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 4 Benthic Macroinvertebrate Data
Volume 1 of 2

December 2012

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December 2012

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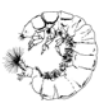
[cover photo: Site AN0581, Skit Branch at Carranza Road, Burlington County, NJ.]



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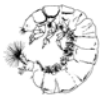

AMBIENT BIOMONITORING NETWORK

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

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

Round 4 Benthic Macroinvertebrate Data

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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 760 non-tidal 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.

Between the start of the program (1992) up until 2004, 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, starting with the mid 2004 data (Atlantic Region round 3 report), three indices are 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.

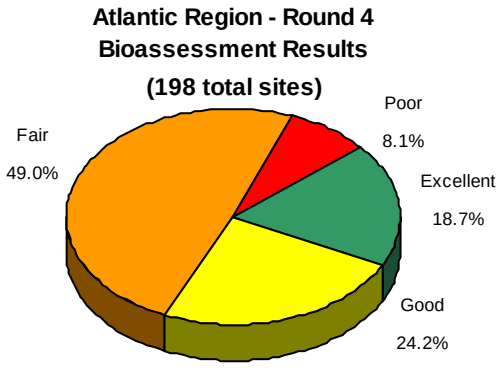


Figure 1

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 non-tidal AMNET sites each, are sampled in consecutive years on a five-year rotational basis. The most recent results (posted by the end of the calendar year sampling is completed for a Region), and Round by Round comparisons along with raw data, 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 April 2010 – July 2011 (see Map 1, page 4). The sampling of the Atlantic Water Region marks the fourth round of data collection for this basin. The results obtained in the fourth round are similar to those of the previous (third round) of sampling. Currently, of the 198 AMNET sites sampled in the Atlantic Water Region, 37 (18.7%) were found to exhibit "excellent" benthic macroinvertebrate communities, with 48 (24.2%) exhibiting "good", 97 (49.0%) "fair", and 16 (8.1%) exhibiting "poor" benthic communities (See Figure 1).

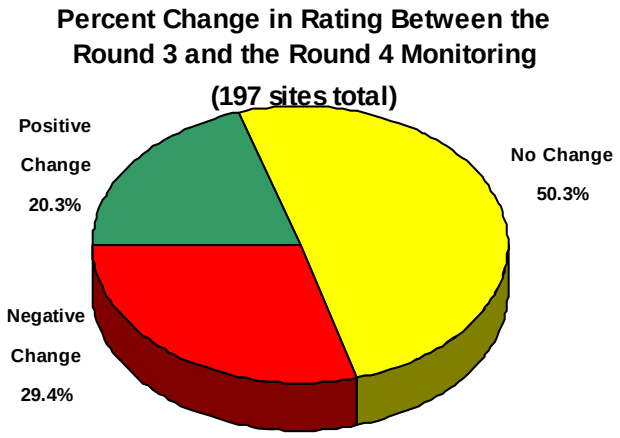


Figure 2

In order to generate trend information, results from the current (Round 4) sampling were compared to those from the same sites sampled in the earlier round (Round 3). For the purposes of comparing the two rounds, Round 3 results were re-assessed using the new indices. Of the 197 AMNET sites sampled in the Atlantic Water Region, the Round 4 samplings yielded sites with more "good" (23.9%) and more "fair" (49.2%) ratings than did the third round sampling (22.4% and 39.3% respectively). Conversely, the number of "excellent" (18.8%) and "poor" (8.1%) rated sites observed in the Round 4 sampling has declined since the Round 3 sampling (27.0% and 11.2% respectively). Figure 2 displays the percentage of change in rating among the same 197 AMNET sites in the Atlantic Water Region that were sampled during the third round study period, and again during the current (Round 4) 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. Individual results and changes in each site can be found in Table 4, Volume 2.

Figure 3 graph compares the results of each round of sampling in the Atlantic Region. The percentage of excellent and good has declined from round 1 to round 4. Severe and fair results are considered an impairment. Although severe results declined, fair results increased, netting an increase of impaired assessments from round 1 to round 4. Earlier rounds of data were recalculated using the new indices. Some sites sampled in Round 1 and 2 were collected outside of the April – November sampling period criteria specified for the newly implemented indices. Results from these samples may not have the same degree of accuracy as those collected within the sample period criteria. More robust statistical analysis will be used in the future, if necessary, to compare significant differences between Rounds.

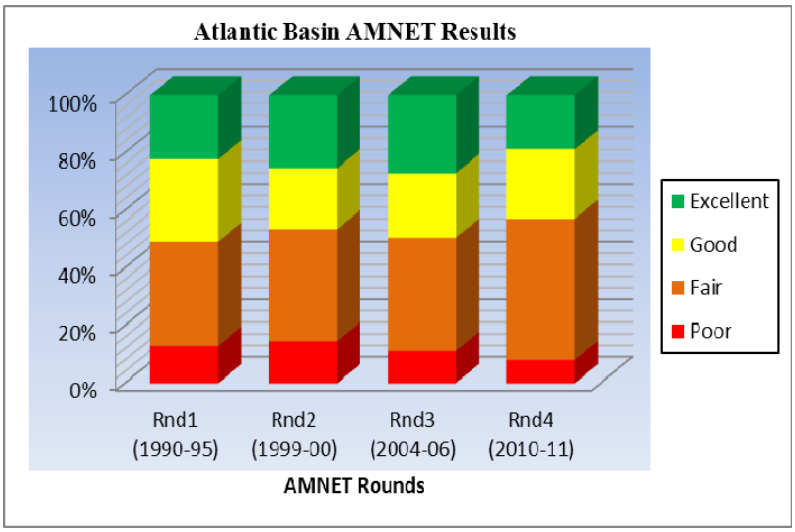


Figure 3

Assessment Rating	Round 1	Round 2	Round 3	Round 4
Excellent	22.2%	25.3%	27.0%	18.7%
Good	28.6%	21.2%	22.4%	24.2%
Fair	36.2%	38.9%	39.3%	49.0%
Poor	13.0%	14.6%	11.2%	8.1%

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 concludes the following:

1) 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.

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. Determining the probable cause or causes of this biological impairment, whether it be a chemical pollutant or a non-chemical stressor such as flow alteration or siltation, is the first step towards deciding whether a TMDL or other appropriate management measures will be taken to remediate the impairment. Currently, there are no SI studies in this Water Region.

Additional Information

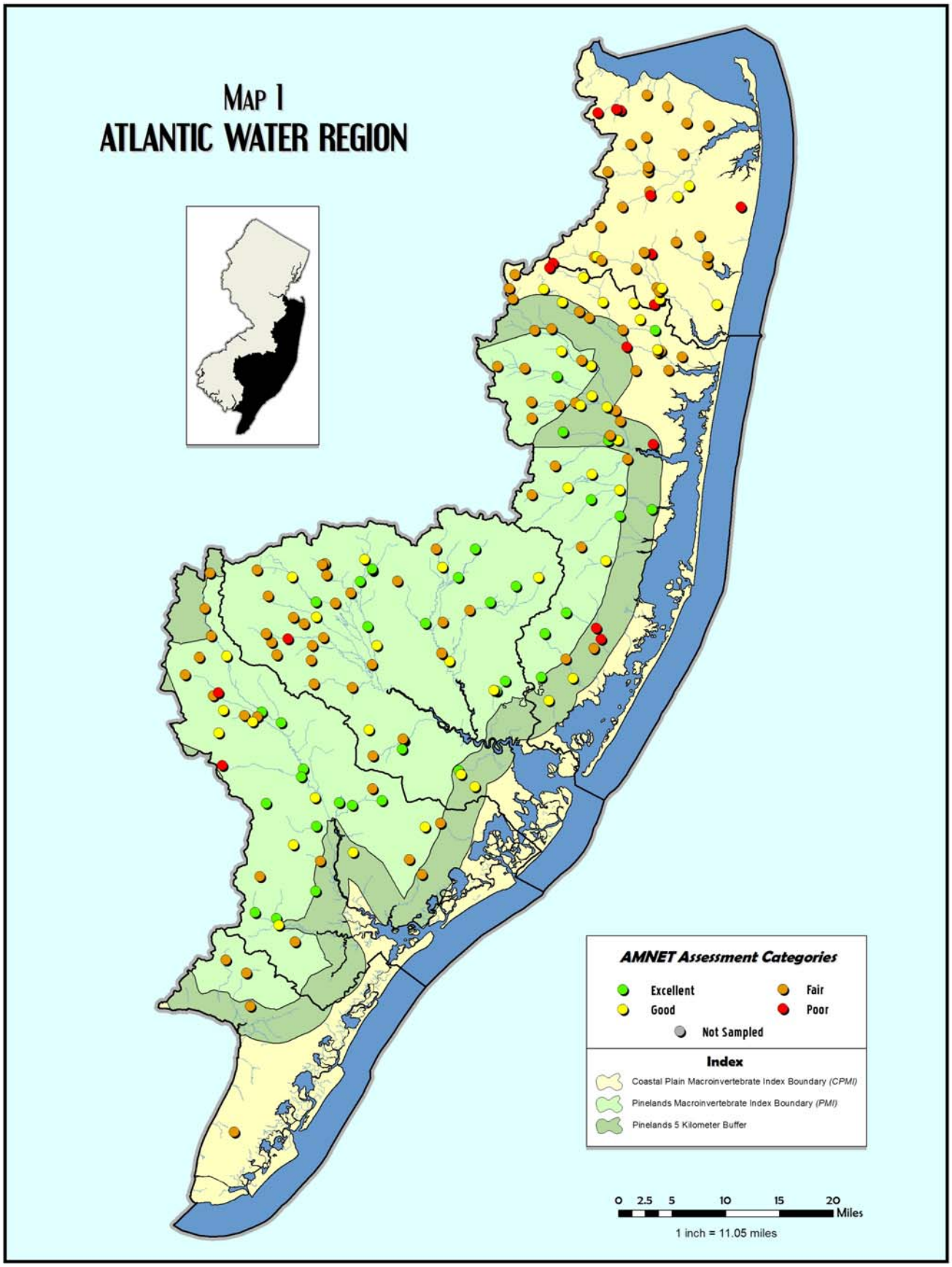
Additional Information on the AMNET program can be obtained from the WM&S' Bureau of Freshwater & Biological Monitoring by calling 609-292-0427 or visiting its website at:
http://www.state.nj.us/dep/wms/bfbm

Raw data is posted on this website by the end of the calendar year that the data is received and validated. GIS shapefiles will also be available on the NJDEP web site once all data is reviewed and finalized.

Additionally, raw data is submitted to WQX as soon as the data is received and validated. WQX is USEPA's repository and framework for water quality, biological, and physical data. It is used by state environmental agencies, EPA and other federal agencies, universities, private citizens, and many others to store data. The retrieval of the data is handled through the STORET interface and can be accessed at: http://www.epa.gov/storet

Comments are welcome and may be emailed to: bfbm@dep.state.nj.us.

* 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


MAP 1
ATLANTIC WATER REGION
AMNET Assessment Categories
Excellent
Fair
Good
Poor
Not Sampled
Index
Coastal Plain Macroinvertebrate Index Boundary (CPMI)
Pinelands Macroinvertebrate Index Boundary (PMI)
Pinelands 5 Kilometer Buffer
0 2.5 5 10 15 20
Miles
1 inch = 11.05 miles

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 760 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; specifically the Coatal Plains Macroinvertebrate Index (CPMI) and the Pinelands Macroinvertebrate Index (PMI) in the Atlantic Water Region. 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.

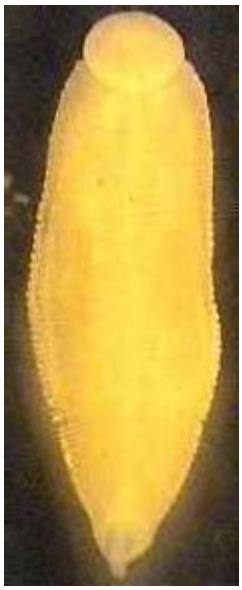
Aquatic beetles are common in well-oxygenated, swiftly running waters; many species are referred to as "riffle beetles." They are usually indicative of clean water since they are sensitive to wetting agents (soaps and detergents) and other pollutants.

All photographs taken by D.Bryson, NJDEP

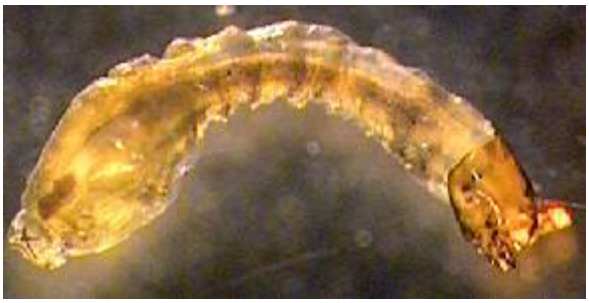
Benthic Macroinvertebrates Usually Indicative of Poor Water Quality

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.

All photographs taken by D.Bryson, NJDEP

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; 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) (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 located in areas that best represent the stream, Watershed Mangaement Area (WMA) or Hydrologic Unit.

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 NJDEP's Geographical Information System (GIS) (see Maps 1 – 14, Appendix A, Volume 2).

A total of 198 stations had been established in the Atlantic Region in the previous round (Round 3) [4]. This area (shown in Figure 4) primarily WMA #'s 12 (Monmouth Watersheds), 13 (Barnegat Bay Watersheds), 14 (Mullica, Wading River), 15 (Great Egg Harbor, Tuckahoe) and 16 (Cape May Watersheds). Site AN0598 (Mile Run) was dropped from the program due to inability to access the site (private property) and sites AN0498 and AN0558 were re-added to the list of sites because during our site visit, it was determined that the sites were not actually tidally influenced at these locations. The present Atlantic study area (Figure 4) includes a total of 198 sampling sites, AN0456 – 652 and AN0765-771 (see Table 2, Volume 2).

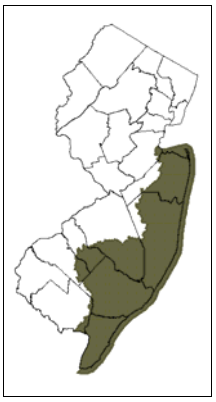


Figure 4

Map of Round 4 study area

FIELD & LABORATORY METHODS

Benthic macroinvertebrate sampling and analysis is performed in accordance with the NJDEP Field Procedures Manual [5], Rapid Bioassessment Protocol (RBP) guidelines of the USEPA [6] and Standard Operating Procedures (SOP) (see http://www.state.nj.us/dep/wms/bfbm/download/AMNET_SOP.pdf) of the NJDEP Aquatic Biomonitoring Laboratory [7]. As detailed in the SOP and in the quality assurance work plan [8], 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 [6]. The usual sampling device is a D-frame kick net of 800 x 900 um mesh size and one foot width (a Ponar dredge may be employed when conditions require). In high-gradient streams (mainly located in streams above the fall line), 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 [9] 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 [6] 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 AMNET SOP [7]. 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, 10]. 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. For the Atlantic Water Region assessments, HGMI was used. 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) [6]. All current assessments use one of the three genus level indices. Each index is described below and is used in each water region in this manner (see Figure 1A, index boundary map): Northwest Region, HGMI & CPMI; Northeast Region, HGMI; Raritan Region, HGMI & CPMI; Atlantic Region, CPMI & PMI; Lower Delaware Region, CPMI & PMI. 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).

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**) [11] and Coastal Plain Macroinvertebrate Index (**CPMI**) [12], were developed using guidelines outlined in USEPA *Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers* [6]. 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.

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**) [13] 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 with 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.

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

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.

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 [6].

The habitat assessment is separated into two basic approaches; one designed for high gradient streams and one designed for low gradient streams [6]. 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

The Bureau of Freshwater and Biological Monitoring (BFBM) has various chemical monitoring networks throughout the State. These networks emphasize emerging state and federal strategies to more realistically assess the success of State and Federal Clean Water Act Programs. The sampling stations include surfacewater as well as groundwater monitoring.

Chemical data and results from these networks are integrated with results from the BFBM's biological networks, such as AMNET, for water quality assessments reported through the New Jersey Integrated Water Quality Monitoring and Assessment Report (Integrated Report) [2].

The Bureau of Water Quality Standards and Assessment (BWQSA) is responsible for preparing the biennial Integrated Report and coordinating water quality assessments of all waters of the State, including assessment of data collected by non-departmental entities (e.g., regional and local government agencies and volunteer monitoring organizations). BWQSA is also responsible for the development, adoption, and administration of New Jersey's Surface Water Quality Standards and Ground Water Quality Standards [14].

The federal Clean Water Act mandates that states submit biennial reports to USEPA describing the quality of their waters. The biennial "Statewide Water Quality Inventory Report" or "305(b) Report" must include the status of principal waters in terms of overall water quality and support of designated uses, as well as strategies to maintain and improve water quality. The 305(b) reports are used by Congress and USEPA to establish program priorities and funding for federal and state water resource management programs. This report is also referred to as the "Integrated List of Waters" (Integrated List). The biennial List of Water Quality Limited Waters or "303(d) List" identifies waters that are not attaining designated uses because they do not meet surface water quality standards despite the implementation of technology-based effluent limits. States must prioritize waters on the 303(d) List of Water Quality Limited Waters for Total Maximum Daily Load (TMDL) development and identify those high priority waters for which they anticipate establishing TMDLs in the next two years.

The New Jersey Integrated Water Quality Monitoring and Assessment Reports (Integrated Reports) are intended to provide effective tools for maintaining high quality waters and improving the quality of waters that do not attain their designated uses. The Integrated Reports describe attainment of the designated uses specified in New Jersey's Surface Water Quality Standards (N.J.A.C. 7:9B), which include: aquatic life; recreation; drinking, industrial, and agricultural water supply; fish consumption; and shellfish harvest for consumption.

The Integrated Report process begins with the solicitation of water quality-related data to support the development of the 303(d) List. The Department then updates the Integrated Water Quality Monitoring and Assessment Methods Document (Methods Document), as needed**.** This document includes a description of quality assurance and other data requirements, as well as the scientific methods to be used to assess water quality and use support. The Methods Document also explains the rationale for placing waters on the 303(d) List, delisting waters from the 303(d) List, and ranking the priority of 303(d)-Listed waters for TMDL development. A notice of availability for public review of the draft Methods Document is published in the New Jersey Register and a thirty-day comment period is provided. After review and consideration of comments received on the proposed Methods Document, the Department finalizes the Methods Document and publishes it on the Department's website along with the agency responses to public comments received.

After the Methods Document is finalized, the Department compiles all readily available data that meets quality requirements and assesses the data to determine designated use support and compliance with surface water quality standards. The results of these assessments are presented in the Integrated List and the 303(d) List. The Department prepares these Lists as part of the Integrated Report, along with a discussion of the assessment results, water quality trends, other water quality assessments, descriptions of water quality programs and actions taken and planned to restore water quality, including TMDL schedules, as well as monitoring needs and schedules, and makes it available for public review. The draft 303(d) List is submitted to USEPA for approval along with the two-year TMDL schedule and priority ranking.

The Department will also 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 Region for the SI process.

RESULTS AND DISCUSSION

Summary of Statewide AMNET Data

The current study marks the fourth round of sampling for the Atlantic Region AMNET study. For the purpose of comparing Rounds, Round 3 results were re-assessed using the new indices. The Atlantic Region has shown considerable changes since the previous rounds by virtue of using the more geographically specific assessment. The number of "good" and "fair" sites has shown a slight increase, while the number of "excellent" and "poor" sites has shown a slight decline. The table below presents the proportions of "excellent", "good", "fair", and "poor" AMNET sites for all New Jersey Water Regions in the third AMNET round, plus the fourth round for the Atlantic Water Region.

Region	Number of sites (% of total)				
Fourth round	**Excellent**	**Good**	**Fair**	**Poor**	**Total sites**
Atlantic	37 (18.7%)	48 (24.2%)	97 (49.0%)	16 (8.1%)	198
Raritan	19 (11.9%)	46 (28.7%)	64 (40.0%)	31 (19.4%)	160
Northeast	7 (6.9%)	19 (18.6%)	52 (51.0%)	24 (23.5%)	102
Upper Delaware	41 (29.7%)	49 (35.5%)	39 (28.3%)	9 (6.5%)	138
Third round					
Atlantic	53 (27.0%)	44 (22.4%)	77 (39.3%)	22 (11.2%)	196
Raritan	27 (20.8%)	38 (29.2%)	64 (40.0%)	31 (23.8%)	160
Northeast	8 (7.8%)	13 (12.7%)	56 (54.9%)	25 (24.5%)	102
Upper Delaware	33 (23.4%)	48 (34.0%)	43 (30.5%)	17 (12.1%)	141
Lower Delaware	13 (8.1%)	35 (21.9%)	80 (50.0%)	32 (20.0%)	160

* 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 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 5 depicts the overall results for the Round 4 study in the Atlantic Water Region. Of the 198 monitoring stations sampled during this study period, 37 (18.7%) were found "excellent", 48 (24.2%) "good", 97 (49.0%) "fair", and 16 (8.1%) "poor" (see Table 2, Volume 2).

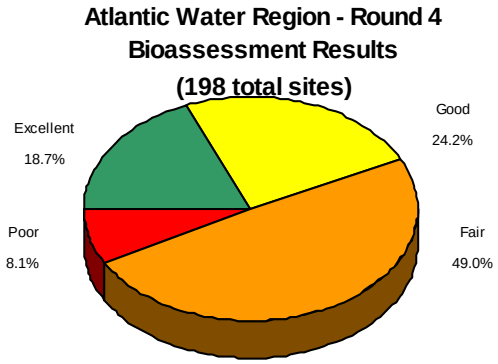


Figure 5

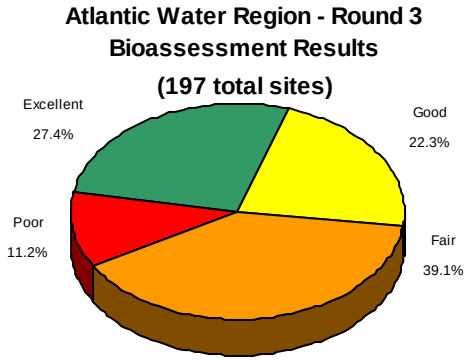


Figure 6

Figure 6 shows the results obtained from 197 AMNET sites within the Atlantic Water Region that were sampled during the previous (Round 3) Atlantic study (see "Site Selection" p.8 & Table 2, Volume 2). While the results for Round 4 were similar to those for Round 3, for the current sampling period the numbers of "good" and "fair" sites were slightly higher, and the number of "excellent" and "poor" sites were slightly lower. [4].

Figure 7 displays the percentage of change in rating among the same 197 AMNET sites in the Atlantic Water Region that were sampled during the third round study period [4], and again during the current (Round 4) 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).

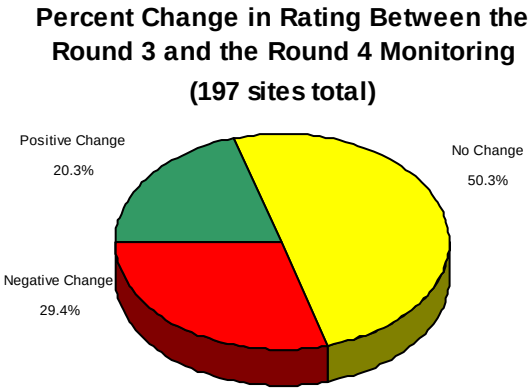


Figure 7

Regional Results

A USGS study, using data generated from NJDEP's AMNET program [15], 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 [15]. 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.

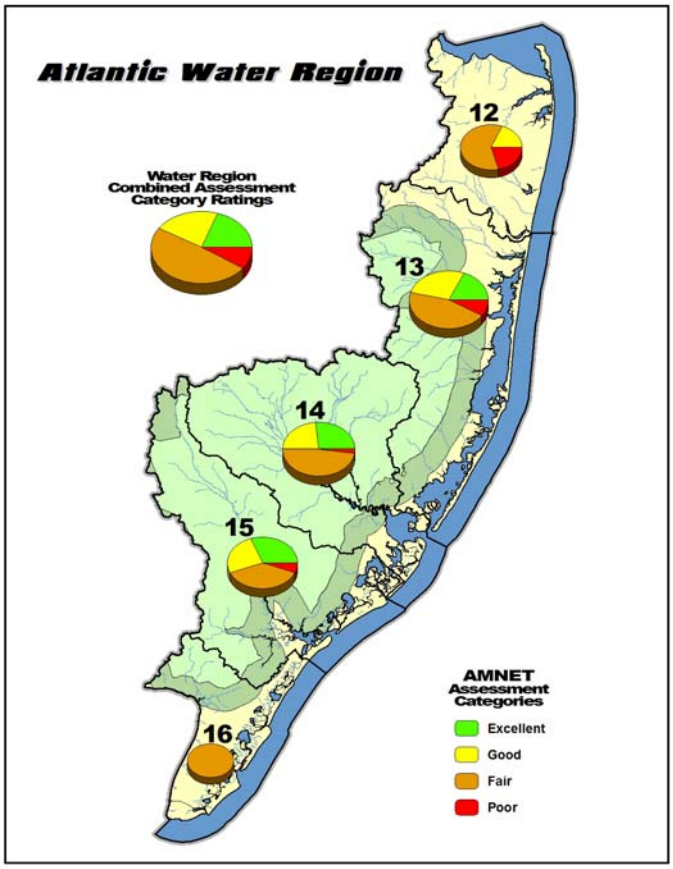


Figure 8

WMA	Sub-basins	Excellent	Good	Fair	Poor	Total sites
12	Monmouth system	--	8 (20.0%)	24 (60.0%)	8 (20.0%)	40
13	Barnegat Bay system	11 (17.2%)	19 (29.7%)	29 (45.3%)	5 (7.8%)	64
14	Mullica River system	14 (26.9%)	12 (23.1%)	25 (48.1%)	1 (1.9%)	52
15	Great Egg Harbor system	12 (31.6%)	9 (23.7%)	15 (39.5%)	2 (5.3%)	38
16	Cape May system	--	--	4 (100%)	--	4
	Totals:	37 (18.7%)	48 (24.2%)	97 (49.0%)	16 (8.1%)	198

Figure 8 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

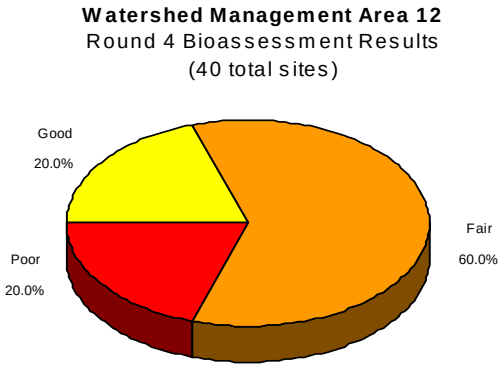


Figure 9

Watershed Management Area #12 includes a total of 40 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). One site (AN0498) was determined to not be a tidal site (as was previously suggested) and so was re-added to the network. Figure 9 shows the current site rating summaries for WMA #12 with 20.0% (8 sites) "good", 60.0% (24 sites) "fair", and 20.0% (8 sites) "poor". Figure 10 depicts the results obtained from 39 sites sampled during the earlier (Round 3) survey [4]. Comparing the current results to the earlier results, a significant improvement is seen at 9 sites and a significant decline at 8 sites (see Table 2, Volume 2). The number of "good" and "fair" sites is slightly higher than the earlier data, and the number of "excellent" and "poor" sites have declined. The majority (85.0%) of habitat scores are in the suboptimal range, with 2.5% receiving an optimal score and 12.5% receiving a marginal score. Abnormalities in chironomid larvae and other invertebrate families were found at two sites (AN0459 & AN0472) (see Map 2, 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 11.

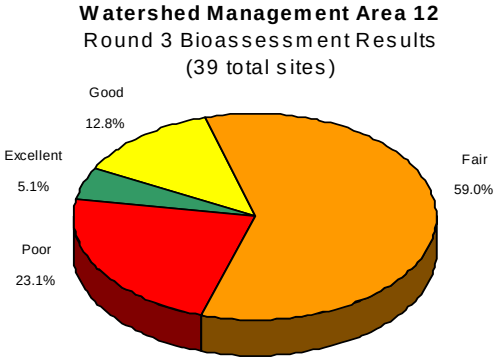


Figure 10

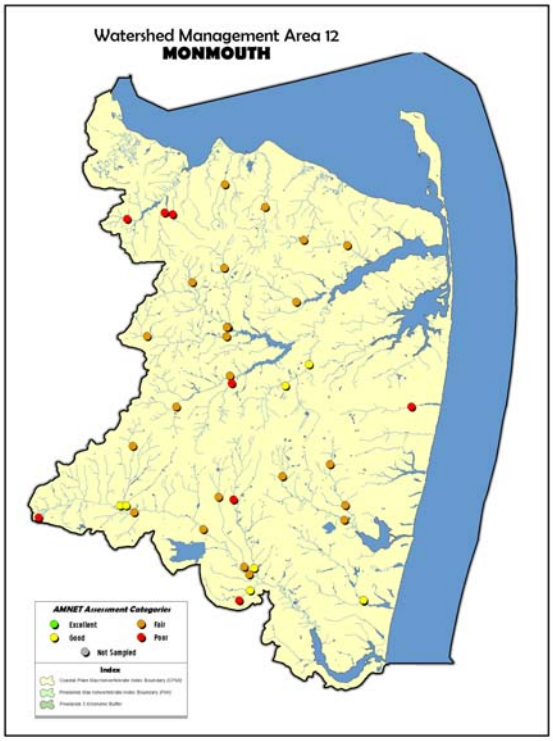


Figure 11

WMA # 12 Combined Results Table

Bio Rating	Round 3		Round 4			Habitat Assessment	Round 4	
Excellent	2	5.1%	--	---		Optimal	1	2.5%
Good	5	12.8%	8	20.0%		Suboptimal	34	85.0%
Fair	23	59.0%	24	60.0%		Marginal	5	12.5%
Poor	9	23.1%	8	20.0%		Poor	---	---
Total sites	39		40				40	

Watershed Management Area #13 includes a total of 64 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). Site AN0558 (Westecunk Ck) was re-added this round since upon our visit, it was determined that this was not a tidally influenced site. Figure 12 shows the current site rating summaries for WMA # 13: 17.2% (11 sites) "excellent", 29.7% (19 sites) "good", 45.3% (29 sites) "fair", and 7.8% (5 sites) "poor". Figure 13 depicts the results obtained from 63 sites sampled during the earlier (Round 3) survey [4]. Comparing the current (Round 4) impairment rating results to the earlier (Round 3) results, a significant improvement is apparent at 11 sites and a significant decline at 24 sites (see Table 2, Volume 2). The number "poor" sites decreased slightly while the number of "excellent" sites decreased greatly and the number of "good" and "fair" sites increased, since the earlier sampling (see Table 2, Volume 2). The majority (76.6%) of habitat scores are in the suboptimal range with 20.3% receiving an optimal score and 3.1% receiving a marginal score. Abnormalities in chironomid larvae and other invertebrate families were found at five sites (AN0512, AN0514, AN0519A, AN0546, & AN0559) (see Maps 5 & 6, Table 3, Volume 2). Sites AN0512 and AN0519A displayed chronic abnormalities (see Table 5, 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 14.

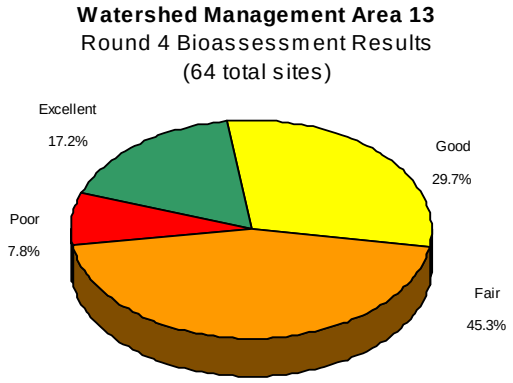


Figure 12

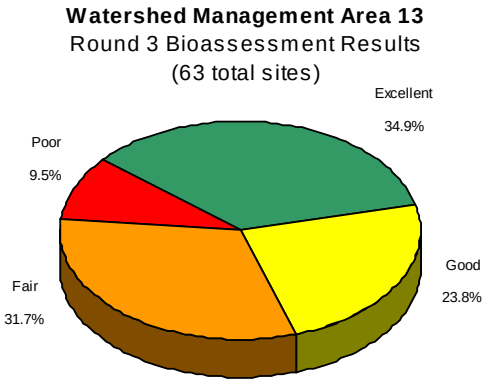


Figure 13

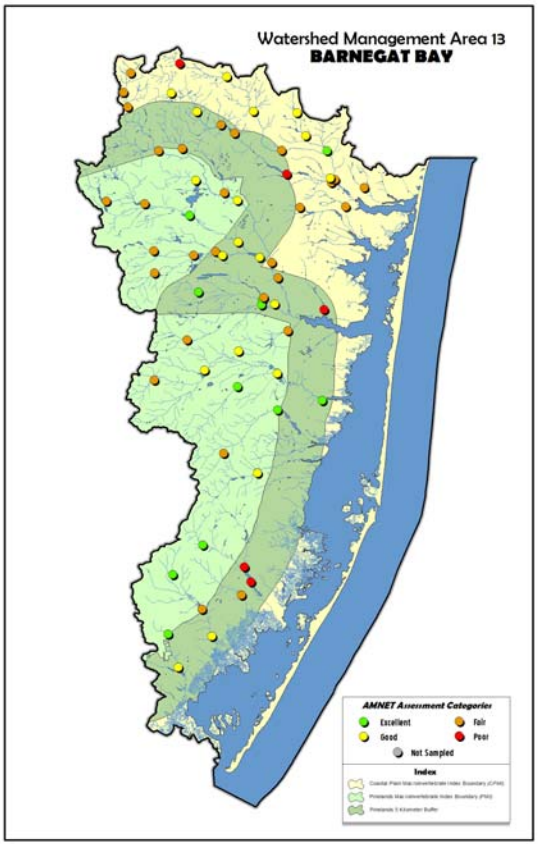


Figure 14

WMA # 13 Combined Results Table

Bio Rating	Round 3		Round 4			Habitat Assessment	Round 4	
Excellent	22	34.9%	11	17.2%		Optimal	13	20.3%
Good	15	23.8%	19	29.7%		Suboptimal	49	76.6%
Fair	20	31.7%	29	45.3%		Marginal	2	3.1%
Poor	6	9.5%	5	7.8%		Poor	---	---
Total sites	63		64				64	

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 15 shows the current site rating summaries for WMA # 14: 26.9% (14 sites) "excellent", 23.1% (12 sites) "good", 48.1% (25 sites) "fair", and 1.9% (1 site) "poor". Figure 16 depicts the results obtained from 52 sites sampled during the earlier (Round 3) survey [4]. Comparing the current to the earlier results, a significant improvement is seen at 15 sites, and a significant decline at 15 sites (see Table 2, Volume 2). The number of "excellent", "good", and "poor" sites decreased slightly from that of the earlier sampling, and the number of "fair"sites is slightly increased (see Table 2, Volume 2).

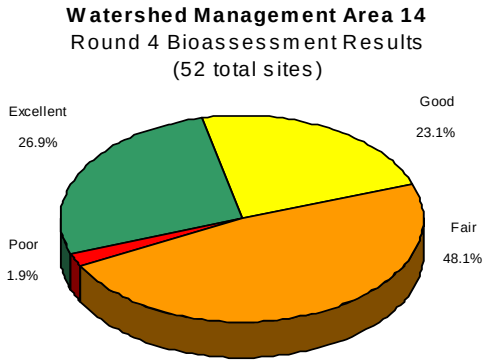


Figure 15

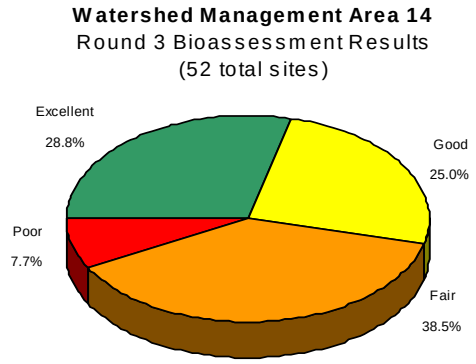


Figure 16

The majority of sites (59.6%) received an suboptimal habitat score, with 40.4% receiving an optimal score. Abnormalities in chironomid larvae and other invertebrate families were found at three sites (AN0562, AN0581, and AN0587) (Map 7, Table 3, Volume 2). One of these sites (AN0562) 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 17.

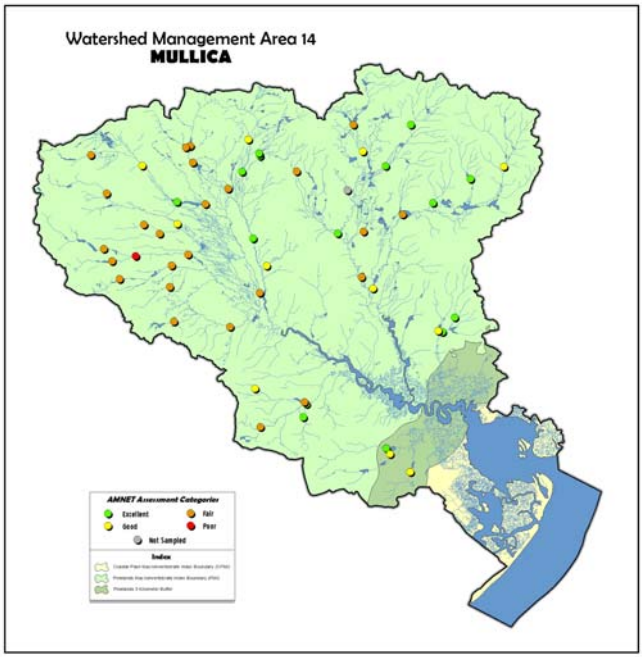


Figure 17

WMA # 14 Combined Results Table

Bio Rating	Round 3		Round 4			Habitat Assessment	Round 4	
Excellent	15	28.8%	14	26.9%		Optimal	21	40.4%
Good	13	25.0%	12	23.1%		Suboptimal	31	59.6%
Fair	20	38.5%	25	48.1%		Marginal	---	---
Poor	4	7.7%	1	1.9%		Poor	---	---
Total sites	52		52				52	

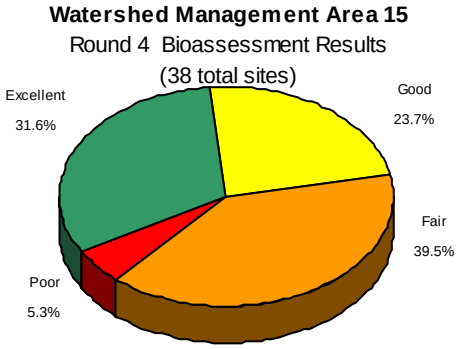


Figure 18

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). Figure 18 shows the current site rating summaries for WMA # 15: 31.6% (12 sites) "excellent", 23.7% (9 sites) "good", 39.5% (15 sites) fair", and 5.3% (2 sites) "poor". Figure 19 depicts the results obtained from 38 sites sampled during the earlier (Round 3) survey [4]. Comparing the current to the earlier results, a significant improvement is seen at five sites, and a significant decline, at 9 sites (see Table 2, Volume 2). The number of "excellent", "good", and "poor"sites decreased slightly from that of the earlier sampling, and the number "fair" sites is slightly increased (see Table 2, Volume 2). The majority of sites (60.5%) received an suboptimal habitat score, with 36.8% receiving an optimal score and 2.6% receiving a marginal score. Abnormalities in chironomid larvae and other invertebrate families were found at three sites (AN0625, AN0630, and AN0637) (Map 11, Table 3, Volume 2). Two of these sites (AN0630 and AN0637) 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 20.

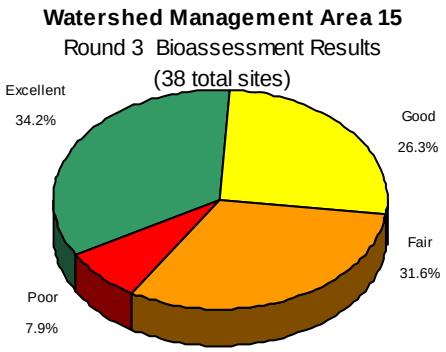


Figure 19

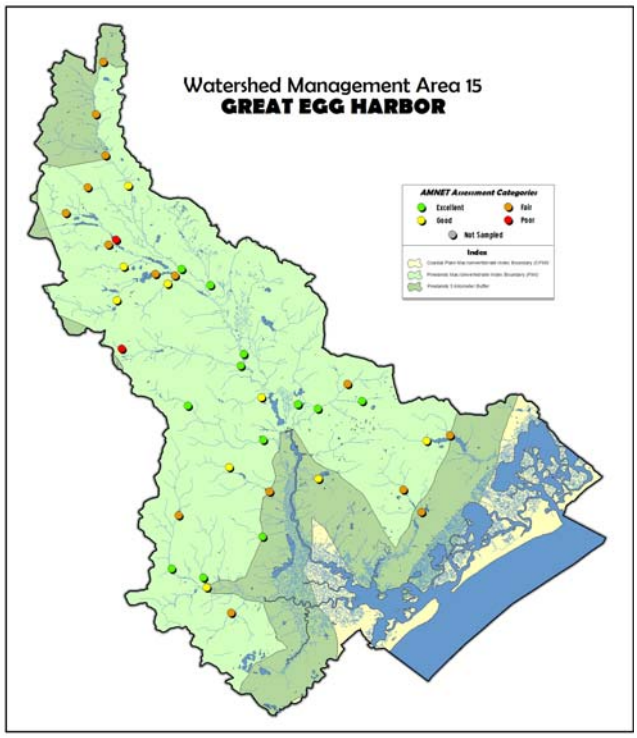


Figure 20

WMA # 15 Combined Results Table

Bio Rating	Round 3		Round 4			Habitat Assessment	Round 4	
Excellent	13	34.2%	12	31.6%		Optimal	14	36.8%
Good	10	26.3%	9	23.7%		Suboptimal	23	60.5%
Fair	12	31.6%	15	39.5%		Marginal	1	2.6%
Poor	3	7.9%	2	5.3%		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 21 shows the current site rating summary for WMA # 16: 100% (4 sites) "fair". Figure 22 depicts the results obtained from 4 sites sampled during the earlier (Round 3) survey [4]. Comparing the current to the earlier results, a significant decline is seen at 2 sites (see Table 2, Volume 2). The number of "excellent" and "good" sites decreased slightly from that of the earlier sampling, with the number of "fair"sites remaining the same (see Table 2, Volume 2). The majority of sites (75%) received an suboptimal habitat score, with 25% receiving an optimal score.

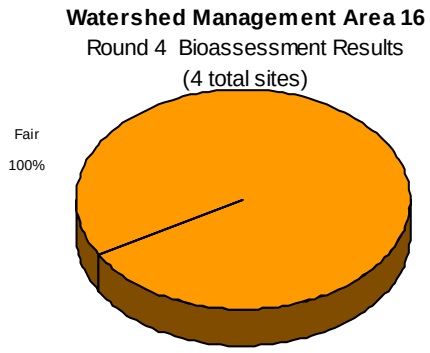


Figure 21

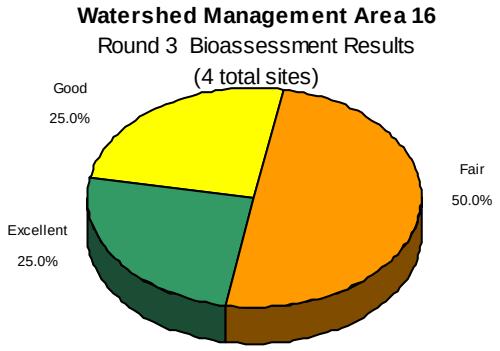


Figure 22

No abnormalities in chironomid larvae and other invertebrate families were found in WMA #16. 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 23.

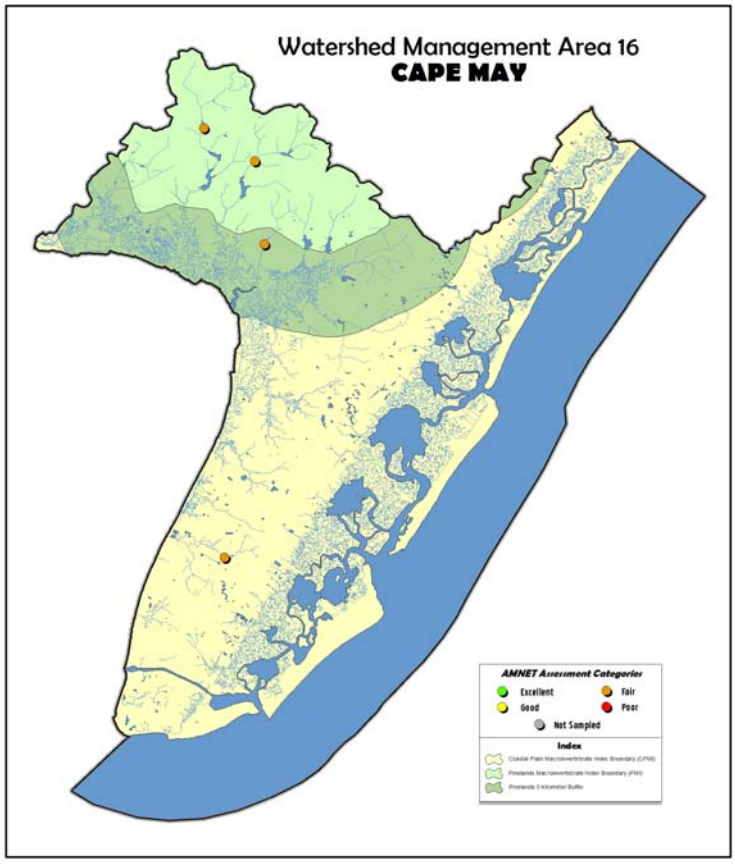


Figure 23

WMA # 16 Combined Results Table

Bio Rating	Round 3		Round 4			Habitat Assessment	Round 4	
Excellent	1	25.0%	--	---		Optimal	1	25.0%
Good	1	25.0%	--	---		Suboptimal	3	75.0%
Fair	2	50.0%	4	100%		Marginal	---	---
Poor	--	---	--	---		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 [16].

Hamilton and Saether [17] 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 [18]. Most of the research has been focused on a few genera. The North Carolina Division of Environmental Management [19] 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 [18]. 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 [20].

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.

A slight decrease in the number of abnormalities are seen in the current sampling as compared to the previous (Round 3) sampling [4]. From the current sampling of 197 sites, 13 (6.6%) contained organisms with abnormalities (Maps 2 - 14 , Volume 2). Only five of the sites (AN0512, AN0519A, AN0562, AN0630, and AN0637) exhibited a "chronic" presence of abnormalities (Table 3, Volume 2). Further study is needed to establish the significance of the presence of abnormalities.

Causes of Biological 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. Although bioassessments are useful for identifying biological impairments, they do not identify the cause or causes of impairments. Linking biological effects with their causes is particularly complex when multiple stressors impact a waterbody [21]. A more intensive Stressor Identification (SI) study is necessary in order to pinpoint the probable cause or causes of the observed biological impairment.

Some common candidate causes which frequently appear on the USEPA's 303(d) list of impaired waterbodies include [22]:

Metals
Sediments
Nutrients
Dissolved Oxygen
Temperature
Ionic Strength
Flow Alteration
Unspecified Toxic Chemicals

Habitat Assessment vs. Biological Assessment

Generally, there is a correlation between habitat and biological impairment. However, definitive correlations can only be determined on a site specific basis. When assessing habitat degradation on an individual site, often the data suggests that other factors, which may include land use and/or water quality, are likely contributing to the observed biological assessments. Due to the prevalence of multiple stressors in areas of complex land use, 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.

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 [15]. 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 [15]. 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

Additional Information on the AMNET program can be obtained from the WM&S' Bureau of Freshwater & Biological Monitoring by calling 609-292-0427 or visiting its website at: http://www.state.nj.us/dep/wms/bfbm

Raw data is posted on this website by the end of the calendar year that the data is received and validated. GIS shapefiles will also be available on the NJDEP web site once all data is reviewed and finalized.

Additionally, raw data is submitted to WQX as soon as the data is received and validated. WQX is USEPA's repository and framework for water quality, biological, and physical data. It is used by state environmental agencies, EPA and other federal agencies, universities, private citizens, and many others to store data. The retrieval of the data is handled through the STORET interface and can be accessed at: http://www.epa.gov/storet

Comments are welcome and may be emailed to: bfbm@dep.state.nj.us.

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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

	Score			
Index Metric	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

Assessment Rating	Score
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 Macroinvertebrate 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 + Metric – [22.776 + 4.173*log10(areasqkm)]
2. Percent of genera that are not insects
3. Percent sensitive EPT (excluding Hydropyschidae, including Diplectrona) $_{adj}$
   = 37.49 + Metric – [49.922 – 13.800*log10(areasqkm)]
4. Number of scraper genera $_{adj}$ = 5.44 + Metric – [3.889 + 1.724*log10(areasqkm)]
5. Hilsenhoff Biotic Index $_{adj}$ = 4.23 + Metric – [3.407 + 0.918*log10(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.

Assessment Rating	Score
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

Map of New Jersey Macroinvertebrate Indices

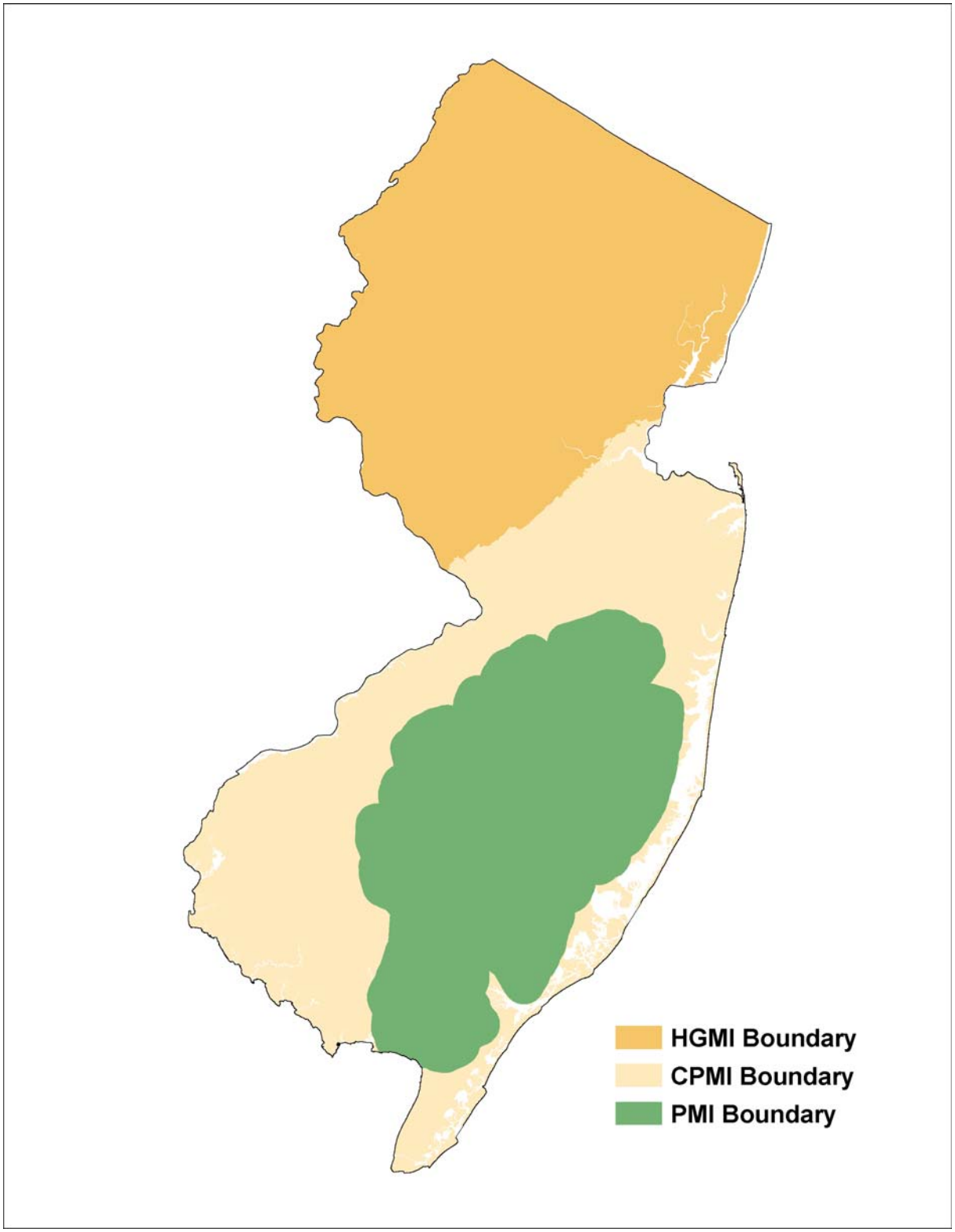

Figure A1. Boundaries for generic level index use.

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 4 Benthic Macroinvertebrate Data
Volume 2 of 2

December 2012

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 Monitoring and Standards
Jill Lipoti, Director

Bureau of Freshwater & Biological Monitoring
Leslie McGeorge, Administrator

December 2012

AMBIENT BIOMONITORING NETWORK

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

Round 4 Benthic Macroinvertebrate Data

Volume 2 of 2

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[cover photo: Site AN0581, Skit Branch at Carranza Rd, Burlington County, NJ.]

AMBIENT BIOMONITORING NETWORK

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

Atlantic Water Region

Round 4 Benthic Macroinvertebrate Data

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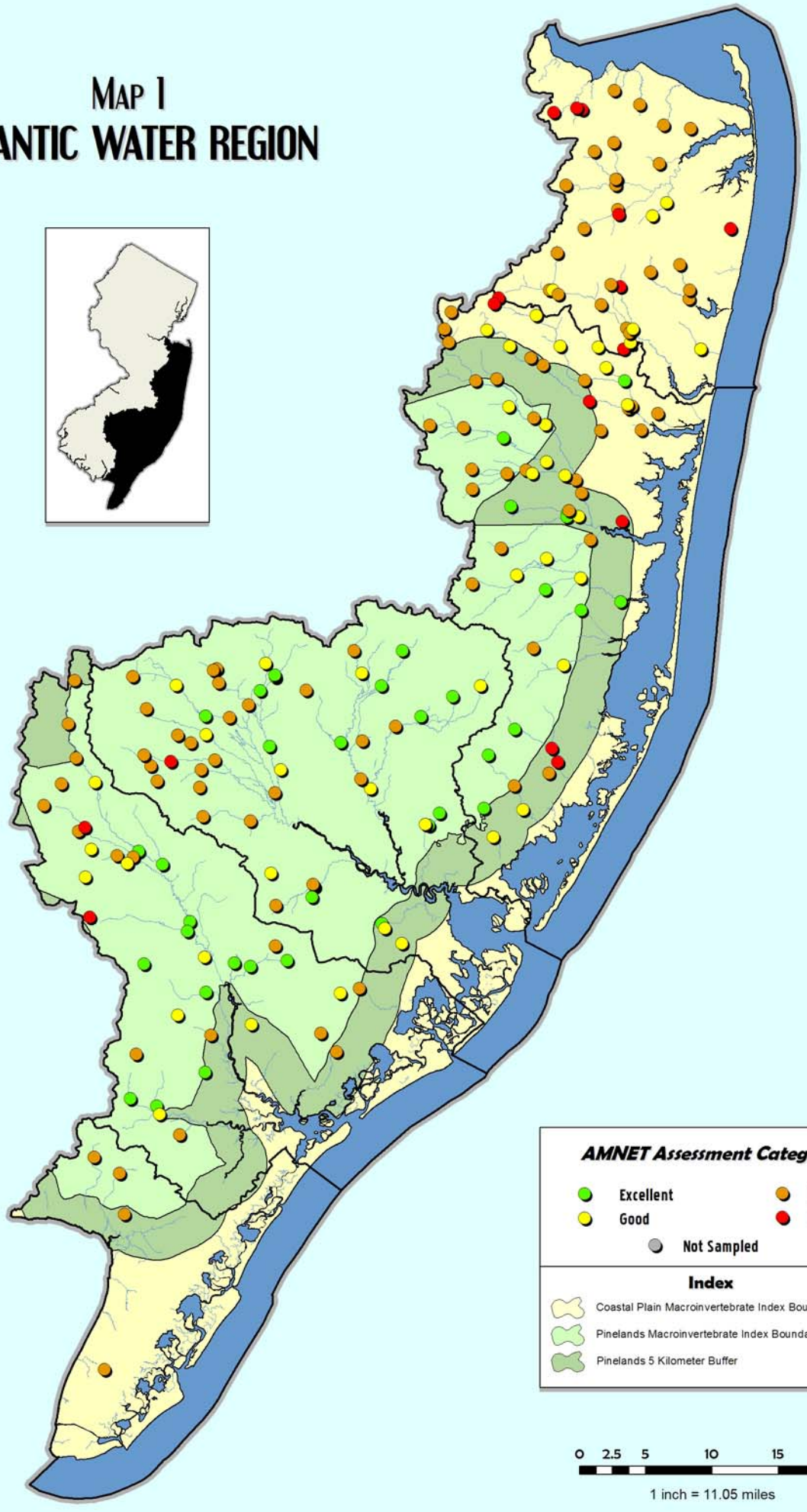
MAPS

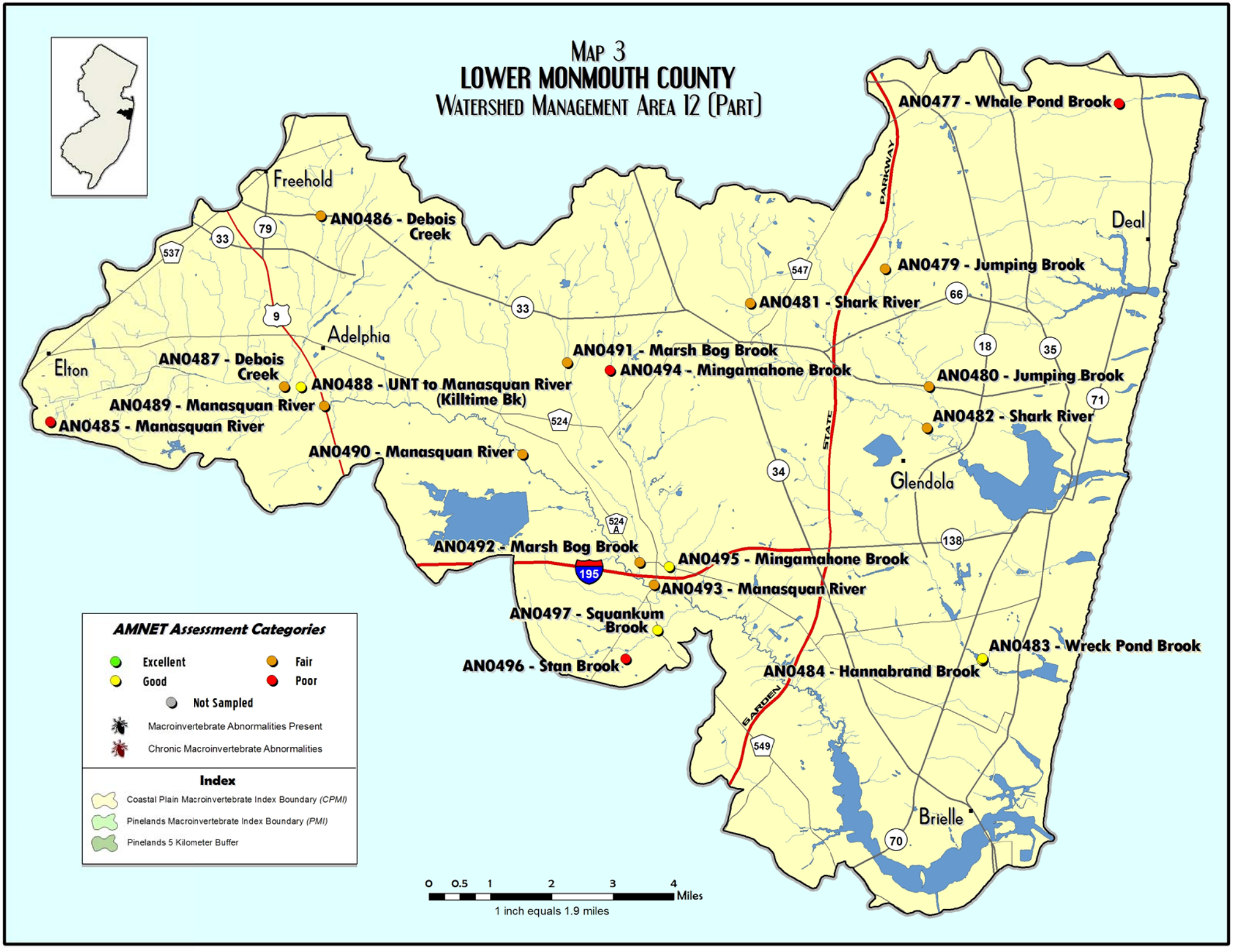
Round 4 Atlantic Region AMNET Study
WMA's 12, 13, 14, 15, & 16

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.

