NJ Department of Environmental Protection
Water Monitoring and Standards

AMBIENT LAKES MONITORING NETWORK

Panel 4

Volume 1 of 2

Sunfish Pond, Hardwick Twp., Warren County

December 2011

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EXECUTIVE SUMMARY

The NJ Department of Environmental Protection (NJDEP) initiated a renewed Ambient Lake Monitoring Network in 2005. This initiative, which was undertaken by Water Monitoring and Standards' (WM&S) Bureau of Freshwater & Biological Monitoring (BFBM), was in response to deficiencies cited in a 1999 USEPA Office of Inspector General's (OIG) Audit Report [14] of the state's water monitoring programs, recommendations from EPA's "Elements of a State Water Monitoring and Assessment Program" (March 2003) [11], as well as needs identified by the Department's Watershed Management and Water Quality Standards and Assessment programs. Additional monitoring and assessment is performed in support of USEPA's National Lake Assessment (NLA).

The network consists of 200 lakes, divided into five Panels of 40 lakes each. Lakes were selected probabilistically, using EPA's Generalized Random Tessellation Stratified (GRTS) method, in a manner that equalizes selections over all Omerik Level III Ecoregions [9], of which there are six (6) in the state. The GRTS survey design is a plan for selecting the sample area appropriately so that it provides valid data for developing accurate estimates for the entire population or area of interest that meets specific design criteria. In this case, the population is New Jersey's lakes defined as: a permanent body of water man made or natural of at least two (2) hectares in size, and a depth of approximately one meter at the deepest point measured; potable water reservoirs with active "draw downs" are excluded. These Statewide probabilistic estimates will be addressed in a separate report.

Data is collected to evaluate the trophic state of selected lakes and assess the ecological health of the State's lentic water resources. Forty lakes (designated as a Panel) per year are monitored in order to develop baseline, and eventually statewide status and trend information for New Jersey lakes. Water quality monitoring takes place at up to three in-lake stations that best represent the limnological aspects of the lake. Sites are sampled three times per year (spring, summer, and fall).

In addition to evaluating the ecological health of lakes statewide, information from this monitoring network is used to assess the conditions of individual lakes in the New Jersey Integrated Water Quality Monitoring and Assessment Report (Integrated Report) [6] (see http://www.state.nj.us/dep/wms/bwqsa/generalinfo.html). The methods used to collect, analyze, and interpret data for the Integrated Report are outlined in the Integrated Water Quality Monitoring and Assessment Methods document.[7] This Methods Document provides an objective and scientifically sound assessment methodology. The Methods require samples for *in-lake* chemistry to be collected just below the *surface* (generally at a one-meter depth if the lake is sufficiently deep). Lakes can have multiple in-lake sampling locations, depending on their size. Each sampling location within a lake is considered a "subsample". Lake subsamples that do not comply with the applicable numeric SWQS criteria are considered excursions and are reviewed to determine if the excursion is within the margin of error of the analytical method or can be attributed to natural conditions or transient events. Excursions occurring at multiple locations or subsamples within a lake on the same date are considered a "single excursion".

For lakes there are three parameters with numeric SWQS criteria:

- **Total Phosphorus (TP) > 0.05 mg/L**

- **Dissolved Oxygen (DO) < 4.0mg/l**
  (There is also a daily average criterion of 5mg/l, which is not applicable to the sampling methods used for this monitoring network)

- **pH 3.5 - 8.5 Standard Units (SU)***
  *6.5 – 8.5 SU for lakes within waters designated as FW2 waters in the Upper Delaware, Upper Raritan, Passaic, and Wallkill River Basins.
  *4.5 - 7.5 SU for lakes within FW2 waters in the Atlantic, Lower Delaware, and Lower Raritan River basins.
  *3.5 - 5.5 SU for lakes designated as PL waters.

The lake condition is evaluated along with other water quality information at the subwatershed level (HUC14) and presented in the Integrated Water Quality Monitoring and Assessment Report.

In 2008, 40 Panel 4 lakes were sampled. Of these 40 lakes, 15 had an excursion from the New Jersey Water Quality Criterion [7] TP from at least one in-lake station. Very low dissolved oxygen levels (the SWQC of < 4.0mg/l) were observed in four lakes in the oligotrophic-through-eutrophic range during the summer months. Elevated pH levels showed a strong correlation to algal concentrations. Lakes with higher pH measurements also had higher chlorophyll "a" concentrations, thus more likely to be in a eutrophic state. See Volume 2 of this report for all raw data results.

Carlson's Trophic State Index (TSI) is used as the basis for estimating the trophic status of New Jersey Lakes. Trophic status ranges from oligotrophic to hyper-eutrophic, and is viewed as a continuum on this scale. Carlson's TSI is based on the interrelationships of Total Phosphorus (TP), chlorophyll "a", and Secchi disk transparency. Seven (7) lakes had a TSI rating of Oligotrophic for at least one station and one season. In six of these lakes (Greenwood Pond, Stephen Lake, Sycamore Lake, Ravine Lake, Paulina Lake, Lebanon Lake) the oligotrophic rating occurred in the spring and/or fall. One lake, Sunfish Pond, had an Oligotrophic rating for at least one station each season.

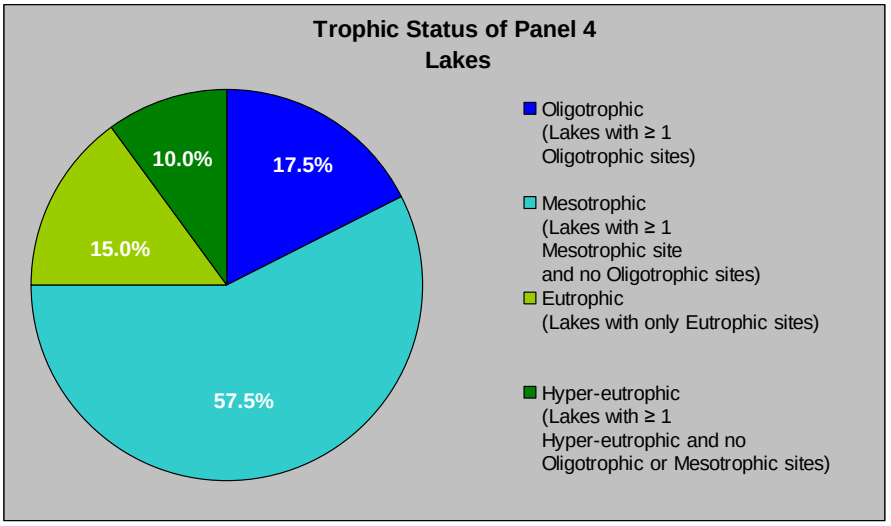

Figure ES1. Panel 4 Summary of Trophic Status.

One lake, Hudson Lake, was mesotrophic for all seasons sampled. All other lakes sampled had at least one site during one season that a TSI rating of eutrophic or hyper-eutrophic.

Data and assessments from Panel 4 of sampling serve as a continuing, but preliminary, estimate of the statewide status of New Jersey lakes (Figure ES1). As in previous Panels, lakes exhibiting periods of oligotrophy were limited and no lakes were oligotrophic for all three seasons. This demonstrates that lakes assessed for the Network to date (Panel 1, Panel 2, Panel 3, and Panel 4) are in, or may be accelerating toward, an entirely eutrophic state Figure ES2 provides a comparison of results from Panel 1 and Panel 2 lakes. All lakes sampled to date are shown in Figure ES3.

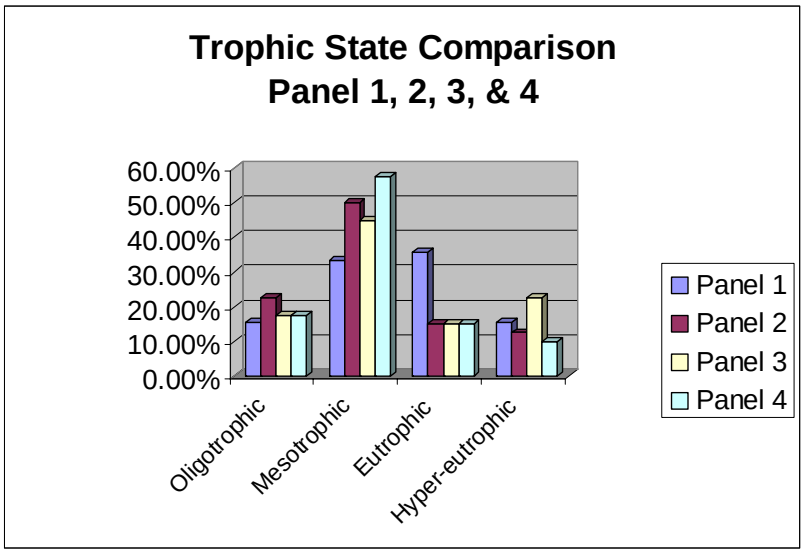

Figure ES2. Comparison of Panel 1 - Panel 4 Lakes

Information

Additional information on the Ambient Lakes Monitoring Program can be obtained from WM&S' Bureau of Freshwater & Biological Monitoring by calling 609-292-0427 or visiting its website at: 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.

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: www.epa.gov/storet.

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

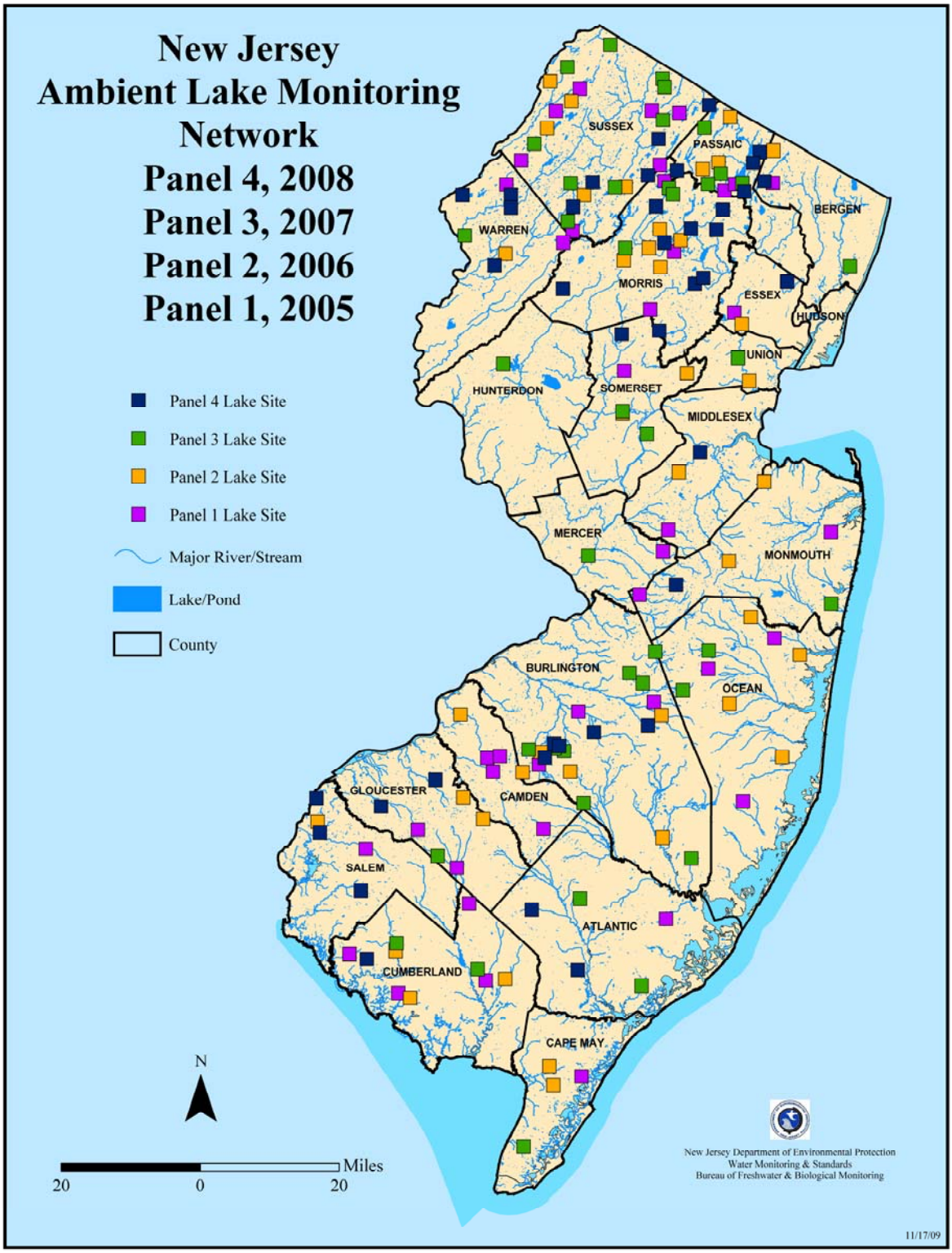

Figure ES3. Panel 1, 2, 3 and 4 Lakes

INTRODUCTION

Background

In 2003, Water Monitoring & Standard's (WM&S') Bureau of Freshwater and Biological Monitoring (BFBM) formed an Ambient Lake Water Quality Monitoring Workgroup (Lake Workgroup). The workgroup was tasked with developing a monitoring network design optimized to address the ambient lake assessment deficiencies cited in the 1999 USEPA Office of Inspector General's (OIG) Audit Report, [14] the recommendations from EPA's "Elements of a State Water Monitoring and Assessment Program" [11], as well as needs identified by the Department's Watershed Management and Water Quality Standards and Assessment programs. Of particular concern to the EPA was that the state needed a network design that would capture the status of lake water quality statewide – a task the EPA felt could only be accomplished by a probabilistically designed network. Members of the Workgroup included representatives from WM&S/BFBM, the Bureau of Environmental Analysis and Restoration (BEAR) in the Division of Watershed Management (which is responsible for developing TMDLs); WM&S' Bureau of Water Quality Standards and Assessment, responsible for preparing the Integrated Water Quality Monitoring and Assessment Report[6]; and the USEPA Region 2 Division of Environmental Science and Assessment.

New Jersey Ambient Lake Monitoring Network

As a result of the recommendations of the Lake Workgroup NJDEP initiated a renewed ambient lake monitoring network in 2005. The target population was identified as all lakes, man-made or natural, wholly or partially within New Jersey's political boundaries, excepting water supply reservoirs being actively managed for potable water supply. Water supply reservoirs are subject to various pumping and water exchange operations, which do not represent the statewide status of New Jersey lakes and were, therefore, excluded. In order to maximize the applicability of the monitoring for statewide assessments, a probabilistically-based design was selected for the renewed network. Towards that end, lakes were selected randomly, using EPA's Generalized Random Tessellation Stratified (GRTS) method, but in a manner that equalizes selections over all Omerik Level III Ecoregions [9], of which there are six (6) in the state. Additional design stratifications include defining a lake as a permanent body of water of at least two (2) hectares in size, and a depth of approximately one meter at the deepest point measured; potable water reservoirs with active "draw downs" are excluded.

The final probabilistic network consists of 200 lakes divided into five Panels of 40 lakes, each Panel sampled once every five (5) years; each lake sampled 3 times per year, during the Spring, Summer and Fall. Because lakes were chosen using the GRTS method, data from the 200 lakes in the Network can be used to develop accurate probabilistic estimates for all lakes in New Jersey which meet the network design stratifications. These Statewide probabilistic estimates will be addressed in a separate report. Table 1 lists the active sites sampled for Panel 4. Figure 1 shows sites sampled as of this report. Additional monitoring and assessment is performed in support of USEPA's National Lake Assessment (NLA).

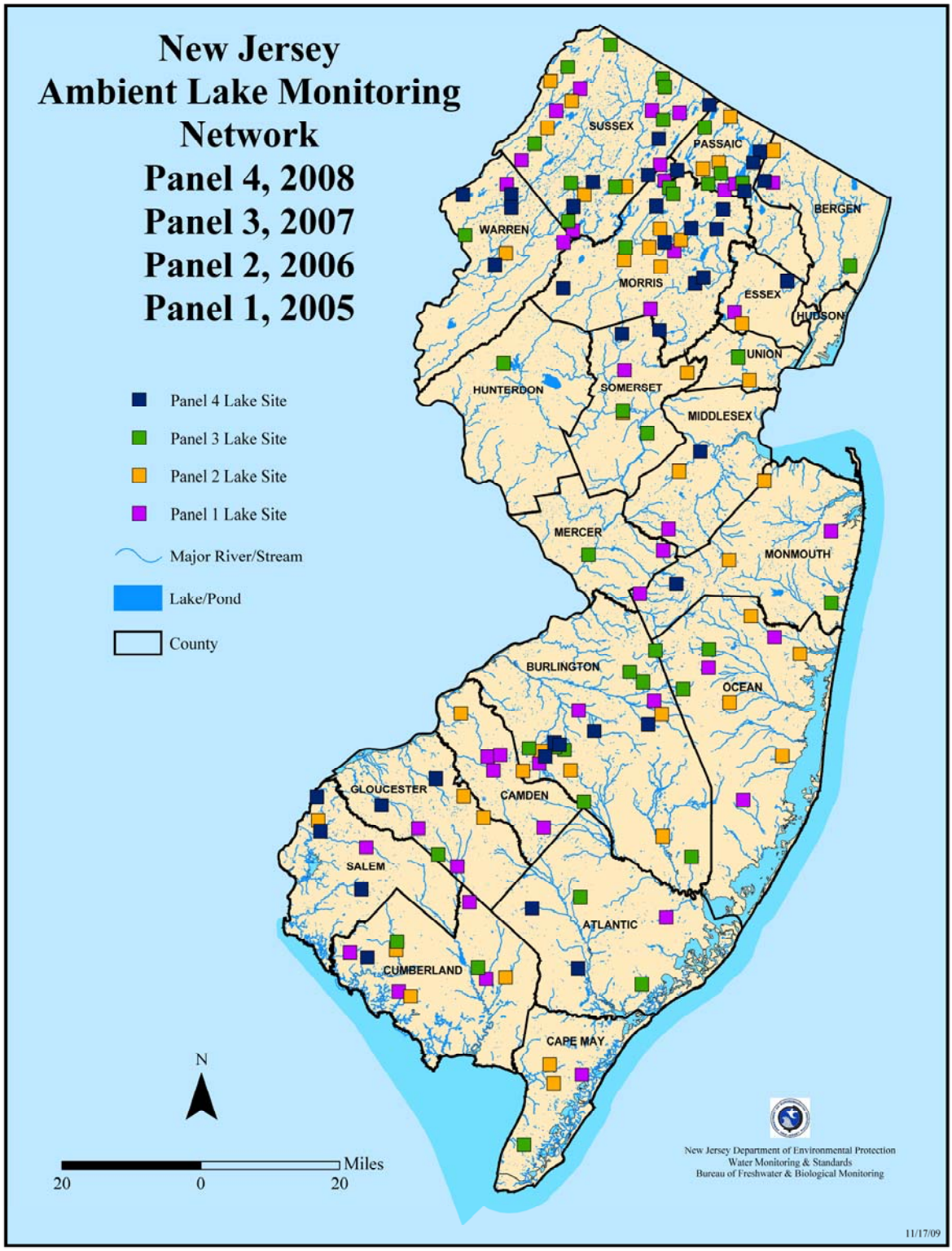

Figure 1. Panel 1, 2, 3 and 4 Lakes

Table 1.
Panel 4, 2008 Active Sites

SITEID	NAME	COUNTY	MUNCIPALITY
NJW04459-148	Basgalore Lake	GLOUCESTER	WOOLWICH TWP
NJW04459-144	Bee Meadow Pond	MORRIS	HANOVER TWP
NJW04459-132	Birchwood Lake	BURLINGTON	MEDFORD TWP
NJW04459-147	Clarks Pond	ESSEX	BLOOMFIELD TWP
NJW04459-159	Crystal Lake	BERGEN	OAKLAND BORO
NJW04459-264	Dixons Pond	MORRIS	BOONTON TWP
NJW04459-153	DoD Lake	SALEM	OLDMANS TWP
NJW04459-160	East Lake	MORRIS	KINNELON BORO
NJW04459-129	Eden Mill Pond	MORRIS	HANOVER TWP
NJW04459-137	Erskine Lake	PASSAIC	RINGWOOD BORO
NJW04459-261	Foxs Pond	MORRIS	ROCKAWAY BORO
NJW04459-121	Greenwood Pond	PASSAIC	WEST MILFORD TWP
NJW04459-156	Hudson Lake	SALEM	CARNEYS POINT TWP
NJW04459-267	Iliff Lake	SUSSEX	ANDOVER TWP
NJW04459-158	Koehler Pond	MORRIS	WASHINGTON TWP
NJW04459-269	Kohout Lake	SUSSEX	VERNON TWP
NJW04459-155	Lebanon Lake	BURLINGTON	WOODLAND TWP
NJW04459-258	Longwood Lake	MORRIS	JEFFERSON TWP
NJW04459-151	Lower Aetna Lake	BURLINGTON	MEDFORD LAKES BORO
NJW04459-131	Lower Twin Lake	PASSAIC	POMPTON LAKES BORO
NJW04459-268	Monongahela Lake	GLOUCESTER	DEPTFORD TWP
NJW04459-262	Mountain Lake	WARREN	LIBERTY TWP
NJW04459-270	Old Forge Lake	BURLINGTON	SOUTHAMPTON TWP
NJW04459-127	Osborn Pond	SOMERSET	BERNARDS TWP
NJW04459-150	Pancoast Mill Pond	ATLANTIC	BUENA VISTA TWP
NJW04459-154	Paulina Lake	WARREN	BLAIRSTOWN TWP
NJW04459-135	Ravine Lake	SOMERSET	PEAPACK GLADSTONE BORO
NJW04459-143	Sheppards Mill Pond	CUMBERLAND	GREENWICH TWP
NJW04459-134	Silver Lake	SUSSEX	HARDYSTON TWP
NJW04459-265	Skyline Lakes	PASSAIC	RINGWOOD BORO
NJW04459-139	Sparta Lake	SUSSEX	SPARTA TWP
NJW04459-122	Spring Valley Lake	WARREN	HARDWICK TWP
NJW04459-123	Stephen Lake	ATLANTIC	ESTELL MANOR CITY
NJW04459-128	Stone Tavern	MONMOUTH	UPPER FREEHOLD TWP
NJW04459-142	Sunfish Pond	WARREN	HARDWICK TWP
NJW04459-130	Sycamore Lake	SALEM	ALLOWAY TWP
NJW04459-263	Turtle Pond	SUSSEX	GREEN TWP
NJW04459-133	Valhalla Lake	MORRIS	MONTVILLE TWP
NJW04459-138	Weston Mill Pond	MIDDLESEX	EAST BRUNSWICK TWP
NJW04459-149	Wilderness Lake	BURLINGTON	MEDFORD TWP

Lake Eutrophication (aging) Process

Lakes are frequently divided into two (2) types: oligotrophic and eutrophic. These two types represent the extreme ends of a lake aging (eutrophication) continuum. Some typical characteristics of an oligotrophic lake are greater depth, adequate concentrations of dissolved oxygen from surface to bottom, low nutrients, low quantities of phytoplankton (measured as chlorophyll "a"), little aquatic plant growth, and good water clarity. Eutrophic lakes, in contrast, are usually shallow, have low dissolved oxygen levels, are rich in nutrients, have persistent aquatic plant and phytoplankton growth, and decreased water clarity (usually due to an increase of phytoplankton levels).

Generally, as the oligotrophic lake ages, it gradually accumulates sediment and nutrients and moves toward and eventually into the eutrophic stage. There is a transitional stage between the oligotrophic and eutrophic conditions and this has been labeled the mesotrophic condition. Lakes having a hyper-eutrophic condition have little or no oxygen in the bottom layers. They have extreme algae and aquatic plant problems. The lake aging process is a natural process that commonly occurs over thousands of years. This natural aging process is often accelerated, however, by what has been termed *cultural eutrophication* (resulting from human activities). Unlike natural eutrophication, cultural eutrophication can accelerate oligotrophic type lakes into the eutrophic conditions in a matter of a human generation or two.

To measure the trophic state of the lakes sampled, Carlson's Trophic State Indices (TSI), calculated using Total Phosphorus concentrations, Chlorophyll-a concentrations, and Secchi disk transparency measurements, were selected as the indicator of choice. [3]

METHODS and MATERIALS

General Procedures: Sampling was performed on a given lake when there had not been any rainfall within 24 hours prior to sampling. This is to ensure that the sample is representative of the overall condition of the lake and not the condition of the lake only after a rain event. Sample volumes and container types are as described in the respective analytical laboratory's "Quality Manual" and/ or SOP, which have been approved by the Office of Quality Assurance (OQA) and are on file with that Office as part of the laboratory's certification application (copies provided upon request).

Sample Equipment Cleaning: Prior to field sampling, all sample collection equipment is thoroughly cleaned using a phosphate free detergent and rinsed with ultra pure PICO® water several times to ensure no phosphorus contamination is present.

Physical / Chemical Sampling Procedures and Parameters: Samples were collected at multiple lake locations (up to three in-lake stations). In addition, the outlet(s) of each lake were sampled. Samples were collected as per "NJDEP Field Sampling Procedures Manual", 2005.[5] In-lake samples were taken one meter below the surface, unless the lake was stratified or the sampling station had a depth of less than one meter. When a lake was stratified (the seasonal formation of a thermocline) samples were taken from the epilimnion (upper layer), and hypolimnion (lower layer). While every attempt was made to select lakes with a depth of at least one meter, some lakes had depths of slightly less than one meter. A drop in depth to below one meter was usually attributed to seasonality. In lakes less than one meter deep, samples were collected at 0.5 meters below the surface or mid-depth. Samples were collected using a submerged horizontal sampler. A combination field blank and equipment blank of PICO® water was collected on-site from the submerged horizontal sampler prior to the first sample for each lake (PICO® water, an ultra clean water, is supplied from the WM&S/BFBM lab system, which is analyzed twice per year at a NJ certified laboratory for applicable parameters).

Prior to sampling each station, the submerged sampler is field rinsed with "water of interest" (i.e. lake water present at each station at the sample depth) three times prior to collecting a sample at each station for the lake. Each individual lake required one dedicated and cleaned submerged sampler. Samples collected from the submerged sampler were analyzed for the following parameters:

- Total Phosphorus (TP)
- Nitrite and Nitrate
- Ammonia
- Total Kjeldahl Nitrogen (TKN)
- Hardness
- Alkalinity
- Turbidity
- Chlorophyll "a".

For stratified lakes, these samples (with the exception of chlorophyll "a") were also collected from the epilimnion and hypolimnion. Turbidity was also measured from these discrete samples, using a HACH 2100P Turbidity meter. All samples were analyzed at a New Jersey certified laboratory. Analytical results are reported in exact concentrations except when a result is at a level below the method Reporting Limit (RL) and a definitive concentration cannot be determined. In these cases, the result is reported as Non-Detected (ND).

An *in situ* top-to-bottom profile was also measured at each in-lake station for:

- Specific Conductance
- pH
- Water Temperature
- Dissolved Oxygen.

Measurements were recorded at one meter depth intervals using a Hydrolab QUANTA multi-parameter meter. Total depth was measured using a Hondex Portable Depth Sounder. Aquatic plants, however, sometimes obstruct the readings of the Depth Sounder. In these cases, measurements were recorded using the Hydrolab QUANTA multi-parameter meter. The Hydrolab probe was lowered until resting on the lake bottom and the total depth was recorded. Transparency was measured using a Secchi Disk.

Lake outlets streams were sampled for the same parameters as the in-lake samples, with the exception of transparency. Outlet samples were collected as a "grab" as per "NJDEP Field Sampling Procedures Manual", 2005, [5] (http://www.state.nj.us/dep/srp/guidance/fspm/) at a depth representative of the total water column. In situ measurements were also recorded using a Hydrolab QUANTA multi-parameter meter at approximately mid-depth of the average total water column.

Other Parameters Sampled / Measured / or Observed

Aquatic vegetation: A gross estimate of total areal coverage of dominant type(s) of surface macrophytes was recorded. Lake macrophyte areal extent is determined by preparing an aerial photograph map of each lake prior to the sampling date. This is done using the latest version of aerial photography available and using GIS shapefiles for lake identification. The map includes the entire area of the lake so that it can be used for navigation/identification while on the lake. During the summer sampling season, all surface vegetation observed at each lake was marked on the aerial photograph map. This is done using a combination of landmarks (such as houses, bridges, etc.), lake shoreline features and estimated distances to these features. Areal extent is recorded as accurately as possible so it can be transcribed to GIS maps. Upon return to the office, the aerial photograph map is modified with the polygon that best represents the areal extent of the macrophytes present in each lake.

