



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



AMBIENT LAKES MONITORING NETWORK

Panel 3

Volume 1 of 2



Plymouth Lake, Stillwater Twp., Sussex County

December 2011

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Volume 1 of 2

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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 2007, 40 Panel 3 lakes were sampled. Of these 40 lakes, 12 had an excursion from SWQS Criterion ^[7] for TP from at least one in-lake station.

Very low DO levels (the SWQC of < 4.0mg/l) were observed in 6 lakes in the mesotrophic-through-hypereutrophic range, predominantly 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 (Sun Air Campground, Lake Stockwell, Atsion Lake, Makepeace

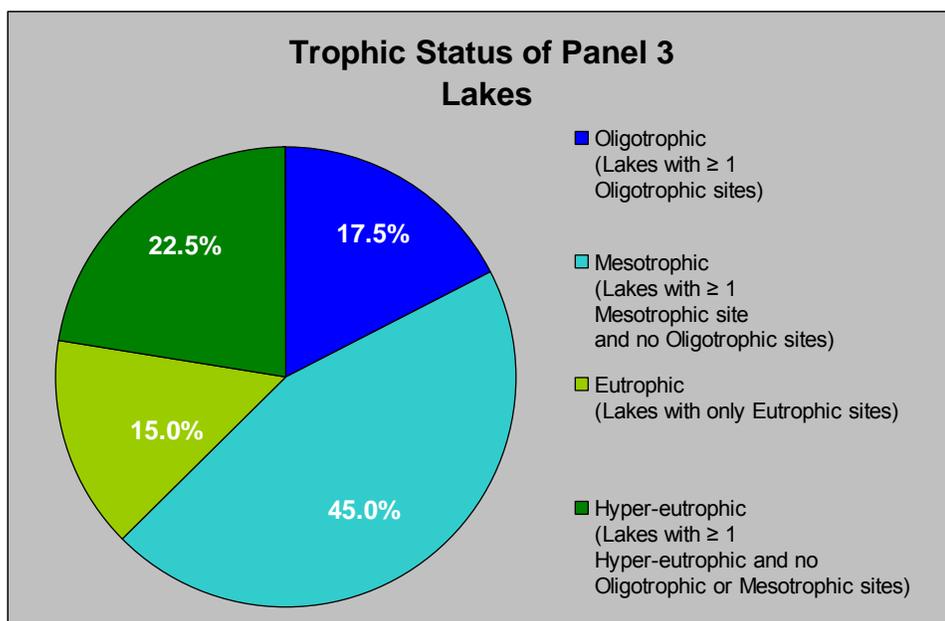


Figure ES1. Panel 3 Summary of Trophic Status.

Lake, Green Pond, Hanover Pond, Pilgram Lake) had a TSI rating of Oligotrophic for at least one station and one season. This rating always occurred in the spring or fall.

Three lakes (Hanover Pond, Pilgram Lake, and Sun Air Campground) were a combination of oligotrophic and mesotrophic for all seasons sampled. All other lakes sampled had at least one site during one season that had a TSI rating of eutrophic or hyper-eutrophic. (Figure ES1)

Also of note, five lakes were mesotrophic for all seasons sampled (Clinton WMA Pond, Great Gorge, Lake at the Woods, Marcia Lake, Muckshaw Ponds).

The Panel 3 sampling data and assessments provide 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 (Figure ES2). This demonstrates that lakes assessed for the Network to date (Panel 1, Panel 2, and Panel 3) 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.

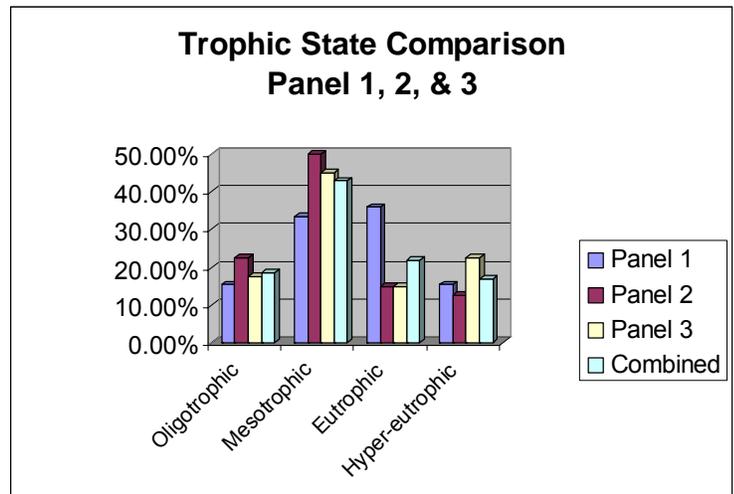


Figure ES2. TSI Comparison of Panel 1,2 & 3 Lakes.

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

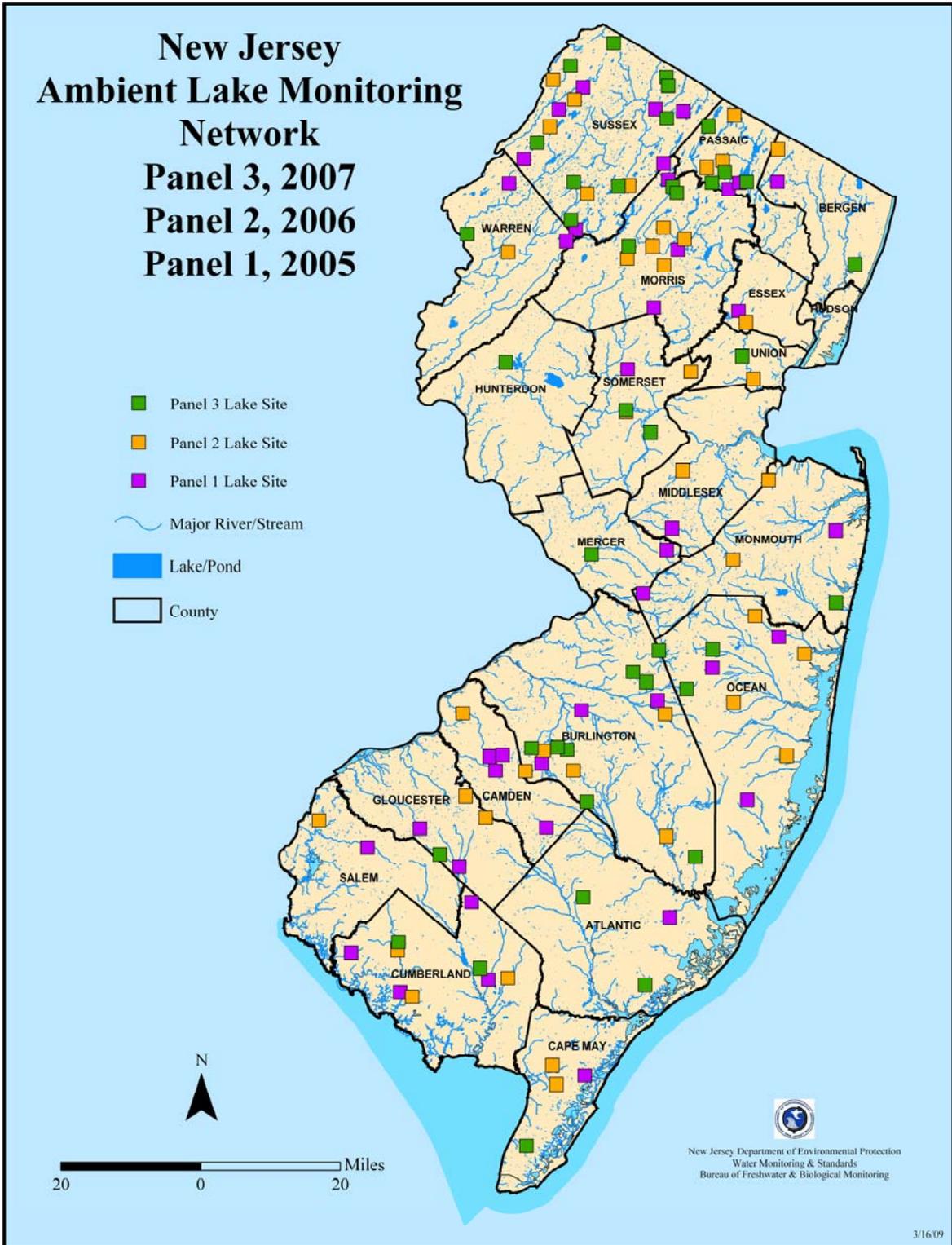


Figure ES3. Panel 1, 2, and 3 Lakes

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 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 (responsible for developing TMDLs); WM&S' Bureau of Water Quality Standards and Assessment, which is responsible for preparing the Integrated Water Quality Monitoring and Assessment Report (Integrated Report)^[6]; and the USEPA Region 2, Division of Environmental Science and Assessment.

New Jersey Ambient Lakes 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 2. Figure 1 shows sites sampled as of this report. Additional monitoring and assessment is performed in support of USEPA's National Lake Assessment (NLA).

