1
* Perlesta	4	1
* Pycnopsyche	4	1
Rheocricotopus	6	1
Stenochironomus	5	1
Stylaria	8	1
* Triaenodes	6	1

* (EPT organism) *Taxa Richness:* 21 *Population:* 103

Becks Biotic Index (BBI): 4.00 *%Plecoptera +Trichoptera:* 7.77%

Insect Taxa: 16 *%Mollusca + Amphipoda:* 1.94%

Non-Insect Taxa: 5 *%Diptera - Tanytarsini:* 58.25%

%Filterers: 2.91%

PMI Rating: 59.86 Good

Habitat Analysis: 168 Optimal USEPA Protocol

Observations: Water temp: 17.2 C; Cond: 72 umhos; DO: 7.7 mg/L; pH: 4.9 SU

Clarity: clear, cedar-brown; Flow Rate: moderate; Width/Depth: 45' / 1 - 2.5'; Substrate: gravel, sand, mud, snags

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Pipes / Ditches: storm sewers

Downstream of Impoundment: ponded upstream of bridge

Other: macrophytes, ducks; sewage odor; pumps on both banks

AMNET Site # AN0534

Stream Name: Union Br

Location: Beacon Ave in Pine Lakes Park; Manchester Twp; Ocean County

Collection Date: 6/9/2005

USGS Topo Map: Lakewood

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Stylaria	8	36
Stenelmis	5	12
Cricotopus	7	9
Nais	8	8
Enchytraeidae	10	4
Polypedilum	6	4
Ceratopogonidae	6	3
* Hydropsyche	4	3
Limnodrilus	10	3
Ancyronyx	2	2
Naididae	7	2
Slavina	7	2
Thienemannimyia	6	2
Tvetenia	5	2
* Brachycentrus	1	1
Caecidotea	8	1
Cryptochironomus	8	1
* Eurylophella	4	1
* Maccaffertium	3	1
* Oecetis	8	1
Rhagovelia	9	1
Rheocricotopus	6	1

* (EPT organism) Taxa Richness: 22 Population: 100

Becks Biotic Index (BBI): 6.00 %Plecoptera +Trichoptera: 5.00%

Insect Taxa: 15 %Mollusca + Amphipoda: 0.00%

Non-Insect Taxa: 7 %Diptera - Tanytarsini: 22.00%

%Filterers: 4.00%

PMI Rating: 51.37 Fair

Habitat Analysis: 170 Optimal USEPA Protocol

Observations: Water temp: 22.8 C; Cond: 64 umhos; DO: 7.43 mg/L; pH: 4.8 SU

Clarity: clear, brown, cedar; Flow Rate: moderate; Width/Depth: 56', 1-3'; Substrate: gravel, sand, cobble

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested, suburban

Other: filamentas algae, macrophytes, eel

AMNET Site # AN0535 **Stream Name: Toms River**
Location: Oak Ridge Pkwy; Dover Twp; Ocean County
Collection Date: 6/8/2005 **USGS Topo Map: Toms River**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Oecetis	8	10
* Brachycentrus	1	9
Stenelmis	5	9
* Lepidostoma	1	8
Oulimnius	4	6
Stylodrilus	10	6
Cricotopus	7	5
Enchytraeidae	10	5
Tanytarsus	6	5
Caecidotea	8	4
* Maccaffertium	3	4
* Eurylophella	4	3
Limnophila	3	3
Procladius	9	3
Promoresia	2	3
* Agarodes	3	2
Atherix	2	2
Gomphus	5	2
* Helicopsyche	3	2
Pristinella	10	2
Ancyronyx	2	1
* Ceraclea	3	1
Cryptochironomus	8	1
Dineutus	4	1
* Leuctra	0	1
* Pycnopsyche	4	1
Stenochironomus	5	1

* (EPT organism) *Taxa Richness:* 27 *Population:* 100

Becks Biotic Index (BBI): 18.00 *%Plecoptera +Trichoptera:* 34.00%
Insect Taxa: 23 *%Mollusca + Amphipoda:* 0.00%
Non-Insect Taxa: 4 *%Diptera - Tanytarsini:* 15.00%
 %Filterers: 14.00%

PMI Rating: 67.89 Excellent

Habitat Analysis: 177 Optimal USEPA Protocol

Observations: Water temp: 23.1 C; Cond: 294 umhos; DO: N/A mg/L; pH: 6.1 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 60' / 3'; Substrate: gravel, sand, snags

Canopy: open; Bank Stability: good; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Other: eels, macrophytes; NOTE: DO meter malfunction

AMNET Site # AN0536

Stream Name: Wrangel Bk

Location: Congasia Rd (Whiting Wildlife Area); Manchester Twp; Ocean County

Collection Date: 6/17/2005

USGS Topo Map: Keswick Grove

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Leuctra	0	51
Cricotopus	7	13
* Brachycentrus	1	4
Nigronia	2	3
Polypedilum	6	3
Psectrocladius	8	3
Thienemannimyia	6	3
Tribelos	5	3
Bezzia	6	2
Ablabesmyia	8	1
Clinotanypus	8	1
Dineutus	4	1
Enchytraeidae	10	1
Heterotrissocladius	0	1
* Isoperla	2	1
Limnodrilus	10	1
* Perlesta	4	1
Phaenopsectra	7	1
* Plauditus	4	1
Simulium	6	1
Stenelmis	5	1
Stenochironomus	5	1
* Triaenodes	6	1
Tvetenia	5	1

* (EPT organism) Taxa Richness: 24 Population: 100

Becks Biotic Index (BBI): 11.00 %Plecoptera +Trichoptera: 58.00%

Insect Taxa: 22 %Mollusca + Amphipoda: 0.00%

Non-Insect Taxa: 2 %Diptera - Tanytarsini: 34.00%

%Filterers: 5.00%

PMI Rating: 76.25 Excellent

Habitat Analysis: 181 Optimal USEPA Protocol

Observations: Water temp: 19.2 C; Cond: 47 umhos; DO: 5.8 mg/L; pH: 4.9 SU

Clarity: clear, cedar-brown; Flow Rate: moderate; Width/Depth: 6', <1'; Substrate: gravel, sand, snags

Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban, forested

Other: macrophytes; braided stream

AMNET Site # AN0537 **Stream Name: Wrangel Bk**
Location: Mule Rd (Rt 642); Berkeley Twp; Ocean County
Collection Date: 6/20/2005 **USGS Topo Map: Toms River**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tribelos	5	15
Stenelmis	5	11
Ancyronyx	2	8
Phaenopsectra	7	7
Aulodrilus	8	6
Polypedilum	6	6
Tvetenia	5	5
Thienemannimyia	6	4
* Brachycentrus	1	3
Brillia	5	3
* Triaenodes	6	3
Ablabesmyia	8	2
Boyeria	2	2
Dicranota	3	2
* Lepidostoma	1	2
* Leuctra	0	2
Limnodrilus	10	2
Lumbriculus	8	2
Nais	8	2
Tubifex	10	2
Caecidotea	8	1
Cricotopus	7	1
Erpobdellidae	8	1
* Hydropsychidae	4	1
* Maccaffertium	3	1
* Oecetis	8	1
Oulimnius	4	1
Pisidium	6.8	1
Prodiamesa	3	1
Simulium	6	1
Slavina	7	1

* (*EPT organism*) *Taxa Richness:* 31 *Population:* 100

Becks Biotic Index (BBI): 13.00 *%Plecoptera +Trichoptera:* 12.00%

Insect Taxa: 22 *%Mollusca + Amphipoda:* 1.00%

Non-Insect Taxa: 9 *%Diptera - Tanytarsini:* 47.00%

%Filterers: 6.00%

PMI Rating: 62.12 Good

Habitat Analysis: 128 Suboptimal USEPA Protocol

Observations: Water temp: 16.8 C; Cond: 70 umhos; DO: 7.6 mg/L; pH: 5.2 SU

Clarity: clear cedar, brown; Flow Rate: moderate; Width/Depth: 29.5',1-2'; Substrate: cobble, gravel, sand, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: salamanders present

AMNET Site # AN0538

Stream Name: Sunken Br

Location: Mule Rd (Rt 642); Berkeley Twp; Ocean County

Collection Date: 6/9/2005

USGS Topo Map: Toms River

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Stylaria	8	64
Psectrocladius	8	10
Cricotopus	7	9
Polypedilum	6	6
* Cheumatopsyche	5	2
Corixidae	9	2
Planorbidae	6	2
* Ceratopsyche	4	1
Dicrotendipes	8	1
Ischnura	9	1
Limnodrilus	10	1
Paratanytarsus	6	1

* (EPT organism) *Taxa Richness:* 12 *Population:* 100

Becks Biotic Index (BBI): 1.00 *%Plecoptera + Trichoptera:* 3.00%

Insect Taxa: 9 *%Mollusca + Amphipoda:* 2.00%

Non-Insect Taxa: 3 *%Diptera - Tanytarsini:* 26.00%

%Filterers: 3.00%

PMI Rating: 49.97 Fair

Habitat Analysis: 117 Suboptimal USEPA Protocol

Observations: Water temp: 28.5 C; Cond: 97 umhos; DO: 9.6 mg/L; pH: 5.9 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 30' / 1 - 2'; Substrate: cobbles, mud, silt, artificial boulder

Canopy: open; Bank Stability: fair; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: ducks, tadpoles, macrophytes

AMNET Site # AN0539

Stream Name: Wrangel Bk

Location: Southampton Rd; Berkeley Twp; Ocean County

Collection Date: 6/20/2005

USGS Topo Map: Toms River

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Limnodrilus	10	26
Stenelmis	5	15
Sphaerium	8	12
Polypedilum	6	6
Tribelos	5	6
Tvetenia	5	4
* Brachycentrus	1	3
Caecidotea	8	3
Cricotopus	7	3
* Phylocentropus	5	3
Ancyronyx	2	2
Crangonyx	8	2
Thienemannimyia	6	2
Tubifex	10	2
Boyeria	2	1
Chironomidae	6	1
* Diplectrona	0	1
* Leuctra	0	1
Micropsectra	7	1
Nais	8	1
Pentaneura	6	1
Prodiamesa	3	1
Rheotanytarsus	6	1
Stylodrilus	10	1
Tanypodinae	7	1

* (EPT organism) Taxa Richness: 25 Population: 100

Becks Biotic Index (BBI): 9.00 %Plecoptera +Trichoptera: 8.00%

Insect Taxa: 18 %Mollusca + Amphipoda: 14.00%

Non-Insect Taxa: 7 %Diptera - Tanytarsini: 25.00%

%Filterers: 20.00%

PMI Rating: 50.64 Fair

Habitat Analysis: 153 Suboptimal USEPA Protocol

Observations: Water temp: 18 C; Cond: 78 umhos; DO: 7.8 mg/L; pH: 5.4 SU

Clarity: clear cedar, brown; Flow Rate: moderate; Width/Depth: 33.5' / 1-3'; Substrate: sand

Canopy: mostly open; Bank Stability: fair; Bank Vegetation: grasses, trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Other: macrophytes

AMNET Site # AN0540

Stream Name: Davenport Br

Location: Lacey Rd (Rt 614); Lacey Twp; Ocean County

Collection Date: 7/13/2005

USGS Topo Map: Keswick Grove

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Rheotanytarsus	6	27
Enchytraeidae	10	14
Crangonyx	8	8
Polypedilum	6	5
Ablabesmyia	8	4
* Caenis	7	4
Heterotrissocladius	0	3
* Chimarra	4	2
Cryptochironomus	8	2
Erythemis	10	2
Limnodrilus	10	2
* Oecetis	8	2
Paratanytarsus	6	2
Tetragoneuria	8.5	2
Tribelos	5	2
Trichocorixa	9	2
Bezzia	6	1
Caecidotea	8	1
Calopteryx	6	1
* Cheumatopsyche	5	1
Dicrotendipes	8	1
Enallagma	9	1
Naucoridae	5	1
* Oxyethira	3	1
Paratendipes	8	1
* Polycentropus	6	1
Pristina	8	1
Psectrocladius	8	1
Sialis	4	1
Sphaerium	8	1
Stenelmis	5	1
Tanytarsus	6	1
Tubifex	10	1

* (EPT organism) Taxa Richness: 33 Population: 100

Becks Biotic Index (BBI): 5.00 %Plecoptera + Trichoptera: 7.00%

Insect Taxa: 25 %Mollusca + Amphipoda: 9.00%

Non-Insect Taxa: 8 %Diptera - Tanytarsini: 20.00%

PMI Rating: 47.91 Fair %Filterers: 33.00%

Habitat Analysis: 167 Optimal USEPA Protocol

Observations: Water temp: 25 C; Cond: 67 umhos; DO: 6.5 mg/L; pH: 5 SU

Clarity: clear-cedar brown; Flow Rate: slow; Width/Depth: 12',1-2'; Substrate: gravel, sand, snags, root mats

Canopy: mostly open; Bank Stability: good; Bank Vegetation: shrubs, trees, grasses

Stream Gradient: Low Gradient Stream; Land Uses: forested

Downstream of Impoundment: cranberry bog

Other: police officer stated gasoline tanker flipped and spilled contents into stream appx 20 yrs ago, treatment system installed but not present @ date of sampling

AMNET Site # AN0541 Stream Name: Davenport Br
 Location: Mule Rd (Rt 642); Berkeley Twp; Ocean County
 Collection Date: 6/20/2005 USGS Topo Map: Toms River

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Stenelmis	5	15
Tvetenia	5	9
* Hydropsyche	4	8
Polypedilum	6	8
* Leuctra	0	7
Sphaeriidae	8	5
Tribelos	5	5
Enchytraeidae	10	4
* Oecetis	8	4
Tanytarsus	6	3
Caecidotea	8	2
Erpobdellidae	8	2
Lumbriculus	8	2
* Perlesta	4	2
Phaenopsectra	7	2
Saetheria	4	2
Thienemannimyia	6	2
Ablabesmyia	8	1
Argia	6	1
Aulodrilus	8	1
* Baetisca	4	1
Bezzia	6	1
Boyeria	2	1
* Brachycentrus	1	1
Brillia	5	1
* Chimarra	4	1
Helobdella	8	1
Helocordulia	2	1
Hyalella	8	1
Limnodrilus	10	1
* Maccaffertium	3	1
* Polycentropus	6	1
Procladius	9	1
Psectrocladius	8	1
Tipula	4	1

* (EPT organism) Taxa Richness: 35 Population: 100
 Becks Biotic Index (BBI): 13.00 %Plecoptera +Trichoptera: 24.00%
 Insect Taxa: 26 %Mollusca + Amphipoda: 6.00%
 Non-Insect Taxa: 9 %Diptera - Tanytarsini: 34.00%
 %Filterers: 19.00%

PMI Rating: 61.24 Good

Habitat Analysis: 163 Optimal USEPA Protocol

Observations: Water temp: 17.5 C; Cond: 55 umhos; DO: 8.3 mg/L; pH: 4.89 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 42.8' / 1-3'; Substrate: cobble, sand, snags

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers (right bank)

Other: Ocean County Protected Conservation Area and Wetland Mitigation site

AMNET Site # AN0542

Stream Name: Jakes Br

Location: Dover Rd (Rt 618); Berkeley Twp; Ocean County

Collection Date: 6/9/2005

USGS Topo Map: Keswick Grove

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Psectrocladius	8	52
Chaetocladus	6	26
Enchytraeidae	10	17
Ablabesmyia	8	4
Cricotopus	7	1

* (EPT organism) *Taxa Richness:* 5 *Population:* 100

Becks Biotic Index (BBI): 0.00 *%Plecoptera + Trichoptera:* 0.00%

Insect Taxa: 4 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 1 *%Diptera - Tanytarsini:* 83.00%

%Filterers: 0.00%

PMI Rating: 58.69 Good

Habitat Analysis: 154 Suboptimal USEPA Protocol

Observations: Water temp: 16.6 C; Cond: 90 umhos; DO: 1.6 mg/L; pH: 3.9 SU

Clarity: clear brown, cedar; Flow Rate: slow; Width/Depth: 3' / < 1.0'; Substrate: gravel, sand

Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, frogs; intermittent flow

AMNET Site # AN0543

Stream Name: Jakes Br

Location: Double Trouble Rd; Berkeley Twp; Ocean County

Collection Date: 6/20/2005

USGS Topo Map: Toms River

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Caecidotea	8	32
Simulium	6	21
Stenelmis	5	13
* Hydropsychidae	4	9
Dicranota	3	5
Demicryptochironomus	8	3
Nais	8	2
Tribelos	5	2
Vejdovskyella	4	2
Ablabesmyia	8	1
Cricotopus	7	1
Dineutus	4	1
Microvelia	6	1
* Oecetis	8	1
* Oxyethira	3	1
Polypedilum	6	1
Synurella	4	1
Tanytarsus	6	1
Thienemannimyia	6	1
Tubifex	10	1

* (EPT organism) Taxa Richness: 20 Population: 100

Becks Biotic Index (BBI): 6.00 %Plecoptera +Trichoptera: 11.00%

Insect Taxa: 15 %Mollusca + Amphipoda: 1.00%

Non-Insect Taxa: 5 %Diptera - Tanytarsini: 35.00%

%Filterers: 31.00%

PMI Rating: 52.77 Fair

Habitat Analysis: 152 Suboptimal USEPA Protocol

Observations: Water temp: 18 C; Cond: 55 umhos; DO: 5.8 mg/L; pH: 4.5 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 19.5' / 1-2'; Substrate: gravel, sand

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: fish

AMNET Site # AN0544 Stream Name: UNT to Toms River (Long Swamp Ck)

Location: Rt 37; Dover Twp; Ocean County

Collection Date: 6/20/2005 USGS Topo Map: Toms River

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Aedes	8	12
Polypedilum	6	10
Tubificidae	10	10
Parachironomus	10	9
Limnodrilus	10	8
Cladotanytarsus	7	7
Enallagma	9	6
Chironomus	10	5
Menetus	6	5
Ischnura	9	4
Rheotanytarsus	6	4
Lymnaeidae	6	3
Peltodytes	5	3
Gammarus	6	2
Pachydiplax	10	2
Aulodrilus	8	1
Cladopelma	8	1
Cricotopus	7	1
Dero	10	1
Helobdella	8	1
Phaenopsectra	7	1
Psectrocladius	8	1
Stylodrilus	10	1
Tanypus	10	1
Trichocorixa	9	1

** (EPT organism)* Taxa Richness: 25 Population: 100

Becks Biotic Index (BBI): 0.00 %Plecoptera +Trichoptera: 0.00%

Insect Taxa: 16 %Mollusca + Amphipoda: 10.00%

Non-Insect Taxa: 9 %Diptera - Tanytarsini: 41.00%

%Filterers: 11.00%

PMI Rating: 46.31 Fair

Habitat Analysis: 119 Suboptimal USEPA Protocol

Observations: Water temp: 20.7 C; Cond: 303 umhos; DO: 3.8 mg/L; pH: 6.2 SU

Clarity: turbid, cloudy brown/green; Flow Rate: slow; Width/Depth: 17' / 1.5'; Substrate: mud, silt

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: suburban

AMNET Site # AN0545 **Stream Name: Webbs Mill Br**
Location: Rt 539; Lacey Twp; Ocean County
Collection Date: 6/29/2005 **USGS Topo Map: Whiting**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Hyaella	8	50
* Hydroptila	6	6
Cricotopus	7	4
Psectrocladius	8	4
Thienemannimyia	6	4
Ablabesmyia	8	3
Chrysops	6	3
* Oxyethira	3	3
Corixidae	9	2
Limnodrilus	10	2
Nematoda	6	2
Peltodytes	5	2
Sphaeriidae	8	2
Stylaria	8	2
Argia	6	1
Hydroporus	5	1
Ischnura	9	1
* Isoperla	2	1
Lumbriculus	8	1
Pentaneura	6	1
Pseudochironomus	5	1
Rheocricotopus	6	1
Tanypodinae	7	1
Tanytarsus	6	1
Tribelos	5	1

* (EPT organism) *Taxa Richness:* 25 *Population:* 100

Becks Biotic Index (BBI): 2.00 *%Plecoptera +Trichoptera:* 10.00%
Insect Taxa: 19 *%Mollusca + Amphipoda:* 52.00%
Non-Insect Taxa: 6 *%Diptera - Tanytarsini:* 23.00%
 %Filterers: 3.00%

PMI Rating: **44.33 Fair**

Habitat Analysis: 160 Optimal USEPA Protocol

Observations: Water temp: 18.4 C; Cond: 38 umhos; DO: 7.4 mg/L; pH: 4.5 SU

Clarity: clear-cedar brown; Flow Rate: slow; Width/Depth: 25', 2'; Substrate: gravel, sand

Canopy: open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, filamentous algae

AMNET Site # AN0546

Stream Name: Cedar Ck

Location: Lacey Rd (dwnstrm of Bamber Lake); Lacey Twp; Ocean County

Collection Date: 6/29/2005

USGS Topo Map: Keswick Grove

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Brachycentrus	1	23
* Hydroptila	6	15
Stenelmis	5	12
Polypedilum	6	5
Sphaeriidae	8	5
Thienemannimyia	6	5
Argia	6	4
* Maccaffertium	3	4
* Oecetis	8	4
Rheotanytarsus	6	3
Hyalella	8	2
* Hydropsyche	4	2
Psectrocladius	8	2
Tanytarsus	6	2
Tipula	4	2
Tribelos	5	2
Enchytraeidae	10	1
Hagenius	3	1
Ischnura	9	1
* Molanna	6	1
Phaenopsectra	7	1
* Pseudocloeon	4	1
Simulium	6	1
* Triaenodes	6	1

* (EPT organism) Taxa Richness: 24 Population: 100

Becks Biotic Index (BBI): 7.00 %Plecoptera +Trichoptera: 46.00%

Insect Taxa: 21 %Mollusca + Amphipoda: 7.00%

Non-Insect Taxa: 3 %Diptera - Tanytarsini: 18.00%

%Filterers: 36.00%

PMI Rating: 60.87 Good

Habitat Analysis: 181 Optimal USEPA Protocol

Observations: Water temp: 22.9 C; Cond: 39 umhos; DO: 7.6 mg/L; pH: 4.7 SU

Clarity: clear-brown, cedar; Flow Rate: moderate; Width/Depth: 31', 1-4'; Substrate: gravel, sand

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: sampled upstream of bridge, macrophytes, USGS gauge reading 6.01

AMNET Site # AN0547 **Stream Name: Factory Br**
Location: Lacey Rd (Rt 614); Lacey Twp; Ocean County
Collection Date: 11/9/2004 **USGS Topo Map: Keswick Grove**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Hydropsyche	4	29
* Taeniopteryx	2	17
Psectrocladius	8	12
* Oxyethira	3	7
* Hydropsychidae	4	5
Tvetenia	5	5
Orthocladiinae	5	4
* Maccaffertium	3	3
Corydalus	4	2
Cricotopus	7	2
Eukiefferiella	8	2
Micropsectra	7	2
Boyeria	2	1
* Eurylophella	4	1
* Hydroptila	6	1
* Leptophlebia	4	1
Nematoda	6	1
Orthocladius	6	1
Rheotanytarsus	6	1
Thienemannimyia	6	1
Tribelos	5	1
Tubificidae	10	1

* (EPT organism) *Taxa Richness:* 22 *Population:* 100

Becks Biotic Index (BBI): 9.00 *%Plecoptera +Trichoptera:* 59.00%
Insect Taxa: 20 *%Mollusca + Amphipoda:* 0.00%
Non-Insect Taxa: 2 *%Diptera - Tanytarsini:* 28.00%
 %Filterers: 35.00%

PMI Rating: 68.87 Excellent

Habitat Analysis: 181 Optimal USEPA Protocol

Observations: Water temp: 8.2 C; Cond: 50 umhos; DO: 8.4 mg/L; pH: 4.7 SU

Clarity: clear, cedar-brown; Flow Rate: slow; Width/Depth: 16' / 3'; Substrate: gravel, sand, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Pipes / Ditches: storm sewers