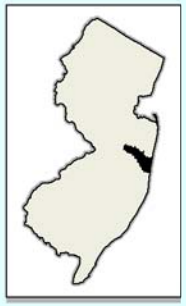
MAP 1
ATLANTIC WATER REGION




Map 2
UPPER MONMOUTH COUNTY
Watershed Management Area 12
(Part)
Keansburg
Matawan
Middletown
Navesink
Rumson
Red Bank
Marlboro
Colts Neck
AN0459 - Flat Creek
AN0460 - Mahoras Brook
AN0457 - Gravelly Brook
AN0458 - Wilkson Creek
AN0456 - UNT to Matawan Creek
AN0461 - Town Brook
AN0462 - McClees Creek
AN0465 - Hop Brook
AN0467 - Willow Brook
AN0464 - Nut Swamp Brook
AN0466 - Hop Brook
AN0468 - Willow Brook
AN0469 - Big Brook
AN0470 - Big Brook
AN0476 - Pine Brook
AN0472 - Yellow Brook
AN0473 - Mine Brook
AN0475 - Hockhockson Brook
AN0471 - Yellow Brook
516
36
35
79
520
34
537
18
GARDEN
STATE
PARKWAY
0 0.5 1 2 3 4
Miles
1 inch equals 2.21 miles
AMNET Assessment Categories
Excellent
Good
Fair
Poor
Not Sampled
Macroinvertebrate Abnormalities Present
Chronic Macroinvertebrate Abnormalities
Index
Coastal Plain Macroinvertebrate Index Boundary (CPMI)
Pinelands Macroinvertebrate Index Boundary (PMI)
Pinelands 5 Kilometer Buffer


Map 3
LOWER MONMOUTH COUNTY
Watershed Management Area 12 (Part)
AN0477 - Whale Pond Brook
AN0486 - Debois Creek
AN0479 - Jumping Brook
AN0481 - Shark River
AN0491 - Marsh Bog Brook
AN0494 - Mingamahone Brook
AN0487 - Debois Creek
AN0488 - UNT to Manasquan River (Killtime Bk)
AN0480 - Jumping Brook
AN0489 - Manasquan River
AN0485 - Manasquan River
AN0482 - Shark River
AN0490 - Manasquan River
AN0492 - Marsh Bog Brook
AN0495 - Mingamahone Brook
AN0493 - Manasquan River
AN0497 - Squankum Brook
AN0483 - Wreck Pond Brook
AN0496 - Stan Brook
AN0484 - Hannabrand Brook
Freehold
Adelphia
Elton
Deal
Glendola
Brielle
PARKWAY
STATE
GARDEN
AMNET Assessment Categories
Excellent
Good
Fair
Poor
Not Sampled
Macroinvertebrate Abnormalities Present
Chronic Macroinvertebrate Abnormalities
Index
Coastal Plain Macroinvertebrate Index Boundary (CPMI)
Pinelands Macroinvertebrate Index Boundary (PMI)
Pinelands 5 Kilometer Buffer
0 0.5 1 2 3 4 Miles
1 inch equals 1.9 miles

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



AN0499 - Metedeconk River North Branch

AN0500 - Metedeconk River North Branch

AN0508 - Metedeconk River South Branch

AN0501 - Metedeconk River North Branch

AN0503 - Haystack Brook

AN0509 - Metedeconk River South Branch

AN0510A - Metedeconk River South Branch

AN0510 - Metedeconk River South Branch

AN0504 - Haystack Brook

AN0502 - Metedeconk River North Branch

AN0505 - Haystack Brook

AN0507 - School House Branch

AN0511 - Metedeconk River South Branch

AN0506 - Metedeconk River North Branch

AN0512 - Metedeconk River South Branch

AN0513 - Beaverdam Creek

AN0514 - Cedar Bridge Branch

AN0515 - Kettle Creek

Siloam

Lakewood

Laurelton

Point Pleasant

Oak Glen

527

195

9

526

547

88

70

549

571

PARKWAY

STATE

GARDEN

AMNET Assessment Categories

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

Index

- Coastal Plain Macroinvertebrate Index Boundary *(CPMI)*
- Pinelands Macroinvertebrate Index Boundary *(PMI)*
- Pinelands 5 Kilometer Buffer

0 1 2 4 6 8 Miles

1 inch equals 2.39 miles


MAP 5
TOMS RIVER
WATERSHED MANAGEMENT AREA 13
(PART)
AN0517 - Toms River
AN0518 - Toms River
AN0519A - Toms River
AN0519 - Toms River
AN0520 - Toms River tributary
AN0521 - Maple Root Branch
AN0522 - Dove Mill Branch
AN0523 - Toms River
AN0524 - Toms River
AN0525A - UNT to Ridgeway Branch
AN0526 - Shannae Brook
AN0527 - Ridgeway Branch
AN0528 - Ridgeway Branch
AN0529 - Blacks Branch
AN0530 - Blacks Branch
AN0531 - Old Hurricane Branch
AN0532 - Manapaqua Brook
AN0533 - Union Branch
AN0534 - Union Branch
AN0535 - Toms River
AN0536 - Wrangel Brook
AN0537 - Wrangel Brook
AN0538 - Sunken Branch
AN0539 - Wrangel Brook
AN0540 - Davenport Branch
AN0541 - Davenport Branch
AN0542 - Jakes Branch
AN0543 - Jakes Branch
AN0544 - Toms River tributary
Cassville
Colliers Mills
Lakehurst
Toms River
524
537
195
528
571
527
70
539
37
530
9
STATE PKWY
GARDEN
AMNET Assessment Categories
Excellent
Good
Fair
Poor
Not Sampled
Macroinvertebrate Abnormalities Present
Chronic Macroinvertebrate Abnormalities
Index
Coastal Plain Macroinvertebrate Index Boundary (CPMI)
Pinelands Macroinvertebrate Index Boundary (PMI)
Pinelands 5 Kilometer Buffer
0 1 2 4 6 8 Miles
1 inch equals 2.63 miles

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

AN0546 - Cedar Creek
AN0548 - Cedar Creek
AN0545 - Webbs Mill Branch
AN0547 - Factory Branch
AN0549 - Cedar Creek
AN0551 - Forked River North Branch
Forked River
AN0550 - Long Branch
AN0552 - Oyster Creek
Brookville
AN0555A - Mill Creek
AN0554 - Four Mile Branch
AN0557A - Westecunk Creek
AN0555 - Mill Creek
AN0556 - Cedar Run
AN0557 - Westecunk Creek
AN0559A - Tuckerton Creek
AN0558 - Westecunk Creek
AN0559 - Mill Branch of Tuckerton Creek
Tuckerton

539
532
554
9
72
539

PARKWAY
STATE
GARDEN

0 1 2 4 6 8 Miles

1 inch equals 3.01 miles

AMNET Assessment Categories

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

Index

- Coastal Plain Macroinvertebrate Index Boundary *(CPMI)*
- Pinelands Macroinvertebrate Index Boundary *(PMI)*
- Pinelands 5 Kilometer Buffer

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

Tabernacle
Atco
Atsion
Hammonton

AN0560 - Mullica River
AN0561 - Mullica River
AN0562 - Mullica River
AN0563 - Wesickaman Creek
AN0564 - Mullica River
AN0565 - Hays Mill Creek
AN0566 - Sleeper Branch
AN0567 - Clarks Branch
AN0568 - Prices Branch
AN0569 - Pump Branch
AN0570 - Blue Anchor Brook
AN0571 - Albertson Brook
AN0572 - Albertson Brook
AN0573 - Great Swamp Branch
AN0574 - Great Swamp Branch
AN0575 - Cedar Brook
AN0579 - Batsto River
AN0580 - Roberts Branch
AN0581 - Skit Branch
AN0582 - Indian Mills Brook
AN0583 - Muskingum Brook
AN0584 - Springers Brook
AN0585 - Springers Brook
AN0586 - Batsto River
AN0586A - Batsto River
AN0587 - Penn Swamp Branch

532
541
534
206
73
30
536
143
561
54

AMNET Assessment Categories

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

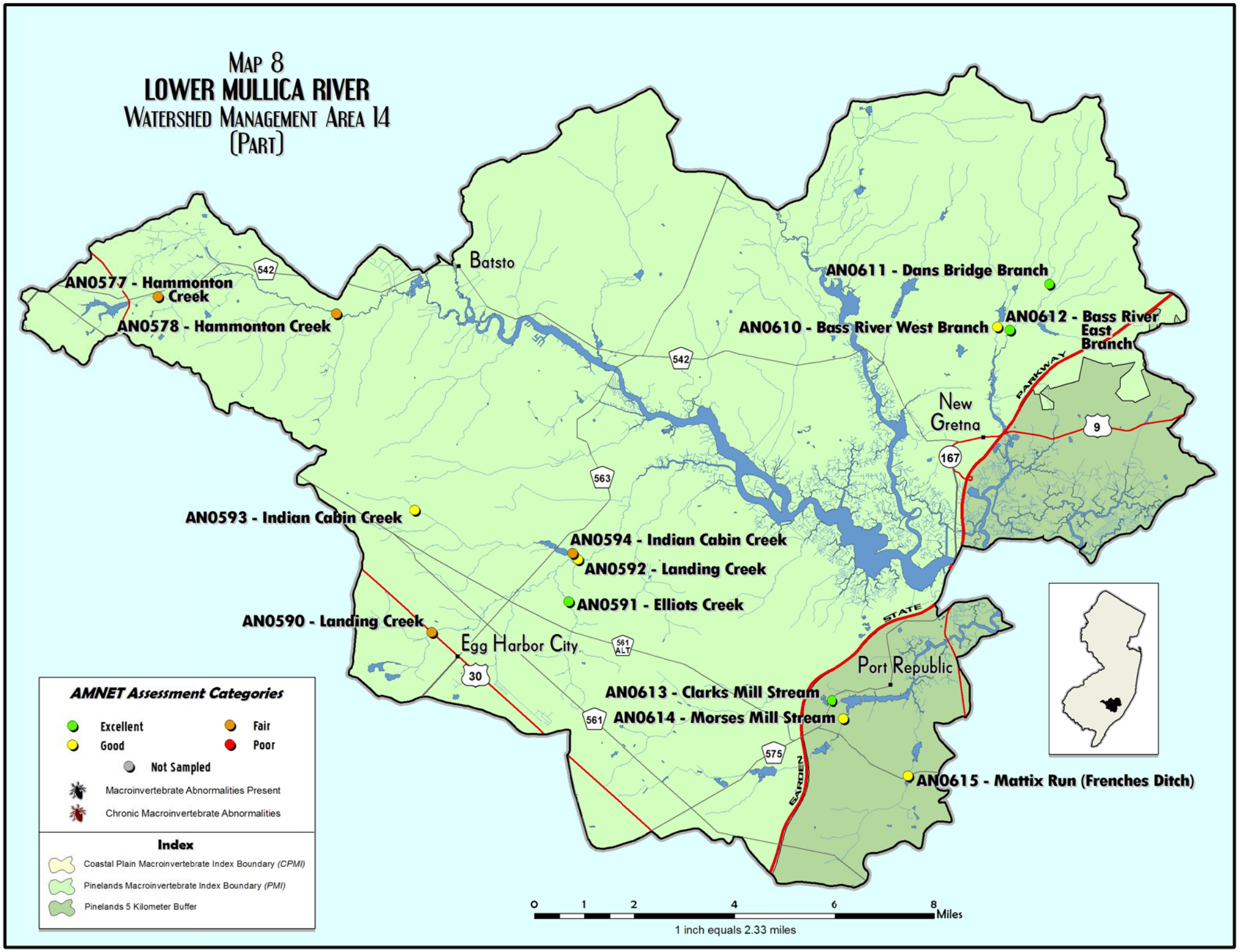
0 1 2 4 6 8 Miles

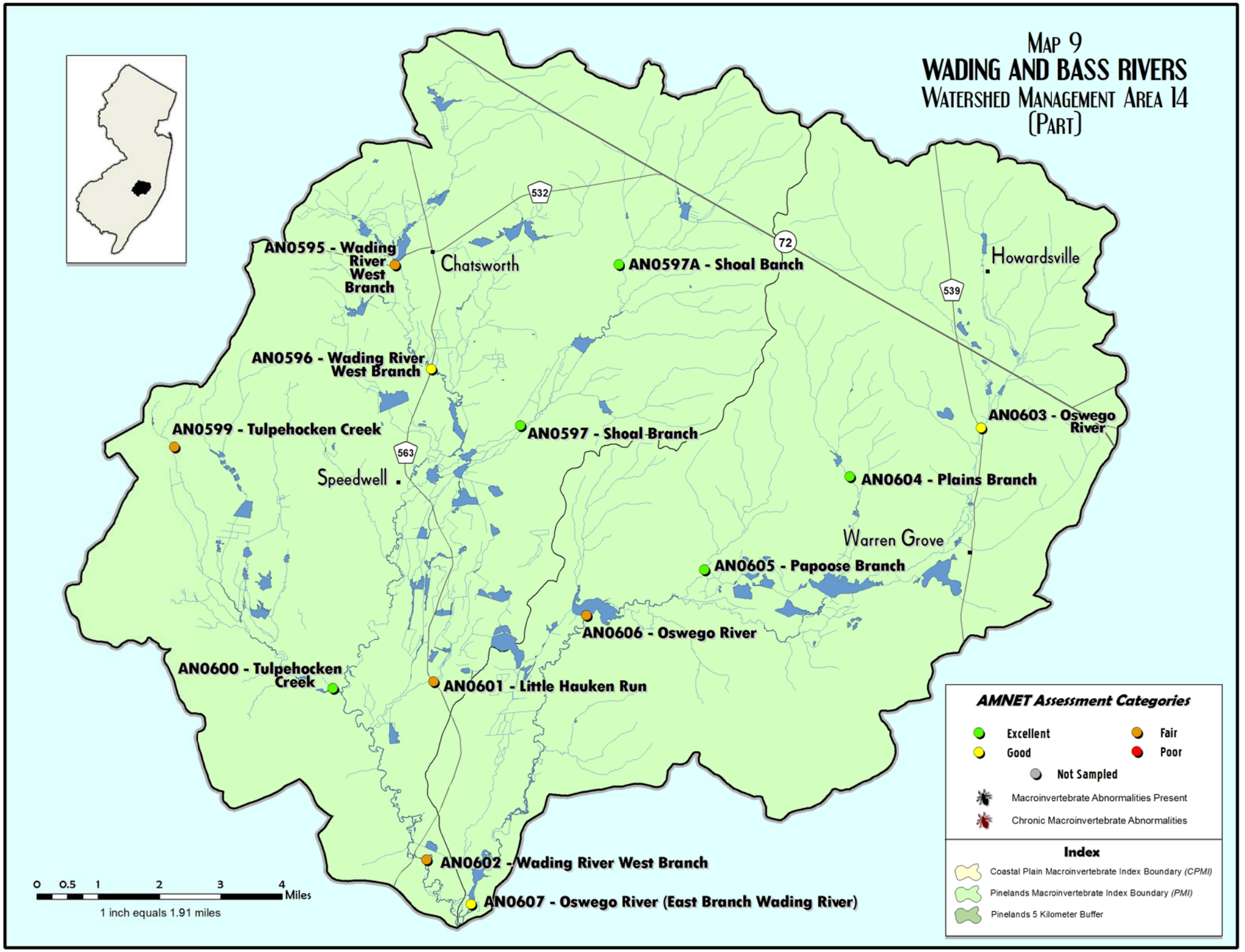
1 inch equals 2.1 miles

Index

- Coastal Plain Macroinvertebrate Index Boundary *(CPMI)*
- Pinelands Macroinvertebrate Index Boundary *(PMI)*
- Pinelands 5 Kilometer Buffer

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




Map 9
WADING AND BASS RIVERS
Watershed Management Area 14
(Part)
AN0595 - Wading River West Branch
AN0596 - Wading River West Branch
AN0599 - Tulpehocken Creek
AN0600 - Tulpehocken Creek
AN0597A - Shoal Banch
AN0597 - Shoal Branch
AN0601 - Little Hauken Run
AN0602 - Wading River West Branch
AN0607 - Oswego River (East Branch Wading River)
AN0603 - Oswego River
AN0604 - Plains Branch
AN0605 - Papoose Branch
AN0606 - Oswego River
Chatsworth
Speedwell
Howardsville
Warren Grove
532
72
539
563
0 0.5 1 2 3 4 Miles
1 inch equals 1.91 miles
AMNET Assessment Categories
Excellent
Good
Fair
Poor
Not Sampled
Macroinvertebrate Abnormalities Present
Chronic Macroinvertebrate Abnormalities
Index
Coastal Plain Macroinvertebrate Index Boundary (CPMI)
Pinelands Macroinvertebrate Index Boundary (PMI)
Pinelands 5 Kilometer Buffer

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

AN0617 - Absecon Creek South Branch

AN0616 - Absecon Creek North Branch

AN0618 - Patcong Creek

AN0619 - Maple Run (Asbury Run)

Absecon

Pleasantville

Northfield

Somers Point

30
575
575
563
40
9
585
559 ALT
559
52
152

ATLANTIC CITY EXPRESSWAY
PARKWAY
STATE
GARDEN

AMNET Assessment Categories

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

Index

- Coastal Plain Macroinvertebrate Index Boundary *(CPMI)*
- Pinelands Macroinvertebrate Index Boundary *(PMI)*
- Pinelands 5 Kilometer Buffer

0 0.5 1 2 3 4 Miles

1 inch equals 1.57 miles

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

AN0620 - Great Egg Harbor River

AN0621 - Great Egg Harbor River

AN0622 - Four Mile Branch

AN0623 - Great Egg Harbor River

AN0624 - Squankum Branch

AN0625 - Great Egg Harbor River

AN0626 - Penny Pot Stream

AN0627 - Hospitality Branch

AN0628 - Hospitality Branch

AN0629 - Faraway Branch

AN0630 - White Oak Branch

AN0631 - Marsh Lake Branch (Collings Branch)

AN0632 - Marsh Lake Branch (Collings Branch)

AN0633 - Hospitality Branch

AN0634 - Three Pond Brook

AN0635 - Great Egg Harbor River

AN0636 - UNT to Deep Run

AN0637 - Deep Run

AN0638 - Mare Run

Berlin

Sicklerville

Winslow

Magnolia

Weymouth

ATLANTIC CITY EXPRESSWAY

73 536 SPUR 42 536 555 322 538 73 561 30 557 559 40 54

AMNET Assessment Categories

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

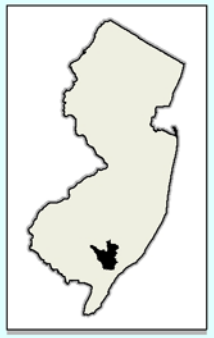
Index

- Coastal Plain Macroinvertebrate Index Boundary *(CPMI)*
- Pinelands Macroinvertebrate Index Boundary *(PMI)*
- Pinelands 5 Kilometer Buffer

0 0.5 1 2 3 4 Miles

1 inch equals 2.6 miles

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



AMNET Assessment Categories

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

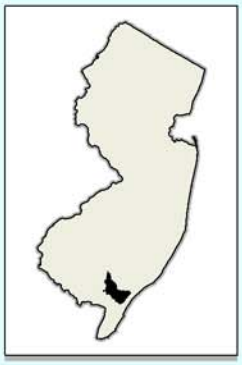
Index

- Coastal Plain Macroinvertebrate Index Boundary *(CPMI)*
- Pinelands Macroinvertebrate Index Boundary *(PMI)*
- Pinelands 5 Kilometer Buffer

0 0.5 1 2 3 4 Miles

1 inch equals 2.24 miles

Map 13
TUCKAHOE RIVER
Watershed Management Area 15
(Part)



AN0648 - Tuckahoe River

AN0649 - Tuckahoe River

AN0651 - McNeals Branch

AN0650 - Tuckahoe River

AN0652 - Mill Creek

Tuckahoe

Woodbine

Beesleys Point

552 557 548 49 50 557 550

AMNET Assessment Categories

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

Index

- Coastal Plain Macroinvertebrate Index Boundary *(CPMI)*
- Pinelands Macroinvertebrate Index Boundary *(PMI)*
- Pinelands 5 Kilometer Buffer

0 0.5 1 2 3 4 Miles

1 inch = 1.97 miles

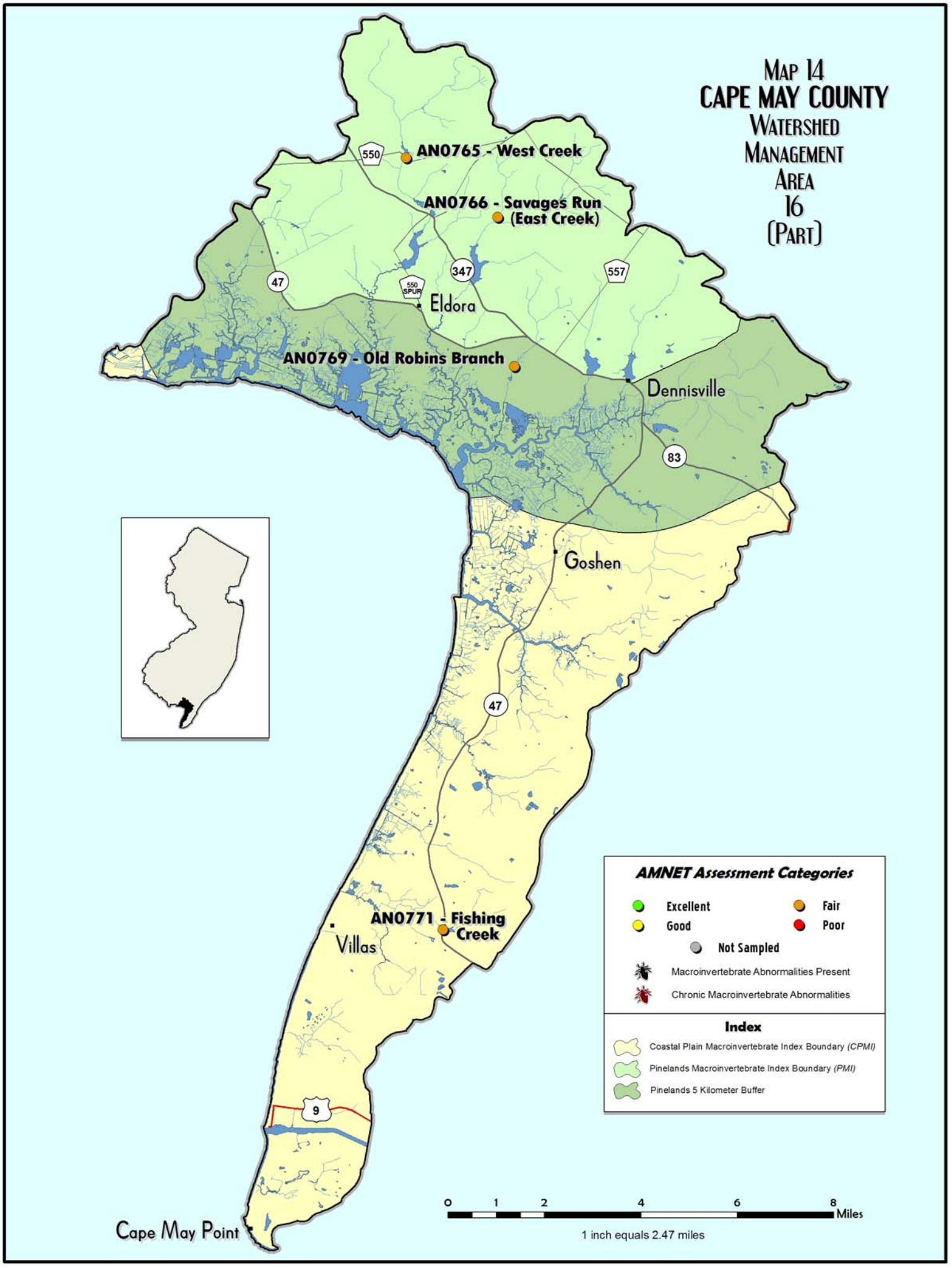

Map 14
CAPE MAY COUNTY
Watershed
Management
Area
16
(Part)
AN0765 - West Creek
AN0766 - Savages Run
(East Creek)
AN0769 - Old Robins Branch
AN0771 - Fishing
Creek
Eldora
Dennisville
Goshen
Villas
Cape May Point
550
47
347
557
550 SPUR
83
9
AMNET Assessment Categories
Excellent
Good
Fair
Poor
Not Sampled
Macroinvertebrate Abnormalities Present
Chronic Macroinvertebrate Abnormalities
Index
Coastal Plain Macroinvertebrate Index Boundary (CPMI)
Pinelands Macroinvertebrate Index Boundary (PMI)
Pinelands 5 Kilometer Buffer
0 1 2 4 6 8 Miles
1 inch equals 2.47 miles

Table 2

Comparative Scores / Ratings (see notes)

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

Station	Index name	Rnd 3 Score	Rnd 4 Score	Rnd 3 Rating	Rnd 4 Rating	Change in Rating	Rnd 4 Habitat Score	WMA	Station	Index name	Rnd 3 Score	Rnd 4 Score	Rnd 3 Rating	Rnd 4 Rating	Change in Rating	Rnd 4 Habitat Score	WMA
456	CPMI	14	4	Good	Poor	—	121	12	499	CPMI	4	2	Poor	Poor	/	157	13
457	CPMI	0	0	Poor	Poor	/	112	12	500	CPMI	14	18	Good	Good	/	144	13
458	CPMI	2	2	Poor	Poor	/	120	12	501	CPMI	24	18	Excellent	Good	—	159	13
459	CPMI	2	6	Poor	Fair	+	83	12	502	CPMI	18	8	Good	Fair	—	99	13
460	CPMI	4	8	Poor	Fair	+	101	12	503	CPMI	6	12	Fair	Good	+	156	13
461	CPMI	6	6	Fair	Fair	/	124	12	504	CPMI	24	12	Excellent	Good	—	154	13
462	CPMI	4	10	Poor	Fair	+	95	12	505	CPMI	24	26	Excellent	Excellent	/	152	13
464	CPMI	6	6	Fair	Fair	/	114	12	506	CPMI	16	8	Good	Fair	—	106	13
465	CPMI	6	6	Fair	Fair	/	148	12	507	CPMI	16	12	Good	Good	/	132	13
466	CPMI	8	8	Fair	Fair	/	122	12	508	CPMI	24	14	Excellent	Good	—	153	13
467	CPMI	6	6	Fair	Fair	/	144	12	509	PMI	36.59	61.38	Fair	Good	+	123	13
468	CPMI	6	8	Fair	Fair	/	132	12	510	PMI	30.15	51.76	Poor	Fair	+	153	13
469	CPMI	6	10	Fair	Fair	/	100	12	510A	PMI	29.12	49.16	Poor	Fair	+	152	13
470	CPMI	10	6	Fair	Fair	/	123	12	511	PMI	37.39	31.4	Fair	Poor	—	131	13
471	CPMI	6	8	Fair	Fair	/	122	12	512	CPMI	16	6	Good	Fair	—	114	13
472	CPMI	4	6	Poor	Fair	+	123	12	513	CPMI	6	8	Fair	Fair	/	141	13
473	CPMI	4	4	Poor	Poor	/	123	12	514	CPMI	4	6	Poor	Fair	+	125	13
475	CPMI	6	18	Fair	Good	+	147	12	515	CPMI	6	6	Fair	Fair	/	155	13
476	CPMI	12	12	Good	Good	/	131	12	517	CPMI	8	6	Fair	Fair	/	143	13
477	CPMI	8	4	Fair	Poor	—	121	12	518	CPMI	8	8	Fair	Fair	/	140	13
479	CPMI	8	10	Fair	Fair	/	158	12	519	PMI	57.76	43.65	Good	Fair	—	141	13
480	CPMI	6	10	Fair	Fair	/	131	12	519A	CPMI	12	10	Good	Fair	—	147	13
481	CPMI	8	6	Fair	Fair	/	154	12	520	PMI	50.84	52.86	Fair	Fair	/	136	13
482	CPMI	14	8	Good	Fair	—	99	12	521	PMI	64.56	58.12	Excellent	Good	—	152	13
483	CPMI	10	18	Fair	Good	+	110	12	522	PMI	68.29	55.68	Excellent	Fair	—	161	13
484	CPMI	8	18	Fair	Good	+	121	12	523	PMI	66.11	61.77	Excellent	Good	—	148	13
485	CPMI	2	0	Poor	Poor	/	146	12	524	CPMI	26	10	Excellent	Fair	—	141	13
486	CPMI	8	6	Fair	Fair	/	121	12	525A	PMI	38.08	44.5	Fair	Fair	/	146	13
487	CPMI	8	10	Fair	Fair	/	125	12	526	PMI	37.63	53.41	Fair	Fair	/	160	13
488	CPMI	8	12	Fair	Good	+	129	12	527	PMI	70.74	64.16	Excellent	Excellent	/	138	13
489	CPMI	16	10	Good	Fair	—	117	12	528	PMI	70.91	60.86	Excellent	Good	—	135	13
490	CPMI	8	10	Fair	Fair	/	142	12	529	PMI	70.24	54.37	Excellent	Fair	—	175	13
491	CPMI	4	6	Poor	Fair	+	164	12	530	PMI	59.11	44.3	Good	Fair	—	160	13
492	CPMI	8	10	Fair	Fair	/	130	12	531	PMI	68.15	55.31	Excellent	Fair	—	171	13
493	CPMI	10	10	Fair	Fair	/	120	12	532	PMI	43.08	51.08	Fair	Fair	/	147	13
494	CPMI	10	4	Fair	Poor	—	154	12	533	PMI	59.86	59.95	Good	Good	/	146	13
495	CPMI	26	20	Excellent	Good	—	150	12	534	PMI	51.37	60.07	Fair	Good	+	144	13
496	CPMI	18	4	Good	Poor	—	132	12	535	PMI	67.89	34.02	Excellent	Fair	—	149	13
497	CPMI	28	16	Excellent	Good	—	149	12	536	PMI	76.25	70.94	Excellent	Excellent	/	157	13
									537	PMI	62.12	63.55	Good	Excellent	+	144	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
Excellent	22.0-30.0
Good	11.0-21.0
Fair	6.0-10.0
Poor	0-5.99

PMI	Value
Excellent	63.0-100.0
Good	56.0-62.99
Fair	34.0-55.99
Poor	0-33.99

HGMI	Value
Excellent	63.0-100.0
Good	42.0-62.99
Fair	21.0-41.99
Poor	0-20.99

Habitat Score	Value
Optimal	160 - 200
Sub-optimal	110 - 159
Marginal	60 - 109
Poor	<60

Table 2

Comparative Scores / Ratings (see notes)

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

Station	Index name	Rnd 3 Score	Rnd 4 Score	Rnd 3 Rating	Rnd 4 Rating	Change in Rating	Rnd 4 Habitat Score	WMA	Station	Index name	Rnd 3 Score	Rnd 4 Score	Rnd 3 Rating	Rnd 4 Rating	Change in Rating	Rnd 4 Habitat Score	WMA
538	PMI	49.97	42	Fair	Fair	/	141	13	574	PMI	57.99	54.85	Good	Fair	—	141	14
539	PMI	50.64	62.77	Fair	Good	+	144	13	575	PMI	44.33	52.12	Fair	Fair	/	125	14
540	PMI	47.91	48.78	Fair	Fair	/	144	13	577	PMI	32.28	43.03	Poor	Fair		131	14
541	PMI	61.24	64.66	Good	Excellent	+	151	13	578	PMI	56.64	55.54	Good	Fair	—	154	14
542	PMI	58.69	58.82	Good	Good	/	134	13	579	PMI	59.85	59.55	Good	Good	/	150	14
543	PMI	52.77	49.23	Fair	Fair	/	156	13	580	PMI	61.98	64.08	Good	Excellent	+	156	14
544	PMI	46.31	22.56	Fair	Poor	—	137	13	581	PMI	64.17	69.57	Excellent	Excellent	/	176	14
545	PMI	44.33	53.03	Fair	Fair	/	141	13	582	PMI	31.31	43.97	Poor	Fair	+	128	14
546	PMI	60.87	62.92	Good	Good	/	161	13	583	PMI	46.14	43.89	Fair	Fair	/	140	14
547	PMI	68.87	65.79	Excellent	Excellent	/	167	13	584	PMI	43.83	37.98	Fair	Fair	/	157	14
548	PMI	64.17	60.24	Excellent	Good	—	170	13	585	PMI	51.86	43.25	Fair	Fair	/	138	14
549	PMI	63.06	67.05	Excellent	Excellent	/	158	13	586	PMI	51.92	69.52	Fair	Excellent	+	161	14
550	PMI	63.61	49.53	Excellent	Fair	—	154	13	586A	PMI	69.88	66.4	Excellent	Excellent	/	161	14
551	PMI	68.09	65.95	Excellent	Excellent	/	152	13	587	PMI	67.49	61.7	Excellent	Good	—	139	14
552	PMI	77.75	59.8	Excellent	Good	—	170	13	590	PMI	54.72	39.93	Fair	Fair	/	146	14
554	PMI	20.39	15.56	Poor	Poor	/	155	13	591	PMI	62.78	67.08	Good	Excellent	+	161	14
555	PMI	23.95	28.41	Poor	Poor	/	150	13	592	PMI	72.9	61.23	Excellent	Good	—	161	14
555A	PMI	66.57	71.01	Excellent	Excellent	/	173	13	593	PMI	61.28	60.74	Good	Good	/	150	14
556	PMI	44.83	53.24	Fair	Fair	/	155	13	594	PMI	55.02	51.7	Fair	Fair	/	115	14
557	PMI	60.71	49.17	Good	Fair	—	172	13	595	PMI	54.81	53.82	Fair	Fair	/	147	14
557A	PMI	71.96	68.61	Excellent	Excellent	/	160	13	596	PMI	51.8	61.09	Fair	Good	+	165	14
558	PMI	74.08	61.71	Excellent	Good	—	151	13	597	PMI	52.01	65.46	Fair	Excellent	+	180	14
559	PMI	54.05	60.84	Fair	Good	+	162	13	597A	PMI	68.06	71.55	Excellent	Excellent	/	162	14
559A	PMI	59.07	73.11	Good	Excellent	+	131	13	599	PMI	58.41	48.73	Good	Fair	—	175	14
560	PMI	35.88	48.53	Fair	Fair	/	151	14	600	PMI	45.33	68.11	Fair	Excellent	+	150	14
561	PMI	54.9	58.14	Fair	Good	+	136	14	601	PMI	46.64	40.08	Fair	Fair	/	155	14
562	PMI	61.76	63.11	Good	Excellent	+	166	14	602	PMI	57.73	54.35	Good	Fair	—	141	14
563	PMI	54.82	47.44	Fair	Fair	/	117	14	603	PMI	66.79	59.97	Excellent	Good	—	150	14
564	PMI	73.37	50.33	Excellent	Fair	—	172	14	604	PMI	69.81	66.52	Excellent	Excellent	/	163	14
565	PMI	56.35	53.28	Good	Fair	—	163	14	605	PMI	70.11	72.64	Excellent	Excellent	/	181	14
566	PMI	70.92	58.31	Excellent	Good	—	178	14	606	PMI	52.08	54.95	Fair	Fair	/	152	14
567	PMI	64.17	46.31	Excellent	Fair	—	168	14	607	PMI	64.17	59.3	Excellent	Good	—	169	14
568	PMI	39.55	40.16	Fair	Fair	/	164	14	610	PMI	65.21	61.97	Excellent	Good	—	147	14
569	PMI	32.88	45.65	Poor	Fair	+	151	14	611	PMI	63.17	67.36	Excellent	Excellent	/	160	14
570	PMI	28.9	34.97	Poor	Fair	+	146	14	612	PMI	62.92	70.22	Good	Excellent	+	153	14
571	PMI	50.88	24.14	Fair	Poor	—	167	14	613	PMI	59.07	67.1	Good	Excellent	+	153	14
572	PMI	68.44	50.12	Excellent	Fair	—	172	14	614	PMI	59.08	61.51	Good	Good	/	143	14
573	PMI	38.86	49.29	Fair	Fair	/	159	14	615	PMI	50.16	56.37	Fair	Good	+	147	14

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
Excellent	22.0-30.0
Good	11.0-21.0
Fair	6.0-10.0
Poor	0-5.99

PMI	Value
Excellent	63.0-100.0
Good	56.0-62.99
Fair	34.0-55.99
Poor	0-33.99

HGMI	Value
Excellent	63.0-100.0
Good	42.0-62.99
Fair	21.0-41.99
Poor	0-20.99

Habitat Score	Value
Optimal	160 - 200
Sub-optimal	110 - 159
Marginal	60 - 109
Poor	<60

Table 2

Comparative Scores / Ratings (see notes)

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

Station	Index name	Rnd 3 Score	Rnd 4 Score	Rnd 3 Rating	Rnd 4 Rating	Change in Rating	Rnd 4 Habitat Score	WMA	Station	Index name	Rnd 3 Score	Rnd 4 Score	Rnd 3 Rating	Rnd 4 Rating	Change in Rating	Rnd 4 Habitat Score	WMA
616	PMI	43.13	44.65	Fair	Fair	/	160	15	765	PMI	59.21	46.11	Good	Fair	—	146	16
617	PMI	60.96	61.41	Good	Good	/	158	15	766	PMI	68.47	53.65	Excellent	Fair	—	148	16
618	PMI	49.36	55.61	Fair	Fair	/	139	15	769	PMI	49.34	47.14	Fair	Fair	/	164	16
619	PMI	41.98	35.53	Fair	Fair	/	142	15	771	CPMI	8	6	Fair	Fair	/	132	16
620	PMI	42.48	43.87	Fair	Fair	/	92	15									
621	PMI	61.07	55.76	Good	Fair	—	159	15									
622	PMI	59.29	53.52	Good	Fair	—	145	15									
623	PMI	75.47	62.26	Excellent	Good	—	161	15									
624	PMI	42.9	37.86	Fair	Fair	/	135	15									
625	PMI	78.36	68.7	Excellent	Excellent	/	165	15									
626	PMI	71.62	65.01	Excellent	Excellent	/	171	15									
627	PMI	46.03	34.13	Fair	Fair	/	143	15									
628	PMI	19.83	28.42	Poor	Poor	/	134	15									
629	PMI	60.02	55.33	Good	Fair	—	152	15									
630	PMI	60.9	62.62	Good	Good	/	158	15									
631	PMI	21.23	56.69	Poor	Good	+	156	15									
632	PMI	43.03	47.73	Fair	Fair	/	160	15									
633	PMI	59.64	44.77	Good	Fair	—	154	15									
634	PMI	58.33	59.98	Good	Good	/	134	15									
635	PMI	71.75	69.5	Excellent	Excellent	/	156	15									
636	PMI	33.6	12.62	Poor	Poor	/	136	15									
637	PMI	77.25	72.74	Excellent	Excellent	/	171	15									
638	PMI	68.63	60.19	Excellent	Good	—	158	15									
639	PMI	61.91	65.22	Good	Excellent	+	137	15									
640	PMI	69.44	65.84	Excellent	Excellent	/	167	15									
640A	PMI	67.07	64.03	Excellent	Excellent	/	164	15									
640B	PMI	55.98	51.89	Fair	Fair	/	126	15									
642	PMI	63.97	57.77	Excellent	Good	—	157	15									
643	PMI	72.83	64.55	Excellent	Excellent	/	159	15									
644	PMI	51.17	72.36	Fair	Excellent	+	162	15									
645	PMI	66.2	59.63	Excellent	Good	—	156	15									
646	PMI	38.79	49.28	Fair	Fair	/	147	15									
647	PMI	64.49	70.45	Excellent	Excellent	/	177	15									
648	PMI	56.32	55.15	Good	Fair	—	164	15									
649	PMI	68.04	67.22	Excellent	Excellent	/	168	15									
650	PMI	55.46	61.83	Fair	Good	+	167	15									
651	PMI	58.52	70.42	Good	Excellent	+	168	15									
652	PMI	46.51	54.5	Fair	Fair	/	159	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

CPMI	Value
Excellent	22.0-30.0
Good	11.0-21.0
Fair	6.0-10.0
Poor	0-5.99

PMI	Value
Excellent	63.0-100.0
Good	56.0-62.99
Fair	34.0-55.99
Poor	0-33.99

HGMI	Value
Excellent	63.0-100.0
Good	42.0-62.99
Fair	21.0-41.99
Poor	0-20.99

Habitat Score	Value
Optimal	160 - 200
Sub-optimal	110 - 159
Marginal	60 - 109
Poor	<60

Table 3

Macroinvertebrate Abnormalities (see notes)

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

Station	2004	2010	WMA			Station	2004	2010	WMA				
459		1/67	12			640B	1/65		15				
460	+1		12			652	1/96		15				
464	1/45		12										
466	2/60		12										
468	1/57		12										
470	2/52		12										
471	1/47		12										
472		2/49	12										
476	1/26		12										
487	1/54		12										
491	1/56		12										
512	**+1**	**1/58**	**13**										
514		2/13	13										
519	2/71		13										
519A	**1/53**	**1/47**	**13**										
521	2/99		13										
528	1/16		13										
546		5	13										
556	1/33		13										
559		1/68	13										
559A	3/106		13										
562	**2/47**	**1/69**	**14**										
563	4/61		14										
578	1/29		14										
580	1/87		14										
581		1/52	14										
585	+1		14										
587		1/96	14										
593	3/44		14										
599	2		14										
602	1/65		14										
603	3		14										
615	2/48		14										
625		1/58	15										
630	**1/97**	**1/70**	**15**										
637	**1**	**1**	**15**										

NOTES:

chironomids with deformities / # chironomids examined

+ — indicates the number of non-chironomids having abnormalities

abnormalities are considered chronic if they appear in both the 2004 and the 2010 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 not 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) Note: determine left or right side by facing downstream.	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

Appendix A — Station Numbers and Locations for the Round 4 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 4 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 03'32.112"N 74 08'35.908"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 4 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
AN0558	Westecunk Ck	39 38'24.939"N 74 18'28.067"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
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	Elliots 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
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 4 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
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

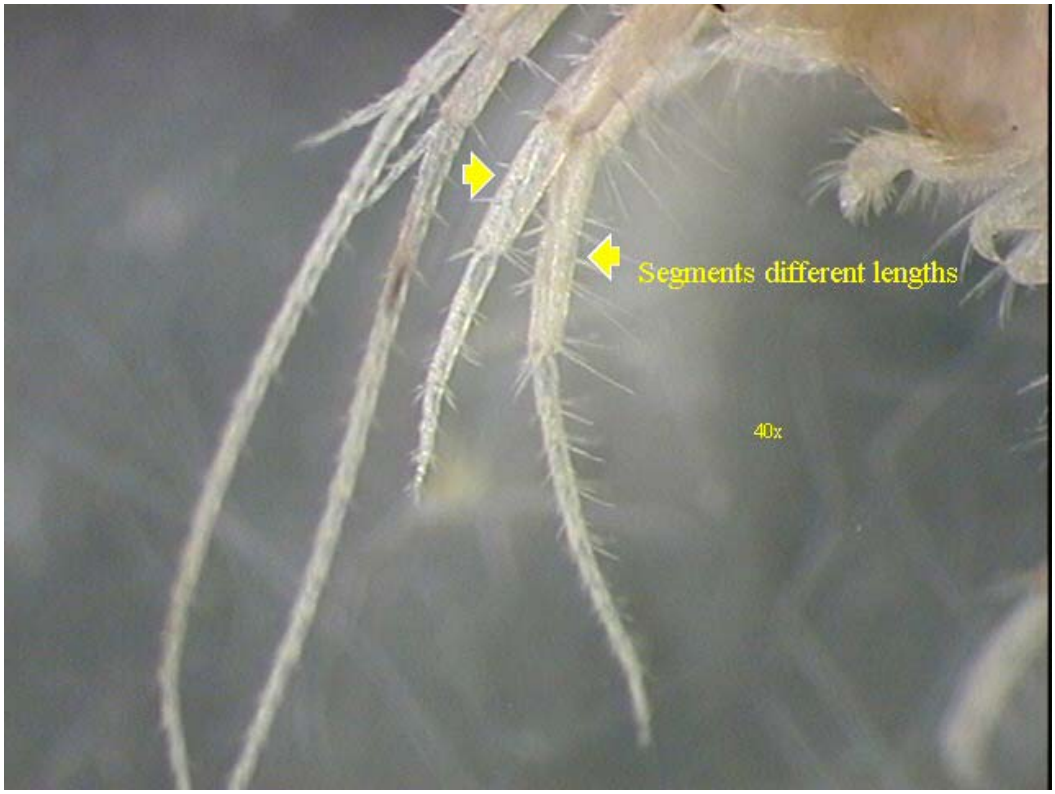
Appendix A — Station Numbers and Locations for the Round 4 Atlantic Region AMNET Study

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

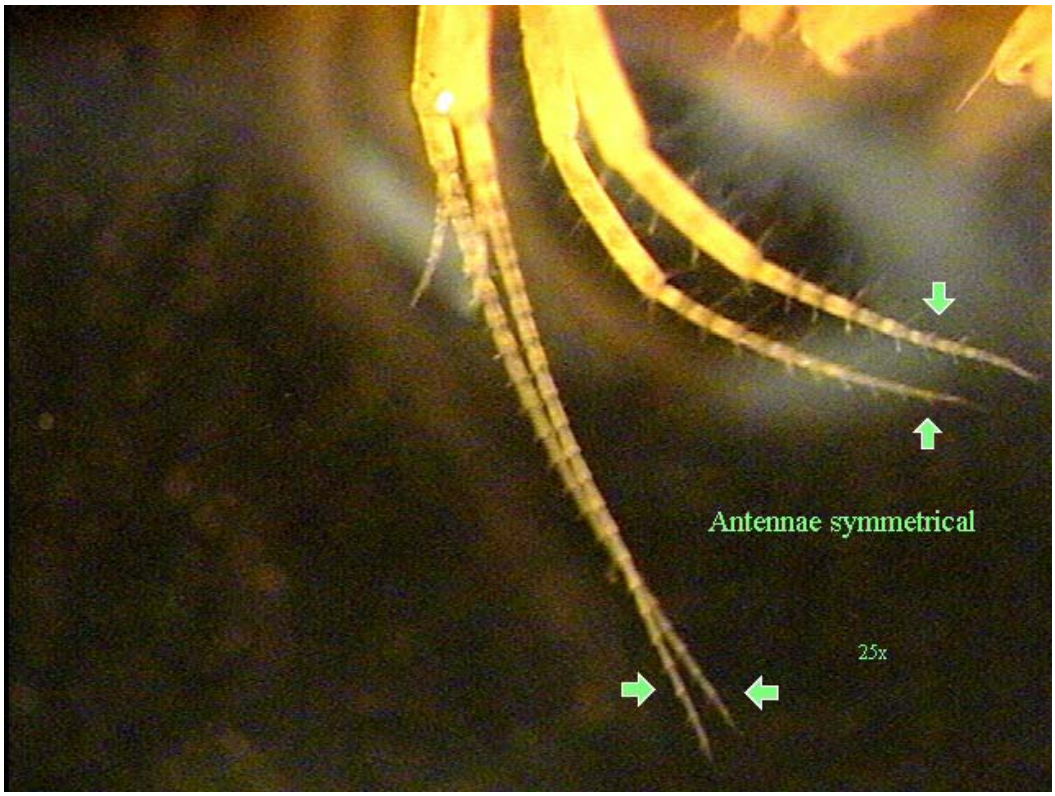
APPENDIX B

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

Gammarus fasciatus with second antennae showing different lengths

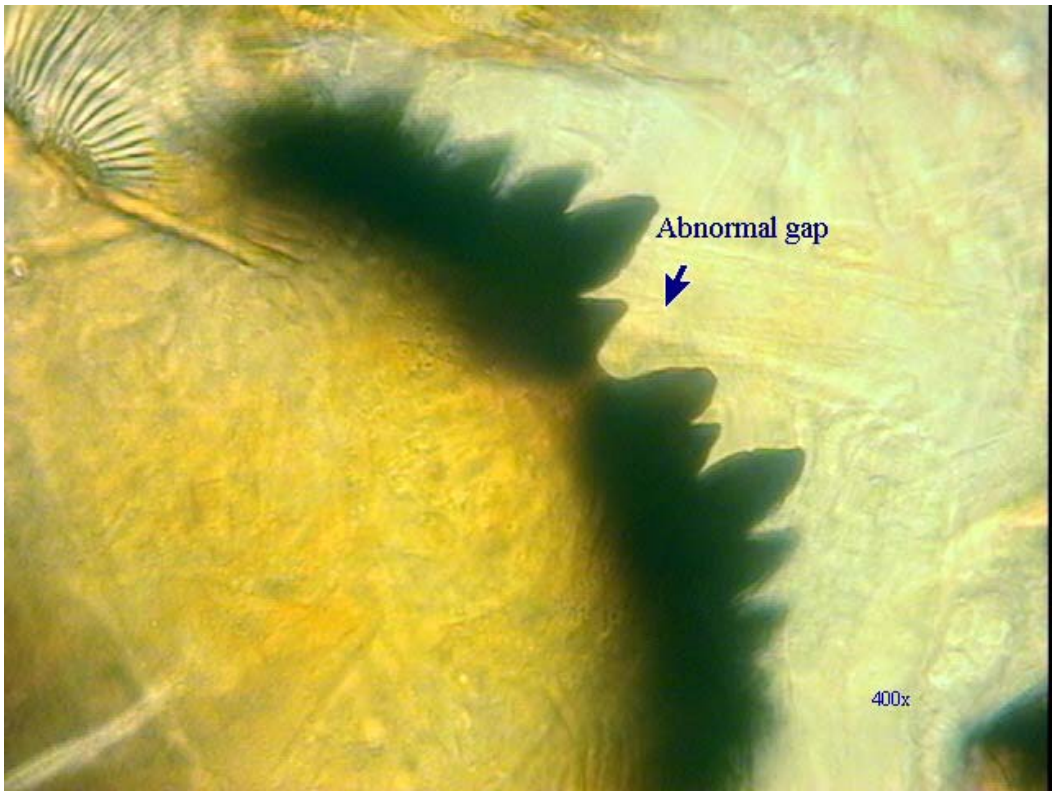


Gammarus fasciatus with normal antennae (showing antennal pairs of same length)