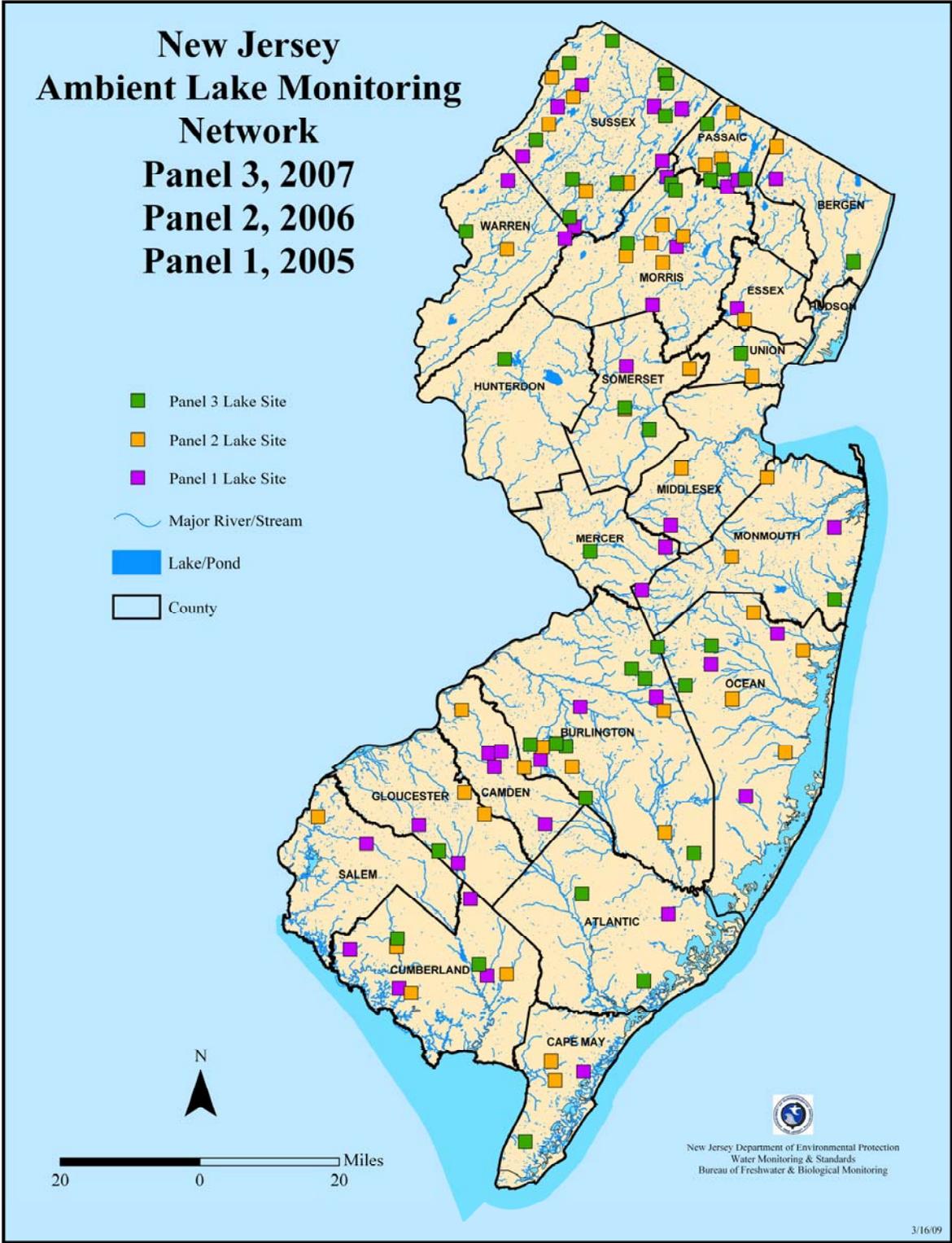


Figure 1. Panel 1, 2, and 3 Lakes

**Table 1.
Panel 3, 2007 Active Sites**

SITE ID	NAME	COUNTY	MUNICIPALITY
NJW04459-099	Atsion Lake	BURLINGTON	SHAMONG TWP
NJW04459-248	Bargaintown Pond	ATLANTIC	EGG HARBOR TWP
NJW04459-119	Bearfort Waters	PASSAIC	WEST MILFORD TWP
NJW04459-113	Clinton WMA Pond	HUNTERDON	UNION TWP
NJW04459-102	Colonial Lake	MERCER	LAWRENCE TWP
NJW04459-087	Delaware Lake	WARREN	KNOWLTON TWP
NJW04459-106	Duck Pond	MORRIS	ROXBURY TWP
NJW04459-085	Forest Hill Lake	PASSAIC	WEST MILFORD TWP
NJW04459-088	Garrison Lake	GLOUCESTER	ELK TWP
NJW04459-256	Glenwood Lake	SUSSEX	VERNON TWP
NJW04459-097	Great Gorge	SUSSEX	VERNON TWP
NJW04459-109	Green Pond	MORRIS	ROCKAWAY TWP
NJW04459-116	Hainsville Pond	SUSSEX	MONTAGUE TWP
NJW04459-118	Hankins Pond	CUMBERLAND	MILLVILLE CITY
NJW04459-110	Hanover Pond	OCEAN	MANCHESTER TWP
NJW04459-105	Japanese Garden A	SOMERSET	HILLSBOROUGH TWP
NJW04459-251	Kings Grant Lake	BURLINGTON	EVESHAM TWP
NJW04459-094	Lake at the Woods	BURLINGTON	NEW HANOVER TWP
NJW04459-086	Lake Mishe-Mokwa	BURLINGTON	MEDFORD LAKES BORO
NJW04459-093	Lake Mohawk	SUSSEX	SPARTA TWP
NJW04459-098	Lake Stockwell	BURLINGTON	MEDFORD TWP
NJW04459-255	Lake Tranquility	SUSSEX	GREEN TWP
NJW04459-108	Makepeace Lake	ATLANTIC	HAMILTON TWP
NJW04459-090	Marcia Lake	SUSSEX	MONTAGUE TWP
NJW04459-082	Matthews Lake	PASSAIC	WEST MILFORD TWP
NJW04459-089	Muckshaw Ponds	SUSSEX	FREDON TWP
NJW04459-250	Nomahegan Park Lake	UNION	CRANFORD TWP
NJW04459-115	Oakford Lake	BURLINGTON	NORTH HANOVER TWP
NJW04459-117	Osborne Pond	MONMOUTH	WALL TWP
NJW04459-254	Overpeck Creek	BERGEN	PALISADES PARK BORO
NJW04459-249	Panorama Lake	SUSSEX	VERNON TWP
NJW04459-112	Pilgrim Lake	BURLINGTON	BASS RIVER TWP
NJW04459-081	Plymouth Lake	SUSSEX	STILLWATER TWP
NJW04459-095	Pumping Station Pond	CAPE MAY	MIDDLE TWP
NJW04459-257	Spooky Brook Pond	SOMERSET	FRANKLIN TWP
NJW04459-247	Success Lake	OCEAN	JACKSON TWP
NJW04459-083	Sun Air Campground	MORRIS	JEFFERSON TWP
NJW04459-120	Sunset Lake	CUMBERLAND	UPPER DEERFIELD TWP
NJW04459-100	Washington Lake	PASSAIC	WANAQUE BORO
NJW04459-253	Willow Pond	BURLINGTON	NEW HANOVER 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 DO 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, the Carlson’s Trophic State Index (TSI), calculated using Total Phosphorus concentrations, Chlorophyll-a concentrations, and Secchi disk transparency measurements, was 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 NJDEP 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 is stratified (the seasonal formation of a thermocline), samples will be taken from the epilimnion (upper layer) and hypolimnion (lower layer). However, no Panel 3 lakes exhibited characteristics of stratification. 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 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). For Total Phosphorus, the RL changed near the end of the summer sampling. This was due to an upgrade in analytical instrumentation at the laboratory, resulting in greater sensitivity and a lower RL (see Volume 2, raw data sheets).

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 / 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”.

Storm Water Outfall Pipes: The presence of storm water 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 Index* (TSI) is 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 waterbody. ^[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 hypereutrophic, and is viewed as a continuum (Figure 2), 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.

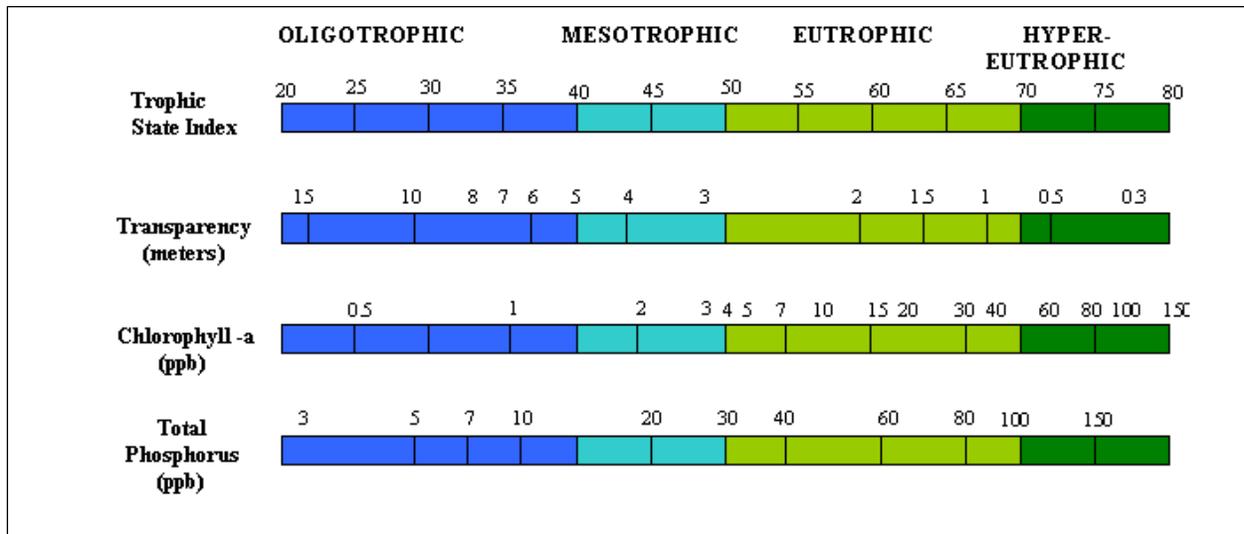


Figure 2. Carlson Trophic State Index viewed as a continuum.^[1]

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 eutrophic 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 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 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 3rd Panel 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 Volume, a summary of the results from the 2007 (Panel 3) 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.

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). A direct correlation between vegetation coverage and trophic status could not be determined. Although extensive surface vegetation (Figure 3) was not observed in lakes with oligotrophic states, one did have moderate growth.

Moderate-to-extensive vegetation was observed in lakes that had mesotrophic through hyper-eutrophic states. Inversely, absent-to-minimal vegetation was also observed in lakes of all trophic levels (Table 2).



Figure 3. Hainsville Pond surface vegetation.

**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
NJW04459-099	Atsion Lake	21.77%	
NJW04459-248	Bargaintown Pond	4.00%	X
NJW04459-119	Bearfort Waters	70.40%	
NJW04459-113	Clinton WMA Pond	56.07%	
NJW04459-102	Colonial Lake	0.62%	
NJW04459-087	Delaware Lake	51.03%	
NJW04459-106	Duck Pond	34.71%	
NJW04459-085	Forest Hill Lake	0.55%	X
NJW04459-088	Garrison Lake	22.07%	X
NJW04459-256	Glenwood Lake	0.00%	X
NJW04459-097	Great Gorge	0.00%	X
NJW04459-109	Green Pond	0.00%	
NJW04459-116	Hainsville Pond	74.81%	
NJW04459-118	Hankins Pond	15.13%	
NJW04459-105	Hanover Pond	37.59%	
NJW04459-110	Japanese Garden A	0.00%	X
NJW04459-251	Kings Grant Lake	0.00%	X
NJW04459-094	Lake at the Woods	27.35%	
NJW04459-086	Lake Mishe-Mokwa	0.00%	
NJW04459-093	Lake Mohawk	0.00%	X
NJW04459-098	Lake Stockwell	94.19%	X
NJW04459-255	Lake Tranquility	0.00%	X
NJW04459-108	Makepeace Lake	34.83%	
NJW04459-090	Marcia Lake	0.00%	
NJW04459-082	Matthews Lake	14.96%	
NJW04459-089	Muckshaw Ponds	29.23%	
NJW04459-250	Nomahegan Park Lake	0.59%	
NJW04459-115	Oakford Lake	0.00%	
NJW04459-117	Osborne Pond	23.83%	
NJW04459-254	Overpeck Creek	0.00%	
NJW04459-249	Panorama Lake	0.00%	X
NJW04459-112	Pilgrim Lake	54.50%	
NJW04459-081	Plymouth Lake	8.66%	X
NJW04459-095	Pumping Station Pond	0.00%	
NJW04459-257	Spooky Brook Pond	84.75%	
NJW04459-247	Success Lake	27.13%	
NJW04459-083	Sun Air Campground	0.00%	
NJW04459-120	Sunset Lake	6.71%	
NJW04459-100	Washington Lake	13.54%	X
NJW04459-253	Willow Pond	5.23%	

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

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). Thirteen lakes sampled were permitted through the NJDEP Pesticide Control Program (Table 2). Vegetation observed at these lakes ranged from absent to 94.19% (Table 2).