Algal Concentration: As mentioned previously, a sample was collected from the submerged horizontal sampler for chlorophyll "a". Sample analyses were performed by

WM&S/BFBM staff, in the Bureau's certified laboratory, using a modified "EPA Method 445.0".

Stormwater Outfall Pipes: The presence of stormwater outfall pipes was noted and their locations recorded using a Global Positioning System unit (GPS unit). The diameters of the pipes were measured and the material of their composition was recorded.

CALCULATING CARLSON'S TROPHIC INDEX

Trophic State

As previously noted, *Carlson's Trophic State Indices* (TSI) are used for estimating the trophic state of New Jersey Lakes; "state" defined as a measure in a given point in time. Carlson's TSI uses algal biomass as the basis for trophic state classification. Three variables, Total Phosphorus, Chlorophyll "a", and Secchi depth independently estimate algal biomass. These three index variables are interrelated by linear regression models, and should produce the same index value for a given combination of variable values. Any of the three can therefore theoretically be used to classify a water body. [3]

Each variable has its limitations, however, in estimating algal biomass to classify a trophic state. Chlorophyll "a" is the most accurate of the three but still has drawbacks as a biomass surrogate. The greatest drawback being that the amount of chlorophyll in an algal cell may vary considerably depending on the condition of the cell and species. Cells that are subject to low light conditions will have more chlorophyll in them than cells exposed to high light. [2] In turbid lakes, phosphorus may be attached to non-algal particles and not available for algal growth, thus making it a poor predictor of trophic state. [2] Similarly, Secchi depth measurements can be influenced by a number of abiotic sources such as turbidity, and is a poor predictor in these instances.

Calculating the TSI [3]

Data results for each TSI parameter are converted into common units using the following calculations: [4]

Total Phosphorus TSI	(**TSIP**) = 14.42 ln (TP) + 4.15
Chlorophyll "a" TSI	(**TSIC**) = 9.81 ln (Chl a) + 30.6
Secchi Disk TSI	(**TSIS**) = 60-14.41 ln (SD)

These calculated values can then be placed in the proper TSI category below. Trophic state ranges from oligotrophic to hyper-eutrophic, and is viewed as a continuum (Figure 3), on this scale.

Oligotrophic. TSI values range from 0 to 40.
Lakes have low nutrient levels, are usually deep, and have high oxygen levels in the bottom waters. These lakes have very few algal blooms.

Mesotrophic. TSI values range from 41-50.
Lakes are in the "middle" of the trophic scale. They have increasing amounts of nutrients and slightly lower amounts of dissolved oxygen. There are temporary algae and aquatic plant problems.

Eutrophic. TSI values range from 51-70.
Lakes are nutrient rich. They are usually shallow, "green" lakes that have limited oxygen levels in the bottom waters. They have persistent algae and aquatic plant problems.

Hypereutrophic. TSI range is >70.
Lakes are very green and have little or no oxygen in the bottom layers. There are extreme algae and aquatic plant problems.

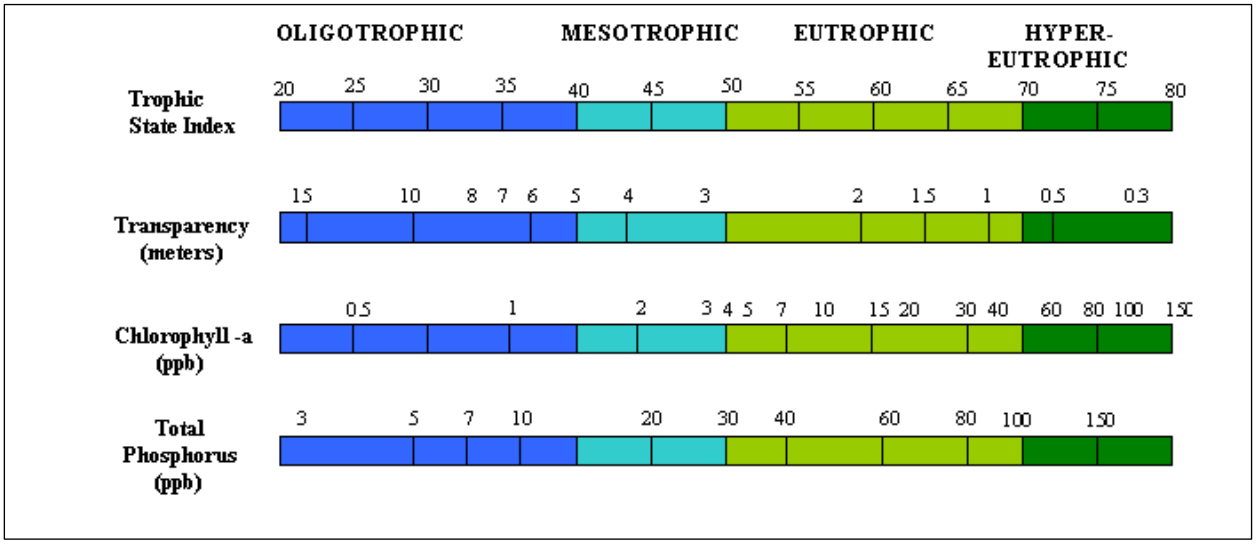

Figure 2. Carlson Trophic State Index viewed as a continuum.[1]

Each lake may have up to three fixed stations per sampling event (season) where parameters used for the TSI were collected. Because each TSI variable has its own strengths and limitations in estimating a lake's trophic state, calculated TSI values at each in-lake station, and for each season, are individually reported (see Volume 2). Although TSI can be calculated for any of the parameters [3] measured, when comparing TSI, values priority should be given to Chlorophyll, as it is the most accurate in predicting algal biomass and therefore trophic state. [2]

For the purpose of demonstrating an approximation of statewide trophic states, TSI values were averaged for each station, and each season. Secchi disk measurements were not used in the calculation of the "average" if the transparency was obscured by vegetation, or the lake was too shallow to give a representative measurement. Furthermore, TP was not used in the "average" if the concentration was below the analytical reporting limit.

To summarize the percentage of lakes in which a particular trophic state was represented, the following convention was used: Since most lakes had periods of having eutrophic states, a lake was designated by its most unique state that was not eutrophic. For example, if a lake had one site that was oligotrophic during the sampling period and eutrophic the rest, it was designated oligotrophic for the purpose of statewide status. This same convention was used for mesotrophic and hyper-eutrophic sites. If more than two trophic states were observed in a lake, the least eutrohic state was used for the summary. This was done to show a lake's recovery potential. If a

lake was eutrophic for all sites and seasons then it was designated eutrophic. The purpose of this convention was to capture those trophic states that may not have been represented in predominantly eutrophic lakes. See Figure 9 in the *Trophic State Index Discussion* for the statewide averages of trophic conditions.

For a more detailed account of how the above trophic designations were derived for individual lakes, see Volume 2 of this report. Volume 2 contains raw data and TSI results for each parameter and each in-lake site. The following *Results and Discussion* section discusses how the interactions of each parameter can affect the trophic state of individual lakes. Non-TSI data such as hypolimnetic oxygen, other nutrients, and total plant biomass should be used to further assess a lake.

Emphasis should be made that TSI is not the same as a water quality index, although existing terminology often equates eutrophic lakes with poor water quality. [3] The TSI should serve as a standard measurement against which comparisons can be made between the many biological and physical/chemical components of the lake system, and how these components relate to each other and the lake ecosystem as a whole.[3] The TSI, along with individual chemical results, lake morphological observations, and expected or designated lake use will allow for the proper management of New Jersey lakes. The Integrated Report should be referred to for assessments concerning support, or non-support, of aquatic life use.

RESULTS AND DISCUSSION

It should be noted that a complete statewide assessment of New Jersey's lakes cannot be performed until data for the entire network of 200 lakes is collected. Data and assessments from this initial Panel sampling of lakes continue to serve as a preliminary estimate of the statewide status of New Jersey lakes. Statewide probabilistic estimates (i.e. using Ambient Lake Monitoring Network data to estimate conditions for all lakes in New Jersey meeting the design criteria) will be addressed in a separate report.

In this Report Volume of the report a summary of the results from the 2008 – Panel 4 monitoring is presented. A full accounting of the results, by lake sampled, can be found in Volume 2 of this report. A discussion on the relationships between trophic state and the physical/ chemical and biological results follows.

SUMMARY OF IN-LAKE PHYSICAL/ CHEMICAL AND BIOLOGICAL MEASURES

The following is a discussion of the results and their relationship to the trophic state of a lake.

Surface Vegetation

A gross estimate of total areal coverage of dominant type(s) of surface macrophytes was recorded during the summer season, as this would represent the height of the growing period. During the lake visit, all surface vegetation observed was marked on the aerial photograph map for that lake. Areal extent was recorded as accurately as possible so it could be transcribed to GIS maps.

Figure 3. Sycamore Lake surface vegetation.

Surface vegetation can be described in four ways: none present, minimal (small areas along the shoreline), moderate (larger areas along the shoreline and extending into lake), extensive (majority of lake covered by vegetation) (Figure 3). A direct correlation between vegetation coverage and trophic status could not be determined. Surface vegetation was not observed in lakes of all trophic states. Inversely, absent-to-minimal vegetation was also observed in lakes of all trophic levels. (Table 2)

Table 2.
Surface Vegetation and
Lakes With An Issued Pesticide Control Permit

SITE ID	NAME	Lake Surface Area covered by Aquatic Vegetation	Pesticide Control Permit Issued
NJW04459-148	Basgalore Lake	1.09%	
NJW04459-144	Bee Meadow Pond	1.46%	
NJW04459-132	Birchwood Lake	0.00%	
NJW04459-147	Clarks Pond	1.46%	
NJW04459-159	Crystal Lake	0.00%	X
NJW04459-264	Dixons Pond	8.82%	X
NJW04459-153	DoD Lake	0.00%	
NJW04459-160	East Lake	0.00%	X
NJW04459-129	Eden Mill Pond	0.00%	
NJW04459-137	Erskine Lake	0.00%	X
NJW04459-261	Foxs Pond	0.11%	X
NJW04459-121	Greenwood Pond	0.00%	
NJW04459-156	Hudson Lake	5.32%	
NJW04459-267	Iliff Lake	25.00%	
NJW04459-158	Koehler Pond	0.00%	
NJW04459-269	Kohout Lake	1.44%	
NJW04459-155	Lebanon Lake	0.54%	
NJW04459-258	Longwood Lake	29.30%	X
NJW04459-151	Lower Aetna Lake	0.00%	
NJW04459-131	Lower Twin Lake	19.58%	
NJW04459-268	Monongahela Lake	0.00%	
NJW04459-262	Mountain Lake	10.79%	
NJW04459-270	Old Forge Lake	0.00%	
NJW04459-127	Osborn Pond	83.24%	
NJW04459-150	Pancoast Mill Pond	18.54%	
NJW04459-154	Paulina Lake	12.05%	
NJW04459-135	Ravine Lake	2.53%	
NJW04459-143	Sheppards Mill Pond	4.93%	
NJW04459-134	Silver Lake	26.60%	
NJW04459-265	Skyline Lakes	0.00%	X
NJW04459-139	Sparta Lake	18.76%	X
NJW04459-122	Spring Valley Lake	12.44%	
NJW04459-123	Stephen Lake	49.50%	
NJW04459-128	Stone Tavern	5.63%	
NJW04459-142	Sunfish Pond	0.00%	
NJW04459-130	Sycamore Lake	25.69%	
NJW04459-263	Turtle Pond	7.67%	
NJW04459-133	Valhalla Lake	3.05%	
NJW04459-138	Weston Mill Pond	16.40%	
NJW04459-149	Wilderness Lake	0.00%	

Information is calculated from NJDEP Lakes GIS shapefile and summer aquatic vegetation observation shapefile. See Volume 2 for aerial photograph

Compounding the difficulty of relating vegetation to trophic state is the treatment of some lakes to eliminate vegetation from the water. This is often done through the use of herbicides, but dredging and lake lowering are also common practices. At the time of sampling, it usually cannot be determined if plant life is absent due to natural conditions or treatment. However, a notice is required to be posted in a conspicuous location upon treatment. If such a notice was posted while sampling occurred it was recorded as part of the field observations (see Volume 2). Eight lakes sampled were permitted through the NJDEP Pesticide Control Program (Table 2). Vegetation observed at these lakes ranged from absent to 29.30% (see Table 2)

Chlorophyll 'a'

Algal concentrations in the water column are measured through Chlorophyll 'a' analysis. Chlorophyll 'a' concentrations $\geq$ 4 µg/l are in the eutrophic range as assessed by Carlson's TSI. Concentrations at Panel 2 sites ranged from 1.01 µg/l to 197.79 µg/l with the higher concentrations occurring predominantly in the summer months. There is not a numeric SWQC for Chlorophyll 'a'. However, it may be inferred that concentrations greater than 10 µg/l may be indicative of impacted water quality. As shown by Carlson's TSI continuum (Figure 2) a Chlorophyll 'a' concentration of 10 µg/l approximately corresponds to a Total Phosphorus (TP) concentration of 0.05 mg/l, the lower threshold for the TP SWQC (see further discussion below).

Total Phosphorus

Of the 40 lakes sampled in 2008, 15 lakes had at least one excursion above the total phosphorus criteria of 0.05 mg/L (Figure 4). TP results from all lakes ranged from non-detected to 0.122 mg/l in the spring, 0.247 mg/l in the summer and 0.187 mg/l in the fall. Eden Mill Pond, Basgalore Lake, and Crystal Lake exceeded the TP standard for all in-lake stations each season. See Volume 2 for results for each lake.

When the TP exceeds the SWQC for two sampling events, the lake is listed as "non-support of aquatic life use" in the New Jersey Integrated Water Quality Monitoring and Assessment Report (Integrated Report) [6] Listing of Panel 4 lakes was performed for the 2010 Integrated Report. See Volume 2 of this report for all raw data results.

Phosphorus is essential to the growth of organisms and can be the nutrient that limits primary productivity in a body of water.[10] Of the nutrients analyzed, TP exhibited the best correlation to algal concentrations and trophic state. When TP levels were elevated, algal concentrations as measured by Chlorophyll "a" were also elevated. When these individual TSI parameters (TP and Chlorophyll "a") are approximately equal, it can be inferred that TP limits the algal growth. If they are not equal, then light or other nutrients are likely the limiting factors. [12] In all instances for Panel 2 the TSI for TP and Chlorophyll "a" was approximately equal suggesting that TP was the limiting nutrient.

Surface Water Quality Criteria Thresholds for Lakes

- **Total Phosphorus (TP) > 0.05 mg/L**

- **Dissolved Oxygen (DO) < 4.0mg/l**
  (There is also a daily average criterion a of 5mg/l, which is not applicable to the sampling methods used for this monitoring network)

- **pH 3.5 - 8.5 Standard Units (SU)***
  *6.5 – 8.5 SU for lakes within waters designated as FW2 waters in the Upper Delaware, Upper Raritan, Passaic, and Wallkill River Basins.
  *4.5 - 7.5 SU for lakes within FW2 waters in the Atlantic, Lower Delaware, and Lower Raritan River basins.
  *3.5 - 5.5 SU for lakes designated as PL waters.

Figure 4. SWQC Thresholds for Lakes.

Although the TSI is not a direct measure of water quality, some correlation can be made. TSI scores in the upper eutrophic through hyper-eutrophic states can be said to be impacted due to the likelihood of an excursion of TP from the SWQC.

Other Nutrients

The other analyzed nutrients were: Total Kjeldahl Nitrogen (TKN - also referred to as organic nitrogen), Total Nitrite + Nitrate Nitrogen, and Ammonia Nitrogen. Total Nitrogen (TN) is calculated using the sum of TKN and Total Nitrite + Nitrate Nitrogen concentrations. A trophic assessment, independent of Carlson's TSI was developed by the USEPA as part of their National Lake Assessment for Total Nitrogen.[13] A threshold of greater than 0.75 mg/l for Total Nitrogen (TN) was established as being a eutrophic state. Greater than 50 % of lakes showed TN elevated above the 0.75 mg/l threshold indicating that TN may be significantly contributing to eutrophication.

Figure 5. Turtle Pond with high algae growth.

Physical / Chemical Measurements

DO, temperature, pH, conductivity, and turbidity were measured in the field, while alkalinity and hardness samples were collected using a submerged horizontal sampler. DO, pH, and turbidity results showed a strong correlation with a lake's trophic state. As expected, temperature showed a strong relationship with DO as low DO only occurred in the summer. Very low DO levels (below the SWQC, Figure 4) were observed in lakes in the mesotrophic-through-hypereutrophic range during the summer months. The majority of lakes with very low DO were shallow (approximately 1 – 2 meters in depth). Shallow depths can limit the ability of a lake to maintain cooler temperatures, because of the penetration of sunlight. As a result, they tend to exhibit unstable DO concentrations. It could not be determined whether lake depth or other factors had the greater influence on low DO concentrations. Furthermore, waters with high algal levels will generally have fluctuating DO levels. DO rises when algae are in the growth state and respiring, and declines when algal growth slows. This was demonstrated in five lakes where the DO was super-saturated (greater than 100% saturation) with corresponding high Chlorophyll "a" concentrations. (Figure 5) A diurnal study of lakes with very low DO would be necessary to definitively determine if water level, or algae, is primarily affecting the DO. A similar study would be necessary to record the fluctuating DO where super-saturation was observed.

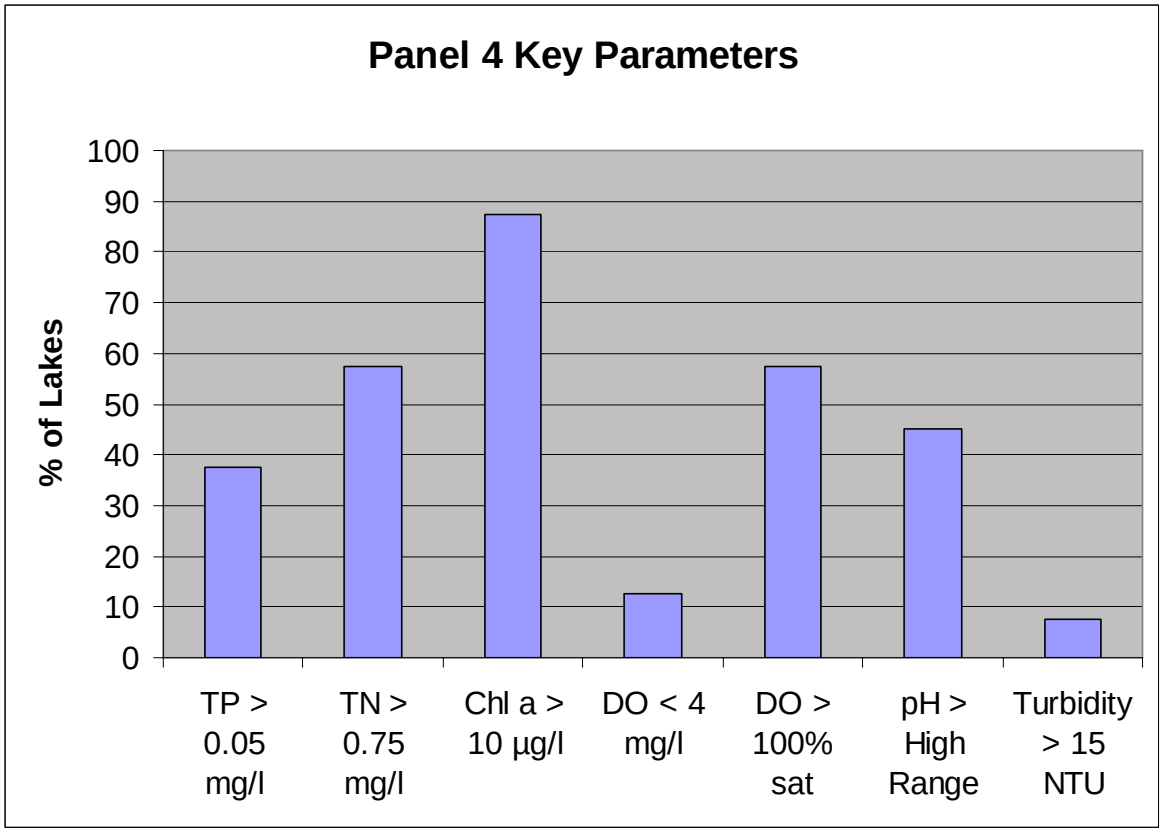

Figure 6. Percentage of Panel 4 lakes showing key parameters with levels exceeding thresholds for at least one in-lake site during the sampling season. TP, DO mg/l, and pH are SWQC thresholds. pH high range is determined by Water Basin specific thresholds (see Figure 4).

Elevated pH levels showed a strong correlation to algal concentrations. Lakes with higher pH measurements also had higher chlorophyll "a" concentrations. The production of the hydroxyl ion during photosynthesis is likely responsible for the increase in lake water pH when elevated levels of algal chlorophyll are present. Furthermore, lakes with the highest pH measurements also had supersaturated DO concentrations. Both the pH and DO concentrations measured are likely part of the diurnal cycle associated with algal growth. These relationships demonstrate how the trophic state and algal concentration can directly affect the chemical composition of a lake.

Turbidity also showed a strong correlation to a lake's trophic state. Turbidity was always low when a lake was in an oligotrophic or mesotrophic state. Turbidity levels were high when a lake was in a eutrophic state and very high when in a hypereutrophic state (see discussion on "Potential Stressors" for exploration of this relationship). The value of 15 Nephelometric Turbidity Units (NTU) used in Figure 6 is the SWQC, thirty day average threshold, for streams. SWQC for turbidity in lakes has not been established and the 15 NTU value was chosen to demonstrate significant elevations observed in lakes.

Alkalinity and hardness results did not show levels outside of expected ranges or correlations with trophic state.

Figure 6 shows a summary of key parameters. Individual results can be found in Volume 2 of this report.

Additional Physical / Chemical Monitoring

Lake Outlet Stream Measurements
Thirty three of the forty Panel 4 lakes had stream outlets as in Figure 7. Outlets were not sampled unless they were actively flowing.

An outlet stream is determined to be directly affected by the lake when any parameter exhibits elevated results similar to those in its feeder lake. Approximately 91% of the outlet streams (if present) were affected by their lake's influence in the zone immediately downstream of the impoundment.

It is important to remember that the SWQC for TP in streams, 0.1 mg/L, is higher than for lakes.[8] Four outlet streams had a Total Phosphorus (TP) concentration ≥ to 0.1 mg/L for at least one site and one season sampled. TP concentrations for these lakes also exceeded the lake SWQC.

Figure 7. Foxs Pond Outlet

Concentrations in outlet streams of turbidity and other nutrients were also frequently at levels similar to that of the feeder lake. Chlorophyll "a" and dissolved oxygen levels, to a lesser extent than parameters previously mentioned, also exhibited levels similar to that of the feeder lake. Additional sampling stations at intervals downstream in the outlet stream(s) would be necessary to construct a profile of the degree, and zone, of a lake's influence.

TROPHIC STATE INDEX (TSI) DISCUSSION

As previously noted, ***Carlson's Trophic State Index*** (TSI) is used as the basis for estimating the trophic state of New Jersey lakes. See Calculating Carlson's Trophic State Index in the Methods and Materials section on how trophic states were designated. The trophic state for lake sampling sites ranges from oligotrophic to hyper-eutrophic, and is viewed as a continuum on this scale (Figure 2). Carlson's TSI is based on the interrelationships of Total Phosphorus (TP), chlorophyll "a", and Secchi disk transparency.

Figure 7. Sunfish Pond. One of seven lakes with oligotrophic sites and the only lake with at least one oligotrophic site for all seasons.

Oligotrophic Lakes

Lakes that were entirely oligotrophic were not represented in Panel 4, and the number of lakes exhibiting periods of oligotrophy was limited. Seven (7) lakes had a TSI rating of Oligotrophic for at least one station and one season. In six of these lakes (Greenwood Pond, Stephen Lake, Sycamore Lake, Ravine Lake, Paulina Lake, Lebanon Lake), the Oligotrophic rating occurred in the spring and/or fall. Sunfish Pond (Figure 7) had an Oligotrophic rating for at least one station each season. This suggests that the trophic state is likely affected by seasonal variation.

Mesotrophic Lakes

Lakes having periods of mesotrophic status, which are by definition in transition to a eutrophic state, were more prevalent than oligotrophic states. Twenty-three lakes had stations in a mesotrophic state. One lake**,** Hudson Lake, was mesotrophic for all seasons sampled.

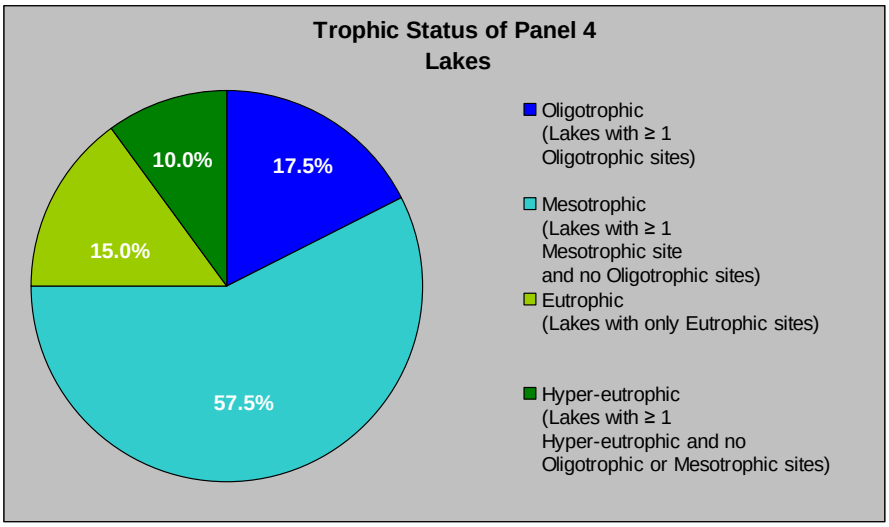

Figure 8. Panel 4 Summary of TSI Results.

Eutrophic and Hyper-eutrophic Lakes

Ten Panel 4 lakes exhibited TSI ratings exclusively in the eutrophic range (Eutrophic, or Hyper-eutrophic) for all

seasons sampled. Figure 8 shows a summary of the percentage of lakes exhibiting each trophic state.

All Panel 4 lakes exhibited degrees of eutrophication depending on the season and/or area of the lake sampled. Even Sunfish Pond had sites which were Mesotrophic. Accordingly, this data demonstrates that all Panel 4 lakes are in, or accelerating towards, an entirely eutrophic state.

Panel 1, 2, 3 and 4 TSI Comparison

Panel 4 showed an increase in lakes with sites having a TSI of mesotrophic and a decrease in lakes with hyper-eutrophic sites, when compared to previous panel results (Figure 9). Panel 4 lakes were similar to combined TSI oligotrophic and eutrophic averages of all panels sample, excepting the Panel 1 eutrophic result.