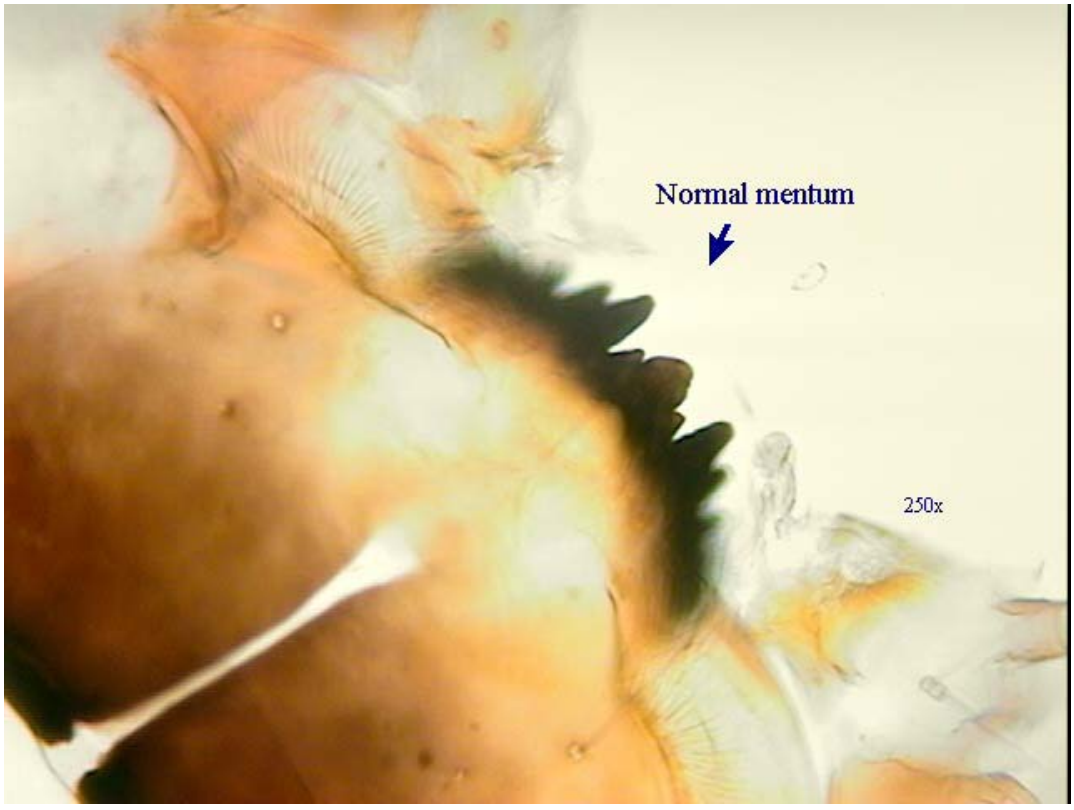


All photographs taken by D. Bryson, NJDEP

Chironomus species with mentum abnormality



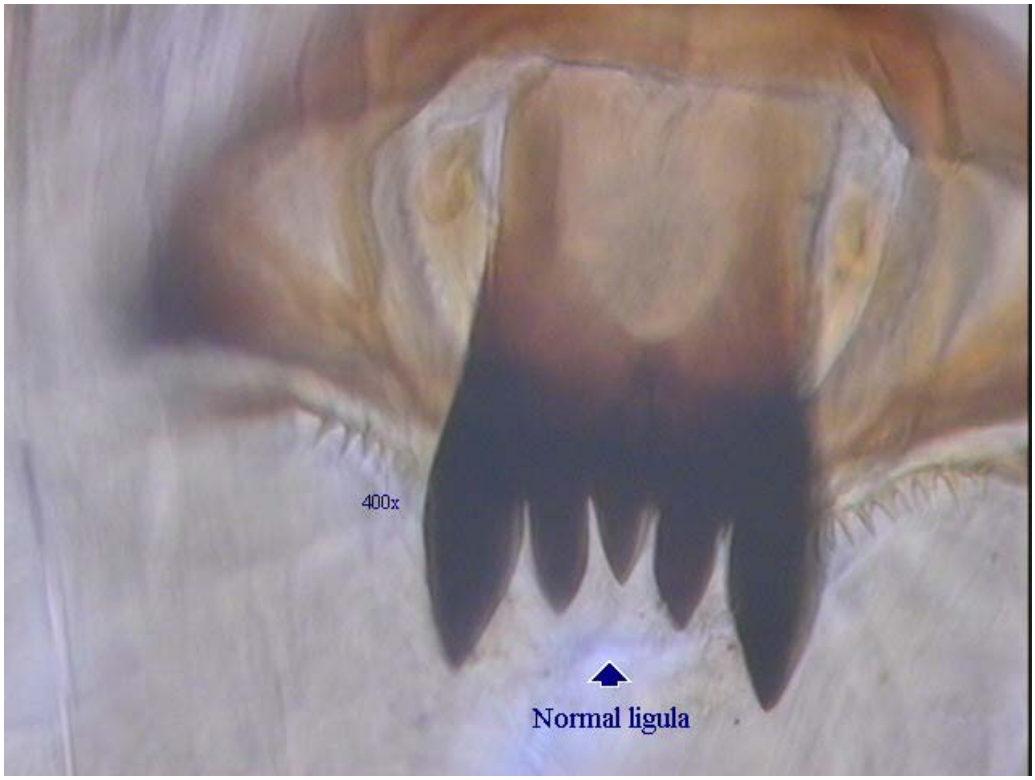
Chironomus species with normal mentum



All photographs taken by D. Bryson, NJDEP

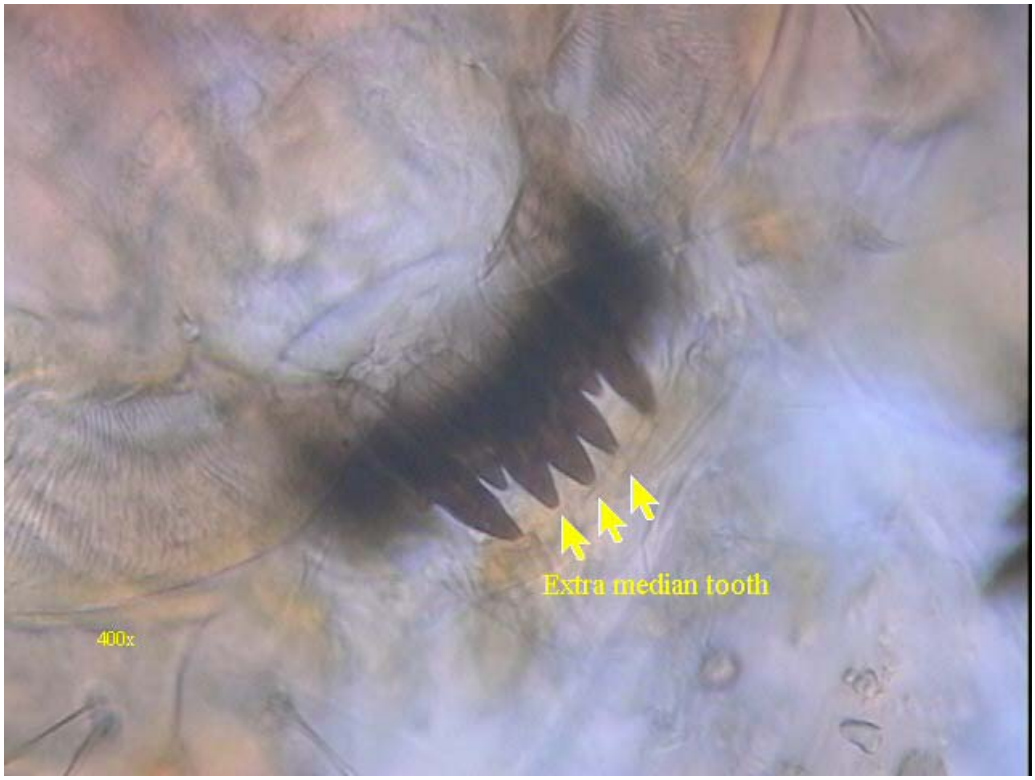
Procladius species with abnormal ligula

Procladius species with normal ligula

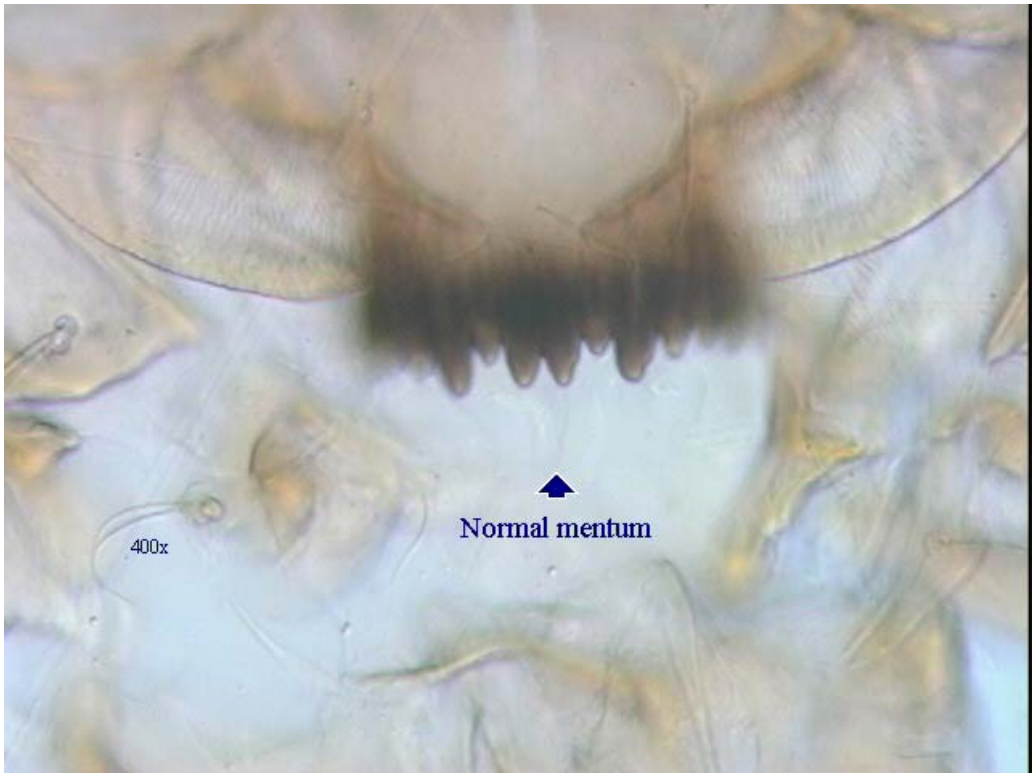


All photographs taken by D. Bryson, NJDEP

Polypedilum species with abnormal mentum



Polypedilum species with normal mentum



All photographs taken by D. Bryson, NJDEP

APPENDIX C

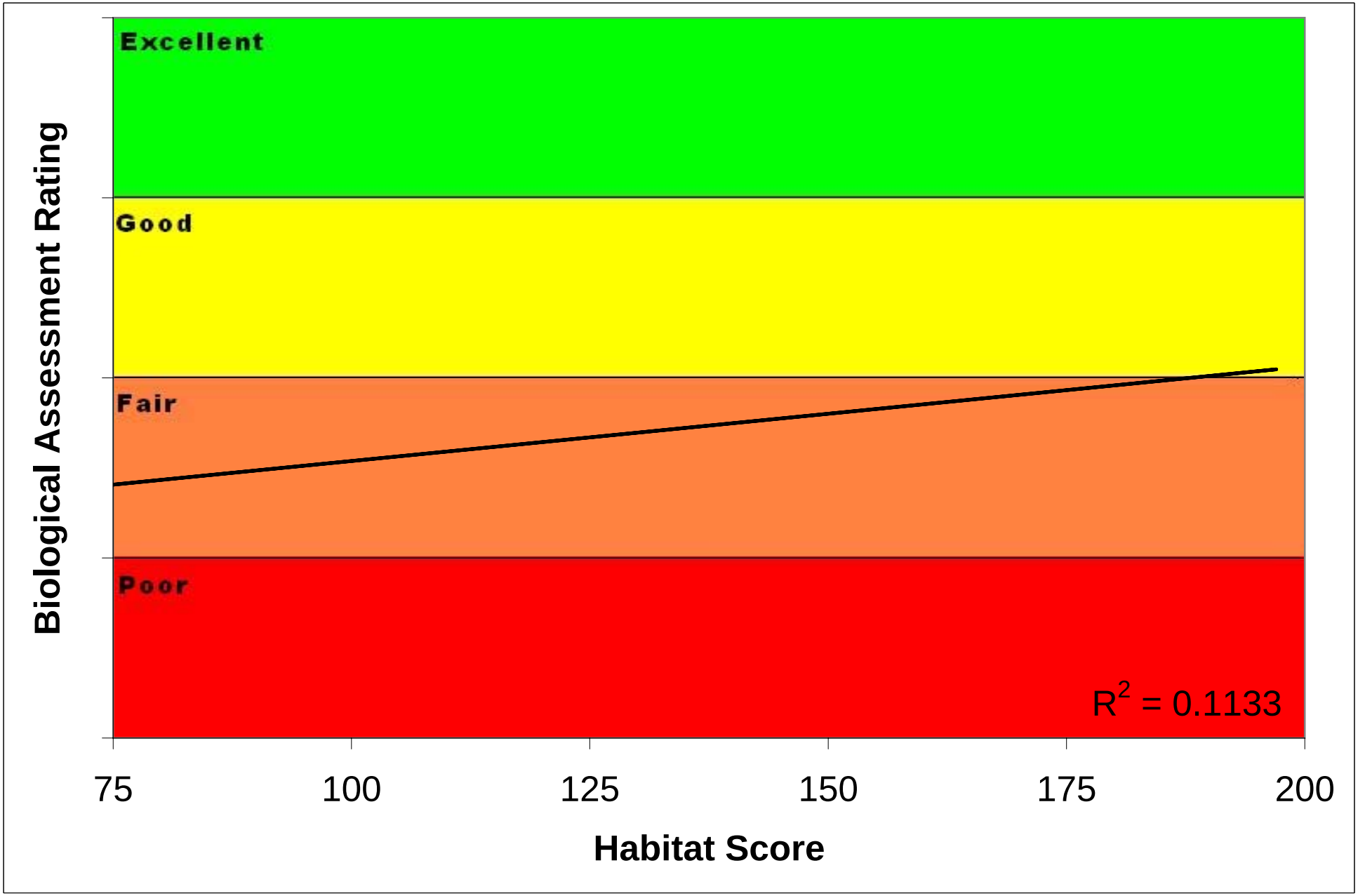
Graphical Comparison of Habitat Assessment Scores versus Biological Assessment Ratings from the Round 4 Atlantic Region AMNET Study

Comparative Scores of

Biological Assessment Rating vs. Habitat Score

Combined

Round 4

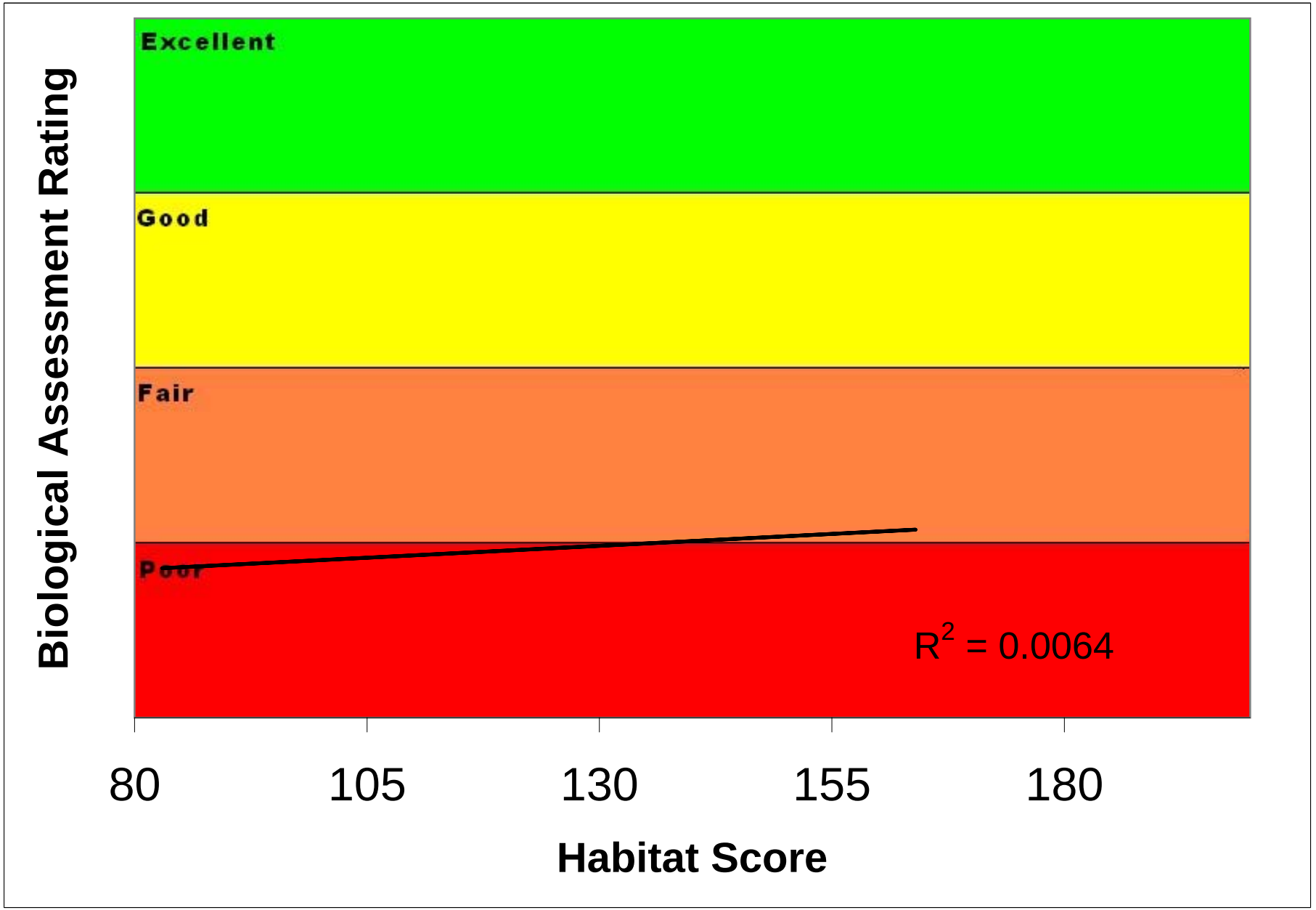


Comparative Scores of

Biological Assessment Rating vs. Habitat Score

WMA 12

Round 4

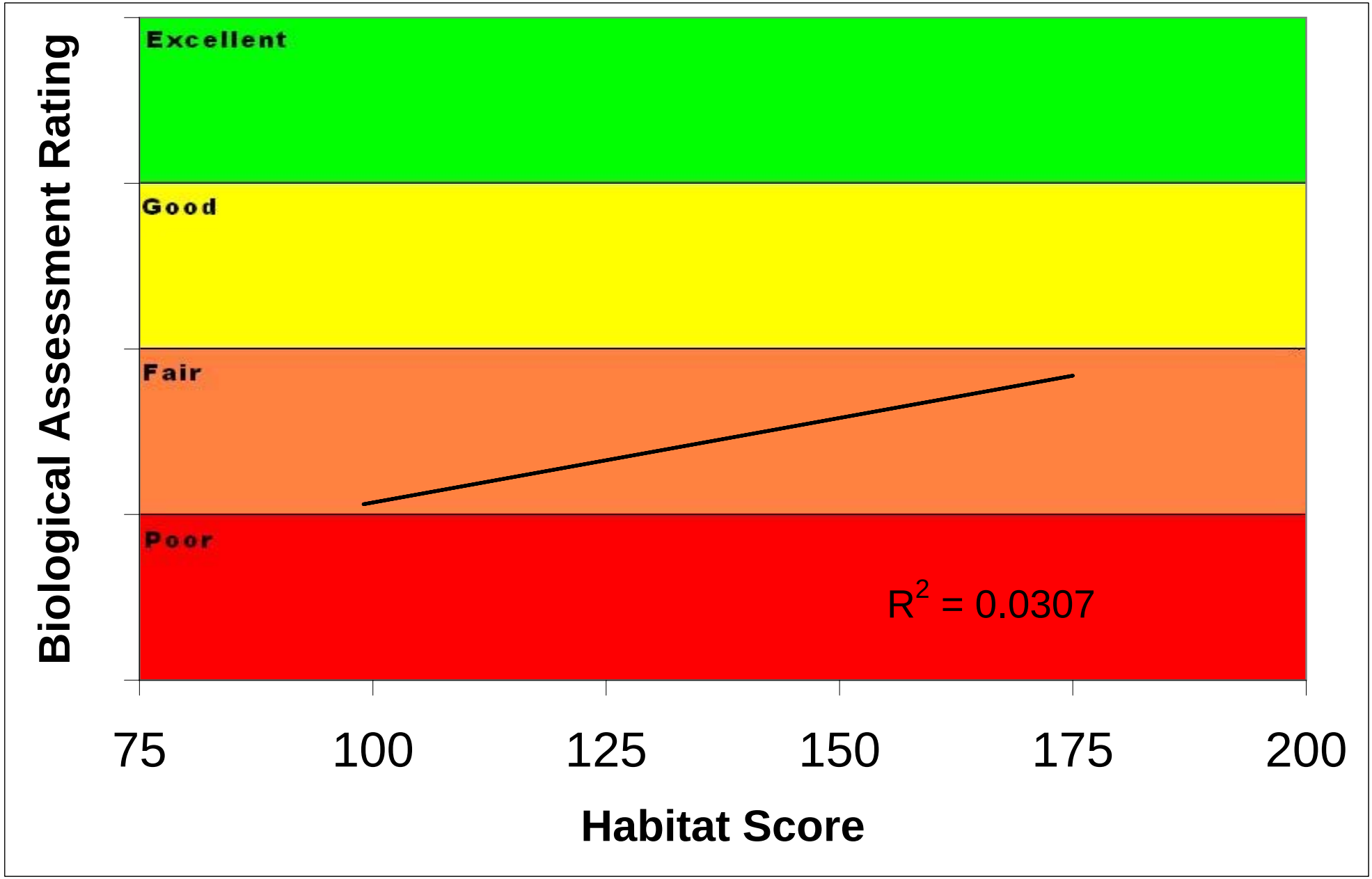


Comparative Scores of

Biological Assessment Rating vs. Habitat Score

WMA 13

Round 4

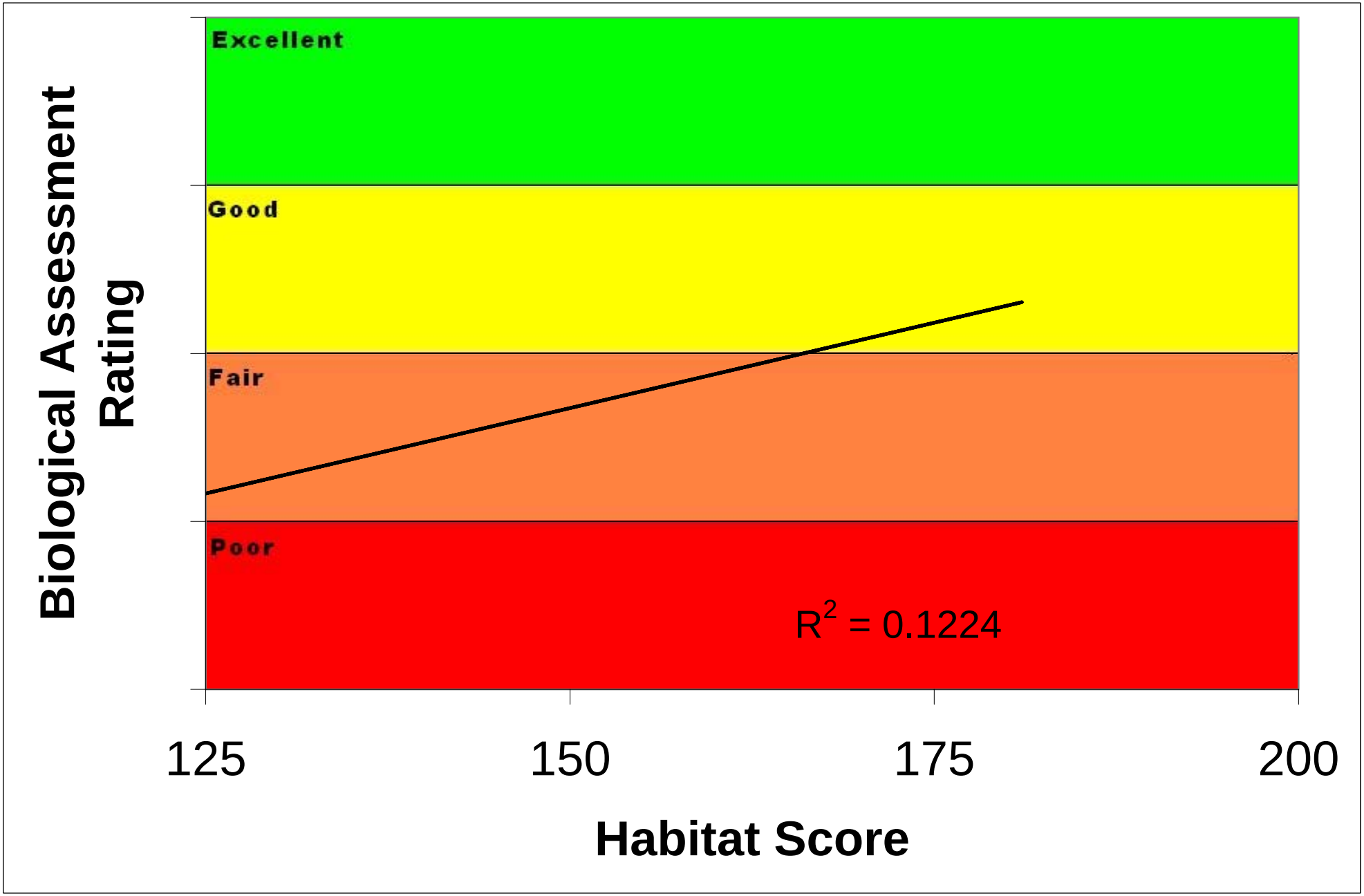


Comparative Scores of

Biological Assessment Rating vs. Habitat Score

WMA 14

Round 4

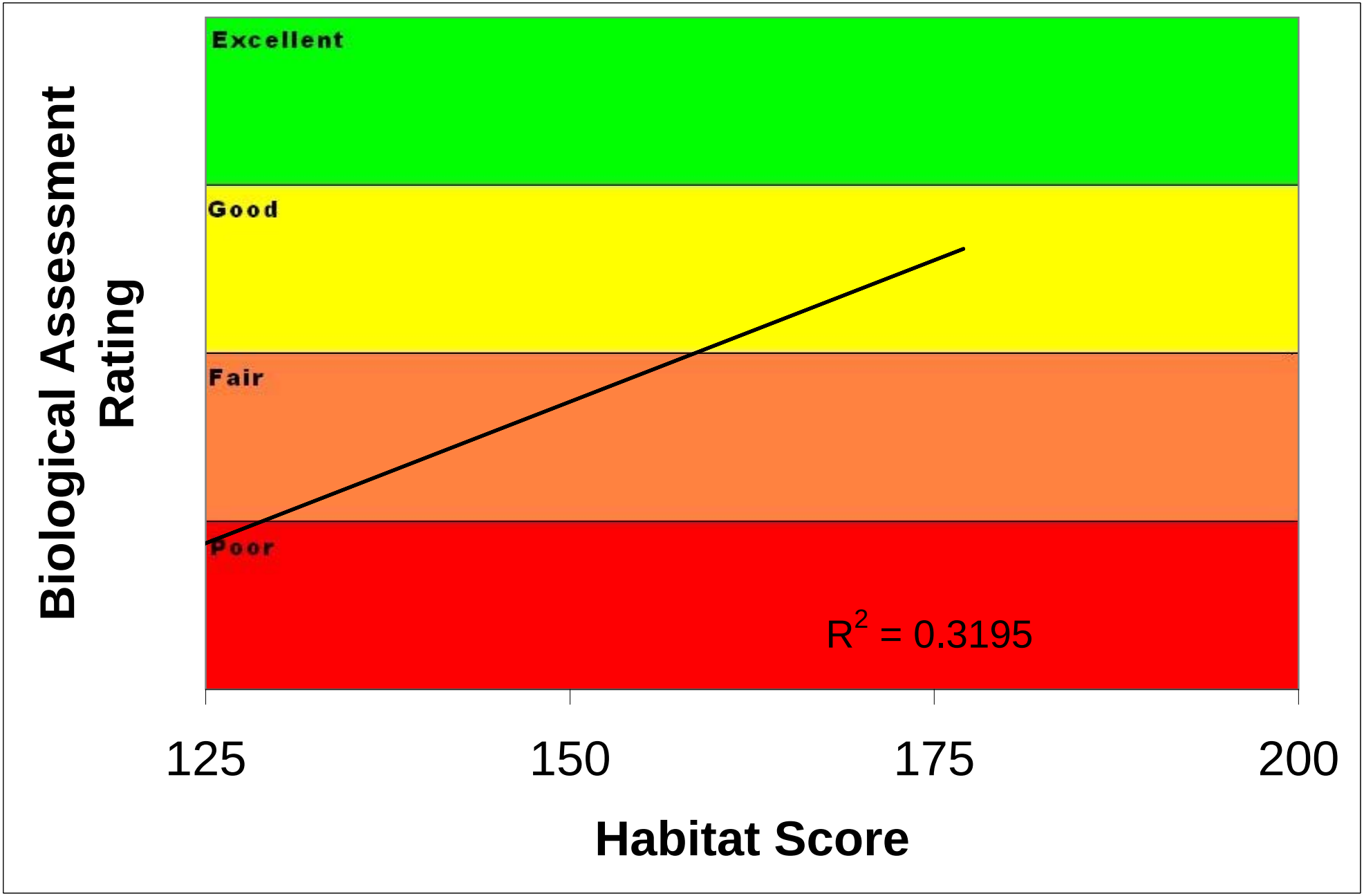


Comparative Scores of

Biological Assessment Rating vs. Habitat Score

WMA 15

Round 4

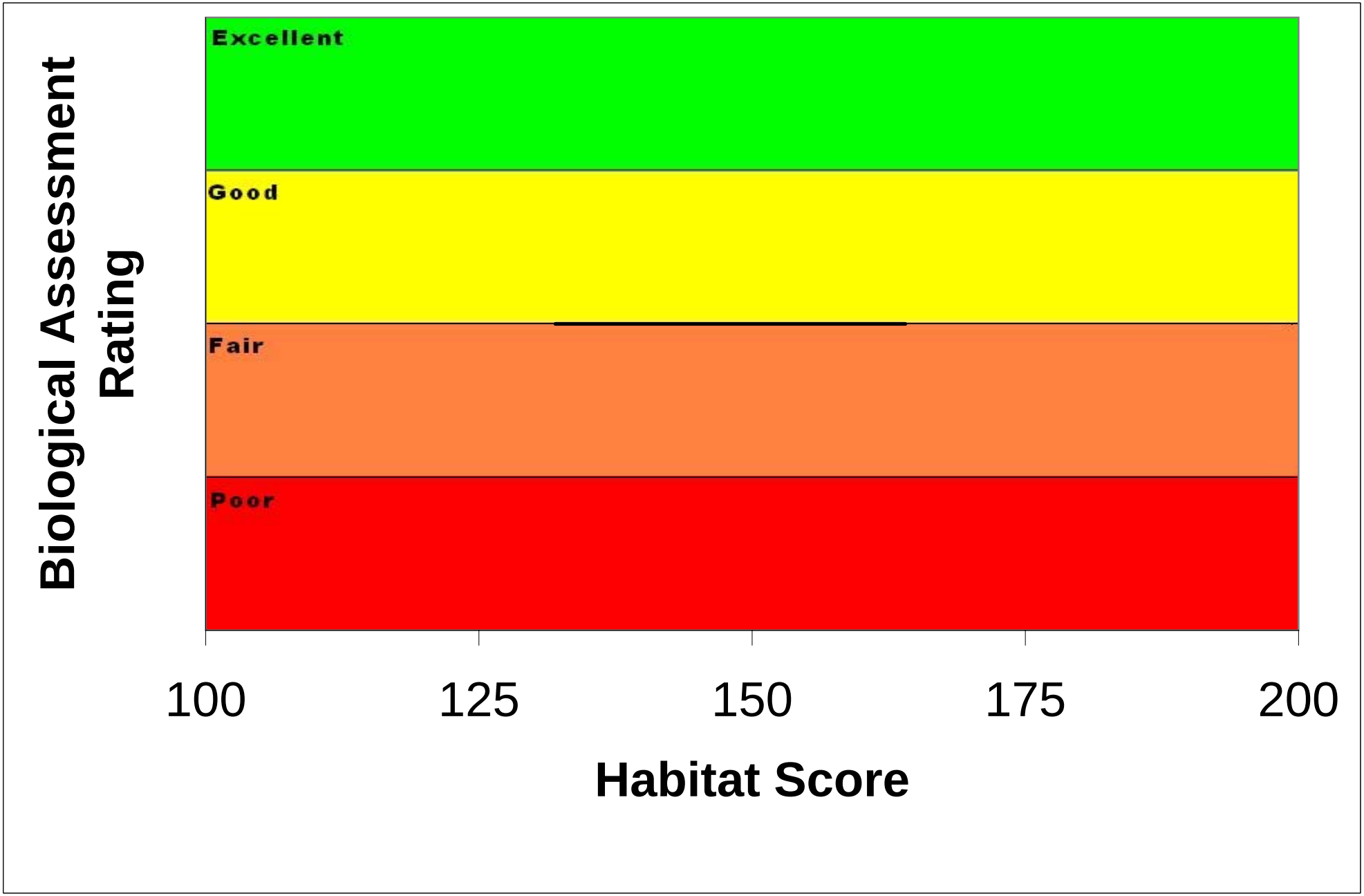


Comparative Scores of

Biological Assessment Rating vs. Habitat Score

WMA 16

Round 4



APPENDIX D

Taxonomic and Statistical Data, Biological Assessments, Habitat Assessment Scores and Observations from the Round 4 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
1. Total # of Taxa 2. # of EPT taxa 3. % Ephemeroptera 4. Hilsenhoff Biotic Index (HBI) 5. % clingers	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	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: ***4/8/2010*** *USGS Topo Map:* **South Amboy**

	Genus	Tolerance Value	Amount
*	Hydropsyche	4	9
	Limnodrilus	10	9
	Tubifex	10	8
	Stylodrilus	10	6
	Nais	8	3
	Phaenopsectra	7	3
	Tipula	4	3
	Pisidium	6.8	2
	Prostoma	7	2
	Syrphidae	10	2
	Ancyronyx	2	1
	Caecidotea	8	1
	Curculionidae	7	1
	Physella	9.1	1
	Procladius	9	1
	Stenochironomus	5	1

** (EPT organism)* *Taxa Richness:* 16 *Population:* 53

%Dominance / Dominant Taxon(s): 17.0% Hydropsyche & Limnodrilus

Hilsenhoff Biotic Index (HBI): 7.75 *%Clingers:* 26.42%

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

CPMI Rating: **4 Poor**

Habitat Analysis: 121 Suboptimal USEPA Protocol

Observations: Water temp: 15.73 C; Cond: 263 umhos; DO: 8.20 mg/L; pH: 6.40 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 13' / 1'; Substrate: cobble, gravel, sand, silt

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

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

Other: fish, waterfowl, invasives, eroded banks, trash, concrete shoring on RB

AMNET Site # **AN0457** ***Stream Name:*** **Gravelly Bk**

Location: **Church Rd; Aberdeen Twp; Monmouth County**

Collection Date: ***4/8/2010*** ***USGS Topo Map:*** **Keyport**

Genus	*Tolerance Value*	*Amount*
Limnodrilus	10	16
Ceratopogonidae	6	1
Orthocladiinae	5	1
Pisidium	6.8	1

** (EPT organism)* *Taxa Richness:* 4 *Population:* 19

%Dominance / Dominant Taxon(s): 84.2% Limnodrilus

Hilsenhoff Biotic Index (HBI): 9.36 *%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: 14.92 C; Cond: 468 umhos; DO: 8.34 mg/L; pH: 3.52 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 21' / < 1 - 1'; Substrate: mud, silt, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: invasives, orange floc, trash, silt, undercut banks upstream

AMNET Site # **AN0458** ***Stream Name:*** **Wilkson Ck**

Location: **Church Rd; Aberdeen Twp; Monmouth County**

Collection Date: ***4/8/2010*** ***USGS Topo Map:*** **Keyport**

Genus	*Tolerance Value*	*Amount*
Polypedilum	6	12
Limnodrilus	10	10
Enchytraeidae	10	8
Lumbriculidae	8	6
Molophilus	3	2
Collembola	10	1
Hydracarina	6	1
Orthocladiinae	5	1
Phaenopsectra	7	1
Planorbidae	6	1

** (EPT organism)* *Taxa Richness:* 10 *Population:* 43

%Dominance / Dominant Taxon(s): 27.9% Polypedilum

Hilsenhoff Biotic Index (HBI): 7.91 *%Clingers:* 2.33%

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

CPMI Rating: **2 Poor**

Habitat Analysis: 120 Suboptimal USEPA Protocol

Observations: Water temp: 14.53 C; Cond: 399 umhos; DO: 8.93 mg/L; pH: 3.97 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 22' / < 1'; Substrate: cobble, gravel, sand, undercut banks

Canopy: partly open; Bank Stability: poor; Bank Vegetation: trees, weeds, vines, ivy

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: 2 storm sewers, flowing

Other: orange floc, concrete trash

AMNET Site # **AN0459** *Stream Name:* **Flat Ck**

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

Collection Date: ***4/15/2010*** *USGS Topo Map:* **Keyport**

Genus	*Tolerance Value*	*Amount*
Polypedilum	6	45
Pisidium	6.8	13
Limnodrilus	10	10
Cricotopus	7	8
Orthocladiinae	5	4
Aulodrilus	8	3
Chironomus	10	2
Enchytraeidae	10	2
Tubifex	10	2
Collembola	10	1
Lumbricina	6	1
Nais	8	1
Paratendipes	8	1
Phaenopsectra	7	1
Physella	9.1	1
Planorbidae	6	1
Stratiomyidae	10	1
Tanytarsus	6	1
Tipula	4	1
Tribelos	5	1

** (EPT organism)* *Taxa Richness:* 20 *Population:* 100

%Dominance / Dominant Taxon(s): 45.0% Polypedilum

Hilsenhoff Biotic Index (HBI): 6.97 *%Clingers:* 9.00%

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

CPMI Rating: **6 Fair**

Habitat Analysis: 83 Marginal USEPA Protocol

Observations: Water temp: 11.48 C; Cond: 314 umhos; DO: 9.72 mg/L; pH: 5.97 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 8' / < 1'; Substrate: gravel, sand, silt, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: fish, snake, orange floc, trash, lawn on RB

AMNET Site # **AN0460** ***Stream Name:*** **Mahoras Bk**

Location: **Rt 35; Holmdel Twp; Monmouth County**

Collection Date: ***4/15/2010*** ***USGS Topo Map:*** **Keyport**

	Genus	*Tolerance Value*	*Amount*
	Gammarus	6	17
	Cricotopus	7	7
	Polypedilum	6	7
	Pisidium	6.8	6
	Lumbriculus	8	5
	Hydrobaenus	8	4
*	Hydropsyche	4	4
	Calopteryx	6	2
	Limnodrilus	10	2
	Paratanytarsus	6	2
	Planorbidae	6	2
	Rheocricotopus	6	2
	Microvelia	6	1
	Orthocladiinae	5	1
	Pseudolimnophila	2	1
	Rheotanytarsus	6	1
	Tribelos	5	1

** (EPT organism)* *Taxa Richness:* 17 *Population:* 65

%Dominance / Dominant Taxon(s): 26.2% Gammarus

Hilsenhoff Biotic Index (HBI): 6.37 *%Clingers:* 18.46%

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

CPMI Rating: **8 Fair**

Habitat Analysis: 101 Marginal USEPA Protocol

Observations: Water temp: 11.14 C; Cond: 340 umhos; DO: 10.41 mg/L; pH: 6.59 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 16' / < 1'; Substrate: gravel, sand, silt, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Other: fish; brush clipping and "dog-walk area" on left bank

AMNET Site # **AN0461** *Stream Name:* **Town Bk**

Location: **Spruce Dr; Middletown Twp; Monmouth County**

Collection Date: ***4/15/2010*** *USGS Topo Map:* **Sandy Hook**

Genus	*Tolerance Value*	*Amount*
Musculium	5	20
Pisidium	6.8	17
Micropsectra	7	10
Nais	8	8
Polypedilum	6	8
Chironomus	10	7
Ablabesmyia	8	6
Gammarus	6	4
Crangonyx	8	3
Ischnura	9	3
Caecidotea	8	2
Dero	10	2
Limnodrilus	10	2
Slavina	7	2
Aulodrilus	8	1
Helobdella	8	1
Hydroporus	5	1
Microtendipes	7	1
Planorbidae	6	1
Thienemannimyia	6	1

** (EPT organism)* *Taxa Richness:* 20 *Population:* 100

%Dominance / Dominant Taxon(s): 20.0% Musculium

Hilsenhoff Biotic Index (HBI): 7.01 *%Clingers:* 1.00%

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

CPMI Rating: **6 Fair**

Habitat Analysis: 124 Suboptimal USEPA Protocol

Observations: Water temp: 12.75 C; Cond: 290 umhos; DO: 9.32 mg/L; pH: 7.01 SU

Clarity: slightly turbid, greenish; Flow Rate: slow; Width/Depth: 10' / 1'; Substrate: gravel, sand, silt, root mats, undercut banks

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

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

Downstream of Impoundment: pond

Other: macrophytes, invasives

AMNET Site # **AN0462** *Stream Name:* **McClees Ck**

Location: **Whipporwill Rd; Middletown Twp; Monmouth County**

Collection Date: ***5/25/2010*** *USGS Topo Map:* **Sandy Hook**

Genus	*Tolerance Value*	*Amount*
Gammarus	6	20
Ischnura	9	20
Dubiraphia	6	9
Phaenopsectra	7	9
Tribelos	5	6
Microtendipes	7	5
Polypedilum	6	3
Chironomini	6	2
Dicrotendipes	8	2
Lumbriculus	8	2
Micropsectra	7	2
Nais	8	2
Stylaria	8	2
Ancyronyx	2	1
Brillia	5	1
Chironomus	10	1
Cricotopus	7	1
Enchytraeidae	10	1
Haliplus	5	1
Hyalella	8	1
Limnodrilus	10	1
Peltodytes	5	1
Physella	9.1	1
Pisidium	6.8	1
Pseudochironomus	5	1
Stenelmis	5	1
Stenochironomus	5	1
Stictochironomus	9	1
Tipula	4	1

** (EPT organism)* *Taxa Richness:* 29 *Population:* 100

%Dominance / Dominant Taxon(s): 20.0% Gammarus & Ischnura

Hilsenhoff Biotic Index (HBI): 6.96 *%Clingers:* 26.00%

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

CPMI Rating: **10 Fair**

Habitat Analysis: 95 Marginal USEPA Protocol

Observations: Water temp: 16.23 C; Cond: 231 umhos; DO: 8.64 mg/L; pH: 6.75 SU

Clarity: turbid; Flow Rate: slow; Width/Depth: 12' / 2'; Substrate: gravel, sand, silt, root mats

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

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

Pipes / Ditches: ditch flowing

Downstream of Impoundment: small pond

Other: water snake

AMNET Site # **AN0464** *Stream Name:* **Nut Swamp Bk**

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

Collection Date: ***4/27/2010*** *USGS Topo Map:* **Long Branch**

Genus	*Tolerance Value*	*Amount*
Nais	8	21
Cricotopus	7	13
Polypedilum	6	13
Gammarus	6	11
Tanytarsus	6	10
Limnodrilus	10	9
Brillia	5	7
Tubifex	10	4
Eclipidrilus	8	2
Enchytraeidae	10	2
Calopteryx	6	1
Chironomus	10	1
Dugesia	4	1
Orthocladius	6	1
Rheocricotopus	6	1
Stylodrilus	10	1
Tipula	4	1
Tribelos	5	1

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

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

Hilsenhoff Biotic Index (HBI): 7.15 *%Clingers:* 13.00%

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

CPMI Rating: **6 Fair**

Habitat Analysis: 114 Suboptimal USEPA Protocol

Observations: Water temp: 10.97 C; Cond: 409 umhos; DO: 9.66 mg/L; pH: 7.12 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 14' / < 1'; Substrate: sand, silt, snags, root mats

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

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

Pipes / Ditches: storm sewers

Other: fish, macrophytes; stream flows underground on the upstream side

AMNET Site # **AN0465** ***Stream Name:*** **Hop Bk**

Location: **Roberts Rd; Holmdel Twp; Monmouth County**

Collection Date: ***4/27/2010*** ***USGS Topo Map:*** **Marlboro**

	Genus	*Tolerance Value*	*Amount*
	Limnodrilus	10	38
	Cricotopus	7	37
	Lumbriculidae	8	7
	Polypedilum	6	6
	Antocha	3	3
	Hemerodromia	6	2
*	Leuctra	0	2
	Lumbricina	6	2
	Nais	8	1
	Simulium	6	1
	Tubifex	10	1

** (EPT organism)* *Taxa Richness:* 11 *Population:* 100

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

Hilsenhoff Biotic Index (HBI): 7.88 *%Clingers:* 43.00%

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

CPMI Rating: **6 Fair**

Habitat Analysis: 148 Suboptimal USEPA Protocol

Observations: Water temp: 10.62 C; Cond: 431 umhos; DO: 9.77 mg/L; pH: 6.90 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 15' < 1'; Substrate: gravel, 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: fish, concrete embankment on RB

AMNET Site # **AN0466** *Stream Name:* **Hop Bk**

Location: **Willow Brook Rd; Holmdel Twp; Monmouth County**

Collection Date: *5/6/2010* *USGS Topo Map:* **Marlboro**

	Genus	*Tolerance Value*	*Amount*
	Gammarus	6	27
	Rheotanytarsus	6	17
	Nais	8	14
	Limnodrilus	10	9
	Tubifex	10	5
	Polypedilum	6	3
	Thienemannimyia	6	3
	Tvetenia	5	3
	Brillia	5	2
	Calopteryx	6	2
*	Cheumatopsyche	5	2
	Cricotopus	7	2
	Heterotrissocladius	0	2
	Paratanytarsus	6	2
	Tanytarsus	6	2
	Caecidotea	8	1
	Chironomus	10	1
	Orthocladiinae	5	1
	Parametriocnemus	5	1
	Somatochlora	1	1

** (EPT organism)* *Taxa Richness:* 20 *Population:* 100

%Dominance / Dominant Taxon(s): 27.0% Gammarus

Hilsenhoff Biotic Index (HBI): 6.66 *%Clingers:* 21.00%

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

CPMI Rating: **8 Fair**

Habitat Analysis: 122 Suboptimal USEPA Protocol

Observations: Water temp: 15.76 C; Cond: 345 umhos; DO: 8.33 mg/L; pH: 7.06 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 23' / < 1'; Substrate: gravel, sand, silt, snags, root mats

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

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

Other: frogs

AMNET Site # **AN0467** *Stream Name:* **Willow Bk**

Location: **Schank Rd; Holmdel Twp; Monmouth County**

Collection Date: ***4/8/2010*** *USGS Topo Map:* **Marlboro**

Genus	*Tolerance Value*	*Amount*
Polypedilum	6	6
Rheotanytarsus	6	6
Cricotopus	7	3
Gammarus	6	3
Aulodrilus	8	2
Naididae	7	2
Phaenopsectra	7	2
Calopteryx	6	1
Gerris	8	1
Limnodrilus	10	1
Micropsectra	7	1
Paraphaenocladius	4	1
Paratanytarsus	6	1
Physella	9.1	1
Pseudolimnophila	2	1
Thienemannimyia	6	1

** (EPT organism)* *Taxa Richness:* 16 *Population:* 33

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

Hilsenhoff Biotic Index (HBI): 6.46 *%Clingers:* 33.33%

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

CPMI Rating: **6 Fair**

Habitat Analysis: 144 Suboptimal USEPA Protocol

Observations: Water temp: 16.34 C; Cond: 265 umhos; DO: 8.97 mg/L; pH: 6.82 SU

Clarity: slightly turbid; Flow Rate: moderate; Width/Depth: 14' / < 1'; Substrate: gravel, sand, mud, undercut banks

Canopy: mostly open; Bank Stability: poor; Bank Vegetation: trees, weeds

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

Other: fish, invasive plants

AMNET Site # **AN0468** *Stream Name:* **Willow Bk**

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

Collection Date: *5/6/2010* *USGS Topo Map:* **Marlboro**

	Genus	Tolerance Value	Amount
	Orthocladius	6	22
	Nais	8	18
	Rheotanytarsus	6	11
	Brillia	5	9
	Cricotopus	7	9
	Paratanytarsus	6	7
	Gammarus	6	5
	Eukiefferiella	8	3
	Boyeria	2	2
	Calopteryx	6	2
	Parametriocnemus	5	2
	Tubifex	10	2
*	Amphinemura	3	1
*	Cheumatopsyche	5	1
	Heterotrissocladius	0	1
	Orconectes	6	1
	Polypedilum	6	1
	Stylodrilus	10	1
	Tanytarsus	6	1
	Thienemannimyia	6	1

** (EPT organism)* *Taxa Richness:* 20 *Population:* 100

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

Hilsenhoff Biotic Index (HBI): 6.34 *%Clingers:* 22.00%

** E+P+T:* 2 ( ) Ephemeroptera, (1) Plecoptera, (1) Trichoptera *%Ephemeroptera:* 0.00%

CPMI Rating: **8 Fair**

Habitat Analysis: 132 Suboptimal USEPA Protocol

Observations: Water temp: 15.78 C; Cond: 315 umhos; DO: 8.76 mg/L; pH: 7.09 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 41' / 1'; Substrate: gravel, sand, silt, snags, root mats

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

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

Other: frogs, crayfish, waterfowl; creosote odor

AMNET Site # **AN0469** ***Stream Name:*** **Big Bk**

Location: **Rt 79; Marlboro Twp; Monmouth County**

Collection Date: ***5/6/2010*** ***USGS Topo Map:*** **Marlboro**

	Genus	*Tolerance Value*	*Amount*
	Cricotopus	7	38
	Brillia	5	12
	Limnodrilus	10	5
	Orthocladius	6	5
	Eukiefferiella	8	3
	Gammarus	6	3
	Pristina	8	3
	Eclipidrilus	8	2
	Nais	8	2
	Stylodrilus	10	2
	Chironomus	10	1
	Enchytraeidae	10	1
*	Hydropsyche	4	1
	Parametriocnemus	5	1
	Paraphaenocladius	4	1
	Pristinella	10	1
	Simulium	6	1

** (EPT organism)* *Taxa Richness:* 17 *Population:* 82

%Dominance / Dominant Taxon(s): 46.3% Cricotopus

Hilsenhoff Biotic Index (HBI): 6.99 *%Clingers:* 48.78%

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

CPMI Rating: **10 Fair**

Habitat Analysis: 100 Marginal USEPA Protocol

Observations: Water temp: 17.46 C; Cond: 293 umhos; DO: 7.50 mg/L; pH: 6.89 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 9' / < 1'; Substrate: gravel, sand, silt, clay

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

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

Pipes / Ditches: storm sewers

Other: snapping turtle, tadpoles; iron precipitate, trash dumped on RB; Monmouth pumping station

AMNET Site # **AN0470** ***Stream Name:*** **Big Bk**

Location: **Cross Rd; Colts Neck Twp; Monmouth County**

Collection Date: ***5/6/2010*** ***USGS Topo Map:*** **Marlboro**

	Genus	*Tolerance Value*	*Amount*
	Nais	8	26
	Brillia	5	15
	Paratanytarsus	6	15
	Cricotopus	7	12
	Caecidotea	8	9
	Polypedilum	6	8
	Boyeria	2	3
*	Cheumatopsyche	5	2
	Gammarus	6	2
	Rheotanytarsus	6	2
	Parametriocnemus	5	1
	Phaenopsectra	7	1
	Rheocricotopus	6	1
	Slavina	7	1
	Tropisternus	10	1
	Tvetenia	5	1

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

%Dominance / Dominant Taxon(s): 26.0% Nais

Hilsenhoff Biotic Index (HBI): 6.57 *%Clingers:* 17.00%

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

CPMI Rating: **6 Fair**

Habitat Analysis: 123 Suboptimal USEPA Protocol

Observations: Water temp: 16.44 C; Cond: 342 umhos; DO: 8.53 mg/L; pH: 7.22 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 30' / < 1'; Substrate: gravel, sand, silt, snags, root mats

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

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

Pipes / Ditches: storm sewers flowing

Other: fish, crayfish

AMNET Site # **AN0471** *Stream Name:* **Yellow Bk**

Location: **School Rd E; Freehold Twp; Monmouth County**

Collection Date: *5/6/2010* *USGS Topo Map:* **Marlboro**

	Genus	Tolerance Value	Amount
	Cricotopus	7	25
	Brillia	5	14
	Nais	8	11
	Orthocladius	6	7
	Chironomus	10	6
	Heterotrissocladius	0	6
	Tubifex	10	6
	Limnodrilus	10	5
	Prodiamesa	3	5
	Polypedilum	6	2
	Prostoma	7	2
	Tanytarsus	6	2
	Tribelos	5	2
*	Limnephilus	3	1
	Lumbriculus	8	1
	Microtendipes	7	1
	Nanocladius	3	1
	Pisidium	6.8	1
	Simulium	6	1
	Thienemanniella	6	1

** (EPT organism)* *Taxa Richness:* 20 *Population:* 100

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

Hilsenhoff Biotic Index (HBI): 6.48 *%Clingers:* 27.00%

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

CPMI Rating: **8 Fair**

Habitat Analysis: 122 Suboptimal USEPA Protocol

Observations: Water temp: 16.90 C; Cond: 263 umhos; DO: 7.84 mg/L; pH: 6.28 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 15' / < 1'; Substrate: gravel, sand, clay, silt, snags, root mats

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

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

Pipes / Ditches: storm sewers

Other: macrophytes, filamentous algae, iron floc

AMNET Site # **AN0472** *Stream Name:* **Yellow Bk**

Location: **Creamery Rd; Colts Neck Twp; Monmouth County**

Collection Date: *5/6/2010* *USGS Topo Map:* **Marlboro**

	Genus	*Tolerance Value*	*Amount*
	Cricotopus	7	20
	Chironomus	10	17
	Gammarus	6	13
	Limnodrilus	10	8
	Nais	8	7
	Corbicula	4	4
	Rheotanytarsus	6	4
	Calopteryx	6	3
	Slavina	7	3
	Stylodrilus	10	3
	Tanytarsus	6	3
	Ancyronyx	2	2
	Paratanytarsus	6	2
	Stylaria	8	2
	Boyeria	2	1
*	Cheumatopsyche	5	1
	Dubiraphia	6	1
	Helophorus	5	1
	Hydroporus	5	1
	Microtendipes	7	1
	Prostoma	7	1
	Simulium	6	1
	Tubifex	10	1

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

%Dominance / Dominant Taxon(s): 20.0% Cricotopus

Hilsenhoff Biotic Index (HBI): 7.36 *%Clingers:* 30.00%

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

CPMI Rating: **6 Fair**

Habitat Analysis: 123 Suboptimal USEPA Protocol

Observations: Water temp: 16.90 C; Cond: 270 umhos; DO: 8.26 mg/L; pH: 6.63 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 35' / < 1'; Substrate: gravel, sand, silt, snags, root mats

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

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

Pipes / Ditches: storm sewers flowing

AMNET Site # **AN0473** *Stream Name:* **Mine Bk**

Location: **Creamery Rd; Colts Neck Twp; Monmouth County**

Collection Date: *5/6/2010* *USGS Topo Map:* **Marlboro**

Genus	*Tolerance Value*	*Amount*
Nais	8	49
Cricotopus	7	30
Tubifex	10	5
Brillia	5	2
Chironomus	10	2
Gammarus	6	2
Simulium	6	2
Bezzia	6	1
Caecidotea	8	1
Enchytraeidae	10	1
Nematoda	6	1
Phaenopsectra	7	1
Polypedilum	6	1
Slavina	7	1
Tipulidae	3	1

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

%Dominance / Dominant Taxon(s): 49.0% Nais

Hilsenhoff Biotic Index (HBI): 7.59 *%Clingers:* 33.00%

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

CPMI Rating: **4 Poor**

Habitat Analysis: 123 Suboptimal USEPA Protocol

Observations: Water temp: 16.64 C; Cond: 165 umhos; DO: 8.81 mg/L; pH: 6.32 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 19' / 1'; Substrate: gravel, sand, silt, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested, agriculture-cropland (tree farm)

Other: excessive filamentous algae mats, iron floc

AMNET Site # **AN0475** ***Stream Name:*** **Hockhockson Bk**

Location: **Hockhockson Rd; Colts Neck Twp; Monmouth County**

Collection Date: ***5/13/2010*** ***USGS Topo Map:*** **Long Branch**

	Genus	*Tolerance Value*	*Amount*
	Tubifex	10	17
	Simulium	6	14
	Dubiraphia	6	7
*	Perlesta	4	6
*	Brachycentrus	1	5
	Chironomus	10	5
	Pisidium	6.8	5
	Rheotanytarsus	6	4
	Ancyronyx	2	3
	Caecidotea	8	3
*	Eurylophella	4	3
*	Oecetis	8	3
	Brillia	5	2
*	Caenis	7	2
*	Maccaffertium	3	2
	Procladius	9	2
	Rheopelopia	4	2
	Bezzia	6	1
	Boyeria	2	1
	Cricotopus	7	1
	Dineutus	4	1
	Eukiefferiella	8	1
	Heterotrissocladius	0	1
	Macronychus	2	1
	Nais	8	1
*	Nyctiophylax	5	1
*	Polycentropus	6	1
	Prodiamesa	3	1
	Prosimulium	2	1
	Prostoma	7	1
	Slavina	7	1
	Thienemannimyia	6	1

** (EPT organism)* *Taxa Richness:* 32 *Population:* 100

%Dominance / Dominant Taxon(s): 17.0% Tubifex

Hilsenhoff Biotic Index (HBI): 6.28 *%Clingers:* 52.00%

** E+P+T:* 8 (3) Ephemeroptera, (1) Plecoptera, (4) Trichoptera *%Ephemeroptera:* 7.00%

CPMI Rating: **18 Good**

Habitat Analysis: 147 Suboptimal USEPA Protocol

Observations: Water temp: 11.98 C; Cond: 154 umhos; DO: 9.04 mg/L; pH: 6.28 SU

Clarity: clear, cedar brown; Flow Rate: slow; Width/Depth: 17' / < 1'; Substrate: mud, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested, wetlands, agriculture-livestock (horse farm)

Other: macrophytes, "trout stocked stream" sign

AMNET Site # **AN0476** *Stream Name:* **Pine Bk**

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

Collection Date: ***4/27/2010*** *USGS Topo Map:* **Long Branch**

	Genus	Tolerance Value	Amount
	Cricotopus	7	55
	Nais	8	14
	Antocha	3	3
	Brillia	5	3
	Eukiefferiella	8	3
	Rheocricotopus	6	3
	Thienemannimyia	6	3
*	Hydropsyche	4	2
*	Pseudocloeon	4	2
	Stenelmis	5	2
	Tvetenia	5	2
	Caecidotea	8	1
*	Cheumatopsyche	5	1
	Lumbriculidae	8	1
	Orthocladiinae	5	1
	Oulimnius	4	1
	Planariidae	4	1
	Simulium	6	1
	Thienemanniella	6	1

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

%Dominance / Dominant Taxon(s): 55.0% Cricotopus

Hilsenhoff Biotic Index (HBI): 6.63 *%Clingers:* 65.00%

** E+P+T:* 3 (1) Ephemeroptera, ( ) Plecoptera, (2) Trichoptera *%Ephemeroptera:* 2.00%

CPMI Rating: **12 Good**

Habitat Analysis: 131 Suboptimal USEPA Protocol

Observations: Water temp: 11.27 C; Cond: 135 umhos; DO: 9.98 mg/L; pH: 6.34 SU

Clarity: turbid, cedar brown; Flow Rate: fast; Width/Depth: 31' / 2'; Substrate: sand, clay

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

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

Other: filamentous algae, macrophytes, "Trout Stocked" stream, plastic bank stabilization along LB

AMNET Site # **AN0477** *Stream Name:* **Whale Pond Bk**

Location: **Larchwood Ave; Ocean Twp; Monmouth County**

Collection Date: ***5/17/2010*** *USGS Topo Map:* **Long Branch**

Genus	*Tolerance Value*	*Amount*
Gammarus	6	61
Limnodrilus	10	13
Prodiamesa	3	11
Chironomus	10	4
Lumbriculidae	8	4
Pisidium	6.8	3
Brillia	5	1
Paratendipes	8	1
Psectrotanypus	10	1
Tubificidae	10	1

** (EPT organism)* *Taxa Richness:* 10 *Population:* 100

%Dominance / Dominant Taxon(s): 61.0% Gammarus

Hilsenhoff Biotic Index (HBI): 6.54 *%Clingers:* 0.00%

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

CPMI Rating: **4 Poor**

Habitat Analysis: 121 Suboptimal USEPA Protocol

Observations: Water temp: 13.52 C; Cond: 193 umhos; DO: 8.00 mg/L; pH: 6.15 SU

Clarity: slightly turbid; Flow Rate: slow; Width/Depth: 22' / 1'; Substrate: sand, silt, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: waterfowl; municipal pumping station on RB; maintenace yard of Monmouth University near LB