Chlorophyll ‘a’

Algal concentrations in the water column are measured through Chlorophyll ‘a’ analysis. Chlorophyll ‘a’ concentrations $\geq 4 \mu\text{g/l}$ are in the eutrophic range as assessed by Carlson’s TSI. Concentrations at Panel 3 sites ranged from $0.8 \mu\text{g/l}$ to $164.37 \mu\text{g/l}$ 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 $10 \mu\text{g/l}$ may be indicative of impacted water quality. As shown by Carlson’s TSI continuum (Figure 2) a Chlorophyll ‘a’ concentration of $10 \mu\text{g/l}$ 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 2007, 12 lakes had at least one excursion above the total phosphorus criteria of 0.05 mg/L . (Figure 2) TP results from all lakes ranged from non-detected to 0.184 mg/l in the spring, 0.514 mg/l in the summer, and 0.173 mg/l in the fall. Oakford Lake, Osborne Pond, Nomahegan Park Lake, Overpeck Creek Lake, and Spooky Brook Pond were above the TP standard for all in-lake stations each season. See Volume 2 for results for each lake.

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.

Figure 4. SWQC Thresholds for Lakes.

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 3, the TSI for TP and Chlorophyll “a” was approximately equal suggesting that TP was the limiting nutrient.

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.

Physical / Chemical Measurements

Dissolved oxygen (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



Figure 5. Delaware Lake. Supersaturated Dissolved Oxygen and high Chl “a” concentrations

DO levels (below the SWQC) were observed in some lakes in the mesotrophic-through-hypereutrophic range during the summer months. The majority of lakes with very low dissolved oxygen 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 decreases 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.

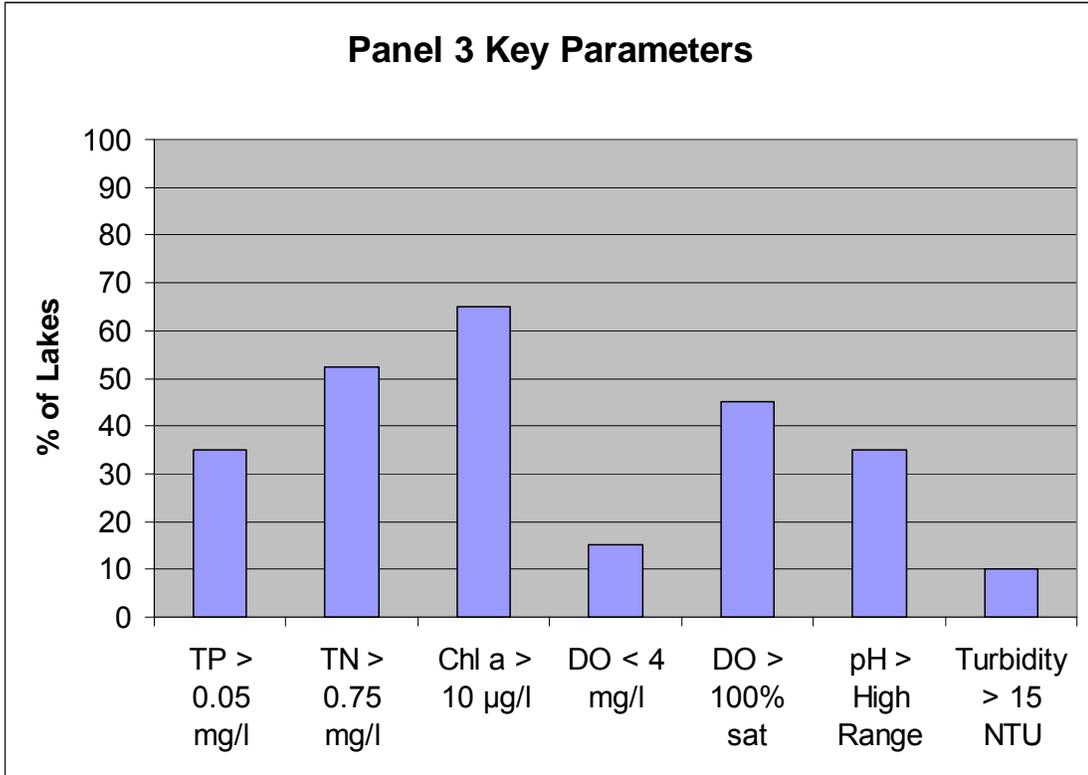


Figure 6. Percentage of Panel 3 lakes showing key parameters with levels exceeding thresholds for at least one in-lake site during the sampling season. TP, DO mg/l, and pH are SWQC thresholds. pH high range is determined by Water Basin specific thresholds (see Figure 4).

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 predominantly 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

Twenty-eight of the 40 Panel 3 lakes had stream outlets. Outlets were not sampled unless they were actively flowing.

An outlet stream (Figure 7) is determined to be directly affected by the lake when any parameter exhibits elevated results similar to those in its feeder lake. Approximately 93% of the outlet streams (if present) were affected by their lake’s influence in the zone immediately downstream of the impoundment.



Figure 7. Makepeace Lake Outlet

It is important to remember that the SWQC for TP in streams, 0.1 mg/L, is higher than for lakes.^[8] Six outlet streams had a TP concentration \geq to 0.1 mg/L for at least one site and one season sampled. TP concentrations within five of these eight lakes exceeded the lake SWQC.

Concentrations in outlet streams of turbidity and other nutrients were also frequently at levels similar to that of the feeder lake. Chlorophyll “a” and DO 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

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 range from oligotrophic to hypereutrophic, and is viewed as a continuum on this scale (Figure 2). Carlson’s TSI is based on the interrelationships of TP, chlorophyll “a”, and Secchi disk transparency.

Oligotrophic Lakes

Lakes that were entirely oligotrophic were not represented in Panel 3 and the number of lakes exhibiting periods of oligotrophy was limited. Only seven of the 40 Panel 3 lakes had stations which were in an oligotrophic state. Sun Air Campground, Lake Stockwell, Atsion Lake (Figure 8), Makepeace Lake, Green Pond, Hanover Pond, and Pilgrim Lake all exhibited a TSI rating of oligotrophic for at least one station, which occurred either in the spring and/ or fall season. No lake remained in a constant oligotrophic state for all seasons sampled. This suggests that the trophic state is likely affected by seasonal variation.



Figure 8. Atsion Lake. One of seven lakes with oligotrophic sites.

Three of the lakes which had an oligotrophic site are of particular note, Sun Air Campground, Hanover Pond, and Pilgrim Lake. These lakes were a combination of oligotrophic and mesotrophic (see below) for all seasons sampled. The other six lakes which had oligotrophic sites also had a site with a eutrophic TSI.

Mesotrophic Lakes

Lakes having periods of mesotrophic status, which are by definition in transition to a eutrophic state, were more prevalent than oligotrophic states. Eighteen lakes had stations in a mesotrophic state, five of which -

Clinton WMA Pond, Great Gorge, Lake at the Woods, Marcia Lake, Muckshaw Ponds - maintained a mesotrophic state throughout all seasons.

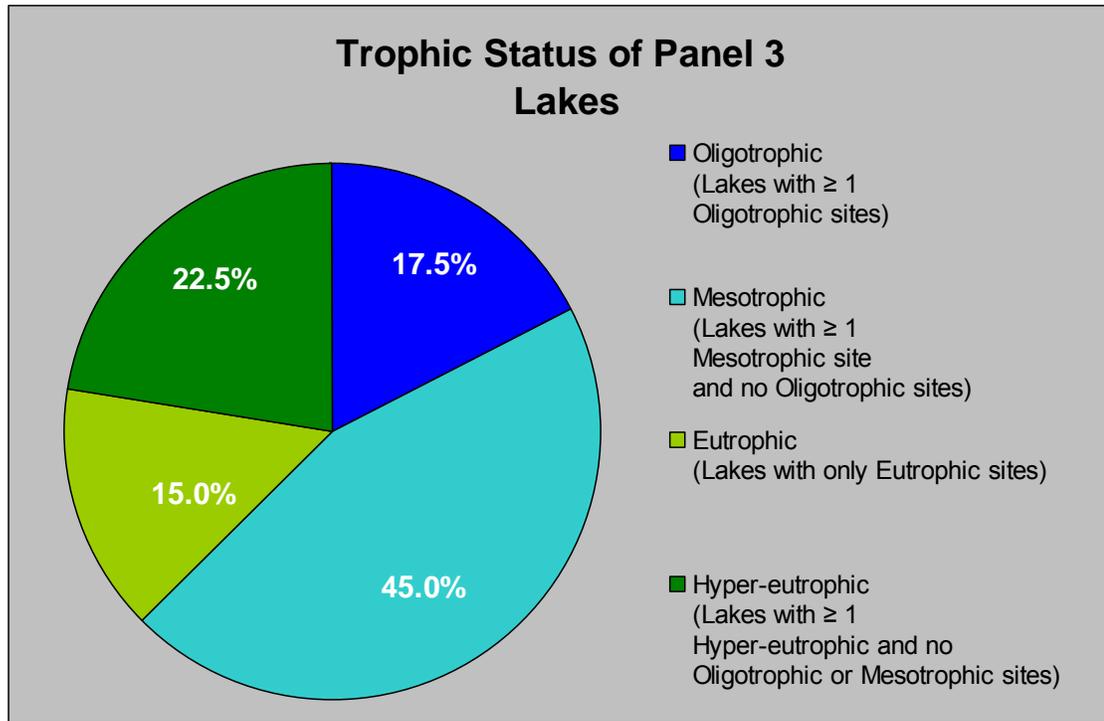


Figure 9 Panel 3 Summary of TSI Results.

Eutrophic and Hyper-eutrophic Lakes

Fifteen (15) Panel 3 lakes exhibited TSI ratings exclusively in the eutrophic range (Eutrophic, or Hypereutrophic) for all seasons sampled. Figure 9 shows a summary of the percentage of lakes exhibiting each trophic state.

All Panel 3 lakes exhibited degrees of eutrophication depending on the season and / or area of the lake sampled. Accordingly, this data demonstrates that all Panel 3 lakes are in, or accelerating towards, an entirely eutrophic state.

Figure 9 shows a summary of the percentage of lakes exhibiting a particular trophic state at least one time during the sampling run.

Panel 1, 2, and 3 TSI Comparison

Panel 3 showed an increase in lakes with sites having a TSI of hyper-eutrophic when compared to Panel 1 and 2 results (Figure 10). All other trophic states in Panel 3 lakes were similar to combined averages of all panels sample.