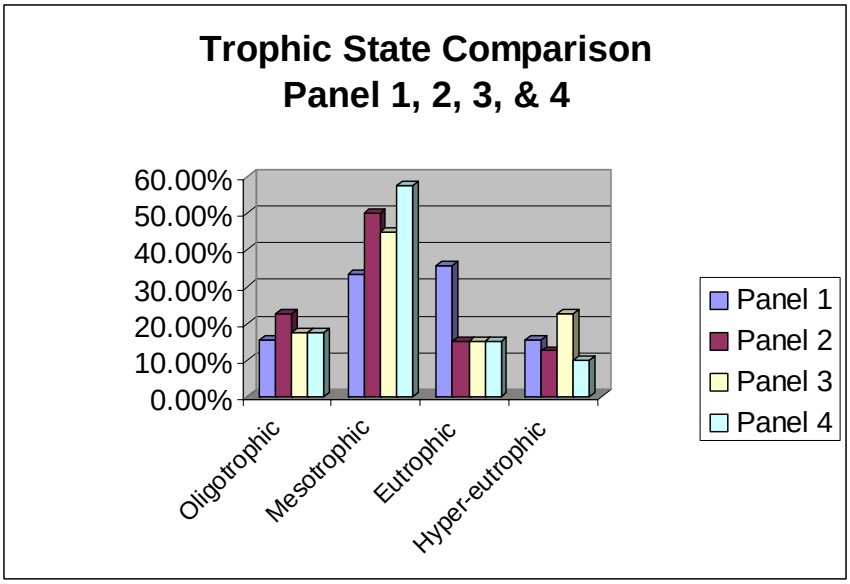

Figure 9. Comparison of Panel 1 - Panel 4 Lakes

Seasonal Variation in TSI

As the results demonstrate (see Volume 2), the trophic state of a lake is highly related to the season. Eutrophic and hyper-eutrophic TSI results were most common in the summer, while oligotrophic and mesotrophic TSI results occurred mostly in the spring or fall (Figure 10). This phenomenon can likely be attributed to the seasonal concentrations of TP. In the spring and fall, at sites that had a TSI of oligotrophic or mesotrophic, TP concentrations were often below the analytical reporting limit of 0.01 mg/l. In the summer, the TP concentrations rose, at many of these same sites, which

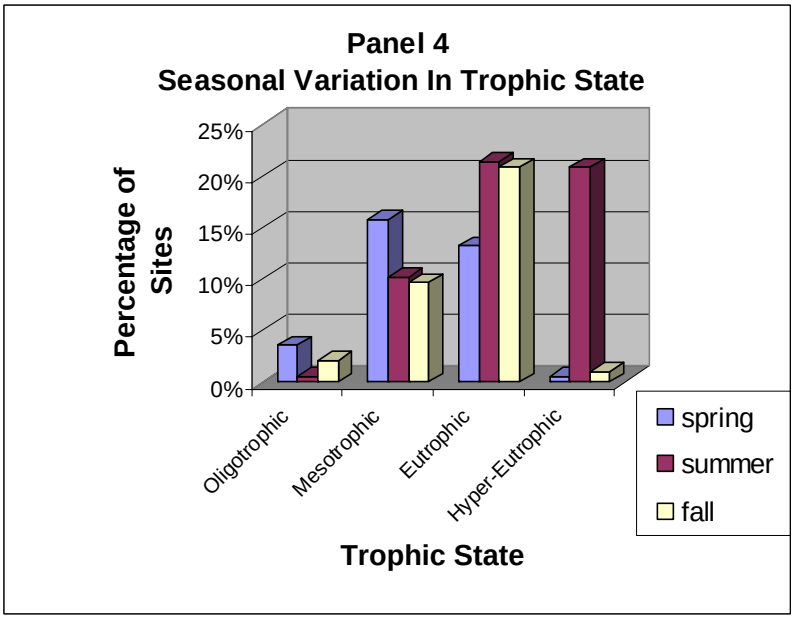

Figure 10. Trophic State By Season

corresponded with more eutrophic TSI results (see Volume 2 for results by season).

Atmospheric precipitation and land runoff are potential sources of phosphorus that can be affected by season. Atmospheric precipitation originates from fine particles of soil and rock, from living and dead organisms (primarily as volatile compounds released from plants) and from natural fires and the burning of fossil fuels.[15] Atmospheric phosphorus is generally low in unpopulated areas and increases considerably in urban-industrial areas.[15] Furthermore, in agricultural regions with heavy applications of phosphorus-containing fertilizers, the phosphorus content of precipitation is much higher during the active growing (summer) season.[15] Surface drainage is often a major contributor of phosphorus in lakes. The quantities of phosphorus entering surface drainage vary with the amount of phosphorus in soils, topography, vegetative cover, quantity and duration of runoff flow, land use, and pollution.[15] All of these factors can be influenced by season. For example, nutrients can accumulate in snowpacks and ice in winter and release rapidly and in large amounts in the spring.[15] Another source is from the release of sediment-bound phosphorus due to changes is sediment-water interface. Exchanges of phosphorus across the sediment-water interface are regulated by oxidation-reduction interactions dependent on oxygen supply, metabolic activities of bacteria, and turbulence from physical activities.[10] All of these interactions are variable by season.

POTENTIAL STRESSORS

Stormwater Outfalls

Stormwater outfall pipes were observed at some lakes (Figure 13). These pipes were made of concrete, corrugated metal, PVC, or vitrified clay. Sixteen Panel 4 lakes had stormwater outfalls entering the lake. Panel 4 lakes showed a strong relationship between trophic state and the presence of outfall pipes as no lakes from this subset had oligotrophic sites. Six of the sixteen lakes with outfalls had TP concentrations higher that the SWQC threshold for TP, five had elevated TN, and one had high turbidity (for at least one site).

Figure 11 . Stormwater outfall pipes at Erskine Lake.

Stormwater monitoring studies on these lakes would be helpful to determine the loading of nutrients, and other pollutants, from these outfalls.

Lakeshore Habitat

The National Lake Assessment (NLA) conducted by the EPA shows that of the physical indicators measured in the study, degraded lakeshore habitat is the most significant stressor to poor biological integrity. The NLA results also show that lakes in poor condition for habitat are 3 times more likely to be in poor biological condition. Another physical habitat indicator examined was the presence of human activities. From the standpoint of human disturbances along lakeshores, just one-third (35%) of the country's lakes are in good condition. [13]

RECOMMENDATIONS

Stormwater outfalls seem to be a major stressor for lakes. Sixteen lakes in Panel 4 had stormwater outfall pipes entering the lake. No lakes from this subset had oligotrophic. It is likely that these stormwater pipes serve as a conduit where increased levels TP, TN were observed. Stormwater monitoring studies on these lakes would be helpful to determine the loading of nutrients, and other pollutants, from these outfalls. Such a study should include analysis in mixing zones of the outfalls.

As demonstrated in EPA's National Lake Assessment, lakeshore habitat is the most significant stressor to poor biological activity. More detailed lakeshore habitat observations should be recorded to assess degradation of habitat.

DO rises when algae are in the growth state and respiring, and declines when algal growth slows. This was demonstrated in five lakes where the DO was supersaturated (greater than 100% saturation) with corresponding high Chlorophyll "a" concentrations. A diurnal study of lakes exhibiting either very low or supersaturated DO is necessary to definitively determine if water level or algae is primarily affecting the DO concentrations measured.

Thirty of the thirty-three outlet streams were affected by their lake's influence in the zone immediately downstream of the impoundment. In the majority of streams where TP or other nutrient concentrations were elevated, those same parameters were also elevated in the feeder lake. Turbidity, Chlorophyll "a", and DO were also parameters which had similar concentrations to that of the feeder lake. Additional sampling stations at intervals downstream in the outlet stream(s) would be necessary to construct a profile of the degree, and zone, of a lake's influence. Once the USEPA biological monitoring methods are available, the addition of lentic biological indices should be considered. In-stream, lotic, biological monitoring, for both macroinvertebrates and fish, would also be recommended at intervals downstream to determine the lake's effect on the in-stream biota.

Data for the initial Panel of the Ambient Lakes Monitoring Network serves as a preliminary estimate of the statewide water quality status of New Jersey lakes statewide probabilistic estimates (i.e. using Ambient Lake Monitoring Network data to estimate conditions for all lakes in New Jersey meeting the design criteria) will be addressed in a separate report.
Pending the availability of sufficient resources, it is recommended that site specific lentic studies be performed, on individual lakes, to supplement the data collected for statewide status in the Ambient Lakes Monitoring Network.

Additional Information

Additional information on the Ambient Lakes Monitoring Program can be obtained from WM&S' Bureau of Freshwater & Biological Monitoring by calling 609-292-0427 or visiting its website at: 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.

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: www.epa.gov/storet.

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

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NJ Department of Environmental Protection
Water Monitoring and Standards

AMBIENT LAKES MONITORING NETWORK

Panel 4

Volume 2 of 2
Data and Results

Sunfish Pond, Hardwick Twp., Warren County

December 2011

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 J. McGeorge, Administrator

December 2011

AMBIENT LAKES MONITORING NETWORK
Panel 4

Volume 2 of 2

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This Volume contains Panel 4 lakes raw data, observations, and trophic state assessments as described below. See Volume 1 of this report for detailed methods and discussion of results.

Carlson Trophic State Index (TSI)

Carlson's Trophic State Index (TSI) is used as the basis for estimating the trophic state of New Jersey Lakes. Trophic states range from oligotrophic to hypereutrophic (and is viewed as a continuum) on this scale. Carlson's TSI is based on the interrelationships of Total Phosphorus (TP), chlorophyll "a", and Secchi transparency. Individual TSI values for each parameter are converted into common units using the following calculations.

Total Phosphorus TSI (TSIP) = 14.42 ln(TP) + 4.15
Chlorophyll "a"TSI (TSIC) = 9.81 ln (Chl a) + 30.6
Secchi Disk TSI (TSIS) = 60-14.41 ln(SD)

Each lake may have up to three fixed stations per sampling event (season) where TSI parameters were collected. Using the above formulas, the result of each parameter was converted to TSI units. The three TSI values at each in-lake station were then averaged to obtain an overall TSI value for that station. Secchi disk measurements were not used in the calculation if the transparency was obscured by vegetation, or the lake was too shallow to give a representative measurement.

Oligotrophic. TSI values range from 0 to 40.
Lakes have low nutrient levels, are usually deep, and have high oxygen levels in the bottom waters. These lakes have very few algal blooms.

Mesotrophic. TSI values range from 41-50.
Lakes are in the "middle" of the trophic scale. They have increasing amounts of nutrients and slightly lower amounts of dissolved oxygen. There are temporary algae and aquatic plant problems.

Eutrophic. TSI values range from 51-70.
Lakes are nutrient rich. They are usually shallow, "green" lakes that have limited oxygen levels in the bottom waters. They have persistent algae and aquatic plant problems.

Hypereutrophic. TSI range is >70.
Lakes are very green and have little or no oxygen in the bottom layers. There are extreme algae and aquatic plant problems.

Surface Water Quality Criteria Thresholds for Lakes

- **Total Phosphorus (TP) > 0.05 mg/L**
- **Dissolved Oxygen (DO) < 4.0mg/l**
  (There is also a daily average criterion of 5mg/l, which is not applicable to the sampling methods used for this monitoring network)
- **pH 3.5 - 8.5 Standard Units (SU)***
  *6.5 – 8.5 SU for lakes within waters designated as FW2 waters in the Upper Delaware, Upper Raritan, Passaic, and Wallkill River Basins.
  *4.5 - 7.5 SU for lakes within FW2 waters in the Atlantic, Lower Delaware, and Lower Raritan River basins.
  *3.5 - 5.5 SU for lakes designated as PL waters.

AMBIENT LAKE MONITORING NETWORK

Lake Name Basgalore Lake
Site ID NJW04459-148
County Gloucester
Municipality Woolwich Township

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	60.56	47.86	58.63	55.68 Eutrophic
Summer Station 1	62.2	55.31	57.37	58.29 Eutrophic
Fall Station 1	62.2	67.3	60	63.17 Eutrophic

TP exceeds SWQC threshold(See Datasheet for actual concentration)

Observations

Spring - Water in lake appears very turbid; filamentous algae around.
boat launch & on anchors after use
Summer - King fisher, blue heron, filamentous algae abundant with floating mats, duckweed, lily pads.
Fall - Filamentous algae abundant. Approximately 70% (inlet side) of lake covered in algae and surface scum. Blue heron, egret, king fisher.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Basgalore Lake **County:** GLOUCESTER

SiteID: NJW04459-148 **Municipality:** WOOLWICH TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.5	1	1.1	11.58	11.32	102.7	6.56	0.11
outlet	0.1	0.1		11.77	10.91	99.5	7.05	0.111

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.5	1	1.2	24.34	9.73	116.4	6.03	0.127
outlet	0.3	0.3		24.95	7.93	96	6.57	0.127

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.5	1	1.0	19.66	7.84	85	6.44	0.127
outlet	0.2	0.2		20.05	7.32	80	6.64	0.128

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Basgalore Lake
County: GLOUCESTER
SiteID: NJW04459-148
Municipality: WOOLWICH TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.05	0.165	1.410	0.022	5.81	5.000	44.670	7.4
outlet	0.048	0.132	1.380	0.021	7.96	12.000	43.216	7.43

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.056	0.221	0.803	0.048	12.42	19.000	38.315	8.36
outlet	0.052	0.261	0.714	0.067	23.07	12.000	38.894	6.01

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.056	0.421	0.754	0.081	42.15	7.000	45.716	9.93
outlet	0.094	0.602	0.653	0.167	60.75	20.000	44.303	12.7

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Bee Meadow Pond
Site ID NJW04459-144
County Morris
Municipality Hanover Township

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	50.57	47.67	45.69	47.98 Mesotrophic
Summer Station 1	48.05	50.79	41.54	46.79 Mesotrophic
Fall Station 1	54.13	65.48	53.23	57.61 Eutrophic

B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring - Filamentous algae, geese, swans.
Summer - Purple loosestrife, SAV, fish, filamentous algae along shoreline.
Fall - Algae visible in water (not filamentous).

AMBIENT LAKE MONITORING NETWORK

Lake Name: Bee Meadow Pond **County:** MORRIS

SiteID: NJW04459-144 **Municipality:** HANOVER TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.6	1	2.7	13.72	10.19	98	7.38	0.145
1	4.6	2	2.7	12.42	11.42	106.7	7.64	0.144
1	4.6	3	2.7	9.5	10.13	88.6	7.42	0.145
1A	4.6	4	2.7	8.28	0.55	4.7	6.86	0.15
outlet	0.2	0.2		14.59	9.08	89	7.03	0.145

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.8	1	3.6	25.7	7.11	87.5	7.15	0.141
1	4.8	2	3.6	25.47	6.69	81.9	7.02	0.141
1	4.8	3	3.6	21.33	6.84	77.5	6.89	0.144
1A	4.8	4	3.6	15.12	3	29.8	6.64	0.154
outlet	0.1	0.1		26.01	6.71	83	6.92	0.141

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.5	1	1.6	21.9	7.65	86.3	6.57	0.14
1	4.5	2	1.6	21.48	6.21	69.5	6.67	0.14
1	4.5	3	1.6	21.32	5.2	58.1	6.7	0.141
1	4.5	4	1.6	21.06	1.54	17.1	6.6	0.144
outlet	0.1	0.1		19.53	4.48	48.3	6.32	0.159

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Bee Meadow Pond
County: MORRIS
SiteID: NJW04459-144
Municipality: HANOVER TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.025	0.437	0.005	0.007	5.7	30.000	26.079	1.8
1A	0.076	0.643	0.002	0.020	24.93	20.000	26.959	3.98
outlet	0.031	0.471	0.019	0.033	3.9	41.000	26.568	2.01

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.021	0.345	0.006	0.002	7.83	25.000	26.044	1.43
1A	0.043	0.462	0.007	0.009	19.53	20.000	27.362	2.71
outlet	0.027	0.385	0.009	0.003	8.21	32.000	25.330	5.61

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.032	0.974	0.011	0.049	35.02	24.000	27.262	6.28
outlet	0.062	1.620	0.153	0.217	45.52	32.000	34.409	14.9

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Birchwood Lake
Site ID NJW04459-132
County Burlington
Municipality Medford Township

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	39.98	46.31	52.23	46.51 Mesotrophic
Spring Station 2	42.21	40.56	53.23	45.33 Mesotrophic
Summer Station 1	54.13	52.78	52.35	53.09 Eutrophic
Summer Station 2	55.42	52.53	B	53.97 Eutrophic
Fall Station 1	44.13	53.65	B	48.89 Mesotrophic
Fall Station 2	45	53.06	B	49.03 Mesotrophic

B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring - Cedar water, ducks, geese, outlet empties into adjacent lake, l
ake was dredged summer of 07 and refilled due to dam damage in 04.
Summer - SAV, ducks, goose feces abundant along shoreline near boat ramp.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Birchwood Lake **County:** BURLINGTON

SiteID: NJW04459-132 **Municipality:** MEDFORD TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.1	1	1.6	12.29	9.54	88.2	6.32	0.141
1	2.1	2	1.6	11.05	8.44	75.9	6.35	0.16
2	1.7	1	1.6	12.28	9.41	87	6.49	0.142

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2	1	1.7	24.27	6.51	76.8	6.11	0.199
2	1.5	1	1.5	24.57	6.25	74	6.48	0.205

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.0	1	2.0	23.06	5.3	61	6.53	0.174
2	1.5	1	1.5	22.52	5.7	65	6.57	0.214

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Birchwood Lake
County: BURLINGTON
SiteID: NJW04459-132
Municipality: MEDFORD TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.012	0.301	0.382	0.044	4.96	10.000	20.293	3.33
2	0.014	0.255	0.361	0.056	2.76	7.000	20.858	3.24

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.032	0.494	0.104	0.038	9.59	10.000	25.960	2.51
2	0.035	0.417	0.118	0.028	9.35	5.000	26.547	2.28

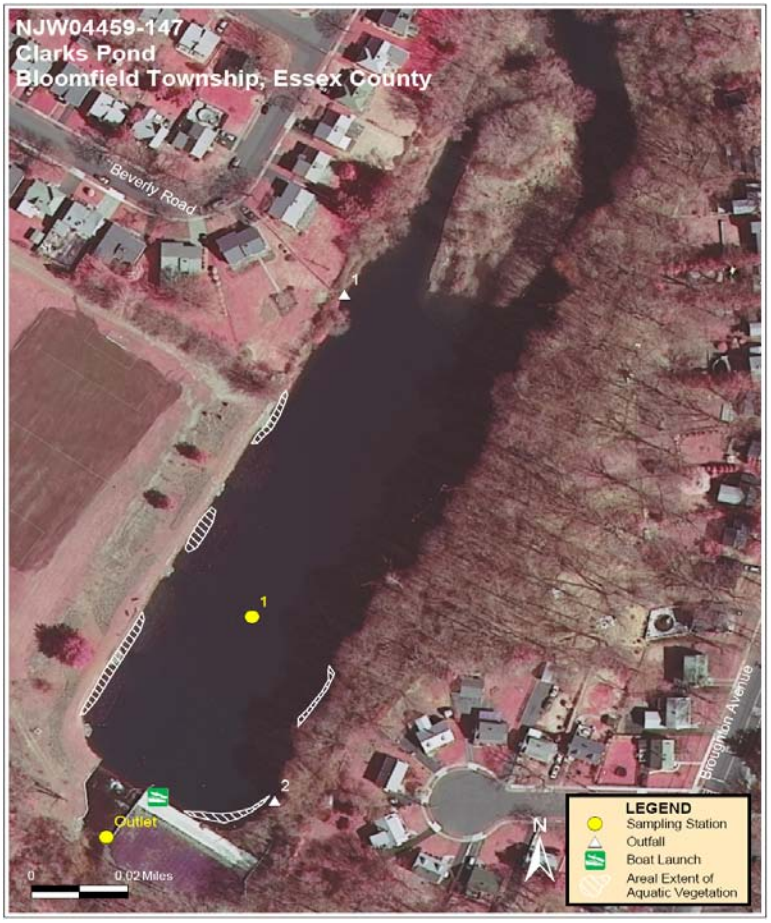
Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.016	0.516	0.050	0.117	10.48	12.000	25.242	2.54
2	0.017	0.575	0.083	0.129	9.87	18.000	31.177	2.31

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Clarks Pond	**County**	Essex
Site ID	NJW04459-147	**Municipality**	Bloomfield Township



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	58.72	58.72	53.23	56.89 Eutrophic
Summer Station 1	83.06	75.33	61.52	73.03 Hyper-Eutrophic
Fall Station 1	65.62	62.78	51.53	59.98 Eutrophic

TP exceeds SWQC threshold(See Datasheet for actual concentration)

Observations

Spring - Turtles, ducks, geese, sandpiper.
Fall - Ducks, geese. Garbage and floatable debris. Duckweed.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Clarks Pond **County:** ESSEX

SiteID: NJW04459-147 **Municipality:** BLOOMFIELD TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.9	1	1.6	14.39	5.14	50.6	7.55	0.714
outlet	0.1	0.1		15.52	10.91	110	7.54	0.739

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.8	1	0.9	25.12	1.41	16.9	7.17	0.669
outlet	0.1	0.1		26.31	7.36	91.9	7.64	0.672

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.0	1	1.8	10.2	9.43	84.5	6.92	0.663
outlet	0.1	0.1		11.31	9.99	91.8	7.27	0.676

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Clarks Pond **County:** ESSEX

SiteID: NJW04459-147 **Municipality:** BLOOMFIELD TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.044	0.562	1.010	0.006	17.57	85.000	162.500	3.62
outlet	0.046	0.555	0.972	0.008	57.55	64.000	160.800	4.96

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.238	1.100	0.231	0.031	95.56	42.000	209.000	6.55
outlet	0.346	1.360	0.170	0.280	80.4	82.000	209.000	4.87

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.071	0.672	1.230	0.015	26.58	122.0	232.500	3.78
outlet	0.077	0.748	1.130	0.035	31.17	149.0	234.400	3.42

Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Crystal Lake	**County**	Bergen
Site ID	NJW04459-159	**Municipality**	Oakland Borough

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	73.06	58.69	56.22	62.66 Eutrophic
Summer Station 1	65.21	77.07	69.99	70.76 Hyper-Eutrophic
Fall Station 1	65.62	51.67	NR	58.65 Eutrophic

TP exceeds SWQC threshold(See Datasheet for actual concentration)
NR- Not recorded

Observations

Spring - Ducks, geese, heron

AMBIENT LAKE MONITORING NETWORK

Lake Name: Crystal Lake **County:** BERGEN

SiteID: NJW04459-159 **Municipality:** OAKLAND BORO

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.3	1	1.3	15.97	13.99	142.3	9.11	0.592
1	4.3	2	1.3	13.37	11.92	114.7	8.91	0.588
1	4.3	3	1.3	12.73	7.24	68.6	8.25	0.593
1	4.3	4	1.3	12.02	1.49	13.9	7.84	0.6
outlet	0.1	0.1		18.18	11.17	119	8.77	0.592

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.4	1	0.5	25.01	11.29	137.6	8.93	0.461
1	4.4	2	0.5	23.41	2.57	30.3	7.79	0.482
1	4.4	3	0.5	20.26	0.12	1.3	7.4	0.569
1A	4.4	4	0.5	15.31	0.07	0.7	7.01	0.638
outlet	0.2	0.2		27.55	10.54	134.6	9.68	0.443

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.2	1		8.86	7.61	65.3	7.43	0.501
1	4.2	2		8.76	7.68	65.7	7.46	0.501
1	4.2	3		8.65	7.5	63.9	7.46	0.501
1	4.2	4		7.86	8.94	74.7	7.51	0.513
outlet	0.4	0.4		8.89	9.82	84.3	7.32	0.501

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Crystal Lake **County:** BERGEN

SiteID: NJW04459-159 **Municipality:** OAKLAND BORO

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.119	0.684	1.170	0.086	17.53	120.0	220.700	2.92
outlet	0.217	1.140	1.010	0.137	18.02	69.000	218.500	2.64

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.069	0.979	0.011	0.003	114.11	83.000	118.100	9.68
1A	0.305	2.320	0.104	1.620	109.87	65.000	143.500	11.7
outlet	0.036	0.823	0.020	0.005	67.79	75.000	116.600	7.11

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.071	0.640	0.774	0.107	8.57	69.000	148.800	5.05
outlet	0.056	0.521	0.769	0.103	8.57	45.000	147.000	5.01

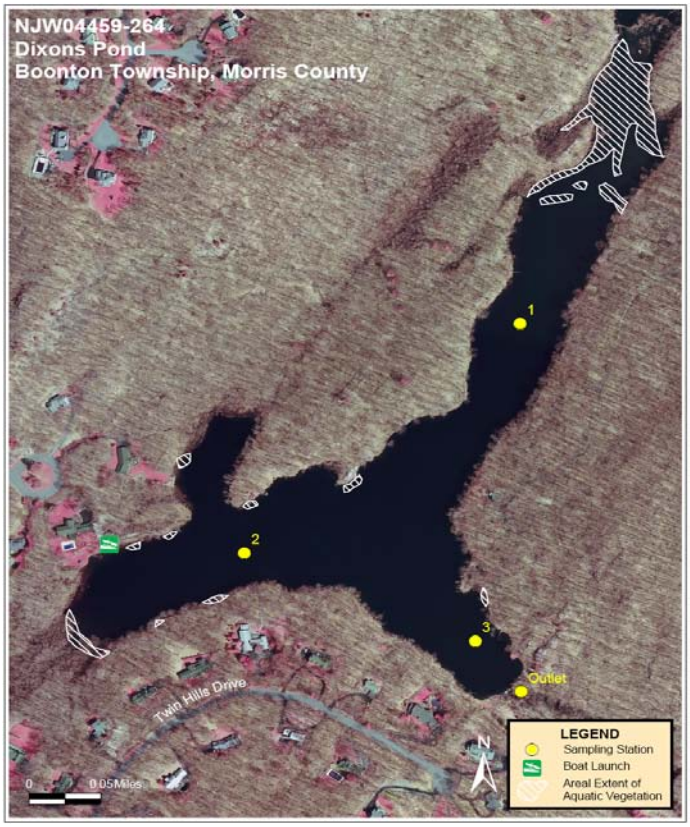
Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Dixons Pond
Site ID NJW04459-264
County Morris
Municipality Boonton Township



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	56.98	43.8	60	53.59 Mesotrophic
Spring Station 2	53.67	39.19	57.37	50.08 Mesotrophic
Spring Station 3	NR	NR	NR	NR
Summer Station 1	63.89	NR	B	63.89 Eutrophic
Summer Station 2	63.89	59.61	58.63	60.71 Eutrophic
Summer Station 3	63.66	61.68	57.37	62.67 Eutrophic
Fall Station 1	48.72	45.02	B	46.87 Mesotrophic
Fall Station 2	48.72	44.3	B	46.51 Mesotrophic
Fall Station 3	44.13	47.5	B	45.81 Mesotrophic

TP exceeds SWQC threshold(See Datasheet for actual concentration)
NR- Not recorded

Observations

Spring - Secchi obscured by algae at station 2, blue heron, swan, ducks, filamentous algae throughout.
Fall - Egret, swans, and frogs present. Algae abundant in areas of station 1 and 2.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Dixons Pond **County:** MORRIS

SiteID: NJW04459-264 **Municipality:** BOONTON TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.1	0.5	1	19.48	10.25	112.8	8.47	0.096
2	1.4	0.7	1.2	19.06	10.43	113.8	9.22	0.11
outlet	0.1	0.1		19.37	8.29	91	7.85	0.107

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1	0.5	1	26.36	3.26	41	6.45	0.116
2	1.3	0.6	1.1	26.89	3.44	43.7	6.54	0.116
3	2	1	1.2	26.73	4.78	60.6	6.66	0.115
outlet	0.1	0.1		25.82	4.81	60	6.77	0.119

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.0	0.5	1.0	18.96	8.13	89.6	7.33	0.096
2	1.3	0.7	1.3	19.31	10.11	112.2	8.44	0.118
3	2.0	1	2.0	19.02	8.67	95.6	7.32	0.112
outlet	0.2	0.2		19.21	8.24	91.2	7.54	0.111

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Dixons Pond **County:** MORRIS

SiteID: NJW04459-264 **Municipality:** BOONTON TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.039	0.364	0.003	0.006	3.84	20.000	27.938	1.97
2	0.031	0.356	0.003	0.006	2.4	42.000	30.333	1.64
outlet	0.028	0.342	0.009	0.011	3.08	35.000	29.679	1.73

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.063	1.060	0.006	0.243		23.000	32.566	4.13
2	0.063	1.110	0.007	0.190	19.24	15.000	31.854	4.38
3	0.062	1.040	0.005	0.176	23.77	20.000	31.847	4.69
outlet	0.121	1.890	0.461	0.251	39.58	30.000	33.682	11.5

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.022	0.411	0.003	0.005	4.35	23.000	30.634	1.29
2	0.022	0.396	0.003	0.005	4.04	25.000	34.268	1.30
3	0.016	0.363	0.004	0.005	5.6	9.000	32.556	1.15
outlet	0.024	0.380	0.006	0.006	5.63	20.000	32.581	1.80

Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name DoD Lake
Site ID NJW04459-153
County Salem
Municipality Oldmans Township

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	48.27	55.15	51.71 Eutrophic
Spring Station 2	37.35	47.45	52.23	46.01 Mesotrophic
Summer Station 1	ND	38.51	53.23	45.87 Mesotrophic
Summer Station 2	48.05	39.63	38.33	42 Mesotrophic
Fall Station 1	ND	58.04	NR	58.04 Eutrophic
Fall Station 2	ND	60.48	55.15	57.81 Eutrophic

ND - TP concentration below detection limit

Observations

Summer - Ducks, turtles, clams, geese, filamentous algae.
Fall - Swans.