AMNET Site # **AN0479** *Stream Name:* **Jumping Bk**

Location: **Essex Rd; New Shrewsbury Boro; Monmouth County**

Collection Date: ***5/13/2010*** *USGS Topo Map:* **Asbury Park**

Genus	*Tolerance Value*	*Amount*
Dubiraphia	6	19
Chironomus	10	12
Cricotopus	7	12
Ancyronyx	2	8
Coenagrionidae	9	7
Limnodrilus	10	7
Nais	8	7
Hydroporus	5	4
Procladius	9	4
Orthocladiinae	5	2
Paratanytarsus	6	2
Rheotanytarsus	6	2
Tubifex	10	2
Berosus	5	1
Brillia	5	1
Dicrotendipes	8	1
Helisoma	7	1
Labrundinia	7	1
Microvelia	6	1
Nanocladius	3	1
Polypedilum	6	1
Stenochironomus	5	1
Tanytarsus	6	1
Thienemannimyia	6	1
Tribelos	5	1

** (EPT organism)* *Taxa Richness:* 25 *Population:* 100

%Dominance / Dominant Taxon(s): 19.0% Dubiraphia

Hilsenhoff Biotic Index (HBI): 7.02 *%Clingers:* 41.00%

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

CPMI Rating: **10 Fair**

Habitat Analysis: 158 Suboptimal USEPA Protocol

Observations: Water temp: 10.95 C; Cond: 465 umhos; DO: 7.41 mg/L; pH: 6.54 SU

Clarity: clear, cedar brown; Flow Rate: slow; Width/Depth: 15' / 1-2'; Substrate: gravel, sand, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: commercial (upstream), forested (down stream)

Other: tadpoles, little observable flow

AMNET Site # **AN0480** *Stream Name:* **Jumping Bk**

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

Collection Date: ***5/17/2010*** *USGS Topo Map:* **Asbury Park**

Genus	*Tolerance Value*	*Amount*
Nais	8	12
Calopteryx	6	10
Pisidium	6.8	9
Polypedilum	6	7
Orthocladius	6	6
Thienemannimyia	6	6
Chironomus	10	5
Cricotopus	7	5
Eclipidrilus	8	5
Ancyronyx	2	4
Eukiefferiella	8	4
Phaenopsectra	7	3
Argia	6	2
Boyeria	2	2
Brillia	5	2
Hydroporus	5	2
Limnodrilus	10	2
Rheotanytarsus	6	2
Simulium	6	2
Tubifex	10	2
Aulodrilus	8	1
Caecidotea	8	1
Microtendipes	7	1
Orthocladiinae	5	1
Paratendipes	8	1
Stenelmis	5	1
Stylaria	8	1
Tanytarsus	6	1

** (EPT organism)* *Taxa Richness:* 28 *Population:* 100

%Dominance / Dominant Taxon(s): 12.0% Nais

Hilsenhoff Biotic Index (HBI): 6.72 *%Clingers:* 20.00%

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

CPMI Rating: **10 Fair**

Habitat Analysis: 131 Suboptimal USEPA Protocol

Observations: Water temp: 13.96 C; Cond: 312 umhos; DO: 7.95 mg/L; pH: 6.35 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 15' / < 1'; Substrate: gravel, sand, silt, snags, root mats, undercut banks

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

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

Pipes / Ditches: storm sewers

Other: turtle; ball park near LB

AMNET Site # **AN0481** *Stream Name:* **Shark River**

Location: **Shark River Rd; Wall Twp; Monmouth County**

Collection Date: ***5/13/2010*** *USGS Topo Map:* **Asbury Park**

Genus	*Tolerance Value*	*Amount*
Prodiamesa	3	14
Hyalella	8	9
Limnodrilus	10	3
Caecidotea	8	2
Chironomidae	6	2
Thienemannimyia	6	2
Anax	5	1
Crangonyx	8	1
Nematoda	6	1
Sialis	4	1
Trichocorixa	9	1

** (EPT organism)* *Taxa Richness:* 11 *Population:* 37

%Dominance / Dominant Taxon(s): 37.8% Prodiamesa

Hilsenhoff Biotic Index (HBI): 5.84 *%Clingers:* 0.00%

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

CPMI Rating: **6 Fair**

Habitat Analysis: 154 Suboptimal USEPA Protocol

Observations: Water temp: 11.58 C; Cond: 203 umhos; DO: 6.25 mg/L; pH: 6.71 SU

Clarity: clear, orange color; Flow Rate: moderate; Width/Depth: 12' / 1'; Substrate: cobble, gravel, sand

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: filamentous algae, excessive orange floc, rip rap walls; new bridge: 2008

AMNET Site # **AN0482** *Stream Name:* **Shark River**

Location: **Remsen Mill Rd; Neptune Twp; Monmouth County**

Collection Date: ***5/17/2010*** *USGS Topo Map:* **Asbury Park**

	Genus	Tolerance Value	Amount
	Chironomus	10	44
	Limnodrilus	10	12
	Prodiamesa	3	7
	Brillia	5	6
*	Baetis	6	5
*	Acentrella	4	4
	Ancyronyx	2	3
	Gammarus	6	3
	Boyeria	2	2
*	Maccaffertium	3	2
	Cryptochironomus	8	1
	Eclipidrilus	8	1
*	Eurylophella	4	1
	Hydroporus	5	1
	Macronychus	2	1
	Microtendipes	7	1
	Pisidium	6.8	1
	Polypedilum	6	1
	Stenelmis	5	1
	Stylaria	8	1
	Tribelos	5	1
	Tubifex	10	1

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

%Dominance / Dominant Taxon(s): 44.0% Chironomus

Hilsenhoff Biotic Index (HBI): 7.66 *%Clingers:* 9.00%

** E+P+T:* 4 (4) Ephemeroptera, ( ) Plecoptera, ( ) Trichoptera *%Ephemeroptera:* 12.00%

CPMI Rating: **8** **Fair**

Habitat Analysis: 99 Marginal USEPA Protocol

Observations: Water temp: 13.30 C; Cond: 237 umhos; DO: 8.60 mg/L; pH: 6.37 SU

Clarity: turbid; Flow Rate: slow; Width/Depth: 24' / 1'; Substrate: sand, mud, silt, root mats

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

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

Downstream of Impoundment: USGS weir

Other: tadpoles; "trout stocked" stream; USGS gage station; NJ American Water pumping station on LB

AMNET Site # **AN0483** *Stream Name:* **Wreck Pond Bk**

Location: **Old Mill Rd; Wall Twp; Monmouth County**

Collection Date: ***5/17/2010*** *USGS Topo Map:* **Asbury Park**

	Genus	Tolerance Value	Amount
	Rheotanytarsus	6	14
*	Cheumatopsyche	5	12
	Gammarus	6	11
	Ancyronyx	2	10
	Stenelmis	5	10
*	Hydropsyche	4	9
	Polypedilum	6	8
	Cricotopus	7	6
	Caecidotea	8	3
	Dubiraphia	6	2
	Paratanytarsus	6	2
*	Triaenodes	6	2
*	Acentrella	4	1
	Amnicola	4.8	1
*	Caenis	7	1
	Chironomus	10	1
*	Eurylophella	4	1
	Hyalella	8	1
	Ischnura	9	1
	Lumbriculus	8	1
*	Maccaffertium	3	1
	Prostoma	7	1
	Stylaria	8	1

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

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

Hilsenhoff Biotic Index (HBI): 5.39 *%Clingers:* 65.00%

** E+P+T:* 7 (4) Ephemeroptera, ( ) Plecoptera, (3) Trichoptera *%Ephemeroptera:* 4.00%

CPMI Rating: **18 Good**

Habitat Analysis: 110 Suboptimal USEPA Protocol

Observations: Water temp: 18.94 C; Cond: 229 umhos; DO: 8.51 mg/L; pH: 6.70 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 30' / 1'; Substrate: gravel, sand, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Downstream of Impoundment: Old Mill Pond

Other: periphytes, waterfowl; newly planted grass around lake; restaurant on LB

AMNET Site # **AN0484** *Stream Name:* **Hannabrand Bk**

Location: **Old Mill Rd; Wall Twp; Monmouth County**

Collection Date: ***5/17/2010*** *USGS Topo Map:* **Asbury Park**

	Genus	Tolerance Value	Amount
*	Acentrella	4	20
	Eukiefferiella	8	14
	Simulium	6	11
	Gammarus	6	8
	Optioservus	4	8
	Paratanytarsus	6	5
	Dicranota	3	4
	Rheotanytarsus	6	4
	Stenelmis	5	4
	Parakiefferiella	4	3
	Eclipidrilus	8	2
	Nais	8	2
	Orthocladius	6	2
	Pisidium	6.8	2
	Polypedilum	6	2
	Prosimulium	2	2
	Antocha	3	1
*	Brachycentrus	1	1
*	Eurylophella	4	1
	Gyraulus	6	1
*	Hydropsyche	4	1
	Macronychus	2	1
	Tanytarsus	6	1

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

%Dominance / Dominant Taxon(s): 20.0% Acentrella

Hilsenhoff Biotic Index (HBI): 5.36 *%Clingers:* 34.00%

** E+P+T:* 4 (2) Ephemeroptera, ( ) Plecoptera, (2) Trichoptera *%Ephemeroptera:* 21.00%

CPMI Rating: **18 Good**

Habitat Analysis: 121 Suboptimal USEPA Protocol

Observations: Water temp: 14.65 C; Cond: 243 umhos; DO: 9.00 mg/L; pH: 6.22 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 20' / < 1'; Substrate: gravel, sand, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: macrophytes, periphytes, waterfowl; Wall Twp Water Dept. pumping station upstream

AMNET Site # **AN0485** *Stream Name:* **Manasquan River**

Location: **off Turkey Swamp Rd; Freehold Twp; Monmouth County**

Collection Date: ***5/27/2010*** *USGS Topo Map:* **Adelphia**

Genus	*Tolerance Value*	*Amount*
Caecidotea	8	72
Procladius	9	13
Thienemannimyia	6	6
Chironomus	10	4
Lumbriculus	8	2
Dero	10	1
Enchytraeidae	10	1
Hydroporus	5	1

** (EPT organism)* *Taxa Richness:* 8 *Population:* 100

%Dominance / Dominant Taxon(s): 72.0% Caecidotea

Hilsenhoff Biotic Index (HBI): 8.10 *%Clingers:* 0.00%

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

CPMI Rating: **0 Poor**

Habitat Analysis: 146 Suboptimal USEPA Protocol

Observations: Water temp: 16.21 C; Cond: 201 umhos; DO: 4.01 mg/L; pH: 4.9 SU

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

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

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

Other: frogs, macrophytes

AMNET Site # **AN0486** *Stream Name:* **Debois Ck**

Location: **Rt 33; Freehold Twp; Monmouth County**

Collection Date: ***5/13/2010*** *USGS Topo Map:* **Adelphia**

Genus	*Tolerance Value*	*Amount*
Cricotopus	7	14
Brillia	5	13
Micropsectra	7	13
Limnodrilus	10	12
Thienemannimyia	6	12
Crangonyx	8	6
Nais	8	5
Polypedilum	6	5
Aulodrilus	8	3
Caecidotea	8	3
Dicranota	3	3
Orthocladiinae	5	2
Tanytarsus	6	2
Bittacomorpha	8	1
Hydrobaenus	8	1
Hydroporus	5	1
Limnophyes	8	1
Mooreobdella	7.8	1
Paratendipes	8	1
Tipula	4	1

** (EPT organism)* *Taxa Richness:* 20 *Population:* 100

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

Hilsenhoff Biotic Index (HBI): 6.92 *%Clingers:* 14.00%

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

CPMI Rating: **6 Fair**

Habitat Analysis: 121 Suboptimal USEPA Protocol

Observations: Water temp: 10.75 C; Cond: 313 umhos; DO: 8.90 mg/L; pH: 6.76 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 13' / < 1'; Substrate: gravel, sand, silt

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

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

Pipes / Ditches: storm sewers

Other: fish; orange floc

AMNET Site # **AN0487** ***Stream Name:*** **Debois Ck**

Location: **Strickland Rd; Howell Twp; Monmouth County**

Collection Date: ***5/27/2010*** ***USGS Topo Map:*** **Adelphia**

	Genus	*Tolerance Value*	*Amount*
	Rheotanytarsus	6	18
	Nais	8	13
	Cricotopus	7	10
	Brillia	5	8
	Rheocricotopus	6	7
	Polypedilum	6	6
	Calopteryx	6	5
	Tanytarsus	6	5
	Argia	6	4
	Macronychus	2	4
	Ancyronyx	2	3
*	Cheumatopsyche	5	3
*	Hydropsyche	4	2
	Phaenopsectra	7	2
	Amnicola	4.8	1
	Enallagma	9	1
	Erpobdellidae	8	1
	Paratanytarsus	6	1
	Physella	9.1	1
	Prostoma	7	1
	Rhagovelia	9	1
	Simulium	6	1
	Thienemannimyia	6	1
	Tubifex	10	1

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

%Dominance / Dominant Taxon(s): 18.0% Rheotanytarsus

Hilsenhoff Biotic Index (HBI): 6.10 *%Clingers:* 47.00%

** E+P+T:* 2 ( ) Ephemeroptera, ( ) Plecoptera, (2) Trichoptera *%Ephemeroptera:* 0.00%

CPMI Rating: **10 Fair**

Habitat Analysis: 125 Suboptimal USEPA Protocol

Observations: Water temp: 19.37 C; Cond: 320 umhos; DO: 7.87 mg/L; pH: 6.68 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 14' / 2'; Substrate: gravel, sand, mud, silt, snags, root mats

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

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

Other: invasive plants (phragmites, mexican bamboo)

AMNET Site # **AN0488** *Stream Name:* **UNT to Manasquan River (Killtime Bk)**

Location: **Strickland Rd; Howell Twp; Monmouth County**

Collection Date: ***5/27/2010*** *USGS Topo Map:* **Adelphia**

Genus	*Tolerance Value*	*Amount*
Phaenopsectra	7	25
Amnicola	4.8	20
Polypedilum	6	11
Tribelos	5	11
Rheotanytarsus	6	9
Ancyronyx	2	8
Lumbriculus	8	2
Paratanytarsus	6	2
Aulodrilus	8	1
Brillia	5	1
Calopteryx	6	1
Chironomus	10	1
Collembola	10	1
Limnodrilus	10	1
Micropsectra	7	1
Paratendipes	8	1
Physella	9.1	1
Planorbidae	6	1
Tanytarsus	6	1
Tipula	4	1

** (EPT organism)* *Taxa Richness:* 20 *Population:* 100

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

Hilsenhoff Biotic Index (HBI): 5.79 *%Clingers:* 42.00%

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

CPMI Rating: **12 Good**

Habitat Analysis: 129 Suboptimal USEPA Protocol

Observations: Water temp: 20.4 C; Cond: 335 umhos; DO: 6.48 mg/L; pH: 6.59 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 15' / 1 - 2'; Substrate: gravel, sand, snags, root mats

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

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

Pipes / Ditches: storm sewers

AMNET Site # **AN0489** *Stream Name:* **Manasquan River**

Location: **Rt 9; Howell Twp; Monmouth County**

Collection Date: ***5/27/2010*** *USGS Topo Map:* **Adelphia**

	Genus	*Tolerance Value*	*Amount*
	Phaenopsectra	7	31
	Limnodrilus	10	18
	Brillia	5	11
	Tribelos	5	11
	Ancyronyx	2	7
	Chironomus	10	7
	Enchytraeidae	10	2
	Paraphaenocladius	4	2
	Thienemannimyia	6	2
	Tubifex	10	2
*	Cheumatopsyche	5	1
	Eukiefferiella	8	1
	Gammarus	6	1
	Orthocladius	6	1
	Physidae	7	1
	Pisidium	6.8	1
	Polypedilum	6	1

** (EPT organism)* *Taxa Richness:* 17 *Population:* 100

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

Hilsenhoff Biotic Index (HBI): 6.96 *%Clingers:* 39.00%

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

CPMI Rating: **10 Fair**

Habitat Analysis: 117 Suboptimal USEPA Protocol

Observations: Water temp: 18.57 C; Cond: 294 umhos; DO: 7.04 mg/L; pH: 6.61 SU

Clarity: turbid; Flow Rate: moderate; Width/Depth: 30' / 2 - 3'; Substrate: gravel, sand, mud, root mats, leaf litter

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

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

Pipes / Ditches: storm sewer, flowing

Other: fish; iron floc

AMNET Site # **AN0490** *Stream Name:* **Manasquan River**

Location: **West Farms Rd; Howell Twp; Monmouth County**

Collection Date: ***5/25/2010*** *USGS Topo Map:* **Farmingdale**

	Genus	Tolerance Value	Amount
	Cricotopus	7	58
	Eukiefferiella	8	7
	Polypedilum	6	4
*	Brachycentrus	1	3
	Brillia	5	3
	Rheocricotopus	6	3
*	Hydropsyche	4	2
	Enchytraeidae	10	1
	Limnodrilus	10	1
	Orthocladiinae	5	1
	Paracladopelma	7	1
	Phaenopsectra	7	1
	Rheotanytarsus	6	1
	Simulium	6	1
	Tipula	4	1
	Tvetenia	5	1

** (EPT organism)* *Taxa Richness:* 16 *Population:* 89

%Dominance / Dominant Taxon(s): 65.2% Cricotopus

Hilsenhoff Biotic Index (HBI): 6.63 *%Clingers:* 74.16%

** E+P+T:* 2 ( ) Ephemeroptera, ( ) Plecoptera, (2) Trichoptera *%Ephemeroptera:* 0.00%

CPMI Rating: **10 Fair**

Habitat Analysis: 142 Suboptimal USEPA Protocol

Observations: Water temp: 15.53 C; Cond: 244 umhos; DO: 7.89 mg/L; pH: 6.68 SU

Clarity: turbid, brown; Flow Rate: moderate; Width/Depth: 40' / < 1'; Substrate: gravel, sand, silt

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

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

Pipes / Ditches: storm sewers

Other: "trout stocked stream" sign

AMNET Site # **AN0491** *Stream Name:* **Marsh Bog Bk**

Location: **Cranbury Rd; Howell Twp; Monmouth County**

Collection Date: ***6/1/2010*** *USGS Topo Map:* **Farmingdale**

Genus	*Tolerance Value*	*Amount*
Tribelos	5	50
Polypedilum	6	33
Caecidotea	8	4
Lumbriculus	8	3
Sialis	4	3
Limnodrilus	10	2
Alotanypus	6	1
Dicranota	3	1
Dineutus	4	1
Phaenopsectra	7	1
Rheopelopia	4	1

** (EPT organism)* *Taxa Richness:* 11 *Population:* 100

%Dominance / Dominant Taxon(s): 50.0% Tribelos

Hilsenhoff Biotic Index (HBI): 5.60 *%Clingers:* 1.00%

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

CPMI Rating: **6 Fair**

Habitat Analysis: 164 Optimal USEPA Protocol

Observations: Water temp: 19.66 C; Cond: 55 umhos; DO: 6.13 mg/L; pH: 4.78 SU

Clarity: slightly turbid, cedar; Flow Rate: moderate; Width/Depth: 3' / 1 - 2'; Substrate: gravel, sand, silt

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

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

Other: fish, frogs

AMNET Site # **AN0492** *Stream Name:* **Marsh Bog Bk**

Location: **Yellow Brook Rd; Howell Twp; Monmouth County**

Collection Date: ***6/1/2010*** *USGS Topo Map:* **Farmingdale**

	Genus	Tolerance Value	Amount
	Eclipidrilus	8	15
	Cricotopus	7	11
	Tribelos	5	10
	Brillia	5	8
	Chironomus	10	8
*	Brachycentrus	1	7
	Nais	8	7
	Limnodrilus	10	6
	Polypedilum	6	6
	Lumbriculus	8	5
*	Plauditus	4	3
	Heterotrissocladius	0	2
	Symposiocladius	6	2
*	Agnetina	2	1
	Antocha	3	1
	Boyeria	2	1
	Calopteryx	6	1
*	Dannella	2	1
	Dubiraphia	6	1
	Paratendipes	8	1
	Rheotanytarsus	6	1
	Tanytarsus	6	1
	Tubifex	10	1

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

%Dominance / Dominant Taxon(s): 15.0% Eclipidrilus

Hilsenhoff Biotic Index (HBI): 6.41 *%Clingers:* 23.00%

** E+P+T:* 4 (2) Ephemeroptera, (1) Plecoptera, (1) Trichoptera *%Ephemeroptera:* 4.00%

CPMI Rating: **10 Fair**

Habitat Analysis: 130 Suboptimal USEPA Protocol

Observations: Water temp: 19.9 C; Cond: 103 umhos; DO: 7.21 mg/L; pH: 6.1 SU

Clarity: turbid; Flow Rate: moderate; Width/Depth: 12' / 1'; Substrate: gravel, sand, snags, undercut banks

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

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

Pipes / Ditches: storm sewers

Other: crayfish, invasive plants

AMNET Site # **AN0493** *Stream Name:* **Manasquan River**

Location: **Rt 547; Howell Twp; Monmouth County**

Collection Date: ***6/2/2010*** *USGS Topo Map:* **Farmingdale**

	Genus	Tolerance Value	Amount
	Gammarus	6	30
*	Brachycentrus	1	12
	Polypedilum	6	12
	Heterotrissocladius	0	6
	Eclipidrilus	8	5
	Phaenopsectra	7	5
	Tribelos	5	5
	Brillia	5	4
	Limnodrilus	10	4
	Calopteryx	6	3
	Nais	8	3
	Boyeria	2	2
	Rheocricotopus	6	2
	Rheotanytarsus	6	2
	Apsectrotanypus	5	1
	Chironomus	10	1
	Eukiefferiella	8	1
	Stenelmis	5	1
	Tubifex	10	1

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

%Dominance / Dominant Taxon(s): 30.0% Gammarus

Hilsenhoff Biotic Index (HBI): 5.32 *%Clingers:* 20.00%

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

CPMI Rating: **10 Fair**

Habitat Analysis: 120 Suboptimal USEPA Protocol

Observations: Water temp: 18.74 C; Cond: 195 umhos; DO: 7.47 mg/L; pH: 6.48 SU

Clarity: turbid, brown; Flow Rate: moderate; Width/Depth: 60' / 3 - 4'; Substrate: gravel, sand, mud, silt, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Other: crayfish, Great Blue heron; "trout stocked stream" sign; USGS gage: 3.0

AMNET Site # **AN0494** *Stream Name:* **Mingamahone Bk**

Location: **Cranbury Rd; Howell Twp; Monmouth County**

Collection Date: ***6/1/2010*** *USGS Topo Map:* **Farmingdale**

	Genus	*Tolerance Value*	*Amount*
	Polypedilum	6	13
	Gammarus	6	12
	Limnodrilus	10	11
	Lumbriculus	8	5
	Tribelos	5	5
	Aulodrilus	8	4
	Brillia	5	3
*	Leuctra	0	3
	Sphaeriidae	8	3
	Paratendipes	8	2
	Bittacomorpha	8	1
	Caecidotea	8	1
	Ceratopogonidae	6	1
	Enchytraeidae	10	1
	Sialis	4	1
	Thienemannimyia	6	1

** (EPT organism)* *Taxa Richness:* 16 *Population:* 67

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

Hilsenhoff Biotic Index (HBI): 6.78 *%Clingers:* 4.48%

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

CPMI Rating: **4 Poor**

Habitat Analysis: 154 Suboptimal USEPA Protocol

Observations: Water temp: 18.26 C; Cond: 80 umhos; DO: 6.46 mg/L; pH: 6.00 SU

Clarity: turbid; Flow Rate: moderate; Width/Depth: 10' / 2'; Substrate: gravel, sand, snags, root mats, undercut banks

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

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

Other: macrophytes, invasive plants

AMNET Site # **AN0495** *Stream Name:* **Mingamahone Bk**

Location: **Rt 524; Howell Twp; Monmouth County**

Collection Date: ***6/1/2010*** *USGS Topo Map:* **Farmingdale**

	Genus	*Tolerance Value*	*Amount*
	Dubiraphia	6	24
	Gammarus	6	19
*	Dannella	2	11
*	Perlesta	4	8
*	Hydropsyche	4	5
	Optioservus	4	5
	Stylodrilus	10	5
*	Maccaffertium	3	3
	Ancyronyx	2	2
	Boyeria	2	2
	Calopteryx	6	2
	Eukiefferiella	8	2
	Macronychus	2	2
*	Brachycentrus	1	1
	Corydalus	4	1
*	Eurylophella	4	1
	Gomphus	5	1
*	Leuctra	0	1
*	Polycentropus	6	1
	Polypedilum	6	1
	Rhagovelia	9	1
	Stenelmis	5	1
	Tubifex	10	1

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

%Dominance / Dominant Taxon(s): 24.0% Dubiraphia

Hilsenhoff Biotic Index (HBI): 5.01 *%Clingers:* 66.00%

** E+P+T:* 8 (3) Ephemeroptera, (2) Plecoptera, (3) Trichoptera *%Ephemeroptera:* 15.00%

CPMI Rating: **20 Good**

Habitat Analysis: 150 Suboptimal USEPA Protocol

Observations: Water temp: 19.28 C; Cond: 147 umhos; DO: 8.00 mg/L; pH: 6.80 SU

Clarity: turbid, brown; Flow Rate: moderate; Width/Depth: 16' / 2'; Substrate: gravel, sand, silt, snags, root mats, undercut banks

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

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

Other: fish; overhead power lines; Trout stocked stream

AMNET Site # **AN0496** ***Stream Name:*** **Stan Bk**

Location: **Easy St; Howell Twp; Monmouth County**

Collection Date: ***6/1/2010*** ***USGS Topo Map:*** **Farmingdale**

	Genus	*Tolerance Value*	*Amount*
	Chironomus	10	64
	Tribelos	5	11
	Tubifex	10	4
	Ablabesmyia	8	3
	Dicranota	3	2
	Aulodrilus	8	1
	Brillia	5	1
*	Heteroplectron	3	1
	Lumbriculus	8	1
	Nais	8	1
	Natarsia	8	1
*	Neophylax	3	1
	Phaenopsectra	7	1
	Polypedilum	6	1
	Procladius	9	1
	Simulium	6	1
	Sphaeriidae	8	1
	Tanytarsus	6	1
	Thienemannimyia	6	1
	Tipulidae	3	1
*	Triaenodes	6	1

** (EPT organism)* *Taxa Richness:* 21 *Population:* 100

%Dominance / Dominant Taxon(s): 64.0% Chironomus

Hilsenhoff Biotic Index (HBI): 8.65 *%Clingers:* 3.00%

** E+P+T:* 3 ( ) Ephemeroptera, ( ) Plecoptera, (3) Trichoptera *%Ephemeroptera:* 0.00%

CPMI Rating: **4 Poor**

Habitat Analysis: 132 Suboptimal USEPA Protocol

Observations: Water temp: 19.35 C; Cond: 86 umhos; DO: 6.17 mg/L; pH: 5.04 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 8' / 1'; Substrate: gravel, sand, silt

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

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

Other: frogs, invasive plants

AMNET Site # **AN0497** *Stream Name:* **Squankum Bk**

Location: **Rt 549; Howell Twp; Monmouth County**

Collection Date: ***6/1/2010*** *USGS Topo Map:* **Farmingdale**

	Genus	*Tolerance Value*	*Amount*
	Polypedilum	6	36
*	Brachycentrus	1	19
	Brillia	5	9
	Macronychus	2	6
	Dubiraphia	6	5
*	Maccaffertium	3	5
	Ancyronyx	2	2
	Calopteryx	6	2
*	Eurylophella	4	2
*	Perlesta	4	2
	Rheopelopia	4	2
*	Baetis	6	1
	Boyeria	2	1
	Cordulegaster	3	1
	Curculionidae	7	1
	Eukiefferiella	8	1
	Helophorus	5	1
*	Plauditus	4	1
	Rhagovelia	9	1
	Simulium	6	1
	Tanytarsus	6	1

** (EPT organism)* *Taxa Richness:* 21 *Population:* 100

%Dominance / Dominant Taxon(s): 36.0% Polypedilum

Hilsenhoff Biotic Index (HBI): 4.33 *%Clingers:* 43.00%

** E+P+T:* 6 (4) Ephemeroptera, (1) Plecoptera, (1) Trichoptera *%Ephemeroptera:* 9.00%

CPMI Rating: **16 Good**

Habitat Analysis: 149 Suboptimal USEPA Protocol

Observations: Water temp: 19.31 C; Cond: 174 umhos; DO: 7.51 mg/L; pH: 6.69 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 10' / 1 - 3'; Substrate: gravel, sand, snags, root mats, undercut banks

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

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

Pipes / Ditches: storm sewers

Other: fish, trash

AMNET Site # **AN0498** *Stream Name:* **Manasquan River**

Location: **Hospital Rd; Wall Twp; Monmouth County**

Collection Date: ***6/2/2010*** *USGS Topo Map:* **Asbury Park**

	Genus	*Tolerance Value*	*Amount*
	Gammarus	6	7
	Rhagovelia	9	7
	Calopteryx	6	4
*	Eurylophella	4	3
	Stenelmis	5	3
	Amnicola	4.8	2
*	Baetidae	4	2
	Limnodrilus	10	2
*	Plauditus	4	2
	Stylodrilus	10	2
	Ancyronyx	2	1
	Boyeria	2	1
*	Brachycentrus	1	1
	Didymops	4	1
	Dubiraphia	6	1
	Musculium	5	1
	Simulium	6	1
	Tanytarsus	6	1

** (EPT organism)* *Taxa Richness:* 18 *Population:* 42

%Dominance / Dominant Taxon(s): 16.7% Gammarus & Rhagovelia

Hilsenhoff Biotic Index (HBI): 6.04 *%Clingers:* 23.81%

** E+P+T:* 4 (3) Ephemeroptera, ( ) Plecoptera, (1) Trichoptera *%Ephemeroptera:* 16.67%

CPMI Rating: **14 Good**

Habitat Analysis: 140 Suboptimal USEPA Protocol

Observations: Water temp: 19.03 C; Cond: 170 umhos; DO: 7.57 mg/L; pH: 6.61 SU

Clarity: turbid, brown; Flow Rate: moderate; Width/Depth: 35' / 2 - 3'; Substrate: gravel, sand, silt, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Pipes / Ditches: storm sewers

Other: frogs; "trout stocked stream" sign

AMNET Site # **AN0499** ***Stream Name:*** **N Br Metedeconk River**

Location: **Rt 527; Freehold Twp; Monmouth County**

Collection Date: ***5/27/2010*** ***USGS Topo Map:*** **Adelphia**

	Genus	*Tolerance Value*	*Amount*
	Caecidotea	8	39
	Chironomus	10	25
	Sphaeriidae	8	17
	Synurella	4	6
	Limnodrilus	10	5
	Tribelos	5	4
	Ablabesmyia	8	1
	Cura	4	1
*	Ironoquia	3	1
*	Oligostomis	4	1

** (EPT organism)* *Taxa Richness:* 10 *Population:* 100

%Dominance / Dominant Taxon(s): 39.0% Caecidotea

Hilsenhoff Biotic Index (HBI): 8.11 *%Clingers:* 0.00%

** E+P+T:* 2 ( ) Ephemeroptera, ( ) Plecoptera, (2) Trichoptera *%Ephemeroptera:* 0.00%

CPMI Rating: **2 Poor**

Habitat Analysis: 157 Suboptimal USEPA Protocol

Observations: Water temp: 18.03 C; Cond: 164 umhos; DO: 1.79 mg/L; pH: 5.77 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 12' / 3'; Substrate: gravel, sand, mud, snags, root mats, undercut banks

Canopy: mostly 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: ***7/13/2011*** *USGS Topo Map:* **Adelphia**

	Genus	*Tolerance Value*	*Amount*
	Tribelos	5	20
*	Heteroplectron	3	19
*	Brachycentrus	1	11
	Pisidium	6.8	11
	Aulodrilus	8	6
*	Maccaffertium	3	6
	Nigronia	2	4
	Sialis	4	4
*	Leuctra	0	2
	Chrysops	6	1
	Coenagrionidae	9	1
	Enchytraeidae	10	1
	Gyrinus	4	1
	Hexatoma	2	1
	Limnodrilus	10	1
	Lumbriculus	8	1
*	Molanna	6	1
	Nais	8	1
	Phaenopsectra	7	1
*	Phylocentropus	5	1
	Polypedilum	6	1
*	Pseudocloeon	4	1
	Rhagovelia	9	1
	Rheotanytarsus	6	1
	Tanytarsus	6	1
	Thienemannimyia	6	1

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

%Dominance / Dominant Taxon(s): 20.0% Tribelos

Hilsenhoff Biotic Index (HBI): 4.45 *%Clingers:* 29.00%

** E+P+T:* 7 (2) Ephemeroptera, (1) Plecoptera, (4) Trichoptera *%Ephemeroptera:* 7.00%

CPMI Rating: **18 Good**

Habitat Analysis: 144 Suboptimal USEPA Protocol

Observations: Water temp: 20.27 C; Cond: 124 umhos; DO: 6.56 mg/L; pH: 6.14 SU

Clarity: turbid; Flow Rate: moderate; Width/Depth: 21' / < 1'; Substrate: sand, mud, silt, snags, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: rural

Other: frogs, macrophytes, metallic sheen on water surface; new bridge in 2010

AMNET Site # **AN0501** *Stream Name:* **N Br Metedeconk River**

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

Collection Date: ***6/2/2010*** *USGS Topo Map:* **Adelphia**

	Genus	Tolerance Value	Amount
	Sphaeriidae	8	23
*	Perlesta	4	8
*	Brachycentrus	1	7
	Caecidotea	8	7
*	Maccaffertium	3	7
*	Hydropsyche	4	6
	Promoresia	2	5
	Tribelos	5	4
	Aulodrilus	8	3
*	Cheumatopsyche	5	3
	Gammarus	6	2
	Macronychus	2	2
*	Oecetis	8	2
	Rheotanytarsus	6	2
	Stenelmis	5	2
	Thienemannimyia	6	2
*	Triaenodes	6	2
	Brillia	5	1
	Cricotopus	7	1
	Cryptochironomus	8	1
	Dubiraphia	6	1
	Enchytraeidae	10	1
	Hemerodromia	6	1
	Hyalella	8	1
	Phaenopsectra	7	1
	Rhagovelia	9	1
	Rheocricotopus	6	1
	Stenochironomus	5	1
	Synurella	4	1
	Tvetenia	5	1

** (EPT organism)* *Taxa Richness:* 30 *Population:* 100

%Dominance / Dominant Taxon(s): 23.0% Sphaeriidae

Hilsenhoff Biotic Index (HBI): 5.57 *%Clingers:* 47.00%

** E+P+T:* 7 (1) Ephemeroptera, (1) Plecoptera, (5) Trichoptera *%Ephemeroptera:* 7.00%

CPMI Rating: **18 Good**

Habitat Analysis: 159 Suboptimal USEPA Protocol

Observations: Water temp: 19.98 C; Cond: 134 umhos; DO: 6.75 mg/L; pH: 5.86 SU

Clarity: turbid, cedar brown; Flow Rate: fast; Width/Depth: 15' / 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

Other: crayfish, macrophytes, periphytes

AMNET Site # **AN0502** *Stream Name:* **N Br Metedeconk River**

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

Collection Date: ***6/3/2010*** *USGS Topo Map:* **Lakewood**

	Genus	*Tolerance Value*	*Amount*
	Paratendipes	8	21
	Tribelos	5	15
	Musculium	5	9
	Physella	9.1	8
	Limnodrilus	10	7
	Amnicola	4.8	4
	Spirosperma	10	4
	Phaenopsectra	7	3
	Quistradrilus	10	3
	Stylodrilus	10	3
	Tanytarsus	6	3
	Gillia	8	2
	Menetus	6	2
	Nematoda	6	2
	Ablabesmyia	8	1
	Ancyronyx	2	1
	Apsectrotanypus	5	1
	Argia	6	1
	Chironomus	10	1
	Cryptochironomus	8	1
	Enallagma	9	1
	Gammarus	6	1
*	Maccaffertium	3	1
*	Mystacides	4	1
	Peltodytes	5	1
	Procladius	9	1
	Stylaria	8	1
	Tubifex	10	1

** (EPT organism)* *Taxa Richness:* 28 *Population:* 100

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

Hilsenhoff Biotic Index (HBI): 7.22 *%Clingers:* 6.00%

** E+P+T:* 2 (1) Ephemeroptera, ( ) Plecoptera, (1) Trichoptera *%Ephemeroptera:* 1.00%

CPMI Rating: **8 Fair**

Habitat Analysis: 99 Marginal USEPA Protocol

Observations: Water temp: 20.62 C; Cond: 175 umhos; DO: 6.01 mg/L; pH: 6.24 SU

Clarity: slightly turbid, cedar brown; Flow Rate: slow; Width/Depth: 45 ' / 4'; Substrate: gravel, sand, mud, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: macrophytes; power lines along RB

AMNET Site # **AN0503** ***Stream Name:*** **Haystack Bk**

Location: **Southard Rd; Howell Twp; Monmouth County**

Collection Date: ***6/2/2010*** ***USGS Topo Map:*** **Farmingdale**

	Genus	*Tolerance Value*	*Amount*
	Simulium	6	34
	Rheotanytarsus	6	23
	Tanytarsus	6	5
	Pisidium	6.8	4
	Ancyronyx	2	3
	Caecidotea	8	3
	Physella	9.1	3
	Polypedilum	6	3
	Rheopelopia	4	3
	Stenelmis	5	3
	Eukiefferiella	8	2
	Procladius	9	2
	Calopteryx	6	1
	Campeloma	7	1
*	Cheumatopsyche	5	1
	Dubiraphia	6	1
	Menetus	6	1
	Nais	8	1
	Phaenopsectra	7	1
	Pristinella	10	1
	Prostoma	7	1
	Rheocricotopus	6	1
	Thienemanniella	6	1
	Tubifex	10	1

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

%Dominance / Dominant Taxon(s): 34.0% Simulium

Hilsenhoff Biotic Index (HBI): 6.19 *%Clingers:* 66.00%

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

CPMI Rating: **12 Good**

Habitat Analysis: 156 Suboptimal USEPA Protocol

Observations: Water temp: 18.67 C; Cond: 286 umhos; DO: 6.91 mg/L; pH: 6.28 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 7' / 1'; Substrate: cobble, gravel, sand, mud, snags, root mats

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

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

Other: macrophytes, oil sheen, white foam

AMNET Site # **AN0504** *Stream Name:* **Haystack Bk**

Location: **Rt 547; Howell Twp; Monmouth County**

Collection Date: ***6/1/2010*** *USGS Topo Map:* **Lakewood**

	Genus	Tolerance Value	Amount
	Simulium	6	35
	Tribelos	5	9
	Paratendipes	8	8
	Rheotanytarsus	6	6
	Rhagovelia	9	5
*	Brachycentrus	1	4
	Stenelmis	5	4
	Eclipidrilus	8	3
	Musculium	5	3
	Pisidium	6.8	3
	Nais	8	2
	Rheocricotopus	6	2
	Stylaria	8	2
	Tubifex	10	2
	Amnicola	4.8	1
	Boyeria	2	1
	Cura	4	1
	Enallagma	9	1
	Eukiefferiella	8	1
	Gammarus	6	1
	Gyraulus	6	1
	Limnodrilus	10	1
*	Maccaffertium	3	1
	Polypedilum	6	1
	Procladius	9	1
	Tanytarsus	6	1

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

%Dominance / Dominant Taxon(s): 35.0% Simulium

Hilsenhoff Biotic Index (HBI): 6.21 *%Clingers:* 50.00%

** E+P+T:* 2 (1) Ephemeroptera, ( ) Plecoptera, (1) Trichoptera *%Ephemeroptera:* 1.00%

CPMI Rating: **12 Good**

Habitat Analysis: 154 Suboptimal USEPA Protocol

Observations: Water temp: 21.85 C; Cond: 235 umhos; DO: 6.93 mg/L; pH: 6.25 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 20' / 1'; Substrate: gravel, sand, mud, undercut banks

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

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

Other: frogs, macrophytes; adj to trailer park

AMNET Site # **AN0505** *Stream Name:* **Haystack Bk(Muddy Ford Bk)**

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

Collection Date: ***6/3/2010*** *USGS Topo Map:* **Lakewood**

	Genus	Tolerance Value	Amount
*	Brachycentrus	1	15
	Stenelmis	5	11
*	Perlesta	4	9
*	Maccaffertium	3	8
	Sphaeriidae	8	7
	Gammarus	6	6
	Tribelos	5	4
*	Leuctra	0	3
	Macronychus	2	3
	Rhagovelia	9	3
	Ancyronyx	2	2
	Boyeria	2	2
*	Eurylophella	4	2
*	Lepidostoma	1	2
	Limnodrilus	10	2
	Nais	8	2
*	Oecetis	8	2
	Parametriocnemus	5	2
	Tvetenia	5	2
	Ceratopogonidae	6	1
*	Diplectrona	0	1
	Dubiraphia	6	1
*	Leptophlebiidae	2	1
	Lumbriculidae	8	1
	Oulimnius	4	1
*	Plauditus	4	1
	Polypedilum	6	1
	Rheocricotopus	6	1
	Rheotanytarsus	6	1
	Tanytarsus	6	1
	Thienemannimyia	6	1
*	Triaenodes	6	1

** (EPT organism)* *Taxa Richness:* 32 *Population:* 100

%Dominance / Dominant Taxon(s): 15.0% Brachycentrus

Hilsenhoff Biotic Index (HBI): 4.31 *%Clingers:* 59.00%

** E+P+T:* 11 (4) Ephemeroptera, (2) Plecoptera, (5) Trichoptera *%Ephemeroptera:* 12.00%

CPMI Rating: **26 Excellent**

Habitat Analysis: 152 Suboptimal USEPA Protocol

Observations: Water temp: 19.39 C; Cond: 192 umhos; DO: 7.64 mg/L; pH: 6.25 SU

Clarity: clear, cedar brown; Flow Rate: slow; Width/Depth: 20' / 2 - 3'; Substrate: gravel, sand, snags, undercut banks

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

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

Other: periphytes

AMNET Site # **AN0506** *Stream Name:* **N Br Metedeconk River**

Location: **Rt 88; Brick Twp; Ocean County**

Collection Date: ***6/3/2010*** *USGS Topo Map:* **Lakewood**

Genus	*Tolerance Value*	*Amount*
Tribelos	5	49
Phaenopsectra	7	18
Gammarus	6	8
Paratendipes	8	8
Dubiraphia	6	2
Eclipidrilus	8	2
Limnodrilus	10	2
Nais	8	2
Tanytarsus	6	2
Amnicola	4.8	1
Bezzia	6	1
Caecidotea	8	1
Cricotopus	7	1
Menetus	6	1
Nematoda	6	1
Rheotanytarsus	6	1

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

%Dominance / Dominant Taxon(s): 49.0% Tribelos

Hilsenhoff Biotic Index (HBI): 6.03 *%Clingers:* 22.00%

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

CPMI Rating: **8 Fair**

Habitat Analysis: 106 Marginal USEPA Protocol

Observations: Water temp: 20.24 C; Cond: 183 umhos; DO: 7.26 mg/L; pH: 6.24 SU

Clarity: slightly turbid, cedar brown; Flow Rate: slow; Width/Depth: 50' / 4'; Substrate: mud, snags

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: macrophytes

AMNET Site # **AN0507** ***Stream Name:*** **School House Br (Cabinfield Br)**

Location: **Lanes Mill Rd; Lakewood Twp; Ocean County**

Collection Date: ***6/3/2010*** ***USGS Topo Map:*** **Lakewood**

	Genus	*Tolerance Value*	*Amount*
	Musculium	5	37
	Amnicola	4.8	7
	Dubiraphia	6	7
*	Brachycentrus	1	6
	Rheotanytarsus	6	6
	Stylaria	8	4
	Thienemannimyia	6	4
*	Hydropsyche	4	3
	Pisidium	6.8	3
	Ancyronyx	2	2
	Brillia	5	2
	Caecidotea	8	2
*	Ceraclea	3	2
	Nais	8	2
	Paratanytarsus	6	2
	Tribelos	5	2
	Ablabesmyia	8	1
*	Cheumatopsyche	5	1
	Coenagrionidae	9	1
*	Eurylophella	4	1
	Labrundinia	7	1
	Parametriocnemus	5	1
	Polypedilum	6	1
	Procladius	9	1
	Simulium	6	1

** (EPT organism)* *Taxa Richness:* 25 *Population:* 100

%Dominance / Dominant Taxon(s): 37.0% Musculium

Hilsenhoff Biotic Index (HBI): 5.24 *%Clingers:* 27.00%

** E+P+T:* 5 (1) Ephemeroptera, ( ) Plecoptera, (4) Trichoptera *%Ephemeroptera:* 1.00%

CPMI Rating: **12 Good**

Habitat Analysis: 132 Suboptimal USEPA Protocol

Observations: Water temp: 20.56 C; Cond: 178 umhos; DO: 6.49 mg/L; pH: 6.02 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 8' / 1 - 2'; Substrate: gravel, sand, snags, root mats, undercut banks

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

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

Other: macrophytes, periphytes, eels; parking lot on RB; downstream of Stone Center

AMNET Site # **AN0508** *Stream Name:* **S Br Metedeconk River**

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

Collection Date: ***6/8/2010*** *USGS Topo Map:* **Adelphia**

	Genus	*Tolerance Value*	*Amount*
*	Leuctra	0	19
	Sphaeriidae	8	17
	Limnodrilus	10	11
*	Lepidostoma	1	9
	Aulodrilus	8	8
	Thienemannimyia	6	7
*	Brachycentrus	1	6
	Tribelos	5	6
*	Hydropsychidae	4	2
*	Phylocentropus	5	2
	Polypedilum	6	2
	Simulium	6	2
	Tanypodinae	7	2
	Cordulegaster	3	1
	Dineutus	4	1
	Enchytraeidae	10	1
	Nigronia	2	1
*	Polycentropus	6	1
*	Pycnopsyche	4	1
	Tropisternus	10	1

** (EPT organism)* *Taxa Richness:* 20 *Population:* 100

%Dominance / Dominant Taxon(s): 19.0% Leuctra

Hilsenhoff Biotic Index (HBI): 4.92 *%Clingers:* 32.00%

** E+P+T:* 7 ( ) Ephemeroptera, (1) Plecoptera, (6) Trichoptera *%Ephemeroptera:* 0.00%

CPMI Rating: **14 Good**

Habitat Analysis: 153 Suboptimal USEPA Protocol

Observations: Water temp: 15.46 C; Cond: 73 umhos; DO: 7.80 mg/L; pH: 5.70 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 11' / 2'; Substrate: gravel, sand, mud, silt, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: frogs

AMNET Site # **AN0509** ***Stream Name:*** **S Br Metedeconk River**

Location: **Jacksons Mill Rd; Jackson Twp; Ocean County**

Collection Date: ***6/2/2010*** ***USGS Topo Map:*** **Adelphia**

	Genus	Tolerance Value	Amount
*	Brachycentrus	1	27
*	Oecetis	8	11
	Simulium	6	10
*	Phylocentropus	5	5
*	Caenis	7	4
	Dubiraphia	6	4
	Sphaeriidae	8	4
	Cricotopus	7	3
	Dineutus	4	3
*	Hydropsyche	4	3
	Polypedilum	6	3
	Ancyronyx	2	2
*	Cheumatopsyche	5	2
	Hyalella	8	2
	Limnodrilus	10	2
	Rheocricotopus	6	2
	Thienemannimyia	6	2
*	Triaenodes	6	2
	Tribelos	5	2
	Argia	6	1
	Caecidotea	8	1
*	Ceraclea	3	1
*	Leuctra	0	1
	Paratendipes	8	1
	Stenelmis	5	1
	Tvetenia	5	1

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

Becks Biotic Index (BBI):	8.00	*%Plecoptera +Trichoptera:*	52.00%
Insect Taxa:	22	*%Mollusca + Amphipoda:*	6.00%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	24.00%
		%Filterers:	51.00%

PMI Rating: **61.38 Good**

Habitat Analysis: 123 Suboptimal USEPA Protocol

Observations: Water temp: 22.22 C; Cond: 89 umhos; DO: 6.93 mg/L; pH: 5.28 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 60' / 1 - 3'; Substrate: gravel, sand, silt, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Downstream of Impoundment: Jacksons Mill Pond

Other: macrophytes, waterfowl

AMNET Site # **AN0510** ***Stream Name:*** **S Br Metedeconk River**

Location: **Bennetts Mill Rd; Jackson Twp; Ocean County**

Collection Date: ***6/8/2010*** ***USGS Topo Map:*** **Adelphia**

	Genus	Tolerance Value	Amount
	Stylaria	8	59
*	Cheumatopsyche	5	7
*	Maccaffertium	3	5
*	Caenis	7	4
	Cricotopus	7	4
	Gammarus	6	4
	Ablabesmyia	8	1
*	Brachycentrus	1	1
	Dineutus	4	1
	Hyalella	8	1
	Hydrolimax	4	1
*	Leuctra	0	1
	Nais	8	1
	Parachironomus	10	1
*	Perlesta	4	1
*	Phylocentropus	5	1
	Planorbidae	6	1
	Polypedilum	6	1
	Psectrocladius	8	1
*	Pseudocloeon	4	1
	Rheotanytarsus	6	1
	Simulium	6	1
	Thienemanniella	6	1

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

Becks Biotic Index (BBI):	9.00	*%Plecoptera +Trichoptera:*	11.00%
Insect Taxa:	17	*%Mollusca + Amphipoda:*	6.00%
Non-Insect Taxa:	6	*%Diptera - Tanytarsini:*	10.00%
		%Filterers:	11.00%

PMI Rating: **51.76 Fair**

Habitat Analysis: 153 Suboptimal USEPA Protocol

Observations: Water temp: 22.24 C; Cond: 177 umhos; DO: 6.91 mg/L; pH: 6.39 SU

Clarity: slightly turbid, brown; Flow Rate: moderate; Width/Depth: 28' / 1'; Substrate: gravel, sand, snags, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Downstream of Impoundment: Lake Enno

Other: crayfish, mussels, grass shrimp, macrophytes; "trout stocked stream"

AMNET Site # **AN0510A** ***Stream Name:*** **S Br Metedeconk River**

Location: **Cooks Bridge Rd; Jackson Twp; Ocean County**

Collection Date: ***6/15/2010*** ***USGS Topo Map:*** **Adelphia**

	Genus	Tolerance Value	Amount
*	Brachycentrus	1	38
	Sphaeriidae	8	22
	Gammarus	6	7
	Campeloma	7	5
	Microcylloepus	2	3
*	Oecetis	8	3
	Stenelmis	5	3
*	Maccaffertium	3	2
	Oulimnius	4	2
	Rheotanytarsus	6	2
	Ancyronyx	2	1
*	Attenella	2	1
	Helichus	5	1
*	Leuctra	0	1
	Limnodrilus	10	1
	Lumbriculus	8	1
	Nigronia	2	1
	Optioservus	4	1
*	Perlesta	4	1
*	Pycnopsyche	4	1
	Rhagovelia	9	1
	Thienemannimyia	6	1
*	Triaenodes	6	1

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

Becks Biotic Index (BBI):	13.00	*%Plecoptera +Trichoptera:*	45.00%
Insect Taxa:	18	*%Mollusca + Amphipoda:*	34.00%
Non-Insect Taxa:	5	*%Diptera - Tanytarsini:*	1.00%
		%Filterers:	62.00%

PMI Rating: **49.16 Fair**

Habitat Analysis: 152 Suboptimal USEPA Protocol

Observations: Water temp: 19.54 C; Cond: 135 umhos; DO: 7.60 mg/L; pH: 6.04 SU

Clarity: turbid, brown; Flow Rate: slow; Width/Depth: 23' / 5'; Substrate: gravel, sand, mud, snags, root mats, undercut banks

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

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

Other: fish, frogs

AMNET Site # **AN0511** ***Stream Name:*** **S Br Metedeconk River**

Location: **Cedar Bridge Ave; Lakewood Twp; Ocean County**

Collection Date: ***6/3/2010*** ***USGS Topo Map:*** **Lakewood**

	Genus	*Tolerance Value*	*Amount*
	Musculium	5	22
	Stenelmis	5	18
	Pisidium	6.8	9
	Lirceus	8	8
*	Maccaffertium	3	7
	Gammarus	6	6
	Amnicola	4.8	4
	Macronychus	2	4
	Parachironomus	10	4
*	Brachycentrus	1	3
	Campeloma	7	2
	Dugesia	4	2
	Rheotanytarsus	6	2
	Simulium	6	2
*	Acentrella	4	1
	Cambaridae	5	1
*	Cheumatopsyche	5	1
*	Pseudocloeon	4	1
	Rhagovelia	9	1
	Stylaria	8	1
	Unionidae	8	1

** (EPT organism)* *Taxa Richness:* 21 *Population:* 100

Becks Biotic Index (BBI):	7.00	*%Plecoptera +Trichoptera:*	4.00%
Insect Taxa:	11	*%Mollusca + Amphipoda:*	44.00%
Non-Insect Taxa:	10	*%Diptera - Tanytarsini:*	6.00%
		%Filterers:	40.00%

PMI Rating: **31.40 Poor**

Habitat Analysis: 131 Suboptimal USEPA Protocol

Observations: Water temp: 24.16 C; Cond: 161 umhos; DO: 7.02 mg/L; pH: 6.35 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 25' / 2 - 3'; Substrate: gravel, sand, mud, snags, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: macrophytes, periphytes

AMNET Site # **AN0512** *Stream Name:* **S Br Metedeconk River**

Location: **Chambers Bridge Rd; Brick Twp; Ocean County**

Collection Date: ***6/3/2010*** *USGS Topo Map:* **Lakewood**

	Genus	Tolerance Value	Amount
	Tribelos	5	45
	Gammarus	6	11
	Paratendipes	8	8
	Dubiraphia	6	6
	Physella	9.1	5
	Lirceus	8	3
	Sphaeriidae	8	3
*	Caenis	7	2
	Coenagrionidae	9	2
	Enchytraeidae	10	2
	Limnodrilus	10	2
	Lumbriculidae	8	2
	Caecidotea	8	1
	Cricotopus	7	1
	Cryptochironomus	8	1
*	Phylocentropus	5	1
	Planorbidae	6	1
	Polypedilum	6	1
*	Pseudocloeon	4	1
	Stenelmis	5	1
	Tubifex	10	1

** (EPT organism)* *Taxa Richness:* 21 *Population:* 100

%Dominance / Dominant Taxon(s): 45.0% Tribelos

Hilsenhoff Biotic Index (HBI): 6.31 *%Clingers:* 8.00%

** E+P+T:* 3 (2) Ephemeroptera, ( ) Plecoptera, (1) Trichoptera *%Ephemeroptera:* 3.00%

CPMI Rating: **6 Fair**

Habitat Analysis: 114 Suboptimal USEPA Protocol

Observations: Water temp: 23.65 C; Cond: 172 umhos; DO: 7.07 mg/L; pH: 6.42 SU

Clarity: slightly turbid, cedar brown; Flow Rate: slow; Width/Depth: 55' / 3'; Substrate: 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, eels

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

Location: **Rt 88; Wall Twp; Ocean County**

Collection Date: ***6/8/2010*** *USGS Topo Map:* **Point Pleasant**

	Genus	*Tolerance Value*	*Amount*
	Gammarus	6	20
	Rheotanytarsus	6	14
	Tanytarsus	6	10
	Rheopelopia	4	7
	Menetus	6	6
	Musculium	5	5
	Pisidium	6.8	5
*	Cheumatopsyche	5	4
	Dubiraphia	6	3
	Orthocladius	6	3
	Pristina	8	3
	Limnodrilus	10	2
*	Mystacides	4	2
	Nais	8	2
	Nematoda	6	2
	Parachironomus	10	2
	Polypedilum	6	2
	Stylaria	8	2
	Cura	4	1
	Eclipidrilus	8	1
	Enallagma	9	1
	Enchytraeidae	10	1
	Ferrissia	7	1
	Prostoma	7	1

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

%Dominance / Dominant Taxon(s): 20.0% Gammarus

Hilsenhoff Biotic Index (HBI): 6.16 *%Clingers:* 21.00%

** E+P+T:* 2 ( ) Ephemeroptera, ( ) Plecoptera, (2) Trichoptera *%Ephemeroptera:* 0.00%

CPMI Rating: **8 Fair**

Habitat Analysis: 141 Suboptimal USEPA Protocol

Observations: Water temp: 18.53 C; Cond: 243 umhos; DO: 6.85 mg/L; pH: 5.90 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 27' / < 1'; Substrate: gravel, mud, snags

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

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

Pipes / Ditches: storm sewers

Other: fish, trash; "Protected Open Space" sign

AMNET Site # **AN0514** *Stream Name:* **Cedar Bridge Br**

Location: **Rt 70; Brick Twp; Ocean County**

Collection Date: ***6/8/2010*** *USGS Topo Map:* **Lakewood**

	Genus	Tolerance Value	Amount
	Gammarus	6	68
	Paratendipes	8	7
	Physella	9.1	4
*	Brachycentrus	1	3
	Rheotanytarsus	6	3
	Sphaeriidae	8	3
*	Cheumatopsyche	5	2
*	Oecetis	8	2
	Amnicola	4.8	1
	Chironomus	10	1
	Hyalella	8	1
	Limnodrilus	10	1
	Nais	8	1
*	Perlesta	4	1
	Tribelos	5	1
	Tubifex	10	1