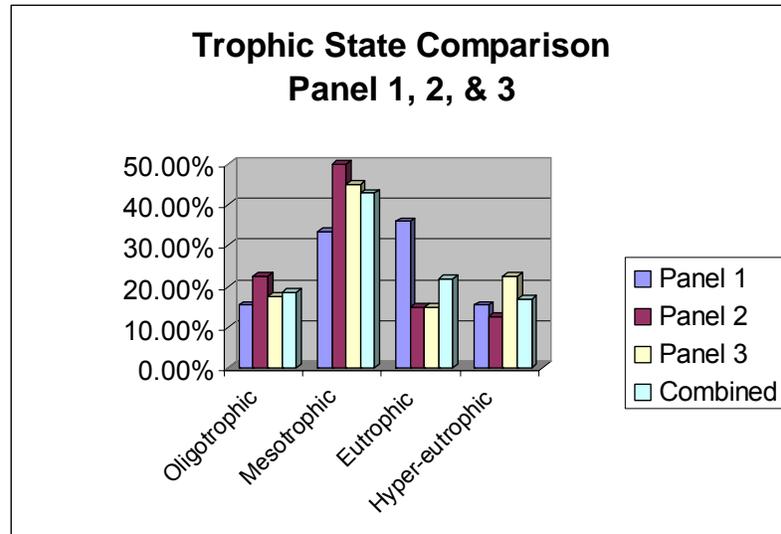


Figure 10. Comparison of Panel 1, 2, and 3 TSI

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

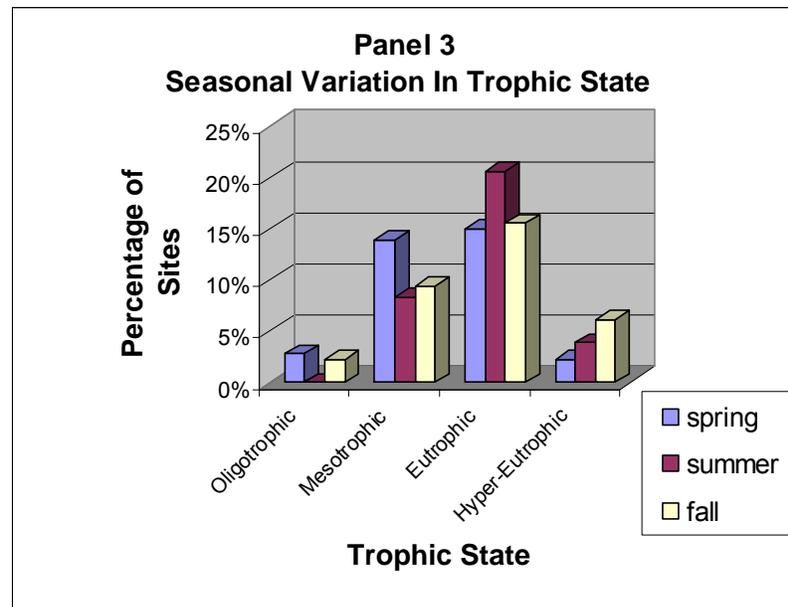


Figure 11. Trophic State By Season

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 of phosphorus is from the release of sediment bound phosphorus due to changes in the 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 variability by season.

POTENTIAL STRESSORS

Storm Water Outfalls

Storm water outfall pipes were observed at some lakes (Figure 12). These pipes were made of cement, corrugated metal, PVC, or vitrified clay.

Nine Panel 3 lakes had storm water outfalls entering the lake. Panel 3 lakes showed a strong relationship between trophic state and the presence of outfall pipes as all lakes from this subset were either eutrophic or hypereutrophic for at least one season.

Four of the nine lakes exceeded the SWQC for TP, eight exhibited elevated nutrients, and three exhibited high turbidity for at least one season.



Figure 12. Stormwater outfall pipe at Oakford Lake.

Storm water 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

Storm water outfalls seem to be a major stressor for lakes. Nine lakes in Panel 3 had storm water outfall pipes entering the lake. All had periods in a eutrophic or hyper-eutrophic state, along with elevated TP and other nutrients. It is likely that these storm water pipes serve as a conduit for the increased levels observed. Storm water 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.

Twenty-eight of the lake outlet streams (if present) 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. Likewise, concentrations for turbidity, Chlorophyll "a", and DO in outlet streams were found to be similar to those observed in 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 benthic macroinvertebrates and fish, is also 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 3

**Volume 2 of 2
Data and Results**



Plymouth Lake, Stillwater Twp., Sussex 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 3

Volume 2 of 2 Data and Results

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This Volume contains Panel 3 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.

$$\begin{aligned} \text{Total Phosphorus TSI (TSIP)} &= 14.42 \ln(\text{TP}) + 4.15 \\ \text{Chlorophyll "a" TSI (TSIC)} &= 9.81 \ln(\text{Chl } a) + 30.6 \\ \text{Secchi Disk TSI (TSIS)} &= 60 - 14.41 \ln(\text{SD}) \end{aligned}$$

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.

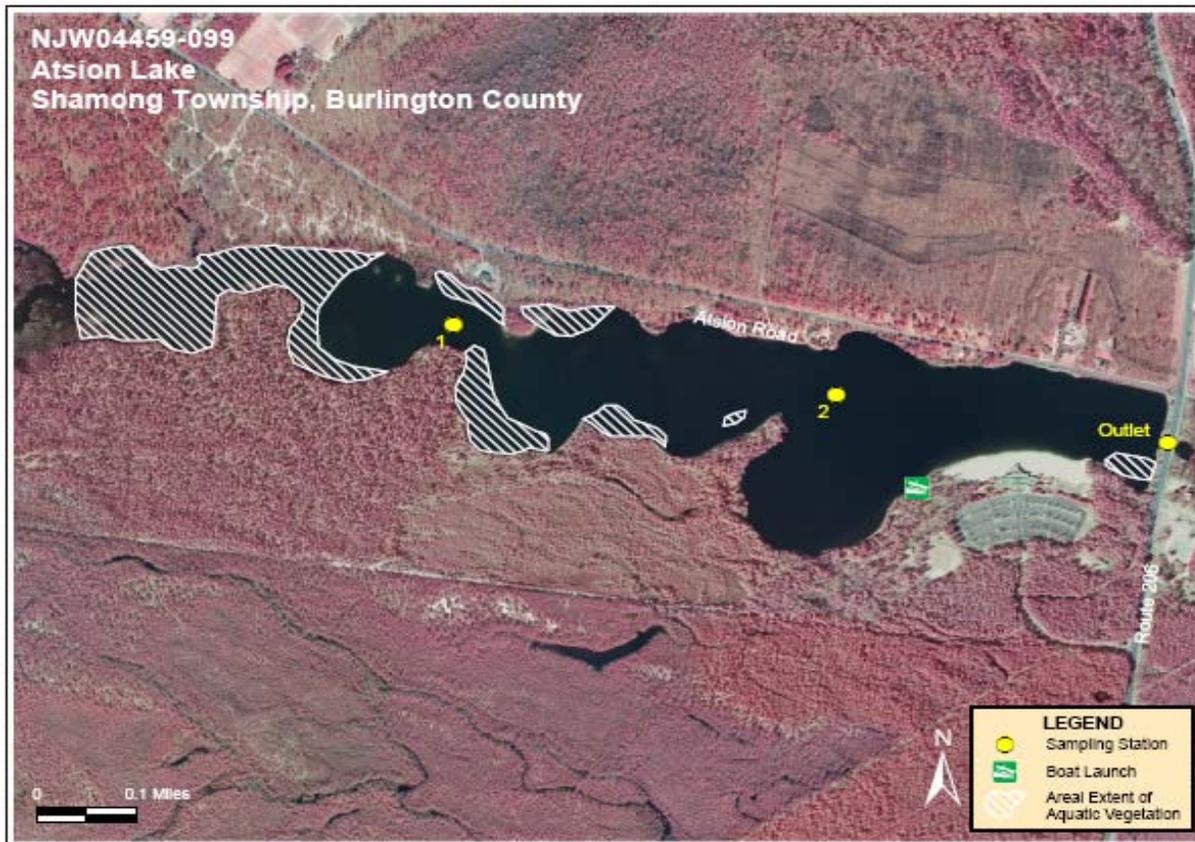
*4.5 - 7.5 SU for lakes within FW2 waters in the Atlantic, Lower Delaware, and Lower Raritan River basins.

*3.5 - 5.5 SU for lakes designated as PL waters.

AMBIENT LAKE MONITORING NETWORK

Lake Name Atsion Lake
Site ID NJW04459-099

County Burlington
Municipality Shamong Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	39.95	B	39.95 Oligotrophic
Spring Station 2	ND	39.19	56.22	47.70 Mesotrophic
Summer Station 1	50.57	43.95	67.36	53.96 Eutrophic
Summer Station 2	49.36	47.32	67.36	54.68 Eutrophic
Fall Station 1	ND	42.61	60	51.30 Eutrophic
Fall Station 2	ND	43.62	60	51.81 Eutrophic

ND - TP concentration below detection limit

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

Observations

Spring - cedar water, windy; difficult to get accurate secchi at Sta 2 due to choppy water

Summer - SAV sporadic, water dark cedar brown, obscured secchi, core sample at station 2; lillies present

Fall - minimal SAV and emergent vegetation; water dark cedar brown

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Atsion Lake

County: BURLINGTON

SiteID: NJW04459-099

Municipality: SHAMONG 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	1.8	1	1.8	8.19	9.27	78.7	4.01	0.05
2	2.1	1	1.3	10.46	9.39	84.5	4.59	0.051
outlet	0.5	0.5		10.41	10.15	91.2	4.81	0.051

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	0.6	19.24	5.26	56.4	4.7	0.042
2	2.1	1	0.6	20.98	5.32	59.1	4.77	0.044
outlet	0.3	0.3		23.48	6.98	81.2	4.8	0.044

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	1	20.82	6.26	69.4	5	0.041
2	2.0	1	1	22.14	6.89	78.4	4.92	0.045
outlet	0.4	0.4		22.62	7.6	87.3	4.95	0.045

-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: Atsion Lake

County: BURLINGTON

SiteID: NJW04459-099

Municipality: SHAMONG 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	0.259	0.186	0.005	2.5	1.000	6.703	2.41
2	ND	0.178	0.136	0.050	2.4	10.200	6.500	1.31
outlet	ND	0.264	0.130	0.005	5.0	1.000	6.625	2.22

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	0.556	0.122	0.010	3.9	1.000	6.024	4.96
2	0.023	0.544	0.127	0.015	5.5	1.000	6.041	5.06
outlet	0.025	0.584	0.138	0.033	6.2	1.000	6.066	5.06

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		0.063	0.038	3.4	5.000	6.153	3.92
2	ND	0.194	0.047	0.039	3.77	1.000	6.091	3.12
outlet	0.012	0.203	0.052	0.043	3.72	2.000	6.078	3.31

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Bargaintown Pond
Site ID NJW04459-248

County Atlantic
Municipality Egg Harbor Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	39.98	49.26	B	44.62 Mesotrophic
Summer Station 1	51.13	56.13	B	53.63 Eutrophic
Fall Station 1	38.73	56.77	B	47.75 Mesotrophic

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

Observations

Spring - cedar water; outlet is tidal

Summer - SAV

Fall - SAV; lake treated on 6/19/07 with Reward by Aquatic Technologies.