Other: fish, macrophytes, periphyton, filamentous algae

AMNET Site # AN0549

Stream Name: Cedar Ck

Location: Rt 9 (upstream of USGS gage weir); Lacey Twp; Ocean County

Collection Date: 6/23/2005

USGS Topo Map: Forked River

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tanytarsus	6	26
Psectrocladius	8	10
Tribelos	5	9
Stenelmis	5	7
Polypedilum	6	6
Thienemannimyia	6	6
Ablabesmyia	8	5
Cricotopus	7	4
* Polycentropus	6	4
* Brachycentrus	1	3
* Leuctra	0	2
Nilothauma	2	2
* Oxyethira	3	2
Ceratopogonidae	6	1
Cura	4	1
Erpobdellidae	8	1
Gomphus	5	1
Hydroporus	5	1
* Hydroptila	6	1
Ischnura	9	1
Nigronia	2	1
* Oecetis	8	1
Procladius	9	1
* Pseudocloeon	4	1
Rhagovelia	9	1
Rheotanytarsus	6	1
Stenochironomus	5	1

* (EPT organism) Taxa Richness: 27 Population: 100

Becks Biotic Index (BBI): 9.00 %Plecoptera +Trichoptera: 13.00%

Insect Taxa: 25 %Mollusca + Amphipoda: 0.00%

Non-Insect Taxa: 2 %Diptera - Tanytarsini: 45.00%

%Filterers: 34.00%

PMI Rating: 63.06 Excellent

Habitat Analysis: 174 Optimal USEPA Protocol

Observations: Water temp: 19.3 C; Cond: 45 umhos; DO: 7.7 mg/L; pH: 4.9 SU

Clarity: clear-cedar brown; Flow Rate: moderate; Width/Depth: 73', 3'; Substrate: gravel, sand

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested, suburban

Other: macrophytes

AMNET Site # AN0550

Stream Name: Long Br of N Br Forked River

Location: Lacey/Ocean Twp Boundary nr. Ironside Gun Club; Ocean Twp; Ocean County

Collection Date: 10/28/2004

USGS Topo Map: Brookville

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Enchytraeidae	10	33
Thienemannimyia	6	11
* Oxyethira	3	8
Unniella	6	6
* Platycentropus	4	5
Tvetenia	5	4
Hydroporus	5	3
* Leptophlebia	4	3
Simulium	6	3
Bezzia	6	2
Ischnura	9	2
Nilotanypus	6	2
Orthoclaadiinae	5	2
Parametrioctenus	5	2
* Ptilostomis	5	2
Rheotanytarsus	6	2
Stenelmis	5	2
Caecidotea	8	1
Lestes	9	1
* Leuctra	0	1
Microtendipes	7	1
Nigronia	2	1
Procladius	9	1
Rheocricotopus	6	1
Tanytarsus	6	1

* (EPT organism) Taxa Richness: 25 Population: 100

Becks Biotic Index (BBI): 6.00 %Plecoptera +Trichoptera: 16.00%

Insect Taxa: 23 %Mollusca + Amphipoda: 0.00%

Non-Insect Taxa: 2 %Diptera - Tanytarsini: 35.00%

%Filterers: 7.00%

PMI Rating: 63.61 Excellent

Habitat Analysis: 181 Optimal USEPA Protocol

Observations: Water temp: 13.7 C; Cond: 88 umhos; DO: N/A mg/L; pH: 4.7 SU

Clarity: clear, cedar-brown; Flow Rate: slow; Width/Depth: 2' / < 1.0 - 1.5'; Substrate: gravel, sand, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, moss

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Other: macrophytes; NOTE: DO meter malfunction

AMNET Site # AN0551 **Stream Name: N Br Forked River**
Location: at Power Lines (upstream of GS Pkwy); Lacey Twp; Ocean County
Collection Date: 7/13/2005 **USGS Topo Map: Forked River**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tanytarsus	6	16
* Hydroptila	6	11
* Leuctra	0	8
Psectrocladius	8	8
Enchytraeidae	10	6
Thienemannimyia	6	6
Argia	6	4
Calopteryx	6	3
Micropsectra	7	3
Nigronia	2	3
Rheocricotopus	6	3
Rheotanytarsus	6	3
* Brachycentrus	1	2
Cricotopus	7	2
* Maccaffertium	3	2
* Perlesta	4	2
* Polycentropus	6	2
* Pycnopsyche	4	2
* Baetidae	4	1
Caecidotea	8	1
Dineutus	4	1
Heterotrissocladius	0	1
Hydrophilidae	5	1
* Hydropsyche	4	1
Naididae	7	1
Pentaneura	6	1
* Platycentropus	4	1
Polypedilum	6	1
Simulium	6	1
Stenochironomus	5	1
Tribelos	5	1
Tvetenia	5	1

* (EPT organism) *Taxa Richness:* 32 *Population:* 100

Becks Biotic Index (BBI): 14.00 *%Plecoptera +Trichoptera:* 29.00%
Insect Taxa: 29 *%Mollusca + Amphipoda:* 0.00%
Non-Insect Taxa: 3 *%Diptera - Tanytarsini:* 26.00%
 %Filterers: 25.00%

PMI Rating: **68.09** **Excellent**

Habitat Analysis: 149 Suboptimal USEPA Protocol

Observations: Water temp: 17.9 C; Cond: 45 umhos; DO: 7.5 mg/L; pH: 4.2 SU

Clarity: clear- cedar brown; Flow Rate: moderate; Width/Depth: 18',1-3'; Substrate: gravel, sand, silt, snags, concrete

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: stream used to be channelized through colvert under concrete road/bridge

AMNET Site # AN0552 Stream Name: Oyster Ck
 Location: Rt 532 USGS gauge; Ocean Twp; Ocean County
 Collection Date: 11/4/2004 USGS Topo Map: Brookville

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Psectrocladius	8	16
Tribelos	5	9
* Pycnopsyche	4	8
Unniella	6	7
Simulium	6	6
* Paraleptophlebia	1	5
* Ptilostomis	5	4
* Siphloplecton	2	4
Stylaria	8	4
Cricotopus	7	3
Dromogomphus	4	3
* Polycentropus	6	3
Thienemannimyia	6	3
Apsectrotanypus	5	2
* Brachycentrus	1	2
Cordulegaster	3	2
* Hydropsyche	4	2
* Molanna	6	2
* Oecetis	8	2
Procladius	9	2
Pseudochironomus	5	2
* Taeniopteryx	2	2
Calopteryx	6	1
* Chimarra	4	1
Clinotanypus	8	1
* Eurylophella	4	1
Macromia	2	1
* Mystacides	4	1
Pagastiella	6	1
Polypedilum	6	1
Potthastia	2	1
Stenelmis	5	1
Tabanidae	6	1

* (EPT organism) Taxa Richness: 33 Population: 104

Becks Biotic Index (BBI): 15.00 %Plecoptera + Trichoptera: 25.96%

Insect Taxa: 32 %Mollusca + Amphipoda: 0.00%

Non-Insect Taxa: 1 %Diptera - Tanytarsini: 52.88%

PMI Rating: 77.75 Excellent %Filterers: 13.46%

Habitat Analysis: 189 Optimal USEPA Protocol

Observations: Water temp: 11.3 C; Cond: 46 umhos; DO: 8.8 mg/L; pH: 4.6 SU

Clarity: clear, cedar-brown; Flow Rate: moderate; Width/Depth: 13.5' / < 1.0 - 1.5'; Substrate: gravel, sand, snags

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, grass, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: fural, forested

Other: crayfish; downstream of landfill

AMNET Site # AN0554

Stream Name: Four Mile Br

Location: nr. Mill Ck confl. (end of Oxycoccus Rd); Stafford Twp; Ocean County

Collection Date: 9/13/2005

USGS Topo Map: West Creek

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Sphaeriidae	8	76
* Polycentropus	6	4
Prostoma	7	3
Dugesia	4	2
Pagastiella	6	2
Sialis	4	2
Ancyronyx	2	1
Aulodrilus	8	1
Calopteryx	6	1
Coenagrionidae	9	1
Glossiphoniidae	8	1
* Oxyethira	3	1
Planorbidae	6	1
Polypedilum	6	1
Stylaria	8	1
Thienemannimyia	6	1
* Triaenodes	6	1

* (EPT organism) Taxa Richness: 17 Population: 100

Becks Biotic Index (BBI): 4.00 %Plecoptera +Trichoptera: 6.00%

Insect Taxa: 10 %Mollusca + Amphipoda: 77.00%

Non-Insect Taxa: 7 %Diptera - Tanytarsini: 4.00%

%Filterers: 80.00%

PMI Rating: 20.39 Poor

Habitat Analysis: 173 Optimal USEPA Protocol

Observations: Water temp: 18.5 C; Cond: 102 umhos; DO: 8.0 mg/L; pH: 5.9 SU

Clarity: clear-cedar; Flow Rate: slow; Width/Depth: 10',2'; Substrate: gravel, sand, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: Edwin B. Forsythe National Wildlife Refuge, beaver dam upstream

AMNET Site # AN0555 Stream Name: Mill Ck

Location: Rt 72; Stafford Twp; Ocean County

Collection Date: 6/30/2005 USGS Topo Map: West Creek

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Pisidium	6.8	42
Rheotanytarsus	6	20
Stylaria	8	6
Nais	8	4
Hemerodromia	6	2
Manayunkia	6	2
Muscidae	6	2
* Oxyethira	3	2
* Perlesta	4	2
Pristinella	10	2
Prostoma	7	2
Tubifex	10	2
Argia	6	1
Crangonyx	8	1
Enallagma	9	1
Enchytraeidae	10	1
Gillia	8	1
* Hydroptilidae	4	1
Limnodrilus	10	1
Menetus	6	1
Petrophila	5	1
Staphylinidae	4	1
Thienemannimyia	6	1
Valvatidae	4	1

* (EPT organism) Taxa Richness: 24 Population: 100

Becks Biotic Index (BBI): 5.00 %Plecoptera +Trichoptera: 5.00%

Insect Taxa: 11 %Mollusca + Amphipoda: 46.00%

Non-Insect Taxa: 13 %Diptera - Tanytarsini: 5.00%

%Filterers: 62.00%

PMI Rating: 23.95 Poor

Habitat Analysis: 155 Suboptimal USEPA Protocol

Observations: Water temp: 22.9 C; Cond: 108 umhos; DO: 7.1 mg/L; pH: 5.9 SU

Clarity: clear- cedar brown; Flow Rate: moderate; Width/Depth: 45' / 3'; Substrate: sand, mud, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Downstream of Impoundment: Manahawkin Lake

Other: macrophytes, sampled upstream of bridge

AMNET Site # AN0555A Stream Name: Mill Ck
Location: off Hay Rd; Stafford Twp; Ocean County
Collection Date: 7/12/2005 USGS Topo Map: West Creek

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Leuctra	0	28
* Brachycentrus	1	16
* Lepidostoma	1	8
* Hydropsyche	4	6
Enchytraeidae	10	5
* Maccaffertium	3	5
Calopteryx	6	4
Limnodrilus	10	4
* Perlesta	4	4
Tvetenia	5	4
Cordulegaster	3	3
* Platycentropus	4	3
* Diplectrona	0	2
* Baetidae	4	1
Caecidotea	8	1
Dineutus	4	1
Lumbriculus	8	1
Rheotanytarsus	6	1
Tabanus	5	1
Tanytarsini	6	1
Thienemanniella	6	1

* (EPT organism) *Taxa Richness:* 21 *Population:* 100

Becks Biotic Index (BBI): 15.00 *%Plecoptera +Trichoptera:* 67.00%

Insect Taxa: 17 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 4 *%Diptera - Tanytarsini:* 6.00%

%Filterers: 25.00%

PMI Rating: 66.57 Excellent

Habitat Analysis: 177 Optimal USEPA Protocol

Observations: Water temp: 14.7 C; Cond: 37 umhos; DO: 8.7 mg/L; pH: 4.6 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 12.5', <1-1'; Substrate: sand, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: filamentous algae, macrophytes

AMNET Site # AN0556 **Stream Name: Cedar Run**
Location: Rt 9; Stafford Twp; Ocean County
Collection Date: 6/30/2005 **USGS Topo Map: West Creek**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Stylaria	8	24
Hyalella	8	15
Psectrocladius	8	12
Enchytraeidae	10	9
Polypedilum	6	7
Caecidotea	8	5
Stenelmis	5	5
Tanytarsus	6	4
Argia	6	3
Lumbriculus	8	2
* Oxyethira	3	2
Thienemannimyia	6	2
Ablabesmyia	8	1
Bezzia	6	1
* Caenis	7	1
Cladopelma	8	1
Dero	10	1
Erpobdellidae	8	1
Hydroporus	5	1
Naididae	7	1
Procladius	9	1
Stenochironomus	5	1

* (EPT organism) *Taxa Richness:* 22 *Population:* 100

Becks Biotic Index (BBI): 1.00 *%Plecoptera + Trichoptera:* 2.00%
Insect Taxa: 14 *%Mollusca + Amphipoda:* 15.00%
Non-Insect Taxa: 8 *%Diptera - Tanytarsini:* 26.00%
 %Filterers: 4.00%

PMI Rating: **44.83 Fair**

Habitat Analysis: 174 Optimal USEPA Protocol

Observations: Water temp: 20 C; Cond: 72 umhos; DO: 6.6 mg/L; pH: 4.7 SU

Clarity: clear- cedar brown; Flow Rate: moderate; Width/Depth: 10', 2-3'; Substrate: sand, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: forested, suburban

Downstream of Impoundment: cranberry bog

Other: sampled downstream of bridge, eels, fish

AMNET Site # AN0557 **Stream Name: Westecunk Ck**
Location: Forge Rd (Stafford Forge); Eagleswood Twp; Ocean County
Collection Date: 7/12/2005 **USGS Topo Map: West Creek**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Rheotanytarsus	6	25
Stenelmis	5	10
Tribelos	5	9
* Hydropsyche	4	6
Parachaetocladius	2	6
Polypedilum	6	5
Nais	8	4
Thienemannimyia	6	4
Hemerodromia	6	3
* Chimarra	4	2
* Mystacides	4	2
Nigronia	2	2
* Oecetis	8	2
Rhagovelia	9	2
Berosus	5	1
Calopteryx	6	1
Corixidae	9	1
Cricotopus	7	1
Dicrotendipes	8	1
Dineutus	4	1
Enchytraeidae	10	1
Gomphus	5	1
Gyrinus	4	1
* Leuctra	0	1
Manayunkia	6	1
Metrobates	8	1
Paraphaenocladius	4	1
Pelocoris	8	1
* Pseudocloeon	4	1
Simulium	6	1
Stylaria	8	1
Tanytarsus	6	1

* (EPT organism) *Taxa Richness:* 32 *Population:* 100

Becks Biotic Index (BBI): 11.00 *%Plecoptera +Trichoptera:* 13.00%

Insect Taxa: 28 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 4 *%Diptera - Tanytarsini:* 31.00%

%Filterers: 35.00%

PMI Rating: 60.71 Good

Habitat Analysis: 149 Suboptimal USEPA Protocol

Observations: Water temp: 26.5 C; Cond: 36 umhos; DO: 7.6 mg/L; pH: 4.6 SU

Clarity: clear- cedar brown; Flow Rate: moderate; Width/Depth: 28', <1-3'; Substrate: gravel, sand, snags, riprap

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Downstream of Impoundment: cranberry bog

Other: macrophytes, new construction along road for power lines

AMNET Site # AN0557A Stream Name: Westecunk Ck
Location: Pollypod Rd; Little Egg Harbor Twp; Ocean County
Collection Date: 9/13/2005 USGS Topo Map: West Creek

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Ablabesmyia	8	11
Limnodrilus	10	8
* Molanna	6	7
Psectrocladius	8	6
* Polycentropus	6	5
Tanytarsus	6	5
Tribelos	5	5
Procladius	9	4
* Ptilostomis	5	4
Thienemannimyia	6	4
Chrysops	6	3
Heterotrissocladius	0	3
Hydroporus	5	3
* Oecetis	8	3
Cordulegaster	3	2
Cricotopus	7	2
* Pycnopsyche	4	2
Argia	6	1
Bezzia	6	1
* Brachycentrus	1	1
Calopteryx	6	1
Corydalus	4	1
Hetaerina	6	1
* Hydroptila	6	1
Microtendipes	7	1
* Mystacides	4	1
Nilotanypus	6	1
Orthocladius	6	1
Paraponyx	5	1
Stenochironomus	5	1

* (EPT organism) *Taxa Richness:* 30 *Population:* 90

Becks Biotic Index (BBI): 8.00 *%Plecoptera +Trichoptera:* 26.67%
Insect Taxa: 29 *%Mollusca + Amphipoda:* 0.00%
Non-Insect Taxa: 1 *%Diptera - Tanytarsini:* 47.78%
 %Filterers: 13.33%

PMI Rating: 71.96 Excellent

Habitat Analysis: 174 Optimal USEPA Protocol

Observations: Water temp: 15.2 C; Cond: 29 umhos; DO: 5.9 mg/L; pH: N/A SU
 Clarity: clear-cedar; Flow Rate: slow; Width/Depth: 6',1'; Substrate: mud, silt
 Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs
 Stream Gradient: Low Gradient Stream; Land Uses: forested
 Other: macrophytes, filamentous algae; NOTE: pH meter malfunction

AMNET Site # AN0559 **Stream Name: Mill Br of Tuckerton Ck**
Location: Nugentown Rd; Little Egg Harbor Twp; Ocean County
Collection Date: 11/9/2004 **USGS Topo Map: Tuckerton**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Caecidotea	8	44
* Platycentropus	4	12
Hydroporus	5	7
Corixidae	9	4
Hyalella	8	4
* Hydatophylax	2	4
* Banksiola	2	3
Naididae	7	3
* Polycentropus	6	3
* Siphloplecton	2	3
Ischnura	9	2
Argia	6	1
* Eurylophella	4	1
* Leptophlebia	4	1
* Maccaffertium	3	1
* Molanna	6	1
* Oxyethira	3	1
Pisidium	6.8	1
Pristina	8	1
Sialis	4	1
Stylaria	8	1
Unniella	6	1

* (EPT organism) *Taxa Richness:* 22 *Population:* 100

Becks Biotic Index (BBI): 9.00 *%Plecoptera +Trichoptera:* 24.00%

Insect Taxa: 16 *%Mollusca + Amphipoda:* 5.00%

Non-Insect Taxa: 6 *%Diptera - Tanytarsini:* 1.00%

%Filterers: 4.00%

PMI Rating: **54.05 Fair**

Habitat Analysis: 177 Optimal USEPA Protocol

Observations: Water temp: 9.2 C; Cond: 52 umhos; DO: 8.1 mg/L; pH: 4.9 SU

Clarity: clear, cedar-brown; Flow Rate: slow; Width/Depth: 30' / 2 - 3'; Substrate: gravel, sand, silt, snags

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Other: filamentous algae, macrophytes; three pipes channeling stream under road

AMNET Site # AN0559A Stream Name: Mill Br

Location: Poor Mans Pkwy; Little Egg Harbor Twp; Ocean County

Collection Date: 4/6/2006 USGS Topo Map: West Creek

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Polypedilum	6	45
Psectrocladius	8	44
Orthocladiinae	5	8
Enchytraeidae	10	1
Thienemanniella	6	1
Thienemannimyia	6	1

**(EPT organism)* *Taxa Richness:* 6 *Population:* 100

Becks Biotic Index (BBI): 0.00 *%Plecoptera +Trichoptera:* 0.00%

Insect Taxa: 5 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 1 *%Diptera - Tanytarsini:* 99.00%

%Filterers: 0.00%

PMI Rating: 59.07 Good

Habitat Analysis: 145 Suboptimal USEPA Protocol

Observations: Water temp: 7.8 C; Cond: 163 umhos; DO: 4.7 mg/L; pH: 4.4 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 4' /< 1.0'; Substrate: mud, silt, leaf litter

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: filamentous algae; intermittant, braided stream; downstream of GS Parkway

AMNET Site # AN0560

Stream Name: Mullica River

Location: Medford Rd; Shamong Twp; Burlington & Camden County

Collection Date: 11/23/2004

USGS Topo Map: Medford Lakes

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Corbicula	4	28
* Cheumatopsyche	5	24
Amnicola	4.8	8
* Hydropsyche	4	5
Lumbriculus	8	5
Simulium	6	5
Stylaria	8	4
Polypedilum	6	3
Prostoma	7	3
Slavina	7	3
Stenochironomus	5	3
Cricotopus	7	2
Nais	8	2
Palaemonetes	4	2
Psectrocladius	8	2
Boyeria	2	1
Dero	10	1
Dugesia	4	1
* Eurylophella	4	1
Musculium	5	1
Rheotanytarsus	6	1
Stenelmis	5	1
Tanytarsus	6	1

* (EPT organism) *Taxa Richness:* 23 *Population:* 107

Becks Biotic Index (BBI): 6.00 *%Plecoptera + Trichoptera:* 27.10%

Insect Taxa: 12 *%Mollusca + Amphipoda:* 34.58%

Non-Insect Taxa: 11 *%Diptera - Tanytarsini:* 14.02%

%Filterers: 60.75%

PMI Rating: 35.88 Fair

Habitat Analysis: 154 Suboptimal USEPA Protocol

Observations: Water temp: 11 C; Cond: 179 umhos; DO: 9.4 mg/L; pH: 6.1 SU

Clarity: clear, cedar-brown; Flow Rate: moderate; Width/Depth: 10' / 1'; Substrate: gravel, sand

Canopy: open; Bank Stability: good; Bank Vegetation: trees, shrubs, vines

Stream Gradient: Low Gradient Stream; Land Uses: forested

Downstream of Impoundment: downstream of Lady's Lake

Other: fish, macrophytes, filamentous algae, minnows, grass shrimp; USGS gage reading: 4.2

AMNET Site # AN0561

Stream Name: Mullica River

Location: off Jackson Rd; Shamong Twp; Burlington & Camden County

Collection Date: 7/27/2005

USGS Topo Map: Medford Lakes

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tribelos	5	49
Caecidotea	8	17
Synurella	4	12
Sialis	4	8
Apsectrotanypus	5	4
Thienemannimyia	6	4
Limnodrilus	10	2
Chironomus	10	1
Gyrinidae	3	1
Hydroporus	5	1
* Polycentropus	6	1

**(EPT organism)* *Taxa Richness:* 11 *Population:* 100

Becks Biotic Index (BBI): 3.00 *%Plecoptera +Trichoptera:* 1.00%

Insect Taxa: 8 *%Mollusca + Amphipoda:* 12.00%

Non-Insect Taxa: 3 *%Diptera - Tanytarsini:* 58.00%

%Filterers: 1.00%

PMI Rating: 54.90 Fair

Habitat Analysis: 175 Optimal USEPA Protocol

Observations: Water temp: 23.1 C; Cond: 82 umhos; DO: 1.4 mg/L; pH: 4.3 SU

Clarity: slightly turbid - cedar; Flow Rate: slow; Width/Depth: 25',1-3'; Substrate: gravel, sand, silt

Canopy: partly open; Bank Stability: fair; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested (Wharton State Forest)

Other: minnows

AMNET Site # AN0562

Stream Name: Mullica River

Location: Burnt House Rd (nr Goshen Pond outlet); Shamong Twp; Burlington County

Collection Date: 7/27/2005

USGS Topo Map: Hammonton

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tribelos	5	39
Corixidae	9	7
Argia	6	3
* Brachycentrus	1	3
Gomphus	5	3
* Molanna	6	3
Thienemannimyia	6	3
Tubifex	10	3
Ablabesmyia	8	1
Apsectrotanypus	5	1
Cryptochironomus	8	1
Dero	10	1
Enchytraeidae	10	1
Hydroporus	5	1
Macromia	2	1
Nematoda	6	1
Phaenopsectra	7	1
* Polycentropus	6	1
Polypedilum	6	1
Sialis	4	1