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

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

Hilsenhoff Biotic Index (HBI): 6.31 *%Clingers:* 11.00%

** E+P+T:* 4 ( ) Ephemeroptera, (1) Plecoptera, (3) Trichoptera *%Ephemeroptera:* 0.00%

CPMI Rating: **6 Fair**

Habitat Analysis: 125 Suboptimal USEPA Protocol

Observations: Water temp: 17.09 C; Cond: 271 umhos; DO: 6.56 mg/L; pH: 6.42 SU

Clarity: slightly turbid, cedar brown; Flow Rate: moderate; Width/Depth: 7' / < 1'; Substrate: gravel, sand, root mats, undercut banks

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

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

Pipes / Ditches: storm sewers

Other: fish, macrophytes, trash

AMNET Site # **AN0515** ***Stream Name:*** **Kettle Ck**

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

Collection Date: ***6/15/2010*** ***USGS Topo Map:*** **Lakewood**

	Genus	*Tolerance Value*	*Amount*
	Caecidotea	8	32
	Pisidium	6.8	7
	Tanytarsus	6	6
	Tubifex	10	6
*	Leuctra	0	4
	Menetus	6	4
	Simulium	6	4
	Stylaria	8	4
	Tvetenia	5	4
	Gammarus	6	3
	Helobdella	8	3
*	Lepidostoma	1	3
	Cricotopus	7	2
	Hyalella	8	2
	Libellulidae	9	2
	Polypedilum	6	2
	Prosimulium	2	2
	Rheopelopia	4	2
	Tanypodinae	7	2
	Chironomus	10	1
	Corydalus	4	1
	Helisoma	7	1
	Hydra	5	1
	Nais	8	1
	Placobdella	8	1

** (EPT organism)* *Taxa Richness:* 25 *Population:* 100

%Dominance / Dominant Taxon(s): 32.0% Caecidotea

Hilsenhoff Biotic Index (HBI): 6.73 *%Clingers:* 13.00%

** E+P+T:* 2 ( ) Ephemeroptera, (1) Plecoptera, (1) Trichoptera *%Ephemeroptera:* 0.00%

CPMI Rating: **6 Fair**

Habitat Analysis: 155 Suboptimal USEPA Protocol

Observations: Water temp: 15.96 C; Cond: 133 umhos; DO: 6.51 mg/L; pH: 5.22 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 4' / 1- 2'; Substrate: gravel, sand, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Other: trash

AMNET Site # **AN0517** *Stream Name:* **Toms River**

Location: **Paint Island Rd; Millstone Twp; Monmouth County**

Collection Date: ***6/15/2010*** *USGS Topo Map:* **Roosevelt**

	Genus	*Tolerance Value*	*Amount*
	Tubifex	10	24
	Musculium	5	14
	Tanytarsus	6	13
	Physella	9.1	7
	Rheopelopia	4	5
	Rheotanytarsus	6	5
*	Cheumatopsyche	5	3
	Limnodrilus	10	3
	Polypedilum	6	3
	Procladius	9	3
	Prodiamesa	3	3
	Alotanypus	6	2
	Stylodrilus	10	2
	Tribelos	5	2
	Aeshna	5	1
	Cura	4	1
	Helisoma	7	1
	Heterotrissocladius	0	1
	Nais	8	1
	Orthocladius	6	1
	Potamonectes	5	1
	Prostoma	7	1
	Ptychopteridae	8	1
	Spirosperma	10	1
	Trichocorixa	9	1

** (EPT organism)* *Taxa Richness:* 25 *Population:* 100

%Dominance / Dominant Taxon(s): 24.0% Tubifex

Hilsenhoff Biotic Index (HBI): 7.12 *%Clingers:* 8.00%

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

CPMI Rating: **6 Fair**

Habitat Analysis: 143 Suboptimal USEPA Protocol

Observations: Water temp: 20.35 C; Cond: 337 umhos; DO: 7.66 mg/L; pH: 6.36 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 8' / < 1'; Substrate: gravel, sand, mud, silt, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Other: fish, frogs, salamander, macrophytes; oil sheen

AMNET Site # **AN0518** *Stream Name:* **Toms River**

Location: **Rt 571; Millstone Twp; Monmouth County**

Collection Date: ***6/15/2010*** *USGS Topo Map:* **Roosevelt**

	Genus	*Tolerance Value*	*Amount*
	Musculium	5	15
	Dubiraphia	6	11
	Limnodrilus	10	10
	Orthocladius	6	9
	Pisidium	6.8	8
	Simulium	6	8
	Menetus	6	6
	Procladius	9	5
	Helisoma	7	4
	Tribelos	5	4
	Caecidotea	8	2
	Cryptochironomus	8	2
	Nematoda	6	2
	Stylaria	8	2
	Tubifex	10	2
	Ablabesmyia	8	1
	Ancyronyx	2	1
	Argia	6	1
	Cricotopus	7	1
	Lumbriculus	8	1
*	Mystacides	4	1
	Phaenopsectra	7	1
	Physella	9.1	1
	Rheopelopia	4	1
	Spirosperma	10	1

** (EPT organism)* *Taxa Richness:* 25 *Population:* 100

%Dominance / Dominant Taxon(s): 15.0% Musculium

Hilsenhoff Biotic Index (HBI): 6.72 *%Clingers:* 23.00%

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

CPMI Rating: **8 Fair**

Habitat Analysis: 140 Suboptimal USEPA Protocol

Observations: Water temp: 20.73 C; Cond: 280 umhos; DO: 9.12 mg/L; pH: 6.08 SU

Clarity: slightly turbid; Flow Rate: slow; Width/Depth: 21' / 2'; Substrate: mud, snags

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

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

Pipes / Ditches: storm sewers

Other: frogs, macrophytes, phragmites; USGS gage: 0.45

AMNET Site # **AN0519** *Stream Name:* **Toms River**

Location: **Rt 528; Jackson Twp; Ocean County**

Collection Date: *6/24/2010* *USGS Topo Map:* **Lakehurst**

	Genus	Tolerance Value	Amount
	Hyalella	8	11
	Pisidium	6.8	11
	Tubifex	10	9
	Tribelos	5	6
	Gyraulus	6	5
	Limnodrilus	10	5
	Nais	8	5
*	Oecetis	8	4
	Prostoma	7	4
	Stylodrilus	10	4
*	Brachycentrus	1	3
*	Mystacides	4	3
	Tanytarsus	6	3
	Cricotopus	7	2
	Cura	4	2
	Orthocladius	6	2
	Trichocorixa	9	2
*	Attenella	2	1
*	Baetis	6	1
	Bezzia	6	1
	Calopteryx	6	1
	Dubiraphia	6	1
	Enallagma	9	1
*	Eurylophella	4	1
	Gillia	8	1
	Gomphidae	1	1
	Helisoma	7	1
*	Lepidostoma	1	1
*	Maccaffertium	3	1
*	Molanna	6	1
	Physella	9.1	1
	Polypedilum	6	1
	Procladius	9	1
	Slavina	7	1
	Stenochironomus	5	1
	Stylaria	8	1

** (EPT organism)* *Taxa Richness:* 36 *Population:* 100

Becks Biotic Index (BBI):	11.00	*%Plecoptera +Trichoptera:*	12.00%
Insect Taxa:	22	*%Mollusca + Amphipoda:*	30.00%
Non-Insect Taxa:	14	*%Diptera - Tanytarsini:*	14.00%
		%Filterers:	17.00%

PMI Rating: **43.65 Fair**

Habitat Analysis: 141 Suboptimal USEPA Protocol

Observations: Water temp: 23.03 C; Cond: 191 umhos; DO: 5.50 mg/L; pH: 5.93 SU

Clarity: slightly turbid, cedar brown; Flow Rate: slow; Width/Depth: 36' / 3-4'; Substrate: mud, snags, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, macrophytes

AMNET Site # **AN0519A** *Stream Name:* **Toms River**

Location: **Anderson Rd; Jackson Twp; Ocean County**

Collection Date: ***6/15/2010*** *USGS Topo Map:* **Roosevelt**

	Genus	Tolerance Value	Amount
	Tribelos	5	29
*	Brachycentrus	1	20
	Sphaeriidae	8	14
	Ablabesmyia	8	5
	Dineutus	4	4
	Polypedilum	6	4
	Hydroporus	5	3
	Thienemannimyia	6	3
	Aulodrilus	8	2
	Cryptochironomus	8	2
	Dubiraphia	6	2
	Phaenopsectra	7	2
	Sialis	4	2
	Ancyronyx	2	1
	Chironomus	10	1
	Corixidae	9	1
*	Leptoceridae	4	1
	Macronychus	2	1
	Peltodytes	5	1
	Potthastia	2	1
	Stenelmis	5	1

** (EPT organism)* *Taxa Richness:* 21 *Population:* 100

%Dominance / Dominant Taxon(s): 29.0% Tribelos

Hilsenhoff Biotic Index (HBI): 4.95 *%Clingers:* 27.00%

** E+P+T:* 2 ( ) Ephemeroptera, ( ) Plecoptera, (2) Trichoptera *%Ephemeroptera:* 0.00%

CPMI Rating: **10 Fair**

Habitat Analysis: 147 Suboptimal USEPA Protocol

Observations: Water temp: 20.97 C; Cond: 334 umhos; DO: 5.71 mg/L; pH: 5.51 SU

Clarity: turbid, brown; Flow Rate: moderate; Width/Depth: 38' / 2'; Substrate: gravel, sand, mud, silt, snags, root mats

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

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

Other: frogs, eels; outlet mall upstream

AMNET Site # **AN0520** ***Stream Name:*** **UNT to Toms River**

Location: **Rt 528; Jackson Twp; Ocean County**

Collection Date: ***6/15/2010*** ***USGS Topo Map:*** **Lakehurst**

	Genus	Tolerance Value	Amount
	Gammarus	6	29
*	Brachycentrus	1	16
*	Perlesta	4	7
	Polypedilum	6	5
	Sphaeriidae	8	5
	Physella	9.1	4
	Caecidotea	8	3
*	Hydropsyche	4	3
	Tribelos	5	3
*	Lype	2	2
	Macronychus	2	2
	Optioservus	4	2
	Tanytarsus	6	2
	Boyeria	2	1
*	Cheumatopsyche	5	1
	Dineutus	4	1
	Dubiraphia	6	1
	Hydrophilidae	5	1
	Hydroporus	5	1
*	Lepidostoma	1	1
	Microcylloepus	2	1
	Micropsectra	7	1
	Microtendipes	7	1
	Nais	8	1
	Phaenopsectra	7	1
*	Polycentropus	6	1
	Rheotanytarsus	6	1
	Thienemannimyia	6	1
*	Triaenodes	6	1
	Viviparidae	6	1

** (EPT organism)* *Taxa Richness:* 30 *Population:* 100

Becks Biotic Index (BBI):	12.00	*%Plecoptera +Trichoptera:*	32.00%
Insect Taxa:	24	*%Mollusca + Amphipoda:*	39.00%
Non-Insect Taxa:	6	*%Diptera - Tanytarsini:*	11.00%
		%Filterers:	30.00%

PMI Rating: **52.86 Fair**

Habitat Analysis: 136 Suboptimal USEPA Protocol

Observations: Water temp: 18.35 C; Cond: 229 umhos; DO: 7.13 mg/L; pH: 6.24 SU

Clarity: slightly turbid, cedar brown; Flow Rate: moderate; Width/Depth: 19' / 1 - 2'; Substrate: gravel, sand, mud, silt, snags, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers, flowing

Other: macrophytes

AMNET Site # **AN0521** ***Stream Name:*** **Maple Root Br**

Location: **Bowman Rd; Jackson Twp; Ocean County**

Collection Date: ***6/22/2010*** ***USGS Topo Map:*** **Lakehurst**

	Genus	*Tolerance Value*	*Amount*
	Microtendipes	7	40
	Tribelos	5	36
*	Molanna	6	8
	Caecidotea	8	4
	Apsectrotanypus	5	2
*	Hydatophylax	2	2
	Limnodrilus	10	2
	Nilothauma	2	2
	Corixidae	9	1
	Dineutus	4	1
	Micropsectra	7	1
*	Phylocentropus	5	1

** (EPT organism)* *Taxa Richness:* 12 *Population:* 100

Becks Biotic Index (BBI):	3.00	*%Plecoptera +Trichoptera:*	11.00%
Insect Taxa:	10	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	2	*%Diptera - Tanytarsini:*	80.00%
		%Filterers:	41.00%

PMI Rating: **58.12 Good**

Habitat Analysis: 152 Suboptimal USEPA Protocol

Observations: Water temp: 18.48 C; Cond: 56 umhos; DO: 2.87 mg/L; pH: 3.85 SU

Clarity: clear, cedar brown; Flow Rate: slow; Width/Depth: 32' / 2'; Substrate: gravel, sand, silt, undercut banks

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

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

Other: turtle

AMNET Site # **AN0522** ***Stream Name:*** **Dove Mill Br**

Location: **Grawtown Rd; Jackson Twp; Ocean County**

Collection Date: ***6/22/2010*** ***USGS Topo Map:*** **Lakehurst**

	Genus	Tolerance Value	Amount
	Micropsectra	7	40
*	Chimarra	4	11
	Tanytarsus	6	8
	Tribelos	5	5
*	Hydropsychidae	4	4
	Stenelmis	5	4
*	Brachycentrus	1	3
	Pisidium	6.8	3
	Rheotanytarsus	6	3
*	Molanna	6	2
*	Oecetis	8	2
	Prostoma	7	2
	Rheocricotopus	6	2
	Ablabesmyia	8	1
	Bezzia	6	1
*	Maccaffertium	3	1
	Microtendipes	7	1
	Oulimnius	4	1
*	Perlesta	4	1
	Phaenopsectra	7	1
	Polypedilum	6	1
	Stenochironomus	5	1
	Thienemannimyia	6	1
	Tubifex	10	1

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

Becks Biotic Index (BBI):	7.00	*%Plecoptera +Trichoptera:*	23.00%
Insect Taxa:	21	*%Mollusca + Amphipoda:*	3.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	14.00%
		%Filterers:	33.00%

PMI Rating: **55.68 Fair**

Habitat Analysis: 161 Optimal USEPA Protocol

Observations: Water temp: 20.50 C; Cond: 117 umhos; DO: 6.53 mg/L; pH: 6.01 SU

Clarity: slightly turbid, cedar brown; Flow Rate: slow; Width/Depth: 12' / 1 - 2'; Substrate: gravel, sand, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: rural

Other: frogs

AMNET Site # **AN0523** ***Stream Name:*** **Toms River**

Location: **S. Hope Chapel Rd; Jackson Twp; Ocean County**

Collection Date: ***6/22/2010*** ***USGS Topo Map:*** **Lakehurst**

	Genus	*Tolerance Value*	*Amount*
	Tanytarsus	6	35
*	Brachycentrus	1	14
*	Helicopsyche	3	7
*	Lepidostoma	1	6
	Eukiefferiella	8	5
	Parametriocnemus	5	5
	Optioservus	4	4
	Stenelmis	5	4
*	Maccaffertium	3	3
*	Agarodes	3	2
	Gammarus	6	2
*	Perlesta	4	2
	Dineutus	4	1
	Enallagma	9	1
	Hemerodromia	6	1
*	Hydatophylax	2	1
*	Neophylax	3	1
*	Oecetis	8	1
	Orthocladius	6	1
	Rheocricotopus	6	1
	Rheopelopia	4	1
*	Triaenodes	6	1
	Trichocorixa	9	1

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

Becks Biotic Index (BBI):	13.00	*%Plecoptera +Trichoptera:*	35.00%
Insect Taxa:	22	*%Mollusca + Amphipoda:*	2.00%
Non-Insect Taxa:	1	*%Diptera - Tanytarsini:*	14.00%
		%Filterers:	49.00%

PMI Rating: **61.77 Good**

Habitat Analysis: 148 Suboptimal USEPA Protocol

Observations: Water temp: 20.37 C; Cond: 145 umhos; DO: 7.21 mg/L; pH: 5.83 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 41' / 1 - 2'; Substrate: gravel, sand

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

Stream Gradient: Low Gradient Stream; Land Uses: rural

Pipes / Ditches: storm sewers

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

AMNET Site # **AN0524** ***Stream Name:*** **Toms River**

Location: **Rt 571; Toms River Twp; Ocean County**

Collection Date: ***6/10/2010*** ***USGS Topo Map:*** **Lakewood**

	Genus	*Tolerance Value*	*Amount*
	Sphaeriidae	8	20
	Caecidotea	8	14
	Limnodrilus	10	12
	Polypedilum	6	11
	Tribelos	5	11
*	Triaenodes	6	6
*	Lepidostoma	1	4
	Lumbriculus	8	3
*	Maccaffertium	3	2
*	Phylocentropus	5	2
	Tanytarsus	6	2
	Cladotanytarsus	7	1
	Demicryptochironomus	8	1
*	Eurylophella	4	1
	Gammarus	6	1
*	Heteroplectron	3	1
	Heterotrissocladius	0	1
	Hydroporus	5	1
*	Leptophlebiidae	2	1
	Orthocladiinae	5	1
	Paracladopelma	7	1
	Paratendipes	8	1
*	Platycentropus	4	1
	Stenelmis	5	1

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

%Dominance / Dominant Taxon(s): 20.0% Sphaeriidae

Hilsenhoff Biotic Index (HBI): 6.69 *%Clingers:* 4.00%

** E+P+T:* 8 (3) Ephemeroptera, ( ) Plecoptera, (5) Trichoptera *%Ephemeroptera:* 4.00%

CPMI Rating: **10 Fair**

Habitat Analysis: 141 Suboptimal USEPA Protocol

Observations: Water temp: 15.73 C; Cond: 134 umhos; DO: 7.30 mg/L; pH: 5.79 SU

Clarity: slightly turbid, cedar brown; Flow Rate: moderate; Width/Depth: 42' / 3'; Substrate: sand, silt, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # **AN0525A** *Stream Name:* **UNT to Ridgeway Br**

Location: **Colliers Mill WMA; Jackson Twp; Ocean County**

Collection Date: ***6/22/2010*** *USGS Topo Map:* **Cassville**

	Genus	Tolerance Value	Amount
	Tanytarsus	6	16
	Chironomus	10	9
	Nais	8	9
	Palaemonetes	4	9
*	Caenis	7	8
	Paratanytarsus	6	8
	Tribelos	5	8
	Limnodrilus	10	5
	Lirceus	8	4
	Tubifex	10	4
	Rheotanytarsus	6	3
	Enallagma	9	2
	Micropsectra	7	2
*	Oxyethira	3	2
	Ablabesmyia	8	1
	Bezzia	6	1
	Cura	4	1
	Hyalella	8	1
*	Leuctra	0	1
	Musculium	5	1
	Peltodytes	5	1
	Pisidium	6.8	1
	Rheopelopia	4	1
	Stylodrilus	10	1

** (EPT organism)* *Taxa Richness:* 24 *Population:* 99

Becks Biotic Index (BBI):	6.00	*%Plecoptera +Trichoptera:*	3.03%
Insect Taxa:	14	*%Mollusca + Amphipoda:*	2.02%
Non-Insect Taxa:	10	*%Diptera - Tanytarsini:*	20.20%
		%Filterers:	21.21%

PMI Rating: **44.50 Fair**

Habitat Analysis: 146 Suboptimal USEPA Protocol

Observations: Water temp: 16.59 C; Cond: 154 umhos; DO: 6.31 mg/L; pH: 6.15 SU

Clarity: clear, cedar brown; Flow Rate: slow; Width/Depth: 40' / 3 - 4'; Substrate: silt

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

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

Downstream of Impoundment: Turn Mill Pond

Other: fish, frogs

AMNET Site # **AN0526** ***Stream Name:*** **Shannae Bk**

Location: **Colliers Mill Wildlife Area; Jackson Twp; Ocean County**

Collection Date: ***6/24/2010*** ***USGS Topo Map:*** **Cassville**

	Genus	*Tolerance Value*	*Amount*
	Rheotanytarsus	6	24
*	Oecetis	8	14
*	Polycentropus	6	12
	Parachironomus	10	10
*	Triaenodes	6	8
*	Ceraclea	3	7
*	Molanna	6	4
	Notonecta	5	4
	Caecidotea	8	3
	Argia	6	2
	Corixidae	9	2
	Sphaeriidae	8	2
	Tanytarsus	6	2
	Coenagrionidae	9	1
	Erpobdellidae	8	1
	Labrundinia	7	1
	Naididae	7	1
	Polypedilum	6	1
	Thienemannimyia	6	1

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

Becks Biotic Index (BBI):	1.00	*%Plecoptera +Trichoptera:*	45.00%
Insect Taxa:	15	*%Mollusca + Amphipoda:*	2.00%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	13.00%
		%Filterers:	40.00%

PMI Rating: **53.41 Fair**

Habitat Analysis: 160 Optimal USEPA Protocol

Observations: Water temp: 28.14 C; Cond: 55 umhos; DO: 6.25 mg/L; pH: 4.46 SU

Clarity: clear, cedar brown; Flow Rate: slow; Width/Depth: 9' / 2 -3'; Substrate: gravel, sand, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Downstream of Impoundment: Lake Success

Other: fish, filamentous algae, snake; surface foam

AMNET Site # **AN0527** ***Stream Name:*** **Ridgeway Br**

Location: **near Legler off Rt 571; Jackson Twp; Ocean County**

Collection Date: ***6/22/2010*** ***USGS Topo Map:*** **Lakehurst**

	Genus	Tolerance Value	Amount
	Tribelos	5	85
*	Leuctra	0	4
*	Molanna	6	4
	Ablabesmyia	8	2
*	Chimarra	4	2
	Thienemannimyia	6	2
	Dineutus	4	1

** (EPT organism)* *Taxa Richness:* 7 *Population:* 100

Becks Biotic Index (BBI):	4.00	*%Plecoptera +Trichoptera:*	10.00%
Insect Taxa:	7	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	0	*%Diptera - Tanytarsini:*	89.00%
		%Filterers:	2.00%

PMI Rating: **64.16** **Excellent**

Habitat Analysis: 138 Suboptimal USEPA Protocol

Observations: Water temp: 22.03 C; Cond: 65 umhos; DO: 5.62 mg/L; pH: 4.46 SU

Clarity: slightly turbid, cedar brown; Flow Rate: slow; Width/Depth: 20' / 2'; Substrate: gravel, sand, silt

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # **AN0528** ***Stream Name:*** **Ridgeway Br**

Location: **Rt 70; Manchester Twp; Ocean County**

Collection Date: ***7/22/2010*** ***USGS Topo Map:*** **Lakehurst**

	Genus	*Tolerance Value*	*Amount*
*	Molanna	6	28
	Stenelmis	5	12
	Limnodrilus	10	8
	Caecidotea	8	6
*	Chimarra	4	6
*	Oecetis	8	6
	Sphaeriidae	8	6
	Tanytarsus	6	5
	Ablabesmyia	8	3
	Corixidae	9	3
	Micropsectra	7	3
	Phaenopsectra	7	2
	Probezzia	6	2
*	Acroneuria	0	1
	Calopteryx	6	1
*	Cheumatopsyche	5	1
	Dineutus	4	1
*	Maccaffertium	3	1
	Polypedilum	6	1
*	Pycnopsyche	4	1
	Thienemannimyia	6	1
*	Triaenodes	6	1
	Tvetenia	5	1

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

Becks Biotic Index (BBI):	6.00	*%Plecoptera +Trichoptera:*	44.00%
Insect Taxa:	20	*%Mollusca + Amphipoda:*	6.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	10.00%
		%Filterers:	18.00%

PMI Rating: **60.86 Good**

Habitat Analysis: 135 Suboptimal USEPA Protocol

Observations: Water temp: 23.01 C; Cond: 87 umhos; DO: 6.54 mg/L; pH: 4.57 SU

Clarity: turbid, cedar brown; Flow Rate: slow; Width/Depth: 30' / 3'; Substrate: sand, mud, snags

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Pipes / Ditches: storm sewers

Other: frogs

AMNET Site # **AN0529** *Stream Name:* **Blacks Br**

Location: **Naval Air Station Boundary; Manchester Twp; Ocean County**

Collection Date: ***6/29/2010*** *USGS Topo Map:* **Cassville**

	Genus	Tolerance Value	Amount
	Sphaeriidae	8	23
	Cricotopus	7	17
*	Leuctra	0	14
*	Phylocentropus	5	13
	Psectrocladius	8	6
	Tanytarsus	6	4
	Ablabesmyia	8	2
	Apsectrotanypus	5	2
*	Molanna	6	2
	Nigronia	2	2
*	Polycentropus	6	2
	Rheocricotopus	6	2
	Thienemannimyia	6	2
*	Brachycentrus	1	1
	Caecidotea	8	1
	Mooreobdella	7.8	1
	Naididae	7	1
	Nanocladius	3	1
*	Oecetis	8	1
	Stempellinella	6	1
	Tanypodinae	7	1
	Tvetenia	5	1

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

Becks Biotic Index (BBI):	6.00	*%Plecoptera +Trichoptera:*	33.00%
Insect Taxa:	18	*%Mollusca + Amphipoda:*	23.00%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	34.00%
		%Filterers:	43.00%

PMI Rating: **54.37 Fair**

Habitat Analysis: 175 Optimal USEPA Protocol

Observations: Water temp: 20.13 C; Cond: 29 umhos; DO: 4.96 mg/L; pH: 4.89 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 21' / 2'; Substrate: gravel, sand, snags

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, macrophytes, filamentous algae

AMNET Site # **AN0530** ***Stream Name:*** **Blacks Br**

Location: **Rt 70; Manchester Twp; Ocean County**

Collection Date: ***6/10/2010*** ***USGS Topo Map:*** **Lakehurst**

	Genus	*Tolerance Value*	*Amount*
	Limnodrilus	10	25
	Musculium	5	13
	Chironomus	10	9
	Enchytraeidae	10	8
	Psectrocladius	8	5
	Tribelos	5	5
	Caecidotea	8	4
	Nais	8	3
*	Oecetis	8	3
	Polypedilum	6	3
	Tanytarsus	6	3
	Trichocorixa	9	3
	Ferrissia	7	2
	Nematoda	6	2
	Calopteryx	6	1
	Corixidae	9	1
	Cryptochironomus	8	1
	Enallagma	9	1
*	Eurylophella	4	1
	Hydroporus	5	1
*	Maccaffertium	3	1
	Mooreobdella	7.8	1
	Rheopelopia	4	1
	Rheotanytarsus	6	1
*	Triaenodes	6	1
	Tubifex	10	1

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

Becks Biotic Index (BBI):	3.00	*%Plecoptera +Trichoptera:*	4.00%
Insect Taxa:	17	*%Mollusca + Amphipoda:*	15.00%
Non-Insect Taxa:	9	*%Diptera - Tanytarsini:*	24.00%
		%Filterers:	17.00%

PMI Rating: **44.30 Fair**

Habitat Analysis: 160 Optimal USEPA Protocol

Observations: Water temp: 16.30 C; Cond: 40 umhos; DO: 5.73 mg/L; pH: 4.44 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 30' / 2'; Substrate: gravel, sand, mud

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, turtle, tadpoles, macrophytes

AMNET Site # **AN0531** ***Stream Name:*** **Old Hurricane Br**

Location: **Beckerville Rd (Central Ave); Manchester Twp; Ocean County**

Collection Date: ***6/29/2010*** ***USGS Topo Map:*** **Whiting**

	Genus	Tolerance Value	Amount
	Tanytarsus	6	29
	Tribelos	5	16
	Microtendipes	7	8
	Limnodrilus	10	7
*	Phylocentropus	5	6
	Rheopelopia	4	6
	Apsectrotanypus	5	5
	Caecidotea	8	5
*	Leuctra	0	4
*	Lepidostoma	1	2
	Stempellinella	6	2
	Bezzia	6	1
	Enchytraeidae	10	1
	Heterotrissocladius	0	1
*	Maccaffertium	3	1
	Nais	8	1
*	Oecetis	8	1
	Potamonectes	5	1
	Rheotanytarsus	6	1
	Sialis	4	1
	Stictochironomus	9	1

**** (EPT organism)*** *Taxa Richness:* 21 *Population:* 100

Becks Biotic Index (BBI):	9.00	*%Plecoptera +Trichoptera:*	13.00%
Insect Taxa:	17	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	38.00%
		%Filterers:	44.00%

PMI Rating: **55.31 Fair**

Habitat Analysis: 171 Optimal USEPA Protocol

Observations: Water temp: 18.93 C; Cond: 60 umhos; DO: 5.77 mg/L; pH: 3.97 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 24' / 2-3'; Substrate: gravel, sand

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # **AN0532** ***Stream Name:*** **Manapaqua Br**

Location: **Rt 70; Lakehurst Boro; Ocean County**

Collection Date: ***7/22/2010*** ***USGS Topo Map:*** **Lakehurst**

	Genus	*Tolerance Value*	*Amount*
	Caecidotea	8	59
*	Oecetis	8	26
	Enallagma	9	13
	Cricotopus	7	1
	Tribelos	5	1

** (EPT organism)* *Taxa Richness:* 5 *Population:* 100

Becks Biotic Index (BBI):	0.00	*%Plecoptera +Trichoptera:*	26.00%
Insect Taxa:	4	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	1	*%Diptera - Tanytarsini:*	2.00%
		%Filterers:	0.00%

PMI Rating: **51.08 Fair**

Habitat Analysis: 147 Suboptimal USEPA Protocol

Observations: Water temp: 23.60 C; Cond: 81 umhos; DO: 4.43 mg/L; pH: 5.76 SU

Clarity: turbid, brown; Flow Rate: slow; Width/Depth: 17' / 1 - 2'; Substrate: sand, mud, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: frogs, macrophytes

AMNET Site # **AN0533** ***Stream Name:*** **Union Br**

Location: **Colonial Dr; Manchester Twp; Ocean County**

Collection Date: ***7/22/2010*** ***USGS Topo Map:*** **Lakehurst**

	Genus	*Tolerance Value*	*Amount*
	Caecidotea	8	27
	Ischnura	9	9
	Stenochironomus	5	5
*	Hydroptila	6	4
*	Oecetis	8	4
	Polypedilum	6	4
	Stenelmis	5	4
	Ablabesmyia	8	2
	Cricotopus	7	2
	Cryptochironomus	8	2
*	Hydropsyche	4	2
	Libellulidae	9	2
	Notonecta	5	2
	Tribelos	5	2
	Dicrotendipes	8	1
	Gomphus	5	1
*	Leuctra	0	1
	Macromia	2	1
	Mooreobdella	7.8	1
*	Mystacides	4	1
	Naididae	7	1
*	Phylocentropus	5	1
	Psectrocladius	8	1
	Thienemannimyia	6	1

** (EPT organism)* *Taxa Richness:* 24 *Population:* 81

Becks Biotic Index (BBI):	5.00	*%Plecoptera +Trichoptera:*	16.05%
Insect Taxa:	21	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	24.69%
		%Filterers:	3.70%

PMI Rating: **59.95 Good**

Habitat Analysis: 146 Suboptimal USEPA Protocol

Observations: Water temp: 25.16 C; Cond: 75 umhos; DO: 5.23 mg/L; pH: 5.16 SU

Clarity: slightly turbid, cedar brown; Flow Rate: slow; Width/Depth: 35' / 4'; Substrate: sand, silt, snags

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes, filamentous algae

AMNET Site # **AN0534** ***Stream Name:*** **Union Br**

Location: **10th Ave; Manchester Twp; Ocean County**

Collection Date: ***6/10/2010*** ***USGS Topo Map:*** **Lakewood**

	Genus	*Tolerance Value*	*Amount*
	Stenelmis	5	24
*	Oecetis	8	19
	Caecidotea	8	13
*	Brachycentrus	1	7
*	Ceraclea	3	7
	Ancyronyx	2	4
*	Eurylophella	4	3
	Calopteryx	6	2
	Enchytraeidae	10	2
	Nais	8	2
	Pristina	8	2
	Cricotopus	7	1
	Dicrotendipes	8	1
	Ferrissia	7	1
	Hexatoma	2	1
	Ischnura	9	1
	Lumbriculus	8	1
*	Maccaffertium	3	1
	Macromia	2	1
*	Mystacides	4	1
	Polypedilum	6	1
	Psectrocladius	8	1
*	Pycnopsyche	4	1
	Tanytarsus	6	1
	Thienemannimyia	6	1
*	Triaenodes	6	1

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

Becks Biotic Index (BBI):	10.00	*%Plecoptera +Trichoptera:*	36.00%
Insect Taxa:	20	*%Mollusca + Amphipoda:*	1.00%
Non-Insect Taxa:	6	*%Diptera - Tanytarsini:*	6.00%
		%Filterers:	8.00%

PMI Rating: **60.07 Good**

Habitat Analysis: 144 Suboptimal USEPA Protocol

Observations: Water temp: 18.36 C; Cond: 84 umhos; DO: 7.82 mg/L; pH: 5.01 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 69' / 3'; Substrate: gravel, sand, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Other: eels

AMNET Site # **AN0535** ***Stream Name:*** **Toms River**

Location: **Oak Ridge Pkwy; Toms River Twp; Ocean County**

Collection Date: ***6/10/2010*** ***USGS Topo Map:*** **Toms River**

	Genus	*Tolerance Value*	*Amount*
	Sphaeriidae	8	39
	Limnodrilus	10	22
	Dero	10	5
	Tribelos	5	5
*	Lepidostoma	1	4
	Aulodrilus	8	3
	Caecidotea	8	3
	Lumbriculus	8	3
*	Oecetis	8	2
*	Triaenodes	6	2
	Tubifex	10	2
	Agabus	5	1
	Cricotopus	7	1
	Enchytraeidae	10	1
*	Eurylophella	4	1
*	Maccaffertium	3	1
	Nais	8	1
*	Phylocentropus	5	1
	Polypedilum	6	1
	Promoresia	2	1
	Psectrocladius	8	1

** (EPT organism)* *Taxa Richness:* 21 *Population:* 100

Becks Biotic Index (BBI):	5.00	*%Plecoptera +Trichoptera:*	9.00%
Insect Taxa:	12	*%Mollusca + Amphipoda:*	39.00%
Non-Insect Taxa:	9	*%Diptera - Tanytarsini:*	8.00%
		%Filterers:	40.00%

PMI Rating: **34.02 Fair**

Habitat Analysis: 149 Suboptimal USEPA Protocol

Observations: Water temp: 17.90 C; Cond: 110 umhos; DO: 7.55 mg/L; pH: 5.67 SU

Clarity: slightly turbid, cedar brown; Flow Rate: moderate; Width/Depth: 60' / 3'; Substrate: sand, mud, silt, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes, periphytes

AMNET Site # **AN0536** ***Stream Name:*** **Wrangel Bk**

Location: **Congasia Rd; Manchester Twp; Ocean County**

Collection Date: ***6/29/2010*** ***USGS Topo Map:*** **Keswick Grove**

	Genus	Tolerance Value	Amount
*	Leuctra	0	49
	Tanytarsus	6	10
	Tribelos	5	7
	Nigronia	2	5
	Orthocladius	6	5
	Rheopelopia	4	5
*	Polycentropus	6	4
	Heterotrissocladius	0	3
	Psectrocladius	8	3
*	Hydropsyche	4	2
	Ablabesmyia	8	1
*	Brachycentrus	1	1
*	Hydroptila	6	1
	Natarsia	8	1
	Nilothauma	2	1
	Rheotanytarsus	6	1
	Simulium	6	1

** (EPT organism)* *Taxa Richness:* 17 *Population:* 100

Becks Biotic Index (BBI):	10.00	*%Plecoptera +Trichoptera:*	57.00%
Insect Taxa:	17	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	0	*%Diptera - Tanytarsini:*	27.00%
		%Filterers:	19.00%

PMI Rating: **70.94** **Excellent**

Habitat Analysis: 157 Suboptimal USEPA Protocol

Observations: Water temp: 22.62 C; Cond: 39 umhos; DO: 4.60 mg/L; pH: 3.96 SU

Clarity: clear, cedar brown; Flow Rate: slow; Width/Depth: 12' / 2'; Substrate: gravel, sand, mud, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: frogs, macrophytes

AMNET Site # **AN0537** *Stream Name:* **Wrangel Bk**

Location: **Mule Rd (Rt 642); Berkeley Twp; Ocean County**

Collection Date: *7/22/2010* *USGS Topo Map:* **Toms River**

	Genus	Tolerance Value	Amount
*	Lepidostoma	1	36
	Stenelmis	5	13
	Tvetenia	5	11
*	Ceratopsyche	4	6
*	Hydropsyche	4	6
	Caecidotea	8	3
	Corixidae	9	3
	Rheotanytarsus	6	3
	Ancyronyx	2	2
	Erpobdellidae	8	2
*	Hydroptila	6	2
	Polypedilum	6	2
*	Brachycentrus	1	1
	Cura	4	1
	Limnodrilus	10	1
*	Maccaffertium	3	1
	Nais	8	1
*	Oecetis	8	1
	Sphaeriidae	8	1
	Thienemannimyia	6	1
*	Triaenodes	6	1
	Tribelos	5	1
	Xylotopus	2	1

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

Becks Biotic Index (BBI):	10.00	*%Plecoptera +Trichoptera:*	53.00%
Insect Taxa:	17	*%Mollusca + Amphipoda:*	1.00%
Non-Insect Taxa:	6	*%Diptera - Tanytarsini:*	16.00%
		%Filterers:	17.00%

PMI Rating: **63.55** **Excellent**

Habitat Analysis: 144 Suboptimal USEPA Protocol

Observations: Water temp: 21.75 C; Cond: 75 umhos; DO: 7.18 mg/L; pH: 4.96 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 25' / 3'; Substrate: gravel, sand, snags

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, waterfowl (ducks), macrophytes

AMNET Site # **AN0538** *Stream Name:* **Sunken Br**

Location: **Mule Rd (Rt 642); Berkeley Twp; Ocean County**

Collection Date: *7/22/2010* *USGS Topo Map:* **Toms River**

	Genus	Tolerance Value	Amount
*	Caenis	7	20
	Hyalella	8	14
	Dero	10	11
	Chironomus	10	10
	Cladopelma	8	6
	Ischnura	9	5
	Libellulidae	9	5
	Ablabesmyia	8	3
	Corixidae	9	3
	Laccophilus	5	3
	Planorbidae	6	3
	Sphaeriidae	8	3
	Haliplus	5	2
	Parachironomus	10	2
	Paratanytarsus	6	2
	Physella	9.1	2
	Berosus	5	1
	Gloiobdella	6	1
	Mooreobdella	7.8	1
	Peltodytes	5	1
	Stylaria	8	1
	Zavreliella	6	1

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

Becks Biotic Index (BBI):	0.00	*%Plecoptera +Trichoptera:*	0.00%
Insect Taxa:	14	*%Mollusca + Amphipoda:*	22.00%
Non-Insect Taxa:	8	*%Diptera - Tanytarsini:*	22.00%
		%Filterers:	3.00%

PMI Rating: **42.00** **Fair**

Habitat Analysis: 141 Suboptimal USEPA Protocol

Observations: Water temp: 26.36 C; Cond: 143 umhos; DO: 0.25 mg/L; pH: 5.79 SU

Clarity: slightly turbid, brown; Flow Rate: slow; Width/Depth: 30' / 2 - 3'; Substrate: sand, mud

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Other: macrophytes, filamentous algae, oil sheen

AMNET Site # **AN0539** *Stream Name:* **Wrangel Bk**

Location: **Southampton Rd; Berkeley Twp; Ocean County**

Collection Date: *7/27/2010* *USGS Topo Map:* **Toms River**

	Genus	Tolerance Value	Amount
*	Lepidostoma	1	20
	Caecidotea	8	11
*	Mystacides	4	11
*	Oecetis	8	10
	Stenelmis	5	10
	Eukiefferiella	8	6
	Tribelos	5	6
*	Brachycentrus	1	4
*	Maccaffertium	3	3
	Orthocladius	6	3
*	Hydropsyche	4	2
	Pisidium	6.8	2
	Rheotanytarsus	6	2
	Simulium	6	2
	Bezzia	6	1
	Mooreobdella	7.8	1
	Musculium	5	1
	Nematoda	6	1
	Polypedilum	6	1
	Rheopelopia	4	1
	Tanytarsus	6	1
	Trichocorixa	9	1

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

Becks Biotic Index (BBI):	8.00	*%Plecoptera +Trichoptera:*	47.00%
Insect Taxa:	17	*%Mollusca + Amphipoda:*	3.00%
Non-Insect Taxa:	5	*%Diptera - Tanytarsini:*	20.00%
		%Filterers:	14.00%

PMI Rating: **62.77** **Good**

Habitat Analysis: 144 Suboptimal USEPA Protocol

Observations: Water temp: 22.06 C; Cond: 79 umhos; DO: 6.90 mg/L; pH: 5.11 SU

Clarity: slightly turbid, cedar brown; Flow Rate: moderate; Width/Depth: 57' / 2 - 4'; Substrate: sand, mud, silt, root mats

Canopy: mostly open; Bank Stability: fair; Bank Vegetation: grasses, weeds

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Other: fish, turtle, macrophytes

AMNET Site # **AN0540** ***Stream Name:*** **Davenport Br**

Location: **Lacey Rd (Rt 614); Lacey Twp; Ocean County**

Collection Date: ***7/29/2010*** ***USGS Topo Map:*** **Keswick Grove**

	Genus	Tolerance Value	Amount
	Rheotanytarsus	6	45
*	Hydropsyche	4	13
*	Cheumatopsyche	5	9
	Thienemannimyia	6	6
	Caecidotea	8	4
	Hyalella	8	4
	Pisidium	6.8	3
	Polypedilum	6	3
*	Leuctra	0	2
*	Oecetis	8	2
	Argia	6	1
*	Caenis	7	1
*	Chimarra	4	1
	Gomphus	5	1
*	Maccaffertium	3	1
*	Oxyethira	3	1
*	Pseudocloeon	4	1
	Stenelmis	5	1
	Xenochironomus	0	1

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

Becks Biotic Index (BBI):	9.00	*%Plecoptera +Trichoptera:*	28.00%
Insect Taxa:	16	*%Mollusca + Amphipoda:*	7.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	10.00%
		%Filterers:	71.00%

PMI Rating: **48.78 Fair**

Habitat Analysis: 144 Suboptimal USEPA Protocol

Observations: Water temp: 26.84 C; Cond: 78 umhos; DO: 6.25 mg/L; pH: 5.00 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 27' / 2'; Substrate: cobble, gravel, sand, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Downstream of Impoundment: cranberry bog

Other: tadpoles, macrophytes, surface foam

AMNET Site # **AN0541** *Stream Name:* **Davenport Br**

Location: **Mule Rd (Rt 642); Berkeley Twp; Ocean County**

Collection Date: *7/22/2010* *USGS Topo Map:* **Toms River**

	Genus	Tolerance Value	Amount
	Stenelmis	5	23
*	Hydroptila	6	13
	Psectrocladius	8	10
*	Brachycentrus	1	9
	Rheotanytarsus	6	8
*	Cheumatopsyche	5	6
	Orthocladius	6	6
	Rheopelopia	4	5
	Tanytarsus	6	3
	Boyeria	2	2
*	Hydropsyche	4	2
*	Lepidostoma	1	2
*	Chimarra	4	1
	Cricotopus	7	1
	Enchytraeidae	10	1
	Eukiefferiella	8	1
	Hetaerina	6	1
*	Leuctra	0	1
*	Molanna	6	1
	Musculium	5	1
*	Mystacides	4	1
	Simulium	6	1
	Thienemanniella	6	1

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

Becks Biotic Index (BBI):	11.00	*%Plecoptera +Trichoptera:*	36.00%
Insect Taxa:	21	*%Mollusca + Amphipoda:*	1.00%
Non-Insect Taxa:	2	*%Diptera - Tanytarsini:*	25.00%
		%Filterers:	31.00%

PMI Rating: **64.66** **Excellent**

Habitat Analysis: 151 Suboptimal USEPA Protocol

Observations: Water temp: 22.34 C; Cond: 61 umhos; DO: 7.69 mg/L; pH: 4.59 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 28' / 3'; 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: frogs, macrophytes, periphytes, filamentous algae

AMNET Site # **AN0542** ***Stream Name:*** **Jakes Br**

Location: **Dover Rd (Rt 618); Berkeley Twp; Ocean County**

Collection Date: ***7/27/2010*** ***USGS Topo Map:*** **Keswick Grove**

	Genus	*Tolerance Value*	*Amount*
	Caecidotea	8	20
	Chaetocladius	6	20
	Ablabesmyia	8	17
	Chironomus	10	17
	Nais	8	7
*	Oxyethira	3	7
	Micropsectra	7	3
	Psectrocladius	8	3
	Stenochironomus	5	2
	Chironomini	6	1
	Gammarus	6	1
	Labrundinia	7	1
	Polypedilum	6	1

** (EPT organism)* *Taxa Richness:* 13 *Population:* 100

Becks Biotic Index (BBI):	1.00	*%Plecoptera +Trichoptera:*	7.00%
Insect Taxa:	10	*%Mollusca + Amphipoda:*	1.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	62.00%
		%Filterers:	0.00%

PMI Rating: **58.82 Good**

Habitat Analysis: 134 Suboptimal USEPA Protocol

Observations: Water temp: 20.71 C; Cond: 75 umhos; DO: 1.25 mg/L; pH: 3.66 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 5' / 1'; Substrate: sand, mud, silt

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, frogs; stream not flowing, only puddles

AMNET Site # **AN0543** ***Stream Name:*** **Jakes Br**

Location: **Double Trouble Rd; Berkeley Twp; Ocean County**

Collection Date: ***7/27/2010*** ***USGS Topo Map:*** **Toms River**

	Genus	*Tolerance Value*	*Amount*
	Caecidotea	8	63
	Polypedilum	6	17
	Orthocladius	6	8
*	Oecetis	8	5
	Cura	4	2
	Chironomus	10	1
	Dicrotendipes	8	1
	Ferrissia	7	1
	Stenelmis	5	1
	Tubifex	10	1

** (EPT organism)* *Taxa Richness:* 10 *Population:* 100

Becks Biotic Index (BBI):	1.00	*%Plecoptera +Trichoptera:*	5.00%
Insect Taxa:	6	*%Mollusca + Amphipoda:*	1.00%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	27.00%
		%Filterers:	0.00%

PMI Rating: **49.23** **Fair**

Habitat Analysis: 156 Suboptimal USEPA Protocol

Observations: Water temp: 20.54 C; Cond: 48 umhos; DO: 4.47 mg/L; pH: 4.23 SU

Clarity: slightly turbid, cedar; Flow Rate: slow; Width/Depth: 30' / 1 - 2'; Substrate: cobble, gravel, sand, snags, root mats

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

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

Pipes / Ditches: storm sewers

Other: macrophytes, trash, new bridge

AMNET Site # **AN0544** ***Stream Name:*** **UNT to Toms River (Long Swamp Ck)**

Location: **Rt 37; Toms River Twp; Ocean County**

Collection Date: ***7/27/2010*** ***USGS Topo Map:*** **Toms River**

	Genus	*Tolerance Value*	*Amount*
	Gammarus	6	61
	Musculium	5	16
	Physella	9.1	6
	Gyraulus	6	5
	Enallagma	9	4
	Pisidium	6.8	2
	Aeshna	5	1
*	Cheumatopsyche	5	1
	Ferrissia	7	1
	Helisoma	7	1
*	Oecetis	8	1
	Rheotanytarsus	6	1

** (EPT organism)* *Taxa Richness:* 12 *Population:* 100

Becks Biotic Index (BBI):	0.00	*%Plecoptera +Trichoptera:*	2.00%
Insect Taxa:	5	*%Mollusca + Amphipoda:*	92.00%
Non-Insect Taxa:	7	*%Diptera - Tanytarsini:*	0.00%
		%Filterers:	20.00%

PMI Rating: **22.56 Poor**

Habitat Analysis: 137 Suboptimal USEPA Protocol

Observations: Water temp: 23.40 C; Cond: 280 umhos; DO: 3.20 mg/L; pH: 5.94 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 54' / < 1'; Substrate: gravel, sand, snags, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: commercial

Other: fish, frogs, macrophytes, trash

AMNET Site # **AN0545** ***Stream Name:*** **Webbs Mill Br**

Location: **Rt 539; Lacey Twp; Ocean County**

Collection Date: ***7/29/2010*** ***USGS Topo Map:*** **Whiting**

	Genus	*Tolerance Value*	*Amount*
	Psectrocladius	8	25
	Heterotrissocladius	0	11
	Hyalella	8	8
	Rheopelopia	4	7
	Gammarus	6	6
	Procladius	9	6
	Trichocorixa	9	5
	Nematoda	6	4
	Bezzia	6	3
	Caecidotea	8	3
	Stylaria	8	3
	Ablabesmyia	8	2
	Eclipidrilus	8	2
	Parakiefferiella	4	2
	Rheotanytarsus	6	2
	Tanytarsus	6	2
	Djalmabatista	3	1
	Lumbriculus	8	1
	Musculium	5	1
*	Oxyethira	3	1
*	Phryganeidae	4	1
*	Siphloplecton	2	1
	Slavina	7	1
	Tetragoneuria	8.5	1
	Tubifex	10	1

** (EPT organism)* *Taxa Richness:* 25 *Population:* 100

Becks Biotic Index (BBI):	8.00	*%Plecoptera +Trichoptera:*	2.00%
Insect Taxa:	15	*%Mollusca + Amphipoda:*	15.00%
Non-Insect Taxa:	10	*%Diptera - Tanytarsini:*	57.00%
		%Filterers:	5.00%

PMI Rating: **53.03 Fair**

Habitat Analysis: 141 Suboptimal USEPA Protocol

Observations: Water temp: 19.06 C; Cond: 31 umhos; DO: 5.66 mg/L; pH: 4.15 SU

Clarity: clear, cedar brown; Flow Rate: slow; Width/Depth: 54' / 3'; Substrate: gravel, sand, snags

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Pipes / Ditches: storm sewers

Other: frogs, waterfowl (ducks), macrophytes; thick layer of filamentous algae covering most of stream bottom

AMNET Site # **AN0546** ***Stream Name:*** **Cedar Ck**

Location: **Lacey Rd; Lacey Twp; Ocean County**

Collection Date: ***7/29/2010*** ***USGS Topo Map:*** **Keswick Grove**

	Genus	Tolerance Value	Amount
*	Brachycentrus	1	27
	Stenelmis	5	18
*	Maccaffertium	3	9
*	Hydroptila	6	8
	Rheotanytarsus	6	7
*	Hydropsyche	4	5
	Tanytarsus	6	4
	Enallagma	9	3
*	Oecetis	8	3
	Boyeria	2	2
	Pentaneura	6	2
*	Chimarra	4	1
	Dubiraphia	6	1
	Eukiefferiella	8	1
	Hagenius	3	1
	Hexatoma	2	1
	Macromia	2	1
*	Molanna	6	1
	Nais	8	1
*	Oxyethira	3	1
	Polypedilum	6	1
	Rheopelopia	4	1
	Stempellinella	6	1

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

Becks Biotic Index (BBI):	11.00	*%Plecoptera +Trichoptera:*	46.00%
Insect Taxa:	22	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	1	*%Diptera - Tanytarsini:*	6.00%
		%Filterers:	44.00%

PMI Rating: **62.92** **Good**

Habitat Analysis: 161 Optimal USEPA Protocol

Observations: Water temp: 25.39 C; Cond: 30 umhos; DO: 7.04 mg/L; pH: 4.28 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 30' / 3-4'; Substrate: gravel, sand, snags

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Downstream of Impoundment: Bamber Lake

Other: turtle, eels, macrophytes, periphytes; USGS gage: 5.33'

AMNET Site # **AN0547** ***Stream Name:*** **Factory Br**

Location: **Lacey Rd (Rt 614); Lacey Twp; Ocean County**

Collection Date: ***8/3/2010*** ***USGS Topo Map:*** **Keswick Grove**

	Genus	Tolerance Value	Amount
*	Hydropsyche	4	21
*	Brachycentrus	1	12
*	Hydroptila	6	11
*	Oxyethira	3	11
	Thienemannimyia	6	8
	Tvetenia	5	5
	Nais	8	4
	Psectrocladius	8	4
	Tribelos	5	3
	Caecidotea	8	2
	Cricotopus	7	2
*	Leuctra	0	2
*	Neureclipsis	7	2
*	Cheumatopsyche	5	1
	Enchytraeidae	10	1
	Hyalella	8	1
	Labrundinia	7	1
*	Molanna	6	1
	Nigronia	2	1
	Polypedilum	6	1
	Rheocricotopus	6	1
	Rheotanytarsus	6	1
	Simulium	6	1
	Stenelmis	5	1
	Tanypodinae	7	1
	Tanytarsus	6	1

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

Becks Biotic Index (BBI):	7.00	*%Plecoptera +Trichoptera:*	61.00%
Insect Taxa:	22	*%Mollusca + Amphipoda:*	1.00%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	27.00%
		%Filterers:	39.00%

PMI Rating: **65.79 Excellent**

Habitat Analysis: 167 Optimal USEPA Protocol

Observations: Water temp: 17.88 C; Cond: 40 umhos; DO: 6.89 mg/L; pH: 3.76 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 27' / < 1 - 1'; Substrate: gravel, sand

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Pipes / Ditches: storm sewers

Other: frogs, macrophytes, periphytes, filamentous algae

AMNET Site # **AN0548** ***Stream Name:*** **Cedar Ck**

Location: **Double Trouble St Park; Berkeley Twp; Ocean County**

Collection Date: ***7/27/2010*** ***USGS Topo Map:*** **Toms River**

	Genus	Tolerance Value	Amount
	Trichocorixa	9	50
*	Brachycentrus	1	9
*	Oecetis	8	5
*	Hydroptila	6	4
*	Oxyethira	3	4
	Boyeria	2	3
	Enallagma	9	3
*	Polycentropus	6	3
	Polypedilum	6	3
	Tanytarsus	6	2
	Tribelos	5	2
	Tubifex	10	2
*	Baetis	6	1
	Calopteryx	6	1
	Cordulegaster	3	1
	Dineutus	4	1
	Hetaerina	6	1
*	Maccaffertium	3	1
	Phaenopsectra	7	1
	Procladius	9	1
	Psectrocladius	8	1
	Stenelmis	5	1

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

Becks Biotic Index (BBI):	7.00	*%Plecoptera +Trichoptera:*	25.00%
Insect Taxa:	21	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	1	*%Diptera - Tanytarsini:*	8.00%
		%Filterers:	14.00%

PMI Rating: **60.24 Good**

Habitat Analysis: 170 Optimal USEPA Protocol

Observations: Water temp: 24.60 C; Cond: 35 umhos; DO: 6.70 mg/L; pH: 4.20 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 42' / 1 - 2'; Substrate: cobble, gravel, sand

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, eels, macrophytes, filamentous algae

AMNET Site # **AN0549** ***Stream Name:*** **Cedar Ck**

Location: **Rt 9; Lacey Twp; Ocean County**

Collection Date: ***8/3/2010*** ***USGS Topo Map:*** **Forked River**

	Genus	Tolerance Value	Amount
*	Brachycentrus	1	32
	Cricotopus	7	14
	Stenelmis	5	12
*	Molanna	6	6
*	Hydropsyche	4	5
	Tanytarsus	6	4
*	Neureclipsis	7	3
	Rheotanytarsus	6	3
	Thienemannimyia	6	3
*	Maccaffertium	3	2
	Tribelos	5	2
	Caecidotea	8	1
	Coenagrionidae	9	1
	Cryptochironomus	8	1
	Enchytraeidae	10	1
	Hetaerina	6	1
	Heterotrissocladius	0	1
*	Hydroptila	6	1
*	Lepidostoma	1	1
*	Leuctra	0	1
	Nigronia	2	1
	Nilothauma	2	1
	Psectrocladius	8	1
*	Pseudocloeon	4	1
	Simulium	6	1

** (EPT organism)* *Taxa Richness:* 25 *Population:* 100

Becks Biotic Index (BBI):	13.00	*%Plecoptera +Trichoptera:*	49.00%
Insect Taxa:	23	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	2	*%Diptera - Tanytarsini:*	24.00%
		%Filterers:	48.00%

PMI Rating: **67.05 Excellent**

Habitat Analysis: 158 Suboptimal USEPA Protocol

Observations: Water temp: 22.39 C; Cond: 43 umhos; DO: 7.48 mg/L; pH: 4.14 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 78' / 2 - 3'; Substrate: gravel, sand, root mats, undercut banks

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

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

Other: macrophytes, filamentous algae

AMNET Site # **AN0550** ***Stream Name:*** **Long Br of N Br Forked River**

Location: **Lacey/Ocean Twp Boundary; Ocean Twp; Ocean County**

Collection Date: ***8/3/2010*** ***USGS Topo Map:*** **Brookville**

	Genus	*Tolerance Value*	*Amount*
	Nais	8	20
	Slavina	7	14
	Caecidotea	8	12
	Procladius	9	11
	Tanytarsus	6	8
	Enallagma	9	7
*	Oxyethira	3	4
	Trichocorixa	9	4
	Dicrotendipes	8	3
	Limnodrilus	10	3
	Ablabesmyia	8	2
	Bezzia	6	2
	Libellulidae	9	2
*	Mystacides	4	2
	Argia	6	1
*	Caenis	7	1
	Chironomus	10	1
	Nematoda	6	1
*	Oecetis	8	1
	Vejdovskyella	4	1

** (EPT organism)* *Taxa Richness:* 20 *Population:* 100

Becks Biotic Index (BBI):	3.00	*%Plecoptera +Trichoptera:*	7.00%
Insect Taxa:	14	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	6	*%Diptera - Tanytarsini:*	19.00%
		%Filterers:	8.00%