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Bargaintown Pond

County: ATLANTIC

SiteID: NJW04459-248

Municipality: EGG HARBOR 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	11.85	9.04	83.4	6.32	0.084

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	1	24.73	7.23	86.6	5.97	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	1.2	1	1.2	25.11	6.87	83	6.2	0.068

-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: Bargaintown Pond

County: ATLANTIC

SiteID: NJW04459-248

Municipality: EGG HARBOR 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	0.302	0.279	0.007	6.7	2.000	12.844	1.79

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	0.591	0.097	0.018	13.5	2.000	11.769	1.66

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	0.385	0.013	0.027	14.41	19.000	11.151	1.99

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Bearfort Waters
Site ID NJW04459-119

County Passaic
Municipality West Milford Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	49.36	49.83	B	49.60 Mesotrophic
Summer Station 1	52.71	52.01	61.52	55.41 Eutrophic
Fall Station 1	42.21	56.04	63.22	53.82 Eutrophic

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

Observations

Spring - SAV throughout, beaver den

Summer - SAV throughout, secci becomes obscured by plants

Fall - outlet not flowing and obscured by plants

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Bearfort Waters

County: PASSAIC

SiteID: NJW04459-119

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	1.1	0.5	1.1	19.66	6.41	72.6	6.55	0.098
outlet	0.3	0.3		18.73	6.1	67.8	6.59	0.109

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	1.1	0.5	0.9	22.78	4.99	60.1	6.08	0.079
outlet	0.2	0.2		22.82	3.69	44.4	6.23	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	0.5	0.8	21.79	5.09	60.4	6.21	0.09

-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: Bearfort Waters

County: PASSAIC

SiteID: NJW04459-119

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	0.023	0.494	0.152	0.005	7.1	15.000	19.818	1.52
outlet	0.023	0.310	0.137	0.046	2.2	26.000	22.384	2.23

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	0.597	0.034	0.026	8.87	4.100	18.367	.91
outlet	0.059	0.535	0.039	0.280	0.63	15.000	23.696	2.45

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	0.697	0.020	0.009	13.37	10.000	21.710	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 I, Methods.

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Clinton WMA Pond
Site ID NJW04459-113

County Hunterdon
Municipality Union Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	42.21	41.7	50.01	44.64 Mesotrophic
Summer Station 1	50.57	49.41	48.64	49.54 Mesotrophic
Fall Station 1	45	50.69	45.16	46.95 Mesotrophic

Observations

Spring - SAV, filamentous algae

Summer - outlet not flowing

Fall - outlet not flowing

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Clinton WMA Pond

County: HUNTERDON

SiteID: NJW04459-113

Municipality: UNION TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	4.2	1	2.0	17.68	11.41	121.2	9.26	0.132
1	4.2	2	2.0	12.83	14.57	140	8.9	0.135
1	4.2	3	2.0	9.45	12.42	110.1	8.27	0.122
1	4.2	4	2.0	8.08	6.13	52.9	7.76	0.129
outlet	0.2	0.2		18.99	11.38	124.3	9.34	0.129

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	4.2	1	2.2	28.09	7.61	99.6	8.9	0.155
1	4.2	2	2.2	25	8.09	99.8	8.52	0.161
1	4.2	3	2.2	21.88	2.12	24.6	7.55	0.17

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	3.9	1	2.8	21.03	8.37	94.2	8.24	0.169
1	3.9	2	2.8	20.74	7.85	87.9	8.16	0.169
1	3.9	3	2.8	20.48	6.16	68.6	7.74	0.172

-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: Clinton WMA Pond

County: HUNTERDON

SiteID: NJW04459-113

Municipality: UNION 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	0.014	0.241	0.544	0.008	3.1	46.000	55.313	2.54
outlet	0.044	0.231	0.254	0.005	8.9	51.000	53.656	2.59

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	0.410	0.038	0.006	6.8	56.000	69.009	1.92

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	0.410	0.022	0.014	7.75	40.000	79.869	1.64

Sample Device - Horizontal Polycarbonate Sampler

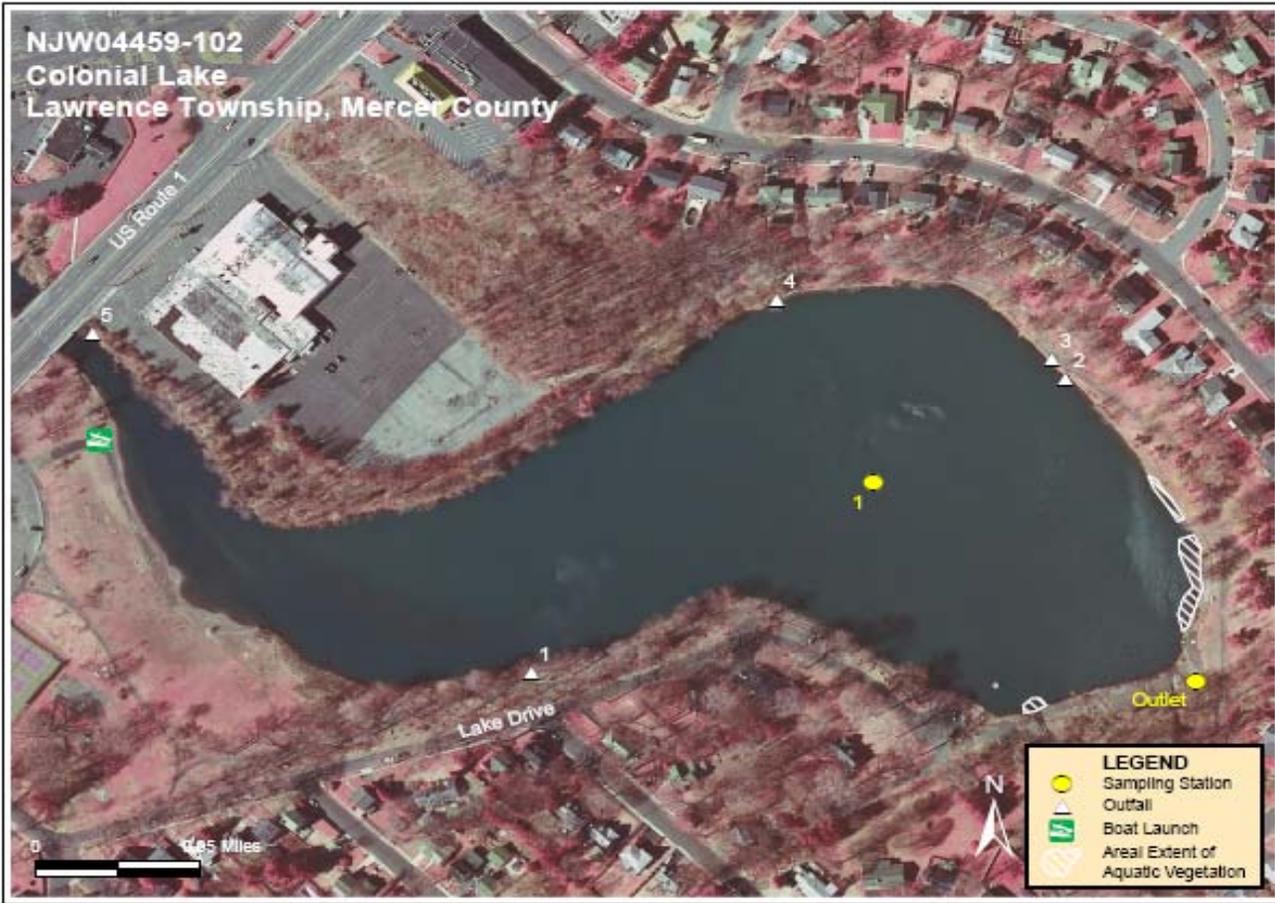
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume I, Methods.

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Colonial Lake
Site ID NJW04459-102

County Mercer
Municipality Lawrence Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	59.97	62.56	63.22	61.92 Eutrophic
Summer Station 1	72.19	77.2	61.52	70.30 Hypereutrophic
Fall Station 1	69.66	77.21	73.2	73.36 Hypereutrophic

72.19 Total Phosphorus exceeds SWQC threshold (See Datasheet for actual concentration)

Observations

Spring - geese, cormorants, turtle, gulls, mallards, blue heron, black crowned night heron

Fall - some SAV along shoreline; turtles, waterfowl (ducks, Canadian geese, cormorants), blue heron

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Colonial Lake

County: MERCER

SiteID: NJW04459-102

Municipality: LAWRENCE 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	2.3	1	0.8	17.22	9.37	97.1	7.43	0.368
1	2.3	2	0.8	14.66	4.61	45.6	7.08	0.374
outlet	1	0		17.92	9.44	99.3	7.37	0.37

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	0.9	23.17	9.61	111.6	7.32	0.235
outlet	0.4	0.1		26.14	7.41	90.9	7.46	0.229

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	1	0.4	23.33	7.24	84.8	8.02	0.295
outlet	0.1	0.1		26.16	3.65	45	7.57	0.288

-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: Colonial Lake

County: MERCER

SiteID: NJW04459-102

Municipality: LAWRENCE 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	0.442	1.010	0.247	26.0	61.000	127.600	11.7
outlet	0.054	0.476	1.050	0.096	17.4	46.000	127.800	7.60

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	0.112	1.080	0.283	0.078	115.6	41.000	70.888	10.6
outlet	0.11	0.808	0.335	0.064	34.9	66.000	71.014	4.05

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	0.094	0.712	0.027	0.102	115.7	42.000	96.927	12.3
outlet	0.134	0.669	0.152	0.126	27.41	85.000	95.889	6.84

Sample Device - Horizontal Polycarbonate Sampler

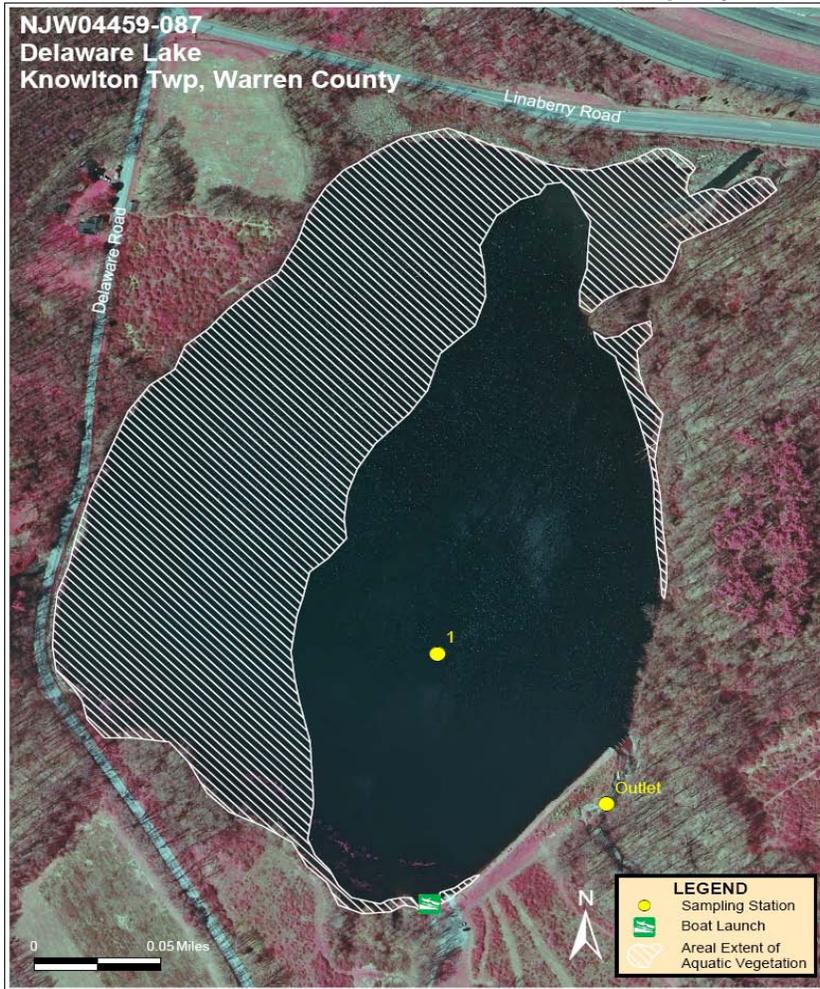
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume I, Methods.