* (EPT organism) Taxa Richness: 20 Population: 76

Becks Biotic Index (BBI): 4.00 %Plecoptera +Trichoptera: 9.21%

Insect Taxa: 16 %Mollusca + Amphipoda: 0.00%

Non-Insect Taxa: 4 %Diptera - Tanytarsini: 61.84%

%Filterers: 5.26%

PMI Rating: 61.76 Good

Habitat Analysis: 183 Optimal USEPA Protocol

Observations: Water temp: 21.2 C; Cond: 52 umhos; DO: 4.3 mg/L; pH: 4.8 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 40', 3'; Substrate: gravel, sand, silt

Canopy: open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # AN0563 **Stream Name: Wesickaman Ck**
Location: Quaker Bridge Rd; Shamong Twp; Burlington County
Collection Date: 7/27/2005 **USGS Topo Map: Atsion**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tribelos	5	47
Caecidotea	8	33
Limnodrilus	10	2
Micropsectra	7	2
* Molanna	6	2
Nigronia	2	2
Sialis	4	2
Sphaeriidae	8	2
Tanytarsus	6	2
Ablabesmyia	8	1
Cryptochironomus	8	1
Enchytraeidae	10	1
Procladius	9	1
Stenelmis	5	1
* Triaenodes	6	1

* (*EPT organism*) *Taxa Richness:* 15 *Population:* 100

Becks Biotic Index (BBI): 2.00 *%Plecoptera + Trichoptera:* 3.00%

Insect Taxa: 11 *%Mollusca + Amphipoda:* 2.00%

Non-Insect Taxa: 4 *%Diptera - Tanytarsini:* 50.00%

%Filterers: 4.00%

***PMI Rating:* 54.82 Fair**

Habitat Analysis: 132 Suboptimal USEPA Protocol

Observations: Water temp: 22.9 C; Cond: 65 umhos; DO: 3.8 mg/L; pH: 5.3 SU

Clarity: clear-cedar color; Flow Rate: slow; Width/Depth: 3', <1'; Substrate: sand, silt

Canopy: mostly closed; Bank Stability: fair; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested (Wharton State Forest)

Other: frogs, very low flow

AMNET Site # AN0564 Stream Name: Mullica River
 Location: Constable Bridge; Mullica Twp; Atlantic & Burlington County
 Collection Date: 4/6/2006 USGS Topo Map: Atsion

Genus	Tolerance Value	Amount
Simulium	6	22
* Pycnopsyche	4	10
* Oecetis	8	7
Thienemannimyia	6	6
Enchytraeidae	10	4
Psectrocladius	8	4
Unniella	6	4
* Leptophlebiidae	2	3
Polypedilum	6	3
Probezzia	6	3
* Ptilostomis	5	3
Ceratopogonidae	6	2
Cricotopus	7	2
* Hydropsyche	4	2
* Isogenoides	2	2
* Isoperla	2	2
Orthocladius	6	2
Pisidium	6.8	2
Ancyronyx	2	1
Boyeria	2	1
Clinotanypus	8	1
Gomphidae	1	1
Hexatoma	2	1
* Hydroptila	6	1
Limnodrilus	10	1
Paralauterborniella	8	1
* Perlinella	2	1
Procladius	9	1
Progomphus	5	1
Stelechomyia	7	1
Stenelmis	5	1
Tipula	4	1
* Triaenodes	6	1
Tribelos	5	1
Tvetenia	5	1

* (EPT organism) Taxa Richness: 35 Population: 100
 Becks Biotic Index (BBI): 12.00 %Plecoptera +Trichoptera: 29.00%
 Insect Taxa: 32 %Mollusca + Amphipoda: 2.00%
 Non-Insect Taxa: 3 %Diptera - Tanytarsini: 56.00%
 %Filterers: 26.00%

PMI Rating: 73.37 Excellent

Habitat Analysis: 173 Optimal USEPA Protocol

Observations: Water temp: 9.8 C; Cond: 60 umhos; DO: 9.4 mg/L; pH: 6.00 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 37',3'; Substrate: gravel, sand, mud, snags
 Canopy: mostly open; Bank Stability: good; Bank Vegetation: Atlantic White Cedar trees, shrubs, grasses
 Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # AN0565

Stream Name: Hays Mill Ck

Location: Tremont Ave; Waterford Twp; Camden County

Collection Date: 7/27/2005

USGS Topo Map: Medford Lakes

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Brachycentrus	1	35
Microtendipes	7	13
* Leuctra	0	8
* Chimarra	4	6
Physella	9.1	6
Macronychus	2	4
Aulodrilus	8	3
Micropsectra	7	3
Promoresia	2	3
* Maccaffertium	3	2
Parametrioctenus	5	2
Sphaeriidae	8	2
Hemerodromia	6	1
Lumbriculus	8	1
* Lype	2	1
* Oecetis	8	1
Planariidae	4	1
Planorbidae	6	1
Polypedilum	6	1
Rheocricotopus	6	1
Stenochironomus	5	1
Stylaria	8	1
Thienemannimyia	6	1
Tribelos	5	1
Tvetenia	5	1

* (EPT organism) Taxa Richness: 25 Population: 100

Becks Biotic Index (BBI): 10.00 %Plecoptera +Trichoptera: 51.00%

Insect Taxa: 18 %Mollusca + Amphipoda: 9.00%

Non-Insect Taxa: 7 %Diptera - Tanytarsini: 22.00%

%Filterers: 56.00%

PMI Rating: 56.35 Good

Habitat Analysis: 177 Optimal USEPA Protocol

Observations: Water temp: 23.4 C; Cond: 129 umhos; DO: 7.2 mg/L; pH: 5.8 SU

Clarity: clear-slight cedar color; Flow Rate: moderate; Width/Depth: 15', 1'; Substrate: cobble, gravel, sand

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: shrubs, trees

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes, trash, minnow, sampled downstream

AMNET Site # AN0566 **Stream Name: Sleeper Br**
Location: Parkdale; Waterford Twp; Camden & Atlantic County
Collection Date: 10/27/2004 **USGS Topo Map: Hammonton**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Maccaffertium	3	15
Limnodrilus	10	11
* Agarodes	3	9
* Phylocentropus	5	9
Thienemannimyia	6	6
Clinotanytus	8	5
Pisidium	6.8	5
* Taeniopteryx	2	5
* Micrasema	2	4
Promoresia	2	4
* Brachycentrus	1	3
* Paraleptophlebia	1	3
Polypedilum	6	3
* Pycnopsyche	4	3
* Cheumatopsyche	5	2
Chrysops	6	2
Hagenius	3	2
* Hydropsyche	4	2
Manayunkia	6	2
* Acroneuria	0	1
* Baetisca	4	1
Chironomidae	6	1
Chironomus	10	1
Cricotopus	7	1
Erythemis	10	1
* Eurylophella	4	1
Hetaerina	6	1
Macromia	2	1
Microtendipes	7	1
Nais	8	1
Pagastiella	6	1
Pseudorthocladius	0	1
* Triaenodes	6	1
Unniella	6	1

* (*EPT organism*) *Taxa Richness:* 34 *Population:* 110

Becks Biotic Index (BBI): 19.00 *%Plecoptera + Trichoptera:* 35.45%
Insect Taxa: 30 *%Mollusca + Amphipoda:* 4.55%
Non-Insect Taxa: 4 *%Diptera - Tanytarsini:* 20.91%
%Filterers: 20.00%

PMI Rating: 70.92 Excellent

Habitat Analysis: 189 Optimal USEPA Protocol

Observations: Water temp: 11 C; Cond: 68 umhos; DO: 9.2 mg/L; pH: 5.6 SU

Clarity: clear, cedar-brown; Flow Rate: moderate; Width/Depth: 41.5' / 2.5'; Substrate: gravel, sand, snags

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-cropland, forested-Wharton State Forest

AMNET Site # AN0567

Stream Name: Clarks Br

Location: Burnt Mill Rd; Waterford Twp; Camden County

Collection Date: 4/17/2006

USGS Topo Map: Hammonton

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Ostrocerca	2	17
Tanytarsus	6	14
Thienemannimyia	6	11
Bezzia	6	10
* Leuctra	0	8
Enchytraeidae	10	6
* Brachycentrus	1	5
Caecidotea	8	4
Heterotrissocladius	0	4
Simulium	6	4
* Eurylophella	4	3
* Platycentropus	4	3
Gammarus	6	2
* Oecetis	8	2
Unniella	6	2
Ablabesmyia	8	1
Chrysops	6	1
* Mystacides	4	1
Nematoda	6	1
* Wormaldia	0	1

* (EPT organism) Taxa Richness: 20 Population: 100

Becks Biotic Index (BBI): 12.00 %Plecoptera +Trichoptera: 37.00%

Insect Taxa: 16 %Mollusca + Amphipoda: 2.00%

Non-Insect Taxa: 4 %Diptera - Tanytarsini: 33.00%

%Filterers: 24.00%

PMI Rating: 64.17 Excellent

Habitat Analysis: 183 Optimal USEPA Protocol

Observations: Water temp: 10.8 C; Cond: 65 umhos; DO: 3.7 mg/L; pH: 5.2 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 6', 1'; Substrate: gravel, sand, silt, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: stream braided

AMNET Site # AN0568 **Stream Name: Prices Br**
Location: Burnt Mill Rd; Waterford Twp; Camden County
Collection Date: 11/18/2004 **USGS Topo Map: Hammonton**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Caecidotea	8	46
Synurella	4	14
* Platycentropus	4	7
Pisidium	6.8	6
Enchytraeidae	10	5
Micropsectra	7	4
Physella	9.1	4
Dero	10	3
Nais	8	3
Parametrioctenus	5	3
* Polycentropus	6	3
Menetus	6	2
Bezzia	6	1
Ferrissia	7	1
Hydrobaenus	8	1
Microtendipes	7	1
Phagocata	4	1
Polypedilum	6	1
* Ptilostomis	5	1
Simulium	6	1
Thienemannimyia	6	1
Tvetenia	5	1

* (EPT organism) *Taxa Richness:* 22 *Population:* 110

Becks Biotic Index (BBI): 3.00 *%Plecoptera +Trichoptera:* 10.00%

Insect Taxa: 12 *%Mollusca + Amphipoda:* 24.55%

Non-Insect Taxa: 10 *%Diptera - Tanytarsini:* 9.09%

%Filterers: 10.00%

PMI Rating: **39.55 Fair**

Habitat Analysis: 192 Optimal USEPA Protocol

Observations: Water temp: 6 C; Cond: 71 umhos; DO: 9.9 mg/L; pH: 5.7 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 2.5' / 1 - 1.5'; Substrate: gravel, sand, snags, leaf litter

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, grass, moss

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

AMNET Site # AN0570 **Stream Name: Blue Anchor Bk**
Location: Rt 30; Winslow Twp; Camden County
Collection Date: 11/3/2004 **USGS Topo Map: Hammonton**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Amnicola	4.8	25
Stylaria	8	9
* Cheumatopsyche	5	7
Musculium	5	7
Sphaerium	8	7
Cura	4	6
Enallagma	9	5
Nais	8	5
Physella	9.1	4
* Caenis	7	3
Daphnia	4	3
Dicrotendipes	8	3
Helisoma	7	2
Lumbriculus	8	2
Nanocladius	3	2
Pristinella	10	2
Prostoma	7	2
Psectrocladius	8	2
Limnodrilus	10	1
Manayunkia	6	1
Rheotanytarsus	6	1
Tribelos	5	1

* (EPT organism) *Taxa Richness:* 22 *Population:* 100

Becks Biotic Index (BBI): 3.00 *%Plecoptera +Trichoptera:* 7.00%

Insect Taxa: 8 *%Mollusca + Amphipoda:* 38.00%

Non-Insect Taxa: 14 *%Diptera - Tanytarsini:* 8.00%

%Filterers: 25.00%

PMI Rating: 28.90 Poor

Habitat Analysis: 163 Optimal USEPA Protocol

Observations: Water temp: 15.1 C; Cond: 85 umhos; DO: 9.2 mg/L; pH: 5.9 SU

Clarity: clear, cedar-brown; Flow Rate: slow; Width/Depth: 10' / 1.5 - 4.2'; Substrate: cobbles, gravel, sand, silt, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Downstream of Impoundment: downstream of Elm Lake

Other: copper pipe crossing brook

AMNET Site # AN0571

Stream Name: Albertson Bk

Location: off Wharton Ave (Fleming Pike); Winslow Twp; Camden County

Collection Date: 8/12/2005

USGS Topo Map: Hammonton

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Brachycentrus	1	34
Amnicola	4.8	14
Pisidium	6.8	9
Calopteryx	6	7
Ablabesmyia	8	3
Boyeria	2	3
* Leptophlebiidae	2	3
* Oecetis	8	3
Ancyronyx	2	2
* Cheumatopsyche	5	2
Gomphus	5	2
Macronychus	2	2
Planorbidae	6	2
Coenagrionidae	9	1
Dugesia	4	1
Helobdella	8	1
* Hydropsychidae	4	1
Pentaneura	6	1
Procladius	9	1
Prostoma	7	1
Rheocricotopus	6	1
Rheotanytarsus	6	1
Simulium	6	1
Stenelmis	5	1
Sympetrum	4	1
Tanytarsus	6	1
Thienemannimyia	6	1

* (EPT organism) Taxa Richness: 27 Population: 100

Becks Biotic Index (BBI): 9.00 %Plecoptera +Trichoptera: 40.00%

Insect Taxa: 21 %Mollusca + Amphipoda: 25.00%

Non-Insect Taxa: 6 %Diptera - Tanytarsini: 8.00%

%Filterers: 49.00%

PMI Rating: 50.88 Fair

Habitat Analysis: 188 Optimal USEPA Protocol

Observations: Water temp: 24.4 C; Cond: 120 umhos; DO: N/A mg/L; pH: 6.4 SU

Clarity: clear- cedar brown; Flow Rate: moderate; Width/Depth: 13', 1-2.5'; Substrate: gravel, sand, mud, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, macrophytes; NOTE: DO meter malfunction

AMNET Site # AN0572 Stream Name: Albertson Bk
 Location: Old Bridge Crossing; Hammonton; Atlantic County
 Collection Date: 11/18/2004 USGS Topo Map: Atsion

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Rheotanytarsus	6	15
* Hydropsyche	4	12
Pisidium	6.8	9
* Taeniopteryx	2	8
Tvetenia	5	7
* Cheumatopsyche	5	5
* Pycnopsyche	4	5
* Leptophlebia	4	4
Lumbricillus	10	4
* Chimarra	4	3
Promoresia	2	3
Calopteryx	6	2
* Ceraclea	3	2
Eukiefferiella	8	2
* Hydroptila	6	2
* Lepidostoma	1	2
* Platycentropus	4	2
Tubificidae	10	2
* Acerpenna	4	1
Aulodrilus	8	1
Boyeria	2	1
* Brachycentrus	1	1
* Diptetronea	0	1
Gyrinus	4	1
Hemerodromia	6	1
* Leuctra	0	1
Libellulidae	9	1
* Maccaffertium	3	1
Micropsectra	7	1
* Oecetis	8	1
Palaemonetes	4	1
* Paracapnia	1	1
Parametricnemus	5	1
Planorbidae	6	1
* Plauditus	4	1
Pseudochironomus	5	1
* Ptilostomis	5	1
Sialis	4	1
Synurella	4	1

* (EPT organism) Taxa Richness: 39 Population: 110

Becks Biotic Index (BBI): 26.00 %Plecoptera +Trichoptera: 42.73%

Insect Taxa: 32 %Mollusca + Amphipoda: 10.00%

Non-Insect Taxa: 7 %Diptera - Tanytarsini: 10.91%

PMI Rating: 68.44 Excellent %Filterers: 41.82%

Habitat Analysis: 179 Optimal USEPA Protocol

Observations: Water temp: 8.1 C; Cond: 77 umhos; DO: 9.7 mg/L; pH: 5.7 SU

Clarity: clear, cedar-brown; Flow Rate: slow; Width/Depth: 23' / 3.5'; Substrate: gravel, sand, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: rural , forested

Other: macrophytes

AMNET Site # AN0573 **Stream Name: Great Swamp Bk**
Location: Rt 30; Winslow Twp; Camden County
Collection Date: 8/12/2005 **USGS Topo Map: Hammonton**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Caenis	7	56
* Cheumatopsyche	5	6
Helisoma	7	6
Physella	9.1	6
Dugesia	4	5
Nais	8	5
Enallagma	9	4
Limnodrilus	10	2
Ablabesmyia	8	1
Bezzia	6	1
Dicrotendipes	8	1
Erythemis	10	1
Nematoda	6	1
Parachironomus	10	1
Pristina	8	1
Sphaerium	8	1
Stylodrilus	10	1
Tanypodinae	7	1

* (EPT organism) *Taxa Richness:* 18 *Population:* 100

Becks Biotic Index (BBI): 1.00 *%Plecoptera +Trichoptera:* 6.00%
Insect Taxa: 9 *%Mollusca + Amphipoda:* 13.00%
Non-Insect Taxa: 9 *%Diptera - Tanytarsini:* 5.00%
 %Filterers: 7.00%

PMI Rating: **38.86 Fair**

Habitat Analysis: 154 Suboptimal USEPA Protocol

Observations: Water temp: 28.6 C; Cond: 118 umhos; DO: N/A mg/L; pH: 6.4 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 10', <1-2'; Substrate: mud

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, grasses

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Downstream of Impoundment: outlet of lake

Other: frogs, fish, turtle, sewage odor from storm drains, macrophytes; NOTE: DO meter malfunction

AMNET Site # AN0574 Stream Name: Great Swamp Bk
 Location: Rt 206; Hammonton; Atlantic County
 Collection Date: 9/1/2005 USGS Topo Map: Hammonton

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tanytarsus	6	24
Ablabesmyia	8	8
Enallagma	9	8
Calopteryx	6	5
Dromogomphus	4	4
Hyaella	8	4
* Leuctra	0	4
Nais	8	4
Cricotopus	7	3
Polypedilum	6	3
* Acerpenna	4	2
Ancyronyx	2	2
Argia	6	2
* Hydropsyche	4	2
* Hydroptila	6	2
Limnodrilus	10	2
Orthocladius	6	2
* Paraleptophlebia	1	2
Tribelos	5	2
Basiaeschna	2	1
* Cheumatopsyche	5	1
Clinotanytus	8	1
Helisoma	7	1
* Maccaffertium	3	1
* Molanna	6	1
Paralauterborniella	8	1
Peltodytes	5	1
Procladius	9	1
Prostoma	7	1
Psectrocladius	8	1
Rheotanytarsus	6	1
Sialis	4	1
Stenelmis	5	1
Trichocorixa	9	1

* (EPT organism) Taxa Richness: 34 Population: 100

Becks Biotic Index (BBI): 11.00 %Plecoptera +Trichoptera: 10.00%
 Insect Taxa: 29 %Mollusca + Amphipoda: 5.00%
 Non-Insect Taxa: 5 %Diptera - Tanytarsini: 22.00%
 %Filterers: 28.00%

PMI Rating: 57.99 Good

Habitat Analysis: 141 Suboptimal USEPA Protocol

Observations: Water temp: 18.7 C; Cond: 206 umhos; DO: 5.7 mg/L; pH: 6.0 SU
 Clarity: clear; Flow Rate: slow; Width/Depth: 24.5', 3-4'; Substrate: mud
 Canopy: partly open; Bank Stability: fair; Bank Vegetation: trees, shrubs
 Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # AN0575 Stream Name: Cedar Bk
Location: Myrtle Ave (Columbia Rd); Hammonton; Atlantic County
Collection Date: 8/12/2005 USGS Topo Map: Hammonton

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Helisoma	7	25
Tribelos	5	16
Physa	8	12
Sphaerium	8	9
Dubiraphia	6	7
Enallagma	9	7
Ancyronyx	2	4
Clinotanytus	8	3
Didymops	4	2
Limnodrilus	10	2
Perithemis	4	2
Procladius	9	2
Thienemannimyia	6	2
Haliphus	5	1
Heterotrissocladius	0	1
Ischnura	9	1
Polypedilum	6	1
Somatochlora	1	1
Tanytarsus	6	1
Tubifex	10	1

* (EPT organism) *Taxa Richness:* 20 *Population:* 100

Becks Biotic Index (BBI): 7.00 *%Plecoptera +Trichoptera:* 0.00%

Insect Taxa: 15 *%Mollusca + Amphipoda:* 46.00%

Non-Insect Taxa: 5 *%Diptera - Tanytarsini:* 25.00%

%Filterers: 10.00%

PMI Rating: **44.33 Fair**

Habitat Analysis: 148 Suboptimal USEPA Protocol

Observations: Water temp: 23.7 C; Cond: 268 umhos; DO: N/A mg/L; pH: 6.7 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 18', 1-2.5'; Substrate: gravel, sand, mud, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: agriculture - cropland (blueberries), rural

Other: turtle, fish, frogs; NOTE: DO meter malfunction

AMNET Site # AN0577 **Stream Name: Hammonton Ck**
Location: Boyer Rd; Hammonton; Atlantic County
Collection Date: 11/16/2004 **USGS Topo Map: Hammonton**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Rheotanytarsus	6	64
Gammarus	6	9
* Cheumatopsyche	5	6
Enallagma	9	4
Caecidotea	8	3
Nais	8	3
Cricotopus	7	2
* Oecetis	8	2
Helobdella	8	1
Hetaerina	6	1
Limnodrilus	10	1
Lumbriculus	8	1
Paratanytarsus	6	1
Polypedilum	6	1
Stenochironomus	5	1

* (EPT organism) *Taxa Richness:* 15 *Population:* 100

Becks Biotic Index (BBI): 0.00 *%Plecoptera +Trichoptera:* 8.00%
Insect Taxa: 9 *%Mollusca + Amphipoda:* 9.00%
Non-Insect Taxa: 6 *%Diptera - Tanytarsini:* 4.00%
 %Filterers: 70.00%

PMI Rating: **32.28** **Poor**

Habitat Analysis: 158 Suboptimal USEPA Protocol

Observations: Water temp: 12 C; Cond: 139 umhos; DO: 8 mg/L; pH: 6 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 10' / < 1.0 - 1.5'; Substrate: gravel, sand, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: shrubs, trees, grass

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-cropland, suburban, forested

Other: macrophytes; downstream of STP

AMNET Site # AN0578 Stream Name: Hammonton Ck

Location: Columbia Rd; Mullica Twp; Atlantic County

Collection Date: 8/12/2005 USGS Topo Map: Atsion

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Macronychus	2	12
Tribelos	5	11
* Maccaffertium	3	9
Aulodrilus	8	8
Pisidium	6.8	6
Rheotanytarsus	6	6
Stenelmis	5	4
Ancyronyx	2	3
Argia	6	3
Calopteryx	6	3
Dugesia	4	3
Polypedilum	6	3
Prostoma	7	3
Ablabesmyia	8	2
Dubiraphia	6	2
Haliplus	5	2
* Molanna	6	2
* Oecetis	8	2
Paratendipes	8	2
* Triaenodes	6	2
* Cheumatopsyche	5	1
Helobdella	8	1
* Lepidostoma	1	1
* Leuctra	0	1
* Lype	2	1
Nais	8	1
Oulimnius	4	1
Promoresia	2	1
Rhagovelia	9	1
Simulium	6	1
Synurella	4	1
Tvetenia	5	1

* (EPT organism) Taxa Richness: 32 Population: 100

Becks Biotic Index (BBI): 12.00 %Plecoptera +Trichoptera: 10.00%

Insect Taxa: 25 %Mollusca + Amphipoda: 7.00%

Non-Insect Taxa: 7 %Diptera - Tanytarsini: 20.00%

%Filterers: 14.00%

PMI Rating: 56.64 Good

Habitat Analysis: 173 Optimal USEPA Protocol

Observations: Water temp: 23.7 C; Cond: 110 umhos; DO: N/A mg/L; pH: 6.3 SU

Clarity: clear- cedar brown; Flow Rate: moderate; Width/Depth: 24.2', 1.5-2.5'; Substrate: gravel, sand, snags, roots