PMI Rating: **49.53 Fair**

Habitat Analysis: 154 Suboptimal USEPA Protocol

Observations: Water temp: 22.55 C; Cond: 48 umhos; DO: 4.22 mg/L; pH: 4.33 SU

Clarity: slightly turbid, cedar brown; Flow Rate: slow; Width/Depth: 5' / 1'; Substrate: gravel, sand, mud

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: tadpole, macrophytes, filamentous algae

AMNET Site # **AN0551** ***Stream Name:*** **N Br Forked River**

Location: **at Power Lines; Lacey Twp; Ocean County**

Collection Date: ***8/3/2010*** ***USGS Topo Map:*** **Forked River**

	Genus	Tolerance Value	Amount
*	Leuctra	0	12
	Psectrocladius	8	11
*	Hydropsyche	4	10
*	Mystacides	4	6
	Orthocladius	6	6
	Rheopelopia	4	6
	Tvetenia	5	6
*	Acentrella	4	5
	Simulium	6	5
	Tanytarsus	6	5
	Nematoda	6	3
	Boyeria	2	2
	Lumbriculus	8	2
	Parakiefferiella	4	2
*	Baetisca	4	1
	Corydalus	4	1
	Cura	4	1
	Enchytraeidae	10	1
	Hemerodromia	6	1
	Heterotrissocladius	0	1
*	Hydroptila	6	1
*	Maccaffertium	3	1
	Musculium	5	1
	Nais	8	1
*	Oecetis	8	1
	Stenochironomus	5	1

** (EPT organism)* *Taxa Richness:* 26 *Population:* 93

Becks Biotic Index (BBI):	14.00	*%Plecoptera +Trichoptera:*	32.26%
Insect Taxa:	20	*%Mollusca + Amphipoda:*	1.08%
Non-Insect Taxa:	6	*%Diptera - Tanytarsini:*	41.94%
		%Filterers:	22.58%

PMI Rating: **65.95 Excellent**

Habitat Analysis: 152 Suboptimal USEPA Protocol

Observations: Water temp: 19.36 C; Cond: 38 umhos; DO: 7.94 mg/L; pH: 4.11 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 30' / 1'; Substrate: gravel, sand, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, macrophytes, filamentous algae

AMNET Site # **AN0552** *Stream Name:* **Oyster Ck**

Location: **Rt 532; Ocean Twp; Ocean County**

Collection Date: ***8/3/2010*** *USGS Topo Map:* **Brookville**

	Genus	Tolerance Value	Amount
	Psectrocladius	8	16
	Tanytarsus	6	11
	Hyalella	8	8
*	Hydroptila	6	8
	Dero	10	5
	Tipula	4	5
	Argia	6	4
	Stylaria	8	4
	Corixidae	9	3
	Enchytraeidae	10	3
*	Leuctra	0	3
*	Molanna	6	3
	Nais	8	3
	Thienemannimyia	6	3
	Lumbriculus	8	2
*	Oecetis	8	2
	Apsectrotanypus	5	1
	Basiaeschna	2	1
	Calopteryx	6	1
	Cricotopus	7	1
	Gomphus	5	1
*	Maccaffertium	3	1
	Orconectes	6	1
*	Oxyethira	3	1
*	Perlesta	4	1
*	Phryganeidae	4	1
	Polypedilum	6	1
*	Pseudocloeon	4	1
	Rheocricotopus	6	1
	Stempellinella	6	1
	Stenelmis	5	1
*	Triaenodes	6	1
	Tvetenia	5	1

** (EPT organism)* *Taxa Richness:* 33 *Population:* 100

Becks Biotic Index (BBI):	9.00	*%Plecoptera +Trichoptera:*	20.00%
Insect Taxa:	26	*%Mollusca + Amphipoda:*	8.00%
Non-Insect Taxa:	7	*%Diptera - Tanytarsini:*	29.00%
		%Filterers:	11.00%

PMI Rating: **59.80** **Good**

Habitat Analysis: 170 Optimal USEPA Protocol

Observations: Water temp: 19.10 C; Cond: 47 umhos; DO: 7.10 mg/L; pH: 4.15 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 30' / 1'; Substrate: gravel, sand, silt, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: frogs, turtle, macrophytes, filamentous algae

AMNET Site # **AN0554** ***Stream Name:*** **Four Mile Br**

Location: **nr. Mill Ck confl.; Stafford Twp; Ocean County**

Collection Date: ***8/9/2010*** ***USGS Topo Map:*** **West Creek**

	Genus	Tolerance Value	Amount
	Sphaeriidae	8	79
	Hymanella	4	3
	Planorbidae	6	3
	Prostoma	7	3
	Libellulidae	9	2
	Slavina	7	2
	Stylaria	8	2
	Ischnura	9	1
	Mooreobdella	7.8	1
*	Neureclipsis	7	1
	Neurocordulia	2	1
*	Oxyethira	3	1
	Tanytarsus	6	1

** (EPT organism)* *Taxa Richness:* 13 *Population:* 100

Becks Biotic Index (BBI):	3.00	*%Plecoptera +Trichoptera:*	2.00%
Insect Taxa:	6	*%Mollusca + Amphipoda:*	82.00%
Non-Insect Taxa:	7	*%Diptera - Tanytarsini:*	0.00%
		%Filterers:	81.00%

PMI Rating: **15.56 Poor**

Habitat Analysis: 155 Suboptimal USEPA Protocol

Observations: Water temp: 24.35 C; Cond: 108 umhos; DO: 6.31 mg/L; pH: 5.67 SU

Clarity: slightly turbid, cedar brown; Flow Rate: slow; Width/Depth: 22' / 4'; Substrate: gravel, sand, mud, silt, snags

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

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

Other: very deep stream, water barely flowing

AMNET Site # **AN0555** ***Stream Name:*** **Mill Ck**

Location: **Rt 72; Stafford Twp; Ocean County**

Collection Date: ***8/9/2010*** ***USGS Topo Map:*** **West Creek**

	Genus	*Tolerance Value*	*Amount*
	Amnicola	4.8	45
	Sphaeriidae	8	18
	Rheotanytarsus	6	13
	Stylaria	8	6
*	Cheumatopsyche	5	5
	Prostoma	7	3
	Slavina	7	3
	Dero	10	1
*	Hydropsyche	4	1
	Ischnura	9	1
*	Maccaffertium	3	1
*	Pseudocloeon	4	1
	Simulium	6	1
	Tvetenia	5	1

** (EPT organism)* *Taxa Richness:* 14 *Population:* 100

Becks Biotic Index (BBI):	3.00	*%Plecoptera +Trichoptera:*	6.00%
Insect Taxa:	8	*%Mollusca + Amphipoda:*	63.00%
Non-Insect Taxa:	6	*%Diptera - Tanytarsini:*	2.00%
		%Filterers:	38.00%

PMI Rating: **28.41 Poor**

Habitat Analysis: 150 Suboptimal USEPA Protocol

Observations: Water temp: 26.97 C; Cond: 121 umhos; DO: 7.32 mg/L; pH: 6.18 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 21' / 1 - 2'; Substrate: gravel, sand, silt, root mats

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

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

Downstream of Impoundment: lake

Other: fish, turtle, macrophytes, periphytes, filamentous algae

AMNET Site # **AN0555A** ***Stream Name:*** **Mill Ck**

Location: **off Hay Rd; Stafford Twp; Ocean County**

Collection Date: ***8/11/2010*** ***USGS Topo Map:*** **West Creek**

	Genus	Tolerance Value	Amount
*	Brachycentrus	1	30
*	Hydropsyche	4	13
*	Pycnopsyche	4	8
*	Leuctra	0	6
	Eukiefferiella	8	5
*	Molanna	6	5
*	Polycentropus	6	5
	Boyeria	2	3
	Chrysops	6	3
	Nigronia	2	3
	Bezzia	6	2
	Orthocladius	6	2
	Simulium	6	2
	Thienemannimyia	6	2
*	Acentrella	4	1
*	Agrypnia	7	1
	Calopteryx	6	1
	Cordulegaster	3	1
	Cricotopus	7	1
	Hemerodromia	6	1
	Heterotrissocladius	0	1
*	Perlesta	4	1
	Psectrocladius	8	1
*	Psilotreta	0	1
	Tanytarsus	6	1

** (EPT organism)* *Taxa Richness:* 25 *Population:* 100

Becks Biotic Index (BBI):	15.00	*%Plecoptera +Trichoptera:*	70.00%
Insect Taxa:	25	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	0	*%Diptera - Tanytarsini:*	20.00%
		%Filterers:	51.00%

PMI Rating: **71.01 Excellent**

Habitat Analysis: 173 Optimal USEPA Protocol

Observations: Water temp: 16.09 C; Cond: 33 umhos; DO: 8.34 mg/L; pH: 4.04 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 10' / 1'; Substrate: sand, snags, undercut banks

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

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

Other: frogs, macrophytes, filamentous algae

AMNET Site # **AN0556** ***Stream Name:*** **Cedar Run**

Location: **Rt 9; Stafford Twp; Ocean County**

Collection Date: ***8/9/2010*** ***USGS Topo Map:*** **West Creek**

	Genus	Tolerance Value	Amount
*	Hydropsyche	4	28
	Stenelmis	5	14
	Rheotanytarsus	6	13
	Polypedilum	6	10
	Rheopelopia	4	7
*	Maccaffertium	3	5
*	Molanna	6	4
	Nais	8	4
	Stylaria	8	4
	Tribelos	5	2
	Caecidotea	8	1
	Enchytraeidae	10	1
	Hemerodromia	6	1
	Hydroporus	5	1
*	Hydroptila	6	1
	Orthocladius	6	1
*	Oxyethira	3	1
	Pisidium	6.8	1
	Tipula	4	1

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

Becks Biotic Index (BBI):	5.00	*%Plecoptera +Trichoptera:*	34.00%
Insect Taxa:	14	*%Mollusca + Amphipoda:*	1.00%
Non-Insect Taxa:	5	*%Diptera - Tanytarsini:*	22.00%
		%Filterers:	42.00%

PMI Rating: **53.24 Fair**

Habitat Analysis: 155 Suboptimal USEPA Protocol

Observations: Water temp: 23.09 C; Cond: 55 umhos; DO: 9.17 mg/L; pH: 4.47 SU

Clarity: clear, cedar brown; Flow Rate: moderate; Width/Depth: 13' / 2'; Substrate: gravel, sand, silt, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: rural

Downstream of Impoundment: lake

Other: fish, macrophytes, periphytes; trash

AMNET Site # **AN0557** ***Stream Name:*** **Westecunk Ck**

Location: **Forge Rd (Stafford Forge); Eagleswood Twp; Ocean County**

Collection Date: ***8/10/2010*** ***USGS Topo Map:*** **West Creek**

	Genus	Tolerance Value	Amount
	Rheotanytarsus	6	32
*	Hydropsyche	4	14
	Stenelmis	5	13
*	Chimarra	4	10
	Tvetenia	5	7
	Psectrocladius	8	5
	Orthocladius	6	3
	Polypedilum	6	3
	Cura	4	2
	Rheopelopia	4	2
	Slavina	7	2
*	Acerpenna	4	1
*	Baetis	6	1
	Enchytraeidae	10	1
	Helobdella	8	1
*	Maccaffertium	3	1
	Nigronia	2	1
	Stylaria	8	1

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

Becks Biotic Index (BBI):	7.00	*%Plecoptera +Trichoptera:*	24.00%
Insect Taxa:	13	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	5	*%Diptera - Tanytarsini:*	20.00%
		%Filterers:	56.00%

PMI Rating: **49.17 Fair**

Habitat Analysis: 172 Optimal USEPA Protocol

Observations: Water temp: 24.14 C; Cond: 32 umhos; DO: 7.70 mg/L; pH: 4.50 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 45' / 1'; Substrate: cobble, gravel, sand, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Downstream of Impoundment: lake

Other: frogs, macrophytes, periphytes, filamentous algae; USGS gage; site adjacent to GS Parkway

AMNET Site # **AN0557A** ***Stream Name:*** **Westecunk Ck**

Location: **Pollypod Rd; Little Egg Harbor Twp; Ocean County**

Collection Date: ***8/10/2010*** ***USGS Topo Map:*** **West Creek**

	Genus	Tolerance Value	Amount
*	Leuctra	0	19
*	Hydropsyche	4	15
	Eukiefferiella	8	8
	Tanytarsus	6	8
*	Chimarra	4	6
*	Platycentropus	4	5
*	Psilotreta	0	5
	Rheotanytarsus	6	5
*	Maccaffertium	3	3
	Rheopelopia	4	3
	Stylodrilus	10	3
	Calopteryx	6	2
*	Ephemerellidae	1	2
*	Hydroptila	6	2
*	Mystacides	4	2
	Stenochironomus	5	2
	Argia	6	1
	Eclipidrilus	8	1
	Enchytraeidae	10	1
*	Hydatophylax	2	1
	Nematoda	6	1
	Nigronia	2	1
	Oulimnius	4	1
	Polypedilum	6	1
	Psectrocladius	8	1
	Xylotopus	2	1

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

Becks Biotic Index (BBI):	16.00	*%Plecoptera +Trichoptera:*	55.00%
Insect Taxa:	22	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	16.00%
		%Filterers:	34.00%

PMI Rating: **68.61** **Excellent**

Habitat Analysis: 160 Optimal USEPA Protocol

Observations: Water temp: 18.85 C; Cond: 33 umhos; DO: 5.00 mg/L; pH: 4.01 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 5' / 2'; Substrate: sand, silt, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: frogs, macrophytes, periphytes

AMNET Site # **AN0558** ***Stream Name:*** **Westecunk Ck**

Location: **Railroad Ave; Eagleswood Twp; Ocean County**

Collection Date: ***7/14/2011*** ***USGS Topo Map:*** **West Creek**

	Genus	Tolerance Value	Amount
	Tribelos	5	13
	Tanytarsus	6	11
	Pentaneura	6	9
*	Hydroptila	6	8
	Polypedilum	6	6
	Eukiefferiella	8	4
	Nais	8	4
*	Oecetis	8	4
	Rheotanytarsus	6	4
	Stenelmis	5	4
*	Molanna	6	3
	Paralauterborniella	8	3
	Rheopelopia	4	3
	Stempellinella	6	3
*	Baetidae	4	2
	Cura	4	2
*	Mystacides	4	2
*	Paraleptophlebia	1	2
	Psectrocladius	8	2
	Ablabesmyia	8	1
	Caecidotea	8	1
	Calopteryx	6	1
	Gammarus	6	1
	Heterotrissocladius	0	1
*	Hydropsyche	4	1
*	Perlesta	4	1
	Pisidium	6.8	1
	Slavina	7	1
	Stenochironomus	5	1
	Tubifex	10	1

** (EPT organism)* *Taxa Richness:* 30 *Population:* 100

Becks Biotic Index (BBI):	10.00	*%Plecoptera +Trichoptera:*	19.00%
Insect Taxa:	23	*%Mollusca + Amphipoda:*	2.00%
Non-Insect Taxa:	7	*%Diptera - Tanytarsini:*	43.00%
		%Filterers:	17.00%

PMI Rating: **61.71 Good**

Habitat Analysis: 151 Suboptimal USEPA Protocol

Observations: Water temp: 21.07 C; Cond: 52 umhos; DO: 7.07 mg/L; pH: 4.90 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 46' / 3'; Substrate: gravel, sand, undercut banks

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

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

Other: eels, macrophytes

AMNET Site # **AN0559** ***Stream Name:*** **Mill Br of Tuckerton Ck**

Location: **Nugentown Rd; Little Egg Harbor Twp; Ocean County**

Collection Date: ***8/10/2010*** ***USGS Topo Map:*** **Tuckerton**

	Genus	Tolerance Value	Amount
*	Oxyethira	3	22
	Psectrocladius	8	14
	Orthocladius	6	10
	Tanytarsus	6	9
	Hyalella	8	8
	Ablabesmyia	8	4
	Nais	8	4
	Parakiefferiella	4	4
	Hetaerina	6	3
	Trichocorixa	9	3
	Caecidotea	8	2
	Crangonyx	8	2
	Eurycercus	4	2
	Tribelos	5	2
*	Baetis	6	1
	Bezzia	6	1
	Conchapelopia	6	1
	Cricotopus	7	1
*	Heteroplectron	3	1
*	Leuctra	0	1
	Microvelia	6	1
*	Molanna	6	1
	Polypedilum	6	1
*	Pycnopsyche	4	1
	Rheotanytarsus	6	1

** (EPT organism)* *Taxa Richness:* 25 *Population:* 100

Becks Biotic Index (BBI):	7.00	*%Plecoptera +Trichoptera:*	26.00%
Insect Taxa:	20	*%Mollusca + Amphipoda:*	10.00%
Non-Insect Taxa:	5	*%Diptera - Tanytarsini:*	38.00%
		%Filterers:	12.00%

PMI Rating: **60.84 Good**

Habitat Analysis: 162 Optimal USEPA Protocol

Observations: Water temp: 18.48 C; Cond: 54 umhos; DO: 7.60 mg/L; pH: 4.18 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 42' / 1 - 3 '; Substrate: gravel, sand, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes, filamentous algae

AMNET Site # **AN0559A** ***Stream Name:*** **Mill Br**

Location: **Poor Mans Pkwy; Little Egg Harbor Twp; Ocean County**

Collection Date: ***8/10/2010*** ***USGS Topo Map:*** **West Creek**

	Genus	*Tolerance Value*	*Amount*
	Microtendipes	7	28
*	Leuctra	0	13
	Tribelos	5	11
	Thienemannimyia	6	6
*	Cheumatopsyche	5	5
	Calopteryx	6	4
*	Heteroplectron	3	4
*	Limnephilidae	4	3
	Stenochironomus	5	3
	Hesperoconopa	1	2
*	Hydropsyche	4	2
*	Molanna	6	2
	Nigronia	2	2
*	Psilotreta	0	2
	Rheotanytarsus	6	2
	Boyeria	2	1
*	Diplectrona	0	1
	Heterotrissocladius	0	1
*	Hydropsychidae	4	1
	Lumbriculus	8	1
	Micropsectra	7	1
	Planariidae	4	1
	Polypedilum	6	1
*	Siphloplecton	2	1
	Tanytarsus	6	1
*	Triaenodes	6	1

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

Becks Biotic Index (BBI):	18.00	*%Plecoptera +Trichoptera:*	34.00%
Insect Taxa:	24	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	2	*%Diptera - Tanytarsini:*	52.00%
		%Filterers:	40.00%

PMI Rating: **73.11 Excellent**

Habitat Analysis: 131 Suboptimal USEPA Protocol

Observations: Water temp: 19.04 C; Cond: 39 umhos; DO: 6.78 mg/L; pH: 4.03 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 18' / 1'; Substrate: gravel, sand, silt, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # **AN0560** ***Stream Name:*** **Mullica River**

Location: **Medford Rd; Shamong Twp; Burlington & Camden County**

Collection Date: ***8/17/2010*** ***USGS Topo Map:*** **Medford Lakes**

	Genus	Tolerance Value	Amount
*	Cheumatopsyche	5	30
*	Chimarra	4	23
	Amnicola	4.8	14
	Polypedilum	6	8
	Corbicula	4	4
	Planariidae	4	4
	Stylaria	8	4
*	Caenis	7	2
	Gomphus	5	2
*	Maccaffertium	3	2
*	Acerpenna	4	1
	Dero	10	1
	Hyalella	8	1
	Nanocladius	3	1
	Pentaneura	6	1
	Physella	9.1	1
	Xenochironomus	0	1

** (EPT organism)* *Taxa Richness:* 17 *Population:* 100

Becks Biotic Index (BBI):	8.00	*%Plecoptera +Trichoptera:*	53.00%
Insect Taxa:	10	*%Mollusca + Amphipoda:*	20.00%
Non-Insect Taxa:	7	*%Diptera - Tanytarsini:*	11.00%
		%Filterers:	57.00%

PMI Rating: **48.53** **Fair**

Habitat Analysis: 151 Suboptimal USEPA Protocol

Observations: Water temp: 27.51 C; Cond: 176 umhos; DO: 5.00 mg/L; pH: 6.17 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 20' / 1'; Substrate: gravel, sand

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

Stream Gradient: Low Gradient Stream; Land Uses: forested, campground with bathing beach

Downstream of Impoundment: lake

Other: fish, clams, macrophytes, filamentous algae

AMNET Site # **AN0561** *Stream Name:* **Mullica River**

Location: **off Jackson Rd; Shamong Twp; Burlington & Camden County**

Collection Date: ***8/17/2010*** *USGS Topo Map:* **Medford Lakes**

	Genus	Tolerance Value	Amount
	Caecidotea	8	28
	Sialis	4	15
	Alotanypus	6	14
	Macropelopia	10	12
	Zavrelimyia	8	4
	Chauliodes	4	3
	Culicidae	8	3
	Limnodrilus	10	3
	Stenochironomus	5	3
*	Chimarra	4	2
	Gammarus	6	2
	Procladius	9	2
	Tribelos	5	2
	Ancyronyx	2	1
	Chironomus	10	1
	Haliplus	5	1
	Phaenopsectra	7	1
	Polypedilum	6	1
	Rheopelopia	4	1
	Trichocorixa	9	1

** (EPT organism)* *Taxa Richness:* 20 *Population:* 100

Becks Biotic Index (BBI):	5.00	*%Plecoptera +Trichoptera:*	2.00%
Insect Taxa:	17	*%Mollusca + Amphipoda:*	2.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	44.00%
		%Filterers:	5.00%

PMI Rating: **58.14 Good**

Habitat Analysis: 136 Suboptimal USEPA Protocol

Observations: Water temp: 17.75 C; Cond: 130 umhos; DO: 0.07 mg/L; pH: 5.51 SU

Clarity: turbid, brown; Flow Rate: slow; Width/Depth: 25' / 1 - 2'; Substrate: gravel, sand, silt

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: oil sheen, creosote odor, excessive siltation

AMNET Site # **AN0562** *Stream Name:* **Mullica River**

Location: **Burnt House Rd; Shamong Twp; Burlington County**

Collection Date: ***8/17/2010*** *USGS Topo Map:* **Hammonton**

	Genus	Tolerance Value	Amount
	Tribelos	5	38
	Ablabesmyia	8	9
	Polypedilum	6	8
	Sialis	4	5
	Stylaria	8	4
	Thienemannimyia	6	4
	Corixidae	9	3
	Sphaeriidae	8	3
	Coenagrionidae	9	2
	Peltodytes	5	2
	Stenochironomus	5	2
*	Triaenodes	6	2
	Basiaeschna	2	1
	Caecidotea	8	1
	Ceratopogonidae	6	1
	Chrysops	6	1
	Cladopelma	8	1
	Cricotopus	7	1
	Cryptochironomus	8	1
	Dineutus	4	1
	Enchytraeidae	10	1
	Gomphus	5	1
	Limnodrilus	10	1
	Macronychus	2	1
*	Molanna	6	1
	Naididae	7	1
	Procladius	9	1
	Promoresia	2	1
	Psectrocladius	8	1
	Tetragoneuria	8.5	1

** (EPT organism)* *Taxa Richness:* 30 *Population:* 100

Becks Biotic Index (BBI):	5.00	*%Plecoptera +Trichoptera:*	3.00%
Insect Taxa:	24	*%Mollusca + Amphipoda:*	3.00%
Non-Insect Taxa:	6	*%Diptera - Tanytarsini:*	68.00%
		%Filterers:	3.00%

PMI Rating: **63.11 Excellent**

Habitat Analysis: 166 Optimal USEPA Protocol

Observations: Water temp: 20.81 C; Cond: 36 umhos; DO: 5.18 mg/L; pH: 4.58 SU

Clarity: slightly turbid, cedar brown; Flow Rate: slow; Width/Depth: 35' / 2 - 3'; Substrate: gravel, sand, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: frogs, macrophytes, filamentous algae

AMNET Site # **AN0563** ***Stream Name:*** **Wesickaman Ck**

Location: **Quaker Bridge Rd; Shamong Twp; Burlington County**

Collection Date: ***8/18/2010*** ***USGS Topo Map:*** **Atsion**

	Genus	*Tolerance Value*	*Amount*
	Gammarus	6	39
	Chironomus	10	29
	Kiefferulus	10	12
	Tribelos	5	3
	Alotanypus	6	2
	Apsectrotanypus	5	2
	Nais	8	2
	Sialis	4	2
	Tubifex	10	2
	Calopteryx	6	1
	Hetaerina	6	1
	Limnodrilus	10	1
*	Molanna	6	1
	Musculium	5	1
	Polypedilum	6	1
	Rheopelopia	4	1

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

Becks Biotic Index (BBI):	2.00	*%Plecoptera +Trichoptera:*	1.00%
Insect Taxa:	11	*%Mollusca + Amphipoda:*	40.00%
Non-Insect Taxa:	5	*%Diptera - Tanytarsini:*	50.00%
		%Filterers:	1.00%

PMI Rating: **47.44 Fair**

Habitat Analysis: 117 Suboptimal USEPA Protocol

Observations: Water temp: 20.89 C; Cond: 73 umhos; DO: 5.40 mg/L; pH: 6.13 SU

Clarity: turbid; Flow Rate: slow; Width/Depth: 10' / < 1'; Substrate: gravel, sand, mud, snags, root mats

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

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

Other: macrophytes, periphytes; stream very shallow, low flow

AMNET Site # **AN0564** ***Stream Name:*** **Mullica River**

Location: **Constable Bridge; Mullica Twp; Atlantic & Burlington County**

Collection Date: ***7/14/2011*** ***USGS Topo Map:*** **Atsion**

	Genus	*Tolerance Value*	*Amount*
	Enchytraeidae	10	15
*	Oecetis	8	5
	Boyeria	2	2
	Calopteryx	6	1
	Coenagrionidae	9	1
	Cricotopus	7	1
	Hydroporus	5	1
*	Hydropsyche	4	1
	Limnodrilus	10	1
	Lumbriculidae	8	1
	Simulium	6	1
	Sphaeriidae	8	1
	Stempellinella	6	1
*	Triaenodes	6	1
	Tribelos	5	1

** (EPT organism)* *Taxa Richness:* 15 *Population:* 34

Becks Biotic Index (BBI):	2.00	*%Plecoptera +Trichoptera:*	20.59%
Insect Taxa:	11	*%Mollusca + Amphipoda:*	2.94%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	8.82%
		%Filterers:	8.82%

PMI Rating: **50.33 Fair**

Habitat Analysis: 172 Optimal USEPA Protocol

Observations: Water temp: 22.91 C; Cond: 62 umhos; DO: 5.05 mg/L; pH: 4.48 SU
Clarity: clear, cedar; Flow Rate: fast; Width/Depth: 56' / 2 - 3'; Substrate: gravel, sand
Canopy: mostly open; Bank Stability: good; Bank Vegetation: trees, shrubs
Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes; kayak access upstream of bridge

AMNET Site # **AN0565** *Stream Name:* **Hays Mill Ck**

Location: **Tremont Ave; Waterford Twp; Camden County**

Collection Date: ***8/17/2010*** *USGS Topo Map:* **Medford Lakes**

	Genus	Tolerance Value	Amount
*	Brachycentrus	1	16
	Hyalella	8	12
*	Leuctra	0	7
*	Maccaffertium	3	7
*	Baetis	6	5
	Cricotopus	7	5
	Cura	4	5
	Tubifex	10	5
	Macronychus	2	4
	Oulimnius	4	3
	Tanytarsus	6	3
*	Cheumatopsyche	5	2
	Gillia	8	2
	Limnodrilus	10	2
	Musculium	5	2
	Alotanypus	6	1
	Ancyronyx	2	1
	Bezzia	6	1
	Boyeria	2	1
	Calopteryx	6	1
*	Chimarra	4	1
	Dubiraphia	6	1
	Gammarus	6	1
	Haliplus	5	1
	Helisoma	7	1
	Microtendipes	7	1
*	Molanna	6	1
	Nigronia	2	1
*	Oecetis	8	1
	Pisidium	6.8	1
	Procladius	9	1
	Rheopelopia	4	1
	Sialis	4	1
	Stylodrilus	10	1
	Viviparus	1	1

** (EPT organism)* *Taxa Richness:* 35 *Population:* 100

Becks Biotic Index (BBI):	16.00	*%Plecoptera +Trichoptera:*	28.00%
Insect Taxa:	24	*%Mollusca + Amphipoda:*	20.00%
Non-Insect Taxa:	11	*%Diptera - Tanytarsini:*	10.00%
		%Filterers:	26.00%

PMI Rating: **53.28 Fair**

Habitat Analysis: 163 Optimal USEPA Protocol

Observations: Water temp: 21.24 C; Cond: 153 umhos; DO: 6.97 mg/L; pH: 6.21 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 19' / 1'; Substrate: gravel, sand, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: frogs, salamander, macrophytes, periphytes

AMNET Site # **AN0566** ***Stream Name:*** **Sleeper Br**

Location: **Parkdale; Waterford Twp; Camden & Atlantic County**

Collection Date: ***8/17/2010*** ***USGS Topo Map:*** **Hammonton**

	Genus	*Tolerance Value*	*Amount*
*	Brachycentrus	1	70
	Ancyronyx	2	7
*	Maccaffertium	3	7
	Eukiefferiella	8	3
*	Baetis	6	2
*	Chimarra	4	2
	Cricotopus	7	2
	Parakiefferiella	4	2
	Rheopelopia	4	2
*	Leuctra	0	1
	Limnophila	3	1
	Tribelos	5	1

** (EPT organism)* *Taxa Richness:* 12 *Population:* 100

Becks Biotic Index (BBI):	10.00	*%Plecoptera +Trichoptera:*	73.00%
Insect Taxa:	12	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	0	*%Diptera - Tanytarsini:*	11.00%
		%Filterers:	72.00%

PMI Rating: **58.31 Good**

Habitat Analysis: 178 Optimal USEPA Protocol

Observations: Water temp: 23.30 C; Cond: 110 umhos; DO: 7.08 mg/L; pH: 6.42 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 36' / 1 - 3'; Substrate: gravel, sand, silt, snags

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: frogs, macrophytes, periphytes, filamentous algae

AMNET Site # **AN0567** ***Stream Name:*** **Clarks Br**

Location: **Burnt Mill Rd; Waterford Twp; Camden County**

Collection Date: ***7/12/2011*** ***USGS Topo Map:*** **Hammonton**

Genus	*Tolerance Value*	*Amount*
Enchytraeidae	10	29
Nais	8	9
Vejdovskyella	4	8
Limnophyes	8	7
Chironomus	10	6
Eclipidrilus	8	5
Limnodrilus	10	4
Nematoda	6	4
Bezzia	6	3
Caecidotea	8	3
Stylodrilus	10	3
Tabanus	5	3
Ablabesmyia	8	2
Heterotrissocladius	0	2
Hydroporus	5	2
Polypedilum	6	2
Tubifex	10	2
Erythemis	10	1
Ferrissia	7	1
Parametriocnemus	5	1
Peltodytes	5	1
Psectrocladius	8	1
Tanytarsus	6	1

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

Becks Biotic Index (BBI):	3.00	*%Plecoptera +Trichoptera:*	0.00%
Insect Taxa:	13	*%Mollusca + Amphipoda:*	1.00%
Non-Insect Taxa:	10	*%Diptera - Tanytarsini:*	27.00%
		%Filterers:	1.00%

PMI Rating: **46.31 Fair**

Habitat Analysis: 168 Optimal USEPA Protocol

Observations: Water temp: 21.54 C; Cond: 60 umhos; DO: 0.79 mg/L; pH: 4.29 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 5' / 1'; Substrate: gravel, sand, silt, snags, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: frogs, macrophytes; site dry 8/10

AMNET Site # **AN0568** ***Stream Name:*** **Prices Br**

Location: **Burnt Mill Rd; Waterford Twp; Camden County**

Collection Date: ***7/12/2011*** ***USGS Topo Map:*** **Hammonton**

	Genus	*Tolerance Value*	*Amount*
	Enchytraeidae	10	28
	Lumbriculidae	8	28
	Caecidotea	8	13
	Aedes	8	10
	Sphaeriidae	8	7
	Dero	10	2
	Orthocladiinae	5	2
	Peltodytes	5	2
	Collembola	10	1
	Enochrus	8.5	1
	Kiefferulus	10	1
	Phagocata	4	1
*	Phryganeidae	4	1
	Polypedilum	6	1
	Prostoma	7	1
	Slavina	7	1

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

Becks Biotic Index (BBI):	2.00	*%Plecoptera +Trichoptera:*	1.00%
Insect Taxa:	7	*%Mollusca + Amphipoda:*	7.00%
Non-Insect Taxa:	9	*%Diptera - Tanytarsini:*	14.00%
		%Filterers:	7.00%

PMI Rating: **40.16 Fair**

Habitat Analysis: 164 Optimal USEPA Protocol

Observations: Water temp: 22.83 C; Cond: 92 umhos; DO: 0.99 mg/L; pH: 5.59 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 5' / < 1'; Substrate: gravel, sand, silt, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: frogs, macrophytes; site dry 08/10

AMNET Site # **AN0569** *Stream Name:* **Pump Br**

Location: **Old White Horse Pike; Winslow Twp; Camden County**

Collection Date: ***8/19/2010*** *USGS Topo Map:* **Hammonton**

	Genus	Tolerance Value	Amount
	Rheotanytarsus	6	21
*	Macrostemum	3	14
*	Maccaffertium	3	8
	Musculium	5	8
	Pisidium	6.8	8
*	Hydropsyche	4	6
	Planariidae	4	6
	Amnicola	4.8	5
*	Chimarra	4	4
*	Oecetis	8	4
*	Cheumatopsyche	5	3
	Nais	8	2
	Stenelmis	5	2
*	Acerpenna	4	1
*	Brachycentrus	1	1
	Dineutus	4	1
	Hetaerina	6	1
	Macronychus	2	1
	Paraponyx	5	1
	Polypedilum	6	1
	Prostoma	7	1
	Tanytarsus	6	1

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

Becks Biotic Index (BBI):	10.00	*%Plecoptera +Trichoptera:*	32.00%
Insect Taxa:	16	*%Mollusca + Amphipoda:*	13.00%
Non-Insect Taxa:	6	*%Diptera - Tanytarsini:*	1.00%
		%Filterers:	66.00%

PMI Rating: **45.65 Fair**

Habitat Analysis: 151 Suboptimal USEPA Protocol

Observations: Water temp: 23.04 C; Cond: 129 umhos; DO: 2.15 mg/L; pH: 5.69 SU

Clarity: slightly turbid; Flow Rate: moderate; Width/Depth: 10' / 2'; Substrate: gravel, sand, snags, root mats

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

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

Downstream of Impoundment: pond

Other: fish, macrophytes, filamentous algae, invasive plants; possible beaver dam

AMNET Site # **AN0570** ***Stream Name:*** **Blue Anchor Bk**

Location: **Rt 30; Winslow Twp; Camden County**

Collection Date: ***8/19/2010*** ***USGS Topo Map:*** **Hammonton**

	Genus	*Tolerance Value*	*Amount*
	Nais	8	21
	Cura	4	20
	Prostoma	7	16
	Musculium	5	8
	Amnicola	4.8	6
	Erythemis	10	4
	Slavina	7	4
	Stylaria	8	3
	Tanytarsus	6	3
	Ablabesmyia	8	2
*	Caenis	7	2
	Enallagma	9	2
*	Callibaetis	9	1
*	Cheumatopsyche	5	1
	Helobdella	8	1
	Hydra	5	1
	Pristina	8	1
	Procladius	9	1
	Psectrocladius	8	1
	Rheotanytarsus	6	1
	Stylodrilus	10	1

** (EPT organism)* *Taxa Richness:* 21 *Population:* 100

Becks Biotic Index (BBI):	1.00	*%Plecoptera +Trichoptera:*	1.00%
Insect Taxa:	10	*%Mollusca + Amphipoda:*	14.00%
Non-Insect Taxa:	11	*%Diptera - Tanytarsini:*	4.00%
		%Filterers:	13.00%

PMI Rating: **34.97 Fair**

Habitat Analysis: 146 Suboptimal USEPA Protocol

Observations: Water temp: 26.35 C; Cond: 89 umhos; DO: 6.59 mg/L; pH: 6.13 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 10' / 1'; Substrate: gravel, sand, root mats

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

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

Downstream of Impoundment: Elm Lake

Other: fish, invasive plants; gage: 3.90

AMNET Site # **AN0571** ***Stream Name:*** **Albertson Bk**

Location: **off Wharton Ave (Fleming Pike); Winslow Twp; Camden County**

Collection Date: ***8/19/2010*** ***USGS Topo Map:*** **Hammonton**

	Genus	*Tolerance Value*	*Amount*
	Sphaeriidae	8	43
	Amnicola	4.8	33
	Lumbriculus	8	7
	Planariidae	4	3
	Prostoma	7	3
*	Pseudocloeon	4	3
	Aulodrilus	8	2
*	Brachycentrus	1	2
	Cricotopus	7	1
	Ischnura	9	1
	Sialis	4	1
	Tanytarsus	6	1

** (EPT organism)* *Taxa Richness:* 12 *Population:* 100

Becks Biotic Index (BBI):	5.00	*%Plecoptera +Trichoptera:*	2.00%
Insect Taxa:	6	*%Mollusca + Amphipoda:*	76.00%
Non-Insect Taxa:	6	*%Diptera - Tanytarsini:*	1.00%
		%Filterers:	46.00%

PMI Rating: **24.14 Poor**

Habitat Analysis: 167 Optimal USEPA Protocol

Observations: Water temp: 21.86 C; Cond: 90 umhos; DO: 6.23 mg/L; pH: 5.98 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 18' / 1 - 2'; Substrate: gravel, sand, silt

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, macrophytes, filamentous algae

AMNET Site # **AN0572** ***Stream Name:*** **Albertson Bk**

Location: **Old Bridge Crossing; Hammonton; Atlantic County**

Collection Date: ***8/19/2010*** ***USGS Topo Map:*** **Atsion**

	Genus	Tolerance Value	Amount
	Sphaeriidae	8	25
*	Brachycentrus	1	20
	Lumbriculus	8	5
	Haliplus	5	4
	Peltodytes	5	4
	Tribelos	5	4
	Macronychus	2	3
	Procladius	9	3
	Sialis	4	3
	Tubificidae	10	3
	Coenagrionidae	9	2
	Corixidae	9	2
	Libellula	9	2
*	Maccaffertium	3	2
	Planariidae	4	2
	Promoresia	2	2
*	Pseudocloeon	4	2
	Ancyronyx	2	1
	Apsectrotanypus	5	1
	Bezzia	6	1
	Chrysops	6	1
	Dicrotendipes	8	1
	Helocordulia	2	1
	Libellulidae	9	1
	Planorbidae	6	1
*	Polycentropus	6	1
	Stenelmis	5	1
	Stenochironomus	5	1
	Thienemannimyia	6	1

** (EPT organism)* *Taxa Richness:* 29 *Population:* 100

Becks Biotic Index (BBI):	10.00	*%Plecoptera +Trichoptera:*	21.00%
Insect Taxa:	24	*%Mollusca + Amphipoda:*	26.00%
Non-Insect Taxa:	5	*%Diptera - Tanytarsini:*	13.00%
		%Filterers:	46.00%

PMI Rating: **50.12 Fair**

Habitat Analysis: 172 Optimal USEPA Protocol

Observations: Water temp: 22.90 C; Cond: 86 umhos; DO: 6.87 mg/L; pH: 6.23 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 24' / 1 - 2'; Substrate: silt

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes, waterfowl (ducks)

AMNET Site # **AN0573** ***Stream Name:*** **Great Swamp Bk**

Location: **Rt 30; Winslow Twp; Camden County**

Collection Date: ***8/19/2010*** ***USGS Topo Map:*** **Hammonton**

	Genus	Tolerance Value	Amount
*	Caenis	7	52
	Limnodrilus	10	8
	Paratanytarsus	6	7
	Enallagma	9	6
	Tetragoneuria	8.5	6
	Nais	8	5
	Chironomus	10	3
*	Oecetis	8	3
	Neurocordulia	2	2
	Polypedilum	6	2
	Erythemis	10	1
	Helobdella	8	1
	Rheopelopia	4	1
	Tanytarsus	6	1
	Tribelos	5	1
	Tvetenia	5	1

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

Becks Biotic Index (BBI):	2.00	*%Plecoptera +Trichoptera:*	3.00%
Insect Taxa:	13	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	8.00%
		%Filterers:	1.00%

PMI Rating: **49.29 Fair**

Habitat Analysis: 128 Suboptimal USEPA Protocol

Observations: Water temp: 26.05 C; Cond: 131 umhos; DO: 5.21 mg/L; pH: 6.37 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 11' / 2'; Substrate: gravel, sand, root mats

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

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

Downstream of Impoundment: lake

Other: fish, frogs, macrophytes, invasive plants, trash

AMNET Site # **AN0574** *Stream Name:* **Great Swamp Bk**

Location: **Rt 206; Hammonton; Atlantic County**

Collection Date: ***8/19/2010*** *USGS Topo Map:* **Hammonton**

	Genus	Tolerance Value	Amount
	Hyalella	8	21
	Ischnura	9	15
	Tribelos	5	14
	Aulodrilus	8	5
	Ancyronyx	2	3
	Corixidae	9	3
	Musculium	5	3
	Phaenopsectra	7	3
	Libellula	9	2
	Macronychus	2	2
*	Molanna	6	2
	Notonecta	5	2
*	Polycentropus	6	2
	Polypedilum	6	2
	Ablabesmyia	8	1
	Apsectrotanypus	5	1
	Argia	6	1
	Caecidotea	8	1
*	Callibaetis	9	1
	Chironomini	6	1
	Clinotanypus	8	1
	Cricotopus	7	1
	Dicrotendipes	8	1
	Dubiraphia	6	1
*	Leptophlebiidae	2	1
*	Oecetis	8	1
	Orthocladiinae	5	1
	Paraponyx	5	1
	Peltodytes	5	1
	Planariidae	4	1
	Procladius	9	1
	Tanytarsus	6	1
	Tetragoneuria	8.5	1
	Thienemannimyia	6	1
*	Triaenodes	6	1

** (EPT organism)* *Taxa Richness:* 35 *Population:* 100

Becks Biotic Index (BBI):	4.00	*%Plecoptera +Trichoptera:*	6.00%
Insect Taxa:	30	*%Mollusca + Amphipoda:*	24.00%
Non-Insect Taxa:	5	*%Diptera - Tanytarsini:*	28.00%
		%Filterers:	6.00%

PMI Rating: **54.85 Fair**

Habitat Analysis: 141 Suboptimal USEPA Protocol

Observations: Water temp: 19.24 C; Cond: 212 umhos; DO: 5.58 mg/L; pH: 5.68 SU

Clarity: slightly turbid; Flow Rate: slow; Width/Depth: 17' / 2'; Substrate: mud, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, turtle, invasive plants

AMNET Site # **AN0575** ***Stream Name:*** **Cedar Bk**

Location: **Myrtle Ave (Columbia Rd); Hammonton; Atlantic County**

Collection Date: ***8/19/2010*** ***USGS Topo Map:*** **Hammonton**

	Genus	Tolerance Value	Amount
	Tribelos	5	30
	Limnodrilus	10	15
	Dubiraphia	6	10
	Dicrotendipes	8	9
	Pisidium	6.8	7
	Tanytarsus	6	6
	Enallagma	9	5
	Erythemis	10	4
	Mooreobdella	7.8	2
	Orconectes	6	2
	Tetragoneuria	8.5	2
	Ancyronyx	2	1
	Argia	6	1
	Bezzia	6	1
	Calopteryx	6	1
	Cladopelma	8	1
	Dromogomphus	4	1
*	Oecetis	8	1
	Procladius	9	1

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

Becks Biotic Index (BBI):	2.00	*%Plecoptera +Trichoptera:*	1.00%
Insect Taxa:	15	*%Mollusca + Amphipoda:*	7.00%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	42.00%
		%Filterers:	13.00%

PMI Rating: **52.12 Fair**

Habitat Analysis: 125 Suboptimal USEPA Protocol

Observations: Water temp: 22.58 C; Cond: 117 umhos; DO: 4.27 mg/L; pH: 6.21 SU

Clarity: slightly turbid; Flow Rate: slow; Width/Depth: 13' / 1 - 2'; Substrate: gravel, sand, silt, snags, root mats

Canopy: mostly closed; Bank Stability: fair; Bank Vegetation: trees, weeds, vines

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

Other: turtle, trash

AMNET Site # **AN0577** ***Stream Name:*** **Hammonton Ck**

Location: **Boyer Rd; Hammonton; Atlantic County**

Collection Date: ***8/19/2010*** ***USGS Topo Map:*** **Hammonton**

	Genus	Tolerance Value	Amount
	Caecidotea	8	29
*	Cheumatopsyche	5	12
	Hyalella	8	12
	Ancyronyx	2	7
	Polypedilum	6	7
	Clinotanypus	8	4
	Macronychus	2	4
	Tubifex	10	3
	Calopteryx	6	2
	Helobdella	8	2
	Neurocordulia	2	2
*	Oecetis	8	2
	Rheopelopia	4	2
	Stylodrilus	10	2
	Batracobdella	8	1
	Enallagma	9	1
	Gillia	8	1
	Haliplus	5	1
	Limnodrilus	10	1
*	Maccaffertium	3	1
	Musculium	5	1
	Nematoda	6	1
	Pristina	8	1
	Tanytarsus	6	1

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

Becks Biotic Index (BBI):	5.00	*%Plecoptera +Trichoptera:*	14.00%
Insect Taxa:	13	*%Mollusca + Amphipoda:*	14.00%
Non-Insect Taxa:	11	*%Diptera - Tanytarsini:*	13.00%
		%Filterers:	14.00%

PMI Rating: **43.03 Fair**

Habitat Analysis: 131 Suboptimal USEPA Protocol

Observations: Water temp: 22.77 C; Cond: 129 umhos; DO: 5.72 mg/L; pH: 5.92 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 11' / 1'; Substrate: gravel, sand, silt, snags

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

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

Pipes / Ditches: storm sewers

Other: frogs; trash and brush dumped by stream

AMNET Site # **AN0578** ***Stream Name:*** **Hammonton Ck**

Location: **Columbia Rd; Mullica Twp; Atlantic County**

Collection Date: ***8/31/2010*** ***USGS Topo Map:*** **Atsion**

	Genus	Tolerance Value	Amount
*	Maccaffertium	3	11
	Ancyronyx	2	7
	Caecidotea	8	6
*	Eurylophella	4	6
	Lumbriculidae	8	6
	Macronychus	2	6
	Nigronia	2	6
	Calopteryx	6	5
	Tribelos	5	5
	Dubiraphia	6	4
	Prostoma	7	4
*	Chimarra	4	3
	Planariidae	4	3
	Stenelmis	5	3
	Synurella	4	3
	Thienemannimyia	6	3
	Aulodrilus	8	2
*	Lepidostoma	1	2
*	Leptoceridae	4	2
	Ablabesmyia	8	1
	Argia	6	1
	Brillia	5	1
	Chrysops	6	1
	Enchytraeidae	10	1
	Haliplus	5	1
	Helocordulia	2	1
	Ischnura	9	1
*	Leptophlebiidae	2	1
*	Lype	2	1
	Phaenopsectra	7	1
	Placobdella	8	1
	Stylaria	8	1

** (EPT organism)* *Taxa Richness:* 32 *Population:* 100

Becks Biotic Index (BBI):	14.00	*%Plecoptera +Trichoptera:*	8.00%
Insect Taxa:	23	*%Mollusca + Amphipoda:*	3.00%
Non-Insect Taxa:	9	*%Diptera - Tanytarsini:*	12.00%
		%Filterers:	3.00%

PMI Rating: **55.54 Fair**

Habitat Analysis: 154 Suboptimal USEPA Protocol

Observations: Water temp: 19.09 C; Cond: 66 umhos; DO: 7.67 mg/L; pH: 5.79 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 24' / 2 - 3'; Substrate: cobble, gravel, sand, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, macrophytes

AMNET Site # **AN0579** ***Stream Name:*** **Batsto River**

Location: **Carranza Rd; Shamong Twp; Burlington County**

Collection Date: ***9/9/2010*** ***USGS Topo Map:*** **Indian Mills**

	Genus	*Tolerance Value*	*Amount*
	Caecidotea	8	31
	Psectrocladius	8	18
*	Phylocentropus	5	7
	Tribelos	5	5
	Chrysops	6	4
	Tanytarsus	6	4
	Ceratopogonidae	6	3
*	Leptophlebiidae	2	3
	Polypedilum	6	3
	Tubificidae	10	3
	Coenagrionidae	9	2
	Heterotrissocladius	0	2
	Peltodytes	5	2
	Procladius	9	2
	Sphaeriidae	8	2
*	Triaenodes	6	2
	Ablabesmyia	8	1
	Ancyronyx	2	1
	Calopteryx	6	1
	Corixidae	9	1
	Sialis	4	1
	Tanypodinae	7	1
	Xylotopus	2	1

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

Becks Biotic Index (BBI):	6.00	*%Plecoptera +Trichoptera:*	9.00%
Insect Taxa:	20	*%Mollusca + Amphipoda:*	2.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	40.00%
		%Filterers:	13.00%

PMI Rating: **59.55 Good**

Habitat Analysis: 150 Suboptimal USEPA Protocol

Observations: Water temp: 13.39 C; Cond: 63 umhos; DO: 5.60 mg/L; pH: 5.10 SU

Clarity: slightly turbid, cedar; Flow Rate: slow; Width/Depth: 25' / 3'; Substrate: sand, mud, silt

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes, filamentous algae

AMNET Site # **AN0580** ***Stream Name:*** **Roberts Br**

Location: **Carranza Rd; Shamong Twp; Burlington County**

Collection Date: ***9/9/2010*** ***USGS Topo Map:*** **Indian Mills**

	Genus	*Tolerance Value*	*Amount*
	Tribelos	5	44
	Thienemannimyia	6	20
	Caecidotea	8	10
	Ischnura	9	5
	Sialis	4	5
	Clinotanypus	8	3
	Apsectrotanypus	5	2
	Procladius	9	2
	Stenochironomus	5	2
	Argia	6	1
*	Hydropsyche	4	1
*	Leuctra	0	1
	Lumbriculus	8	1
	Polypedilum	6	1
	Tanytarsus	6	1
*	Triaenodes	6	1

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

Becks Biotic Index (BBI):	4.00	*%Plecoptera +Trichoptera:*	3.00%
Insect Taxa:	14	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	2	*%Diptera - Tanytarsini:*	74.00%
		%Filterers:	2.00%

PMI Rating: **64.08** **Excellent**

Habitat Analysis: 156 Suboptimal USEPA Protocol

Observations: Water temp: 17.36 C; Cond: 33 umhos; DO: 3.38 mg/L; pH: 4.06 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 17' / 3 - 4'; Substrate: sand, mud, silt, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: White cedar forest

AMNET Site # **AN0581** ***Stream Name:*** **Skit Br**

Location: **Carranza Rd; Shamong Twp; Burlington County**

Collection Date: ***7/12/2011*** ***USGS Topo Map:*** **Indian Mills**

	Genus	*Tolerance Value*	*Amount*
	Chironomus	10	31
*	Hydropsyche	4	13
	Ablabesmyia	8	6
	Enchytraeidae	10	5
*	Brachycentrus	1	4
*	Leuctra	0	4
	Rheotanytarsus	6	3
	Thienemannimyia	6	3
	Tribelos	5	3
	Apsectrotanypus	5	2
	Chrysops	6	2
	Paraponyx	5	2
	Polypedilum	6	2
	Sialis	4	2
	Acentria	5	1
	Bezzia	6	1
	Boyeria	2	1
	Dytiscidae	5	1
	Gyrinus	4	1
	Lumbriculus	8	1
	Mesovelia	9	1
*	Molanna	6	1
*	Oecetis	8	1
	Orthocladiinae	5	1
	Procladius	9	1
	Tipula	4	1

** (EPT organism)* *Taxa Richness:* 26 *Population:* 94

Becks Biotic Index (BBI):	9.00	*%Plecoptera +Trichoptera:*	24.47%
Insect Taxa:	24	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	2	*%Diptera - Tanytarsini:*	56.38%
		%Filterers:	21.28%

PMI Rating: **69.57 Excellent**

Habitat Analysis: 176 Optimal USEPA Protocol

Observations: Water temp: 25.62 C; Cond: 41 umhos; DO: 5.46 mg/L; pH: 4.03 SU

Clarity: clear, cedar; Flow Rate: fast; Width/Depth: 21' / < 1'; Substrate: gravel, sand, snags

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes; gage height: 1.00

AMNET Site # **AN0582** ***Stream Name:*** **Indian Mills Bk**

Location: **Willow Grove Rd; Shamong Twp; Burlington County**

Collection Date: ***9/15/2010*** ***USGS Topo Map:*** **Indian Mills**

	Genus	Tolerance Value	Amount
	Limnodrilus	10	13
	Dero	10	12
	Dicrotendipes	8	9
	Sphaeriidae	8	9
	Ceratopogonidae	6	8
	Planorbidae	6	7
	Peltodytes	5	6
	Cryptochironomus	8	4
	Nematoda	6	4
	Perithemis	4	4
	Zavrelimyia	8	4
	Hyalella	8	3
	Parachironomus	10	3
	Chironomus	10	2
	Dugesia	4	2
	Ablabesmyia	8	1
	Caecidotea	8	1
*	Caenis	7	1
	Gomphidae	1	1
	Libellula	9	1
	Naididae	7	1
	Pachydiplax	10	1
	Physella	9.1	1
	Tanytarsus	6	1
	Thienemannimyia	6	1

** (EPT organism)* *Taxa Richness:* 25 *Population:* 100

Becks Biotic Index (BBI):	4.00	*%Plecoptera +Trichoptera:*	0.00%
Insect Taxa:	15	*%Mollusca + Amphipoda:*	20.00%
Non-Insect Taxa:	10	*%Diptera - Tanytarsini:*	32.00%
		%Filterers:	10.00%

PMI Rating: **43.97 Fair**

Habitat Analysis: 128 Suboptimal USEPA Protocol

Observations: Water temp: 17.14 C; Cond: 178 umhos; DO: 2.86 mg/L; pH: 6.10 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 5' / < 1'; Substrate: sand, mud, silt

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

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

Downstream of Impoundment: small pond

Other: fish, frogs, filamentous algae, Phragmites

AMNET Site # **AN0583** ***Stream Name:*** **Muskingum Bk**

Location: **Willow Grove Rd; Shamong Twp; Burlington County**

Collection Date: ***9/15/2010*** ***USGS Topo Map:*** **Indian Mills**

	Genus	Tolerance Value	Amount
	Dicrotendipes	8	29
	Hyalella	8	8
	Nais	8	8
	Tanytarsus	6	8
	Tubifex	10	7
	Limnodrilus	10	6
	Bezzia	6	4
*	Caenis	7	4
	Cladotanytarsus	7	3
	Rheopelopia	4	3
	Cura	4	2
	Erythemis	10	2
	Glyptotendipes	10	2
	Musculium	5	2
	Stylaria	8	2
	Caecidotea	8	1
	Cryptochironomus	8	1
	Enallagma	9	1
	Helisoma	7	1
	Menetus	6	1
	Nanocladius	3	1
	Nematoda	6	1
	Perithemis	4	1
	Stylodrilus	10	1
	Tribelos	5	1

** (EPT organism)* *Taxa Richness:* 25 *Population:* 100

Becks Biotic Index (BBI):	4.00	*%Plecoptera +Trichoptera:*	0.00%
Insect Taxa:	13	*%Mollusca + Amphipoda:*	11.00%
Non-Insect Taxa:	12	*%Diptera - Tanytarsini:*	41.00%
		%Filterers:	15.00%

PMI Rating: **43.89 Fair**

Habitat Analysis: 140 Suboptimal USEPA Protocol

Observations: Water temp: 21.16 C; Cond: 290 umhos; DO: 6.46 mg/L; pH: 5.99 SU

Clarity: slightly turbid, greenish; Flow Rate: slow; Width/Depth: 15' / 2'; Substrate: mud, silt

Canopy: open; Bank Stability: good; Bank Vegetation: trees, weeds, lawn (RB)

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Downstream of Impoundment: lake

Other: fish, Red Bellied turtle, filamentous algae

AMNET Site # **AN0584** ***Stream Name:*** **Springers Bk**

Location: **Rt 206; Shamong Twp; Burlington County**

Collection Date: ***9/15/2010*** ***USGS Topo Map:*** **Indian Mills**

	Genus	*Tolerance Value*	*Amount*
	Ischnura	9	35
	Campeloma	7	15
	Sphaeriidae	8	13
	Tanytarsus	6	7
	Dubiraphia	6	5
	Ancyronyx	2	3
	Haliplus	5	3
	Peltodytes	5	3
	Erpobdellidae	8	2
	Phaenopsectra	7	2
	Boyeria	2	1
*	Callibaetis	9	1
	Clinotanypus	8	1
	Hyalella	8	1
	Limnodrilus	10	1
*	Oecetis	8	1
	Parakiefferiella	4	1
	Physella	9.1	1
	Planorbidae	6	1
	Polypedilum	6	1
	Procladius	9	1
	Tetragoneuria	8.5	1

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

Becks Biotic Index (BBI):	3.00	*%Plecoptera +Trichoptera:*	1.00%
Insect Taxa:	15	*%Mollusca + Amphipoda:*	31.00%
Non-Insect Taxa:	7	*%Diptera - Tanytarsini:*	6.00%
		%Filterers:	20.00%

PMI Rating: **37.98 Fair**

Habitat Analysis: 157 Suboptimal USEPA Protocol

Observations: Water temp: 16.97 C; Cond: 267 umhos; DO: 7.06 mg/L; pH: 6.39 SU

Clarity: slightly turbid; Flow Rate: slow; Width/Depth: 18' / 2'; Substrate: mud, snags, root mats