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Delaware Lake
 Site ID NJW04459-087

County Warren
 Municipality KnowltonTwp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	48.05	54.81	51.53	51.46 Eutrophic
Summer Station 1	78.71	78.49	73.2	76.80 Hypereutrophic
Fall Station 1	76.01	76.25	67.36	73.21 Hypereutrophic

78.71 Total Phosphorus exceeds SWQC threshold (See Datasheet for actual concentration)

Observations

Spring - SAV throughout, duckweed, filamentous algae

Summer - algae and duckweed at outlet , sample not possible, strong odor from lake and outlet

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Delaware Lake

County: WARREN

SiteID: NJW04459-087

Municipality: KNOWLTON TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	3.8	1	1.8	15.64	13.41	136.8	9.36	0.385
1	3.8	2	1.8	10.85	16.15	148.2	9.1	0.381
1	3.8	3	1.8	8.26	11.07	95.5	8.58	0.377
outlet	0.1	0.1		16.18	10.48	108.1	9.42	0.384

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	3.6	1	0.4	27.04	2.25	28.8	9.2	0.423
1	3.6	2	0.4	21.8	0.19	2.2	7.95	0.459
1	3.6	3	0.4	18.02	0.13	1.4	7.11	0.539
outlet	0.1	0.1		28.44	7.12	93.4	9.75	0.425

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	3.7	1.1	0.6	19.91	13.41	148.2	9.37	0.431
1	3.7	2	0.6	19.29	0.2	2.1	7.39	0.452
1	3.7	3	0.6	17.8	0.09	0.9	6.71	0.505
outlet	0.1	0.1		19.63	5.93	65.2	8.81	0.44

-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: Delaware Lake

County: WARREN

SiteID: NJW04459-087

Municipality: KNOWLTON 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	0.021	0.343	0.781	0.005	11.8	67.000	107.300	1.77
outlet	0.051	0.403	0.759	0.011	13.3	65.000	107.300	1.97

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	0.176	2.590	0.041	0.063	131.8	82.000	117.000	14.9
outlet	0.286	2.260	0.047	0.515	80.8	77.000	110.600	9.23

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	0.146	1.340	0.011	0.058	104.95	70.000	120.400	13.4
outlet	0.143	1.430	0.058	0.174	52.91	65.000	122.900	6.97

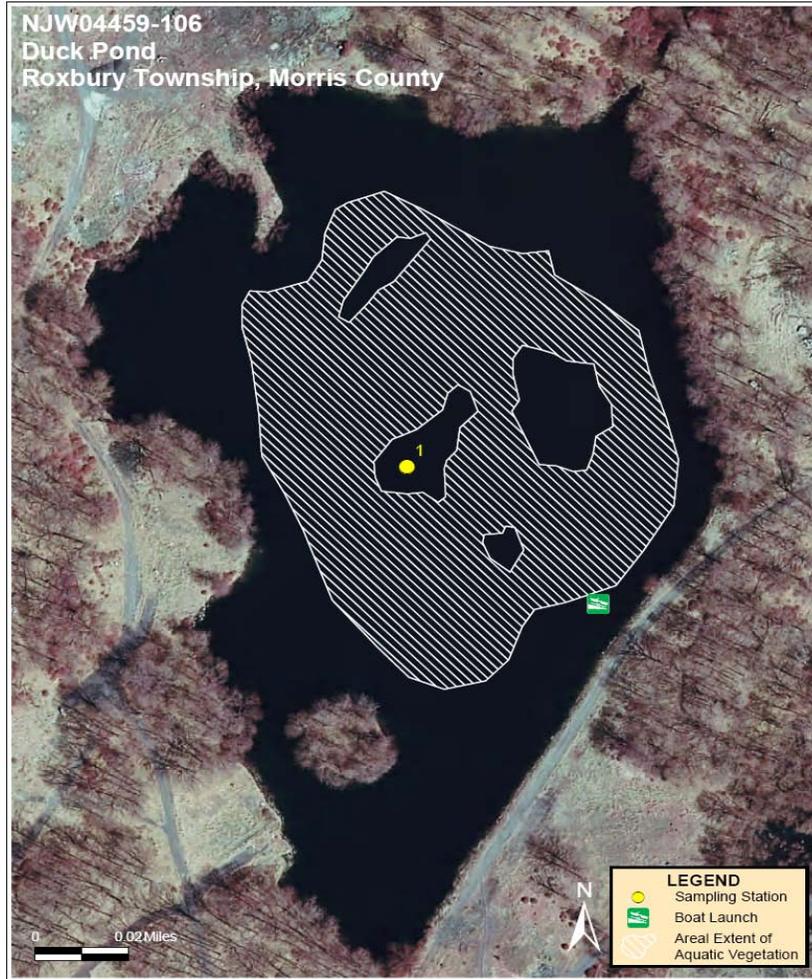
Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Duck Pond County Morris
 Site ID NJW04459-106 Municipality Roxbury Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	53.67	42.89	B	48.28 Mesotrophic
Summer Station 1	49.36	49.11	B	49.24 Mesotrophic
Fall Station 1	59.67	52.37	B	56.02 Eutrophic

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

Observations

Spring - SAV, geese, snapper turtle, large mouth bass, duck

Summer - SAV, filamentous algae made motoring difficult

Fall - lake water level is low due to lack of rain

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Duck Pond

County: MORRIS

SiteID: NJW04459-106

Municipality: ROXBURY 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	18.37	6.64	71.4	6.68	0.12

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	1.1	0.5	1.1	24.89	1	12.4	6.57	0.102

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	16.11	6.1	63.1	6.3	0.094

-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: Duck Pond

County: MORRIS

SiteID: NJW04459-106

Municipality: ROXBURY 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	0.537	0.129	0.005	3.5	31.000	45.159	1.05

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	0.756	0.013	0.009	6.6	34.000	43.586	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	0.047	0.700	0.020	0.006	9.2	26.000	38.736	3.14

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Forrest Hill Lake
Site ID NJW04459-085

County Passaic
Municipality West Milford Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	49.98	52.79	54.16	52.31 Eutrophic
Summer Station 1	56.98	61.23	57.37	58.53 Eutrophic
Fall Station 1	54.57	57.86	49.31	53.91 Eutrophic

Observations

Spring - lake lowered, geese, ducks, SAV, lillies, goslings, outlet dry,
 summer/beach area, lake level down about 3 feet

Summer - SAV throughout

Fall - lake treated with Aquathol-K on 7/2/07 by Aquatic Technologies;
 resident stated that lake outlet only flows after heavy rains

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Forest Hill Lake

County: PASSAIC

SiteID: NJW04459-085

Municipality: WEST MILFORD TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	2.7	1	1.5	21.09	8.93	103.5	7.73	0.141
1	2.7	2	1.5	18.89	7.36	81.7	7.29	0.142

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	3.3	1	1.2	27.74	8.1	104.8	8.82	0.209
1	3.3	2	1.2	27.14	6.56	84	8.31	0.21
1	3.3	3	1.2	24.34	0.54	6.6	7.31	0.223

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	3.5	1	2.1	21.5	6.49	75.7	7.08	0.253
1	3.5	2	2.1	21.49	6.46	75.3	7.29	0.253
1	3.5	3	2.1	21.36	6.18	71.8	7.33	0.256
outlet	0.1	0.1		21.28	7.59	88.1	7.76	0.227

-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: Forest Hill Lake

County: PASSAIC

SiteID: NJW04459-085

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	0.024	0.402	0.027	0.005	9.6	82.000	56.768	3.08

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	0.039	0.569	0.037	0.006	22.7	55.000	89.320	3.59

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	0.589	0.025	0.026	16.1	55.000	104.400	2.62
outlet	0.03	0.667	0.021	0.015	19.06	52.000	103.600	2.42

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Garrison Lake
 Site ID NJW04459-088

County Gloucester
 Municipality Elk Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	48.72	49.55	61.52	53.26 Eutrophic
Summer Station 1	49.98	57.74	B	53.86 Eutrophic
Fall Station 1	38.73	46.75	B	42.74 Mesotrophic

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

Observations

Spring - lake is shallow. 0.5 M @ lake limit sign to 1.4 M @ outlet; cedar water
 Fall - Two "awaywithgeese.com" strobes; Lutriline Ultra treatment on 7/17/07

AMBIENT LAKE MONITORING NETWORK

Lake Name: Garrison Lake

County: GLOUCESTER

SiteID: NJW04459-088

Municipality: ELK 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	0.9	10.54	10.63	94.8	5.73	0.094
outlet	0.3	0.3		10.34	10.78	95.7	5.48	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	1.1	0.5	1.1	22.58	6.66	76.9	6.45	0.103
outlet	0.1	0.1		22.8	7.02	81.4	6.68	0.102

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	0.5	1	25.97	6.64	80.7	6.93	0.092
outlet	0.1	0.1		25.99	7.32	88.9	6.99	0.091

-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: Garrison Lake

County: GLOUCESTER

SiteID: NJW04459-088

Municipality: ELK 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	0.416	2.880	0.006	6.9	3.100	32.650	4.56
outlet	0.014	0.389	2.930	0.006	6.2	4.100	33.520	3.46

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	0.632	2.160	0.042	15.9	26.000	38.150	2.32
outlet	0.026	0.675	1.870	0.050	17.0	15.000	37.993	2.39

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	0.543	1.050	0.040	5.19	15.000	33.594	1.56
outlet	0.016	0.480	1.080	0.070	4.72	22.000	33.932	2.64