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested, rural

Other: frogs, macrophytes; NOTE: DO meter malfunction

AMNET Site # AN0579 **Stream Name: Batsto River**
Location: Carranza Rd; Shamong Twp; Burlington County
Collection Date: 8/1/2005 **USGS Topo Map: Indian Mills**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Pisidium	6.8	17
Caecidotea	8	16
Tribelos	5	9
* Phyllocentropus	5	8
Psectrocladius	8	8
Ablabesmyia	8	5
Thienemannimyia	6	4
Ancyronyx	2	3
Chrysops	6	3
* Maccaffertium	3	3
Boyeria	2	2
Calopteryx	6	2
Corixidae	9	2
Lumbriculus	8	2
Tanytarsus	6	2
Xylotopus	2	2
Apsectrotanypus	5	1
Cricotopus	7	1
Cryptochironomus	8	1
Gyrinus	4	1
* Lepidostoma	1	1
* Leuctra	0	1
* Molanna	6	1
* Oecetis	8	1
* Paraleptophlebia	1	1
Peltodytes	5	1
Sialis	4	1
Stenochironomus	5	1

* (EPT organism) *Taxa Richness:* 28 *Population:* 100

Becks Biotic Index (BBI): 12.00 *%Plecoptera +Trichoptera:* 12.00%
Insect Taxa: 25 *%Mollusca + Amphipoda:* 17.00%
Non-Insect Taxa: 3 *%Diptera - Tanytarsini:* 35.00%
 %Filterers: 27.00%

PMI Rating: 59.85 Good

Habitat Analysis: 160 Optimal USEPA Protocol

Observations: Water temp: 17.1 C; Cond: 51 umhos; DO: 6.5 mg/L; pH: 5.7 SU
Clarity: slightly turbid- cedar; Flow Rate: slow; Width/Depth: 31', 3'; Substrate: gravel, sand, silt
Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses
Stream Gradient: Low Gradient Stream; Land Uses: forested
Other: macrophytes, fish

AMNET Site # AN0580

Stream Name: Roberts Br

Location: Carranza Rd; Shamong Twp; Burlington County

Collection Date: 8/1/2005

USGS Topo Map: Indian Mills

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tribelos	5	55
Coenagrionidae	9	12
Procladius	9	10
Caecidotea	8	6
Alotanypus	6	5
Ablabesmyia	8	2
Hydroporus	5	2
Thienemannimyia	6	2
Chironomus	10	1
Limnodrilus	10	1
Polypedilum	6	1
Sialis	4	1
Sympetrum	4	1
Tetragoneuria	8.5	1

**(EPT organism)* *Taxa Richness:* 14 *Population:* 100

Becks Biotic Index (BBI): 2.00 *%Plecoptera +Trichoptera:* 0.00%

Insect Taxa: 12 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 2 *%Diptera - Tanytarsini:* 76.00%

%Filterers: 0.00%

PMI Rating: 61.98 Good

Habitat Analysis: 167 Optimal USEPA Protocol

Observations: Water temp: 21.4 C; Cond: 31 umhos; DO: 1.1 mg/L; pH: 4.8 SU

Clarity: slightly turbid- cedar; Flow Rate: slow; Width/Depth: 13.5', 3'; Substrate: sand, mud, silt

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: USGS gage height 1.5 ft

AMNET Site # AN0581

Stream Name: Skit Br

Location: Carranza Rd; Shamong Twp; Burlington County

Collection Date: 8/1/2005

USGS Topo Map: Indian Mills

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Hydropsyche	4	14
Polypedilum	6	9
Tribelos	5	9
Bezzia	6	5
Limnodrilus	10	5
Enallagma	9	3
Lumbriculus	8	3
Sialis	4	3
Thienemannimyia	6	3
Caecidotea	8	2
Chironomidae	6	2
Chrysops	6	2
Erythemis	10	2
Nematoda	6	2
Procladius	9	2
Aeshna	5	1
Chauliodes	4	1
Dineutus	4	1
Enchytraeidae	10	1
Heterotrissocladius	0	1
* Leuctra	0	1
Mesovelia	9	1
Parachaetocladius	2	1
Perithemis	4	1
* Polycentropus	6	1
Rhagovelia	9	1
Stenochironomus	5	1
* Tinodes	2	1
Tramea	9	1
Tubifex	10	1

* (EPT organism) Taxa Richness: 30 Population: 81

Becks Biotic Index (BBI): 11.00 %Plecoptera +Trichoptera: 20.99%

Insect Taxa: 24 %Mollusca + Amphipoda: 0.00%

Non-Insect Taxa: 6 %Diptera - Tanytarsini: 43.21%

%Filterers: 18.52%

PMI Rating: 64.17 Excellent

Habitat Analysis: 172 Optimal USEPA Protocol

Observations: Water temp: 21.2 C; Cond: 25 umhos; DO: 5.7 mg/L; pH: 4.9 SU

Clarity: slightly turbid- cedar; Flow Rate: moderate; Width/Depth: 19', 2'; Substrate: gravel, sand, silt

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: large amount of water lillies and aquatic grasses in stream, frogs, fish (sunfish), USGS gage 1.1 ft

AMNET Site # AN0582 **Stream Name: Indian Mills Bk**
Location: Willow Grove Rd; Shamong Twp; Burlington County
Collection Date: 10/27/2004 **USGS Topo Map: Indian Mills**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Planorbidae	6	17
Musculium	5	15
Stylaria	8	15
Slavina	7	7
Pisidium	6.8	6
Dero	10	5
Ischnura	9	5
* Hydroptila	6	3
Limnodrilus	10	3
Nais	8	3
Polypedilum	6	3
Dicrotendipes	8	2
Dugesia	4	2
Erythemis	10	2
Rheotanytarsus	6	2
Ferrissia	7	1
Glyptotendipes	10	1
Libellula	9	1
Libellulidae	9	1
Microtendipes	7	1
Pentaneura	6	1
Perithemis	4	1
Physella	9.1	1
* Siphonurus	7	1
Vejdovskyella	4	1

* (EPT organism) *Taxa Richness:* 25 *Population:* 100

Becks Biotic Index (BBI): 3.00 *%Plecoptera +Trichoptera:* 3.00%
Insect Taxa: 13 *%Mollusca + Amphipoda:* 40.00%
Non-Insect Taxa: 12 *%Diptera - Tanytarsini:* 8.00%
 %Filterers: 25.00%

PMI Rating: 31.31 Poor

Habitat Analysis: 161 Optimal USEPA Protocol

Observations: Water temp: 11.6 C; Cond: 105 umhos; DO: 10.1 mg/L; pH: 5.5 SU

Clarity: clear, cedar-brown; Flow Rate: slow; Width/Depth: 16' / 2.5 - 3'; Substrate: gravel, sand, snags

Canopy: partly open; Bank Stability: fair; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-cropland, rural

Downstream of Impoundment: small dam below pond

Other: minnows, crayfish; stream channelized through pipes under road; substrate muddy near pipes

AMNET Site # AN0583

Stream Name: Muskingum Bk

Location: Willow Grove Rd (outlet of lake); Shamong Twp; Burlington County

Collection Date: 8/1/2005

USGS Topo Map: Indian Mills

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Hyalella	8	12
* Oecetis	8	12
Dugesia	4	11
Parachironomus	10	10
Glyptotendipes	10	8
Helisoma	7	8
Pristina	8	7
Enallagma	9	6
* Orthotrichia	6	6
Dicrotendipes	8	4
Ablabesmyia	8	3
Gyraulus	6	3
* Siphonurus	7	3
* Caenis	7	2
Bezzia	6	1
Cura	4	1
Limnodrilus	10	1
Physella	9.1	1
Polypedilum	6	1

* (EPT organism) Taxa Richness: 19 Population: 100

Becks Biotic Index (BBI): 2.00 %Plecoptera +Trichoptera: 18.00%

Insect Taxa: 11 %Mollusca + Amphipoda: 24.00%

Non-Insect Taxa: 8 %Diptera - Tanytarsini: 27.00%

%Filterers: 8.00%

PMI Rating: 46.14 Fair

Habitat Analysis: 135 Suboptimal USEPA Protocol

Observations: Water temp: 28.5 C; Cond: 234 umhos; DO: 7.5 mg/L; pH: 7.5 SU

Clarity: slightly turbid- cedar; Flow Rate: moderate; Width/Depth: 13.5', 1.5'; Substrate: gravel, sand

Canopy: partly open; Bank Stability: fair; Bank Vegetation: trees, grasses, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Downstream of Impoundment: Indian Mills Lake

Other: waterfowl (ducks), turtles (red bellied, painted), frogs, filamentous algae, minnows

AMNET Site # AN0584 **Stream Name: Springers Bk**
Location: Rt 206; Shamong Twp; Burlington County
Collection Date: 7/27/2005 **USGS Topo Map: Indian Mills**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Cheumatopsyche	5	17
Caecidotea	8	16
Ancyronyx	2	10
Lumbriculidae	8	8
Tribelos	5	8
Hyalella	8	7
Dubiraphia	6	4
Dugesia	4	4
* Maccaffertium	3	3
* Oecetis	8	3
Ablabesmyia	8	2
Batracobdella	8	2
Pentaneura	6	2
Physella	9.1	2
Pisidium	6.8	2
* Acerpenna	4	1
Alboglossiphonia	8	1
Argia	6	1
Aulodrilus	8	1
* Caenis	7	1
Crangonyx	8	1
* Polycentropus	6	1
Stenochironomus	5	1
Tanytarsus	6	1
Tubifex	10	1

* (EPT organism) *Taxa Richness:* 25 *Population:* 100

Becks Biotic Index (BBI): 4.00 *%Plecoptera +Trichoptera:* 21.00%
Insect Taxa: 14 *%Mollusca + Amphipoda:* 12.00%
Non-Insect Taxa: 11 *%Diptera - Tanytarsini:* 13.00%
 %Filterers: 21.00%

PMI Rating: **43.83 Fair**

Habitat Analysis: 154 Suboptimal USEPA Protocol

Observations: Water temp: 28.1 C; Cond: 188 umhos; DO: 5.3 mg/L; pH: 6 SU
 Clarity: slightly turbid-cedar; Flow Rate: moderate; Width/Depth: 25',2-3'; Substrate: silt
 Canopy: mostly closed; Bank Stability: fair; Bank Vegetation: trees, weeds
 Stream Gradient: Low Gradient Stream; Land Uses: rural
 Other: large fish, large frogs, macrophytes

AMNET Site # AN0585 **Stream Name: Springers Bk**
Location: Hampton Rd; Shamong Twp; Burlington County
Collection Date: 10/27/2004 **USGS Topo Map: Indian Mills**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Pisidium	6.8	29
Tribelos	5	15
* Maccaffertium	3	9
Calopteryx	6	8
Gomphus	5	7
* Brachycentrus	1	6
Caecidotea	8	6
Dineutus	4	5
Synurella	4	5
* Triaenodes	6	3
Macromia	2	2
Chrysops	6	1
Hydroporus	5	1
* Lepidostoma	1	1
* Leptoceridae	4	1
* Neureclipsis	7	1
* Oecetis	8	1
* Phryganeidae	4	1
Sialis	4	1
Somatochlora	1	1
Stelechomyia	7	1
Tipula	4	1

* (EPT organism) *Taxa Richness:* 22 *Population:* 106

Becks Biotic Index (BBI): 14.00 *%Plecoptera +Trichoptera:* 13.21%
Insect Taxa: 19 *%Mollusca + Amphipoda:* 32.08%
Non-Insect Taxa: 3 *%Diptera - Tanytarsini:* 16.98%
 %Filterers: 33.96%

PMI Rating: 51.86 Fair

Habitat Analysis: 159 Suboptimal USEPA Protocol

Observations: Water temp: 11.1 C; Cond: 98 umhos; DO: 8.8 mg/L; pH: 5.7 SU
Clarity: clear, cedar-brown; Flow Rate: moderate; Width/Depth: 15.5' / 3 - 6'; Substrate: sand, silt
Canopy: mostly closed; Bank Stability: fair; Bank Vegetation: trees, shrubs
Stream Gradient: Low Gradient Stream; Land Uses: rural, forested (Wharton State Forest)
Other: USGS gage

AMNET Site # AN0586 **Stream Name: Batsto River**
Location: Quaker Bridge; Washington Twp; Burlington County
Collection Date: 8/1/2005 **USGS Topo Map: Atsion**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Sphaerium	8	14
* Hydroptila	6	11
Caecidotea	8	9
* Leuctra	0	9
Sialis	4	6
Thienemannimyia	6	6
Cura	4	5
Tribelos	5	4
Hyalella	8	3
Hydrovatus	5	3
Lumbriculus	8	3
Stenelmis	5	3
Argia	6	2
Calopteryx	6	2
Enallagma	9	2
Heterotrissocladius	0	2
* Maccaffertium	3	2
Musculium	5	2
Boyeria	2	1
Corydalus	4	1
Gammarus	6	1
Micropsectra	7	1
* Oecetis	8	1
Orthocladius	6	1
* Perlesta	4	1
Pisidium	6.8	1
Potamonectes	5	1
* Triaenodes	6	1
Tubifex	10	1
Xylotopus	2	1

* (*EPT organism*) *Taxa Richness:* 30 *Population:* 100

Becks Biotic Index (BBI): 11.00 *%Plecoptera +Trichoptera:* 23.00%

Insect Taxa: 21 *%Mollusca + Amphipoda:* 21.00%

Non-Insect Taxa: 9 *%Diptera - Tanytarsini:* 14.00%

%Filterers: 17.00%

PMI Rating: **51.92 Fair**

Habitat Analysis: 167 Optimal USEPA Protocol

Observations: Water temp: 19 C; Cond: 41 umhos; DO: 7 mg/L; pH: 6 SU

Clarity: slightly turbid- cedar; Flow Rate: moderate; Width/Depth: 41', 1-3'; Substrate: gravel, sand, silt

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: wood frogs, USGS gauge 5.2 ft, filamentous algae, macrophytes, fish (sunfish)

AMNET Site # AN0586A *Stream Name:* **Batsto River**
Location: **Hampton Furnace; Tabernacle Twp; Burlington County**
Collection Date: *8/22/2005* *USGS Topo Map:* **Indian Mills**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Triaenodes	6	9
Calopteryx	6	8
Nigronia	2	8
Thienemannimyia	6	8
Caecidotea	8	7
Cricotopus	7	7
Tvetenia	5	7
* Leuctra	0	6
Pisidium	6.8	5
* Hydropsyche	4	4
* Maccaffertium	3	4
Ancyronyx	2	2
Boyeria	2	2
Cordulegaster	3	2
* Molanna	6	2
* Oecetis	8	2
* Phyllocentropus	5	2
* Pseudocloeon	4	2
Stenelmis	5	2
Dineutus	4	1
* Diplectrona	0	1
Hexatoma	2	1
Lumbricidae	10	1
Paraponyx	5	1
* Perlidae	1	1
Psectrocladius	8	1
* Pycnopsyche	4	1
Sialis	4	1
Stenochironomus	5	1
Tribelos	5	1

* (*EPT organism*) *Taxa Richness:* 30 *Population:* 100

Becks Biotic Index (BBI): 17.00 *%Plecoptera +Trichoptera:* 28.00%

Insect Taxa: 27 *%Mollusca + Amphipoda:* 5.00%

Non-Insect Taxa: 3 *%Diptera - Tanytarsini:* 26.00%

%Filterers: 12.00%

PMI Rating: **69.88** **Excellent**

Habitat Analysis: 156 Suboptimal USEPA Protocol

Observations: Water temp: 17.3 C; Cond: 134 umhos; DO: 7.2 mg/L; pH: 5.6 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 10', 1-2'; Substrate: gravel, sand

Canopy: mostly closed; Bank Stability: fair; Bank Vegetation: trees, grasses

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes

AMNET Site # AN0587 **Stream Name: Pen Swamp Br**
Location: Quaker Bridge-Batsto Rd; Washington Twp; Burlington County
Collection Date: 8/1/2005 **USGS Topo Map: Atsion**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Chimarra	4	23
Tribelos	5	23
* Leuctra	0	16
Thienemannimyia	6	13
Caecidotea	8	4
* Polycentropus	6	4
Procladius	9	4
Apsectrotanypus	5	3
Psectrocladius	8	3
Polypedilum	6	2
Ablabesmyia	8	1
Boyeria	2	1
* Hydropsyche	4	1
* Molanna	6	1
Nigronia	2	1

* (EPT organism) *Taxa Richness:* 15 *Population:* 100

Becks Biotic Index (BBI): 6.00 *%Plecoptera +Trichoptera:* 45.00%

Insect Taxa: 14 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 1 *%Diptera - Tanytarsini:* 49.00%

%Filterers: 28.00%

PMI Rating: 67.49 Excellent

Habitat Analysis: 166 Optimal USEPA Protocol

Observations: Water temp: 19.4 C; Cond: 33 umhos; DO: 5.92 mg/L; pH: 4.3 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 14', <1'; Substrate: gravel, sand, silt

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses, moss

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes- water lillies, grasses, sundews; USGS gage height-1.2 ft, green frogs

AMNET Site # AN0590

Stream Name: Landing Ck

Location: Rt 30; Egg Harbor City; Atlantic County

Collection Date: 9/1/2005

USGS Topo Map: Egg Harbor City

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Caecidotea	8	24
Limnodrilus	10	21
Libellulidae	9	11
Ablabesmyia	8	10
Thienemannimyia	6	6
Polypedilum	6	5
Tribelos	5	5
Procladius	9	4
Chironomus	10	3
Cryptochironomus	8	2
Ischnura	9	2
Chaetocladius	6	1
Chrysops	6	1
Palpomyia	6	1
Phaenopsectra	7	1
* Ptilostomis	5	1
Tanypus	10	1
Tubifex	10	1

* (EPT organism) *Taxa Richness:* 18 *Population:* 100

Becks Biotic Index (BBI): 0.00 *%Plecoptera +Trichoptera:* 1.00%

Insect Taxa: 15 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 3 *%Diptera - Tanytarsini:* 40.00%

%Filterers: 0.00%

PMI Rating: 54.72 Fair

Habitat Analysis: 150 Suboptimal USEPA Protocol

Observations: Water temp: 24.0 C; Cond: 73 umhos; DO: 1.9 mg/L; pH: 5.0 SU

Clarity: turbid- cedar; Flow Rate: slow; Width/Depth: 20',3'; Substrate: mud

Canopy: mostly open; Bank Stability: fair; Bank Vegetation: trees, weeds

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Other: painted turtles

AMNET Site # AN0592 **Stream Name: Landing Ck**
Location: Indian Cabin Rd; Mullica Twp; Atlantic County
Collection Date: 9/8/2005 **USGS Topo Map: Green Bank**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Triaenodes	6	25
Ancyronyx	2	9
* Pycnopsyche	4	9
Tribelos	5	9
* Oecetis	8	7
* Mystacides	4	4
* Limnephilidae	4	3
Nigronia	2	3
Polypedilum	6	3
Stenelmis	5	3
Thienemannimyia	6	3
* Brachycentrus	1	2
Calopteryx	6	2
* Lype	2	2
Sphaerium	8	2
Tanytarsus	6	2
Boyeria	2	1
Brillia	5	1
Caecidotea	8	1
Erpobdellidae	8	1
Heterotrissocladius	0	1
* Hydropsyche	4	1
* Leptophlebia	4	1
* Leuctra	0	1
Lumbriculus	8	1
* Polycentropus	6	1
Procladius	9	1
Simulium	6	1

* (EPT organism) *Taxa Richness:* 28 *Population:* 100

Becks Biotic Index (BBI): 15.00 *%Plecoptera +Trichoptera:* 55.00%

Insect Taxa: 24 *%Mollusca + Amphipoda:* 2.00%

Non-Insect Taxa: 4 *%Diptera - Tanytarsini:* 19.00%

%Filterers: 9.00%

PMI Rating: **72.90 Excellent**

Habitat Analysis: 177 Optimal USEPA Protocol

Observations: Water temp: 16.2 C; Cond: 90 umhos; DO: 8.3 mg/L; pH: 5.5 SU

Clarity: clear-cedar; Flow Rate: slow; Width/Depth: 25',1'; Substrate: gravel, sand, root mats

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # AN0593 **Stream Name: Indian Cabin Ck**

Location: Fifth Ave; Mullica Twp; Atlantic County

Collection Date: 9/1/2005 **USGS Topo Map: Egg Harbor City**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tribelos	5	41
Psectrocladius	8	19
Ablabesmyia	8	16
Caecidotea	8	8
Tanytarsus	6	6
Orthocladius	6	4
* Molanna	6	2
Procladius	9	2
Polypedilum	6	1
Somatochlora	1	1

* (*EPT organism*) *Taxa Richness:* 10 *Population:* 100

Becks Biotic Index (BBI): 2.00 *%Plecoptera + Trichoptera:* 2.00%

Insect Taxa: 9 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 1 *%Diptera - Tanytarsini:* 83.00%

%Filterers: 6.00%

***PMI Rating:* 61.28 Good**

Habitat Analysis: 162 Optimal USEPA Protocol

Observations: Water temp: 20.9 C; Cond: 62 umhos; DO: 0.8 mg/L; pH: 4.0 SU

Clarity: clear-cedar; Flow Rate: slow; Width/Depth: 3.5', <1'; Substrate: gravel, sand

Canopy: closed; Bank Stability: fair; Bank Vegetation: trees

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, crayfish

AMNET Site # AN0594

Stream Name: Indian Cabin Ck

Location: outlet of Egg Harbor City Lake; Galloway Twp; Atlantic County

Collection Date: 9/8/2005

USGS Topo Map: Green Bank

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Caecidotea	8	17
Tribelos	5	12
Rheotanytarsus	6	11
Gomphus	5	10
Thienemannimyia	6	8
Polypedilum	6	6
Progomphus	5	4
Sphaeriidae	8	4
* Triaenodes	6	4
Argia	6	3
Ischnura	9	3
Stenelmis	5	3
Ablabesmyia	8	2
* Caenis	7	1
* Cheumatopsyche	5	1
Cryptochironomus	8	1
Labrundinia	7	1
* Leptoceridae	4	1
* Limnephilidae	4	1
Limnodrilus	10	1
Lumbriculus	8	1
Nigronia	2	1
* Oecetis	8	1
Probezzia	6	1
Rheumatobates	8	1
Trepobates	8	1

* (EPT organism) Taxa Richness: 26 Population: 100

Becks Biotic Index (BBI): 3.00 %Plecoptera +Trichoptera: 8.00%

Insect Taxa: 22 %Mollusca + Amphipoda: 4.00%

Non-Insect Taxa: 4 %Diptera - Tanytarsini: 31.00%

%Filterers: 16.00%

PMI Rating: 55.02 Fair

Habitat Analysis: 154 Suboptimal USEPA Protocol

Observations: Water temp: 22.1 C; Cond: 68 umhos; DO: 5.8 mg/L; pH: 5.1 SU

Clarity: clear-cedar; Flow Rate: slow; Width/Depth: 8',1'; Substrate: gravel, sand, silt

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested, park

Downstream of Impoundment: outlet of Echo lake

Other: large Pike (fish), frogs, macrophytes

AMNET Site # AN0595 **Stream Name: West Br Wading River**

Location: Rt 532; Woodland Twp; Burlington County

Collection Date: 9/29/2005 **USGS Topo Map: Chatsworth**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Stenelmis	5	29
Tribelos	5	17
* Cheumatopsyche	5	9
* Hydropsyche	4	5
Ischnura	9	5
Polypedilum	6	5
Psectrocladius	8	5
Ceratopogonidae	6	4
Argia	6	3
Dero	10	3
* Caenis	7	2
Nais	8	2
Parachironomus	10	2
Caecidotea	8	1
Cryptochironomus	8	1
Erpobdellidae	8	1
Libellulidae	9	1
Musculium	5	1
* Nyctiophylax	5	1
Orthoclaadiinae	5	1
Rheotanytarsus	6	1
Tipula	4	1

* (EPT organism) *Taxa Richness:* 22 *Population:* 100

Becks Biotic Index (BBI): 2.00 *%Plecoptera +Trichoptera:* 15.00%

Insect Taxa: 17 *%Mollusca + Amphipoda:* 1.00%

Non-Insect Taxa: 5 *%Diptera - Tanytarsini:* 36.00%

%Filterers: 16.00%

PMI Rating: **54.81 Fair**

Habitat Analysis: 156 Suboptimal USEPA Protocol

Observations: Water temp: 16.0 C; Cond: 41 umhos; DO: 1.2 mg/L; pH: 5.8 SU

Clarity: slightly turbid- cedar; Flow Rate: slow; Width/Depth: 5', <1-1'; Substrate: cobble, gravel, sand, snags