AMBIENT LAKE MONITORING NETWORK

Lake Name: DoD Lake **County:** SALEM

SiteID: NJW04459-153 **Municipality:** OLDMANS TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.9	1	1.4	8.03	10.22	84.4	6.97	0.316
2	6.5	1	1.6	7.47	10.25	83.4	7.14	0.326
2	6.5	2.1	1.6	7.41	10.19	82.8	7.12	0.325
2	6.5	3	1.6	7.41	10.19	82.8	7.12	0.325
2	6.5	4	1.6	7.39	10.21	83	7.16	0.325
2	6.5	5	1.6	7.37	10.17	82.6	7.16	0.325
2	6.5	6	1.6	7.37	10.14	82.4	7.18	0.325

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2	1	1.6	28.56	6.61	84.4	7.32	0.29
2	6.9	1	4.5	28.46	7.36	93.9	8.49	0.29
2	6.9	2	4.5	28.28	7.59	96.5	8.56	0.291
2	6.9	3	4.5	22.91	8.64	99.6	8.39	0.293
2	6.9	4	4.5	19.45	9.33	100.6	8.23	0.295
2	6.9	5	4.5	17.56	8.66	89.8	8.06	0.296
2A	6.9	6	4.5	15.98	2.05	20.6	7.36	0.304

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2	1		25.25	6.48	77.9	7.23	0.287
2	6.6	1	1.4	25.52	7.56	91.4	8.12	0.294
2	6.6	2	1.4	25.27	7.63	91.9	8.2	0.294
2	6.6	3	1.4	25.13	7.41	88.9	8.19	0.294
2	6.6	4	1.4	24.95	7.51	89.9	8.22	0.294
2	6.6	5	1.4	24.72	7.1	84.6	8.12	0.294
2	6.6	6	1.4	22.26	0.18	2	7.36	0.327
2A	6.6	6.4	1.4	20.75	0.04	0.5	7.34	0.345

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: DoD Lake
County: SALEM
SiteID: NJW04459-153
Municipality: OLDMANS TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.403	0.308	0.008	6.06	25.000	89.981	3.21
2	0.01	0.385	0.307	0.013	5.57	40.000	91.466	3.34

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.563	0.067	0.013	2.24	28.000	94.699	3.74
2	0.021	0.412	0.027	0.010	2.51	54.000	93.788	1.14
2A	0.014	0.639	0.100	0.111	32.91	40.000	95.199	3.94

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.478	0.003	0.022	16.39	31.000	94.524	4.88
2	ND	0.602	0.003	0.012	21.02	32.000	95.597	5.42
2A	0.045	1.200	0.003	0.551	17.45	45.000	104.149	6.26

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name East Lake
Site ID NJW04459-160

County Morris
Municipality Kinnelon Borough

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	57.34	58.43	50.01	55.26 Eutrophic
Spring Station 2	56.22	53.48	47.38	52.36 Eutrophic
Summer Station 1	48.72	48.75	42.37	46.61 Mesotrophic
Summer Station 2	46.61	49.14	45.16	46.97 Mesotrophic
Fall Station 1	47.35	44.3	34.92	42.19 Mesotrophic
Fall Station 2	46.61	47.39	35.97	47 Mesotrophic

Observations

Spring - Outlet flows into adjacent lake,ducks.
Fall - Daphnia present in samples.

AMBIENT LAKE MONITORING NETWORK

Lake Name: East Lake **County:** MORRIS

SiteID: NJW04459-160 **Municipality:** KINNELON BORO

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	7.4	1	2	14.88	8.83	90.8	6.72	0.428
1	7.4	2	2	14.78	8.68	89.1	6.62	0.428
1	7.4	2.9	2	11.87	9.08	87.4	6.55	0.476
1	7.4	4.1	2	8.58	4.96	44.3	6.44	0.496
1	7.4	6	2	7.04	0.61	5.3	6.24	0.516
1	7.4	7	2	6.64	0.46	3.9	6.19	0.542
1A	7.5	5	2	7.55	2.27	19.7	6.34	0.501
2	5.5	1	2.4	14.77	8.01	82.1	6.87	0.429
2	5.5	2	2.4	13.63	7.43	74.4	6.77	0.442
2	5.5	3	2.4	12.18	8.8	85.3	6.67	0.471
2	5.5	4	2.4	9.15	6.36	57.4	6.57	0.488
2A	5.5	5	2.4	7.25	1.36	11.7	6.34	0.509

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	7.0	1	3.4	24.78	7.48	92.3	7.17	0.439
1	7.0	2	3.4	23.83	7.5	90.9	7.41	0.439
1	7.0	3	3.4	21.81	4.88	56.7	7.19	0.46
1	7.0	4	3.4	14.02	1	9.9	6.99	0.51
1	7.0	5	3.4	10.32	5.67	51.8	7.01	0.518
1A	7.0	6	3.4	8.09	0.88	7.7	6.8	0.564
2	4.8	1	2.8	23.91	7.49	90.9	6.56	0.439
2	4.8	2	2.8	23.64	6.7	80.8	6.81	0.44
2	4.8	3	2.8	21.17	3.99	45.9	6.76	0.469
2	4.8	4	2.8	14.28	0.92	9.1	6.69	0.51
2A	4.8	4.5	2.8	11.48	2.37	22.6	6.75	0.514

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	7.2	1	5.7	13.08	7.41	71.5	7.25	0.438
1	7.2	2	5.7	12.99	7.07	68.1	7.23	0.44
1	7.2	3	5.7	12.96	6.93	66.7	7.21	0.441
1	7.2	4	5.7	12.91	7.04	67.6	7.2	0.44
1	7.2	5	5.7	12.71	6.87	65.7	7.17	0.443
1	7.2	6	5.7	12.19	0.84	7.9	6.86	0.498
1	7.2	7	5.7	8.5	0.23	2	6.65	0.598
2	5.3	1	5.3	12.95	7.61	73.2	7.07	0.437
2	5.3	2	5.3	12.87	7.41	71.2	7.09	0.437
2	5.3	3	5.3	12.83	7.33	70.3	7.1	0.437
2	5.3	4	5.3	12.72	7.45	71.3	7.11	0.437
2	5.3	5	5.3	12.71	7.41	70.9	7.12	0.436

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: East Lake **County:** MORRIS

SiteID: NJW04459-160 **Municipality:** KINNELON BORO

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.04	0.716	0.463	0.055	17.06	42.000	72.478	2.47
1A	0.036	0.770	0.600	0.326	4.79	40.000	83.629	1.53
2	0.037	0.687	0.456	0.058	10.3	25.000	72.352	2.88
2A	0.044	0.604	0.613	0.272	2.38	40.000	80.267	1.82

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.022	0.054	0.089	0.018	6.36	45.000	80.643	1.39
1A	0.108	0.061	0.054	0.562	73.72	30.000	98.301	8.74
2	0.019	0.054	0.012	0.017	6.62	56.000	78.859	1.37
2A	0.063	0.054	0.080	0.014	55.13	58.000	88.022	7.09

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.02	0.685	0.082	0.118	4.04	49.000	77.685	0.78
2	0.019	0.512	0.080	0.103	5.54	37.000	76.771	0.77

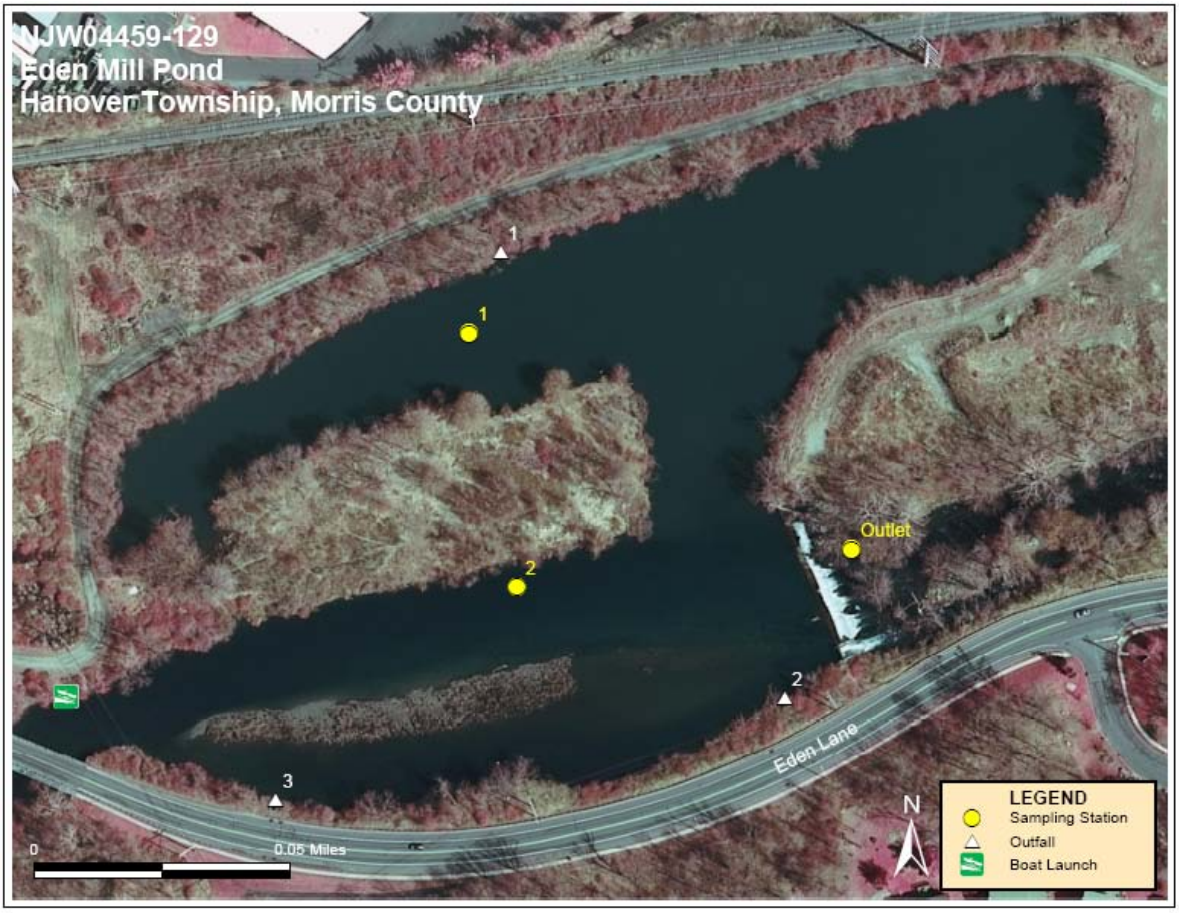
Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Eden Mill Pond
Site ID NJW04459-129
County Morris
Municipality Hanover Township



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	73.42	70.3	69.99	71.24 Hyper-Eutrophic
Spring Station 2	71.93	50.39	B	61.16 Eutrophic
Summer Station 1	83.6	82.47	64.14	77.07 Hyper-Eutrophic
Summer Station 2	76.88	44.17	B	60.53 Eutrophic
Fall Station 1	73.77	62.83	69.99	68.86 Eutrophic
Fall Station 2	79.58	46.51	B	63.04 Eutrophic

TP exceeds SWQC threshold(See Datasheet for actual concentration)
B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring - Filamentous algae, many water fowl, geese, swans, ducks, heron, turtles.
Summer - Ducks, swans, cormorant, frogs.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Eden Mill Pond **County:** MORRIS

SiteID: NJW04459-129 **Municipality:** HANOVER TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.1	0.5	0.5	13.44	17.09	162.8	8.95	0.493
2	1.8	1	1.8	12.24	13	120.6	8.31	0.514
outlet	0.2	0.2		13.18	11.19	106	8.41	0.509

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.2	0.5	0.7	22.75	6.44	75	7.3	0.473
2	1.7	1	1.7	21.34	7.28	82.8	7.46	0.53
outlet	0.1	0.1		21.54	7.95	90.6	7.59	0.525

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.1	0.5	0.5	19.29	8.89	95.4	7.75	0.641
2	1.9	1	1.9	17.27	7.99	82.2	7.74	0.677
outlet	0.2	0.2		18.08	8.91	93.3	7.82	0.688

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Eden Mill Pond **County:** MORRIS

SiteID: NJW04459-129 **Municipality:** HANOVER TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.122	0.697	0.654	0.011	57.2	42.000	128.000	9.99
2	0.11	0.330	1.380	0.047	7.52	50.000	136.200	2.37
outlet	0.103	0.354	1.310	0.049	10.58	44.000	132.300	2.55

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.247	1.720	0.604	0.068	197.79	60.000	110.800	11.3
2	0.155	0.258	1.530	0.046	3.99	45.000	135.000	3.97
outlet	0.172	0.442	1.450	0.097	12.17	59.000	132.700	6.02

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.125	0.642	1.940	0.084	26.72	81.000	166.900	17.8
2	0.187	0.391	2.780	0.018	5.06	70.000	171.900	2.24
outlet	0.173	0.483	2.880	0.073	6.72	73.000	175.200	2.43

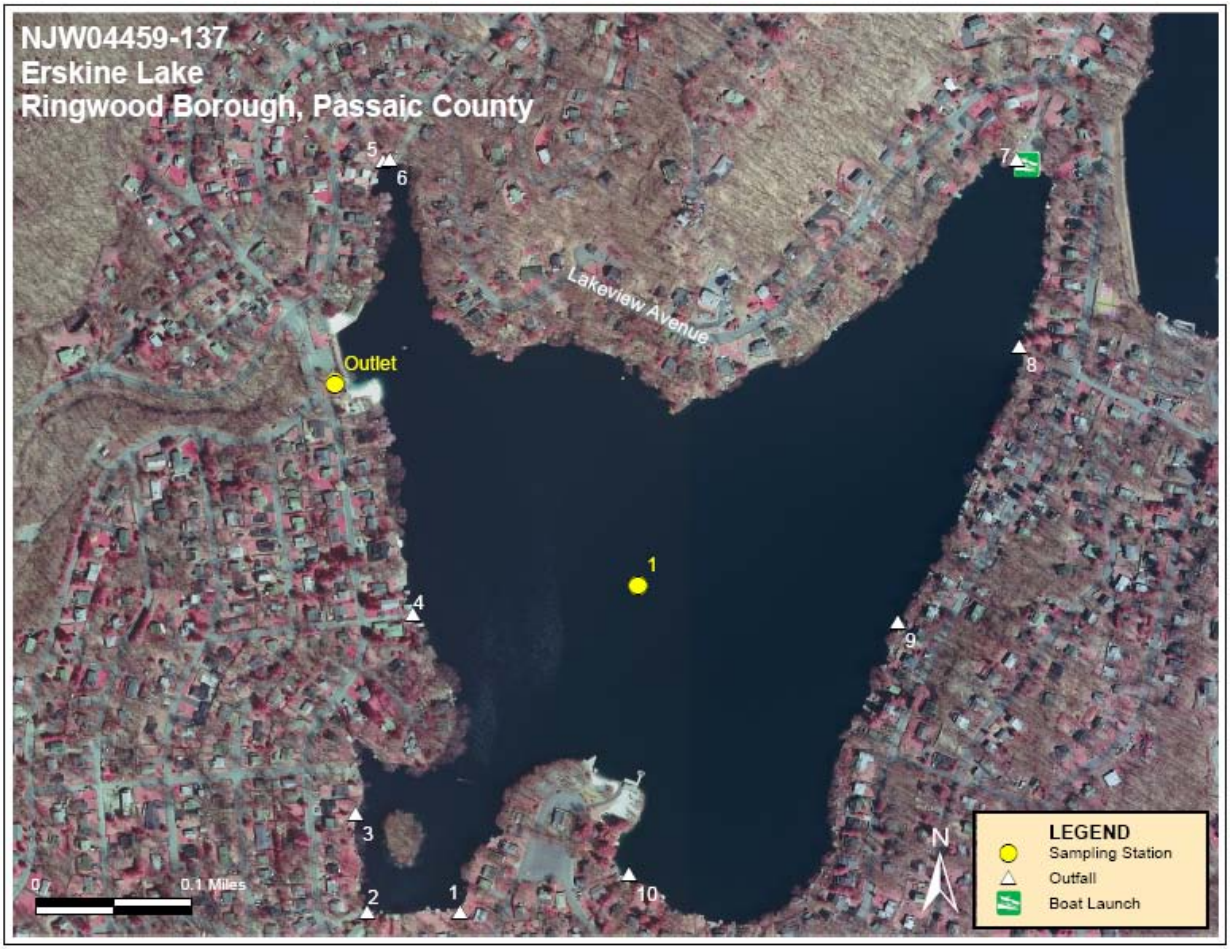
Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Erskine Lake
Site ID NJW04459-137
County Passaic
Municipality Ringwood Borough



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	51.13	41.6	B	46.37 Mesotrophic
Summer Station 1	49.36	54.15	45.16	49.56 Mesotrophic
Fall Station 1	54.13	61.97	50.01	55.37 Eutrophic

B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring - Ducks, many fish, treated by Aquatic Technologies on 5/8/08.
Summer - Aeration systems in southwest and northwest coves. Treated with copper sulfate on 6/5/08 and with aquathol-k on 6/17/08 by Aquatic Technologies, Inc.
Fall - Outlet not flowing. Floating algae in water column, collecting at shore line. Ducks, geese.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Erskine Lake **County:** PASSAIC

SiteID: NJW04459-137 **Municipality:** RINGWOOD BORO

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.4	1	4.4	15.23	8.36	84.1	7.55	0.279
1	4.4	2	4.4	15.11	8.03	80.7	7.55	0.281
1	4.4	3	4.4	15	7.9	79	7.55	0.281
1	4.4	4	4.4	13.76	5.54	54	7.4	0.281
outlet	0.1	0.1		16.38	9.72	100.2	7.35	0.284

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.5	1	2.8	26.64	7.72	98.4	8.13	0.316
1	4.5	2	2.8	26.48	7.67	97.1	8.26	0.316
1	4.5	3	2.8	26.33	7.39	93.6	8.2	0.316
1A	4.5	4	2.8	24.19	0.85	10.3	7.47	0.323
outlet	0.2	0.2		26.88	7.37	94.3	7.54	0.31

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	3.9	1	2.0	17.78	9.79	103.6	8.13	0.27
1	3.9	2	2.0	17.48	8.37	88.2	7.99	0.27
1	3.9	3	2.0	17.36	6.52	69	7.81	0.27

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Erskine Lake
County: PASSAIC
SiteID: NJW04459-137
Municipality: RINGWOOD BORO

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.026	0.505	0.215	0.125	3.07	29.000	70.352	1.03
outlet	0.031	0.575	0.218	0.120	2.82	29.000	71.140	1.09

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.023	0.370	0.070	0.010	11.03	59.000	76.082	1.56
1A	0.033	0.378	0.015	0.026	16.74	40.000	74.913	2.88
outlet	0.025	0.392	0.012	0.036	13.46	39.000	71.966	1.95

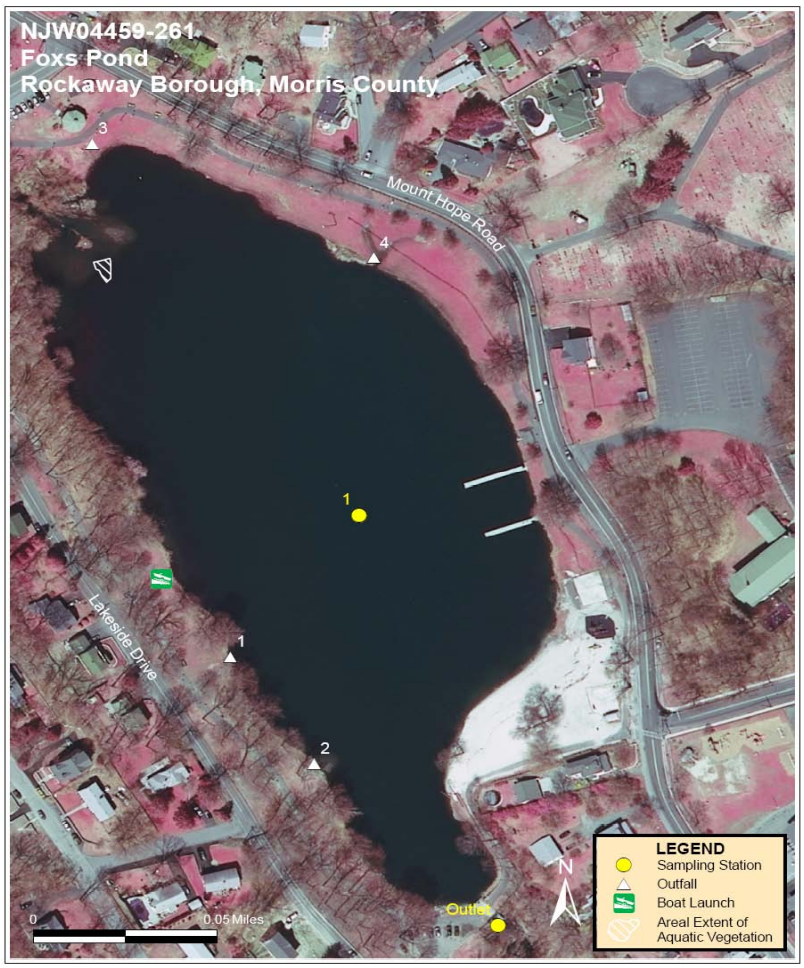
Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.032	0.488	0.007	0.002	24.48	28.000	71.178	3.27

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Foxs Pond
Site ID NJW04459-261
County Morris
Municipality Rockaway Borough



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	55	32.79	B	43.89 Mesotrophic
Summer Station 1	57.7	58.03	53.23	56.32 Eutrophic
Fall Station 1	56.98	67.52	60	61.5 Eutrophic

B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring - Swans, ducks, geese, snails, algae.
Summer - Treated with cutrine ultra on 7/15/08 by Allied Biological, large snails, swans, SAV.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Foxs Pond **County:** MORRIS

SiteID: NJW04459-261 **Municipality:** ROCKAWAY BORO

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.6	1	2.6	14.03	8.18	80.5	7.58	0.644
1	2.6	2	2.6	13.23	8.14	78.7	7.61	0.645
outlet	0.4	0.4		13.72	9.4	91.8	7.83	0.644

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.4	1	1.6	27.4	7.84	70.9	8.33	0.6
1	2.4	2	1.6	26.1	4.82	45.7	7.64	0.541
outlet	1	0.1		27	7.85	71.6	7.7	0.616

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.5	1	1.0	14.52	8.73	86.7	7.48	0.358
1	2.5	2	1.0	14.4	8.8	87.2	7.56	0.362
outlet	0.9	0.9		14.46	8.65	85.8	7.28	0.355

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Foxs Pond
County: MORRIS
SiteID: NJW04459-261
Municipality: ROCKAWAY BORO

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.034	0.442	0.469	0.066	1.25	45.000	117.500	2.27
outlet	0.033	0.449	0.470	0.065	2.14	40.000	119.200	2.34

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.041	0.651	0.019	0.009	16.38	80.000	130.300	3.0
outlet	0.037	0.667	0.046	0.033	12.88	72.000	134.200	2.14

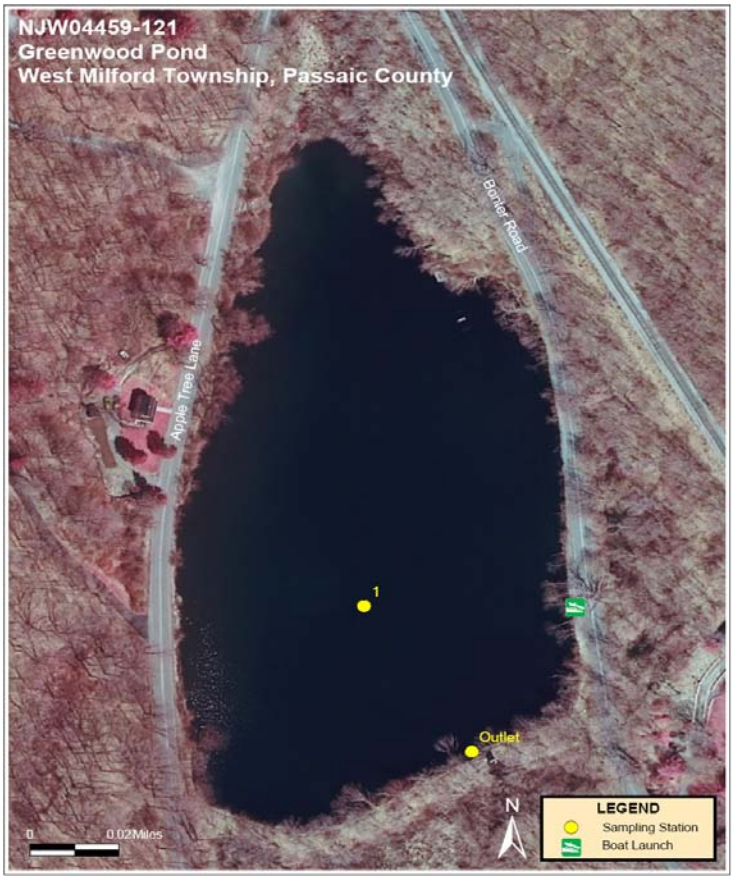
Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.039	0.668	0.320	0.032	43.08	50.000	84.908	4.48
outlet	0.031	0.608	0.331	0.040	37.06	48.000	81.332	3.76

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Greenwood Pond
Site ID NJW04459-121
County Passaic
Municipality West Milford Township



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	37.25	B	37.25 Oligotrophic
Summer Station 1	44.13	50.11	53.23	49.16 Mesotrophic
Fall Station 1	ND	47.18	B	47.18 Mesotrophic

B - Secchi visible to Lake bottom. (See Datasheet for total depth)
ND - TP concentration below detection limit

Observations

Spring - SAV throughout, watermilfoil, ducks.
Summer -SAVs throughout.
Fall - Outlet not flowing. Macrophytes approx. 0.5m below lake surface throughout.
Ducks, cormorant.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Greenwood Pond **County:** PASSAIC

SiteID: NJW04459-121 **Municipality:** WEST MILFORD TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.9	1	2.9	12.43	10.7	101.9	8.32	0.362
1	2.9	2	2.9	12	10.85	102.1	8.32	0.362
outlet	0.1	0.1		13.02	10.56	101.8	8.38	0.364

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.6	1	1.6	26.15	8.78	111.2	7.84	0.391
1	2.6	2	1.6	25.36	6.03	75.3	7.61	0.402

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.4	1	2.4	18.97	10.29	111.9	8.77	0.358
1	2.4	2	2.4	18.8	10.06	109	8.89	0.358

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Greenwood Pond
County: PASSAIC
SiteID: NJW04459-121
Municipality: WEST MILFORD TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.160	0.222	0.010	1.97	36.000	62.914	1.02
outlet	0.016	0.155	0.226	0.009	2.02	42.000	61.465	0.52

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.016	0.422	0.043	0.005	7.31	39.000	72.564	1.51

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.474	0.006	0.006	5.42	40.000	79.596	1.48

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Hudson Lake
Site ID NJW04459-156
County Salem
Municipality Carneys Point Township

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	46.61	41.04	45.69	44.45 Mesotrophic
Summer Station 1	45	44.27	42.37	43.88 Mesotrophic
Fall Station 1	38.73	53.7	49.43	47.25 Mesotrophic

Observations

Summer - Turtle.
Fall - Turtles. Aeration unit in front of lodge.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Hudson Lake **County:** SALEM

SiteID: NJW04459-156 **Municipality:** CARNEYS POINT TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.7	1	2.7	8.15	10.06	83.2	5.86	0.068
1	4.7	2	2.7	8.07	10.06	83.1	5.79	0.069
1	4.7	3	2.7	7.97	9.92	81.7	5.8	0.069
1	4.7	4	2.7	7.73	9.93	81.3	5.81	0.069

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.6	1	3.4	29.01	8.22	106.9	6.4	0.063
1	4.6	2	3.4	25.62	9.06	110.9	6.53	0.063
1	4.6	3	3.4	22.59	9.89	114.4	6.6	0.064
1	4.6	4	3.4	20.08	10.02	110.4	6.62	0.065

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.1	1	2.1	25.37	6.77	81.6	6.13	0.057
1	4.1	2	2.1	25.38	6.79	81.8	6.26	0.057
1	4.1	3	2.1	25.39	6.71	80.8	6.35	0.057
1	4.1	4	2.1	25.39	6.68	80.5	6.42	0.057

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Hudson Lake
County: SALEM
SiteID: NJW04459-156
Municipality: CARNEYS POINT TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.019	0.215	0.040	0.006	2.9	3.000	19.100	2.26

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.017	0.250	0.018	0.010	4.03	4.000	18.725	1.48