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

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

Other: macrophytes, filamentous algae, duck weed, Phragmites

AMNET Site # **AN0585** *Stream Name:* **Springers Bk**

Location: **Hampton Rd; Shamong Twp; Burlington County**

Collection Date: ***9/15/2010*** *USGS Topo Map:* **Indian Mills**

	Genus	Tolerance Value	Amount
	Stenelmis	5	46
	Sphaeriidae	8	19
	Macronychus	2	5
	Lumbriculus	8	4
	Ancyronyx	2	3
	Ceratopogonidae	6	3
	Ischnura	9	3
	Culex	8	2
	Hydroporus	5	2
	Polypedilum	6	2
	Sialis	4	2
	Synurella	4	2
	Corduliidae	5	1
	Dubiraphia	6	1
*	Oecetis	8	1
	Physella	9.1	1
*	Polycentropus	6	1
	Stenochironomus	5	1
	Tribelos	5	1

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

Becks Biotic Index (BBI):	4.00	*%Plecoptera +Trichoptera:*	2.00%
Insect Taxa:	15	*%Mollusca + Amphipoda:*	22.00%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	9.00%
		%Filterers:	22.00%

PMI Rating: **43.25 Fair**

Habitat Analysis: 138 Suboptimal USEPA Protocol

Observations: Water temp: 13.80 C; Cond: 79 umhos; DO: 6.02 mg/L; pH: 5.89 SU

Clarity: slightly turbid, cedar; Flow Rate: slow; Width/Depth: 17' / < 1'; Substrate: gravel, sand, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: frogs, turtle

AMNET Site # **AN0586** ***Stream Name:*** **Batsto River**

Location: **Quaker Bridge; Washington Twp; Burlington County**

Collection Date: ***8/18/2010*** ***USGS Topo Map:*** **Atsion**

	Genus	Tolerance Value	Amount
*	Leuctra	0	27
*	Hydroptila	6	11
	Hyalella	8	6
	Stylaria	8	6
	Heterotrissocladius	0	4
	Tribelos	5	4
*	Brachycentrus	1	3
	Macromia	2	3
*	Molanna	6	3
	Rheopelopia	4	3
	Stenelmis	5	3
	Ablabesmyia	8	2
	Ancyronyx	2	2
	Hexatoma	2	2
*	Leptophlebiidae	2	2
	Nais	8	2
	Tanytarsus	6	2
	Trichocorixa	9	2
	Bezzia	6	1
	Calopteryx	6	1
	Cura	4	1
	Gyrinus	4	1
	Hemerodromia	6	1
	Hetaerina	6	1
*	Lepidostoma	1	1
	Musculium	5	1
*	Mystacides	4	1
	Pisidium	6.8	1
	Polypedilum	6	1
	Procladius	9	1
	Psectrocladius	8	1

**** (EPT organism)*** ***Taxa Richness:*** 31 ***Population:*** 100

Becks Biotic Index (BBI):	16.00	***%Plecoptera +Trichoptera:***	46.00%
Insect Taxa:	25	***%Mollusca + Amphipoda:***	7.00%
Non-Insect Taxa:	6	***%Diptera - Tanytarsini:***	20.00%
		%Filterers:	7.00%

PMI Rating: **69.52** **Excellent**

Habitat Analysis: 161 Optimal USEPA Protocol

Observations: Water temp: 17.33 C; Cond: 27 umhos; DO: 7.34 mg/L; pH: 4.57 SU

Clarity: slightly turbid, cedar; Flow Rate: moderate; Width/Depth: 47' / 2'; Substrate: gravel, sand, snags

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, frogs, macrophytes, periphytes, filamentous algae

AMNET Site # **AN0586A** *Stream Name:* **Batsto River**

Location: **Hampton Furnace; Tabernacle Twp; Burlington County**

Collection Date: *9/15/2010* *USGS Topo Map:* **Indian Mills**

	Genus	Tolerance Value	Amount
	Cricotopus	7	11
	Sphaeriidae	8	11
*	Triaenodes	6	9
	Limnodrilus	10	7
*	Leuctra	0	6
	Sialis	4	6
	Calopteryx	6	5
*	Molanna	6	5
	Thienemannimyia	6	5
	Heterotrissocladius	0	4
	Parakiefferiella	4	4
	Psectrocladius	8	3
	Chrysops	6	2
*	Paraleptophlebia	1	2
*	Phylocentropus	5	2
	Polypedilum	6	2
	Stenochironomus	5	2
	Tanytarsus	6	2
	Ancyronyx	2	1
	Boyeria	2	1
	Cordulegaster	3	1
	Cryptochironomus	8	1
	Enchytraeidae	10	1
	Hexatoma	2	1
	Libellulidae	9	1
	Naididae	7	1
	Nilothauma	2	1
*	Oxyethira	3	1
*	Ptilostomis	5	1
	Stenelmis	5	1

** (EPT organism)* *Taxa Richness:* 30 *Population:* 100

Becks Biotic Index (BBI):	14.00	*%Plecoptera +Trichoptera:*	24.00%
Insect Taxa:	26	*%Mollusca + Amphipoda:*	11.00%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	36.00%
		%Filterers:	15.00%

PMI Rating: **66.40** **Excellent**

Habitat Analysis: 161 Optimal USEPA Protocol

Observations: Water temp: 13.73 C; Cond: 48 umhos; DO: 8.98 mg/L; pH: 5.49 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 24' / 1'; Substrate: gravel, sand, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # **AN0587** ***Stream Name:*** **Pen Swamp Br**

Location: **Quaker Bridge-Batsto Rd; Washington Twp; Burlington County**

Collection Date: ***8/24/2010*** ***USGS Topo Map:*** **Atsion**

	Genus	Tolerance Value	Amount
	Tribelos	5	50
	Thienemannimyia	6	17
	Apsectrotanypus	5	10
*	Polycentropus	6	6
	Sialis	4	4
	Polypedilum	6	3
	Procladius	9	3
	Synurella	4	2
	Ablabesmyia	8	1
	Bezzia	6	1
*	Chimarra	4	1
	Limnodrilus	10	1
	Planariidae	4	1

** (EPT organism)* *Taxa Richness:* 13 *Population:* 100

Becks Biotic Index (BBI):	4.00	*%Plecoptera +Trichoptera:*	7.00%
Insect Taxa:	10	*%Mollusca + Amphipoda:*	2.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	85.00%
		%Filterers:	7.00%

PMI Rating: **61.70 Good**

Habitat Analysis: 139 Suboptimal USEPA Protocol

Observations: Water temp: 16.74 C; Cond: 36 umhos; DO: 6.36 mg/L; pH: 4.16 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 20' / 1 - 2'; Substrate: gravel, sand, silt

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, frogs, macrophytes

AMNET Site # **AN0590** ***Stream Name:*** **Landing Ck**

Location: **Rt 30; Egg Harbor City; Atlantic County**

Collection Date: ***9/15/2010*** ***USGS Topo Map:*** **Egg Harbor City**

Genus	*Tolerance Value*	*Amount*
Limnodrilus	10	62
Stylodrilus	10	16
Caecidotea	8	5
Sympetrum	4	5
Tramea	9	4
Nais	8	3
Tubifex	10	3
Enallagma	9	1
Ferrissia	7	1

** (EPT organism)* *Taxa Richness:* 9 *Population:* 100

Becks Biotic Index (BBI):	1.00	*%Plecoptera +Trichoptera:*	0.00%
Insect Taxa:	3	*%Mollusca + Amphipoda:*	1.00%
Non-Insect Taxa:	6	*%Diptera - Tanytarsini:*	0.00%
		%Filterers:	0.00%

PMI Rating: **39.93** **Fair**

Habitat Analysis: 146 Suboptimal USEPA Protocol

Observations: Water temp: 16.29 C; Cond: 141 umhos; DO: 0.71 mg/L; pH: 4.81 SU

Clarity: turbid, cedar brown; Flow Rate: slow; Width/Depth: 16' / 2 - 3'; Substrate: mud, snags

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

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

Pipes / Ditches: storm sewers

Other: macrophytes

AMNET Site # **AN0591** *Stream Name:* **Elliots Ck**

Location: **Bremen Ave; Egg Harbor City; Atlantic County**

Collection Date: ***8/31/2010*** *USGS Topo Map:* **Green Bank**

	Genus	Tolerance Value	Amount
	Tribelos	5	29
	Limnodrilus	10	10
*	Leuctra	0	7
	Ancyronyx	2	6
	Alotanypus	6	5
	Psectrocladius	8	5
	Rheopelopia	4	5
	Calopteryx	6	4
	Polypedilum	6	4
	Sialis	4	4
	Chrysops	6	3
	Procladius	9	3
	Argia	6	2
	Orthocladius	6	2
*	Polycentropus	6	2
	Stenochironomus	5	2
	Stylodrilus	10	2
	Boyeria	2	1
	Cryptochironomus	8	1
	Erythemis	10	1
*	Molanna	6	1
	Xylotopus	2	1

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

Becks Biotic Index (BBI):	7.00	*%Plecoptera +Trichoptera:*	10.00%
Insect Taxa:	20	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	2	*%Diptera - Tanytarsini:*	60.00%
		%Filterers:	2.00%

PMI Rating: **67.08** **Excellent**

Habitat Analysis: 161 Optimal USEPA Protocol

Observations: Water temp: 17.90 C; Cond: 68 umhos; DO: 6.88 mg/L; pH: 4.40 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 12' / 1'; Substrate: gravel, sand, silt, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested, agriculture-cropland (adj to Renault winery)

Other: frogs, macrophytes

AMNET Site # **AN0592** ***Stream Name:*** **Landing Ck**

Location: **Indian Cabin Rd; Mullica Twp; Atlantic County**

Collection Date: ***8/31/2010*** ***USGS Topo Map:*** **Green Bank**

	Genus	Tolerance Value	Amount
*	Triaenodes	6	20
	Limnodrilus	10	13
	Tanytarsus	6	10
	Micropsectra	7	7
	Tribelos	5	7
	Caecidotea	8	5
	Polypedilum	6	5
	Dero	10	4
*	Leuctra	0	4
*	Lype	2	3
	Ancyronyx	2	2
	Chrysops	6	2
	Dubiraphia	6	2
	Nais	8	2
*	Oecetis	8	2
*	Agarodes	3	1
	Boyeria	2	1
	Calopteryx	6	1
	Cricotopus	7	1
	Cryptochironomus	8	1
	Hydroporus	5	1
*	Leptophlebiidae	2	1
*	Phylocentropus	5	1
*	Siphloplecton	2	1
	Stenelmis	5	1
	Thienemannimyia	6	1
	Tubifex	10	1

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

Becks Biotic Index (BBI):	8.00	*%Plecoptera +Trichoptera:*	31.00%
Insect Taxa:	22	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	5	*%Diptera - Tanytarsini:*	17.00%
		%Filterers:	11.00%

PMI Rating: **61.23** **Good**

Habitat Analysis: 161 Optimal USEPA Protocol

Observations: Water temp: 19.55 C; Cond: 72 umhos; DO: 7.86 mg/L; pH: 5.11 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 33' / 2 - 3'; Substrate: gravel, sand

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, turtle

AMNET Site # **AN0593** ***Stream Name:*** **Indian Cabin Ck**

Location: **Fifth Ave; Mullica Twp; Atlantic County**

Collection Date: ***8/31/2010*** ***USGS Topo Map:*** **Egg Harbor City**

Genus	*Tolerance Value*	*Amount*
Tribelos	5	60
Caecidotea	8	16
Chironomus	10	5
Sialis	4	4
Micropsectra	7	2
Phaenopsectra	7	2
Stenochironomus	5	2
Ablabesmyia	8	1
Apsectrotanypus	5	1
Labrundinia	7	1
Libellulidae	9	1
Naididae	7	1
Notonecta	5	1
Procladius	9	1
Slavina	7	1
Thienemannimyia	6	1

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

Becks Biotic Index (BBI):	1.00	*%Plecoptera +Trichoptera:*	0.00%
Insect Taxa:	13	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	74.00%
		%Filterers:	0.00%

PMI Rating: **60.74** **Good**

Habitat Analysis: 150 Suboptimal USEPA Protocol

Observations: Water temp: 18.92 C; Cond: 56 umhos; DO: 0.71 mg/L; pH: 3.82 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 3' / < 1.0'; Substrate: gravel, sand, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, frogs, white cedar forest

AMNET Site # **AN0594** ***Stream Name:*** **Indian Cabin Ck**

Location: **outlet of Egg Harbor City Lake; Galloway Twp; Atlantic County**

Collection Date: ***8/31/2010*** ***USGS Topo Map:*** **Green Bank**

	Genus	Tolerance Value	Amount
	Caecidotea	8	23
	Chironomus	10	21
	Neurocordulia	2	21
	Procladius	9	6
	Nais	8	4
	Arigomphus	1	3
	Bezzia	6	3
*	Caenis	7	3
	Enallagma	9	3
	Tribelos	5	3
	Tubifex	10	3
	Ferrissia	7	2
	Polypedilum	6	2
	Hydrovatus	5	1
	Kiefferulus	10	1
	Stylodrilus	10	1

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

Becks Biotic Index (BBI):	3.00	*%Plecoptera +Trichoptera:*	0.00%
Insect Taxa:	11	*%Mollusca + Amphipoda:*	2.00%
Non-Insect Taxa:	5	*%Diptera - Tanytarsini:*	36.00%
		%Filterers:	0.00%

PMI Rating: **51.70 Fair**

Habitat Analysis: 115 Suboptimal USEPA Protocol

Observations: Water temp: 17.40 C; Cond: 61 umhos; DO: 0.59 mg/L; pH: 5.39 SU

Clarity: turbid, brown; Flow Rate: slow; Width/Depth: 6' / < 1'; Substrate: gravel, sand, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested, recreation area (swim park)

Downstream of Impoundment: Egg Harbor City lake

Other: fish, frogs, macrophytes, iron floc

AMNET Site # **AN0595** ***Stream Name:*** **West Br Wading River**

Location: **Rt 532; Woodland Twp; Burlington County**

Collection Date: ***9/23/2010*** ***USGS Topo Map:*** **Chatsworth**

	Genus	Tolerance Value	Amount
*	Hydropsyche	4	22
	Enallagma	9	16
	Argia	6	8
	Stenelmis	5	8
	Tribelos	5	8
	Tubifex	10	8
	Nais	8	6
	Tramea	9	3
	Arigomphus	1	2
	Pristina	8	2
	Rheotanytarsus	6	2
	Caecidotea	8	1
*	Chimarra	4	1
	Cricotopus	7	1
	Enchytraeidae	10	1
	Limnodrilus	10	1
	Macromia	2	1
	Macropelopia	10	1
	Nematoda	6	1
	Orthocladiinae	5	1
	Pachydiplax	10	1
*	Paraleptophlebia	1	1
	Polypedilum	6	1
	Psectrocladius	8	1
	Rheopelopia	4	1
	Thienemanniella	6	1

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

Becks Biotic Index (BBI):	8.00	*%Plecoptera +Trichoptera:*	23.00%
Insect Taxa:	19	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	7	*%Diptera - Tanytarsini:*	15.00%
		%Filterers:	25.00%

PMI Rating: **53.82 Fair**

Habitat Analysis: 147 Suboptimal USEPA Protocol

Observations: Water temp: 21.89 C; Cond: 40 umhos; DO: 7.15 mg/L; pH: 4.91 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 11' / 1'; Substrate: gravel, sand, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Pipes / Ditches: storm sewers

Downstream of Impoundment: pond

Other: fish, frogs, macrophytes, oil sheen

AMNET Site # **AN0596** *Stream Name:* **West Br Wading River**

Location: **Rt 563; Washington Twp; Burlington County**

Collection Date: ***9/23/2010*** *USGS Topo Map:* **Chatsworth**

	Genus	Tolerance Value	Amount
	Caecidotea	8	22
	Tribelos	5	16
	Enallagma	9	13
	Conchapelopia	6	6
	Nematoda	6	5
	Rheopelopia	4	5
*	Limnephilus	3	4
	Psectrocladius	8	4
*	Ptilostomis	5	4
*	Hydropsyche	4	3
*	Oecetis	8	2
	Orthocladius	6	2
	Pedicia	6	2
	Polypedilum	6	2
	Rheocricotopus	6	2
	Rheotanytarsus	6	2
	Ancyronyx	2	1
*	Cheumatopsyche	5	1
	Chironomus	10	1
	Cordulegaster	3	1
	Gloiobdella	6	1
	Tanytarsus	6	1

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

Becks Biotic Index (BBI):	5.00	*%Plecoptera +Trichoptera:*	14.00%
Insect Taxa:	19	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	40.00%
		%Filterers:	7.00%

PMI Rating: **61.09 Good**

Habitat Analysis: 165 Optimal USEPA Protocol

Observations: Water temp: 19.40 C; Cond: 39 umhos; DO: 2.84 mg/L; pH: 4.20 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 34' / > 3'; Substrate: gravel, sand, mud

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

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

Other: frogs, waterfowl, macrophytes, beaver dam downstream of bridge flooding upstream side

AMNET Site # **AN0597** *Stream Name:* **Shoal Br**

Location: **Jones Mill Rd; Woodland Twp; Burlington County**

Collection Date: ***9/23/2010*** *USGS Topo Map:* **Chatsworth**

	Genus	Tolerance Value	Amount
*	Chimarra	4	36
*	Leuctra	0	9
*	Hydropsyche	4	7
	Sialis	4	6
	Simulium	6	6
	Thienemannimyia	6	6
	Tribelos	5	6
*	Oecetis	8	5
	Nigronia	2	4
	Macropelopia	10	3
*	Polycentropus	6	2
	Stenochironomus	5	2
	Cryptochironomus	8	1
	Hemerodromia	6	1
*	Molanna	6	1
	Polypedilum	6	1
	Rheocricotopus	6	1
	Stenelmis	5	1
	Synurella	4	1
*	Triaenodes	6	1

** (EPT organism)* *Taxa Richness:* 20 *Population:* 100

Becks Biotic Index (BBI):	7.00	*%Plecoptera +Trichoptera:*	61.00%
Insect Taxa:	19	*%Mollusca + Amphipoda:*	1.00%
Non-Insect Taxa:	1	*%Diptera - Tanytarsini:*	27.00%
		%Filterers:	51.00%

PMI Rating: **65.46** **Excellent**

Habitat Analysis: 180 Optimal USEPA Protocol

Observations: Water temp: 19.18 C; Cond: 38 umhos; DO: 5.49 mg/L; pH: 3.94 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 17' / 2'; Substrate: gravel, sand, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes

AMNET Site # **AN0597A** ***Stream Name:*** **Shoal Br**

Location: **off Rt 532; Woodland Twp; Burlington County**

Collection Date: ***11/8/2010*** ***USGS Topo Map:*** **Woodmansie**

	Genus	*Tolerance Value*	*Amount*
*	Leuctra	0	16
*	Paraleptophlebia	1	15
	Calopteryx	6	10
*	Polycentropus	6	7
*	Molanna	6	6
*	Pycnopsyche	4	6
*	Cheumatopsyche	5	5
	Tribelos	5	5
	Argia	6	3
	Caecidotea	8	3
*	Chimarra	4	3
*	Platycentropus	4	3
	Thienemannimyia	6	3
	Cordulegaster	3	2
	Nigronia	2	2
	Sialis	4	2
	Boyeria	2	1
	Cryptochironomus	8	1
*	Diplectrona	0	1
*	Hydropsyche	4	1
	Macropelopia	10	1
	Procladius	9	1
*	Ptilostomis	5	1
	Rheocricotopus	6	1
	Unniella	6	1

** (EPT organism)* *Taxa Richness:* 25 *Population:* 100

Becks Biotic Index (BBI):	14.00	*%Plecoptera +Trichoptera:*	49.00%
Insect Taxa:	24	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	1	*%Diptera - Tanytarsini:*	13.00%
		%Filterers:	17.00%

PMI Rating: **71.55 Excellent**

Habitat Analysis: 162 Optimal USEPA Protocol

Observations: Water temp: 8.17 C; Cond: 56 umhos; DO: 7.16 mg/L; pH: 3.87 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 9' / 2 - 3'; Substrate: silt, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # **AN0599** *Stream Name:* **Tulpehocken Ck**

Location: **Carranza Rd; Tabernacle Twp; Burlington County**

Collection Date: ***7/12/2011*** *USGS Topo Map:* **Chatsworth**

Genus	*Tolerance Value*	*Amount*
Enchytraeidae	10	59
Tribelos	5	8
Eclipidrilus	8	5
Nematoda	6	5
Bezzia	6	4
Chironomus	10	3
Nais	8	3
Sialis	4	3
Ablabesmyia	8	1
Caecidotea	8	1
Cricotopus	7	1
Ephydridae	6	1
Eukiefferiella	8	1
Fossaria	6	1
Heterotrissocladius	0	1
Microtendipes	7	1
Paratendipes	8	1
Tabanus	5	1

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

Becks Biotic Index (BBI):	3.00	*%Plecoptera +Trichoptera:*	0.00%
Insect Taxa:	12	*%Mollusca + Amphipoda:*	1.00%
Non-Insect Taxa:	6	*%Diptera - Tanytarsini:*	23.00%
		%Filterers:	1.00%

PMI Rating: **48.73 Fair**

Habitat Analysis: 157 Suboptimal USEPA Protocol

Observations: Water temp: 22.48 C; Cond: 65 umhos; DO: 2.08 mg/L; pH: 3.94 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 9' / < 1'; Substrate: gravel, sand, silt

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: site dry 9/10

AMNET Site # **AN0600** *Stream Name:* **Tulpehocken Ck**

Location: **Maxwell-Friendship Rd; Washington Twp; Burlington County**

Collection Date: ***7/19/2011*** *USGS Topo Map:* **Jenkins**

	Genus	Tolerance Value	Amount
	Ablabesmyia	8	19
	Apsectrotanypus	5	12
	Tribelos	5	6
	Clinotanypus	8	5
	Procladius	9	5
	Thienemannimyia	6	5
	Sialis	4	4
	Bezzia	6	2
	Pyralidae	5	2
	Calopteryx	6	1
	Ceratopogonidae	6	1
	Chrysops	6	1
	Coenagrionidae	9	1
	Corixidae	9	1
	Ephydridae	6	1
*	Leptoceridae	4	1
	Limnodrilus	10	1
	Limnophila	3	1
	Limnophyes	8	1
	Mesovelia	9	1
	Notonecta	5	1
*	Phryganeidae	4	1

** (EPT organism)* *Taxa Richness:* 22 *Population:* 73

Becks Biotic Index (BBI):	4.00	*%Plecoptera +Trichoptera:*	2.74%
Insect Taxa:	21	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	1	*%Diptera - Tanytarsini:*	80.82%
		%Filterers:	0.00%

PMI Rating: **68.11** **Excellent**

Habitat Analysis: 150 Suboptimal USEPA Protocol

Observations: Water temp: 24.34 C; Cond: 32 umhos; DO: 4.78 mg/L; pH: 4.29 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 41' / 1 - 3'; Substrate: gravel, sand, silt, snags, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: frogs, macrophytes; boat launch area for kayaks

AMNET Site # **AN0601** ***Stream Name:*** **Little Hauken Run**

Location: **Rt 563; Washington Twp; Burlington County**

Collection Date: ***9/9/2010*** ***USGS Topo Map:*** **Jenkins**

Genus	*Tolerance Value*	*Amount*
Caecidotea	8	73
Enallagma	9	12
Gammarus	6	4
Lumbriculus	8	2
Polypedilum	6	2
Tubifex	10	2
Alotanypus	6	1
Erythemis	10	1
Limnodrilus	10	1
Musculium	5	1
Procladius	9	1

** (EPT organism)* *Taxa Richness:* 11 *Population:* 100

Becks Biotic Index (BBI):	0.00	*%Plecoptera +Trichoptera:*	0.00%
Insect Taxa:	5	*%Mollusca + Amphipoda:*	5.00%
Non-Insect Taxa:	6	*%Diptera - Tanytarsini:*	4.00%
		%Filterers:	1.00%

PMI Rating: **40.08 Fair**

Habitat Analysis: 155 Suboptimal USEPA Protocol

Observations: Water temp: 19.79 C; Cond: 41 umhos; DO: 4.09 mg/L; pH: 4.47 SU

Clarity: turbid, cedar; Flow Rate: slow; Width/Depth: 19' / 3'; Substrate: sand, silt, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested, agriculture-cropland (cranberry bogs)

Other: macrophytes

AMNET Site # **AN0602** ***Stream Name:*** **Wading River**

Location: **downstream of Rt 563; Washington Twp; Burlington County**

Collection Date: ***9/9/2010*** ***USGS Topo Map:*** **Jenkins**

	Genus	Tolerance Value	Amount
	Caecidotea	8	34
	Orthocladius	6	17
	Stenelmis	5	11
	Enallagma	9	9
	Tribelos	5	5
	Cricotopus	7	4
*	Oecetis	8	4
	Cryptochironomus	8	2
*	Polycentropus	6	2
	Psectrocladius	8	2
	Rheopelopia	4	2
	Apsectrotanypus	5	1
	Bezzia	6	1
	Chrysops	6	1
	Eclipidrilus	8	1
	Erythemis	10	1
	Gammarus	6	1
	Stylodrilus	10	1
	Tanypodinae	7	1

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

Becks Biotic Index (BBI):	1.00	*%Plecoptera +Trichoptera:*	6.00%
Insect Taxa:	15	*%Mollusca + Amphipoda:*	1.00%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	36.00%
		%Filterers:	2.00%

PMI Rating: **54.35 Fair**

Habitat Analysis: 141 Suboptimal USEPA Protocol

Observations: Water temp: 18.44 C; Cond: 36 umhos; DO: 5.49 mg/L; pH: 4.19 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 51' / 2'; Substrate: gravel, sand, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, macrophytes; location used by recreational kayaks/canoes business; USGS gage: 1.65

AMNET Site # **AN0603** ***Stream Name:*** **Oswego River**

Location: **Rt 539; Barnegat Twp; Ocean County**

Collection Date: ***8/9/2010*** ***USGS Topo Map:*** **Brookville**

Genus	*Tolerance Value*	*Amount*
Procladius	9	30
Alotanypus	6	21
Caecidotea	8	16
Tribelos	5	14
Chironomus	10	6
Nais	8	3
Polypedilum	6	2
Sialis	4	2
Trichocorixa	9	2
Limnodrilus	10	1
Rheopelopia	4	1
Stenelmis	5	1
Tanytarsus	6	1

** (EPT organism)* *Taxa Richness:* 13 *Population:* 100

Becks Biotic Index (BBI):	2.00	*%Plecoptera +Trichoptera:*	0.00%
Insect Taxa:	10	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	74.00%
		%Filterers:	1.00%

PMI Rating: **59.97 Good**

Habitat Analysis: 150 Suboptimal USEPA Protocol

Observations: Water temp: 22.22 C; Cond: 91 umhos; DO: 0.38 mg/L; pH: 4.42 SU

Clarity: turbid, cedar brown; Flow Rate: slow; Width/Depth: 8' / 2'; Substrate: gravel, sand, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # **AN0604** ***Stream Name:*** **Plains Br**

Location: **Jenkins Rd; Bass River Twp; Burlington County**

Collection Date: ***8/11/2010*** ***USGS Topo Map:*** **Woodmansie**

	Genus	*Tolerance Value*	*Amount*
	Thienemannimyia	6	18
	Chironomus	10	14
*	Molanna	6	11
	Ablabesmyia	8	10
	Argia	6	8
	Ischnura	9	8
	Procladius	9	5
	Apsectrotanypus	5	4
	Tribelos	5	4
	Libellulidae	9	3
	Limnodrilus	10	3
	Chrysops	6	2
*	Leuctra	0	2
	Calopteryx	6	1
	Clinotanypus	8	1
	Gomphidae	1	1
	Labrundinia	7	1
	Naididae	7	1
*	Neureclipsis	7	1
*	Siphloplecton	2	1
	Tanytarsini	6	1

** (EPT organism)* *Taxa Richness:* 21 *Population:* 100

Becks Biotic Index (BBI):	5.00	*%Plecoptera +Trichoptera:*	14.00%
Insect Taxa:	19	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	2	*%Diptera - Tanytarsini:*	59.00%
		%Filterers:	1.00%

PMI Rating: **66.52** **Excellent**

Habitat Analysis: 163 Optimal USEPA Protocol

Observations: Water temp: 25.18 C; Cond: 42 umhos; DO: 3.87 mg/L; pH: 3.92 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 6' / 1'; Substrate: gravel, sand, mud

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes

AMNET Site # **AN0605** ***Stream Name:*** **Papoose Br**

Location: **Jenkins Rd; Washington Twp; Burlington County**

Collection Date: ***8/11/2010*** ***USGS Topo Map:*** **Oswego Lake**

	Genus	*Tolerance Value*	*Amount*
	Heterotrissocladius	0	10
	Tribelos	5	10
*	Neureclipsis	7	8
	Thienemannimyia	6	8
	Tanytarsus	6	7
	Nigronia	2	6
*	Hydropsyche	4	5
	Rheotanytarsus	6	5
*	Maccaffertium	3	4
*	Molanna	6	4
	Tvetenia	5	4
*	Brachycentrus	1	3
	Calopteryx	6	3
*	Leuctra	0	3
*	Diplectrona	0	2
	Hemerodromia	6	2
	Labrundinia	7	2
	Microtendipes	7	2
	Simulium	6	2
*	Triaenodes	6	2
	Apsectrotanypus	5	1
	Boyeria	2	1
*	Limnephilidae	4	1
	Probezzia	6	1
	Rheocricotopus	6	1
*	Rhyacophila	1	1
	Sialis	4	1
	Tanypodinae	7	1

** (EPT organism)* *Taxa Richness:* 28 *Population:* 100

Becks Biotic Index (BBI):	16.00	*%Plecoptera +Trichoptera:*	29.00%
Insect Taxa:	28	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	0	*%Diptera - Tanytarsini:*	44.00%
		%Filterers:	34.00%

PMI Rating: **72.64** **Excellent**

Habitat Analysis: 181 Optimal USEPA Protocol

Observations: Water temp: 18.89 C; Cond: 32 umhos; DO: 5.81 mg/L; pH: 4.19 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 14' / 4'; Substrate: gravel, sand, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested, agriculture (cranberry bogs)

Other: macrophytes, braided stream

AMNET Site # **AN0606** ***Stream Name:*** **Oswego River**

Location: **Andrews Rd; Bass River Twp; Burlington County**

Collection Date: ***8/11/2010*** ***USGS Topo Map:*** **Oswego Lake**

	Genus	*Tolerance Value*	*Amount*
	Stenelmis	5	30
*	Hydropsyche	4	22
	Rheotanytarsus	6	17
	Enallagma	9	5
	Macromia	2	5
	Gyrinus	4	4
	Parachironomus	10	3
	Gomphus	5	2
*	Lype	2	2
	Caecidotea	8	1
*	Caenis	7	1
*	Chimarra	4	1
	Corixidae	9	1
	Dineutus	4	1
	Hemerodromia	6	1
	Neurocordulia	2	1
*	Oecetis	8	1
	Orthocladius	6	1
	Thienemannimyia	6	1

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

Becks Biotic Index (BBI):	7.00	*%Plecoptera +Trichoptera:*	26.00%
Insect Taxa:	18	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	1	*%Diptera - Tanytarsini:*	6.00%
		%Filterers:	40.00%

PMI Rating: **54.95 Fair**

Habitat Analysis: 152 Suboptimal USEPA Protocol

Observations: Water temp: 30.5 C; Cond: 36 umhos; DO: 6.26 mg/L; pH: 4.22 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 45' / 1 - 3'; Substrate: gravel, sand, root mats, undercut banks

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

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

Downstream of Impoundment: Lake Oswego

Other: fish, macrophytes, periphytes

AMNET Site # **AN0607** ***Stream Name:*** **Oswego River (E Br Wading River)**

Location: **Rt 679; Bass River Twp; Burlington County**

Collection Date: ***10/21/2010*** ***USGS Topo Map:*** **Jenkins**

	Genus	Tolerance Value	Amount
*	Hydropsyche	4	47
*	Chimarra	4	13
	Cricotopus	7	12
*	Neureclipsis	7	4
*	Oecetis	8	4
	Stenelmis	5	4
*	Baetisca	4	2
	Hemerodromia	6	2
	Stylaria	8	2
*	Taeniopteryx	2	2
*	Caenis	7	1
	Corydalus	4	1
	Dineutus	4	1
	Ischnura	9	1
	Nais	8	1
	Nigronia	2	1
	Pelocoris	8	1
	Tribelos	5	1

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

Becks Biotic Index (BBI):	7.00	*%Plecoptera +Trichoptera:*	70.00%
Insect Taxa:	16	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	2	*%Diptera - Tanytarsini:*	15.00%
		%Filterers:	64.00%

PMI Rating: **59.30** **Good**

Habitat Analysis: 169 Optimal USEPA Protocol

Observations: Water temp: 11.92 C; Cond: 49 umhos; DO: 9.32 mg/L; pH: 3.78 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 45' / 1'; Substrate: cobble, gravel, sand

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

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

Downstream of Impoundment: small lake

Other: macrophytes, slight oil sheen, USGS gage

AMNET Site # **AN0610** ***Stream Name:*** **West Br Bass River**

Location: **Stage Rd; Bass River Twp; Burlington County**

Collection Date: ***10/26/2010*** ***USGS Topo Map:*** **New Gretna**

	Genus	*Tolerance Value*	*Amount*
	Ischnura	9	21
*	Eurylophella	4	11
*	Maccaffertium	3	8
	Stenelmis	5	8
*	Hydatophylax	2	6
*	Oecetis	8	6
*	Hydropsyche	4	5
*	Taeniopteryx	2	5
	Sphaeriidae	8	4
*	Chimarra	4	3
*	Caenis	7	2
	Gomphus	5	2
*	Molanna	6	2
	Naididae	7	2
	Progomphus	5	2
	Promoresia	2	2
	Tribelos	5	2
	Boyeria	2	1
	Calopteryx	6	1
	Corduliidae	5	1
*	Hydroptila	6	1
*	Paraleptophlebia	1	1
	Procladius	9	1
	Simulium	6	1
	Thienemannimyia	6	1
	Unniella	6	1

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

Becks Biotic Index (BBI):	10.00	*%Plecoptera +Trichoptera:*	28.00%
Insect Taxa:	24	*%Mollusca + Amphipoda:*	4.00%
Non-Insect Taxa:	2	*%Diptera - Tanytarsini:*	6.00%
		%Filterers:	13.00%

PMI Rating: **61.97 Good**

Habitat Analysis: 147 Suboptimal USEPA Protocol

Observations: Water temp: 15.73 C; Cond: 35 umhos; DO: 8.46 mg/L; pH: 4.16 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 19' / 1'; Substrate: gravel, sand, root mats

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

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

Other: fish, macrophytes, filamentous algae

AMNET Site # **AN0611** *Stream Name:* **Dans Bridge Br**

Location: **Dans Bridge Rd; Bass River Twp; Burlington County**

Collection Date: ***10/26/2010*** *USGS Topo Map:* **Oswego Lake**

	Genus	Tolerance Value	Amount
*	Molanna	6	9
	Enchytraeidae	10	8
*	Pycnopsyche	4	8
*	Paraleptophlebia	1	7
	Microtendipes	7	6
*	Baetidae	4	5
	Calopteryx	6	5
	Procladius	9	4
*	Ptilostomis	5	4
	Gammarus	6	3
	Macropelopia	10	3
	Psectrocladius	8	3
	Stylodrilus	10	3
	Acricotopus	10	2
	Argia	6	2
	Chrysops	6	2
	Hyalella	8	2
*	Leuctra	0	2
*	Polycentropus	6	2
	Tribelos	5	2
	Trichocorixa	9	2
	Boyeria	2	1
*	Hydatophylax	2	1
*	Hydroptila	6	1
	Limnodrilus	10	1
	Lumbriculus	8	1
*	Mystacides	4	1
	Nais	8	1
	Orthocladius	6	1
*	Oxyethira	3	1
	Peltodytes	5	1
*	Psilotreta	0	1
	Somatochlora	1	1
	Stenochironomus	5	1
*	Taeniopteryx	2	1
	Tanytarsus	6	1
	Unniella	6	1

** (EPT organism)* *Taxa Richness:* 37 *Population:* 100

Becks Biotic Index (BBI):	15.00	*%Plecoptera +Trichoptera:*	31.00%
Insect Taxa:	30	*%Mollusca + Amphipoda:*	5.00%
Non-Insect Taxa:	7	*%Diptera - Tanytarsini:*	25.00%
		%Filterers:	9.00%

PMI Rating: **67.36** **Excellent**

Habitat Analysis: 160 Optimal USEPA Protocol

Observations: Water temp: 12.80 C; Cond: 42 umhos; DO: 6.23 mg/L; pH: 4.37 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 24' / 3'; Substrate: gravel, sand, mud, silt

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes, filamentous algae

AMNET Site # **AN0612** ***Stream Name:*** **East Br Bass River**

Location: **Stage Rd; Bass River Twp; Burlington County**

Collection Date: ***10/26/2010*** ***USGS Topo Map:*** **New Gretna**

	Genus	Tolerance Value	Amount
*	Brachycentrus	1	24
*	Maccaffertium	3	11
*	Hydroptila	6	8
	Orthocladius	6	8
*	Paraleptophlebia	1	7
*	Oecetis	8	6
*	Hydropsyche	4	4
	Psectrocladius	8	3
*	Pycnopsyche	4	3
	Tribelos	5	3
*	Molanna	6	2
*	Ptilostomis	5	2
	Thienemannimyia	6	2
	Unniella	6	2
*	Acentrella	4	1
*	Baetidae	4	1
	Boyeria	2	1
	Gloiobdella	6	1
	Hetaerina	6	1
	Nais	8	1
*	Perlodidae	2	1
*	Polycentropus	6	1
	Polypedilum	6	1
*	Psilotreta	0	1
	Rheotanytarsus	6	1
	Stylodrilus	10	1
*	Taeniopteryx	2	1
	Tanytarsus	6	1

** (EPT organism)* *Taxa Richness:* 28 *Population:* 99

Becks Biotic Index (BBI):	14.00	*%Plecoptera +Trichoptera:*	53.54%
Insect Taxa:	25	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	19.19%
		%Filterers:	31.31%

PMI Rating: **70.22** **Excellent**

Habitat Analysis: 153 Suboptimal USEPA Protocol

Observations: Water temp: 13.40 C; Cond: 43 umhos; DO: 7.21 mg/L; pH: 4.07 SU

Clarity: clear, cedar; Flow Rate: fast; Width/Depth: 26' / 1 - 2'; Substrate: gravel, sand, silt, snags

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, macrophytes, filamentous algae

AMNET Site # **AN0613** ***Stream Name:*** **Clarks Mill Stream**

Location: **Rt 575; Port Republic; Atlantic County**

Collection Date: ***10/26/2010*** ***USGS Topo Map:*** **Green Bank**

	Genus	Tolerance Value	Amount
	Stenelmis	5	14
	Tribelos	5	12
	Microtendipes	7	9
*	Oecetis	8	7
	Rheopelopia	4	7
*	Eurylophella	4	5
	Pisidium	6.8	5
	Caecidotea	8	4
*	Hydatophylax	2	4
	Lumbriculus	8	3
*	Molanna	6	3
	Sialis	4	3
	Hemerodromia	6	2
*	Hydropsyche	4	2
*	Maccaffertium	3	2
*	Paraleptophlebia	1	2
*	Psilotreta	0	2
	Argia	6	1
	Bezzia	6	1
	Calopteryx	6	1
*	Chimarra	4	1
	Clinotanypus	8	1
	Corydalus	4	1
	Corynoneura	4	1
	Cryptochironomus	8	1
	Gammarus	6	1
	Hexatoma	2	1
	Micropsectra	7	1
	Polypedilum	6	1
*	Pycnopsyche	4	1
	Tabanus	5	1

** (EPT organism)* *Taxa Richness:* 31 *Population:* 100

Becks Biotic Index (BBI):	15.00	*%Plecoptera +Trichoptera:*	20.00%
Insect Taxa:	27	*%Mollusca + Amphipoda:*	6.00%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	37.00%
		%Filterers:	17.00%

PMI Rating: **67.10** **Excellent**

Habitat Analysis: 153 Suboptimal USEPA Protocol

Observations: Water temp: 16.11 C; Cond: 87 umhos; DO: 7.27 mg/L; pH: 4.64 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 11' / 1'; Substrate: gravel, sand, silt, undercut banks

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

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

Other: macrophytes, periphytes

AMNET Site # **AN0614** *Stream Name:* **Morses Mill Stream**

Location: **Riverside Dr; Port Republic; Atlantic County**

Collection Date: ***10/26/2010*** *USGS Topo Map:* **Green Bank**

	Genus	Tolerance Value	Amount
	Tribelos	5	42
	Sialis	4	13
	Thienemannimyia	6	6
*	Chimarra	4	5
	Sphaeriidae	8	5
	Caecidotea	8	4
	Cordulegaster	3	3
*	Leptophlebiidae	2	3
*	Oecetis	8	3
	Chrysops	6	2
	Procladius	9	2
*	Pycnopsyche	4	2
	Stenelmis	5	2
	Ablabesmyia	8	1
	Clinotanypus	8	1
	Gomphus	5	1
	Hydroporus	5	1
	Manayunkia	6	1
	Microtendipes	7	1
	Stenochironomus	5	1
	Tanypodinae	7	1

** (EPT organism)* *Taxa Richness:* 21 *Population:* 100

Becks Biotic Index (BBI):	5.00	*%Plecoptera +Trichoptera:*	10.00%
Insect Taxa:	18	*%Mollusca + Amphipoda:*	5.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	57.00%
		%Filterers:	11.00%

PMI Rating: **61.51** **Good**

Habitat Analysis: 143 Suboptimal USEPA Protocol

Observations: Water temp: 15.89 C; Cond: 115 umhos; DO: 6.69 mg/L; pH: 4.86 SU

Clarity: clear, black; Flow Rate: slow; Width/Depth: 17' / 2 - 3'; Substrate: gravel, sand, silt, snags, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: frogs

AMNET Site # **AN0615** ***Stream Name:*** **Mattix Run (Frenches Ditch)**

Location: **Moss Mill Rd; Galloway Twp; Atlantic County**

Collection Date: ***10/26/2010*** ***USGS Topo Map:*** **Oceanville**

	Genus	*Tolerance Value*	*Amount*
	Caecidotea	8	17
	Stenelmis	5	15
	Tribelos	5	11
	Cnephia	4	10
	Oligochaeta	8	8
	Thienemannimyia	6	8
	Tanytarsus	6	5
*	Hydropsyche	4	4
	Pseudolimnophila	2	4
	Bittacomorpha	8	2
	Boyeria	2	2
*	Caenis	7	2
	Dero	10	2
*	Ptilostomis	5	2
	Rheotanytarsus	6	2
	Alotanypus	6	1
	Argia	6	1
*	Cheumatopsyche	5	1
	Gomphus	5	1
*	Limnephilidae	4	1
	Procladius	9	1

** (EPT organism)* *Taxa Richness:* 21 *Population:* 100

Becks Biotic Index (BBI):	5.00	*%Plecoptera +Trichoptera:*	8.00%
Insect Taxa:	18	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	37.00%
		%Filterers:	22.00%

PMI Rating: **56.37** **Good**

Habitat Analysis: 147 Suboptimal USEPA Protocol

Observations: Water temp: 17.13 C; Cond: 113 umhos; DO: 6.83 mg/L; pH: 4.02 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 6' / < 1'; Substrate: gravel, sand, silt, snags, root mats

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

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

Other: fish, macrophytes, filamentous algae

AMNET Site # **AN0616** *Stream Name:* **N Br Absecon Ck**

Location: **Garden State Pkwy; Hamilton Twp; Atlantic County**

Collection Date: ***6/23/2011*** *USGS Topo Map:* **Pleasantville**

	Genus	*Tolerance Value*	*Amount*
	Gammarus	6	29
	Caecidotea	8	17
	Limnodrilus	10	10
	Psectrocladius	8	7
	Eurycercus	4	6
	Helobdella	8	5
	Micropsectra	7	3
	Trichocorixa	9	3
	Ablabesmyia	8	2
	Nais	8	2
	Orthocladius	6	2
*	Phryganeidae	4	2
	Stylaria	8	2
	Tanytarsus	6	2
	Bezzia	6	1
	Corynoneura	4	1
	Matus	5	1
	Microtendipes	7	1
*	Mystacides	4	1
	Oulimnius	4	1
*	Oxyethira	3	1
	Rheopelopia	4	1

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

Becks Biotic Index (BBI):	7.00	*%Plecoptera +Trichoptera:*	4.00%
Insect Taxa:	15	*%Mollusca + Amphipoda:*	29.00%
Non-Insect Taxa:	7	*%Diptera - Tanytarsini:*	15.00%
		%Filterers:	9.00%

PMI Rating: **44.65 Fair**

Habitat Analysis: 160 Optimal USEPA Protocol

Observations: Water temp: 16.35 C; Cond: 112 umhos; DO: 6.46 mg/L; pH: 5.33 SU
Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 14' / < 1'; Substrate: gravel, sand, silt
Canopy: mostly open; Bank Stability: fair; Bank Vegetation: trees, shrubs
Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, frogs, box turtle, macrophytes, filamentous algae, oil sheen

AMNET Site # **AN0617** ***Stream Name:*** **S Br Absecon Ck**

Location: **FAA Tech Center; Galloway Twp; Atlantic County**

Collection Date: ***6/14/2011*** ***USGS Topo Map:*** **Pleasantville**

	Genus	Tolerance Value	Amount
	Tvetenia	5	43
	Simulium	6	23
*	Leuctra	0	11
	Caecidotea	8	4
	Cricotopus	7	4
	Polypedilum	6	4
	Thienemannimyia	6	3
	Nigronia	2	2
	Tanytarsus	6	2
*	Heteroplectron	3	1
	Lumbriculus	8	1
	Oulimnius	4	1
	Synurella	4	1

** (EPT organism)* *Taxa Richness:* 13 *Population:* 100

Becks Biotic Index (BBI):	6.00	*%Plecoptera +Trichoptera:*	12.00%
Insect Taxa:	10	*%Mollusca + Amphipoda:*	1.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	77.00%
		%Filterers:	25.00%

PMI Rating: **61.41 Good**

Habitat Analysis: 158 Suboptimal USEPA Protocol

Observations: Water temp: 14.36 C; Cond: 85 umhos; DO: 7.97 mg/L; pH: 4.96 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 10' / < 1'; Substrate: gravel, sand, root mats, undercut banks

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

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

Other: frogs, macrophytes, filamentous algae

AMNET Site # **AN0618** ***Stream Name:*** **Mill Br (Fenton's Mill)**

Location: **Spruce Ave (CR 684); Egg Harbor; Atlantic County**

Collection Date: ***6/14/2011*** ***USGS Topo Map:*** **Pleasantville**

	Genus	Tolerance Value	Amount
	Psectrocladius	8	20
	Stylaria	8	18
	Caecidotea	8	10
	Orthocladius	6	9
	Microtendipes	7	6
	Nais	8	4
	Oulimnius	4	4
	Chaetogaster	6	3
	Corynoneura	4	3
	Eukiefferiella	8	3
	Tanytarsus	6	3
	Gammarus	6	2
	Rheopelopia	4	2
	Stempellinella	6	2
*	Baetidae	4	1
	Chauliodes	4	1
*	Cheumatopsyche	5	1
	Corixidae	9	1
	Cryptochironomus	8	1
	Eclipidrilus	8	1
	Hexatoma	2	1
	Optioservus	4	1
	Parametriocnemus	5	1
	Polypedilum	6	1
	Slavina	7	1

** (EPT organism)* *Taxa Richness:* 25 *Population:* 100

Becks Biotic Index (BBI):	7.00	*%Plecoptera +Trichoptera:*	1.00%
Insect Taxa:	18	*%Mollusca + Amphipoda:*	2.00%
Non-Insect Taxa:	7	*%Diptera - Tanytarsini:*	47.00%
		%Filterers:	10.00%

PMI Rating: **55.61 Fair**

Habitat Analysis: 139 Suboptimal USEPA Protocol

Observations: Water temp: 15.25 C; Cond: 46 umhos; DO: 6.47 mg/L; pH: 5.07 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 13' / < 1'; Substrate: gravel, sand, silt, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: rural

Other: fish, macrophytes, filamentous algae

AMNET Site # **AN0619** ***Stream Name:*** **Maple Run (Asbury Run)**

Location: **Mill Rd (CR 662); Northfield; Atlantic County**

Collection Date: ***6/14/2011*** ***USGS Topo Map:*** **Pleasantville**

Genus	*Tolerance Value*	*Amount*
Nais	8	44
Chironomus	10	8
Helisoma	7	6
Tubifex	10	6
Microtendipes	7	4
Slavina	7	4
Tanytarsus	6	4
Bezzia	6	3
Caecidotea	8	3
Musculium	5	3
Polypedilum	6	3
Paratendipes	8	2
Psectrocladius	8	2
Stylaria	8	2
Cura	4	1
Gammarus	6	1
Lymnaeidae	6	1
Physella	9.1	1
Pisidium	6.8	1
Prostoma	7	1

** (EPT organism)* *Taxa Richness:* 20 *Population:* 100

Becks Biotic Index (BBI):	1.00	*%Plecoptera +Trichoptera:*	0.00%
Insect Taxa:	7	*%Mollusca + Amphipoda:*	13.00%
Non-Insect Taxa:	13	*%Diptera - Tanytarsini:*	22.00%
		%Filterers:	12.00%

PMI Rating: **35.53 Fair**

Habitat Analysis: 142 Suboptimal USEPA Protocol

Observations: Water temp: 18.29 C; Cond: 140 umhos; DO: 3.45 mg/L; pH: 6.20 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 10' / 1'; Substrate: gravel, sand, mud, silt, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Other: macrophytes

AMNET Site # **AN0620** ***Stream Name:*** **Great Egg Harbor River**

Location: **Watsontown-New Freedom Rd; Berlin; Camden County**

Collection Date: ***11/1/2010*** ***USGS Topo Map:*** **Clementon**

	Genus	*Tolerance Value*	*Amount*
	Hyalella	8	19
	Amnicola	4.8	14
	Ischnura	9	13
	Pseudochironomus	5	13
	Dicrotendipes	8	6
	Tanypodinae	7	4
	Ceratopogonidae	6	3
	Chironomus	10	2
	Clinotanypus	8	2
	Dero	10	2
	Libellulidae	9	2
	Lumbriculus	8	2
	Menetus	6	2
	Thienemannimyia	6	2
	Zavreliella	6	2
	Ablabesmyia	8	1
	Aulodrilus	8	1
*	Caenis	7	1
	Corixidae	9	1
	Erythemis	10	1
	Helobdella	8	1
	Musculium	5	1
*	Oxyethira	3	1
	Paratanytarsus	6	1
	Peltodytes	5	1
	Physella	9.1	1
	Polypedilum	6	1

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

Becks Biotic Index (BBI):	1.00	*%Plecoptera +Trichoptera:*	1.00%
Insect Taxa:	18	*%Mollusca + Amphipoda:*	37.00%
Non-Insect Taxa:	9	*%Diptera - Tanytarsini:*	36.00%
		%Filterers:	1.00%

PMI Rating: **43.87** **Fair**

Habitat Analysis: 92 Marginal USEPA Protocol

Observations: Water temp: 10.06 C; Cond: 257 umhos; DO: 6.78 mg/L; pH: 6.26 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 45' / 3'; Substrate: mud, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: suburban

Pipes / Ditches: storm sewers

Downstream of Impoundment: ponded area

Other: macrophytes, filamentous algae, waterfowl

AMNET Site # **AN0621** ***Stream Name:*** **Great Egg Harbor River**

Location: **Williamstown-New Freedom Rd (Rt 536 spur); Winslow Twp; Camden County**

Collection Date: ***11/1/2010*** ***USGS Topo Map:*** **Williamstown**

	Genus	*Tolerance Value*	*Amount*
	Microtendipes	7	26
*	Eurylophella	4	19
	Hyalella	8	9
*	Paraleptophlebia	1	7
	Calopteryx	6	6
*	Brachycentrus	1	4
	Ischnura	9	4
	Sphaeriidae	8	4
	Corixidae	9	3
*	Ceraclea	3	2
*	Taeniopteryx	2	2
	Tribelos	5	2
	Ancyronyx	2	1
	Gomphus	5	1
*	Lype	2	1
*	Molanna	6	1
*	Mystacides	4	1
	Paraponyx	5	1
	Peltodytes	5	1
	Phaenopsectra	7	1
	Placobdella	8	1
*	Ptilostomis	5	1
	Rheotanytarsus	6	1
*	Triaenodes	6	1

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

Becks Biotic Index (BBI):	10.00	*%Plecoptera +Trichoptera:*	13.00%
Insect Taxa:	21	*%Mollusca + Amphipoda:*	13.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	29.00%
		%Filterers:	35.00%

PMI Rating: **55.76 Fair**

Habitat Analysis: 159 Suboptimal USEPA Protocol

Observations: Water temp: 9.46 C; Cond: 91 umhos; DO: 8.55 mg/L; pH: 5.72 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 29' / 3'; Substrate: gravel, sand, mud, snags, root mats

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

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

Other: fish, macrophytes

AMNET Site # **AN0622** ***Stream Name:*** **Four Mile Br**

Location: **Malaga Rd; Monroe Twp; Gloucester & Camden County**

Collection Date: ***11/10/2010*** ***USGS Topo Map:*** **Williamstown**

	Genus	*Tolerance Value*	*Amount*
	Hyalella	8	36
	Microtendipes	7	16
*	Eurylophella	4	9
*	Maccaffertium	3	6
*	Paraleptophlebia	1	5
*	Cheumatopsyche	5	4
	Cricotopus	7	2
	Oulimnius	4	2
	Polypedilum	6	2
	Tanytarsus	6	2
	Bezzia	6	1
	Caecidotea	8	1
	Cordulegaster	3	1
	Dubiraphia	6	1
	Helobdella	8	1
*	Lepidostoma	1	1
*	Molanna	6	1
*	Mystacides	4	1
	Parametriocnemus	5	1
	Paraponyx	5	1
*	Polycentropus	6	1
	Procladius	9	1
*	Pycnopsyche	4	1
	Stenochironomus	5	1
*	Taeniopteryx	2	1
	Tribelos	5	1

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

Becks Biotic Index (BBI):	11.00	*%Plecoptera +Trichoptera:*	10.00%
Insect Taxa:	23	*%Mollusca + Amphipoda:*	36.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	25.00%
		%Filterers:	23.00%

PMI Rating: **53.52 Fair**

Habitat Analysis: 145 Suboptimal USEPA Protocol

Observations: Water temp: 10.74 C; Cond: 114 umhos; DO: 8.52 mg/L; pH: 5.96 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 16' / 1 - 2'; Substrate: gravel, sand, silt, snags, root mats

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

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

Other: macrophytes

AMNET Site # **AN0623** *Stream Name:* **Great Egg Harbor River**

Location: **Winslow Rd; Winslow Twp; Camden & Gloucester County**

Collection Date: ***7/19/2011*** *USGS Topo Map:* **Williamstown**

	Genus	Tolerance Value	Amount
*	Brachycentrus	1	12
	Physella	9.1	12
*	Lepidostoma	1	8
*	Maccaffertium	3	5
*	Mystacides	4	5
	Paratanytarsus	6	5
	Macronychus	2	4
*	Molanna	6	4
	Stenelmis	5	4
	Dero	10	3
	Menetus	6	3
	Tvetenia	5	3
	Aeshnidae	3	2
	Chrysops	6	2
	Corixidae	9	2
	Microtendipes	7	2
	Pisidium	6.8	2
*	Psilotreta	0	2
	Stylaria	8	2
	Ancylidae	6	1
	Cordulegaster	3	1
	Dicrotendipes	8	1
*	Eurylophella	4	1
*	Goera	0	1
	Helisoma	7	1
	Hexatoma	2	1
	Hydroporus	5	1
	Lymnaeidae	6	1
*	Micrasema	2	1
*	Oecetis	8	1
	Oulimnius	4	1
	Palaemonetes	4	1
*	Polycentropus	6	1
	Polypedilum	6	1
	Sialis	4	1
	Tipula	4	1
	Tribelos	5	1

** (EPT organism)* *Taxa Richness:* 37 *Population:* 100

Becks Biotic Index (BBI):	20.00	*%Plecoptera +Trichoptera:*	35.00%
Insect Taxa:	28	*%Mollusca + Amphipoda:*	20.00%
Non-Insect Taxa:	9	*%Diptera - Tanytarsini:*	12.00%
		%Filterers:	17.00%

PMI Rating: **62.26 Good**

Habitat Analysis: 161 Optimal USEPA Protocol

Observations: Water temp: 22.37 C; Cond: 84 umhos; DO: 8.16 mg/L; pH: 6.17 SU

Clarity: slightly turbid, cedar; Flow Rate: slow; Width/Depth: 64' / 1 - 3'; Substrate: gravel, sand, silt, snags, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: turtle, macrophytes, grass shrimp; gage station; new bridge

AMNET Site # **AN0624** ***Stream Name:*** **Squankum Br**

Location: **Malaga Rd; Monroe Twp; Gloucester County**

Collection Date: ***11/10/2010*** ***USGS Topo Map:*** **Williamstown**

	Genus	Tolerance Value	Amount
	Sphaeriidae	8	23
	Lumbriculus	8	16
	Aulodrilus	8	12
	Limnodrilus	10	11
*	Cheumatopsyche	5	8
	Cricotopus	7	7
	Dubiraphia	6	5
*	Polycentropus	6	4
	Physella	9.1	3
	Argia	6	2
	Calopteryx	6	2
*	Acerpenna	4	1
	Cambaridae	5	1
*	Leptophlebiidae	2	1
	Nais	8	1
	Polypedilum	6	1
	Procladius	9	1
	Tribelos	5	1