Canopy: mostly open; Bank Stability: good; Bank Vegetation: grasses, shrubs, trees

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-cropland (Cranberry bogs), rural, forested

Pipes / Ditches: storm sewers

Downstream of Impoundment: Lake Outlet

Other: very slow flow upstream side of bridge, almost no flow downstream side of bridge, oily Sheen on water surface, macrophytes, turtles, fish

AMNET Site # AN0596 **Stream Name: West Br Wading River**

Location: Rt 563; Washington Twp; Burlington County

Collection Date: 11/3/2004 **USGS Topo Map: Chatsworth**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Hydropsyche	4	38
Caecidotea	8	17
Rheotanytarsus	6	14
* Cheumatopsyche	5	10
Stylaria	8	9
Ischnura	9	3
Thienemannimyia	6	3
Cricotopus	7	2
* Hydatophylax	2	1
* Leptophlebia	4	1
* Taeniopteryx	2	1
* Triaenodes	6	1

* (EPT organism) *Taxa Richness:* 12 *Population:* 100

Becks Biotic Index (BBI): 4.00 *%Plecoptera +Trichoptera:* 51.00%

Insect Taxa: 10 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 2 *%Diptera - Tanytarsini:* 5.00%

%Filterers: 62.00%

PMI Rating: 51.80 Fair

Habitat Analysis: 183 Optimal USEPA Protocol

Observations: Water temp: 13.4 C; Cond: 42 umhos; DO: 6.9 mg/L; pH: 4.6 SU

Clarity: clear, cedar-brown; Flow Rate: moderate; Width/Depth: 23' / 1.5 - 2.5'; Substrate: sand, snags

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Downstream of Impoundment: downstream of small dam

Other: macrophytes

AMNET Site # AN0597 **Stream Name: Shoal Br**
Location: Jones Mill Rd; Woodland Twp; Burlington County
Collection Date: 9/29/2005 **USGS Topo Map: Chatsworth**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Chimarra	4	78
Thienemannimyia	6	5
Stenelmis	5	4
Corydalus	4	2
Gammarus	6	2
Boyeria	2	1
Caecidotea	8	1
Cricotopus	7	1
Enallagma	9	1
Hemerodromia	6	1
* Hydropsyche	4	1
Polypedilum	6	1
Rheotanytarsus	6	1
Simulium	6	1

* (EPT organism) *Taxa Richness:* 14 *Population:* 100

Becks Biotic Index (BBI): 4.00 *%Plecoptera + Trichoptera:* 79.00%
Insect Taxa: 12 *%Mollusca + Amphipoda:* 2.00%
Non-Insect Taxa: 2 *%Diptera - Tanytarsini:* 9.00%
 %Filterers: 81.00%

PMI Rating: **52.01 Fair**

Habitat Analysis: 174 Optimal USEPA Protocol

Observations: Water temp: 18.0 C; Cond: 43 umhos; DO: 5.6 mg/L; pH: 4.3 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 10', 1.5-2.5'; Substrate: gravel, sand, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested- Franklin Parker Preserve

Other: macrophytes, tires

AMNET Site # AN0597A Stream Name: Shoal Br
Location: off Rt 532; Woodland Twp; Burlington County
Collection Date: 10/26/2004 USGS Topo Map: Woodmansie

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tribelos	5	26
* Polycentropus	6	12
Calopteryx	6	9
Caecidotea	8	8
Procladius	9	6
Apsectrotanypus	5	5
Sialis	4	4
Thienemannimyia	6	4
* Leuctra	0	3
Nigronia	2	3
Tanypodinae	7	3
Chrysops	6	2
* Leptophlebia	4	2
Limnodrilus	10	2
* Molanna	6	2
* Mystacides	4	2
Stenochironomus	5	2
Unniella	6	2
Ablabesmyia	8	1
Argia	6	1
* Lype	2	1
Pagastiella	6	1
Probezzia	6	1
* Ptilostomis	5	1
* Siphloplecton	2	1

* (EPT organism) *Taxa Richness:* 25 *Population:* 104

Becks Biotic Index (BBI): 8.00 *%Plecoptera +Trichoptera:* 20.19%

Insect Taxa: 23 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 2 *%Diptera - Tanytarsini:* 50.96%

%Filterers: 11.54%

PMI Rating: 68.06 Excellent

Habitat Analysis: 178 Optimal USEPA Protocol

Observations: Water temp: 12.6 C; Cond: 59 umhos; DO: 5.7 mg/L; pH: 4.3 SU

Clarity: clear, clear-brown; Flow Rate: slow; Width/Depth: 6' / 3 - 3.5'; Substrate: sand, mud, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, moss

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested (cedar swamp)

Other: excessive leaf litter and organic matter

AMNET Site # AN0599 **Stream Name: Tulpehocken Ck**
Location: Carranza Rd; Tabernacle Twp; Burlington County
Collection Date: 10/27/2004 **USGS Topo Map: Chatsworth**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tribelos	5	61
Enchytraeidae	10	11
Bezzia	6	8
Sialis	4	5
Thienemannimyia	6	3
Nematoda	6	2
Chironomus	10	1
Chrysops	6	1
Hydroporus	5	1
Limnodrilus	10	1
Nais	8	1
Nanocladius	3	1
Pedicia	6	1
Pilaria	7	1
Polypedilum	6	1
Pristina	8	1
Procladius	9	1
Rhyacodrilus	10	1

* (EPT organism) *Taxa Richness:* 18 *Population:* 102

Becks Biotic Index (BBI): 2.00 *%Plecoptera +Trichoptera:* 0.00%
Insect Taxa: 12 *%Mollusca + Amphipoda:* 0.00%
Non-Insect Taxa: 6 *%Diptera - Tanytarsini:* 77.45%
 %Filterers: 0.00%

PMI Rating: 58.41 Good
Habitat Analysis: 184 Optimal USEPA Protocol

Observations: Water temp: 13.6 C; Cond: 38 umhos; DO: 7.8 mg/L; pH: 4.8 SU
Clarity: clear, cedar-brown; Flow Rate: slow; Width/Depth: 3' / < 1.0 - 2'; Substrate: mud, snags
Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs, moss
Stream Gradient: Low Gradient Stream; Land Uses: rural, forested - Wharton State Forest
Other: braided stream, very swampy

AMNET Site # AN0600

Stream Name: Tulpehocken Ck

Location: Maxwell-Friendship Rd; Washington Twp; Burlington County

Collection Date: 4/12/2006

USGS Topo Map: Jenkins

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Cnephia	4	79
Simulium	6	18
Ceratopogonidae	6	1
Synurella	4	1
Tanypodinae	7	1

** (EPT organism)* *Taxa Richness:* 5 *Population:* 100

Becks Biotic Index (BBI): 2.00 *%Plecoptera +Trichoptera:* 0.00%

Insect Taxa: 4 *%Mollusca + Amphipoda:* 1.00%

Non-Insect Taxa: 1 *%Diptera - Tanytarsini:* 99.00%

%Filterers: 97.00%

PMI Rating: 45.33 Fair

Habitat Analysis: 174 Optimal USEPA Protocol

Observations: Water temp: 14.5 C; Cond: 25 umhos; DO: 8.1 mg/L; pH: 4.7 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 39', 2'; Substrate: gravel, sand, silt, snags

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, grasses

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes

AMNET Site # AN0601 **Stream Name: Little Hauken Run**

Location: Rt 563; Washington Twp; Burlington County

Collection Date: 8/22/2005 **USGS Topo Map: Jenkins**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Caecidotea	8	59
Limnodrilus	10	23
Polypedilum	6	6
Apsectrotanypus	5	3
Synurella	4	2
* Caenis	7	1
Cryptochironomus	8	1
Dero	10	1
Dicrotendipes	8	1
* Hydropsyche	4	1
* Ptilostomis	5	1
Thienemannimyia	6	1

* (*EPT organism*) *Taxa Richness:* 12 *Population:* 100

Becks Biotic Index (BBI): 2.00 *%Plecoptera + Trichoptera:* 2.00%

Insect Taxa: 8 *%Mollusca + Amphipoda:* 2.00%

Non-Insect Taxa: 4 *%Diptera - Tanytarsini:* 12.00%

%Filterers: 1.00%

***PMI Rating:* 46.64 Fair**

Habitat Analysis: 175 Optimal USEPA Protocol

Observations: Water temp: 24.1 C; Cond: 68 umhos; DO: 3.7 mg/L; pH: 4.5 SU

Clarity: slightly turbid- cedar; Flow Rate: slow; Width/Depth: 20', 4'; Substrate: gravel, sand

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes

AMNET Site # AN0602 **Stream Name: Wading River**
Location: downstream of Rt 563; Washington Twp; Burlington County
Collection Date: 8/22/2005 **USGS Topo Map: Jenkins**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tribelos	5	37
Stenelmis	5	25
Ablabesmyia	8	13
Caecidotea	8	6
Polypedilum	6	6
Thienemannimyia	6	3
Probezzia	6	2
Stenochironomus	5	2
Coenagrionidae	9	1
Cryptochironomus	8	1
Gomphus	5	1
Limnodrilus	10	1
Nigronia	2	1
Pisidium	6.8	1

* (*EPT organism*) *Taxa Richness:* 14 *Population:* 100

Becks Biotic Index (BBI): 1.00 *%Plecoptera +Trichoptera:* 0.00%
Insect Taxa: 11 *%Mollusca + Amphipoda:* 1.00%
Non-Insect Taxa: 3 *%Diptera - Tanytarsini:* 64.00%
 %Filterers: 1.00%

PMI Rating: 57.73 Good

Habitat Analysis: 164 Optimal USEPA Protocol

Observations: Water temp: 21.7 C; Cond: 86 umhos; DO: 6.9 mg/L; pH: 4.6 SU
Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 56', 1-4'; Substrate: gravel, sand
Canopy: mostly closed; Bank Stability: fair; Bank Vegetation: trees, shrubs, weeds
Stream Gradient: Low Gradient Stream; Land Uses: forested
Other: sampled downstream of bridge, canoe/kayak launching area

AMNET Site # AN0603 **Stream Name: Oswego River**
Location: Rt 539; Barnegat Twp; Ocean County
Collection Date: 10/26/2004 **USGS Topo Map: Brookville**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tribelos	5	58
Enallagma	9	7
Caecidotea	8	6
Procladius	9	6
Heterotrissocladius	0	4
Ablabesmyia	8	3
Bezzia	6	3
* Pseudostenophylax	4	3
* Ptilostomis	5	3
Hydrobaenus	8	2
* Limnephilidae	4	2
Sympetrum	4	2
Hydroporus	5	1
Lumbriculus	8	1
Psectrocladius	8	1
Sialis	4	1

* (EPT organism) *Taxa Richness:* 16 *Population:* 103

Becks Biotic Index (BBI): 6.00 *%Plecoptera +Trichoptera:* 7.77%
Insect Taxa: 14 *%Mollusca + Amphipoda:* 0.00%
Non-Insect Taxa: 2 *%Diptera - Tanytarsini:* 74.76%
 %Filterers: 0.00%

PMI Rating: 66.79 Excellent

Habitat Analysis: 180 Optimal USEPA Protocol

Observations: Water temp: 12.5 C; Cond: 106 umhos; DO: 5.7 mg/L; pH: 4.1 SU

Clarity: clear, cedar-brown; Flow Rate: slow; Width/Depth: 5.5' / 2.5 - 3'; Substrate: gravel, sand, snags, root mats

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

AMNET Site # AN0604 **Stream Name: Plains Br**
Location: Jenkins Rd; Bass River Twp; Burlington County
Collection Date: 11/4/2004 **USGS Topo Map: Woodmansie**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Thienemannimyia	6	22
* Oxyethira	3	16
* Chimarra	4	12
* Hydropsyche	4	10
Nigronia	2	8
Tribelos	5	6
Argia	6	2
Boyeria	2	2
* Neureclipsis	7	2
* Polycentropus	6	2
Rheotanytarsus	6	2
Tanytarsus	6	2
Ablabesmyia	8	1
Apsectrotanypus	5	1
* Cheumatopsyche	5	1
Hemerodromia	6	1
* Hydatophylax	2	1
* Hydroptila	6	1
Ischnura	9	1
Macropelopia	10	1
* Molanna	6	1
Naididae	7	1
* Oecetis	8	1
* Paraleptophlebia	1	1
Polypedilum	6	1
Stenelmis	5	1

* (EPT organism) *Taxa Richness:* 26 *Population:* 100

Becks Biotic Index (BBI): 8.00 *%Plecoptera +Trichoptera:* 47.00%

Insect Taxa: 25 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 1 *%Diptera - Tanytarsini:* 33.00%

%Filterers: 31.00%

PMI Rating: **69.81** **Excellent**

Habitat Analysis: 175 Optimal USEPA Protocol

Observations: Water temp: 11.1 C; Cond: 75 umhos; DO: 7.4 mg/L; pH: 4 SU

Clarity: clear, cedar-brown; Flow Rate: slow; Width/Depth: 6' / < 1.0 - 1'; Substrate: gravel, sand, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Other: macrophytes, frogs; board placed across stream acting as dam

AMNET Site # AN0605

Stream Name: Papoose Br

Location: Jenkins Rd; Washington Twp; Burlington County

Collection Date: 10/6/2005

USGS Topo Map: Oswego Lake

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Nigronia	2	12
* Polycentropus	6	12
Tribelos	5	11
* Hydropsyche	4	8
* Brachycentrus	1	7
Enchytraeidae	10	7
Boyeria	2	5
* Maccaffertium	3	5
Thienemannimyia	6	5
* Chimarra	4	3
Corixidae	9	3
* Oecetis	8	3
Argia	6	2
Calopteryx	6	2
Dineutus	4	2
* Triaenodes	6	2
* Cheumatopsyche	5	1
Hemerodromia	6	1
Heterotrissocladius	0	1
* Leuctra	0	1
Micropsectra	7	1
* Neureclipsis	7	1
* Psilotreta	0	1
* Pycnopsyche	4	1
Sialis	4	1
Simulium	6	1
Tvetenia	5	1

* (EPT organism) Taxa Richness: 27 Population: 100

Becks Biotic Index (BBI): 16.00 %Plecoptera +Trichoptera: 40.00%

Insect Taxa: 26 %Mollusca + Amphipoda: 0.00%

Non-Insect Taxa: 1 %Diptera - Tanytarsini: 20.00%

%Filterers: 33.00%

PMI Rating: 70.11 Excellent

Habitat Analysis: 185 Optimal USEPA Protocol

Observations: Water temp: 14.7 C; Cond: 29 umhos; DO: 6.7 mg/L; pH: 4.6 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 15',1'; Substrate: gravel, sand

Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-cropland(Cranberry bogs), forested

Other: frogs, macrophytes

AMNET Site # AN0606

Stream Name: Oswego River

Location: Andrews Rd (outlet of Oswego Lake); Bass River Twp; Burlington County

Collection Date: 10/26/2005

USGS Topo Map: Oswego Lake

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Hydropsyche	4	23
Dineutus	4	18
Enchytraeidae	10	16
Stenelmis	5	11
Pseudolimnophila	2	9
Caecidotea	8	3
* Caenis	7	2
* Chimarra	4	2
* Oecetis	8	2
Rheotanytarsus	6	2
Stylaria	8	2
Chrysops	6	1
Ferrissia	7	1
Ischnura	9	1
* Lepidostoma	1	1
Limnodrilus	10	1
Lumbriculidae	8	1
Polypedilum	6	1
Thienemannimyia	6	1
Tribelos	5	1

* (EPT organism) Taxa Richness: 20 Population: 99

Becks Biotic Index (BBI): 6.00 %Plecoptera +Trichoptera: 28.28%

Insect Taxa: 14 %Mollusca + Amphipoda: 1.01%

Non-Insect Taxa: 6 %Diptera - Tanytarsini: 13.13%

%Filterers: 27.27%

PMI Rating: 52.08 Fair

Habitat Analysis: 186 Optimal USEPA Protocol

Observations: Water temp: 11.2 C; Cond: 64 umhos; DO: 9.9 mg/L; pH: 4.2 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 20', 1.5'-3'; Substrate: gravel, sand, snags

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-cropland (cranberry bogs), rural, forested (Penn State Park)

Downstream of Impoundment: Downstream of dam

Other: Flooded banks

AMNET Site # AN0607 Stream Name: Oswego River (E Br Wading River)

Location: Rt 679; Bass River Twp; Burlington County

Collection Date: 8/22/2005 USGS Topo Map: Jenkins

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Orthocladius	6	25
Stenelmis	5	14
* Leuctra	0	8
Cricotopus	7	6
* Hydroptila	6	6
Ablabesmyia	8	5
Rheotanytarsus	6	5
Stylaria	8	5
Tanytarsus	6	5
* Chimarra	4	4
* Hydropsyche	4	4
Tribelos	5	3
* Cheumatopsyche	5	2
* Lype	2	2
* Caenis	7	1
Krenosmittia	1	1
Nais	8	1
Polypedilum	6	1
Procladius	9	1
Psectrocladius	8	1

* (EPT organism) Taxa Richness: 20 Population: 100

Becks Biotic Index (BBI): 7.00 %Plecoptera +Trichoptera: 26.00%

Insect Taxa: 18 %Mollusca + Amphipoda: 0.00%

Non-Insect Taxa: 2 %Diptera - Tanytarsini: 43.00%

%Filterers: 20.00%

PMI Rating: 64.17 Excellent

Habitat Analysis: 179 Optimal USEPA Protocol

Observations: Water temp: 25.8 C; Cond: 79 umhos; DO: 7.8 mg/L; pH: 4.4 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 51', 2'; Substrate: gravel, sand

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Downstream of Impoundment: lake

Other: USGS gage station, sampled downstream of bridge, macrophytes

AMNET Site # AN0610 **Stream Name: West Br Bass River**

Location: Stage Rd; Bass River Twp; Burlington County

Collection Date: 10/28/2004 **USGS Topo Map: New Gretna**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Eurylophella	4	13
* Pycnopsyche	4	10
Ischnura	9	9
Pseudochironomus	5	9
* Oecetis	8	8
Stenelmis	5	8
Simulium	6	6
* Maccaffertium	3	5
Thienemannimyia	6	5
* Hydropsyche	4	4
* Ptilostomis	5	4
Argia	6	2
* Molanna	6	2
* Paraleptophlebia	1	2
Pisidium	6.8	2
Tribelos	5	2
Ablabesmyia	8	1
* Chimarra	4	1
Gomphus	5	1
Hemerodromia	6	1
* Hydroptila	6	1
Lumbriculus	8	1
Manayunkia	6	1
Nigronia	2	1
Polypedilum	6	1
Stenochironomus	5	1
* Taeniopteryx	2	1

* (EPT organism) *Taxa Richness:* 27 *Population:* 102

Becks Biotic Index (BBI): 9.00 *%Plecoptera +Trichoptera:* 30.39%

Insect Taxa: 24 *%Mollusca + Amphipoda:* 1.96%

Non-Insect Taxa: 3 *%Diptera - Tanytarsini:* 25.49%

%Filterers: 12.75%

PMI Rating: 65.21 Excellent

Habitat Analysis: 185 Optimal USEPA Protocol

Observations: Water temp: 12.7 C; Cond: 41 umhos; DO: N/A mg/L; pH: 4.5 SU

Clarity: clear, cedar-brown; Flow Rate: moderate; Width/Depth: 18' / 1 - 2.5'; Substrate: gravel, sand, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, grass

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Other: macrophytes, glass eels; NOTE: DO meter malfunction

AMNET Site # AN0611 **Stream Name: Dans Bridge Br**
Location: Dans Bridge Rd; Bass River Twp; Burlington County
Collection Date: 11/9/2004 **USGS Topo Map: Oswego Lake**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Corixidae	9	18
* Platycentropus	4	18
* Leptophlebia	4	12
Hyaella	8	8
* Siphloplecton	2	8
* Molanna	6	7
Limnodrilus	10	5
* Mystacides	4	3
Thienemannimyia	6	3
* Lepidostoma	1	2
Pagastiella	6	2
Pseudochironomus	5	2
* Ptilostomis	5	2
Ablabesmyia	8	1
Apsectrotanypus	5	1
Argia	6	1
Boyeria	2	1
Caecidotea	8	1
Chrysops	6	1
Enchytraeidae	10	1
Gyrinus	4	1
* Hydatophylax	2	1
Hydroporus	5	1
Lumbriculus	8	1
Naididae	7	1
Orthoclaadiinae	5	1
* Phylocentropus	5	1
* Psilotreta	0	1
* Taeniopteryx	2	1
* Triaenodes	6	1

* (*EPT organism*) *Taxa Richness:* 30 *Population:* 107

Becks Biotic Index (BBI): 12.00 *%Plecoptera +Trichoptera:* 34.58%

Insect Taxa: 24 *%Mollusca + Amphipoda:* 7.48%

Non-Insect Taxa: 6 *%Diptera - Tanytarsini:* 10.28%

%Filterers: 0.93%

PMI Rating: **63.17** **Excellent**

Habitat Analysis: 177 Optimal USEPA Protocol

Observations: Water temp: 7.8 C; Cond: 41 umhos; DO: 8.6 mg/L; pH: 4.8 SU

Clarity: clear, cedar-brown; Flow Rate: slow; Width/Depth: 17' / 3'; Substrate: gravel, sand, mud, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, moss

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested (Bass River State Forest)

Other: macrophytes, filamentous algae; mostly soft sand substrate

AMNET Site # AN0612 **Stream Name: East Br Bass River**
Location: Stage Rd; Bass River Twp; Burlington County
Collection Date: 9/13/2005 **USGS Topo Map: New Gretna**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Rheotanytarsus	6	27
* Oecetis	8	7
Calopteryx	6	6
Cricotopus	7	6
Orthocladius	6	6
Psectrocladius	8	6
Tanytarsus	6	6
* Brachycentrus	1	5
Tribelos	5	4
Corydalus	4	3
* Chimarra	4	2
Hetaerina	6	2
Pristinella	10	2
* Acerpenna	4	1
Bezzia	6	1
Erpobdellidae	8	1
Hemerodromia	6	1
Heterotrissocladius	0	1
* Hydropsyche	4	1
* Limnephilidae	4	1
* Maccaffertium	3	1
Macromia	2	1
* Molanna	6	1
* Mystacides	4	1
Paraponyx	5	1
* Perlodidae	2	1
Pisidium	6.8	1
Procladius	9	1
Simulium	6	1
Thienemanniella	6	1
Tipula	4	1

* (EPT organism) *Taxa Richness:* 31 *Population:* 100

Becks Biotic Index (BBI): 14.00 *%Plecoptera +Trichoptera:* 19.00%

Insect Taxa: 28 *%Mollusca + Amphipoda:* 1.00%

Non-Insect Taxa: 3 *%Diptera - Tanytarsini:* 29.00%

%Filterers: 43.00%

PMI Rating: 62.92 Good

Habitat Analysis: 178 Optimal USEPA Protocol

Observations: Water temp: 15.5 C; Cond: 32 umhos; DO: 7.8 mg/L; pH: 4.6 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 19',1'; Substrate: gravel, sand

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: frogs, filamentous algae, macrophytes

AMNET Site # AN0613 Stream Name: Clarks Mill Stream

Location: Rt 575; Port Republic; Atlantic County

Collection Date: 7/13/2005 USGS Topo Map: Green Bank

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tribelos	5	34
Pseudochironomus	5	16
Caecidotea	8	9
Sphaeriidae	8	9
Stenelmis	5	5
Thienemannimyia	6	4
Limnodrilus	10	3
* Oecetis	8	3
Polypedilum	6	3
Ablabesmyia	8	2
Chironomidae	6	2
Microtendipes	7	2
* Brachycentrus	1	1
* Chimarra	4	1
Enchytraeidae	10	1
* Molanna	6	1
Nigronia	2	1
Phaenopsectra	7	1
Rheotanytarsus	6	1
Sialis	4	1