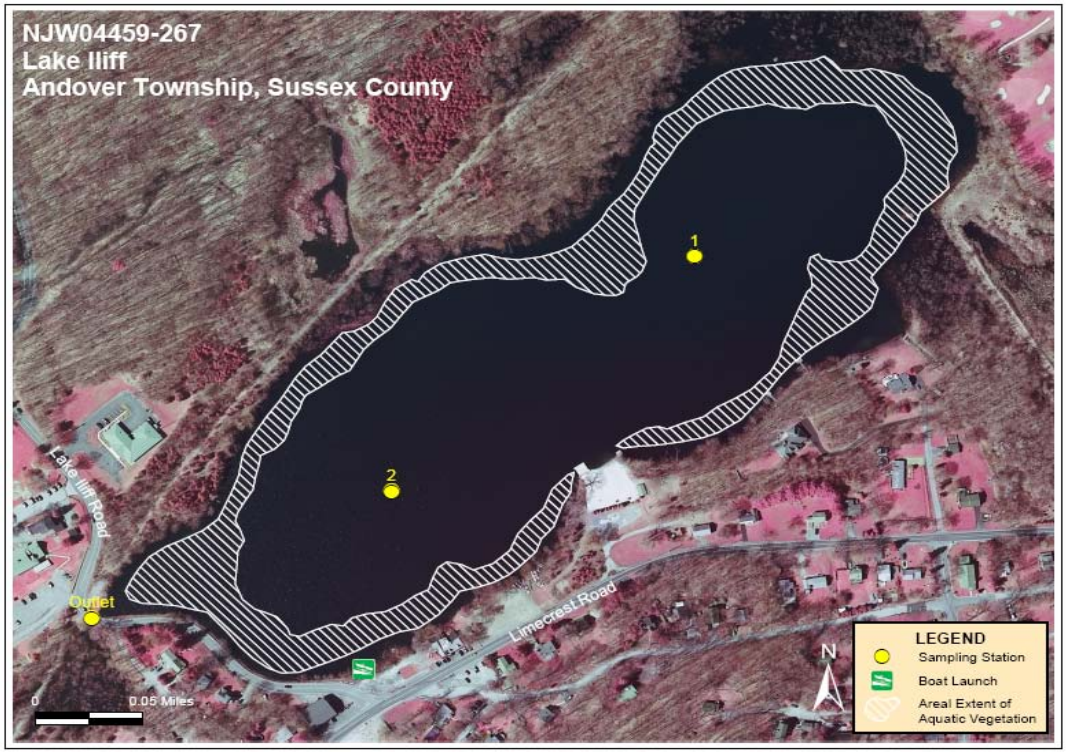
Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.011	0.341	0.003	0.002	10.54	8.000	20.911	2.49

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Lake Iliff
Site ID NJW04459-267
County Sussex
Municipality Andover Township



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	50.57	48.4	41.15	46.71 Mesotrophic
Spring Station 2	47.35	52.05	48.64	49.34 Mesotrophic
Summer Station 1	54.57	56.89	52.35	54.61 Eutrophic
Summer Station 2	45	47.78	40.76	44.51 Mesotrophic
Fall Station 1	44.13	51.48	49.31	48.31 Mesotrophic
Fall Station 2	49.36	58.12	54.16	53.87 Eutrophic

Observations

Spring - Blue heron, swans, ducks.
Fall - Outlet not flowing.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Iliff Lake **County:** SUSSEX

SiteID: NJW04459-267 **Municipality:** ANDOVER TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	6.9	1	3.7	19.82	9.83	110.7	8.22	0.451
1	6.9	2	3.7	19.71	9.79	109.9	8.05	0.45
1	6.9	3	3.7	15.18	11.47	117.3	7.84	0.449
1	6.9	4	3.7	12.1	11.47	109.6	7.72	0.464
1	6.9	5	3.7	9.31	3.12	27.9	7.29	0.473
1A	6.9	6	3.7	8.13	0.51	4.5	6.99	0.48
2	9.7	1	3.8	19.59	9.68	108.6	8.25	0.453
2	9.7	2	3.8	17.74	10.99	118.6	8.12	0.45
2	9.7	3	3.8	15.19	11.55	118.1	8.02	0.447
2	9.7	4	3.8	12	11.77	112.2	7.83	0.464
2	9.7	5	3.8	9.27	3.65	32.7	7.28	0.474
2	9.7	6	3.8	7.88	0.65	5.7	6.96	0.482
2	9.7	8	3.8	6.66	0.25	2.1	6.85	0.505
2	9.7	9	3.8	6.3	0.21	1.8	6.8	0.528
2A	9.7	7	3.8	7.27	0.35	3	6.9	0.49
outlet	0.3	0.3		21.5	10.99	127.9	8.49	0.445

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	6.7	1	2.2	23.76	6.5	77.8	7.33	0.516
1	6.7	2	2.2	23.64	6.5	77.7	7.62	0.517
1	6.7	3	2.2	23.16	4.06	48.1	7.52	0.519
1	6.7	4	2.2	20.16	3.49	39	7.44	0.501
1	6.7	5	2.2	15.07	0.73	7.3	7.34	0.495
1A	6.7	6	2.2	11.61	0.19	1.8	7.22	0.508
2	9.5	1	2.1	23.92	7.05	84.7	7.89	0.516
2	9.5	2	2.1	23.68	6.71	80.2	7.87	0.516
2	9.5	3	2.1	23.12	5.15	61	7.68	0.514
2	9.5	4	2.1	20.52	4.19	47.2	7.57	0.501
2	9.5	5	2.1	15.11	2.1	21.2	7.48	0.495
2	9.5	6	2.1	11.25	0.5	4.6	7.33	0.52
2	9.5	7	2.1	8.66	0.24	2.1	7.29	0.55
2	9.5	8	2.1	7.58	0.16	1.3	7.19	0.572
2	9.5	9	2.1	7.15	0.14	1.2	7.06	0.613
2A	9.5	8.5	2.1	7.28	0.06	0.5	7.07	0.598
outlet	0.3	0.3		23.65	4.75	56.8	7.61	0.519

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	6.9	1	1.7	12.52	5.45	51.2	7.31	0.518
1	6.9	2	1.7	12.44	5.5	51.5	7.37	0.517
1	6.9	3	1.7	12.38	5.51	51.6	7.41	0.516
1	6.9	4	1.7	12.31	5.52	51.6	7.46	0.516
1	6.9	5	1.7	12.11	5.18	48.2	7.46	0.517
1	6.9	6	1.7	11.82	5.29	49	7.47	0.518
2	9.7	1	1.5	12.59	5.05	47.5	7.47	0.519
2	9.7	2	1.5	12.51	5.12	48.1	7.48	0.518
2	9.7	3	1.5	12.5	5.18	48.6	7.48	0.517
2	9.7	4	1.5	12.5	5.09	47.8	7.48	0.518
2	9.7	5	1.5	12.45	5	46.9	7.48	0.518
2	9.7	6	1.5	12.42	5.03	47.2	7.48	0.518
2	9.7	7	1.5	11.85	1.93	17.9	7.28	0.538
2	9.7	8	1.5	8.56	0.23	2	7	0.608
2A	9.7	9	1.5	7.87	0.15	1.3	6.9	0.645

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Iliff Lake **County:** SUSSEX

SiteID: NJW04459-267 **Municipality:** ANDOVER TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.025	0.448	0.010	0.002	6.14	132.0	196.400	0.8
1A	0.039	0.676	0.006	0.003	41.41	129.0	194.900	2.51
2	0.017	0.361	0.007	0.002	5.76	152.0	197.100	0.9
2A	0.05	1.260	0.011	0.399	65.03	101.0	193.500	9.48
outlet	0.017	0.421	0.010	0.002	4.47	99.000	193.800	0.89

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.02	0.499	0.003	0.002	8.9	49.000	216.200	1.45
1A	0.071	0.947	0.005	0.076	93.19	95.000	201.500	9.08
2	0.016	0.478	0.003	0.002	8.4	132.0	217.000	1.51
2A	0.203	3.050	0.006	1.540	66.49	152.0	210.600	13.4
outlet	0.024	0.590	0.004	0.002	6.28	185.0	218.600	1.31

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.033	0.509	0.005	0.034	14.59	102.0	205.300	3.51
2	0.023	0.619	0.004	0.072	16.53	68.000	197.900	3.36
2A	0.51	4.950	0.004	4.310	68.17	95.000	210.500	13.1

Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Koehler Pond
Site ID NJW04459-158
County Morris
Municipality Washington Township

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	54.13	49.38	55.15	52.88 Eutrophic
Summer Station 1	51.13	55.21	54.16	53.5 Eutrophic
Fall Station 1	45.83	63.83	B	54.83 Eutrophic

B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring - Geese.
Summer - Outlet not flowing, SAV throughout, geese, fish.
Fall - Geese. Algae on surface around perimeter. SAV. Outlet dry.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Koehler Pond **County:** MORRIS

SiteID: NJW04459-158 **Municipality:** WASHINGTON TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.1	1	1.4	14.09	8.21	80.4	8.19	0.241
1	2.1	2	1.4	13.28	4.47	43.3	7.37	0.243
outlet	0.1	0.1		14.75	8.67	86.1	7.58	0.24

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.9	1	1.5	26.39	5.3	67.6	8.53	0.255

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.7	1	1.7	18.96	6.24	68.3	6.73	0.2

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Koehler Pond
County: MORRIS
SiteID: NJW04459-158
Municipality: WASHINGTON TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.032	0.469	0.302	0.066	6.78	30.000	62.349	4.08
outlet	0.023	0.430	0.305	0.065	3.98	29.000	63.347	4

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.026	0.431	0.012	0.012	12.29	15.000	65.739	2.35

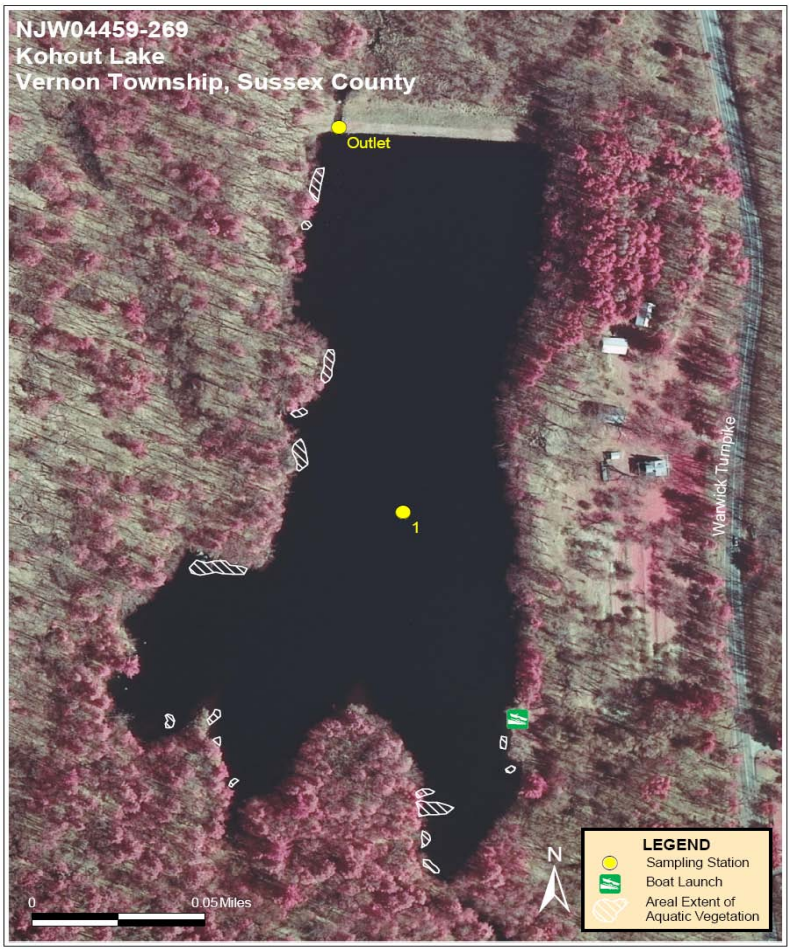
Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.018	0.519	0.005	0.008	29.6	35.000	52.312	3.29

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Kohout Lake	**County**	Sussex
Site ID	NJW04459-269	**Municipality**	Vernon Township



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	54.57	55.31	50.75	53.54 Eutrophic
Summer Station 1	59.97	68.5	61.52	63.33 Eutrophic
Fall Station 1	65.41	51.9	69.99	62.43 Eutrophic

Observations

Spring - Water dark brown, similar to pinelands cedar water, bear activity.
Summer - Outlet not flowing.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Kohout Lake **County:** SUSSEX

SiteID: NJW04459-269 **Municipality:** VERNON TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.5	1	1.9	17.34	8.93	95	6.41	0.132
1A	2.5	2	1.9	12	6.48	62	6.33	0.134
outlet	0.5	0.1		18.33	10.13	110.6	6.61	0.132

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.2	1	0.9	20.64	6.82	78.7	6.36	0.161
1A	2.2	2	0.9	17.07	0.21	2.2	6.47	0.22

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.5	1	0.5	5.34	7.38	59.6	6.19	0.143
1	2.5	2	0.5	4.9	5.54	44.3	5.96	0.137
outlet	0.3	0.3		5.99	9.88	81.1	6.27	0.145

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Kohout Lake **County:** SUSSEX

SiteID: NJW04459-269 **Municipality:** VERNON TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.033	0.567	0.009	0.004	12.41	14.000	31.516	2.43
1A	0.033	0.515	0.007	0.002	11.72	10.000	31.707	2.2
outlet	0.043	0.556	0.011	0.007	12.66	12.000	31.499	2.6

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.048	0.995	0.008	0.011	47.63	39.000	41.005	4.86
1A	0.063	1.300	0.013	0.058	35.23	21.000	43.517	6.08

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.07	0.777	0.003	0.033	8.77	27.000	37.608	4.77
outlet	0.073	0.810	0.005	0.046	12.01	21.000	38.198	5.28

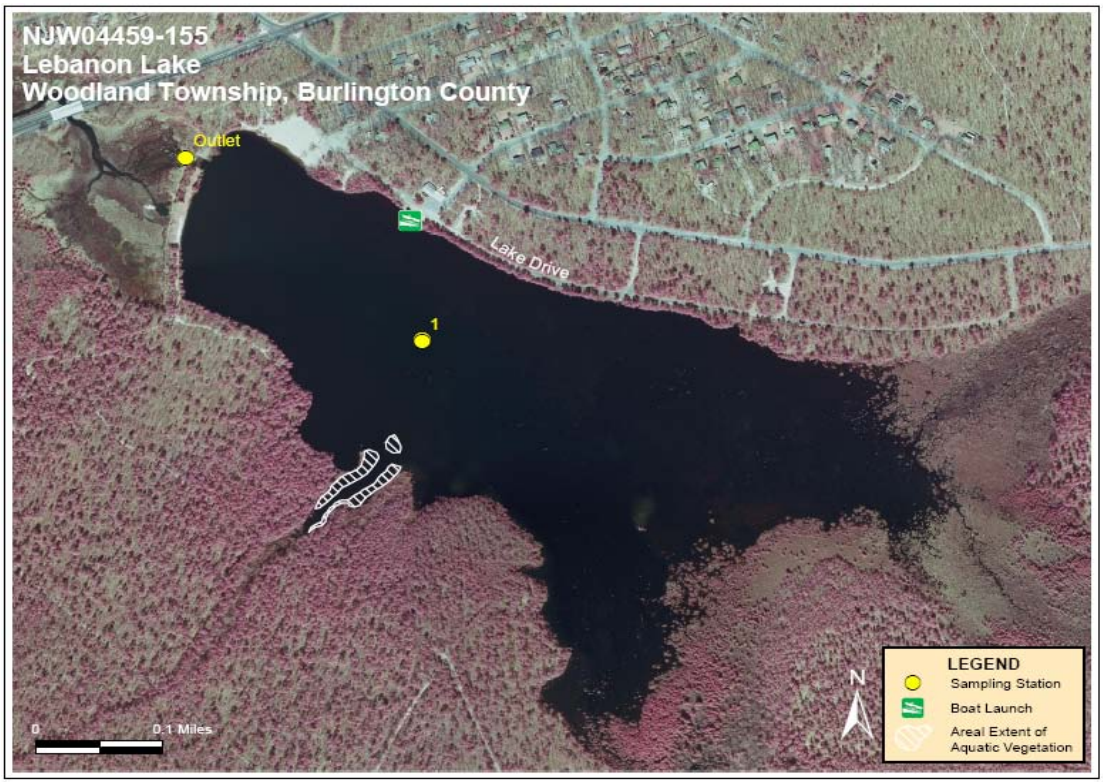
Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Lebanon Lake	**County**	Burlington
Site ID	NJW04459-155	**Municipality**	Woodland Township



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	39.15	B	39.15 Oligotrophic
Summer Station 1	63.89	53.45	67.36	61.57 Eutrophic
Fall Station 1	63.66	54.61	58.63	59.97 Eutrophic

TP exceeds SWQC threshold(See Datasheet for actual concentration)
ND - TP concentration below detection limit
B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring - Tree stumps on East side of lake; cedar brown water; outlet is conduit to adjacent lake.
Summer - Cedar water, bottom outlet pipe separate from main outlet (about 200 ft. away)

AMBIENT LAKE MONITORING NETWORK

Lake Name: Lebanon Lake **County:** BURLINGTON

SiteID: NJW04459-155 **Municipality:** WOODLAND TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.7	1	1.7	8.32	10.42	87.3	5.44	0.046

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.8	1	0.6	23	10.11	102.7	4.37	0.039

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.7	1	1.1	24.2	4.81	57.2	4.4	0.036

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Lebanon Lake **County:** BURLINGTON

SiteID: NJW04459-155 **Municipality:** WOODLAND TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.172	0.027	0.006	2.39	1.000	3.750	1.2

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.063	0.536	0.021	0.011	10.27	1.000	2.231	3.76

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.062	0.683	0.007	0.020	11.56	2.000	2.932	2.37

Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Longwood Lake
Site ID NJW04459-258
County Morris
Municipality Jefferson Township

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	48.72	44.65	B	46.69 Mesotrophic
Spring Station 2	51.68	44.98	B	48.33 Mesotrophic
Spring Station 3	48.72	44.58	B	46.65 Mesotrophic
Summer Station 1	52.71	50.76	47.38	50.28 Mesotrophic
Summer Station 2	56.98	67.48	58.63	61.03 Eutrophic
Summer Station 3	65	51.51	B	58.25 Eutrophic
Fall Station 1	50.57	51.89	B	51.22 Eutrophic
Fall Station 2	48.05	50.88	58.63	52.52 Eutrophic
Fall Station 3	48.72	38.9	B	43.81 Mesotrophic

TP exceeds SWQC threshold(See Datasheet for actual concentration)
B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring - Swan, turtles, heron, cormorants, ducks.
Fall - Ducks, geese, swans, heron and osprey.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Longwood Lake **County:** MORRIS

SiteID: NJW04459-258 **Municipality:** JEFFERSON TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.7	1	2.7	13.25	8.52	83	7.53	0.231
1	2.7	2	2.7	13.24	8.42	83	7.53	0.231
2	1.3	0.6	1.3	12.28	8.83	84.1	7.48	0.22
3	1.7	1	1.7	12.34	10.79	102.9	7.83	0.22
outlet	0.6	0.6		13.69	9.47	93.2	7.59	0.232

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.6	1	2.4	24.24	4.04	48.7	7.09	0.36
1	2.6	2	2.4	23.27	1.08	12.8	6.92	0.374
2	1.3	0.6	1.1	24.88	3.3	39.9	7.13	0.359
3	1.7	1	1.7	22.37	2.66	31.1	7.08	0.407
outlet	0.7	0.7		24.63	5.92	72.1	6.69	0.358

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.7	1	2.7	14.08	6.95	68	6.89	0.251
1	2.7	2	2.7	13.93	6.76	66	6.98	0.251
2	1.3	0.6	1.1	13.3	7.92	76.1	7.25	0.257
3	1.7	1	1.7	11.55	6.64	61.5	7.35	0.273
outlet	0.7	0.7		14.15	8.67	85.1	6.9	0.251

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Longwood Lake **County:** MORRIS

SiteID: NJW04459-258 **Municipality:** JEFFERSON TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.022	0.304	0.160	0.028	4.19	44.000	75.636	1.65
2	0.027	0.208	0.183	0.024	4.33	40.000	74.186	1.56
3	0.022	0.228	0.180	0.015	4.16	55.000	73.399	1.41
outlet	0.019	0.342	0.150	0.031	4.42	49.000	75.136	2.16

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.029	0.396	0.005	0.002	7.81	82.000	100.300	1.99
2	0.039	0.449	0.009	0.002	42.92	72.000	99.772	2.89
3	0.068	0.306	0.018	0.014	8.43	59.000	109.600	2.60
outlet	0.031	0.298	0.014	0.003	5.75	80.000	101.400	1.75

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.025	0.373	0.058	0.022	8.76	53.000	80.395	1.74
2	0.021	0.355	0.049	0.020	7.9	28.000	81.643	1.16
3	0.022	0.253	0.109	0.026	2.33	70.000	90.096	1.49
outlet	0.024	0.294	0.065	0.024	10.82	79.000	81.852	2.11

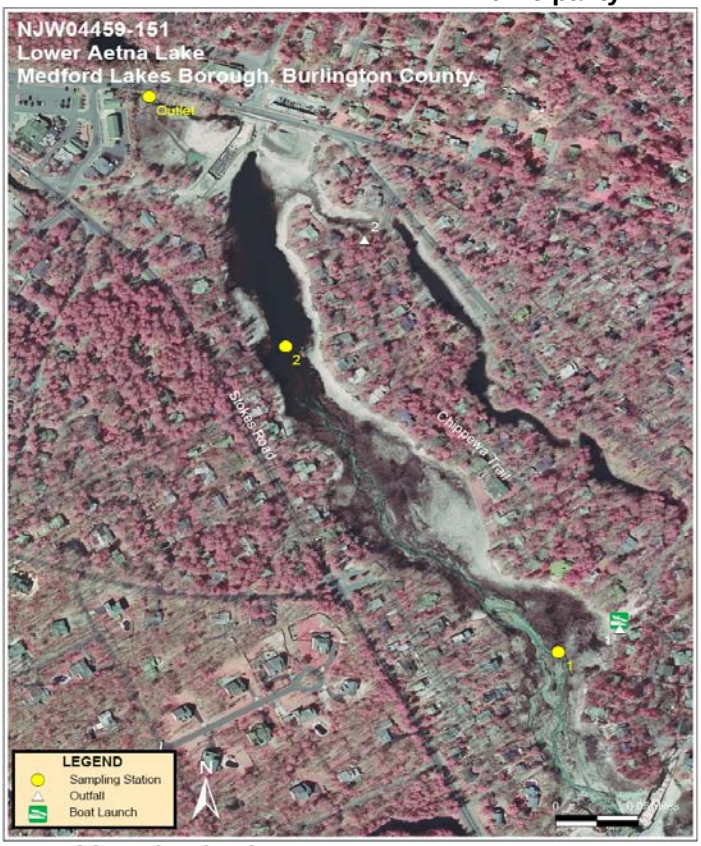
Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Lower Aetna Lake
Site ID NJW04459-151
County Burlington
Municipality Medford Lakes Borough



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	39.98	42.52	50.75	44.42 Mesotrophic
Spring Station 2	48.72	45.2	50.75	48.22 Mesotrophic
Summer Station 1	50.57	61.84	54.16	55.52 Eutrophic
Summer Station 2	55.42	57.82	55.15	56.13 Eutrophic
Fall Station 1	45	46.13	54.16	48.43 Mesotrophic
Fall Station 2	44.13	45.59	50.01	46.58 Mesotrophic

Observations

Spring - Cedar water, ducks, swimming beach.
Summer - Ducks, cormorant, dead fish at beach 2, cedar water.
Fall - Lake treated with Reward on 8/5/08 by Aquatic Technologies.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Lower Aetna Lake **County:** BURLINGTON

SiteID: NJW04459-151 **Municipality:** MEDFORD LAKES BORO

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.1	1	1.9	10.82	9.63	85.7	5.7	0.122
1	2.1	2	1.9	10.8	9.52	84.6	5.74	0.122
2	2.7	1	1.9	10.92	9.46	84.3	5.85	0.127
2	2.7	2	1.9	10.89	9.48	84.5	5.88	0.127
outlet	0.4	0.4		10.98	10.66	95.1	6.21	0.129

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2	1	1.5	26.16	7.34	90.6	5.94	0.112
2	2.5	1	1.4	26.29	6.64	82.4	6.01	0.114
2	2.5	2	1.4	22.63	0.64	7.4	5.96	0.148
2A	2.5	2.2	1.4	20.89	0.35	3.9	6.28	0.189
outlet	0.2	0.2		28.21	7.7	98.6	5.81	0.115

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.7	1	1.5	20.51	7.14	78.1	6.32	0.127
2	2.5	1	2.0	20.37	6.21	67.7	6.24	0.127
2	2.5	2	2.0	20.35	6.19	67.4	6.22	0.128
outlet	0.2	0.2		20.04	7.99	86.5	6.16	0.13

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Lower Aetna Lake
County: BURLINGTON
SiteID: NJW04459-151
Municipality: MEDFORD LAKES BORO

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.012	0.238	0.452	0.028	3.37	4.000	13.729	3.05
2	0.022	0.309	0.441	0.017	4.43	3.000	14.658	3.33
outlet	0.022	0.320	0.425	0.046	6.82	5.000	15.713	4.35

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.025	0.538	0.015	0.015	24.16	8.000	14.699	1.97
2	0.035	0.556	0.005	0.068	16.04	6.000	15.206	3.3
2A	0.078	1.840	0.006	0.525	142.95	22.000	20.254	19
outlet	0.032	0.648	0.011	0.020	20.58	10.000	16.061	4.08

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.017	0.501	0.0084	0.023	4.87	8.000	16.423	2.14
2	0.016	0.533	0.009	0.059	4.61	17.000	16.655	3.32
outlet	0.022	0.550	0.024	0.054	4.15	15.000	17.495	2.81

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Lower Twin Lake
Site ID NJW04459-131
County Passaic
Municipality Pompton Lakes Borough

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	52.2	50.1	49.31	50.54 Mesotrophic
Summer Station 1	46.61	50.22	B	48.41 Mesotrophic
Fall Station 1	52.71	57.54	48	52.75 Eutrophic

ND - TP concentration below detection limit
B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Summer - SAV abundant. Filamentous algae at northern end of lake.
Fall - Herons. Fisherman.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Lower Twin Lake **County:** PASSAIC

SiteID: NJW04459-131 **Municipality:** POMPTON LAKES BORO

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	3.3	1	2.1	15.2	9.07	91.3	7.5	0.193
1	3.3	2	2.1	14.69	8.25	82	7.44	0.194
1	3.3	3.1	2.1	12.57	6.03	57.2	7.27	0.202
outlet	0.2	0.2		16.24	9.98	102.5	7.53	0.19

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	3.2	1	3.2	25.5	6.81	83.4	7.5	0.265
1	3.2	2	3.2	25.31	6.24	76.1	7.49	0.266
1	3.2	3	3.2	24.05	0.89	10.6	7.11	0.277
outlet	0.1	0.1		27.36	7.36	93.2	7.52	0.252

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	3.4	1	2.3	15.86	9.61	96.5	7.38	0.185
1	3.4	2	2.3	15.51	6.45	64.3	7.23	0.197
1	3.4	3	2.3	15.07	2.44	24	7.03	0.206
outlet	0.1	0.1		16.21	9.59	97	7.5	0.182

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Lower Twin Lake
County: PASSAIC
SiteID: NJW04459-131
Municipality: POMPTON LAKES BORO

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.028	0.405	0.107	0.015	7.3	35.000	54.380	2.52
outlet	0.028	0.360	0.103	0.016	6.68	38.000	52.135	2.33

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.019	0.285	0.005	0.010	7.39	38.000	60.074	1.10
outlet	0.019	0.282	0.013	0.010	6.45	62.000	56.460	0.85

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.029	0.376	0.066	0.003	15.58	35.000	52.174	1.39
outlet	0.022	0.319	0.068	0.003	9.83	30.000	52.465	1.18

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Monongahela Lake
Site ID NJW04459-268
County Gloucester
Municipality Deptford Township

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	54.57	58.86	55.15	56.19 Eutrophic
Spring Station 2	48.72	58.87	54.16	53.92 Eutrophic
Summer Station 1	64.56	69.48	57.37	63.81 Eutrophic
Summer Station 2	56.98	67.2	55.15	59.78 Eutrophic
Fall Station 1	61.67	72.23	63.22	65.71 Eutrophic
Fall Station 2	58.39	70.57	61.52	63.49 Eutrophic