Sample Device - Horizontal Polycarbonate Sampler

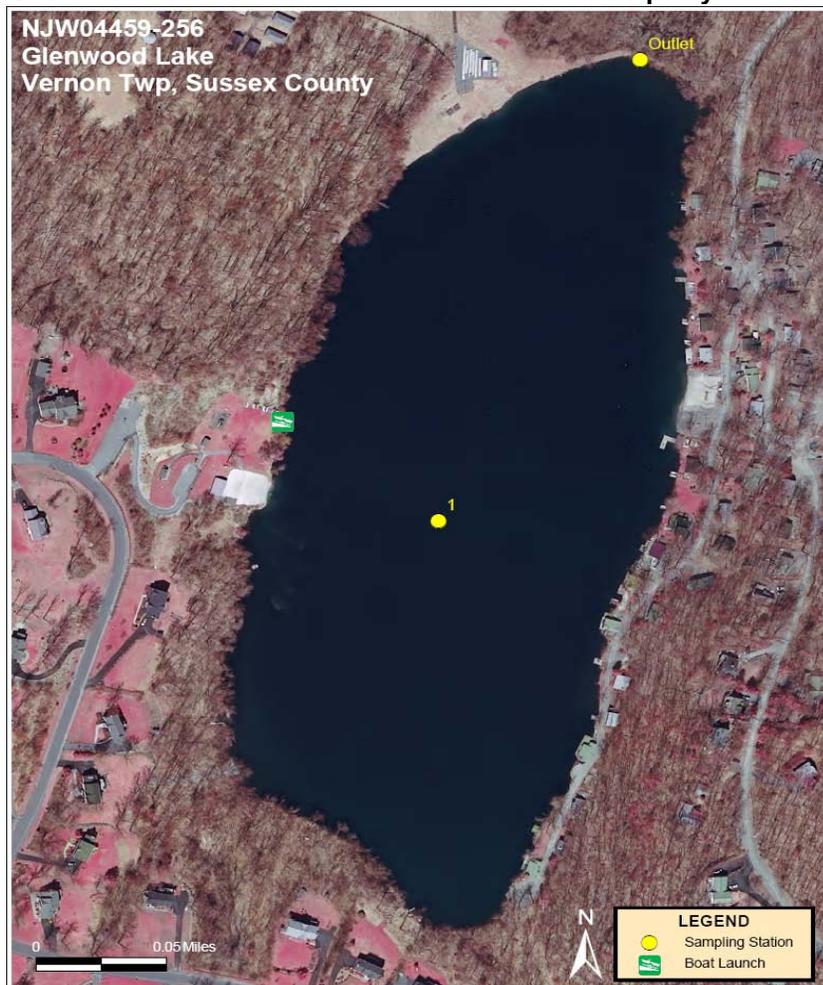
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume I, Methods.

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Glenwood Lake
Site ID NJW04459-256

County Sussex
Municipality Vernon Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	45	51	50.01	48.67 Mesotrophic
Summer Station 1	55	60.33	54.16	56.49 Eutrophic
Fall Station 1	51.13	61.98	55.15	56.09 Eutrophic

Observations

Spring - SAV

Summer - SAV; outlet not flowing

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Glenwood Lake

County: SUSSEX

SiteID: NJW04459-256

Municipality: VERNON TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	6.3	1	2.0	23.71	9.35	113	8.6	0.324
1	6.3	2	2.0	22.34	9.79	115.3	8.6	0.322
1	6.3	3	2.0	17.54	9.93	106.2	8.44	0.323
1	6.3	4	2.0	12.47	11.72	112.4	8.18	0.333
1	6.3	4.8	2.0	9.63	0.82	7.4	7.47	0.35
1	6.3	6	2.0	8.36	0.39	3.4	7.34	0.369

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	6.4	1	1.5	20.66	5.17	58.6	7.83	0.327
1	6.4	2	1.5	20.62	4.99	56.5	7.89	0.328
1	6.4	3	1.5	20.58	5.16	58.4	7.92	0.327
1	6.4	4	1.5	20.48	3.96	44.8	7.75	0.33
1	6.4	5	1.5	19.65	0.18	2	7.33	0.341
1	6.4	6	1.5	13.26	0.09	1	6.94	0.441

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	6.5	1	1.4	13.61	8.68	84	7.68	0.314
1	6.5	2	1.4	13.55	8.59	83	7.87	0.314
1	6.5	3	1.4	13.52	8.61	83.2	7.91	0.314
1	6.5	4	1.4	13.47	8.61	83.2	7.93	0.314
1	6.5	5	1.4	13.35	8.61	82.9	7.94	0.314
1	6.5	6	1.4	13.31	8.52	81.9	7.92	0.315

-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: Glenwood Lake

County: SUSSEX

SiteID: NJW04459-256

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	0.017	0.385	0.163	0.006	8.0	104.0	144.700	2.39

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	0.034	0.425	0.033	0.022	20.7	104.0	145.200	3.80

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	0.026	0.457	0.027	0.035	24.5	122.0	151.400	5.44

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Great Gorge
Site ID NJW04459-097

County Sussex
Municipality Vernon Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	43.2	38.77	43.24	41.74 Mesotrophic
Spring Station 2	ND	38.77	49.31	44.04 Mesotrophic
Summer Station 1	41.14	42.01	41.15	41.43 Mesotrophic
Summer Station 2	ND	43.38	41.95	42.66 Mesotrophic
Fall Station 1	ND	40.81	41.95	41.38 Mesotrophic
Fall Station 2	ND	40.16	44.17	42.16 Mesotrophic

ND - TP concentration below detection limit

Observations

Spring - outlet not flowing, secchi reading obscured by plants

Summer - outlet not flowing, SAV, filamentous algae

Fall - geese, SAV, outlet not flowing

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Great Gorge

County: SUSSEX

SiteID: NJW04459-097

Municipality: VERNON TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	4	1	3.2	19.34	9.12	104.3	7.63	0.087
1	4	2	3.2	19.01	9.53	108.3	8.08	0.086
1	4	3	3.2	16.11	15.49	165.9	9.78	0.087
2	3.8	1	2.1	20.21	8.66	100.7	7.87	0.088
2	3.8	2	2.1	19.84	9.06	104.5	7.95	0.087
2	3.8	3	2.1	16.55	4.7	51.4	7.59	0.093

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	4	1	3.7	27.02	5	65.4	7.25	0.093
1	4	2	3.7	26.78	5.16	67.1	7.3	0.092
1	4	3	3.7	26.49	4.9	63.4	7.28	0.093
2	3.6	1	3.5	27.09	4.93	64.5	7.39	0.092
2	3.6	2	3.5	26.86	4.78	62.3	7.35	0.093
2	3.6	3	3.5	26.26	0.8	10.3	6.82	0.102

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	4.0	1	3.5	15.46	6.98	72.1	7.79	0.084
1	4.0	2	3.5	15.38	6.87	70.8	7.68	0.084
1	4.0	3	3.5	15.37	6.86	70.7	7.64	0.084
2	3.3	1	3.0	15.64	6.78	70.3	7.62	0.085
2	3.3	2	3.0	15.45	7.1	73.3	7.66	0.085
2	3.3	3	3.0	15.12	6.92	71	7.64	0.084

-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: Great Gorge

County: SUSSEX

SiteID: NJW04459-097

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	0.015	0.135	0.147	0.005	2.3	51.000	42.556	1.27
2	ND	0.236	0.154	0.005	2.3	46.000	42.474	1.44

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	0.013	0.182	0.050	0.027	3.2	41.000	46.624	1.12
2	ND	0.100	0.040	0.028	3.68	33.000	46.541	1.14

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	ND	0.178	0.041	0.026	2.83	30.000	48.860	1.02
2	ND	0.203	0.037	0.022	2.65	40.000	48.737	1.25

Sample Device - Horizontal Polycarbonate Sampler

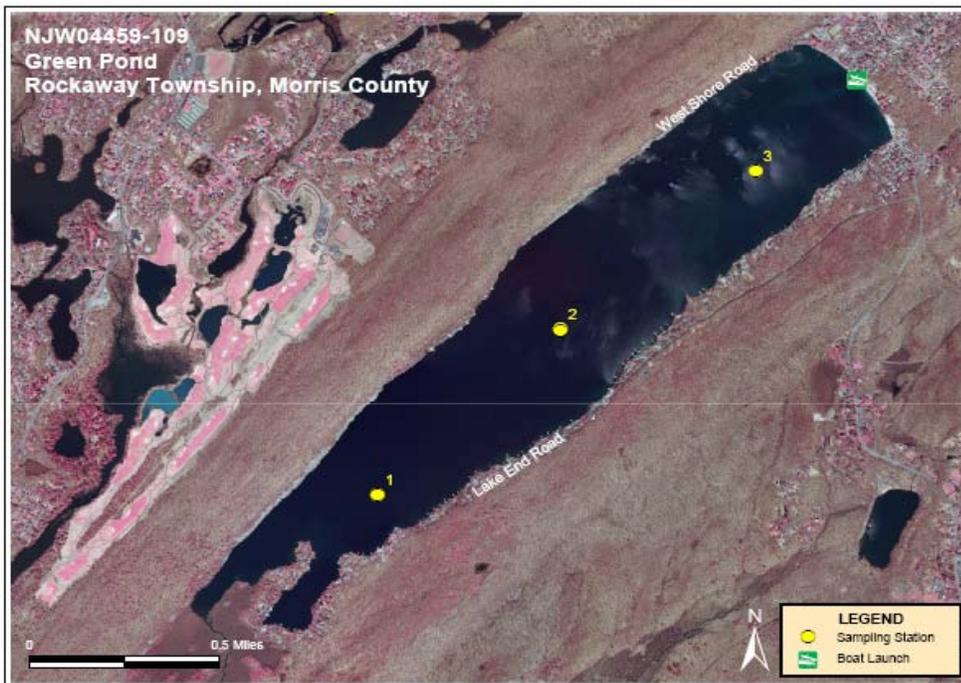
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume I, Methods.