* (EPT organism) Taxa Richness: 20 Population: 100

Becks Biotic Index (BBI): 5.00 %Plecoptera +Trichoptera: 6.00%

Insect Taxa: 16 %Mollusca + Amphipoda: 9.00%

Non-Insect Taxa: 4 %Diptera - Tanytarsini: 64.00%

%Filterers: 14.00%

PMI Rating: 59.07 Good

Habitat Analysis: 146 Suboptimal USEPA Protocol

Observations: Water temp: 24.8 C; Cond: 73 umhos; DO: 8.2 mg/L; pH: 4.7 SU

Clarity: clear- cedar brown; Flow Rate: moderate; Width/Depth: 6', <1-1.5'; Substrate: gravel, sand, snags

Canopy: closed; Bank Stability: good; Bank Vegetation: shrubs, trees

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-livestock (small horse farm), rural, forested

AMNET Site # AN0615 Stream Name: Mattix Run (Frenches Ditch)

Location: Moss Mill Rd; Galloway Twp; Atlantic County

Collection Date: 7/13/2005 USGS Topo Map: Oceanville

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Stenelmis	5	22
Rheotanytarsus	6	20
Tribelos	5	18
* Cheumatopsyche	5	12
Thienemannimyia	6	8
Hemerodromia	6	6
Enchytraeidae	10	4
Limnodrilus	10	3
Nigronia	2	3
Caecidotea	8	2
* Oecetis	8	1
Tipulidae	3	1

** (EPT organism) Taxa Richness: 12 Population: 100*

Becks Biotic Index (BBI): 2.00 %Plecoptera +Trichoptera: 13.00%

Insect Taxa: 9 %Mollusca + Amphipoda: 0.00%

Non-Insect Taxa: 3 %Diptera - Tanytarsini: 33.00%

%Filterers: 32.00%

PMI Rating: 50.16 Fair

Habitat Analysis: 141 Suboptimal USEPA Protocol

Observations: Water temp: 24.5 C; Cond: 80 umhos; DO: 3.7 mg/L; pH: 4.1 SU

Clarity: clear- cedar brown; Flow Rate: moderate; Width/Depth: 6', 1-3'; Substrate: sand, snags, root mats

Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban, forested

Pipes / Ditches: storm sewers

Downstream of Impoundment: old cranberry bog

Other: lots surrounding bog are for sale as home sites

AMNET Site # AN0616

Stream Name: N Br Absecon Ck

Location: Garden State Pkwy (north) between Mile Post 39.5 and 39.6; Hamilton Twp; Atlantic County

Collection Date: 11/29/2005

USGS Topo Map: Pleasantville

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Caecidotea	8	43
Gyrinus	4	11
Helobdella	8	10
Crangonyx	8	6
Pisidium	6.8	4
* Platycentropus	4	4
Limnodrilus	10	3
Pseudochironomus	5	3
Hyalella	8	2
Mooreobdella	7.8	2
* Ptilostomis	5	2
Sialis	4	2
Boyeria	2	1
Calopteryx	6	1
Corixidae	9	1
Erpobdellidae	8	1
* Lype	2	1
* Oecetis	8	1
Planorbidae	6	1
Tipula	4	1

* (EPT organism) *Taxa Richness:* 20 *Population:* 100

Becks Biotic Index (BBI): 6.00 *%Plecoptera +Trichoptera:* 8.00%

Insect Taxa: 11 *%Mollusca + Amphipoda:* 13.00%

Non-Insect Taxa: 9 *%Diptera - Tanytarsini:* 4.00%

%Filterers: 4.00%

PMI Rating: 43.13 Fair

Habitat Analysis: 138 Suboptimal USEPA Protocol

Observations: Water temp: 12.4 C; Cond: 119 umhos; DO: 8.0 mg/L; pH: 6.0 SU

Clarity: clear-cedar; Flow Rate: slow; Width/Depth: 24',2'; Substrate: gravel, sand, silt

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees (Atlantic White Cedars), shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested, GS Parkway

Other: crayfish, fish, macrophytes

AMNET Site # AN0617 **Stream Name: S Br Absecon Ck**
Location: FAA Tech Center; Galloway Twp; Atlantic County
Collection Date: 8/15/2006 **USGS Topo Map: Pleasantville**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Thienemannimyia	6	27
Simulium	6	13
* Hydropsyche	4	11
Tanytarsus	6	10
Tvetenia	5	8
* Leuctra	0	7
Apsectrotanypus	5	4
Pisidium	6.8	4
Tribelos	5	4
Caecidotea	8	3
Psectrocladius	8	2
Dicranota	3	1
Enchytraeidae	10	1
Heterotrissocladius	0	1
* Molanna	6	1
Oulimnius	4	1
Polypedilum	6	1
Sialis	4	1

* (EPT organism) *Taxa Richness:* 18 *Population:* 100

Becks Biotic Index (BBI): 8.00 *%Plecoptera +Trichoptera:* 19.00%
Insect Taxa: 15 *%Mollusca + Amphipoda:* 4.00%
Non-Insect Taxa: 3 *%Diptera - Tanytarsini:* 61.00%
 %Filterers: 38.00%

PMI Rating: 60.96 Good

Habitat Analysis: 130 Suboptimal USEPA Protocol

Observations: Water temp: 16.68 C; Cond: 55 umhos; DO: 7.86 mg/L; pH: 4.86 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 12' / < 1.0'; Substrate: gravel, sand, silt, snags, root mats

Canopy: mostly closed; Bank Stability: poor; Bank Vegetation: trees

Stream Gradient: Low Gradient Stream; Land Uses: forested; adjacent to Superfund site

Other: macrophytes, frogs, salamanders, undercut banks; USGS gage 0.24

AMNET Site # AN0618 Stream Name: Mill Br (Fenton's Mill)

Location: Spruce Ave (CR 684); Egg Harbor; Atlantic County

Collection Date: 11/29/2005 USGS Topo Map: Pleasantville

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Caecidotea	8	48
Hyalella	8	14
Lumbriculus	8	4
* Maccaffertium	3	4
Pisidium	6.8	3
* Platycentropus	4	3
* Polycentropus	6	3
Synurella	4	3
Ischnura	9	2
Tvetenia	5	2
* Agarodes	3	1
Apsectrotanypus	5	1
* Cheumatopsyche	5	1
Helobdella	8	1
* Hydropsyche	4	1
* Lepidostoma	1	1
Manayunkia	6	1
Microtendipes	7	1
Mooreobdella	7.8	1
* Mystacides	4	1
Nigronia	2	1
* Paraleptophlebia	1	1
* Psilotreta	0	1
Sialis	4	1

* (EPT organism) Taxa Richness: 24 Population: 100

Becks Biotic Index (BBI): 14.00 %Plecoptera +Trichoptera: 12.00%

Insect Taxa: 16 %Mollusca + Amphipoda: 20.00%

Non-Insect Taxa: 8 %Diptera - Tanytarsini: 4.00%

%Filterers: 9.00%

PMI Rating: 49.36 Fair

Habitat Analysis: 167 Optimal USEPA Protocol

Observations: Water temp: 12.1 C; Cond: 53 umhos; DO: 7.8 mg/L; pH: 5.4 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 14', 1-3'; Substrate: gravel, sand

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs, vines

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Pipes / Ditches: storm sewers

Other: ducks, macrophytes, Atlantic White Cedars; sampled downstream of bridge

AMNET Site # AN0619 Stream Name: Maple Run (Asbury Run)

Location: Mill Rd (CR 662); Northfield; Atlantic County

Collection Date: 11/29/2005 USGS Topo Map: Pleasantville

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Crangonyx	8	19
Sphaeriidae	8	14
Planorbidae	6	10
* Platycentropus	4	7
Caecidotea	8	6
Stenelmis	5	6
Procladius	9	5
Dicrotendipes	8	4
* Limnephilidae	4	4
Ancyronyx	2	3
Branchiura	10	3
Ischnura	9	3
Kiefferulus	10	2
Lumbriculus	8	2
Parametrioctenus	5	2
Tribelos	5	2
Tubificidae	10	2
Gyrinus	4	1
Microtendipes	7	1
* Oecetis	8	1
Tetragoneuria	8.5	1
Thienemannimyia	6	1

* (EPT organism) Taxa Richness: 22 Population: 99

Becks Biotic Index (BBI): 4.00 %Plecoptera +Trichoptera: 12.12%

Insect Taxa: 15 %Mollusca + Amphipoda: 43.43%

Non-Insect Taxa: 7 %Diptera - Tanytarsini: 17.17%

%Filterers: 15.15%

PMI Rating: 41.98 Fair

Habitat Analysis: 149 Suboptimal USEPA Protocol

Observations: Water temp: 11.0 C; Cond: 125 umhos; DO: 5.5 mg/L; pH: 5.4 SU

Clarity: clear-cedar; Flow Rate: slow; Width/Depth: 9', 1-3'; Substrate: gravel, sand, silt, snags

Canopy: partly open; Bank Stability: fair; Bank Vegetation: trees, vines, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Other: macrophytes, fish, sampled downstream of bridge

AMNET Site # AN0620 **Stream Name: Great Egg Harbor River**
Location: Watsontown-New Freedom Rd; Berlin; Camden County
Collection Date: 10/26/2005 **USGS Topo Map: Clementon**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Trichocorixa	9	22
Enallagma	9	18
Hyalella	8	12
Dicrotendipes	8	9
Gillia	8	8
Polypedilum	6	7
Helisoma	7	4
Stylaria	8	4
Nais	8	3
Sympetrum	4	3
Cladopelma	8	2
Cricotopus	7	1
Heterotrissocladius	0	1
Hydrovatus	5	1
Nanocladius	3	1
Physella	9.1	1
Prostoma	7	1
Sphaerium	8	1
Tetragoneuria	8.5	1

* (EPT organism) *Taxa Richness:* 19 *Population:* 100

Becks Biotic Index (BBI): 4.00 *%Plecoptera +Trichoptera:* 0.00%

Insect Taxa: 11 *%Mollusca + Amphipoda:* 26.00%

Non-Insect Taxa: 8 *%Diptera - Tanytarsini:* 21.00%

%Filterers: 1.00%

PMI Rating: **42.48 Fair**

Habitat Analysis: 156 Suboptimal USEPA Protocol

Observations: Water temp: 12.1 C; Cond: 132 umhos; DO: 4.6 mg/L; pH: 5.6 SU

Clarity: turbid; Flow Rate: slow; Width/Depth: 15', 2.5-3.5'; Substrate: mud, snags

Canopy: partly open; Bank Stability: fair; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Other: stream forks around island then reconverges, litter, banks flooded, good sample not obtained: Area sampled was limited due to soft bottom and water depth

AMNET Site # AN0621

Stream Name: Great Egg Harbor River

Location: Williamstown-New Freedom Rd (Rt 536 spur); Winslow Twp;
Camden County

Collection Date: 11/1/2005

USGS Topo Map: Williamstown

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Microtendipes	7	20
* Brachycentrus	1	17
* Maccaffertium	3	14
Calopteryx	6	11
Simulium	6	6
* Molanna	6	4
Hemerodromia	6	3
Paraponyx	5	3
Boyeria	2	2
Caacidotea	8	2
* Leptophlebia	4	2
* Pycnopsyche	4	2
Sphaeriidae	8	2
Tipula	4	2
Ancyronyx	2	1
Ceratopogonidae	6	1
Chrysops	6	1
Clinotanypus	8	1
Cordulegaster	3	1
* Eurylophella	4	1
Hyalella	8	1
* Psilotreta	0	1
Thienemannimyia	6	1
* Triaenodes	6	1

*(EPT organism) Taxa Richness: 24 Population: 100

Becks Biotic Index (BBI): 12.00 %Plecoptera +Trichoptera: 25.00%

Insect Taxa: 21 %Mollusca + Amphipoda: 3.00%

Non-Insect Taxa: 3 %Diptera - Tanytarsini: 35.00%

%Filterers: 45.00%

PMI Rating: 61.07 Good

Habitat Analysis: 187 Optimal USEPA Protocol

Observations: Water temp: 10.2 C; Cond: 118 umhos; DO: 9.4 mg/L; pH: 5.9 SU

Clarity: clear- cedar; Flow Rate: moderate; Width/Depth: 20', <1-1'; Substrate: gravel, sand

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Pipes / Ditches: storm sewers- downstream side of bridge

Other: USGS Gage station 3.60, trash-tires

AMNET Site # AN0622 Stream Name: Four Mile Br
 Location: Malaga Rd; Monroe Twp; Gloucester & Camden County
 Collection Date: 11/16/2004 USGS Topo Map: Williamstown

Genus	Tolerance Value	Amount
Hyalella	8	16
Limnodrilus	10	11
Caecidotea	8	6
Procladius	9	6
* Leptophlebia	4	5
* Brachycentrus	1	4
* Mystacides	4	4
* Pycnopsyche	4	4
Calopteryx	6	3
* Cheumatopsyche	5	3
Physella	9.1	3
Polypedilum	6	3
* Eurylophella	4	2
* Heteroplectron	3	2
* Hydropsyche	4	2
* Maccaffertium	3	2
Orconectes	6	2
* Phyloctenopus	5	2
Potthastia	2	2
Rheotanytarsus	6	2
* Taeniopteryx	2	2
Tvetenia	5	2
* Allocapnia	3	1
Aulodrilus	8	1
Cladotanytarsus	7	1
Macronychus	2	1
Microtendipes	7	1
* Molanna	6	1
Nematoda	6	1
* Oecetis	8	1
* Paraleptophlebia	1	1
Stenelmis	5	1
Tanytarsus	6	1
* Triaenodes	6	1
Tribelos	5	1
Tubifex	10	1

* (EPT organism) Taxa Richness: 36 Population: 102

Becks Biotic Index (BBI): 15.00 %Plecoptera + Trichoptera: 26.47%

Insect Taxa: 28 %Mollusca + Amphipoda: 18.63%

Non-Insect Taxa: 8 %Diptera - Tanytarsini: 14.71%

%Filterers: 15.69%

PMI Rating: 59.29 Good

Habitat Analysis: 178 Optimal USEPA Protocol

Observations: Water temp: 8.4 C; Cond: 101 umhos; DO: 9.1 mg/L; pH: 7.3 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 17' / 2 - 2.5'; Substrate: gravel, sand, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: shrubs, trees, grass

Stream Gradient: Low Gradient Stream; Land Uses: suburban (downstream of Atlantic City Expressway)

Other: macrophytes; USGS gage station

AMNET Site # AN0623

Stream Name: Great Egg Harbor River

Location: Winslow Rd; Winslow Twp; Camden & Gloucester County

Collection Date: 11/1/2005

USGS Topo Map: Williamstown

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Brachycentrus	1	14
* Maccaffertium	3	13
Microtendipes	7	8
* Ceratopsyche	4	7
* Lepidostoma	1	6
* Cheumatopsyche	5	5
Hexatoma	2	5
Tribelos	5	5
Calopteryx	6	4
* Lype	2	4
* Molanna	6	3
Nigronia	2	3
* Agarodes	3	2
Chrysops	6	2
* Goera	0	2
* Hydropsychidae	4	2
* Pycnopsyche	4	2
* Siphloplecton	2	2
Ancyronyx	2	1
Cordulegaster	3	1
* Mystacides	4	1
Nematoda	6	1
Parachaetocladus	2	1
* Psilotreta	0	1
Sialis	4	1
Sphaeriidae	8	1
Stenelmis	5	1
Stenochironomus	5	1
* Taeniopteryx	2	1

* (EPT organism) Taxa Richness: 29 Population: 100

Becks Biotic Index (BBI): 23.00 %Plecoptera +Trichoptera: 50.00%

Insect Taxa: 27 %Mollusca + Amphipoda: 1.00%

Non-Insect Taxa: 2 %Diptera - Tanytarsini: 22.00%

%Filterers: 37.00%

PMI Rating: 75.47 Excellent

Habitat Analysis: 182 Optimal USEPA Protocol

Observations: Water temp: 9.8 C; Cond: 105 umhos; DO: 9.7 mg/L; pH: 5.7 SU

Clarity: clear- cedar; Flow Rate: moderate; Width/Depth: 30', 3-4'; Substrate: gravel, sand, snags

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: trash- tires, macrophytes

AMNET Site # AN0624 **Stream Name: Squankum Br**
Location: Malaga Rd; Monroe Twp; Gloucester County
Collection Date: 11/3/2004 **USGS Topo Map: Williamstown**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Pisidium	6.8	23
Aulodrilus	8	20
Thienemannimyia	6	10
Lumbriculus	8	7
Limnodrilus	10	5
Cricotopus	7	4
Dubiraphia	6	4
Thienemanniella	6	4
Phaenopsectra	7	3
Polypedilum	6	3
Nematoda	6	2
* Oxyethira	3	2
Simulium	6	2
Apsectrotanypus	5	1
Calopteryx	6	1
Lymnaeidae	6	1
* Molanna	6	1
Peltodytes	5	1
* Phyllocentropus	5	1
* Platycentropus	4	1
Prostoma	7	1
* Siphloplecton	2	1
Tribelos	5	1
Tubifex	10	1

* (EPT organism) *Taxa Richness:* 24 *Population:* 100

Becks Biotic Index (BBI): 3.00 *%Plecoptera +Trichoptera:* 5.00%
Insect Taxa: 16 *%Mollusca + Amphipoda:* 24.00%
Non-Insect Taxa: 8 *%Diptera - Tanytarsini:* 28.00%
 %Filterers: 26.00%

PMI Rating: **42.90 Fair**

Habitat Analysis: 169 Optimal USEPA Protocol

Observations: Water temp: 14 C; Cond: 132 umhos; DO: 4.6 mg/L; pH: 5.9 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 12.5' / 2'; Substrate: snags
Canopy: partly open; Bank Stability: good; Bank Vegetation: shrubs, trees, grass
Stream Gradient: Low Gradient Stream; Land Uses: rural, forested
Pipes / Ditches: pipe on right bank
Other: macrophytes

AMNET Site # AN0625 Stream Name: Great Egg Harbor River

Location: Rt 54; Folsom Boro; Atlantic County

Collection Date: 11/3/2005 USGS Topo Map: Newtonville

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Hydropsyche	4	17
* Brachycentrus	1	8
* Goera	0	8
* Maccaffertium	3	8
* Psilotreta	0	7
* Agarodes	3	6
Atherix	2	5
* Lepidostoma	1	4
Stenelmis	5	4
* Acroneuria	0	3
* Macrostemum	3	3
Procladius	9	3
Calopteryx	6	2
Hetaerina	6	2
Microtendipes	7	2
Nigronia	2	2
* Oecetis	8	2
Promoresia	2	2
* Baetidae	4	1
Cordulegaster	3	1
* Eurylophella	4	1
Hexatoma	2	1
Macromia	2	1
* Mystacides	4	1
Optioservus	4	1
Palaemonetes	4	1
* Pycnopsyche	4	1
Rhagovelia	9	1
Rheotanytarsus	6	1
Sphaerium	8	1

* (EPT organism) Taxa Richness: 30 Population: 100

Becks Biotic Index (BBI): 26.00 %Plecoptera +Trichoptera: 60.00%

Insect Taxa: 28 %Mollusca + Amphipoda: 1.00%

Non-Insect Taxa: 2 %Diptera - Tanytarsini: 11.00%

%Filterers: 32.00%

PMI Rating: 78.36 Excellent

Habitat Analysis: 156 Suboptimal USEPA Protocol

Observations: Water temp: 9.41 C; Cond: 77 umhos; DO: 6.59 mg/L; pH: 5.40 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 35.5',1-4'; Substrate: gravel, sand, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: grasses, trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested, Route 322 runs parallel approx 200 yds

Pipes / Ditches: storm sewers

Downstream of Impoundment: USGS gaging station

Other: fish

AMNET Site # AN0626 Stream Name: Penny Pot Stream

Location: Eighth Ave; Folsom Boro; Atlantic County

Collection Date: 11/9/2005 USGS Topo Map: Newtonville

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Simulium	6	23
* Taeniopteryx	2	18
* Limnephilidae	4	11
Calopteryx	6	7
Stenelmis	5	5
* Maccaffertium	3	4
Boyeria	2	3
Chrysops	6	3
* Hydropsyche	4	3
Nigronia	2	3
Sphaeriidae	8	3
* Diplectrona	0	2
Limnodrilus	10	2
Ancyronyx	2	1
* Capniidae	1	1
Dicranota	3	1
* Eurylophella	4	1
Gomphidae	1	1
Hagenius	3	1
Libellulidae	9	1
* Lype	2	1
* Nyctiophylax	5	1
Parakiefferiella	4	1
Sialis	4	1
Thienemannimyia	6	1
Tipula	4	1

* (EPT organism) *Taxa Richness:* 26 *Population:* 100

Becks Biotic Index (BBI): 20.00 *%Plecoptera +Trichoptera:* 37.00%

Insect Taxa: 24 *%Mollusca + Amphipoda:* 3.00%

Non-Insect Taxa: 2 *%Diptera - Tanytarsini:* 30.00%

%Filterers: 31.00%

PMI Rating: 71.62 Excellent

Habitat Analysis: 173 Optimal USEPA Protocol

Observations: Water temp: 11.8 C; Cond: 125 umhos; DO: 7.2 mg/L; pH: 5.5 SU

Clarity: clear- cedar brown; Flow Rate: moderate; Width/Depth: 12', 1-3'; Substrate: gravel, sand, mud, silt, snags

Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish

AMNET Site # AN0627 **Stream Name: Hospitality Br**
Location: Blue Bell Rd; Monroe Twp; Gloucester County
Collection Date: 11/3/2005 **USGS Topo Map: Williamstown**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Sphaerium	8	37
* Maccaffertium	3	11
Hyalella	8	9
Enallagma	9	4
Planorbidae	6	4
Ablabesmyia	8	3
Corydalus	4	3
* Heteroplectron	3	3
* Lype	2	3
Chrysops	6	2
Microtendipes	7	2
* Oecetis	8	2
Tribelos	5	2
Boyeria	2	1
Calopteryx	6	1
* Cheumatopsyche	5	1
Erpobdellidae	8	1
* Macrostemum	3	1
* Mystacides	4	1
* Neureclipsis	7	1
Optioservus	4	1
Orthocladiinae	5	1
Palaemonetes	4	1
* Pycnopsyche	4	1
Sialis	4	1
* Taeniopteryx	2	1
Unniella	6	1
Xylotopus	2	1

* (EPT organism) *Taxa Richness:* 28 *Population:* 100

Becks Biotic Index (BBI): 13.00 *%Plecoptera +Trichoptera:* 14.00%

Insect Taxa: 23 *%Mollusca + Amphipoda:* 50.00%

Non-Insect Taxa: 5 *%Diptera - Tanytarsini:* 12.00%

%Filterers: 42.00%

PMI Rating: 46.03 Fair

Habitat Analysis: 152 Suboptimal USEPA Protocol

Observations: Water temp: 10.14 C; Cond: 66 umhos; DO: 5.63 mg/L; pH: 6.1 SU

Clarity: clear- cedar brown; Flow Rate: moderate; Width/Depth: 24.7',.5-1'; Substrate: gravel, sand, silt, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Downstream of Impoundment: natural

Other: fish

AMNET Site # AN0628 **Stream Name: Hospitality Br**

Location: Rt 538; Monroe Twp; Gloucester County

Collection Date: 11/9/2005 **USGS Topo Map: Buena**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Sphaeriidae	8	58
Palaemonetes	4	12
Paraponyx	5	5
Campeloma	7	4
Argia	6	3
Ischnura	9	3
Physella	9.1	3
Amnicola	4.8	2
Pseudochironomus	5	2
Ancyronyx	2	1
Aulodrilus	8	1
Bezzia	6	1
Haliphus	5	1
Helisoma	7	1
Hyalella	8	1
Menetus	6	1
Peltodytes	5	1