TP exceeds SWQC threshold(See Datasheet for actual concentration)

Observations

Spring - Geese, many turtles, herons, filamentous algae collecting along dam and shoreline.
Summer - Duckweed, green film, small floating algae mats, turtles.
Fall - Water at outlet and inlet has green scum layer. Water throughout appears green in color.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Monongahela Lake **County:** GLOUCESTER

SiteID: NJW04459-268 **Municipality:** DEPTFORD TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.2	1	1.4	14.13	12.65	121.8	7.1	0.215
1	2.2	2	1.4	10.2	12.23	107.8	7.05	0.208
2	3	1	1.5	14.33	12.31	119	7.32	0.217
2	3	2	1.5	12.18	14.17	130.6	7.61	0.224
outlet	0.1	0.1		14.14	10.34	99.5	6.64	0.219

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.2	1	1.2	25.52	6.38	78	6.68	0.183
1	2.2	2	1.2	20	2.54	28	6.39	0.202
2	3.0	1	1.4	25.17	9.71	117.7	6.61	0.182
2	3.0	2	1.4	19.7	1.63	17.8	6.3	0.187
2A	3.0	2.8	1.4	14.75	0.28	2.8	6.55	0.37
outlet	0.2	0.2		25.73	7.26	89.2	6.78	0.184

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.9	1	0.8	21.35	7.13	80.3	6.56	0.156
2	2.9	0.5	0.9	23.89	11.5	136.4	7.64	0.151
2	2.9	1	0.9	21.72	10.87	123.7	6.81	0.156
2	2.9	2	0.9	18.97	0.34	3.7	6.35	0.19
2A	2.9	2.5	0.9	18.04	0.38	4	6.66	0.31
outlet	0.1	0.1		24.86	5.34	64.5	6.73	0.153

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Monongahela Lake **County:** GLOUCESTER

SiteID: NJW04459-268 **Municipality:** DEPTFORD TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.033	0.429	1.380	0.018	17.83	50.000	41.701	3.4
2	0.022	0.37	1.24	0.008	17.84	43	40.801	2.8
outlet	0.022	0.509	1.21	0.013	18.17	35	40.661	2.54

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.066	0.751	0.874	0.072	52.63	32.000	42.568	5.45
2	0.039	0.440	0.779	0.008	41.73	38.000	43.641	3.76
2A	0.207	3.920	0.191	2.060	135.48	68.000	50.217	24.9
outlet	0.041	0.611	0.634	0.034		40.000	43.342	3.8

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.054	1.000	0.290	0.007	69.69	10.000	38.740	9.73
2	0.043	0.959	0.105	0.028	58.84	30.000	38.260	11.1
2A	0.068	1.870	0.191	0.851	39.41	32.000	41.069	23.0
outlet	0.038	0.866	0.155	0.130	49.67	20.000	38.842	6.34

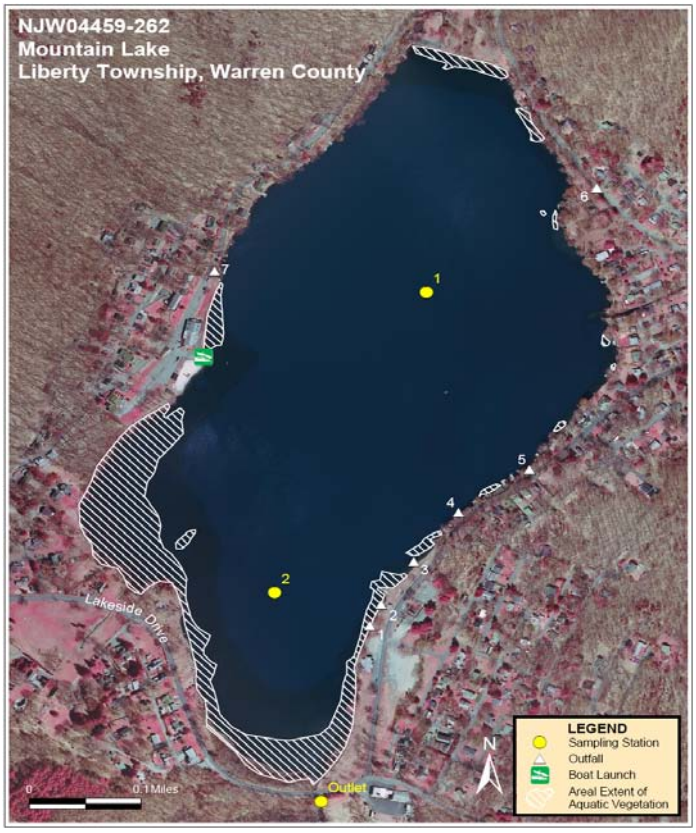
Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Mountain Lake
Site ID NJW04459-262
County Warren
Municipality Liberty Township



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	41.14	50.73	50.75	47.54 Mesotrophic
Spring Station 2	42.21	49.91	51.53	47.88 Mesotrophic
Summer Station 1	ND	56.04	53.23	54.63 Eutrophic
Summer Station 2	44.13	57.64	55.15	52.31 Eutrophic
Fall Station 1	45	60.43	51.53	52.32 Eutrophic
Fall Station 2	45	60.98	51.53	52.51 Eutrophic

ND - TP concentration below detection limit

Observations

Fall - Lily and watermilfoil around banks.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Mountain Lake **County:** WARREN

SiteID: NJW04459-262 **Municipality:** LIBERTY TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	11.3	1	1.9	15	9.64	96.3	8.44	0.291
1	11.3	10	1.9	6.49	2.08	17.1	7.53	0.297
1	11.3	11	1.9	6.41	0.82	6.7	7.47	0.3
1	11.3	2	1.9	14.89	9.56	95.3	8.46	0.293
1	11.3	3	1.9	13.59	11.62	112.5	8.54	0.291
1	11.3	4	1.9	10.49	14.24	128.5	8.71	0.286
1	11.3	5	1.9	8.4	12.68	109	8.54	0.289
1	11.3	6	1.9	7.53	8.47	70.9	7.91	0.292
1	11.3	7	1.9	7.05	8.02	66.7	7.85	0.291
1	11.3	9	1.9	6.6	5.43	44.6	7.66	0.293
1A	11.3	8	1.9	6.74	7.17	59.1	7.74	0.291
2	5.2	1	1.8	15.11	9.5	95.2	8.5	0.294
2	5.2	2	1.8	15.05	9.42	94.2	8.53	0.294
2	5.2	3	1.8	14.4	8.91	87.9	8.48	0.297
2	5.2	5	1.8	9	0.29	2.5	7.8	0.3
2A	5.2	4	1.8	9.58	12.59	111.3	8.65	0.29
outlet	0.3	0.3		14.07	9.34	91.5	8.04	0.302

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	11	1	1.6	26.92	9.45	119.2	8.79	0.325
1	11	2	1.6	26.58	9.91	124.3	8.76	0.325
1	11	3	1.6	26.43	9.52	119	8.69	0.326
1	11	4	1.6	23.33	15.92	187.9	8.84	0.319
1	11	5	1.6	16.3	11.98	122.9	8.4	0.325
1	11	6	1.6	11.78	5.78	53.7	7.79	0.325
1	11	7	1.6	9.42	0.23	2	7.36	0.307
1	11	8	1.6	8.07	0.17	1.5	7.28	0.347
1	11	9	1.6	7.25	0.13	1.1	7.21	0.353
1A	11	10	1.6	6.87	0.08	0.7	7.1	0.366
2	6.5	1	1.4	26.58	8.86	111.1	8.62	0.323
2	6.5	2	1.4	26.43	8.97	112.1	8.73	0.325
2	6.5	3	1.4	26.1	7.43	92.3	8.48	0.327
2	6.5	4	1.4	22.49	13.65	158.6	8.69	0.324
2	6.5	5	1.4	16.31	6.79	69.8	7.75	0.33
2A	6.5	6	1.4	12.62	1.77	17	7.53	0.324
outlet	0.2	0.2		24.24	5.12	61.5	6.81	0.325

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	11.5	1	1.8	19.62	9.03	100.7	8.44	0.308
1	11.5	10	1.8	7.56	0.11	1	6.73	0.37
1	11.5	2	1.8	19.56	9.18	102.2	8.55	0.308
1	11.5	3	1.8	19.36	8.7	97	8.51	0.309
1	11.5	4	1.8	19.26	8.27	91.6	8.43	0.31
1	11.5	5	1.8	18.89	6.92	76	8.05	0.314
1	11.5	6	1.8	16.18	1.11	11.5	7.45	0.33
1	11.5	8	1.8	8.76	0.18	1.6	6.95	0.355
1	11.5	9	1.8	8.02	0.14	1.2	6.83	0.36
1A	11.5	7	1.8	11.36	0.31	3.1	7.15	0.343
2	6.4	1	1.8	19.57	8.77	97.6	8.94	0.305
2	6.4	2	1.8	19.4	8.6	95.4	8.76	0.307
2	6.4	3	1.8	19.32	8.35	92.5	8.61	0.308
2	6.4	4	1.8	19.23	7.84	86.7	8.47	0.31
2	6.4	5	1.8	18.41	4.37	46.2	7.82	0.311
2	6.4	6	1.8	16.06	0.67	6.4	7.41	0.33
outlet	0.1	0.1		19.04	6.74	74.2	7.75	0.311

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Mountain Lake **County:** WARREN

SiteID: NJW04459-262 **Municipality:** LIBERTY TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.013	0.261	0.007	0.005	7.78	95.000	135.900	3.01
1A	0.019	0.294	0.036	0.012	11.16	.00.000	131.100	3.13
2	0.014	0.289	0.004	0.005	7.16	72.000	134.700	2.89
2A	0.021	0.315	0.004	0.005	13.06	116.0	132.200	5.28
outlet	0.015	0.266	0.032	0.006	6.32	102.0	138.900	3.04

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.353	0.007	0.002	13.37	98.000	136.100	1.97
1A	0.373	2.170	0.010	1.490	16.63	137.0	139.300	12.7
2	0.016	0.409	0.006	0.002	15.74	110.0	136.000	2.25
2A	0.038	0.542	0.005	0.002	29.07	80.000	131.400	5.24
outlet	0.011	0.387	0.022	0.011	9.02	58.000	132.400	1.52

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.017	0.478	0.003	0.002	20.92	75.000	135.000	4.34
1A	0.027	0.541	0.005	0.115	33.76	92.000	140.300	4.78
2	0.017	0.485	0.003	0.002	22.13	111.0	133.600	4.32
outlet	0.023	0.634	0.003	0.005	22.21	65.000	130.400	3.67

Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Old Forge Lake
Site ID NJW04459-270
County Burlington
Municipality Southampton Township

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	44.13	38.64	B	41.39 Mesotrophic
Spring Station 2	48.72	49.02	54.16	50.63 Mesotrophic
Spring Station 3	44.13	45.95	B	45 Mesotrophic
Summer Station 1	45	50.52	B	45.04 Mesotrophic
Summer Station 2	55.82	68.12	55.15	59.7 Eutrophic
Summer Station 3	47.35	58.82	B	53.08 Eutrophic
Fall Station 1	42.21	45.35	B	43.78 Mesotrophic
Fall Station 2	50.57	58.28	54.16	54.34 Eutrophic
Fall Station 3	41.14	48.27	B	44.71 Mesotrophic

B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring - Water cedar brown.
Fall - Ducks, geese.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Old Forge Lake **County:** BURLINGTON

SiteID: NJW04459-270 **Municipality:** SOUTHAMPTON TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.3	1	1.3	13.82	9.13	87.6	4.18	0.078
2	1.9	1	1.5	13.95	8.51	81.8	4.4	0.079
3	1.5	1	1.5	12.51	8.3	77.3	4.29	0.076
outlet	0.1	0.1		15.76	8.7	87	4.4	0.077

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.3	1	1.3	24.64	5.76	69.2	4.78	0.08
2	1.6	0.3	1.4	26.7	7.41	92.5	4.85	0.079
2A	1.6	1.3	1.4	23.44	1.35	15.7	4.63	0.08
3	1.5	0.2	1.5	27.19	7.16	90.1	4.84	0.08
3A	1.5	1.2	1.5	23.57	4.82	56.9	4.6	0.084
outlet	0.1	0.1		26.39	7.1	88	4.81	0.081

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.3	0.6	1.3	15.01	7.44	73.3	5.28	0.078
2	1.6	1	1.5	15.95	6.2	62.3	4.92	0.079
3	1.5	1	1.5	15.92	7.22	72.6	5.13	0.077
outlet	0.2	0.2		16.59	7.98	81.3	5.19	0.078

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Old Forge Lake **County:** BURLINGTON

SiteID: NJW04459-270 **Municipality:** SOUTHAMPTON TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.016	0.312	0.395	0.012	2.27	1.000	11.445	1.66
2	0.022	0.349	0.306	0.014	6.54	2.000	11.479	1.94
3	0.016	0.310	0.325	0.013	4.78	8.000	11.454	1.95
outlet	0.029	0.415	0.306	0.021	4.74	1.000	11.098	2.18

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.017	0.397	0.210	0.009	7.62	3.000	14.162	2.09
2	0.036		0.131	0.008	45.8	4.000	13.424	2.36
2A	0.032	0.691	0.168	0.026	49.81	1.000	13.085	2.24
3	0.02	0.473	0.180	0.004	17.75	1.000	13.971	2.19
3A	0.022	0.508	0.211	0.015	13.44	2.000	14.195	2.39
outlet	0.024	0.508	0.183	0.002	14.43	2.000	13.996	2.11

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.014	0.195	0.455	0.016	4.5	2.000	14.440	1.51
2	0.025	0.414	0.210	0.034	16.81	1.000	13.438	2.75
3	0.013	0.160	0.341	0.015	6.06	1.000	14.026	1.48
outlet	0.02	0.246	0.317	0.018	8.22	1.000	13.894	2.63

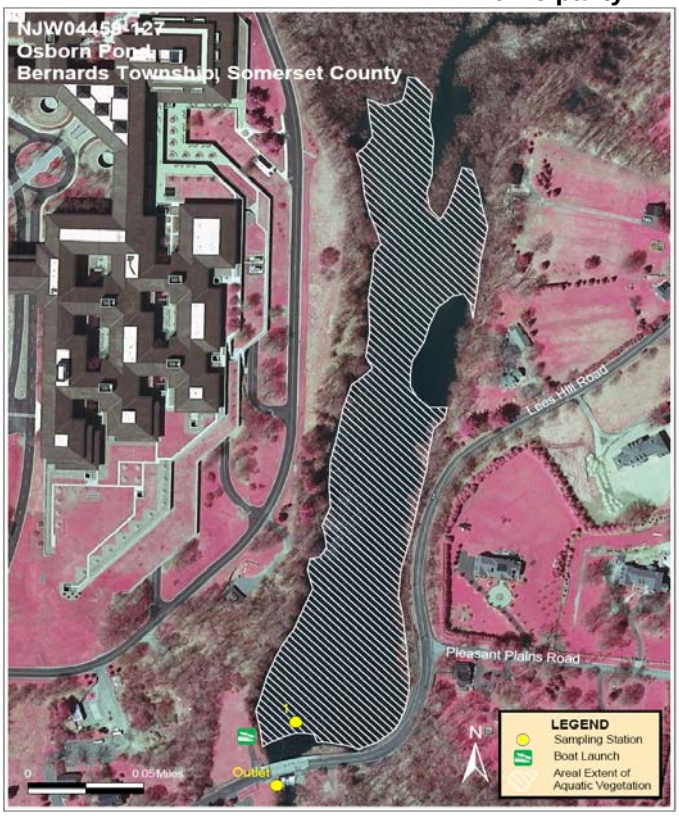
Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Osborn Pond	**County**	Somerset
Site ID	NJW04459-127	**Municipality**	Bernards Township



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	53.67	43.19	B	48.43 Mesotrophic
Summer Station 1	78.38	59.17	B	68.77 Eutrophic
Fall Station 1	63.66	52.89	61.52	59.36 Eutrophic

TP exceeds SWQC threshold(See Datasheet for actual concentration)
B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Summer - SAV and filamentous algae dense throughout.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Osborn Pond **County:** SOMERSET

SiteID: NJW04459-127 **Municipality:** BERNARDS TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1	0.5	1	11.86	9.56	90	7.39	0.232
outlet	0.6	0.6		12.38	10.38	98.8	7.35	0.273

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.8	0.5	0.8	19.73	0.24	2.6	6.37	0.285
outlet	0.2	0.2		19.75	5.2	56.5	6.7	0.286

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.0	0.5	0.9	5.75	8.61	69.6	6.94	0.285
outlet	0.4	0.4		5.7	9.37	75.7	6.98	0.285

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Osborn Pond **County:** SOMERSET

SiteID: NJW04459-127 **Municipality:** BERNARDS TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.031	0.288	0.652	0.026	3.61	51.000	74.428	3.39
outlet	0.059	0.333	0.586	0.048	4.15	55.000	79.980	3.12

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.172	1.590	0.013	0.038	18.4	56.000	93.919	3.55
outlet	0.065	0.281	0.012	0.022	7.18	52.000	94.581	2.52

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.062	0.524	0.360	0.023	9.7	19.000	70.542	7.52
outlet	0.062	0.451	0.373	0.021	7.79	50.000	70.454	9.18

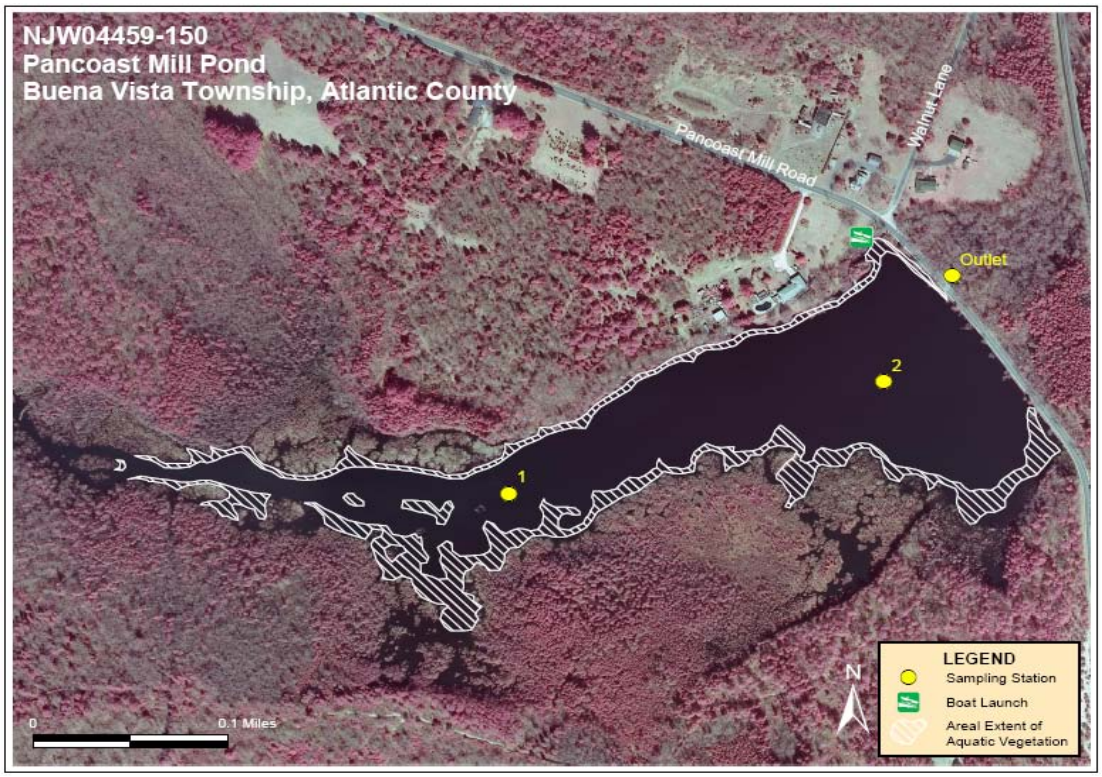
Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Pancoast Mill Pond	**County**	Atlantic
Site ID	NJW04459-150	**Municipality**	Buena Vista Township



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	52.71	42.43	65.14	53.43 Eutrophic
Spring Station 2	51.68	51.58	B	51.63 Eutrophic
Summer Station 1	58.05	42.19	B	50.12 Eutrophic
Summer Station 2	67.69	53.98	B	60.84 Eutrophic
Fall Station 1	65.21	46.35	B	55.78 Eutrophic
Fall Station 2	56.6	47.07	B	51.84 Eutrophic

TP exceeds SWQC threshold(See Datasheet for actual concentration)
B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring - Filamentous algae present; strong odor when sediment disturbed; approx. 0.75M thick mat on top of bottom sediment throughout lake; secchi becomes obscured by filamentous algae at station 1.
Summer - filamentous algae, duckweed
Fall - Algae problems extenive, filling in areas around edge of lake. Turtles, frogs.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Pancoast Mill Pond **County:** ATLANTIC

SiteID: NJW04459-150 **Municipality:** BUENA VISTA TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.9	0.5	0.7	8.39	10.19	86.2	6.21	0.154
2	1.1	0.5	1.1	9.4	10.84	94.2	6.43	0.126
outlet	0.2	0.2		9.4	10.15	88.2	6.41	0.127

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.9	0.5	0.9	20.44	5.03	55.8	5.95	0.158
2	1.1	0.5	1.1	25.2	5.24	63.8	6.22	0.133
outlet	0.4	0.4		25.69	5.87	72.1	6.38	0.132

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.8	0.4	0.8	23.24	6.32	73.3	6.16	0.155
2	1.1	0.5	1.1	25.16	5.6	67.4	6.56	0.155
outlet	0.2	0.2		26.63	6.58	81.3	6.65	0.157

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Pancoast Mill Pond
County: ATLANTIC
SiteID: NJW04459-150
Municipality: BUENA VISTA TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.029	0.353	2.460	0.008	3.34	5.000	29.694	1.93
2	0.027	0.359	1.690	0.010	8.49	8.000	24.959	1.95
outlet	0.032	0.453	1.800	0.025	12.64	12.000	26.075	2.60

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.042	0.463	1.100	0.074	3.26	15.000	26.890	1.71
2	0.082	0.770	0.468	0.153	10.84	20.000	23.580	1.81
outlet	0.06	0.783	0.393	0.166	14.72	35.000	23.505	1.69

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.069	0.630	0.514	0.143	4.98	18.000	26.707	3.87
2	0.038	0.525	0.261	0.102	5.36	15.000	23.785	1.81
outlet	0.03	0.473	0.121	0.066	5.67	24.000	23.103	1.12

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Paulina Lake	**County**	Warren
Site ID	NJW04459-154	**Municipality**	Blairstown Township

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	59.97	48.47	57.37	55.27 Eutrophic
Spring Station 2	58.05	48.55	56.22	54.27 Eutrophic
Summer Station 1	60.27	37.93	B	49.1 Mesotrophic
Summer Station 2	59.97	44.25	B	52.11 Eutrophic
Fall Station 1	48.72	31.71	B	40.22 Oligotrophic
Fall Station 2	48.72	31.53	B	40.13 Oligotrophic

B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring -Turtles, blue heron, swan.
Summer - Turtles, fish, heron, purple loosestrife, swan, filamentous algae, ducks, freshwater mussels, frogs.
Fall - Ducks, blue heron.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Paulina Lake **County:** WARREN

SiteID: NJW04459-154 **Municipality:** BLAIRSTOWN TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.3	0.6	1.2	12.8	10.73	102.4	8.19	0.357
2	1.5	1	1.3	12.82	10.97	104.6	8.18	0.357
outlet	0.2	0.2		13.25	10.77	103.7	8.24	0.357

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.3	0.6	1.3	18.59	7.7	82.5	7.81	0.497
2	1.5	1	1.5	19.54	6.92	75.5	8	0.496
outlet	0.3	0.3		21.41	8.4	95.1	7.91	0.492

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.3	0.6	1.3	8.35	10.78	94	8.13	0.446
2	1.5	1	1.5	8.97	9.5	84	8.04	0.443
outlet	0.1	0.1		9.41	10.86	97	8.33	0.442

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Paulina Lake **County:** WARREN

SiteID: NJW04459-154 **Municipality:** BLAIRSTOWN TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.048	0.367	0.310	0.020	6.18	96.000	126.200	5.72
2	0.042	0.341	0.316	0.021	6.23	122.0	127.200	5.73
outlet	0.033	0.380	0.303	0.026	5.56	85.000	131.200	5.84

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.049	0.054	0.213	0.024	2.11	139.0	181.200	1.23
2	0.048	0.054	0.204	0.029	4.02	142.0	182.600	2.59
outlet	0.049	0.054	0.160	0.030	3.78	146.0	179.300	2.05

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.022	0.342	0.139	0.002	1.12	85.000	161.800	0.88
2	0.022	0.323	0.124	0.013	1.1	64.000	162.241	1.06
outlet	0.019	0.317	0.108	0.004	1.86	122.0	164.500	1.36

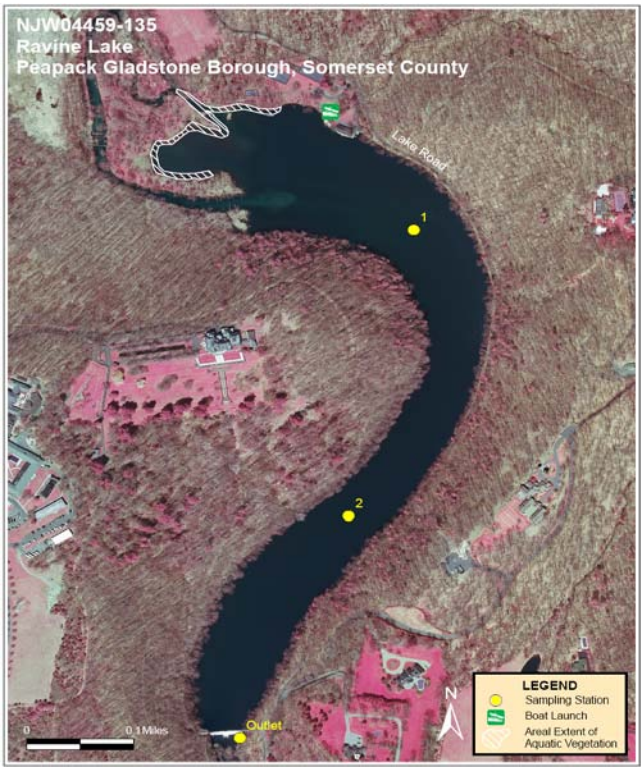
Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Ravine Lake	**County**	Somerset
Site ID	NJW04459-135	**Municipality**	Peapack Gladstone Borough



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	45.83	35.39	B	40.61 Oligotrophic
Spring Station 2	41.14	37.05	42.37	40.18 Oligotrophic
Summer Station 1	64.12	50.1	65.14	59.79 Eutrophic
Summer Station 2	63.43	54.97	67.36	61.92 Eutrophic
Fall Station 1	59.97	66.22	B	63.1 Eutrophic
Fall Station 2	56.6	70.53	40.39	55.84 Eutrophic

TP exceeds SWQC threshold(See Datasheet for actual concentration)
B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Summer - Entire northern half of lake has rising gas bubbles; heron, swan, geese, fish.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Ravine Lake **County:** SOMERSET

SiteID: NJW04459-135 **Municipality:** PEAPACK GLADSTONE BORO

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.1	1	2.1	6.52	11.85	96.1	7.24	0.26
2	5.6	1	3.4	7.08	11.76	96.7	8.14	0.257
2	5.6	2	3.4	6.71	11.83	96.4	8.09	0.255
2	5.6	3	3.4	6.43	11.86	95.9	8.01	0.253
2	5.6	4	3.4	5.91	12.03	96	7.96	0.255
outlet	0.1	0.1		7	13.07	107.3	10.9	0.255

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.9	0.5	0.7	24.32	6.75	81.4	7.07	0.172
2	4.5	1	0.6	22.28	6.22	72.2	6.7	0.176
2	4.5	2	0.6	21.02	5.71	64.7	6.66	0.152
2	4.5	3	0.6	18.47	5.48	59	6.6	0.186
2A	4.5	4	0.6	13.08	2.35	22.5	6.67	0.235
outlet	0.1	0.1		22.3	8.65	100.5	6.49	0.16

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.9	0.5	0.9	20.06	9.11	100.2	7.36	0.267
2	4.6	1	3.9	20.49	8.68	96.2	7.55	0.245
2	4.6	2	3.9	19.74	7.22	79.8	7.35	0.253
2	4.6	3	3.9	19.04	3.89	39.3	7.04	0.244
2	4.6	4	3.9	17.91	0.39	4.1	6.82	0.255
outlet	0.1	0.1		21.29	8.17	92	7.94	0.248