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

Becks Biotic Index (BBI):	2.00	*%Plecoptera +Trichoptera:*	12.00%
Insect Taxa:	11	*%Mollusca + Amphipoda:*	26.00%
Non-Insect Taxa:	7	*%Diptera - Tanytarsini:*	10.00%
		%Filterers:	35.00%

PMI Rating: **37.86** **Fair**

Habitat Analysis: 135 Suboptimal USEPA Protocol

Observations: Water temp: 11.01 C; Cond: 148 umhos; DO: 7.43 mg/L; pH: 5.97 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 15' / < 1'; Substrate: gravel, sand, silt, snags, root mats

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

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

Pipes / Ditches: storm sewers

Other: fish, macrophytes,oil sheen, invasive plants

AMNET Site # **AN0625** ***Stream Name:*** **Great Egg Harbor River**

Location: **Rt 54; Folsom Boro; Atlantic County**

Collection Date: ***11/30/2010*** ***USGS Topo Map:*** **Newtonville**

	Genus	Tolerance Value	Amount
	Microtendipes	7	18
*	Leptophlebia	4	10
	Tanytarsus	6	10
*	Ceratopsyche	4	9
*	Maccaffertium	3	9
	Tvetenia	5	9
*	Taeniopteryx	2	8
*	Hydropsyche	4	4
*	Psilotreta	0	3
*	Acroneuria	0	2
	Micropsectra	7	2
	Nigronia	2	2
	Promoresia	2	2
*	Brachycentrus	1	1
	Brillia	5	1
	Caecidotea	8	1
	Chrysops	6	1
	Cricotopus	7	1
	Eukiefferiella	8	1
*	Goera	0	1
	Hexatoma	2	1
*	Hydroptila	6	1
	Thienemannimyia	6	1
	Tipula	4	1
	Tribelos	5	1

** (EPT organism)* *Taxa Richness:* 25 *Population:* 100

Becks Biotic Index (BBI):	17.00	*%Plecoptera +Trichoptera:*	29.00%
Insect Taxa:	24	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	1	*%Diptera - Tanytarsini:*	35.00%
		%Filterers:	42.00%

PMI Rating: **68.70** **Excellent**

Habitat Analysis: 165 Optimal USEPA Protocol

Observations: Water temp: 6.56 C; Cond: 83 umhos; DO: 10.86 mg/L; pH: 6.12 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 36' / 3'; Substrate: gravel, sand

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Pipes / Ditches: storm sewers

Other: macrophytes, filamentous algae; USGS gage: 3.7

AMNET Site # **AN0626** ***Stream Name:*** **Penny Pot Stream**

Location: **Eighth Ave; Folsom Boro; Atlantic County**

Collection Date: ***11/30/2010*** ***USGS Topo Map:*** **Newtonville**

	Genus	Tolerance Value	Amount
	Stenelmis	5	21
	Calopteryx	6	8
	Sphaeriidae	8	7
	Thienemannimyia	6	6
*	Leptophlebia	4	5
	Nigronia	2	5
*	Pycnopsyche	4	5
	Tanytarsus	6	5
*	Taeniopteryx	2	4
*	Eurylophella	4	3
*	Lype	2	3
	Rheotanytarsus	6	3
	Boyeria	2	2
*	Diplectrona	0	2
	Diplocladius	8	2
*	Hydropsyche	4	2
	Libellulidae	9	2
	Sialis	4	2
	Stenochironomus	5	2
	Argia	6	1
	Chrysops	6	1
	Cordulegaster	3	1
	Dineutus	4	1
	Erythemis	10	1
	Gomphidae	1	1
	Hagenius	3	1
*	Maccaffertium	3	1
*	Oecetis	8	1
	Planariidae	4	1
*	Triaenodes	6	1

** (EPT organism)* *Taxa Richness:* 30 *Population:* 100

Becks Biotic Index (BBI):	18.00	*%Plecoptera +Trichoptera:*	18.00%
Insect Taxa:	28	*%Mollusca + Amphipoda:*	7.00%
Non-Insect Taxa:	2	*%Diptera - Tanytarsini:*	11.00%
		%Filterers:	19.00%

PMI Rating: **65.01 Excellent**

Habitat Analysis: 171 Optimal USEPA Protocol

Observations: Water temp: 7.61 C; Cond: 137 umhos; DO: 10.19 mg/L; pH: 5.74 SU

Clarity: clear; Flow Rate: moderate; Width/Depth: 12' / 1 - 2'; Substrate: gravel, sand, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes

AMNET Site # **AN0627** ***Stream Name:*** **Hospitality Br**

Location: **Blue Bell Rd; Monroe Twp; Gloucester County**

Collection Date: ***11/10/2010*** ***USGS Topo Map:*** **Williamstown**

	Genus	Tolerance Value	Amount
	Pisidium	6.8	40
	Aulodrilus	8	8
*	Maccaffertium	3	7
	Caecidotea	8	5
*	Molanna	6	5
	Hyalella	8	4
*	Limnephilidae	4	4
	Sialis	4	3
	Unniella	6	3
	Boyeria	2	2
*	Oecetis	8	2
	Calopteryx	6	1
	Chrysops	6	1
	Haliplus	5	1
*	Hydroptila	6	1
	Libellula	9	1
	Limnodrilus	10	1
	Micropsectra	7	1
	Mooreobdella	7.8	1
	Nais	8	1
*	Paraleptophlebia	1	1
*	Phylocentropus	5	1
	Planorbidae	6	1
	Procladius	9	1
	Prostoma	7	1
	Thienemannimyia	6	1
	Tubifex	10	1
	Tubificidae	10	1

** (EPT organism)* *Taxa Richness:* 28 *Population:* 100

Becks Biotic Index (BBI):	6.00	*%Plecoptera +Trichoptera:*	13.00%
Insect Taxa:	17	*%Mollusca + Amphipoda:*	45.00%
Non-Insect Taxa:	11	*%Diptera - Tanytarsini:*	6.00%
		%Filterers:	41.00%

PMI Rating: **34.13 Fair**

Habitat Analysis: 143 Suboptimal USEPA Protocol

Observations: Water temp: 10.55 C; Cond: 71 umhos; DO: 7.89 mg/L; pH: 5.73 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 19' / 1 - 2'; Substrate: gravel, sand, silt, snags, root mats, undercut banks

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

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

Other: macrophytes, trash

AMNET Site # **AN0628** ***Stream Name:*** **Hospitality Br**

Location: **Rt 538; Monroe Twp; Gloucester County**

Collection Date: ***11/10/2010*** ***USGS Topo Map:*** **Buena**

	Genus	Tolerance Value	Amount
	Pisidium	6.8	26
	Musculium	5	14
	Tubificidae	10	11
	Prostoma	7	7
	Nais	8	6
	Paraponyx	5	4
	Peltodytes	5	4
	Tubifex	10	4
	Gomphus	5	3
	Amnicola	4.8	2
	Chironomus	10	2
	Paratendipes	8	2
*	Polycentropus	6	2
	Polypedilum	6	2
	Argia	6	1
	Dicrotendipes	8	1
	Erythemis	10	1
	Ferrissia	7	1
	Limnodrilus	10	1
	Lymnaeidae	6	1
	Physella	9.1	1
	Procladius	9	1
*	Pycnopsyche	4	1
	Sympetrum	4	1
	Tanytarsus	6	1

** (EPT organism)* *Taxa Richness:* 25 *Population:* 100

Becks Biotic Index (BBI):	2.00	*%Plecoptera +Trichoptera:*	3.00%
Insect Taxa:	14	*%Mollusca + Amphipoda:*	45.00%
Non-Insect Taxa:	11	*%Diptera - Tanytarsini:*	8.00%
		%Filterers:	43.00%

PMI Rating: **28.42 Poor**

Habitat Analysis: 134 Suboptimal USEPA Protocol

Observations: Water temp: 9.98 C; Cond: 70 umhos; DO: 10.19 mg/L; pH: 6.53 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 36' / >4; Substrate: gravel, sand, silt, snags

Canopy: open; Bank Stability: good; Bank Vegetation: trees, shrubs, weeds, lawn

Stream Gradient: Low Gradient Stream; Land Uses: forested, suburban, camp ground on lake

Downstream of Impoundment: Crane Lake

Other: fish, waterfowl

AMNET Site # **AN0629** *Stream Name:* **Faraway Br**

Location: **Jackson Rd; Monroe Twp; Gloucester County**

Collection Date: ***11/30/2010*** *USGS Topo Map:* **Buena**

	Genus	Tolerance Value	Amount
*	Taeniopteryx	2	16
*	Brachycentrus	1	15
*	Hydropsyche	4	15
	Sphaeriidae	8	14
*	Chimarra	4	7
*	Cheumatopsyche	5	4
	Cnephia	4	4
	Lumbriculus	8	4
	Simulium	6	4
	Tvetenia	5	3
*	Maccaffertium	3	2
	Stenelmis	5	2
	Cordulegaster	3	1
	Gomphidae	1	1
	Libellulidae	9	1
	Lumbricidae	10	1
	Macromia	2	1
	Physella	9.1	1
*	Polycentropus	6	1
	Progomphus	5	1
	Pseudosuccinea	6	1
	Rheotanytarsus	6	1

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

Becks Biotic Index (BBI):	11.00	*%Plecoptera +Trichoptera:*	58.00%
Insect Taxa:	17	*%Mollusca + Amphipoda:*	16.00%
Non-Insect Taxa:	5	*%Diptera - Tanytarsini:*	11.00%
		%Filterers:	65.00%

PMI Rating: **55.33 Fair**

Habitat Analysis: 152 Suboptimal USEPA Protocol

Observations: Water temp: 7.82 C; Cond: 65 umhos; DO: 9.92 mg/L; pH: 6.09 SU
Clarity: clear; Flow Rate: moderate; Width/Depth: 22' / 1'; Substrate: gravel, sand
Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, shrubs, vines
Stream Gradient: Low Gradient Stream; Land Uses: rural, forested

Other: fish, macrophytes, filamentous algae

AMNET Site # **AN0630** ***Stream Name:*** **White Oak Br**

Location: **Jackson Rd; Monroe Twp; Gloucester County**

Collection Date: ***11/23/2010*** ***USGS Topo Map:*** **Buena**

	Genus	Tolerance Value	Amount
	Hydrobaenus	8	31
	Tribelos	5	17
	Thienemannimyia	6	11
*	Ptilostomis	5	9
	Simuliidae	6	7
	Caecidotea	8	6
	Tvetenia	5	4
	Chrysops	6	3
	Heterotrissocladius	0	3
	Micropsectra	7	2
	Crangonyx	8	1
	Gomphaeschna	3	1
	Libellula	9	1
	Lumbriculidae	8	1
	Naididae	7	1
	Natarsia	8	1
	Tipula	4	1

** (EPT organism)* *Taxa Richness:* 17 *Population:* 100

Becks Biotic Index (BBI):	4.00	*%Plecoptera +Trichoptera:*	9.00%
Insect Taxa:	13	*%Mollusca + Amphipoda:*	1.00%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	78.00%
		%Filterers:	7.00%

PMI Rating: **62.62** **Good**

Habitat Analysis: 158 Suboptimal USEPA Protocol

Observations: Water temp: 8.45 C; Cond: 85 umhos; DO: 3.31 mg/L; pH: 4.09 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 12' / 1'; Substrate: sand, snags

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes, pond on RB draining into stream

AMNET Site # **AN0631** ***Stream Name:*** **Marsh Lake Br (Collings Br)**

Location: **Unexpected Rd; Franklin Twp; Gloucester County**

Collection Date: ***4/12/2011*** ***USGS Topo Map:*** **Buena**

	Genus	Tolerance Value	Amount
	Cnephia	4	24
	Tanytarsus	6	16
	Polypedilum	6	12
	Cricotopus	7	11
	Simulium	6	8
	Ablabesmyia	8	4
*	Polycentropus	6	3
	Prostoma	7	3
	Thienemannimyia	6	3
	Hyalella	8	2
*	Ptilostomis	5	2
*	Caenis	7	1
	Ceratopogonidae	6	1
*	Cheumatopsyche	5	1
	Corduliidae	5	1
*	Hydropsyche	4	1
*	Maccaffertium	3	1
	Orthocladiinae	5	1
*	Oxyethira	3	1
	Paratanytarsus	6	1
	Phaenopsectra	7	1
	Pisidium	6.8	1
	Psectrocladius	8	1

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

Becks Biotic Index (BBI):	4.00	*%Plecoptera +Trichoptera:*	8.00%
Insect Taxa:	20	*%Mollusca + Amphipoda:*	3.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	66.00%
		%Filterers:	54.00%

PMI Rating: **56.69** **Good**

Habitat Analysis: 156 Suboptimal USEPA Protocol

Observations: Water temp: 17.31 C; Cond: 67 umhos; DO: 5.74 mg/L; pH: 5.70 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 19' / < 1'; Substrate: gravel, sand, mud, snags

Canopy: open; Bank Stability: good; Bank Vegetation: grasses, weeds

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

Other: macrophytes, filamentous algae; "Unexpected Wildlife Refuge"

AMNET Site # **AN0632** ***Stream Name:*** **Marsh Lake Br (Collings Br)**

Location: **Blue Anchor Rd; Buena Vista Twp; Atlantic County**

Collection Date: ***11/23/2010*** ***USGS Topo Map:*** **Buena**

	Genus	Tolerance Value	Amount
*	Hydropsyche	4	28
	Pisidium	6.8	19
*	Taeniopteryx	2	13
*	Chimarra	4	9
*	Polycentropus	6	8
*	Oxyethira	3	6
	Hydrobaenus	8	3
	Orthocladiinae	5	2
	Prostoma	7	2
	Rheotanytarsus	6	2
*	Cheumatopsyche	5	1
	Naididae	7	1
	Nais	8	1
	Nigronia	2	1
	Planorbidae	6	1
*	Pseudocloeon	4	1
	Pseudosuccinea	6	1
	Simulium	6	1

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

Becks Biotic Index (BBI):	6.00	*%Plecoptera +Trichoptera:*	65.00%
Insect Taxa:	12	*%Mollusca + Amphipoda:*	21.00%
Non-Insect Taxa:	6	*%Diptera - Tanytarsini:*	6.00%
		%Filterers:	68.00%

PMI Rating: **47.73 Fair**

Habitat Analysis: 160 Optimal USEPA Protocol

Observations: Water temp: 11.50 C; Cond: 56 umhos; DO: 7.22 mg/L; pH: 5.67 SU

Clarity: clear, cedar; Flow Rate: fast; Width/Depth: 23' / < 1'; Substrate: cobble, gravel, sand

Canopy: open; Bank Stability: good; Bank Vegetation: trees, vines, weeds

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

Other: macrophytes, filamentous algae, invasive plants, d/s of sand quarry

AMNET Site # **AN0633** ***Stream Name:*** **Hospitality Br**

Location: **Rt 54; Folsom Boro; Atlantic County**

Collection Date: ***11/23/2010*** ***USGS Topo Map:*** **Newtonville**

	Genus	Tolerance Value	Amount
	Sphaeriidae	8	21
*	Taeniopteryx	2	10
*	Maccaffertium	3	8
*	Eurylophella	4	7
	Aulodrilus	8	5
*	Brachycentrus	1	5
	Rheotanytarsus	6	5
*	Chimarra	4	4
	Ischnura	9	3
	Planariidae	4	3
*	Ptilostomis	5	3
*	Pycnopsyche	4	3
	Stenelmis	5	3
*	Hydropsyche	4	2
	Prostoma	7	2
	Ablabesmyia	8	1
	Amnicola	4.8	1
	Argia	6	1
	Collembola	10	1
	Dineutus	4	1
	Hydrobaenus	8	1
*	Leptophlebia	4	1
	Lumbriculus	8	1
	Manayunkia	6	1
	Naididae	7	1
	Nigronia	2	1
	Planorbidae	6	1
*	Polycentropus	6	1
	Slavina	7	1
	Tanytarsus	6	1
	Vejdovskyella	4	1

** (EPT organism)* *Taxa Richness:* 31 *Population:* 100

Becks Biotic Index (BBI):	13.00	*%Plecoptera +Trichoptera:*	28.00%
Insect Taxa:	19	*%Mollusca + Amphipoda:*	23.00%
Non-Insect Taxa:	12	*%Diptera - Tanytarsini:*	2.00%
		%Filterers:	39.00%

PMI Rating: **44.77 Fair**

Habitat Analysis: 154 Suboptimal USEPA Protocol

Observations: Water temp: 10.52 C; Cond: 71 umhos; DO: 9.32 mg/L; pH: 5.98 SU

Clarity: clear, cedar; Flow Rate: fast; Width/Depth: 33 ' / 1 - 3'; Substrate: cobble, gravel, sand, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Pipes / Ditches: storm sewers

Other: macrophytes

AMNET Site # **AN0634** ***Stream Name:*** **Three Pond Bk**

Location: **Rt 54; Buena Vista Twp; Atlantic County**

Collection Date: ***11/23/2010*** ***USGS Topo Map:*** **Newtonville**

	Genus	Tolerance Value	Amount
	Procladius	9	37
	Hydrobaenus	8	16
	Lumbriculus	8	8
	Chironomus	10	5
	Enallagma	9	5
	Nematoda	6	5
	Bezzia	6	4
	Psectrocladius	8	3
	Tetragoneuria	8.5	3
	Dicrotendipes	8	2
	Tanytarsus	6	2
	Trichocorixa	9	2
	Eclipidrilus	8	1
	Gomphus	5	1
	Libellulidae	9	1
	Limnodrilus	10	1
*	Ptilostomis	5	1
	Rheopelopia	4	1
	Tramea	9	1
	Tribelos	5	1

** (EPT organism)* *Taxa Richness:* 20 *Population:* 100

Becks Biotic Index (BBI):	1.00	*%Plecoptera +Trichoptera:*	1.00%
Insect Taxa:	16	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	69.00%
		%Filterers:	2.00%

PMI Rating: **59.98** **Good**

Habitat Analysis: 134 Suboptimal USEPA Protocol

Observations: Water temp: 8.67 C; Cond: 97 umhos; DO: 5.08 mg/L; pH: 4.66 SU

Clarity: slightly turbid, cedar; Flow Rate: slow; Width/Depth: 12' / < 1'; Substrate: sand, silt

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, macrophytes

AMNET Site # **AN0635** ***Stream Name:*** **Great Egg Harbor River**

Location: **Rt 559; Weymouth Twp; Atlantic County**

Collection Date: ***11/30/2010*** ***USGS Topo Map:*** **Newtonville**

	Genus	*Tolerance Value*	*Amount*
	Tanytarsus	6	26
*	Brachycentrus	1	10
*	Ceratopsyche	4	9
	Tvetenia	5	8
*	Lepidostoma	1	6
*	Acroneuria	0	5
*	Chimarra	4	4
	Cricotopus	7	4
*	Goera	0	4
	Rheotanytarsus	6	4
*	Taeniopteryx	2	3
*	Agarodes	3	2
*	Capniidae	1	2
*	Ceraclea	3	2
*	Maccaffertium	3	2
	Simulium	6	2
	Corydalus	4	1
*	Eurylophella	4	1
	Hexatoma	2	1
*	Neophylax	3	1
	Oulimnius	4	1
	Rheocricotopus	6	1
	Stenelmis	5	1

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

Becks Biotic Index (BBI):	21.00	*%Plecoptera +Trichoptera:*	48.00%
Insect Taxa:	23	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	0	*%Diptera - Tanytarsini:*	16.00%
		%Filterers:	55.00%

PMI Rating: **69.50 Excellent**

Habitat Analysis: 156 Suboptimal USEPA Protocol

Observations: Water temp: 6.48 C; Cond: 74 umhos; DO: 10.74 mg/L; pH: 5.89 SU

Clarity: clear; Flow Rate: fast; Width/Depth: 75 ' / 1 - 2 '; Substrate: gravel, sand, root mats

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

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

Pipes / Ditches: storm sewers

Other: Weymouth Furnace historical site

AMNET Site # **AN0636** ***Stream Name:*** **UNT to Deep Run**

Location: **Rt 54; Buena Boro; Atlantic County**

Collection Date: ***11/30/2010*** ***USGS Topo Map:*** **Buena**

Genus	*Tolerance Value*	*Amount*
Sphaeriidae	8	77
Limnodrilus	10	9
Lumbriculus	8	8
Prostoma	7	2
Microvelia	6	1
Physella	9.1	1
Placobdella	8	1
Pseudosuccinea	6	1

** (EPT organism)* *Taxa Richness:* 8 *Population:* 100

Becks Biotic Index (BBI):	0.00	*%Plecoptera +Trichoptera:*	0.00%
Insect Taxa:	1	*%Mollusca + Amphipoda:*	79.00%
Non-Insect Taxa:	7	*%Diptera - Tanytarsini:*	0.00%
		%Filterers:	77.00%

PMI Rating: **12.62 Poor**

Habitat Analysis: 136 Suboptimal USEPA Protocol

Observations: Water temp: 13.28 C; Cond: 788 umhos; DO: 9.13 mg/L; pH: 6.61 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 9' / < 1'; Substrate: sand, mud, silt

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Pipes / Ditches: storm sewers

Other: fish, clams, macrophytes, filamentous algae; Gage: 1.0; sewage odor, site is downstream of an STP

AMNET Site # **AN0637** ***Stream Name:*** **Deep Run**

Location: **Rt 559; Hamilton Twp; Atlantic County**

Collection Date: ***11/30/2010*** ***USGS Topo Map:*** **Newtonville**

	Genus	Tolerance Value	Amount
*	Leptophlebiidae	2	27
*	Brachycentrus	1	17
*	Psilotreta	0	7
	Calopteryx	6	4
*	Cheumatopsyche	5	4
*	Maccaffertium	3	4
	Pisidium	6.8	4
*	Hydropsyche	4	3
*	Leuctra	0	3
	Tribelos	5	3
*	Eurylophella	4	2
*	Lepidostoma	1	2
	Microtendipes	7	2
*	Phylocentropus	5	2
	Rheopelopia	4	2
*	Acroneuria	0	1
	Ancyronyx	2	1
	Chrysops	6	1
	Dicranota	3	1
*	Heteroplectron	3	1
	Macronychus	2	1
	Parametriocnemus	5	1
*	Polycentropus	6	1
	Procladius	9	1
*	Pycnopsyche	4	1
	Simulium	6	1
	Stenelmis	5	1
*	Taeniopteryx	2	1
	Tipula	4	1

** (EPT organism)* *Taxa Richness:* 29 *Population:* 100

Becks Biotic Index (BBI):	22.00	*%Plecoptera +Trichoptera:*	43.00%
Insect Taxa:	28	*%Mollusca + Amphipoda:*	4.00%
Non-Insect Taxa:	1	*%Diptera - Tanytarsini:*	13.00%
		%Filterers:	34.00%

PMI Rating: **72.74 Excellent**

Habitat Analysis: 171 Optimal USEPA Protocol

Observations: Water temp: 6.86 C; Cond: 65 umhos; DO: 10.96 mg/L; pH: 5.38 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 25' / 1'; Substrate: gravel, sand, undercut banks

Canopy: partly open; Bank Stability: good; Bank Vegetation: trees, weeds, vines

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes

AMNET Site # **AN0638** ***Stream Name:*** **Mare Run**

Location: **Rt 559; Hamilton Twp; Atlantic County**

Collection Date: ***4/14/2011*** ***USGS Topo Map:*** **Dorothy**

	Genus	*Tolerance Value*	*Amount*
	Unniella	6	27
	Tanytarsus	6	16
	Psectrocladius	8	9
*	Ephemerella	1	5
	Microtendipes	7	4
	Enchytraeidae	10	3
	Nais	8	3
	Procladius	9	3
	Rheopelopia	4	3
	Sialis	4	3
	Tribelos	5	3
	Constempellina	4	2
	Crangonyx	8	2
	Limnodrilus	10	2
	Orthocladius	6	2
	Parametriocnemus	5	2
	Simulium	6	2
*	Cheumatopsyche	5	1
	Enallagma	9	1
	Heterotrissocladius	0	1
*	Isoperla	2	1
*	Mystacides	4	1
*	Pycnopsyche	4	1
	Rheotanytarsus	6	1
	Slavina	7	1

** (EPT organism)* *Taxa Richness:* 25 *Population:* 99

Becks Biotic Index (BBI):	10.00	*%Plecoptera +Trichoptera:*	4.04%
Insect Taxa:	20	*%Mollusca + Amphipoda:*	2.02%
Non-Insect Taxa:	5	*%Diptera - Tanytarsini:*	56.57%
		%Filterers:	24.24%

PMI Rating: **60.19 Good**

Habitat Analysis: 158 Suboptimal USEPA Protocol

Observations: Water temp: 11.16 C; Cond: 54 umhos; DO: 10.06 mg/L; pH: 4.46 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 13' / 3'; Substrate: gravel, sand, silt, root mats, undercut banks

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

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

Other: macrophytes, filamentous algae

AMNET Site # **AN0639** ***Stream Name:*** **Watering Race**

Location: **Rt 50 (Cape May Ave); Hamilton Twp; Atlantic County**

Collection Date: ***4/12/2011*** ***USGS Topo Map:*** **Mays Landing**

	Genus	Tolerance Value	Amount
	Simulium	6	16
	Tribelos	5	14
	Caecidotea	8	10
	Sialis	4	7
	Synurella	4	6
	Limnodrilus	10	5
*	Polycentropus	6	5
	Xylotopus	2	4
*	Leptophlebiidae	2	3
	Orthocladius	6	3
	Rheopelopia	4	3
	Ablabesmyia	8	2
	Bezzia	6	2
	Boyeria	2	2
*	Phylocentropus	5	2
	Polypedilum	6	2
	Psectrocladius	8	2
	Thienemannimyia	6	2
	Ancyronyx	2	1
	Apsectrotanypus	5	1
*	Chimarra	4	1
*	Hydropsyche	4	1
*	Leptophlebia	4	1
*	Molanna	6	1
	Nigronia	2	1
*	Nyctiophylax	5	1
	Pseudolimnophila	2	1
	Stenochironomus	5	1

** (EPT organism)* *Taxa Richness:* 28 *Population:* 100

Becks Biotic Index (BBI):	12.00	*%Plecoptera +Trichoptera:*	11.00%
Insect Taxa:	25	*%Mollusca + Amphipoda:*	6.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	53.00%
		%Filterers:	25.00%

PMI Rating: **65.22** **Excellent**

Habitat Analysis: 137 Suboptimal USEPA Protocol

Observations: Water temp: 14.25 C; Cond: 166 umhos; DO: 5.60 mg/L; pH: 6.26 SU

Clarity: slightly turbid, cedar; Flow Rate: slow; Width/Depth: 21' / 1'; Substrate: sand, mud, root mats, undercut banks

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

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

Other: filamentous algae

AMNET Site # **AN0640** ***Stream Name:*** **Babcock Ck**

Location: **Rt 322; Hamilton Twp; Atlantic County**

Collection Date: ***4/14/2011*** ***USGS Topo Map:*** **Mays Landing**

	Genus	Tolerance Value	Amount
	Simulium	6	20
	Unniella	6	10
	Collembola	10	8
	Enchytraeidae	10	5
*	Leptophlebiidae	2	5
	Nais	8	4
	Pristinella	10	4
	Chrysops	6	3
	Cordulegaster	3	3
	Eukiefferiella	8	3
	Rheopelopia	4	3
*	Hydatophylax	2	2
*	Ironoquia	3	2
*	Leuctra	0	2
	Limnodrilus	10	2
*	Maccaffertium	3	2
	Microtendipes	7	2
	Psectrocladius	8	2
*	Psilotreta	0	2
	Stylodrilus	10	2
	Tubifex	10	2
	Bezzia	6	1
*	Cheumatopsyche	5	1
*	Heteroplectron	3	1
*	Leptophlebia	4	1
	Limnophila	3	1
*	Oecetis	8	1
	Oulimnius	4	1
*	Paraleptophlebia	1	1
*	Polycentropus	6	1
	Polypedilum	6	1
*	Pycnopsyche	4	1
	Tipula	4	1

** (EPT organism)* *Taxa Richness:* 33 *Population:* 100

Becks Biotic Index (BBI):	18.00	*%Plecoptera +Trichoptera:*	13.00%
Insect Taxa:	26	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	7	*%Diptera - Tanytarsini:*	47.00%
		%Filterers:	24.00%

PMI Rating: **65.84** **Excellent**

Habitat Analysis: 167 Optimal USEPA Protocol

Observations: Water temp: 11.09 C; Cond: 124 umhos; DO: 7.76 mg/L; pH: 4.29 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 23' / 1'; Substrate: gravel, sand, snags, root mats

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

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

Other: macrophytes, periphytes

AMNET Site # **AN0640A** ***Stream Name:*** **Babcock Ck**

Location: **Holly St; Hamilton Twp; Atlantic County**

Collection Date: ***4/14/2011*** ***USGS Topo Map:*** **Mays Landing**

	Genus	Tolerance Value	Amount
	Tanytarsus	6	25
	Cnephia	4	10
*	Molanna	6	8
*	Pycnopsyche	4	8
*	Lepidostoma	1	7
	Microtendipes	7	6
	Polypedilum	6	6
	Apsectrotanypus	5	3
	Calopteryx	6	3
*	Leptophlebia	4	3
	Unniella	6	3
	Bezzia	6	2
	Conchapelopia	6	2
*	Heteroplectron	3	2
*	Mystacides	4	2
	Parametriocnemus	5	2
	Sialis	4	2
	Chrysops	6	1
	Enchytraeidae	10	1
	Nigronia	2	1
*	Ostrocerca	2	1
	Procladius	9	1
	Rheotanytarsus	6	1

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

Becks Biotic Index (BBI):	10.00	*%Plecoptera +Trichoptera:*	28.00%
Insect Taxa:	22	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	1	*%Diptera - Tanytarsini:*	36.00%
		%Filterers:	42.00%

PMI Rating: **64.03** **Excellent**

Habitat Analysis: 164 Optimal USEPA Protocol

Observations: Water temp: 11.36 C; Cond: 130 umhos; DO: 6.63 mg/L; pH: 3.94 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 18' / 2'; Substrate: gravel, sand, silt, snags, root mats, undercut banks

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

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

AMNET Site # **AN0640B** *Stream Name:* **Jack Pudding Br**

Location: **Cologne Ave; Hamilton Twp; Atlantic County**

Collection Date: ***4/14/2011*** *USGS Topo Map:* **Mays Landing**

	Genus	Tolerance Value	Amount
	Sphaeriidae	8	14
	Rheocricotopus	6	10
	Dero	10	8
	Caecidotea	8	7
	Dugesia	4	5
	Stenelmis	5	5
*	Caenis	7	4
*	Platycentropus	4	4
	Simulium	6	4
	Dubiraphia	6	3
	Glyptotendipes	10	3
*	Triaenodes	6	3
	Coenagrionidae	9	2
*	Eurylophella	4	2
	Lumbriculidae	8	2
	Nematoda	6	2
*	Oecetis	8	2
	Tanytarsus	6	2
	Ablabesmyia	8	1
	Clinotanypus	8	1
	Cnephia	4	1
	Cricotopus	7	1
	Cryptochironomus	8	1
	Dicrotendipes	8	1
	Gomphus	5	1
	Hydroporus	5	1
	Hyporhygma	6	1
*	Ironoquia	3	1
	Kiefferulus	10	1
	Limnodrilus	10	1
	Microtendipes	7	1
	Paratanytarsus	6	1
	Pristina	8	1
	Thienemannimyia	6	1
	Tribelos	5	1
	Unniella	6	1

** (EPT organism)* *Taxa Richness:* 36 *Population:* 100

Becks Biotic Index (BBI):	5.00	*%Plecoptera +Trichoptera:*	10.00%
Insect Taxa:	28	*%Mollusca + Amphipoda:*	14.00%
Non-Insect Taxa:	8	*%Diptera - Tanytarsini:*	29.00%
		%Filterers:	25.00%

PMI Rating: **51.89 Fair**

Habitat Analysis: 126 Suboptimal USEPA Protocol

Observations: Water temp: 12.12 C; Cond: 227 umhos; DO: 6.56 mg/L; pH: 5.26 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 20' / 2'; Substrate: gravel, sand, mud, silt, root mats, undercut banks

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

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

Other: waterfowl (geese)

AMNET Site # **AN0642** ***Stream Name:*** **Miry Run**

Location: **Thelma Ave; Egg Harbor; Atlantic County**

Collection Date: ***6/7/2011*** ***USGS Topo Map:*** **Mays Landing**

	Genus	Tolerance Value	Amount
	Microtendipes	7	26
	Tribelos	5	15
	Paratanytarsus	6	13
	Tanytarsus	6	13
	Stenelmis	5	6
	Ablabesmyia	8	5
	Rheotanytarsus	6	5
	Ancyronyx	2	2
	Limnodrilus	10	2
	Nais	8	2
	Polypedilum	6	2
	Bezzia	6	1
*	Lepidostoma	1	1
	Limnophila	3	1
	Nilothauma	2	1
*	Phylocentropus	5	1
*	Psilotreta	0	1
	Rheopelopia	4	1
	Sialis	4	1
	Stenochironomus	5	1

** (EPT organism)* *Taxa Richness:* 20 *Population:* 100

Becks Biotic Index (BBI):	9.00	*%Plecoptera +Trichoptera:*	3.00%
Insect Taxa:	18	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	2	*%Diptera - Tanytarsini:*	53.00%
		%Filterers:	45.00%

PMI Rating: **57.77 Good**

Habitat Analysis: 157 Suboptimal USEPA Protocol

Observations: Water temp: 19.04 C; Cond: 46 umhos; DO: 6.20 mg/L; pH: 4.68 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 10' / 1'; Substrate: sand, silt, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: frogs

AMNET Site # **AN0643** ***Stream Name:*** **South River**

Location: **Estelle Ave; Hamilton Twp; Atlantic County**

Collection Date: ***4/12/2011*** ***USGS Topo Map:*** **Dorothy**

	Genus	Tolerance Value	Amount
	Aulodrilus	8	23
	Pisidium	6.8	13
*	Heteroplectron	3	8
	Thienemannimyia	6	8
*	Psilotreta	0	4
	Sialis	4	4
*	Lepidostoma	1	3
	Micropsectra	7	3
	Polypedilum	6	3
	Apsectrotanypus	5	2
	Boyeria	2	2
*	Limnephilidae	4	2
	Microtendipes	7	2
	Pentaneura	6	2
	Procladius	9	2
*	Pycnopsyche	4	2
	Stempellinella	6	2
	Calopteryx	6	1
	Chrysops	6	1
	Cricotopus	7	1
	Cryptochironomus	8	1
	Heterotrissocladius	0	1
*	Leptophlebia	4	1
	Limnodrilus	10	1
*	Lype	2	1
*	Maccaffertium	3	1
	Nematoda	6	1
	Nigronia	2	1
	Psectrocladius	8	1
	Simulium	6	1
	Tribelos	5	1
	Tvetenia	5	1

** (EPT organism)* *Taxa Richness:* 32 *Population:* 100

Becks Biotic Index (BBI):	15.00	*%Plecoptera +Trichoptera:*	20.00%
Insect Taxa:	28	*%Mollusca + Amphipoda:*	13.00%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	27.00%
		%Filterers:	16.00%

PMI Rating: **64.55 Excellent**

Habitat Analysis: 159 Suboptimal USEPA Protocol

Observations: Water temp: 13.03 C; Cond: 114 umhos; DO: 7.20 mg/L; pH: 5.62 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 10' / 1 - 2'; Substrate: sand, mud, snags, undercut banks

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

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

Other: macrophytes, trash, cedar forest

AMNET Site # **AN0644** ***Stream Name:*** **South River**

Location: **Forty Wire Rd; Weymouth Twp; Atlantic County**

Collection Date: ***4/12/2011*** ***USGS Topo Map:*** **Dorothy**

	Genus	*Tolerance Value*	*Amount*
	Tribelos	5	40
*	Heteroplectron	3	6
*	Lepidostoma	1	5
	Polypedilum	6	5
	Aulodrilus	8	4
*	Triaenodes	6	4
*	Agarodes	3	3
*	Maccaffertium	3	3
*	Psilotreta	0	3
	Sialis	4	3
	Microtendipes	7	2
*	Phylocentropus	5	2
	Ablabesmyia	8	1
*	Baetisca	4	1
	Boyeria	2	1
	Brillia	5	1
	Caecidotea	8	1
	Calopteryx	6	1
	Cnephia	4	1
	Coenagrionidae	9	1
	Corixidae	9	1
*	Eurylophella	4	1
*	Habrophlebia	2	1
	Helobdella	8	1
*	Molanna	6	1
	Naididae	7	1
	Pisidium	6.8	1
*	Polycentropus	6	1
	Procladius	9	1
*	Pycnopsyche	4	1
	Stempellinella	6	1
	Thienemannimyia	6	1

** (EPT organism)* *Taxa Richness:* 32 *Population:* 100

Becks Biotic Index (BBI):	14.00	*%Plecoptera +Trichoptera:*	26.00%
Insect Taxa:	27	*%Mollusca + Amphipoda:*	1.00%
Non-Insect Taxa:	5	*%Diptera - Tanytarsini:*	52.00%
		%Filterers:	7.00%

PMI Rating: **72.36 Excellent**

Habitat Analysis: 162 Optimal USEPA Protocol

Observations: Water temp: 14.29 C; Cond: 56 umhos; DO: 8.78 mg/L; pH: 5.49 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 20' / 2 - 3'; Substrate: sand, mud, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: filamentous algae

AMNET Site # **AN0645** ***Stream Name:*** **Stephens Ck**

Location: **11th Ave; Estelle Manor; Atlantic County**

Collection Date: ***6/7/2011*** ***USGS Topo Map:*** **Dorothy**

	Genus	Tolerance Value	Amount
	Rheotanytarsus	6	14
	Polypedilum	6	12
	Tanytarsus	6	10
	Microtendipes	7	8
*	Leuctra	0	7
	Limnodrilus	10	6
	Caecidotea	8	5
*	Brachycentrus	1	4
	Eclipidrilus	8	4
	Boyeria	2	3
	Dicranota	3	3
	Eukiefferiella	8	3
*	Diplectrona	0	2
	Enchytraeidae	10	2
*	Pycnopsyche	4	2
	Rheopelopia	4	2
	Simulium	6	2
	Ablabesmyia	8	1
	Corynoneura	4	1
	Hexatoma	2	1
*	Lepidostoma	1	1
	Nais	8	1
*	Oecetis	8	1
	Optioservus	4	1
	Orthocladius	6	1
	Parametriocnemus	5	1
	Pisidium	6.8	1
	Thienemanniella	6	1

** (EPT organism)* *Taxa Richness:* 28 *Population:* 100

Becks Biotic Index (BBI):	15.00	*%Plecoptera +Trichoptera:*	17.00%
Insect Taxa:	22	*%Mollusca + Amphipoda:*	1.00%
Non-Insect Taxa:	6	*%Diptera - Tanytarsini:*	36.00%
		%Filterers:	41.00%

PMI Rating: **59.63** **Good**

Habitat Analysis: 156 Suboptimal USEPA Protocol

Observations: Water temp: 17.12 C; Cond: 28 umhos; DO: 6.85 mg/L; pH: 5.22 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 8' / < 1'; Substrate: gravel, sand, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: rural, forested (Maple Lake WMA)

Other: fish, frogs, salamander

AMNET Site # **AN0646** ***Stream Name:*** **Stephens Ck**

Location: **Rt 50; Estelle Manor; Atlantic County**

Collection Date: ***6/7/2011*** ***USGS Topo Map:*** **Mays Landing**

	Genus	*Tolerance Value*	*Amount*
	Musculium	5	18
*	Hydropsyche	4	17
	Polypedilum	6	15
	Manayunkia	6	13
	Stenelmis	5	11
*	Maccaffertium	3	4
*	Oecetis	8	4
*	Brachycentrus	1	2
	Dugesia	4	2
	Ischnura	9	2
	Lumbriculus	8	2
	Oulimnius	4	2
*	Acerpenna	4	1
*	Ceraclea	3	1
	Cricotopus	7	1
	Hemerodromia	6	1
	Nematoda	6	1
	Simulium	6	1
	Stylaria	8	1
	Tipula	4	1

** (EPT organism)* *Taxa Richness:* 20 *Population:* 100

Becks Biotic Index (BBI):	9.00	*%Plecoptera +Trichoptera:*	24.00%
Insect Taxa:	14	*%Mollusca + Amphipoda:*	18.00%
Non-Insect Taxa:	6	*%Diptera - Tanytarsini:*	19.00%
		%Filterers:	38.00%

PMI Rating: **49.28 Fair**

Habitat Analysis: 147 Suboptimal USEPA Protocol

Observations: Water temp: 23.39 C; Cond: 31 umhos; DO: 8.36 mg/L; pH: 6.20 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 12' / < 1'; Substrate: cobble, gravel, sand, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: rural

Downstream of Impoundment: pond

Other: fish, eels, periphytes

AMNET Site # **AN0647** ***Stream Name:*** **Gibson Ck**

Location: **Rt 50; Estelle Manor; Atlantic County**

Collection Date: ***6/7/2011*** ***USGS Topo Map:*** **Tuckahoe**

	Genus	Tolerance Value	Amount
	Simulium	6	21
*	Hydroptila	6	11
*	Oecetis	8	11
*	Leuctra	0	7
*	Maccaffertium	3	7
*	Lepidostoma	1	5
	Calopteryx	6	4
	Psectrocladius	8	4
*	Psilotreta	0	4
	Rheotanytarsus	6	4
	Rheopelopia	4	3
	Tvetenia	5	3
*	Eurylophella	4	2
*	Heteroplectron	3	2
	Microtendipes	7	2
*	Mystacides	4	2
	Nigronia	2	2
	Sperchopsis	5	2
	Boyeria	2	1
	Enchytraeidae	10	1
	Orthocladius	6	1
	Tanytarsus	6	1

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

Becks Biotic Index (BBI):	13.00	*%Plecoptera +Trichoptera:*	42.00%
Insect Taxa:	21	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	1	*%Diptera - Tanytarsini:*	34.00%
		%Filterers:	28.00%

PMI Rating: **70.45** **Excellent**

Habitat Analysis: 177 Optimal USEPA Protocol

Observations: Water temp: 14.88 C; Cond: 27 umhos; DO: 7.14 mg/L; pH: 4.73 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 10' / 2'; Substrate: gravel, sand, snags, root mats, undercut banks

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # **AN0648** ***Stream Name:*** **Tuckahoe River**

Location: **Cumberland Ave (Rt637); Estelle Manor; Atlantic & Cumberland County**

Collection Date: ***5/2/2011*** ***USGS Topo Map:*** **Tuckahoe**

	Genus	*Tolerance Value*	*Amount*
	Microtendipes	7	10
*	Eurylophella	4	8
	Tubifex	10	7
*	Hydroptila	6	5
	Nais	8	5
	Rheopelopia	4	5
	Tanytarsus	6	5
	Caecidotea	8	4
*	Mystacides	4	4
	Stenelmis	5	4
	Crangonyx	8	3
	Enallagma	9	3
	Psectrocladius	8	3
	Rheocricotopus	6	3
	Stylaria	8	3
	Ablabesmyia	8	2
	Dicrotendipes	8	2
	Ferrissia	7	2
	Hagenius	3	2
	Nematoda	6	2
*	Oecetis	8	2
*	Polycentropus	6	2
	Polypedilum	6	2
	Argia	6	1
*	Caenis	7	1
	Enchytraeidae	10	1
	Hydra	5	1
*	Hydropsyche	4	1
*	Leptophlebia	4	1
*	Maccaffertium	3	1
	Nanocladius	3	1
	Pentaneura	6	1
*	Pycnopsyche	4	1
	Stylodrilus	10	1
	Tribelos	5	1

** (EPT organism)* *Taxa Richness:* 35 *Population:* 100

Becks Biotic Index (BBI):	9.00	*%Plecoptera +Trichoptera:*	15.00%
Insect Taxa:	25	*%Mollusca + Amphipoda:*	5.00%
Non-Insect Taxa:	10	*%Diptera - Tanytarsini:*	30.00%
		%Filterers:	18.00%

PMI Rating: **55.15 Fair**

Habitat Analysis: 164 Optimal USEPA Protocol

Observations: Water temp: 15.83 C; Cond: 40 umhos; DO: 7.08 mg/L; pH: 4.74 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 18' / 3'; Substrate: gravel, sand

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

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

Other: macrophytes, filamentous algae; site adj to camp ground

AMNET Site # **AN0649** ***Stream Name:*** **Tuckahoe River**

Location: **Rt 49 (Hunters Mill); Estelle Manor; Atlantic , Cape May & Cumberland County**

Collection Date: ***5/2/2011*** ***USGS Topo Map:*** **Tuckahoe**

	Genus	Tolerance Value	Amount
	Cladotanytarsus	7	15
	Psectrocladius	8	12
*	Eurylophella	4	7
	Tanytarsus	6	6
	Optioservus	4	5
	Peltodytes	5	5
	Enchytraeidae	10	4
	Bezzia	6	3
	Cryptochironomus	8	3
*	Mystacides	4	3
	Apsectrotanypus	5	2
	Argia	6	2
	Chironomus	10	2
	Hydroporus	5	2
	Nais	8	2
	Nematoda	6	2
*	Oecetis	8	2
	Stylaria	8	2
	Ancyronyx	2	1
	Caecidotea	8	1
*	Ceraclea	3	1
	Corynoneura	4	1
	Gomphus	5	1
*	Helicopsyche	3	1
	Heterotrissocladius	0	1
	Hexatoma	2	1
*	Hydropsyche	4	1
*	Hydroptila	6	1
*	Lepidostoma	1	1
*	Leuctra	0	1
	Microtendipes	7	1
	Orthocladius	6	1
	Polypedilum	6	1
	Procladius	9	1
*	Psilotreta	0	1
	Stenelmis	5	1
	Stenochironomus	5	1
	Tribelos	5	1
	Unniella	6	1

** (EPT organism)* *Taxa Richness:* 39 *Population:* 100

Becks Biotic Index (BBI):	17.00	*%Plecoptera +Trichoptera:*	12.00%
Insect Taxa:	34	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	5	*%Diptera - Tanytarsini:*	32.00%
		%Filterers:	23.00%

PMI Rating: **67.22** **Excellent**

Habitat Analysis: 168 Optimal USEPA Protocol

Observations: Water temp: 14.78 C; Cond: 39 umhos; DO: 7.98 mg/L; pH: 4.45 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 20' / 2'; Substrate: gravel, sand, mud, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Downstream of Impoundment: ponded area

Other: fish, macrophytes, filamentous algae; flooded wetlands upstream

AMNET Site # **AN0650** *Stream Name:* **Tuckahoe River**

Location: **Rt 49 (Head of River); Estelle Manor; Atlantic & Cape May County**

Collection Date: *5/2/2011* *USGS Topo Map:* **Tuckahoe**

	Genus	Tolerance Value	Amount
	Orthocladius	6	43
	Psectrocladius	8	7
	Caecidotea	8	5
	Ablabesmyia	8	4
	Crangonyx	8	4
*	Eurylophella	4	4
*	Hydroptila	6	4
	Tanytarsus	6	4
	Tribelos	5	4
	Ferrissia	7	3
	Nilotanypus	6	3
	Rheopelopia	4	3
	Unniella	6	3
	Argia	6	1
	Dromogomphus	4	1
	Enchytraeidae	10	1
*	Leuctra	0	1
	Limnodrilus	10	1
*	Mystacides	4	1
*	Phylocentropus	5	1
	Procladius	9	1
	Stenelmis	5	1

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

Becks Biotic Index (BBI):	6.00	*%Plecoptera +Trichoptera:*	7.00%
Insect Taxa:	17	*%Mollusca + Amphipoda:*	7.00%
Non-Insect Taxa:	5	*%Diptera - Tanytarsini:*	68.00%
		%Filterers:	5.00%

PMI Rating: **61.83 Good**

Habitat Analysis: 167 Optimal USEPA Protocol

Observations: Water temp: 15.32 C; Cond: 45 umhos; DO: 7.13 mg/L; pH: 4.57 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 35' / 4'; Substrate: sand, mud, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: fish, eels, filamentous algae; USGS gage: 2.80

AMNET Site # **AN0651** ***Stream Name:*** **McNeals Br**

Location: **Rt 666 (Cape May Ave); Estelle Manor; Atlantic County**

Collection Date: ***5/2/2011*** ***USGS Topo Map:*** **Tuckahoe**

	Genus	Tolerance Value	Amount
	Microtendipes	7	15
*	Hydroptila	6	14
	Coenagrionidae	9	7
	Psectrocladius	8	7
	Thienemannimyia	6	7
	Caecidotea	8	6
	Cnephia	4	4
	Endochironomus	10	4
*	Molanna	6	4
	Ablabesmyia	8	3
*	Eurylophella	4	3
	Tanytarsus	6	3
	Argia	6	2
*	Lepidostoma	1	2
	Pagastiella	6	2
*	Pycnopsyche	4	2
	Stenelmis	5	2
*	Agarodes	3	1
	Apsectrotanypus	5	1
*	Banksiola	2	1
	Boyeria	2	1
	Cricotopus	7	1
*	Leuctra	0	1
	Lumbriculus	8	1
*	Phylocentropus	5	1
	Polypedilum	6	1
	Procladius	9	1
	Stenochironomus	5	1
*	Triaenodes	6	1
	Tribelos	5	1

** (EPT organism)* *Taxa Richness:* 30 *Population:* 100

Becks Biotic Index (BBI):	10.00	*%Plecoptera +Trichoptera:*	27.00%
Insect Taxa:	28	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	2	*%Diptera - Tanytarsini:*	48.00%
		%Filterers:	23.00%

PMI Rating: **70.42** **Excellent**

Habitat Analysis: 168 Optimal USEPA Protocol

Observations: Water temp: 13.78 C; Cond: 50 umhos; DO: 6.54 mg/L; pH: 4.35 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 15' / 1 - 2'; Substrate: gravel, sand

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes, periphytes, phragmites; creosote odor

AMNET Site # **AN0652** ***Stream Name:*** **Mill Ck**

Location: **Rt 557; Upper Twp; Cape May County**

Collection Date: ***5/2/2011*** ***USGS Topo Map:*** **Tuckahoe**

	Genus	*Tolerance Value*	*Amount*
	Tanytarsus	6	36
	Rheopelopia	4	15
	Tribelos	5	14
	Apsectrotanypus	5	8
	Stenochironomus	5	5
	Procladius	9	4
	Simulium	6	3
	Eclipidrilus	8	2
	Enchytraeidae	10	2
*	Lype	2	2
	Rheotanytarsus	6	2
	Ablabesmyia	8	1
	Bezzia	6	1
*	Molanna	6	1
	Nigronia	2	1
	Orthocladius	6	1
	Polypedilum	6	1
	Thienemanniella	6	1

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

Becks Biotic Index (BBI):	3.00	*%Plecoptera +Trichoptera:*	3.00%
Insect Taxa:	16	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	2	*%Diptera - Tanytarsini:*	54.00%
		%Filterers:	41.00%

PMI Rating: **54.50 Fair**

Habitat Analysis: 159 Suboptimal USEPA Protocol

Observations: Water temp: 14.53 C; Cond: 101 umhos; DO: 8.64 mg/L; pH: 4.34 SU

Clarity: clear, cedar; Flow Rate: moderate; Width/Depth: 15' / 1 - 3 '; Substrate: gravel, sand, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # **AN0765** ***Stream Name:*** **West Ck**

Location: **Rt 550; Maurice River Twp; Cumberland County**

Collection Date: ***6/20/2011*** ***USGS Topo Map:*** **Port Elizabeth**

	Genus	*Tolerance Value*	*Amount*
	Nematoda	6	31
	Tanytarsus	6	27
	Cryptotendipes	6	6
	Pelocoris	8	6
	Nais	8	5
	Polypedilum	6	5
	Limnodrilus	10	4
	Ablabesmyia	8	3
	Peltodytes	5	2
	Argia	6	1
	Chironomus	10	1
	Curculionidae	7	1
	Labrundinia	7	1
	Lestes	9	1
	Orthocladiinae	5	1
	Pentaneura	6	1
*	Phylocentropus	5	1
	Procladius	9	1
	Stylaria	8	1
	Tribelos	5	1

** (EPT organism)* *Taxa Richness:* 20 *Population:* 100

Becks Biotic Index (BBI):	0.00	*%Plecoptera +Trichoptera:*	1.00%
Insect Taxa:	16	*%Mollusca + Amphipoda:*	0.00%
Non-Insect Taxa:	4	*%Diptera - Tanytarsini:*	20.00%
		%Filterers:	28.00%

PMI Rating: **46.11 Fair**

Habitat Analysis: 146 Suboptimal USEPA Protocol

Observations: Water temp: 21.56 C; Cond: 46 umhos; DO: 2.70 mg/L; pH: 4.28 SU

Clarity: slightly turbid, dark cedar; Flow Rate: slow; Width/Depth: 25' / 2 - 3'; Substrate: gravel, sand, snags, root mats

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Downstream of Impoundment: Hoffmans Mill pond

Other: frogs, macrophytes

AMNET Site # **AN0766** ***Stream Name:*** **Savages Run (East Ck)**

Location: **Sunset Rd; Dennis Twp; Cape May County**

Collection Date: ***6/8/2011*** ***USGS Topo Map:*** **Heislerville**

	Genus	*Tolerance Value*	*Amount*
	Microtendipes	7	48
	Polypedilum	6	13
	Stempellinella	6	12
	Tanytarsus	6	7
*	Phylocentropus	5	5
	Procladius	9	4
	Rheopelopia	4	3
	Ablabesmyia	8	2
	Musculium	5	2
	Phaenopsectra	7	2
	Bezzia	6	1
	Xylotopus	2	1

** (EPT organism)* *Taxa Richness:* 12 *Population:* 100

Becks Biotic Index (BBI):	2.00	*%Plecoptera +Trichoptera:*	5.00%
Insect Taxa:	11	*%Mollusca + Amphipoda:*	2.00%
Non-Insect Taxa:	1	*%Diptera - Tanytarsini:*	74.00%
		%Filterers:	62.00%

PMI Rating: **53.65 Fair**

Habitat Analysis: 148 Suboptimal USEPA Protocol

Observations: Water temp: 16.34 C; Cond: 63 umhos; DO: 7.96 mg/L; pH: 5.06 SU

Clarity: clear; Flow Rate: slow; Width/Depth: 16' / 1 - 2'; Substrate: gravel, sand, mud, silt

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

Stream Gradient: Low Gradient Stream; Land Uses: forested

Other: macrophytes

AMNET Site # **AN0769** ***Stream Name:*** **Old Robins Br**

Location: **Beaver Causeway; Dennis Twp; Cape May County**

Collection Date: ***6/8/2011*** ***USGS Topo Map:*** **Woodbine**

Genus	*Tolerance Value*	*Amount*
Caecidotea	8	39
Libellulidae	9	23
Psectrocladius	8	10
Hydroporus	5	9
Chironomus	10	7
Gammarus	6	6
Bezzia	6	1
Coenagrionidae	9	1
Collembola	10	1
Matus	5	1
Pachydiplax	10	1
Polypedilum	6	1

** (EPT organism)* *Taxa Richness:* 12 *Population:* 100

Becks Biotic Index (BBI):	0.00	*%Plecoptera +Trichoptera:*	0.00%
Insect Taxa:	9	*%Mollusca + Amphipoda:*	6.00%
Non-Insect Taxa:	3	*%Diptera - Tanytarsini:*	19.00%
		%Filterers:	0.00%

PMI Rating: **47.14 Fair**

Habitat Analysis: 164 Optimal USEPA Protocol

Observations: Water temp: 24.19 C; Cond: 1174 umhos; DO: 3.84 mg/L; pH: 4.55 SU
Clarity: slightly turbid; Flow Rate: slow; Width/Depth: 9' / 2'; Substrate: silt
Canopy: mostly open; Bank Stability: fair; Bank Vegetation: trees, shrubs
Stream Gradient: Low Gradient Stream; Land Uses: forested

AMNET Site # **AN0771** ***Stream Name:*** **Fishing Ck**

Location: **Rt 47; Middle Twp; Cape May County**

Collection Date: ***6/20/2011*** ***USGS Topo Map:*** **Rio Grande**

Genus	*Tolerance Value*	*Amount*
Paratanytarsus	6	38
Dicrotendipes	8	15
Nais	8	12
Tanytarsus	6	8
Stylaria	8	7
Slavina	7	4
Polypedilum	6	3
Cryptochironomus	8	2
Enallagma	9	2
Limnodrilus	10	2
Chironomus	10	1
Cladopelma	8	1
Glyptotendipes	10	1
Helobdella	8	1
Procladius	9	1
Prostoma	7	1
Stempellinella	6	1

** (EPT organism)* *Taxa Richness:* 17 *Population:* 100

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

Hilsenhoff Biotic Index (HBI): 7.06 *%Clingers:* 0.00%

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

CPMI Rating: **6 Fair**

Habitat Analysis: 132 Suboptimal USEPA Protocol

Observations: Water temp: 22.0 C; Cond: 216 umhos; DO: 4.77 mg/L; pH: 6.16 SU

Clarity: clear, cedar; Flow Rate: slow; Width/Depth: 12' /< 1'; Substrate: gravel, sand, snags, root mats

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

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

Downstream of Impoundment: lake

Other: fish, macrophytes, filamentous algae; adj to pumping station