* (*EPT organism*) *Taxa Richness:* 17 *Population:* 100

Becks Biotic Index (BBI): 2.00 *%Plecoptera +Trichoptera:* 0.00%

Insect Taxa: 8 *%Mollusca + Amphipoda:* 69.00%

Non-Insect Taxa: 9 *%Diptera - Tanytarsini:* 3.00%

%Filterers: 58.00%

***PMI Rating:* 19.83 Poor**

Habitat Analysis: 141 Suboptimal USEPA Protocol

Observations: Water temp: 12.8 C; Cond: 64 umhos; DO: 7.7 mg/L; pH: 6.4 SU

Clarity: clear- cedar brown; Flow Rate: moderate; Width/Depth: 26', 1-5'; Substrate: cobble, gravel, sand

Canopy: open; Bank Stability: fair; Bank Vegetation: shrubs, trees, grasses

Stream Gradient: Low Gradient Stream; Land Uses: suburban, forested

Downstream of Impoundment: Crane Lake

Other: fish, duck in lake, lake vegetation in stream

AMNET Site # AN0629 **Stream Name: Faraway Br**
Location: Jackson Rd; Monroe Twp; Gloucester County
Collection Date: 11/9/2005 **USGS Topo Map: Buena**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Cheumatopsyche	5	54
Tribelos	5	12
Stenelmis	5	8
Limnodrilus	10	4
Thienemannimyia	6	4
Ablabesmyia	8	2
Dicrotendipes	8	2
Procladius	9	2
Argia	6	1
Boyeria	2	1
* Caenis	7	1
Calopteryx	6	1
Hemerodromia	6	1
Microtendipes	7	1
Naididae	7	1
Nigronia	2	1
* Oecetis	8	1
Orthocladiinae	5	1
Parametriochnemus	5	1
Stenochironomus	5	1

* (EPT organism) *Taxa Richness:* 20 *Population:* 100

Becks Biotic Index (BBI): 2.00 *%Plecoptera +Trichoptera:* 55.00%
Insect Taxa: 18 *%Mollusca + Amphipoda:* 0.00%
Non-Insect Taxa: 2 *%Diptera - Tanytarsini:* 27.00%
 %Filterers: 55.00%

PMI Rating: 60.02 Good

Habitat Analysis: 167 Optimal USEPA Protocol

Observations: Water temp: 12.8 C; Cond: 47 umhos; DO: 6.8 mg/L; pH: 4.6 SU

Clarity: clear- cedar brown; Flow Rate: moderate; Width/Depth: 4', <1'; Substrate: gravel, sand

Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs, vines

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Downstream of Impoundment: cranberry bog

Other: 2 beaver dams up stream

AMNET Site # AN0630 **Stream Name: White Oak Br**
Location: Jackson Rd; Monroe Twp; Gloucester County
Collection Date: 4/17/2006 **USGS Topo Map: Buena**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Psectrocladius	8	80
Hydroporus	5	4
Caecidotea	8	3
Chrysops	6	2
Enchytraeidae	10	2
Polypedilum	6	2
Tribelos	5	2
Bezzia	6	1
Corduliidae	5	1
* Ironoquia	3	1
Orthoclaadiinae	5	1
Tanypodinae	7	1

* (EPT organism) *Taxa Richness:* 12 *Population:* 100

Becks Biotic Index (BBI): 1.00 *%Plecoptera +Trichoptera:* 1.00%
Insect Taxa: 10 *%Mollusca + Amphipoda:* 0.00%
Non-Insect Taxa: 2 *%Diptera - Tanytarsini:* 89.00%
 %Filterers: 0.00%

PMI Rating: 60.90 Good

Habitat Analysis: 179 Optimal USEPA Protocol

Observations: Water temp: 13.0 C; Cond: 73 umhos; DO: 3.3 mg/L; pH: 3.9 SU

Clarity: clear-cedar; Flow Rate: slow; Width/Depth: 14', 2'; Substrate: gravel, sand, silt, snags, root mats

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: filamentous algae, macrophytes

AMNET Site # AN0631 **Stream Name: Marsh Lake Br (Collings Br)**

Location: Unexpected Rd; Franklin Twp; Gloucester County

Collection Date: 11/9/2005 **USGS Topo Map: Buena**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Musculium	5	44
Sphaerium	8	17
Simulium	6	7
Enallagma	9	5
Microtendipes	7	5
Caecidotea	8	3
* Cheumatopsyche	5	3
Glyptotendipes	10	3
Hyalella	8	3
Sympetrum	4	2
* Acerpenna	4	1
Dromogomphus	4	1
Erpobdellidae	8	1
Helobdella	8	1
Lumbriculus	8	1
Menetus	6	1
Placobdella	8	1
Tanytarsini	6	1

* (*EPT organism*) *Taxa Richness:* 18 *Population:* 100

Becks Biotic Index (BBI): 3.00 *%Plecoptera +Trichoptera:* 3.00%

Insect Taxa: 9 *%Mollusca + Amphipoda:* 65.00%

Non-Insect Taxa: 9 *%Diptera - Tanytarsini:* 15.00%

%Filterers: 79.00%

PMI Rating: 21.23 Poor

Habitat Analysis: 170 Optimal USEPA Protocol

Observations: Water temp: 13.5 C; Cond: 74 umhos; DO: 8.2 mg/L; pH: 5.6 SU

Clarity: clear- cedar brown; Flow Rate: moderate; Width/Depth: 23.4', 1-3'; Substrate: cobble (bog iron ore), gravel, sand, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: shrubs, trees

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-cropland, rural, forested, Unexpected Wildlife Refuge

Downstream of Impoundment: Cranberry bog

Other: fish

AMNET Site # AN0632 Stream Name: Marsh Lake Br (Collings Br)

Location: Blue Anchor Rd; Buena Vista Twp; Atlantic County

Collection Date: 11/9/2005 USGS Topo Map: Buena

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Sphaeriidae	8	25
Lumbriculus	8	7
* Polycentropus	6	7
Simulium	6	6
* Taeniopteryx	2	6
* Hydropsyche	4	5
Hydrobaenus	8	4
Prostoma	7	4
Dicrotendipes	8	3
* Eurylophella	4	3
Gammarus	6	3
Nais	8	3
Caecidotea	8	2
* Cheumatopsyche	5	2
Enallagma	9	2
Helobdella	8	2
Heterotrissocladius	0	2
* Hydroptilidae	4	2
Tanytarsus	6	2
Tubificidae	10	2
Argia	6	1
Boyeria	2	1
* Chimarra	4	1
Didymops	4	1
Erpobdellidae	8	1
Lestes	9	1
Menetus	6	1
Stenochironomus	5	1

* (EPT organism) Taxa Richness: 28 Population: 100

Becks Biotic Index (BBI): 9.00 %Plecoptera +Trichoptera: 23.00%

Insect Taxa: 18 %Mollusca + Amphipoda: 29.00%

Non-Insect Taxa: 10 %Diptera - Tanytarsini: 16.00%

%Filterers: 48.00%

PMI Rating: 43.03 Fair

Habitat Analysis: 161 Optimal USEPA Protocol

Observations: Water temp: 13.6 C; Cond: 53 umhos; DO: 5.0 mg/L; pH: 5.4 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 28',5-3'; Substrate: gravel, sand, snags, other

Canopy: mostly open; Bank Stability: good; Bank Vegetation: shrubs, trees

Stream Gradient: Low Gradient Stream; Land Uses: suburban, barren (mining)

Other: fish

AMNET Site # AN0633 **Stream Name: Hospitality Br**
Location: Rt 54; Folsom Boro; Atlantic County
Collection Date: 11/3/2005 **USGS Topo Map: Newtonville**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Sphaerium	8	16
Stenelmis	5	12
Palaemonetes	4	8
Simulium	6	8
* Chimarra	4	7
Dineutus	4	6
Psectrocladius	8	6
Macromia	2	4
* Brachycentrus	1	3
Corydalus	4	3
Enallagma	9	3
* Macrostemum	3	3
Argia	6	2
Boyeria	2	2
Cricotopus	7	2
* Hydropsyche	4	2
* Maccaffertium	3	2
Ancyronyx	2	1
Calopteryx	6	1
Cordulegaster	3	1
* Eurylophella	4	1
Gomphus	5	1
* Hydatophylax	2	1
Limnodrilus	10	1
Limnophila	3	1
* Taeniopteryx	2	1
Tipula	4	1
Tvetenia	5	1

* (EPT organism) *Taxa Richness:* 28 *Population:* 100

Becks Biotic Index (BBI): 18.00 *%Plecoptera +Trichoptera:* 17.00%

Insect Taxa: 25 *%Mollusca + Amphipoda:* 16.00%

Non-Insect Taxa: 3 *%Diptera - Tanytarsini:* 19.00%

%Filterers: 39.00%

PMI Rating: 59.64 Good

Habitat Analysis: 136 Suboptimal USEPA Protocol

Observations: Water temp: 11.19 C; Cond: 68 umhos; DO: 6.57 mg/L; pH: 5.20 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 29.4',1-3'; Substrate: gravel, sand, silt, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: shrubs, trees

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Pipes / Ditches: storm sewers

Other: fish

AMNET Site # AN0634 **Stream Name: Three Pond Bk**

Location: Rt 54; Buena Vista Twp; Atlantic County

Collection Date: 4/17/2006 **USGS Topo Map: Newtonville**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Ormosia	3	22
Chaoborus	8	15
Lumbriculus	8	6
Cnephia	4	3
Simulium	6	3
Enchytraeidae	10	2
Hydrobaenus	8	2
Naididae	7	2
Parachironomus	10	2
Procladius	9	2
Thienemannimyia	6	2
Caecidotea	8	1
* Caenis	7	1
Dytiscidae	5	1
Ischnura	9	1
Kiefferulus	10	1
Nematoda	6	1
Polypedilum	6	1

* (EPT organism) *Taxa Richness:* 18 *Population:* 68

Becks Biotic Index (BBI): 2.00 *%Plecoptera +Trichoptera:* 0.00%

Insect Taxa: 13 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 5 *%Diptera - Tanytarsini:* 77.94%

%Filterers: 8.82%

PMI Rating: 58.33 Good

Habitat Analysis: 161 Optimal USEPA Protocol

Observations: Water temp: 14.1 C; Cond: 80 umhos; DO: 3.4 mg/L; pH: 5.1 SU

Clarity: clear-cedar; Flow Rate: slow; Width/Depth: 14', 3'; Substrate: gravel, sand, silt, snags

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Downstream of Impoundment: present

Other: beaver dam causing backup of water in stream

AMNET Site # AN0635 **Stream Name: Great Egg Harbor River**

Location: Rt 559; Weymouth Twp; Atlantic County

Collection Date: 11/15/2005 **USGS Topo Map: Newtonville**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Lepidostoma	1	13
* Cheumatopsyche	5	11
* Taeniopteryx	2	10
* Brachycentrus	1	8
Stenelmis	5	6
Microtendipes	7	5
Sphaeriidae	8	5
* Maccaffertium	3	4
Nigronia	2	4
Promoesia	2	4
Anchytarsus	1	3
Boyeria	2	3
* Goera	0	3
Thienemannimyia	6	3
* Agarodes	3	2
Limnodrilus	10	2
* Acroneuria	0	1
Caecidotea	8	1
Calopteryx	6	1
* Ceraclea	3	1
* Eurylophella	4	1
Macronychus	2	1
* Neureclipsis	7	1
Parametrioctenus	5	1
* Polycentropus	6	1
Potthastia	2	1
Rheotanytarsus	6	1
Tanytarsus	6	1
Tipula	4	1
Tvetenia	5	1

* (EPT organism) *Taxa Richness:* 30 *Population:* 100

Becks Biotic Index (BBI): 21.00 *%Plecoptera +Trichoptera:* 51.00%

Insect Taxa: 27 *%Mollusca + Amphipoda:* 5.00%

Non-Insect Taxa: 3 *%Diptera - Tanytarsini:* 12.00%

%Filterers: 33.00%

PMI Rating: **71.75** **Excellent**

Habitat Analysis: 165 Optimal USEPA Protocol

Observations: Water temp: 11.9 C; Cond: 66 umhos; DO: 8.1 mg/L; pH: 5.8 SU

Clarity: clear- cedar brown; Flow Rate: fast; Width/Depth: 35', <1-3'; Substrate: cobble, gravel, sand, snags, root mats

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, grasses, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

AMNET Site # AN0636 Stream Name: UNT to Deep Run

Location: Rt 54; Buena Boro; Atlantic County

Collection Date: 11/16/2004 USGS Topo Map: Buena

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Pisidium	6.8	30
Thienemannimyia	6	27
Limnodrilus	10	21
* Cheumatopsyche	5	6
Polypedilum	6	4
Lumbriculus	8	3
Musculium	5	3
Cryptochironomus	8	2
Helobdella	8	2
Lymnaeidae	6	2
Nematoda	6	2
Phaenopsectra	7	2
Physella	9.1	2
Enchytraeidae	10	1
Lumbricidae	10	1
Notonecta	5	1
Rheotanytarsus	6	1

**(EPT organism)* Taxa Richness: 17 Population: 110

Becks Biotic Index (BBI): 0.00 %Plecoptera +Trichoptera: 5.45%

Insect Taxa: 7 %Mollusca + Amphipoda: 33.64%

Non-Insect Taxa: 10 %Diptera - Tanytarsini: 31.82%

%Filterers: 36.36%

PMI Rating: 33.60 Poor

Habitat Analysis: 140 Suboptimal USEPA Protocol

Observations: Water temp: 12.9 C; Cond: 683 umhos; DO: 8.5 mg/L; pH: 6.9 SU

Clarity: slightly turbid; Flow Rate: moderate; Width/Depth: 6' / 1'; Substrate: sand

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-cropland & livestock, rural

Pipes / Ditches: downstream of STP

Other: USGS gage/Flood monitoring gage; chemical odor; portion of land cleared on left bank

AMNET Site # AN0637 **Stream Name: Deep Run**
Location: Rt 559; Hamilton Twp; Atlantic County
Collection Date: 11/17/2005 **USGS Topo Map: Newtonville**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Brachycentrus	1	25
Tribelos	5	21
* Taeniopteryx	2	9
* Lepidostoma	1	7
* Psilotreta	0	5
* Goera	0	4
* Leptophlebia	4	4
* Maccaffertium	3	3
Parametrioctonus	5	3
* Leuctra	0	2
Lumbriculus	8	2
Optioservus	4	2
Parachaetocladus	2	2
Ablabesmyia	8	1
Chrysops	6	1
Demicryptochironomus	8	1
Dineutus	4	1
Gomphidae	1	1
Heterotrissocladius	0	1
Hexatoma	2	1
* Macrostemum	3	1
Microtendipes	7	1
* Molanna	6	1
Sphaerium	8	1

* (EPT organism) *Taxa Richness:* 24 *Population:* 100

Becks Biotic Index (BBI): 22.00 *%Plecoptera +Trichoptera:* 54.00%
Insect Taxa: 22 *%Mollusca + Amphipoda:* 1.00%
Non-Insect Taxa: 2 *%Diptera - Tanytarsini:* 32.00%
 %Filterers: 28.00%

PMI Rating: **77.25** **Excellent**

Habitat Analysis: 172 Optimal USEPA Protocol

Observations: Water temp: 11.5 C; Cond: 68 umhos; DO: 8.5 mg/L; pH: 5.0 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 38.5', 2-3'; Substrate: gravel, sand, silt, snags, root mats

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, vines, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes, periphyton

AMNET Site # AN0638

Stream Name: Mare Run

Location: Rt 559; Hamilton Twp; Atlantic County

Collection Date: 11/17/2005

USGS Topo Map: Dorothy

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Microtendipes	7	24
* Eurylophella	4	15
* Leptophlebia	4	11
* Ceraclea	3	7
* Pycnopsyche	4	6
* Heteroplectron	3	3
Ischnura	9	3
Procladius	9	3
Sialis	4	3
Calopteryx	6	2
* Lepidostoma	1	2
Peltodytes	5	2
* Phylocentropus	5	2
* Psilotreta	0	2
* Siphloplecton	2	2
Basiaeschna	2	1
Boyeria	2	1
* Brachycentrus	1	1
Crangonyx	8	1
* Molanna	6	1
* Oecetis	8	1
Phaenopsectra	7	1
* Polycentropus	6	1
* Ptilostomis	5	1
Slavina	7	1
Stenelmis	5	1
* Taeniopteryx	2	1
Unniella	6	1

* (EPT organism) Taxa Richness: 28 Population: 100

Becks Biotic Index (BBI): 16.00 %Plecoptera +Trichoptera: 28.00%

Insect Taxa: 26 %Mollusca + Amphipoda: 1.00%

Non-Insect Taxa: 2 %Diptera - Tanytarsini: 29.00%

%Filterers: 28.00%

PMI Rating: 68.63 Excellent

Habitat Analysis: 159 Suboptimal USEPA Protocol

Observations: Water temp: 10.4 C; Cond: 42 umhos; DO: 8.6 mg/L; pH: 4.6 SU

Clarity: clear-cedar; Flow Rate: slow; Width/Depth: 15', 3-4'; Substrate: sand, silt

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes

AMNET Site # AN0639 **Stream Name: Watering Race**
Location: Rt 50 (Cape May Ave); Hamilton Twp; Atlantic County
Collection Date: 4/18/2006 **USGS Topo Map: Mays Landing**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Psectrocladius	8	32
Tanytarsus	6	8
Thienemannimyia	6	8
Orthocladiinae	5	6
Unniella	6	6
Caecidotea	8	4
* Chimarra	4	3
Gammaridae	4	3
* Leuctra	0	3
* Pycnopsyche	4	3
* Triaenodes	6	3
Ablabesmyia	8	2
Apsectrotanypus	5	2
Micropsectra	7	2
* Polycentropus	6	2
Simulium	6	2
Sphaeriidae	8	2
Calopteryx	6	1
Enchytraeidae	10	1
* Hydroptila	6	1
* Ironoquia	3	1
* Leptophlebia	4	1
Limnodrilus	10	1
* Molanna	6	1
* Oecetis	8	1
Slavina	7	1

* (EPT organism) *Taxa Richness:* 26 *Population:* 100

Becks Biotic Index (BBI): 7.00 *%Plecoptera +Trichoptera:* 18.00%

Insect Taxa: 20 *%Mollusca + Amphipoda:* 5.00%

Non-Insect Taxa: 6 *%Diptera - Tanytarsini:* 58.00%

%Filterers: 17.00%

PMI Rating: 61.91 Good

Habitat Analysis: 134 Suboptimal USEPA Protocol

Observations: Water temp: 10.9 C; Cond: 79 umhos; DO: 8.5 mg/L; pH: 4.4 SU

Clarity: clear-cedar; Flow Rate: slow; Width/Depth: 25', 2'; Substrate: gravel, sand, silt

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: agriculture-cropland (cranberry field upstream), forested

Other: filamentous algae, two channels upstream of bridge, channel on right (facing downstream) is a cranberry farm channel, stream enters from the left, about 10 meters upstream of bridge, stream is pond-like and deep, berm on right bank for cranberry channel

AMNET Site # AN0640

Stream Name: Babcock Ck

Location: Rt 322; Hamilton Twp; Atlantic County

Collection Date: 11/17/2005

USGS Topo Map: Mays Landing

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Cheumatopsyche	5	22
Rheotanytarsus	6	12
* Allocapnia	3	11
* Hydropsyche	4	9
Thienemannimyia	6	7
Unniella	6	7
* Leptophlebia	4	5
* Maccaffertium	3	5
* Taeniopteryx	2	4
Nigronia	2	3
Parachaetocladius	2	3
* Brachycentrus	1	2
Cricotopus	7	2
* Leuctra	0	2
* Limnephilidae	4	1
Microtendipes	7	1
Oulimnius	4	1
* Paraleptophlebia	1	1
* Psilotreta	0	1
Tvetenia	5	1

* (EPT organism) Taxa Richness: 20 Population: 100

Becks Biotic Index (BBI): 17.00 %Plecoptera +Trichoptera: 52.00%

Insect Taxa: 20 %Mollusca + Amphipoda: 0.00%

Non-Insect Taxa: 0 %Diptera - Tanytarsini: 21.00%

%Filterers: 46.00%

PMI Rating: 69.44 Excellent

Habitat Analysis: 175 Optimal USEPA Protocol

Observations: Water temp: 11.1 C; Cond: 61 umhos; DO: 6.6 mg/L; pH: 5.4 SU

Clarity: clear- cedar water; Flow Rate: moderate; Width/Depth: 50.5' 1'; Substrate: gravel, sand

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: sampled downstream, macrophytes, periphyton, USGS gage reading 6.70

AMNET Site # AN0640A Stream Name: Babcock Ck
Location: Holly St; Hamilton Twp; Atlantic County
Collection Date: 9/8/2005 USGS Topo Map: Mays Landing

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Microtendipes	7	19
* Triaenodes	6	16
* Molanna	6	12
Micropsectra	7	9
* Heteroplectron	3	8
Calopteryx	6	6
* Polycentropus	6	5
Rheotanytarsus	6	5
* Mystacides	4	3
Thienemannimyia	6	3
Tribelos	5	3
* Lype	2	2
Argia	6	1
Chrysops	6	1
Cricotopus	7	1
* Eurylophella	4	1
Helocordulia	2	1
* Nyctiophylax	5	1
Oulimnius	4	1
Polypedilum	6	1
Sialis	4	1

* (EPT organism) *Taxa Richness:* 21 *Population:* 100

Becks Biotic Index (BBI): 7.00 *%Plecoptera +Trichoptera:* 47.00%

Insect Taxa: 21 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 0 *%Diptera - Tanytarsini:* 28.00%

%Filterers: 29.00%

PMI Rating: 67.07 Excellent

Habitat Analysis: 162 Optimal USEPA Protocol

Observations: Water temp: 16.1 C; Cond: 92 umhos; DO: 5.7 mg/L; pH: 5.2 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 18',1'; Substrate: gravel, sand, silt

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: water barely moving, trash, macrophytes, filamentous algae, fish

AMNET Site # AN0640B Stream Name: Jack Pudding Br

Location: Cologne Ave; Hamilton Twp; Atlantic County

Collection Date: 9/8/2005 USGS Topo Map: Mays Landing

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Kiefferulus	10	34
Procladius	9	13
Caecidotea	8	11
Dubiraphia	6	9
Aulodrilus	8	7
Chironomus	10	4
Dero	10	3
Dicrotendipes	8	3
Cladopelma	8	1
Cryptotendipes	6	1
Enchytraeidae	10	1
Libellulidae	9	1
Microtendipes	7	1
Naididae	7	1
Nematoda	6	1
Ormosia	3	1
Polypedilum	6	1
Sphaeriidae	8	1
Stenochironomus	5	1
Tanypodinae	7	1
Tanytarsus	6	1
Tetragoneuria	8.5	1
Thienemannimyia	6	1
Tribelos	5	1

** (EPT organism)* Taxa Richness: 24 Population: 100

Becks Biotic Index (BBI): 1.00 %Plecoptera +Trichoptera: 0.00%

Insect Taxa: 17 %Mollusca + Amphipoda: 1.00%

Non-Insect Taxa: 7 %Diptera - Tanytarsini: 63.00%

%Filterers: 3.00%

PMI Rating: 55.98 Fair

Habitat Analysis: 153 Suboptimal USEPA Protocol

Observations: Water temp: 19.3 C; Cond: 187 umhos; DO: 1.7 mg/L; pH: 5.8 SU

Clarity: slightly turbid-cedar; Flow Rate: slow; Width/Depth: 26',2'; Substrate: mud

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Downstream of Impoundment: beaver dam

Other: water not moving; macrophytes

AMNET Site # AN0642

Stream Name: Miry Run

Location: Thelma Ave; Egg Harbor; Atlantic County

Collection Date: 11/30/2005

USGS Topo Map: Mays Landing

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Microtendipes	7	30
* Leptophlebia	4	17
Tribelos	5	11
Ablabesmyia	8	5
Corydalis	4	4
Tanytarsus	6	4
* Pycnopsyche	4	3
Ancyronyx	2	2
Chrysops	6	2
* Eurylophella	4	2
Simulium	6	2
Stenelmis	5	2
Argia	6	1
Enchytraeidae	10	1
Heterotrissocladius	0	1
* Leuctra	0	1
Lirceus	8	1
* Molanna	6	1
Nais	8	1
* Oecetis	8	1
Procladius	9	1
Pseudolimnophila	2	1
* Psilotreta	0	1
Rheocricotopus	6	1
Sialis	4	1
Stenochironomus	5	1
Stylodrilus	10	1
Tipula	4	1