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Ravine Lake **County:** SOMERSET

SiteID: NJW04459-135 **Municipality:** PEAPACK GLADSTONE BORO

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.018	0.097	1.130	0.015	1.63	35.000	74.596	1.55
2	0.013	0.062	1.120	0.013	1.93	24.000	73.558	1.51
outlet	0.021	0.061	1.120	0.011	1.83	28.000	72.318	1.36

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.064	0.513	0.487	0.099	7.3	39.000	58.850	10.2
2	0.061	0.590	0.482	0.106	11.99	32.000	57.772	12.6
2A	0.073	0.763	0.475	0.197	5.26	50.000	66.765	12.6
outlet	0.072	0.722	0.466	0.114	11.77	42.000	54.124	16.4

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.048	0.761	0.610	0.129	37.75	42.000	91.888	6.18
2	0.038	0.637	0.568	0.054	58.59	34.000	84.887	3.00
outlet	0.022	0.437	0.568	0.034	18.97	45.000	82.315	2.62

Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Sheppards Mill Pond	**County**	Cumberland
Site ID	NJW04459-143	**Municipality**	Greenwich Township

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	50.57	52.21	51.53	51.44 Eutrophic
Spring Station 2	45.83	53.11	49.31	49.42 Mesotrophic
Summer Station 1	65.82	56.82	57.37	60 Eutrophic
Summer Station 2	66.97	56.58	53.23	58.93 Eutrophic
Fall Station 1	53.2	63.72	61.52	59.48 Eutrophic
Fall Station 2	51.68	62.22	60	57.97 Eutrophic

TP exceeds SWQC threshold(See Datasheet for actual concentration)

Observations

Summer - Water has odor and light green scum on surface,
very cloudy with brownish green color; ducks, geese, turtles.
Fall - Geese, cormorant, heron. Filamentous algae at intlet 3.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Sheppards Mill Pond **County:** CUMBERLAND

SiteID: NJW04459-143 **Municipality:** GREENWICH TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2	1	1.8	9.51	10.54	90.4	7.18	0.094
2	2.6	1	2.1	9.81	10.42	89.9	7.03	0.093
2	2.6	2	2.1	9.8	10.25	88.6	6.82	0.093
outlet	0.2	0.2		9.81	10.93	94.5	6.59	0.094

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.5	1	1.2	26.8	9.53	118.7	7.2	0.079
1	2.5	2	1.2	22.2	6.59	75.4	6.8	0.084
2	2.6	1	1.6	29.1	9.81	127.3	6.99	0.079
2	2.6	2	1.6	23.17	10.04	117	6.72	0.08
2A	2.6	2.5	1.6	19.95	8.31	91.3	6.66	0.082
outlet	0.3	0.3		28.88	5	64.6	7.13	0.079

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.8	1	0.9	25.25	11	133.1	9.23	0.117
2	2.2	1	1.0	25.32	10.69	129.5	9.14	0.117
2	2.2	2	1.0	23.56	2.78	32.5	7.85	0.116
outlet	0.1	0.1		25.86	8.21	100.5	8.61	0.114

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Sheppards Mill Pond **County:** CUMBERLAND

SiteID: NJW04459-143 **Municipality:** GREENWICH TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Potassium (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.025	0.224	1.600	0.008		9.05	5.0	28.515	3.3
2	0.018	0.191	1.550	0.211		9.92	10.0	27.910	2.18
outlet	ND	0.329	1.510	0.007		10.51	5.0	28.134	1.88

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Potassium (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.072	1.410	0.900	0.059		14.48	14.0	29.170	11
2	0.078	0.549	0.761	0.006		14.13	15.0	28.963	6.45
2A	0.073	0.652	0.674	0.060		17.16	10.0	29.337	4.86
outlet	0.014	0.658	0.704	0.025		13.93	30.0	28.979	7.46

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Potassium (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.03	0.837	0.006	0.055	3.550	29.26	59.0	39.634	14.2
2	0.027	0.724	0.003	0.060	3.500	25.11	32.0	38.937	14.0
2A	0.044	1.170	0.006	0.054	3.610	56.11	45.0	40.587	25.6
outlet	0.033	0.777	0.008	0.053	3.430	26.09	15.0	38.930	14.5

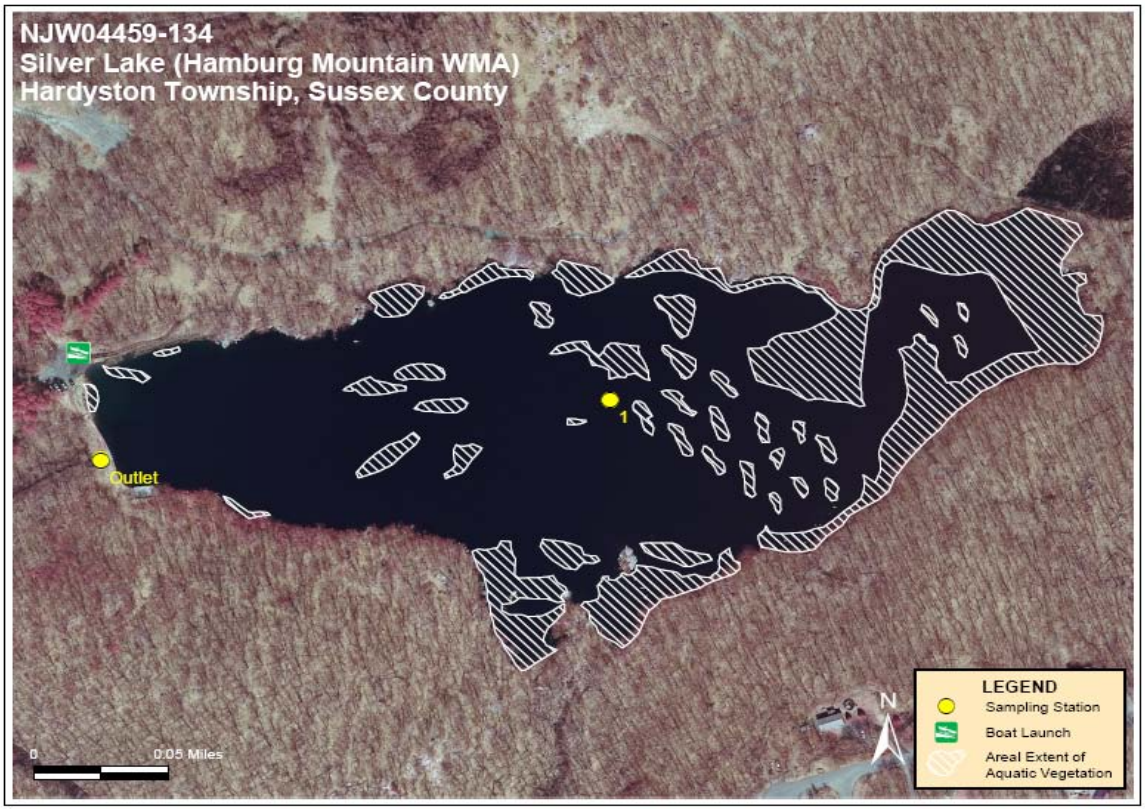
Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error. Potassiumn results were only collected for the fall sampling.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Silver Lake	**County**	Sussex
Site ID	NJW04459-134	**Municipality**	Hardyston Township



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	53.67	49.36	B	51.51 Eutrophic
Summer Station 1	50.57	59.71	60	56.76 Eutrophic
Fall Station 1	42.21	43.03	B	42.62 Mesotrophic

B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Fall - SAV and lillies throughout.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Silver Lake **County:** SUSSEX

SiteID: NJW04459-134 **Municipality:** HARDYSTON TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.7	1	1.7	13.46	9.89	99.2	7.31	0.045
outlet	0.3	0.3		14.32	10.17	104.1	7.15	0.048

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.7	1	1.0	23.08	7.12	86.7	6.85	0.05
outlet	0.1	0.1		23.6	6.67	82	6.85	0.052

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.6	1.0	1.6	10.11	9.14	83.9	6.17	0.047
outlet	0.1	0.1		10.14	9.49	87.2	6.58	0.05

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Silver Lake **County:** SUSSEX

SiteID: NJW04459-134 **Municipality:** HARDYSTON TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.031	0.222	0.006	0.008	6.77	7.000	18.236	1.26
outlet	0.028	0.239	0.006	0.013	8.48	25.000	18.127	1.26

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.025	0.626	0.031	0.002	19.44	12.000	19.308	1.97
outlet	0.024	0.322	0.030	0.002	9.22	13	18.968	1.01

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.014	0.388	0.009	0.016	3.55	22.000	19.710	0.7
outlet	0.017	0.569	0.015	0.024	5.73	37.000	21.487	1.16

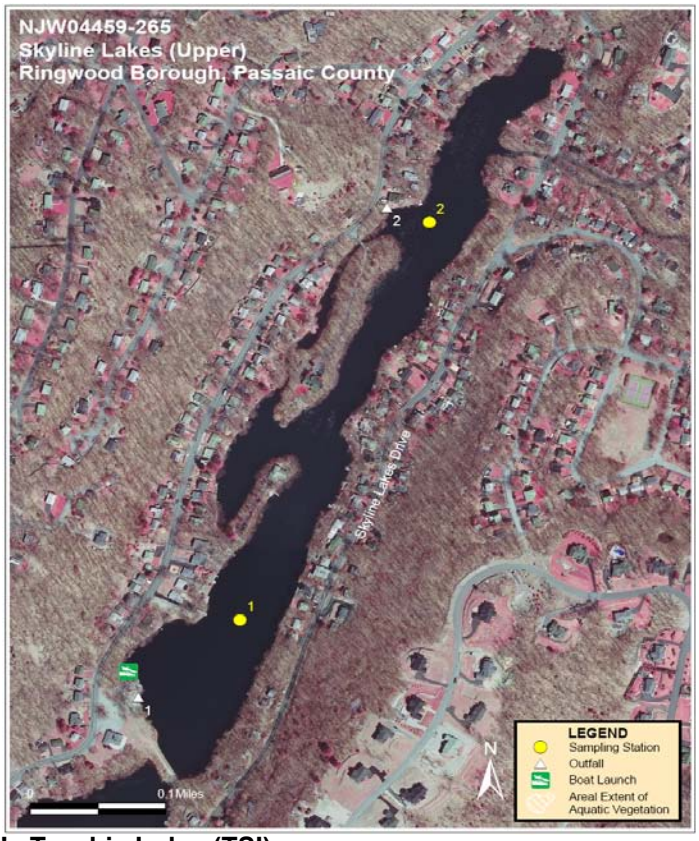
Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Skyline Lakes (Upper) **County** Passaic
Site ID NJW04459-265 **Municipality** Ringwood Borough



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	53.67	61.69	54.16	56.51 Eutrophic
Spring Station 2	50.57	63.78	55.15	56.5 Eutrophic
Summer Station 1	60.56	63.49	50.75	58.27 Eutrophic
Summer Station 2	58.39	63.84	50.01	57.41 Eutrophic
Fall Station 1	52.71	56.2	46.8	51.9 Eutrophic
Fall Station 2	51.68	56.68	47.38	51.91 Eutrophic

Observations

Spring - Dam restoration project at outlet.
Summer - Treated with copper sulfate on 8/21/08 by Aquatic Technologies, Inc. Lake level is approx. 1.5 meters low due to lack of rain and lowering to fill lower lake for swimming.
Fall - Heron. Lake appears to be full and outlet is flowing into lower lake.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Skyline Lakes **County:** PASSAIC

SiteID: NJW04459-265 **Municipality:** RINGWOOD BORO

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	3.1	1	1.5	18.71	12.38	134	8.67	0.258
1	3.1	2	1.5	16.96	12.04	124.6	8.34	0.256
2	5	1	1.4	18.56	11.78	126.3	8.67	0.256
2	5	2	1.4	17.53	17.43	182.5	8.4	0.257
2	5	3	1.4	14.7	15.11	149	8.2	0.253
2A	5	4	1.4	12.92	5.77	54.7	7.66	0.253

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.6	1	1.9	23.6	6.69	79	7.92	0.304
1	2.6	2	1.9	23.52	6.84	80.7	8.1	0.304
2	5.2	1	2.0	23.44	7.94	93.6	7.63	0.311
2	5.2	2	2.0	23.36	7.6	89.5	8.05	0.31
2	5.2	3	2.0	23.29	7.15	84	8.08	0.317
2	5.2	4	2.0	21.47	0.72	8.2	7.15	0.347
2	5.2	5	2.0	16.36	0.09	0.9	6.81	0.535

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	3.8	1	2.5	10.39	7.81	69.3	7.14	0.31
1	3.8	2	2.5	10.38	7.72	68.5	7.16	0.31
1	3.8	3	2.5	10.37	7.7	68.3	7.19	0.31
2	6.3	1	2.4	10.27	7.73	68.5	7.64	0.312
2	6.3	2	2.4	10.28	7.44	65.9	7.49	0.312
2	6.3	3	2.4	10.28	7.37	65.3	7.42	0.312
2	6.3	4	2.4	10.25	7.3	64.7	7.38	0.313
2	6.3	5	2.4	10.05	7.47	65.9	7.35	0.311
2	6.3	6	2.4	9.87	7.56	66.4	7.21	0.309

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Skyline Lakes
County: PASSAIC
SiteID: NJW04459-265
Municipality: RINGWOOD BORO

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.031	0.504	0.524	0.002	23.8	1.000	60.180	2.69
2	0.025	0.530	0.541	0.002	29.43	35.000	62.048	3.43
2A	0.019	0.453	0.758	0.006	20.31	28.000	61.093	2.85

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.05	0.773	0.034	0.050	28.58	78.000	78.522	2.89
2	0.043	0.814	0.151	0.011	29.63	102.0	79.851	3.44
2A	0.334	2.980	0.131	1.800	42.54	44.000	90.103	9.93

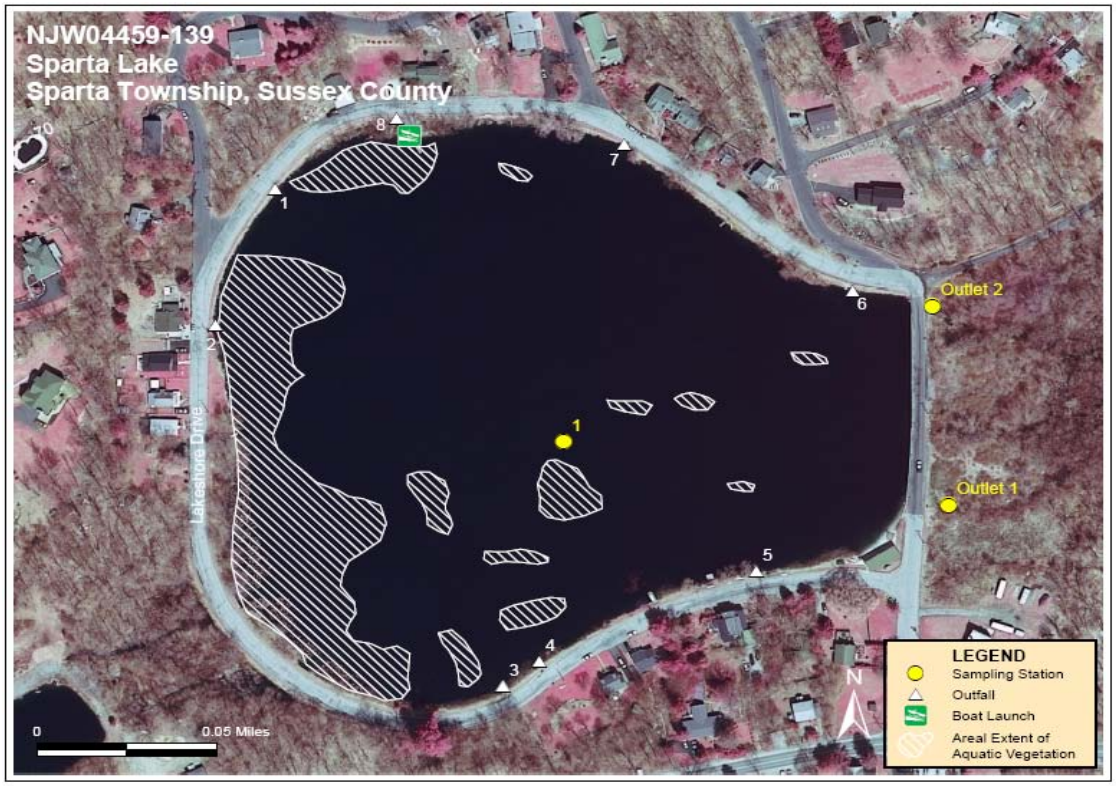
Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.029	0.446	0.730	0.107	13.6	38.000	74.491	2.03
2	0.027	0.485	0.688	0.110	14.27	57.000	75.822	1.94

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Sparta Lake	**County**	Sussex
Site ID	NJW04459-139	**Municipality**	Sparta Township



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	51.68	51.71	52.35	51.91 Eutrophic
Summer Station 1	60.27	62.42	54.16	58.95 Eutrophic
Fall Station 1	61.13	58.66	53.23	57.67 Eutrophic

TP exceeds SWQC threshold(See Datasheet for actual concentration)

Observations

Spring - Blue heron, lake recently treated, decaying plant material throughout, many snakes at outlet 2.
Fall - Organisms swimming in water column. Outlet 2 not flowing. Cormorant.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Sparta Lake **County:** SUSSEX

SiteID: NJW04459-139 **Municipality:** SPARTA TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2	1	1.7	18.4	11.83	129.3	8.89	0.311

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.0	1	1.5	24.13	6.77	84	7.45	0.373
outlet 1	0.2	0.2		24.9	7.31	92	7.91	0.374
outlet 2	0.2	0.2		24.52	5.27	65.9	7.27	0.381

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.9	1	1.6	9.68	9.88	86.8	7.9	0.359
outlet 1	0.1	0.1		10.14	10.18	90.5	7.92	0.358

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Sparta Lake **County:** SUSSEX

SiteID: NJW04459-139 **Municipality:** SPARTA TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.027	0.499	0.039	0.002	8.6	45.000	87.817	2.88
outlet 1	0.049	1.070	0.019	0.022	37.47	55.000	96.044	4.73
outlet 2	0.077	1.090	0.025	0.072	181.55	60.000	92.300	11.3

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.049	0.801	0.006	0.005	25.63	69.000	111.900	4.52
outlet 1	0.051	0.895	0.008	0.030	24.51	75.000	116.500	4.60
outlet 2	0.14	2.480	0.125	0.243	27.68	58.000	116.800	2.86

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.052	0.756	0.028	0.022	17.47	70.000	102.100	3.34
outlet 1	0.03	0.534	0.016	0.034	18.75	65.000	100.900	3.72

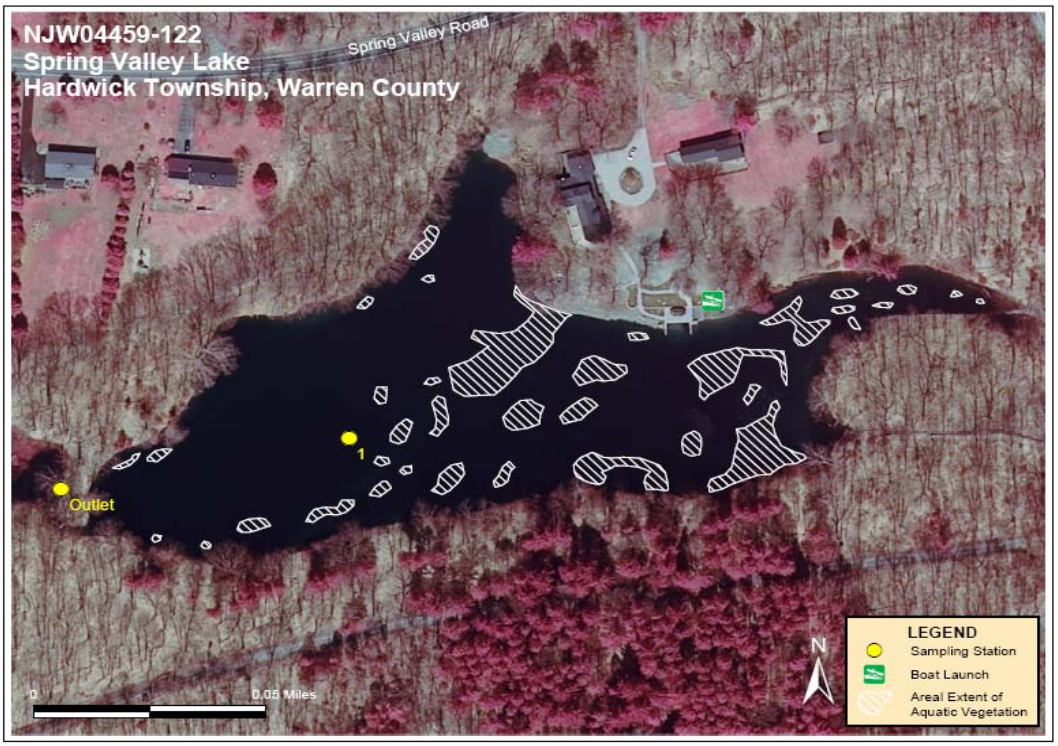
Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Spring Valley Lake	**County**	Warren
Site ID	NJW04459-122	**Municipality**	Hardwick Township



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	56.33	B	56.33 Eutrophic
Summer Station 1	44.13	56.19	49.31	49.88 Mesotrophic
Fall Station 1	48.05	61.22	60	56.42 Eutrophic

ND - TP concentration below detection limit
B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Summer - Secchi becomes obsured by plants at 2.1 meters. SAV abundant. Filamentous algae present. Blue heron.
Fall - Sample taken at 0.5m at station 1 to avoid plants. Outlet not flowing. Lake appears to be 2 to 3 feet low.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Spring Valley Lake **County:** WARREN

SiteID: NJW04459-122 **Municipality:** HARDWICK TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.7	1	1.7	14.01	10.58	104.2	7.71	0.37
outlet	0.1	0.1		15.8	13.16	135.5	7.84	0.361

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.4	0.5	2.1	22.83	13.55	160.6	8.17	0.391
1	2.4	1	2.1	18.49	15.33	166.7	7.64	0.397
1	2.4	2	2.1	16.08	5.42	56.1	7.27	0.441
outlet	0.1	0.1		23.23	7.82	93.4	7.98	0.39

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.0	0.5	1.0	14.85	14.22	141.7	8.29	0.42
1	2.0	1	1.0	14.5	11.19	110.6	8.04	0.433
1	2.0	1.5	1.0	13.97	7.74	75.6	7.73	0.477

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Spring Valley Lake
County: WARREN
SiteID: NJW04459-122
Municipality: HARDWICK TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.279	0.157	0.002	13.77	55.000	169.300	1.67
outlet	0.013	0.271	0.082	0.020	17.39	74.000	171.500	2.29

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.016	0.305	0.021	0.015	13.58	162.0	188.100	1.32
1A	0.016	0.413	0.090	0.014	23.55	48.000	196.200	2.16
outlet	0.018	0.295	0.049	0.014	10.6	150.0	192.100	1.23

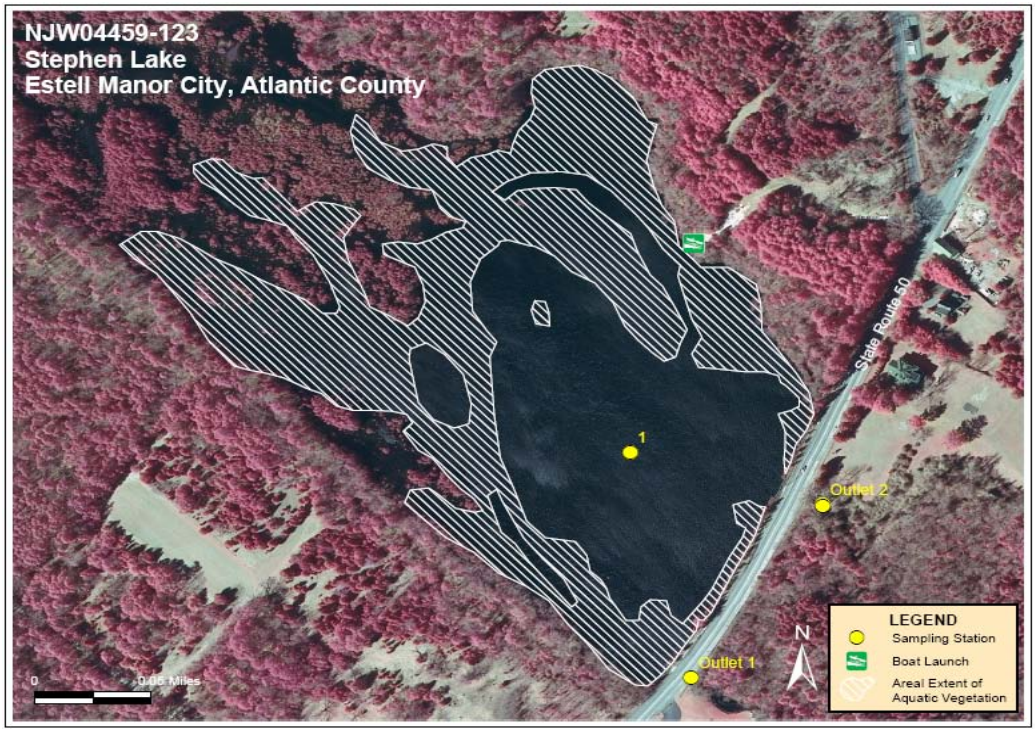
Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.021	0.367	0.006	0.002	22.68	190.0	194.500	1.09

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Stephen Lake	**County**	Atlantic
Site ID	NJW04459-123	**Municipality**	Estell Manor City



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	39.98	35.15	B	37.57 Oligotrophic
Summer Station 1	ND	49.1	B	49.1 Mesotrophic
Fall Station 1	37.35	48.34	B	42.85 Mesotrophic

ND - TP concentration below detection limit
B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring - Cedar water.
Summer - Cedar water, filamentous algae on bottom in open water.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Stephen Lake **County:** ATLANTIC

SiteID: NJW04459-123 **Municipality:** ESTELL MANOR CITY

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.5	1.0	1.5	7.65	10.55	86.8	4.78	0.033
outlet 1	0.1	0.1		7.84	11.4	94.2	5.07	0.033
outlet 2	0.4	0.4		7.99	10.94	90.7	5.05	0.034

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.5	1	1.5	21.25	6.33	71	5.27	0.03

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.5	1	1.5	21.14	6.89	76.9	6.18	0.03
outlet 1	0.2	0.2		21.33	7.87	88	5.99	0.031
outlet 2	0.4	0.4		20.69	7.12	78.7	6.04	0.032

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Stephen Lake
County: ATLANTIC
SiteID: NJW04459-123
Municipality: ESTELL MANOR CITY

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.012	0.119	0.302	0.006	1.59	1.000	5.919	0.58
outlet 1	ND	0.190	0.275	0.006	1.72	2.000	6.052	0.73
outlet 2	0.012	0.172	0.283	0.028	1.41	10.000	6.338	0.6

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.268	0.103	0.029	6.59	4.000	5.581	1.13
outlet 1	ND	0.414	0.090	0.034	3.25	2.000	5.667	0.91
outlet 2	ND	0.322	0.110	0.071	3.16	28.000	5.925	1.31

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.01	0.294	0.019	0.004	6.1	2.000	6.295	1.01
outlet 1	ND	0.326	0.009	0.006	5.48	5.000	6.134	1.00
outlet 2	ND	0.306	0.025	0.033	4.49	7.000	6.296	1.08

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Stone Tavern	**County**	Monmouth
Site ID	NJW04459-128	**Municipality**	Upper Freehold Township

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	54.13	60.95	55.15	56.74 Eutrophic
Spring Station 2	56.6	61.5	54.16	57.42 Eutrophic
Summer Station 1	53.67	55.62	52.35	53.88 Eutrophic
Summer Station 2	46.61	54.76	47.38	49.59 Mesotrophic
Fall Station 1	55.82	59.98	B	57.9 Eutrophic
Fall Station 2	51.68	59.63	55.15	55.49 Eutrophic

B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring - Some SAV; iron precipitate in stream.
Summer - could not sample outlet, wasp nest on bank of outlet, SAVs
Fall - Outlet not flowing.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Stone Tavern **County:** MONMOUTH