* (EPT organism) Taxa Richness: 28 Population: 100

Becks Biotic Index (BBI): 14.00 %Plecoptera +Trichoptera: 7.00%

Insect Taxa: 24 %Mollusca + Amphipoda: 0.00%

Non-Insect Taxa: 4 %Diptera - Tanytarsini: 56.00%

%Filterers: 36.00%

PMI Rating: 63.97 Excellent

Habitat Analysis: 171 Optimal USEPA Protocol

Observations: Water temp: 11.9 C; Cond: 92 umhos; DO: 8.0 mg/L; pH: 4.7 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 14', 2-3'; Substrate: sand, silt

Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # AN0643 **Stream Name: South River**
Location: Estelle Ave; Hamilton Twp; Atlantic County
Collection Date: 4/17/2006 **USGS Topo Map: Dorothy**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Polypedilum	6	20
Simulium	6	13
Heterotrissocladius	0	6
Sphaeriidae	8	6
Thienemannimyia	6	6
* Diplectrona	0	5
* Lepidostoma	1	5
* Heteroplectron	3	4
Lumbriculus	8	4
* Maccaffertium	3	3
* Leuctra	0	2
Limnodrilus	10	2
* Psilotreta	0	2
* Pycnopsyche	4	2
Stempellinella	6	2
Unniella	6	2
* Wormaldia	0	2
Apsectrotanypus	5	1
Boyeria	2	1
Ceratopogonidae	6	1
Chrysops	6	1
Clinotanypus	8	1
Cricotopus	7	1
Hemerodromia	6	1
Microtendipes	7	1
Orthocladius	6	1
Parametriocnemus	5	1
Sialis	4	1
Tanypodinae	7	1
Tanytarsus	6	1
Xylotopus	2	1

* (EPT organism) *Taxa Richness:* 31 *Population:* 100

Becks Biotic Index (BBI): 18.00 *%Plecoptera +Trichoptera:* 22.00%

Insect Taxa: 28 *%Mollusca + Amphipoda:* 6.00%

Non-Insect Taxa: 3 *%Diptera - Tanytarsini:* 58.00%

%Filterers: 28.00%

PMI Rating: **72.83** **Excellent**

Habitat Analysis: 169 Optimal USEPA Protocol

Observations: Water temp: 12.9 C; Cond: 99 umhos; DO: 7.7 mg/L; pH: 5.6 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 20', 1'; Substrate: gravel, sand, silt, snags

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Other: macrophytes

AMNET Site # AN0644 **Stream Name: South River**
Location: Forty Wire Rd; Weymouth Twp; Atlantic County
Collection Date: 11/30/2005 **USGS Topo Map: Dorothy**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Sphaeriidae	8	39
Tribelos	5	11
Micropsectra	7	8
* Leptophlebia	4	6
* Heteroplectron	3	5
Caecidotea	8	3
* Molanna	6	3
* Siphloplecton	2	3
Chrysops	6	2
Hexatoma	2	2
* Oecetis	8	2
Paratendipes	8	2
* Phyllocentropus	5	2
Pseudolimnophila	2	2
* Psilotreta	0	2
* Allocapnia	3	1
Basiaeschna	2	1
Calopteryx	6	1
* Ceraclea	3	1
Lumbriculidae	8	1
* Lype	2	1
Parachaetocladius	2	1
* Taeniopteryx	2	1

* (EPT organism) *Taxa Richness:* 23 *Population:* 100

Becks Biotic Index (BBI): 13.00 *%Plecoptera +Trichoptera:* 18.00%

Insect Taxa: 20 *%Mollusca + Amphipoda:* 39.00%

Non-Insect Taxa: 3 *%Diptera - Tanytarsini:* 20.00%

%Filterers: 41.00%

PMI Rating: **51.17 Fair**

Habitat Analysis: 162 Optimal USEPA Protocol

Observations: Water temp: 12.5 C; Cond: 77 umhos; DO: 9.2 mg/L; pH: 4.8 SU

Clarity: clear- dark cedar; Flow Rate: moderate; Width/Depth: 22', 1-3'; Substrate: sand, silt

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, vines

Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # AN0645 **Stream Name: Stephens Ck**
Location: 11th Ave; Estelle Manor; Atlantic County
Collection Date: 4/17/2006 **USGS Topo Map: Dorothy**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Simulium	6	16
Polypedilum	6	15
Tanytarsus	6	12
Cricotopus	7	9
Rheotanytarsus	6	9
Sphaeriidae	8	6
* Leuctra	0	5
Rheopelopia	4	5
Ablabesmyia	8	3
Hexatoma	2	3
Heterotrissocladius	0	2
* Platycentropus	4	2
* Psilotreta	0	2
Thienemanniella	6	2
* Goera	0	1
Hemerodromia	6	1
* Heteroplectron	3	1
* Isoperla	2	1
* Lepidostoma	1	1
Microtendipes	7	1
Orthocladius	6	1
Tanytarsini	6	1
Tvetenia	5	1

* (EPT organism) *Taxa Richness:* 23 *Population:* 100

Becks Biotic Index (BBI): 15.00 *%Plecoptera +Trichoptera:* 13.00%

Insect Taxa: 22 *%Mollusca + Amphipoda:* 6.00%

Non-Insect Taxa: 1 *%Diptera - Tanytarsini:* 59.00%

%Filterers: 44.00%

PMI Rating: **66.20** **Excellent**

Habitat Analysis: 161 Optimal USEPA Protocol

Observations: Water temp: 14.0 C; Cond: 34 umhos; DO: 9.8 mg/L; pH: 4.9 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 7', 1'; Substrate: gravel, sand, silt, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Other: filamentous algae, macrophytes

AMNET Site # AN0646

Stream Name: Stephens Ck

Location: Rt 50; Estelle Manor; Atlantic County

Collection Date: 11/30/2005

USGS Topo Map: Mays Landing

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Sphaeriidae	8	30
* Hydropsyche	4	17
Manayunkia	6	15
Stenelmis	5	9
Dugesia	4	4
Ischnura	9	4
Planorbidae	6	4
Lumbriculus	8	3
* Cheumatopsyche	5	2
* Eurylophella	4	2
* Polycentropus	6	2
Ancyronyx	2	1
Dubiraphia	6	1
Gomphus	5	1
Palaemonetes	4	1
* Paraleptophlebia	1	1
Promoresia	2	1
Slavina	7	1
* Taeniopteryx	2	1

* (EPT organism) Taxa Richness: 19 Population: 100

Becks Biotic Index (BBI): 9.00 %Plecoptera +Trichoptera: 22.00%

Insect Taxa: 12 %Mollusca + Amphipoda: 34.00%

Non-Insect Taxa: 7 %Diptera - Tanytarsini: 0.00%

%Filterers: 51.00%

PMI Rating: 38.79 Fair

Habitat Analysis: 132 Suboptimal USEPA Protocol

Observations: Water temp: 12.7 C; Cond: 43 umhos; DO: 10.6 mg/L; pH: 5.4 SU

Clarity: clear- dark cedar; Flow Rate: moderate; Width/Depth: 13', 1-4'; Substrate: cobble, gravel, sand

Canopy: mostly open; Bank Stability: fair; Bank Vegetation: grasses, trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Other: eels, mowed lawn extends to right bank of stream

AMNET Site # AN0647 **Stream Name: Gibson Ck**
Location: Rt 50; Estelle Manor; Atlantic County
Collection Date: 10/19/2005 **USGS Topo Map: Tuckahoe**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
* Diplectrona	0	13
* Maccaffertium	3	13
* Hydropsyche	4	11
Oulimnius	4	11
Nigronia	2	10
* Leuctra	0	8
* Leptophlebia	4	5
Boyeria	2	4
* Psilotreta	0	3
Enchytraeidae	10	2
Heterotanytarsus	6	2
Lumbriculidae	8	2
* Molanna	6	2
Simulium	6	2
Tipula	4	2
Tvetenia	5	2
Caacidotea	8	1
Calopteryx	6	1
Chironomidae	6	1
* Eurylophella	4	1
Naididae	7	1
* Paracapnia	1	1
* Polycentropus	6	1
* Pycnopsyche	4	1

* (EPT organism) *Taxa Richness:* 24 *Population:* 100

Becks Biotic Index (BBI): 17.00 *%Plecoptera +Trichoptera:* 40.00%
Insect Taxa: 20 *%Mollusca + Amphipoda:* 0.00%
Non-Insect Taxa: 4 *%Diptera - Tanytarsini:* 9.00%
 %Filterers: 27.00%

PMI Rating: 64.49 Excellent

Habitat Analysis: 185 Optimal USEPA Protocol

Observations: Water temp: 12 C; Cond: 40 umhos; DO: 7.5 mg/L; pH: 4.5 SU
 Clarity: clear, cedar-brown; Flow Rate: moderate; Width/Depth: 8' / < 1.0 - 2'; Substrate: gravel, snags
 Canopy: closed; Bank Stability: good; Bank Vegetation: trees, shrubs
 Stream Gradient: Low Gradient Stream; Land Uses: rural, forested
 Other: aka: NJMC04. macrophytes; upstream deep and muddy; stream channelized under road through a pipe

AMNET Site # AN0648

Stream Name: Tuckahoe River

Location: Cumberland Ave (Rt637); Estelle Manor; Atlantic & Cumberland County

Collection Date: 4/18/2006

USGS Topo Map: Tuckahoe

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Caecidotea	8	9
Ischnura	9	9
Dicrotendipes	8	8
Tanytarsus	6	8
Pseudochironomus	5	6
Stenelmis	5	6
Hyaella	8	5
* Hydroptila	6	5
Thienemannimyia	6	5
Bezzia	6	4
* Caenis	7	4
Polypedilum	6	4
Ablabesmyia	8	3
* Eurylophella	4	3
* Cheumatopsyche	5	2
Gomphus	5	2
Stylaria	8	2
Tribelos	5	2
Cricotopus	7	1
* Leptoceridae	4	1
Lumbriculus	8	1
Microtendipes	7	1
Naididae	7	1
* Oecetis	8	1
Paratanytarsus	6	1
Planariidae	4	1
* Polycentropus	6	1
Psectrocladius	8	1
Sphaeriidae	8	1
Sympetrum	4	1
Xenochironomus	0	1

* (EPT organism) Taxa Richness: 31 Population: 100

Becks Biotic Index (BBI): 6.00 %Plecoptera +Trichoptera: 10.00%

Insect Taxa: 24 %Mollusca + Amphipoda: 6.00%

Non-Insect Taxa: 7 %Diptera - Tanytarsini: 36.00%

%Filterers: 13.00%

PMI Rating: 56.32 Good

Habitat Analysis: 156 Suboptimal USEPA Protocol

Observations: Water temp: 14.4 C; Cond: 29 umhos; DO: 6.6 mg/L; pH: 5.3 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 17', 2'; Substrate: gravel, sand, silt

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Downstream of Impoundment: Lake

Other: fish, macrophytes, filamentous algae, possible beaver activity upstream

AMNET Site # AN0649

Stream Name: Tuckahoe River

Location: Rt 49 (Hunters Mill); Estelle Manor; Atlantic, Cape May & Cumberland County

Collection Date: 4/18/2006

USGS Topo Map: Tuckahoe

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Polypedilum	6	27
Rheopelopia	4	17
Oulimnius	4	8
Helobdella	8	5
Bezzia	6	4
Caecidotea	8	4
* Eurylophella	4	4
Tribelos	5	4
* Baetisca	4	3
Cryptochironomus	8	3
Hexatoma	2	2
* Polycentropus	6	2
Psectrocladius	8	2
* Psilotreta	0	2
Tvetenia	5	2
Dromogomphus	4	1
Gammarus	6	1
* Helicopsyche	3	1
* Hydroptila	6	1
* Lepidostoma	1	1
* Maccaffertium	3	1
* Oecetis	8	1
Rheotanytarsus	6	1
Stenelmis	5	1
Stylodrilus	10	1
Tanytarsus	6	1

* (EPT organism) Taxa Richness: 26 Population: 100

Becks Biotic Index (BBI): 12.00 %Plecoptera +Trichoptera: 8.00%

Insect Taxa: 22 %Mollusca + Amphipoda: 1.00%

Non-Insect Taxa: 4 %Diptera - Tanytarsini: 61.00%

%Filterers: 4.00%

PMI Rating: 68.04 Excellent

Habitat Analysis: 164 Optimal USEPA Protocol

Observations: Water temp: 13.8 C; Cond: 28 umhos; DO: 8.5 mg/L; pH: 5.2 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 26', 3'; Substrate: gravel, sand, silt

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Downstream of Impoundment: Lake

Other: geese in lake, baetiscidae observed in field sample

AMNET Site # AN0650

Stream Name: Tuckahoe River

Location: Rt 49 (Head of River)(upstream of weir); Estelle Manor; Atlantic & Cape May County

Collection Date: 4/25/2006

USGS Topo Map: Tuckahoe

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Hyaella	8	19
Caecidotea	8	12
Tribelos	5	11
Tanytarsus	6	8
* Polycentropus	6	6
Ischnura	9	5
Tanypodinae	7	5
Procladius	9	4
Bezzia	6	3
Ablabesmyia	8	2
* Eurylophella	4	2
* Leptophlebia	4	2
Libellulidae	9	2
Limnodrilus	10	2
Microtendipes	7	2
* Mystacides	4	2
Calopteryx	6	1
* Ceraclea	3	1
Chironomini	6	1
Cricotopus	7	1
Gomphus	5	1
Lumbriculus	8	1
Macromiidae	3	1
* Oecetis	8	1
Peltodytes	5	1
Polypedilum	6	1
Stenochironomus	5	1
Tetragoneuria	8.5	1
* Triaenodes	6	1

* (EPT organism) Taxa Richness: 29 Population: 100

Becks Biotic Index (BBI): 5.00 %Plecoptera +Trichoptera: 11.00%

Insect Taxa: 25 %Mollusca + Amphipoda: 19.00%

Non-Insect Taxa: 4 %Diptera - Tanytarsini: 31.00%

%Filterers: 16.00%

PMI Rating: 55.46 Fair

Habitat Analysis: 164 Optimal USEPA Protocol

Observations: Water temp: 14.6 C; Cond: 45 umhos; DO: 7.8 mg/L; pH: 4.7 SU

Clarity: slightly turbid- cedar; Flow Rate: fast; Width/Depth: 35', 3-4'; Substrate: sand, silt

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested-Peasles WMA

Other: red bellied turtles, sun fish, macrophytes, USGS gage 4.30

AMNET Site # AN0651

Stream Name: McNeals Br

Location: Rt 666 (Cape May Ave); Estelle Manor; Atlantic County

Collection Date: 4/18/2006

USGS Topo Map: Tuckahoe

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Simulium	6	38
Rheotanytarsus	6	12
* Hydropsyche	4	10
Microtendipes	7	10
* Eurylophella	4	5
Corydalis	4	3
* Isoperla	2	3
Caecidotea	8	2
* Molanna	6	2
* Polycentropus	6	2
Psectrocladius	8	2
Tribelos	5	2
Cricotopus	7	1
Gammarus	6	1
* Maccaffertium	3	1
Macropelopia	10	1
* Nouridae	2	1
Procladius	9	1
* Pycnopsyche	4	1
* Rhyacophila	1	1
Tvetenia	5	1

* (EPT organism) Taxa Richness: 21 Population: 100

Becks Biotic Index (BBI): 9.00 %Plecoptera +Trichoptera: 20.00%

Insect Taxa: 19 %Mollusca + Amphipoda: 1.00%

Non-Insect Taxa: 2 %Diptera - Tanytarsini: 56.00%

%Filterers: 72.00%

PMI Rating: 58.52 Good

Habitat Analysis: 175 Optimal USEPA Protocol

Observations: Water temp: 11.5 C; Cond: 39 umhos; DO: 5.8 mg/L; pH: 4.6 SU

Clarity: clear-cedar; Flow Rate: slow; Width/Depth: 18', 2'; Substrate: gravel, sand, silt, snags

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs, grasses

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes, stream braided

AMNET Site # AN0652 **Stream Name: Mill Ck**
Location: Rt 557; Upper Twp; Cape May County
Collection Date: 4/25/2006 **USGS Topo Map: Tuckahoe**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Tanytarsus	6	36
Micropsectra	7	35
Simulium	6	6
Tribelos	5	4
Rheopelopia	4	3
Stenelmis	5	3
* Oecetis	8	2
Rheotanytarsus	6	2
Corydalis	4	1
Hemerodromia	6	1
* Hydroptila	6	1
Nematoda	6	1
Orthocladius	6	1
* Polycentropus	6	1
Polypedilum	6	1
Sialis	4	1
Stylodrilus	10	1

* (EPT organism) *Taxa Richness:* 17 *Population:* 100

Becks Biotic Index (BBI): 3.00 *%Plecoptera +Trichoptera:* 4.00%

Insect Taxa: 15 *%Mollusca + Amphipoda:* 0.00%

Non-Insect Taxa: 2 *%Diptera - Tanytarsini:* 16.00%

%Filterers: 45.00%

PMI Rating: **46.51 Fair**

Habitat Analysis: 181 Optimal USEPA Protocol

Observations: Water temp: 14.5 C; Cond: 73 umhos; DO: 8.8 mg/L; pH: 4.1 SU

Clarity: clear-cedar; Flow Rate: moderate; Width/Depth: 12.5', 1-2'; Substrate: gravel, sand, silt

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs, vines

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested- Belleplain State Forest

Other: bridge deteriorating; Atlantic White Cedar forest

AMNET Site # AN0765 Stream Name: West Ck

Location: Rt 550 (outlet of Hoffmans Mill Pond); Maurice River Twp;
Cumberland County

Collection Date: 4/25/2006 USGS Topo Map: Port Elizabeth

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Pseudochironomus	5	11
Limnodrilus	10	9
Polypedilum	6	9
Tanypodinae	7	9
Naididae	7	8
Procladius	9	8
Ablabesmyia	8	7
Nematoda	6	7
Tanytarsus	6	6
Tribelos	5	5
Labrundinia	7	4
Bezzia	6	3
Argia	6	2
Chaetocladius	6	2
Libellulidae	9	2
Caecidotea	8	1
Dicrotendipes	8	1
Enallagma	9	1
Gomphus	5	1
Lestes	9	1
Pelocoris	8	1
* Polycentropus	6	1
Pseudorthocladius	0	1

* (EPT organism) Taxa Richness: 23 Population: 100

Becks Biotic Index (BBI): 2.00 %Plecoptera + Trichoptera: 1.00%

Insect Taxa: 19 %Mollusca + Amphipoda: 0.00%

Non-Insect Taxa: 4 %Diptera - Tanytarsini: 60.00%

%Filterers: 7.00%

PMI Rating: 59.21 Good

Habitat Analysis: 163 Optimal USEPA Protocol

Observations: Water temp: 16.6 C; Cond: 60 umhos; DO: 7.8 mg/L; pH: 4.2 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 26.5', 3-4'; Substrate: gravel, sand, silt

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Downstream of Impoundment: Hoffman's Mill Pond

Other: Atlantic White Cedars prevalent, filamentous algae, foam on downstream surface

AMNET Site # AN0766 Stream Name: Savages Run (East Ck)

Location: Sunset Rd; Dennis Twp; Cape May County

Collection Date: 5/3/2006 USGS Topo Map: Heislerville

Genus	Tolerance Value	Amount
Tribelos	5	14
Enchytraeidae	10	8
* Leuctra	0	8
Thienemannimyia	6	7
Corydalis	4	6
Oulimnius	4	5
* Polycentropus	6	5
* Pycnopsyche	4	5
Micropsectra	7	4
Rheopelopia	4	4
Xylotopus	2	4
Ablabesmyia	8	3
* Cheumatopsyche	5	3
Procladius	9	3
* Lepidostoma	1	2
Orthocladius	6	2
Pisidium	6.8	2
Psectrocladius	8	2
Sphaerium	8	2
Bezzia	6	1
Chrysops	6	1
Hetaerina	6	1
* Heteroplectron	3	1
* Hydroptila	6	1
* Isoperla	2	1
Lumbriculus	8	1
Microtendipes	7	1
* Psilotreta	0	1
Stylodrilus	10	1
Tanypodinae	7	1

* (EPT organism) Taxa Richness: 30 Population: 100

Becks Biotic Index (BBI): 13.00 %Plecoptera +Trichoptera: 27.00%

Insect Taxa: 25 %Mollusca + Amphipoda: 2.00%

Non-Insect Taxa: 5 %Diptera - Tanytarsini: 43.00%

%Filterers: 13.00%

PMI Rating: 68.47 Excellent

Habitat Analysis: 171 Optimal USEPA Protocol

Observations: Water temp: 13.4 C; Cond: 57 umhos; DO: 9.5 mg/L; pH: 5.5 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 16.5', <1'; Substrate: gravel, sand, mud, silt

Canopy: mostly closed; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: sampled downstream, macrophytes

AMNET Site # AN0769 **Stream Name: Old Robins Br**
Location: Beaver Causeway; Dennis Twp; Cape May County
Collection Date: 5/3/2006 **USGS Topo Map: Woodbine**

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Caecidotea	8	52
Psectrocladius	8	14
Gammarus	6	7
Polypedilum	6	7
Chironomidae	6	5
Hydroporus	5	5
Enallagma	9	3
Enchytraeidae	10	2
Heterotrissocladius	0	1
Nematoda	6	1
* Pycnopsyche	4	1
Tanytarsus	6	1
Tetragoneuria	8.5	1

* (*EPT organism*) *Taxa Richness:* 13 *Population:* 100

Becks Biotic Index (BBI): 3.00 *%Plecoptera + Trichoptera:* 1.00%

Insect Taxa: 9 *%Mollusca + Amphipoda:* 7.00%

Non-Insect Taxa: 4 *%Diptera - Tanytarsini:* 27.00%

%Filterers: 1.00%

***PMI Rating:* 49.34 Fair**

Habitat Analysis: 178 Optimal USEPA Protocol

Observations: Water temp: 12.9 C; Cond: 85 umhos; DO: 6.9 mg/L; pH: 4.5 SU

Clarity: clear-cedar; Flow Rate: slow; Width/Depth: 10.5', 1-3'; Substrate: gravel, sand

Canopy: partly open; Bank Stability: fair; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: sampled upstream and downstream, red-bellied juvenile turtle

AMNET Site # AN0771

Stream Name: Fishing Ck

Location: Rt 47; Middle Twp; Cape May County

Collection Date: 5/9/2006 USGS Topo Map: Rio Grande

<i>Genus</i>	<i>Tolerance Value</i>	<i>Amount</i>
Simulium	6	24
Pristina	8	23
Amnicola	4.8	18
Caecidotea	8	7
Cura	4	4
Erpobdella	7.8	3
Musculium	5	3
Polypedilum	6	3
Chironomus	10	2
Cladopelma	8	2
Dugesia	4	2
Helobdella	8	2
Enallagma	9	1
Gyraulus	6	1
Limnodrilus	10	1
Menetus	6	1
Nais	8	1
Physa	8	1
Procladius	9	1

* (EPT organism) Taxa Richness: 19 Population: 100

%Dominance / Dominant Taxon(s): 24.0% Simulium

Hilsenhoff Biotic Index (HBI): 6.59

%Clingers: 24.00%

* E+P+T: 0 () Ephemeroptera, () Plecoptera, () Trichoptera

%Ephemeroptera: 0.00%

CPMI Rating: 8 Fair

Habitat Analysis: 121 Suboptimal USEPA Protocol

Observations: Water temp: 15.1 C; Cond: 138 umhos; DO: 7.7 mg/L; pH: 6.9 SU

Clarity: clear-cedar; Flow Rate: slow; Width/Depth: 8.5' / 1'; Substrate: gravel, sand, rocks

Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Downstream of Impoundment: impoundment present

Other: concrete channelization, eels