SiteID: NJW04459-128 **Municipality:** UPPER FREEHOLD TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.8	1	1.4	8.35	10.88	91.4	6.11	0.09
1	2.8	2	1.4	8.33	11.07	92.9	6.26	0.09
2	3.8	1	1.5	8.18	10.94	91.4	7.29	0.089
2	3.8	2	1.5	8.06	10.99	91.5	7.16	0.089
2	3.8	3	1.5	7.92	10.48	87.4	7.05	0.089
outlet	0.5	0.4		8.19	11.21	93.8	7.14	0.089

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.5	1	1.7	27.09	11.8	147.2	8.62	0.098
1A	2.5	2	1.7	22.59	7.22	82.8	7.85	0.094
2	4.5	1	2.4	26.78	11.89	147.3	8.95	0.1
2	4.5	2	2.4	22.65	12.72	146	8.61	0.094
2	4.5	3	2.4	18.14	9.26	97.2	8.1	0.102
2A	4.5	4	2.4	15.3	1.15	11.2	7.7	0.112

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.4	1	1.4	25.17	7.69	93.2	6.55	0.091
2	4.5	1	1.4	25.07	7.83	94.6	7.77	0.093
2	4.5	2	1.4	24.73	6.4	76.8	7.44	0.093
2	4.5	3	1.4	23.72	1.27	15	7.04	0.095
2A	4.5	4	1.4	19.87	0.4	4.3	6.56	0.189

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Stone Tavern **County:** MONMOUTH

SiteID: NJW04459-128 **Municipality:** UPPER FREEHOLD TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.032	0.320	0.407	0.030	22.05	12.000	24.963	3.19
2	0.038	0.385	0.395	0.021	23.33	16.000	25.278	2.91
outlet	0.049	0.413	0.377	0.041	21.01	6.000	25.298	3.11

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.031	0.370	0.061	0.019	12.81	19.000	25.971	2.46
1A	0.03	0.489	0.042	0.022	32.15	16.000	24.893	4.54
2	0.019	0.346	0.019	0.013	11.74	15.000	24.867	2.44
2A	0.042	0.585	0.049	0.143	34.45	20.000	27.563	9.78

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.036	0.685	0.003	0.058	19.99	30.000	24.271	5.74
2	0.027	0.702	0.003	0.027	19.28	15.000	25.418	5.34
2A	0.053	1.210	0.005	0.425	60.15	40.000	30.816	6.12

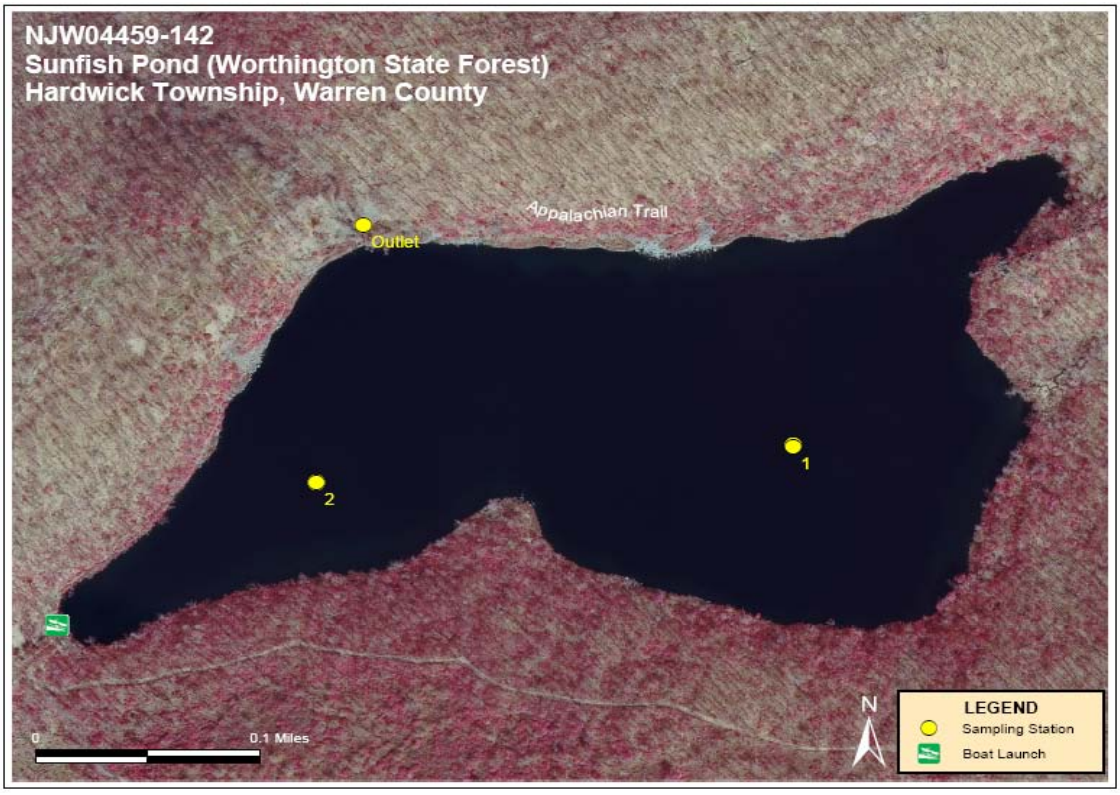
Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Sunfish Pond
Site ID NJW04459-142
County Warren
Municipality Hardwick Township



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	46.61	30.7	29.5	35.6 Oligotrophic
Spring Station 2	52.2	30.7	B	41.45 Mesotrophic
Summer Station 1	ND	44.56	31.55	38.06 Oligotrophic
Summer Station 2	45.83	48.1	33.03	42.32 Mesotrophic
Fall Station 1	38.73	41.82	36.24	38.93 Oligotrophic
Fall Station 2	38.73	39.82	35.43	37.99 Oligotrophic

ND - TP concentration below detection limit
B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring - Ducks, frogs, fish, tadpoles.
Summer - Snakes, frogs, tadpoles, fish.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Sunfish Pond **County:** WARREN

SiteID: NJW04459-142 **Municipality:** HARDWICK TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	9.1	0.9	8.3	16.95	8.88	95.1	4.26	0.027
1	9.1	2	8.3	16.58	8.86	94.1	3.97	0.028
1	9.1	3	8.3	15.34	9.29	96.1	3.89	0.028
1	9.1	4	8.3	14.61	9.39	95.6	3.81	0.028
1	9.1	5	8.3	14.23	9.26	93.5	3.81	0.028
1	9.1	6	8.3	13.96	9.17	92.1	3.8	0.028
1	9.1	7	8.3	13.69	9.19	91.7	3.81	0.028
1	9.1	8	8.3	13.18	8.71	85.9	3.79	0.028
1	9.1	9	8.3	12.95	8.24	80.9	3.75	0.028
2	7.7	1	7.7	17.16	8.51	91.4	4.31	0.027
2	7.7	2	7.7	17.01	8.44	90.6	4.13	0.027
2	7.7	3	7.7	15.43	8.9	92.2	3.99	0.027
2	7.7	4	7.7	14.51	9.06	92	3.94	0.028
2	7.7	5	7.7	14.22	9.08	91.6	3.9	0.028
2	7.7	6	7.7	14	9.04	90.9	3.84	0.028
2	7.7	7	7.7	13.75	8.76	87.5	3.83	0.028
outlet	0.1	0.1		17.29	8.23	88.7	4.38	0.028

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	8.6	1	7.2	23.7	6.74	83.9	4.94	0.025
1	8.6	2	7.2	23.64	6.77	84.1	4.93	0.025
1	8.6	3	7.2	23.6	6.59	81.7	4.91	0.025
1	8.6	4	7.2	23.53	6.59	81.6	4.9	0.025
1	8.6	5	7.2	23.41	6.61	81.8	4.9	0.025
1	8.6	6	7.2	23.4	6.65	82.2	4.9	0.025
1	8.6	7	7.2	23.1	6.26	77	4.89	0.025
1A	8.6	8	7.2	20.67	0.94	10.9	4.78	0.023
2	7.6	1	6.5	23.58	6.97	86.5	4.91	0.025
2	7.6	2	6.5	23.56	6.9	85.6	4.9	0.025
2	7.6	3	6.5	23.52	6.8	84.3	4.89	0.025
2	7.6	4	6.5	23.46	6.85	84.9	4.89	0.025
2	7.6	5	6.5	23.42	6.6	81.6	4.88	0.025
2	7.6	6	6.5	23.31	6.38	78.7	4.9	0.025
2	7.6	7	6.5	23.17	6.32	77.8	4.95	0.024

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	8.9	1	5.2	9.31	10.02	90.5	5	0.027
1	8.9	2	5.2	9.3	10	90.3	4.97	0.027
1	8.9	3	5.2	9.28	10	90.2	4.97	0.027
1	8.9	4	5.2	9.1	10	89.8	4.97	0.027
1	8.9	5	5.2	9.07	9.84	88.3	4.97	0.027
1	8.9	6	5.2	9.07	9.76	87.6	4.96	0.027
1	8.9	7	5.2	9.07	9.76	87.6	4.96	0.027
1	8.9	8	5.2	9.07	9.72	87.2	4.96	0.027
2	7.8	1	5.5	9.53	10.03	91	4.98	0.027
2	7.8	2	5.5	9.51	10.04	91	4.97	0.027
2	7.8	3	5.5	9.5	9.98	90.5	4.96	0.027
2	7.8	4	5.5	9.49	10	90.6	4.96	0.027
2	7.8	5	5.5	9.13	9.82	88.2	4.95	0.027
2	7.8	6	5.5	9.09	9.82	88.2	4.96	0.027
2	7.8	7	5.5	9.08	9.81	88	4.96	0.027
outlet	0.1	0.1		9.82	9.9	90.5	4.95	0.027

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Sunfish Pond **County:** WARREN

SiteID: NJW04459-142 **Municipality:** HARDWICK TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.019	0.054	0.008	0.002	1.01	1.000	7.309	0.56
2	0.028	0.144	0.005	0.002	1.01	2.000	7.089	0.65
outlet	0.013	0.188	0.013	0.011	0.86	4.000	7.131	0.49

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.054	0.009	0.002	4.15	1.000	6.902	1.14
1A	0.014	0.054	0.011	0.002	8.73	1.000	6.495	1.34
2	0.018	0.054	0.009	0.002	5.95	4.000	6.674	0.8
outlet	0.017	0.054	0.019	0.002	2.75	1.000	6.819	0.56

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.011	0.090	0.006	0.026	3.14	1.000	7.213	0.97
2	0.011	0.075	0.007	0.034	2.56	4.000	7.147	1.20
outlet	ND	0.027	0.008	0.029	1.75	2.000	7.287	0.87

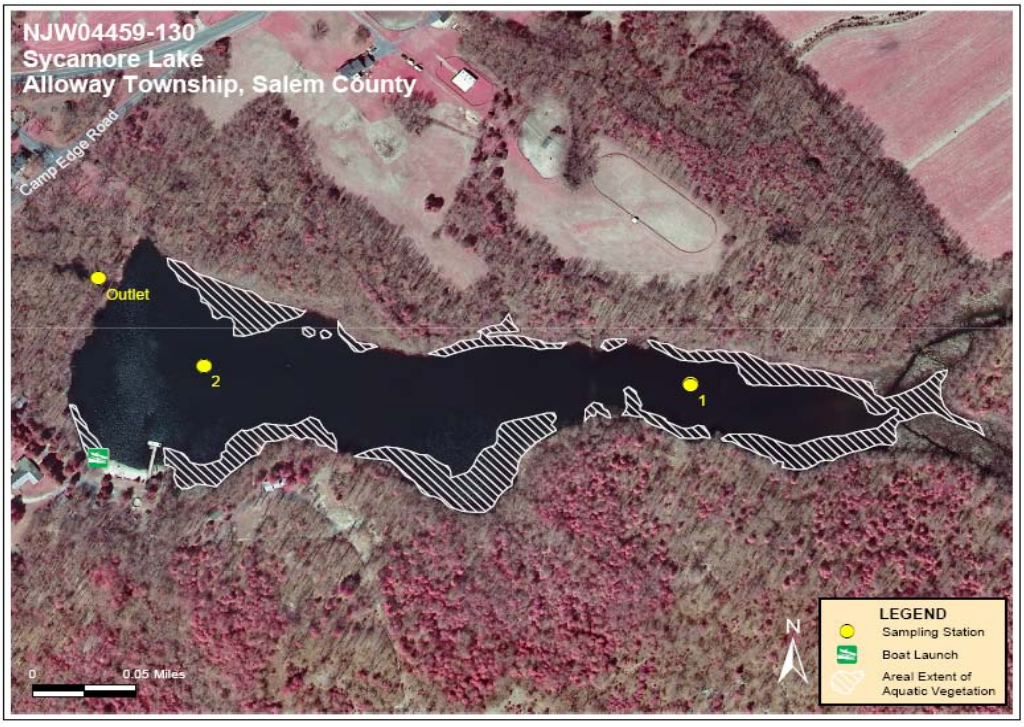
Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Sycamore Lake	**County**	Salem
Site ID	NJW04459-130	**Municipality**	Alloway Township



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	33.17	B	33.17 Oligotrophic
Spring Station 2	39.96	39.9	51.53	43.8 Mesotrophic
Summer Station 1	49.98	58.27	B	54.12 Eutrophic
Summer Station 2	49.36	57.84	55.15	54.12 Eutrophic
Fall Station 1	48.05	49.68	63.22	53.65 Eutrophic
Fall Station 2	37.35	51.5	B	44.43 Mesotrophic

ND - TP concentration below detection limit
B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring - Cedar water; bald eagle nesting; F&W restricted use Jan 1 - Aug 1; clams, crayfish, frogs
Summer - Beaver den, bald eagle, ducks, SAV, scum on water surface.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Sycamore Lake **County:** SALEM

SiteID: NJW04459-130 **Municipality:** ALLOWAY TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.2	0.6	1.2	8.42	9.35	78.2	5.22	0.083
2	2.0	1	1.8	10.91	9.4	83.5	5.23	0.079
outlet	0.1	0.1		11.08	10.02	89.2	5.52	0.078

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.7	0.3	0.7	22.87	6.35	73.9	5.83	0.067
2	2	1	1.4	23.51	5.25	61.9	5.84	0.064
outlet	0.2	0.2		24.39	6.85	82.2	6.05	0.063

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.4	0.4	0.8	21.36	3.81	42.5	5.99	0.089
2	2.0	1	2.0	24.04	6.08	71.5	6.29	0.084
outlet	0.2	0.2		24.74	6.95	82.7	6.36	0.085

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Sycamore Lake
County: SALEM
SiteID: NJW04459-130
Municipality: ALLOWAY TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.218	1.520	0.038	1.3	3.000	26.924	2.56
2	0.012	0.268	1.130	0.036	2.58	1.000	25.715	3.19
outlet	0.013	0.280	1.140	0.034	2.95	3.000	25.731	3.33

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.024	0.734	0.509	0.094	16.79	12.000	23.839	4.17
2	0.023	0.785	0.255	0.052	16.07	7.000	22.150	2.77
outlet	0.039	0.865	0.251	0.055	22.85	12.000	22.425	3.04

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.021	0.486	0.576	0.054	6.99	8.000	31.512	1.66
2	0.01	0.489	0.408	0.066	8.42	11.000	28.529	1.52
outlet	0.012	0.530	0.418	0.089	10.26	8.000	29.341	2.28

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Turtle Pond	**County**	Sussex
Site ID	NJW04459-263	**Municipality**	Green Township

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	55	61.7	65.14	60.61 Eutrophic
Summer Station 1	60.85	57.89	NR	59.37 Eutrophic
Fall Station 1	80.98	77.98	77.35	78.48 Hyper-Eutrophic

TP exceeds SWQC threshold(See Datasheet for actual concentration)
NR- Not recorded

Observations

Spring - Geese.
Summer - Very dense SAV throughout.
Fall - Lake level very low. Many geese, some ducks. Turtles.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Turtle Pond **County:** SUSSEX

SiteID: NJW04459-263 **Municipality:** GREEN TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.8	1	0.7	14.77	10.36	103.2	8.22	0.466
1	2.8	2	0.7	14.37	10.66	105.3	8.24	0.464

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.7	1		25.15	11.09	137.2	9.79	0.282

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.0	0.5	0.3	10.57	13.45	123.5	9.3	0.29

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Turtle Pond **County:** SUSSEX

SiteID: NJW04459-263 **Municipality:** GREEN TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.034	0.872	0.008	0.011	23.81	170.0	248.900	3.87

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.051	1.270	0.010	0.017	16.15	112.0	139.800	4.62

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.206	3.030	0.004	0.071	114.48	160.0	150.000	20.8

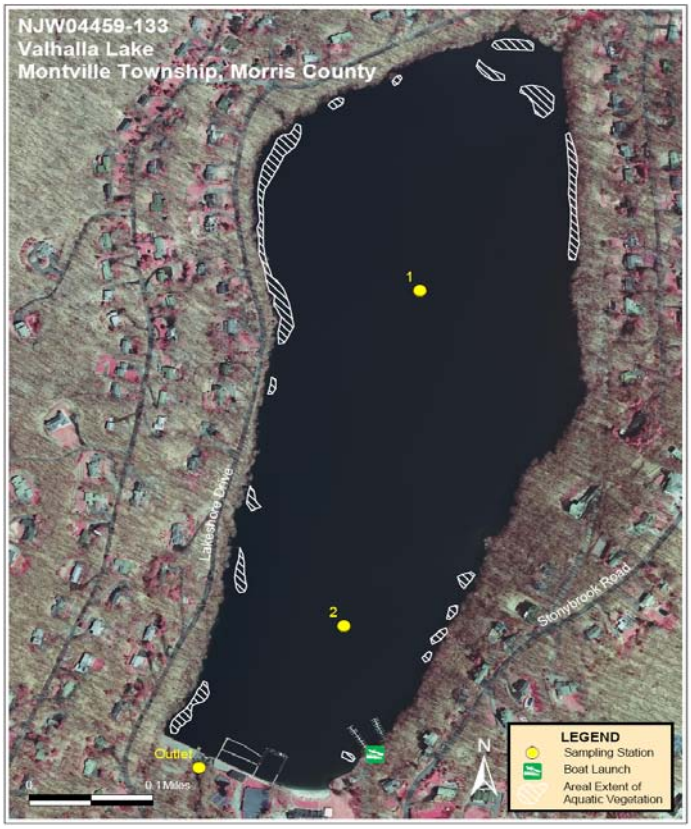
Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Valhalla Lake
Site ID NJW04459-133
County Morris
Municipality Montville Township



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	47.35	46.9	43.7	45.98 Mesotrophic
Spring Station 2	46.61	46.25	NR	46.42 Mesotrophic
Summer Station 1	48.72	51.93	47.38	49.35 Mesotrophic
Summer Station 2	51.13	52.79	46.8	50.24 Mesotrophic
Fall Station 1	57.7	72.42	60	63.37 Eutrophic
Fall Station 2	59.04	71.25	60	63.43 Eutrophic

NR- Not recorded

Observations

Spring - Filamentous algae at station 2, cormorant.
Summer - Bryozoans, filamentous algae.
Fall - High levels of floating algae throughout lake.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Valhalla Lake **County:** MORRIS

SiteID: NJW04459-133 **Municipality:** MONTVILLE TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.4	1	3.1	18.13	9.19	98.3	7.85	0.144
1	4.4	2	3.1	17.23	9.16	96.9	7.83	0.145
1	4.4	3	3.1	11.88	9.61	90.1	7.73	0.142
1	4.4	4	3.1	10.93	6.28	57.4	7.53	0.142
2	3.2	1		18.27	9.09	97.6	7.65	0.144
2	3.2	2		18.02	9.14	97.5	7.73	0.145
2	3.2	3		14.11	6.91	68.8	7.74	0.143
outlet	0.1	0.1		18.37	7.65	82.3	7.76	0.145

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.6	1	2.4	26.82	7.66	96.1	7.88	0.157
1	4.6	2	2.4	26.68	7.57	94.8	8.08	0.157
1	4.6	3	2.4	26.21	5.36	66.6	7.5	0.157
1A	4.6	4	2.4	20.85	1.66	18.6	7.2	0.155
2	3.1	1	2.5	27.07	7.76	97.9	7.96	0.158
2	3.1	2	2.5	26.87	7.7	96.7	8.04	0.158
2	3.1	3	2.5	26.34	5.82	72.4	7.29	0.157
outlet	0.1	0.1		25.21	5.01	61.1	6.95	0.169

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.6	1	1.0	19.13	9.83	108.6	8.25	0.153
1	4.6	2	1.0	18.95	7.34	80.8	7.78	0.153
1	4.6	3	1.0	18.82	5.92	65	7.55	0.155
1	4.6	4	1.0	18.73	5.24	57.4	7.36	0.155
2	3.1	1	1.0	19.05	9.13	100.7	8.39	0.153
2	3.1	2	1.0	18.9	9.26	101.9	8.39	0.153
2	3.1	3	1.0	18.81	8.95	98.3	8.31	0.153
outlet	0.3	0.3		18.9	7.75	85.2	7.45	0.155

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Valhalla Lake
County: MORRIS
SiteID: NJW04459-133
Municipality: MONTVILLE TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.02	0.330	0.004	0.006	5.27	25.000	39.303	1.43
2	0.019	0.325	0.002	0.011	4.93	22.000	39.221	1.4
outlet	0.021	0.301	0.043	0.023	3.15	23.000	39.635	1.61

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.022	0.423	0.007	0.002	8.8	77.000	45.816	1.97
1A	0.033	0.533	0.006	0.002	21.63	37.000	45.983	3.22
2	0.026	0.430	0.010	0.002	9.6	42.000	46.397	2.30
outlet	0.053	0.282	0.208	0.012	2.72	21.000	52.915	2.19

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.041	1.070	0.003	0.038	71.03	31.000	46.143	18.2
2	0.045	1.080	0.003	0.028	63.05	44.000	47.553	16.6
outlet	0.049	1.190	0.017	0.036	75.88	55.000	47.180	19.1

Sample Device - Horizontal Polycarbonate Sampler
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Weston Mill Pond
Site ID NJW04459-138
County Middlesex
Municipality East Brunswick Township

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	51.68	55.66	52.35	53.23 Eutrophic
Spring Station 2	52.2	52.47	51.53	52.07 Eutrophic
Spring Station 3	52.2	44.49	B	48.34 Mesotrophic
Summer Station 1	59.04	66.68	55.15	60.29 Eutrophic
Summer Station 2	61.67	63.96	56.22	60.62 Eutrophic
Summer Station 3	63.19	46.47	51.53	53.73 Eutrophic
Fall Station 1	60.27	46.68	51.53	52.83 Eutrophic
Fall Station 2	60.85	47.54	53.23	53.87 Eutrophic
Fall Station 3	59.67	49.01	54.16	54.28 Eutrophic

TP exceeds SWQC threshold(See Datasheet for actual concentration)
B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring - SAV on anchors, filamentous algae, turtles, geese, blue heron, egrets.
Summer - Abundant SAV west of Ryders Lane.
Fall - Geese, herons, king fisher.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Weston Mill Pond **County:** MIDDLESEX

SiteID: NJW04459-138 **Municipality:** EAST BRUNSWICK TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.1	1	1.7	16.25	9.26	93.2	7.08	0.263
1	4.1	2	1.7	13.94	8.72	83.4	7.04	0.253
1	4.1	3	1.7	11.39	3.77	34.1	6.88	0.274
1	4.1	4	1.7	10.18	0.84	7.4	6.65	0.294
1A	4.1	3.5	1.7	10.62	1.3	11.6	6.53	0.285
2	2	1	1.8	16.36	8.76	88.4	6.94	0.269
3	1.9	1	1.9	16.86	8.46	86.2	6.99	0.279
outlet	2.8	2		15.74	9.09	90.4	7.02	0.264

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	3.9	1	1.4	27.65	6.95	88.4	6.66	0.18
1	3.9	2	1.4	25.99	1.81	22.4	6.24	0.189
1	3.9	3	1.4	19.39	0.4	4.4	6.1	0.226
1A	3.9	3.5	1.4	16.03	0.15	1.6	6.37	0.28
2	2	1	1.3	26.89	6.17	77.4	6.51	0.223
3	2	1	1.8	25.45	1.55	19	6.18	0.187
outlet	2.7	1		27.63	5.27	67.1	6.52	0.171

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.3	1	1.8	19.52	6.32	68.7	6.48	0.152
1	4.3	2	1.8	19.47	6.17	67.1	6.55	0.151
1	4.3	3	1.8	18.58	4.18	44.6	6.51	0.149
1A	4.3	4	1.8	17.27	3.53	36.7	6.46	0.15
2	2.0	1	1.6	19.57	7.07	76.9	6.66	0.159
3	1.9	1	1.5	18.74	6.67	71.3	6.63	0.168
outlet	2.3	1		19.49	7.48	81.3	6.4	0.15

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Weston Mill Pond **County:** MIDDLESEX

SiteID: NJW04459-138 **Municipality:** EAST BRUNSWICK TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.027	0.391	0.492	0.017	12.86	20.000	46.201	3.79
1A	0.028	0.496	0.450	0.047	11.03	20.000	44.173	3.79
2	0.028	0.451	0.489	0.028	9.29	20.000	47.900	4.05
3	0.028	0.519	0.505	0.076	4.12	20.000	51.012	3.67
outlet	0.038	0.456	0.496	0.019	10.1	19.000	45.414	4.3

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.045	0.718	0.156	0.032	39.55	24.000	36.396	3.57
1A	0.043	0.919	0.041	0.149	38.56	32.000	40.295	7.3
2	0.054	0.832	0.190	0.103	29.98	25.000	40.742	5.07
3	0.06	0.669	0.274	0.135	5.04	18.000	37.907	5.81
outlet	0.043	0.636	0.163	0.085	26.7	20.000	35.418	3.75

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.049	0.623	0.263	0.169	5.15	15.000	32.511	4.85
1A	0.037	0.511	0.262	0.191	2.9	8.000	31.237	5.95
2	0.051	0.680	0.251	0.182	5.62	10.000	34.182	4.43
3	0.047	0.610	0.297	0.155	6.53	23.000	35.690	3.38
outlet	0.05	0.593	0.265	0.169	4.58	30.000	32.934	4.69

Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Wilderness Lake	**County**	Burlington
Site ID	NJW04459-149	**Municipality**	Medford Township

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	44.2	46.8	45.5 Mesotrophic
Spring Station 2	ND	43.49	B	43.49 Mesotrophic
Summer Station 1	ND	53.45	51.53	52.49 Eutrophic
Summer Station 2	37.35	52.87	B	45.11 Mesotrophic
Fall Station 1	38.73	57.05	54.16	49 Mesotrophic
Fall Station 2	ND	52.41	B	52.41 Eutrophic

ND - TP concentration below detection limit
B - Secchi visible to Lake bottom. (See Datasheet for total depth)

Observations

Spring - Cedar water, geese, ducks, outlet in middle of dam empties into another lake.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Wilderness Lake **County:** BURLINGTON

SiteID: NJW04459-149 **Municipality:** MEDFORD TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.6	1	2.5	12.23	9.31	86	5.53	0.062
1	2.6	2	2.5	11.66	9.26	84.4	5.55	0.062
2	1.5	1	1.5	11.95	8.43	77.3	5.42	0.064

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.9	1	1.8	27.69	9.44	120.4	6.1	0.063
2	1.5	1	1.5	26.41	6.83	85.2	5.79	0.063
outlet	0.3	0.3		27.87	7.19	92.1	6.11	0.061

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.9	1	1.5	23.1	7.69	88.5	6.46	0.067
2	1.5	1	1.5	21.74	6.87	77.2	6.31	0.067
outlet	0.3	0.3		22.95	7.79	89.6	6.21	0.067

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded.

-A blank parameter result means the parameter could not be measured due to a meter malfunction.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Wilderness Lake **County:** BURLINGTON

SiteID: NJW04459-149 **Municipality:** MEDFORD TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.131	0.542	0.032	4	2.000	11.631	1.78
2	ND	0.148	0.593	0.043	3.72	1.000	11.648	2.32
outlet 1	0.016	0.290	0.444	0.068	6.55	6.000	14.521	2.6

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.285	0.037	0.008	10.27	9.000	11.479	1.4
2	0.01	0.293	0.127	0.009	9.68	5.000	11.811	2
outlet	ND	0.282	0.043	0.009	8.31	7.000	12.050	1.34

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.011	0.328	0.003	0.012	14.83	9.000	14.077	2.27
2	ND	0.228	0.003	0.013	9.24	10.000	14.261	2.07
outlet	ND	0.337	0.003	0.012	14.71	8.000	14.284	2.24

Sample Device - Horizontal Polycarbonate Sampler

"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

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