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Green Pond
Site ID NJW04459-109

County Morris
Municipality Rockaway Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	46.61	34.58	B	40.59 Mesotrophic
Spring Station 2	41.14	33.9	B	37.52 Oligotrophic
Spring Station 3	42.21	36.37	B	39.29 Oligotrophic
Summer Station 1	48.72	53.94	48.64	50.43 Eutrophic
Summer Station 2	45.83	52.89	49.31	49.34 Mesotrophic
Summer Station 3	49.36	51.24	48.64	49.75 Mesotrophic
Fall Station 1	43.2	47.22	B	45.21 Mesotrophic
Fall Station 2	44.13	46.11	36.81	42.35 Mesotrophic
Fall Station 3	43.2	49.95	41.15	44.77 Mesotrophic

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

Observations

Spring - water is clear to the bottom of lake; damn not accessible, half mile downstream on Green Pond Brook.
 Summer - SAV

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Green Pond

County: MORRIS

SiteID: NJW04459-109

Municipality: ROCKAWAY 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	4.4	15.68	9.63	99.8	7.35	0.089
1	4.4	2	4.4	15.63	9.67	100.1	7.76	0.089
1	4.4	3	4.4	15.57	9.67	100	8.47	0.088
1	4.4	4	4.4	15.14	10.5	107.6	9.13	0.09
2	6	1	6	15.78	9.56	99.3	8.04	0.088
2	6	2	6	15.8	9.46	98.3	8.05	0.088
2	6	3	6	15.59	9.5	98.2	7.93	0.088
2	6	4	6	15.41	9.5	97.9	7.89	0.088
2	6	5	6	15.41	9.65	99.5	7.9	0.088
3	3.7	1	3.7	16.36	9.12	95.9	7.66	0.089
3	3.7	2	3.7	16.23	9.18	96.2	7.53	0.089
3	3.7	3	3.7	15.91	9.48	98.7	7.53	0.088

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	4.3	1	2.2	25.63	7.43	94.7	7.28	0.076
1	4.3	2	2.2	25.28	7.33	92.9	7.28	0.076
1	4.3	3	2.2	25.14	7.22	91.2	7.21	0.077
1	4.3	4	2.2	25	6.6	83.2	7.13	0.077
2	5.9	1	2.1	25.69	7.28	93	7.01	0.076
2	5.9	2	2.1	25.41	7.08	89.9	6.95	0.077
2	5.9	3	2.1	25.29	6.77	85.7	6.87	0.077
2	5.9	4	2.1	24.98	4.98	63.5	6.77	0.077
2	5.9	5	2.1	24.51	2.78	34.6	6.74	0.079
3	3.7	1	2.2	25.83	7.09	90.7	7.01	0.077
3	3.7	2	2.2	25.48	6.81	86.6	6.99	0.077
3	3.7	3	2.2	25.38	6.42	81.5	6.94	0.077

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	4.1	20.79	7.25	83	7.12	0.066
1	4.1	2	4.1	20.44	7.3	83.1	7.02	0.066
1	4.1	3	4.1	20.35	7.25	82.3	6.95	0.066
1	4.1	4	4.1	20.26	6.42	72.8	6.81	0.066
2	5.9	1	5.0	20.72	7.42	84.9	6.68	0.066
2	5.9	2	5.0	20.59	7.43	84.9	6.68	0.066
2	5.9	3	5.0	20.52	7.34	83.7	6.7	0.066
2	5.9	4	5.0	20.49	7.37	84	6.7	0.066
2	5.9	5	5.0	20.43	7.28	82.8	6.7	0.066
3	3.7	1	3.7	20.78	7.49	85.8	6.7	0.066
3	3.7	2	3.7	20.61	7.23	82.5	6.69	0.066
3	3.7	3	3.7	20.53	7.05	80.4	6.66	0.066

-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: Green Pond

County: MORRIS

SiteID: NJW04459-109

Municipality: ROCKAWAY 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	0.184	0.150	0.014	1.5	15.000	15.323	0.57
2	0.013	0.193	0.177	0.006	1.4	5.100	15.348	0.64
3	0.014	0.186	0.154	0.005	1.8	20.000	15.373	0.91

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	0.260	0.033	0.006	10.8	9.200	16.041	1.14
2	0.018	0.248	0.028	0.006	9.7	9.200	16.091	1.15
3	0.023	0.295	0.031	0.006	8.2	9.200	16.041	1.27

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	0.015	0.273	0.036	0.006	5.44	8.000	13.611	0.81
2	0.016	0.269	0.022	0.006	4.86	7.000	13.395	0.68
3	0.015	0.227	0.022	0.006	7.19	6.000	13.286	0.97

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Hainsville Pond
Site ID NJW04459-116

County Sussex
Municipality Montague Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	52.2	39.97	B	46.09 Mesotrophic
Summer Station 1	57.7	58.16	69.99	61.95 Eutrophic
Fall Station 1	55	52.58	67.36	58.31 Eutrophic

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

Observations

Spring - waterfowl, geese, turtles, frogs, fish, water lillies, SAV, beaver den

Summer - beaver, beaver dam has clogged primary outlet, SAV throughout; sampled at 0.5m due to SAV; secchi obscured by vegetation

Fall - very dense plant growth; shallow sample taken; outlet not flowing; secchi would not penetrate plant growth; lake dam was covered by beaver dam during Summer and Fall visit

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Hainsville Pond

County: SUSSEX

SiteID: NJW04459-116

Municipality: MONTAGUE 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	17.65	6.84	72.7	7.36	0.245
outlet	0.3	0.3		17.81	6.72	71.8	7.45	0.248

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	0.5	23.96	3.92	47	6.86	0.238
outlet	0.2	0.2		25.27	6.47	79.9	7.04	0.207

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	0.2	0.6	20.51	4.03	45.8	7.29	0.315

-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: Hainsville Pond

County: SUSSEX

SiteID: NJW04459-116

Municipality: MONTAGUE 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	0.028	0.295	0.209	0.005	2.6	46.000	89.153	1.0
outlet	0.041	0.419	0.219		5.4	71.000	90.518	0.76

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	1.020	0.032	0.006	16.6	79.000	92.059	1.81
outlet	0.018	0.537	0.046	0.008	4.2	68.000	79.794	0.82

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	0.034	0.742	0.014	0.006	9.4	59.000	134.700	1.13

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Hankins Pond County Cumberland
 Site ID NJW04459-118 Municipality Millville City



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	61.94	47.14	63.22	57.43 Eutrophic
Spring Station 2	64.12	48.34	63.22	58.56 Eutrophic
Summer Station 1	73.89	70.42	64.14	69.81 Eutrophic
Summer Station 2	68.71	67.24	65.14	67.03 Eutrophic
Fall Station 1	57.34	60.48	B	58.91 Eutrophic
Fall Station 2	69.97	68.67	73.2	70.61 Hypereutrophic

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

61.94 Total Phosphorus exceeds SWQC threshold (See Datasheet for actual concentration)

Observations

Spring - geese

Summer - duckweed, liliypads, aeration fountain 150' south of station 2

Fall - many geese, ducks, frog; water level low (0.5 M lower than first visit); outlet not flowing

AMBIENT LAKE MONITORING NETWORK

Lake Name: Hankins Pond

County: CUMBERLAND

SiteID: NJW04459-118

Municipality: MILLVILLE 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	1.1	0.5	0.8	9.46	10.52	91.1	8.33	0.19
2	1.3	0.5	0.8	9.33	9.86	85.4	7.24	0.202
outlet	0.1	0.1		10.2	10.2	90	7.36	0.204

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	0.7	24.05	4.42	52.5	6.86	0.186
2	1.2	0.5	0.7	24.77	6.43	77.6	7.12	0.18
outlet	0.3	0.3		20.36	3.55	39.3	6.67	0.207

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	0.6	0.3	0.6	20.99	7.37	81.9	5.92	0.076
2	0.8	0.4	0.4	25.04	8.74	104.7	6.58	0.073

-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: Hankins Pond

County: CUMBERLAND

SiteID: NJW04459-118

Municipality: MILLVILLE 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	0.055	0.306	1.140	0.069	5.4	18.400	22.050	10.4
2	0.064	0.316	1.070	0.054	6.1	17.300	22.474	11.4
outlet	0.075	0.333	1.030	0.072	7	18.400	23.138	10.6

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	0.126	1.070	0.084	0.006	57.9	37.000	42.997	5.18
2	0.088	0.923	0.101	0.006	41.9	31.000	42.789	8.44
outlet	0.068	0.998	0.123	0.181	21.4	35.000	42.379	6.18

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	0.04	0.975	0.514	0.074	21.02	24.000	21.883	4.30
2	0.096	0.639	1.910	0.031	48.45	12.000	21.528	23.9

Sample Device - Horizontal Polycarbonate Sampler

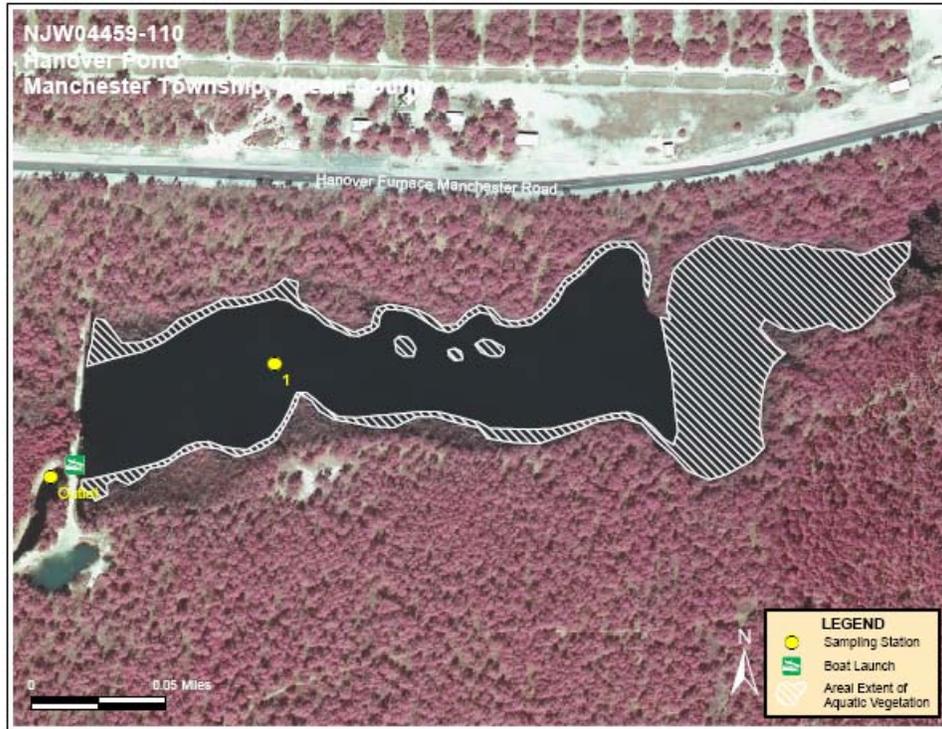
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume I, Methods.

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Hanover Pond
Site ID NJW04459-110

County Ocean
Municipality Manchester Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	33.9	B	33.90 Oligotrophic
Summer Station 1	42.21	36.37	60	46.19 Mesotrophic
Fall Station 1	ND	31.17	B	31.17 Oligotrophic

ND - TP concentration below detection limit

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

Observations

Summer - SAV throughout, secchi obscured by plants

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Hanover Pond

County: OCEAN

SiteID: NJW04459-110

Municipality: MANCHESTER 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	0.5	1.2	13.37	8.83	83.2	4.84	0.03
outlet	1.2	1.2		13.02	9.08	84.9	4.96	0.03

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	24.31	8.41	101	4.79	0.025
outlet	0.5	0.5		25.98	7.18	88.9	4.8	0.026

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	0.5	1	23.17	6.85	79.9	4.59	0.025
outlet	0.2	0.2		24.12	7.68	91.2	4.65	0.025

-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: Hanover Pond

County: OCEAN

SiteID: NJW04459-110

Municipality: MANCHESTER 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	0.055	0.027	0.005	1.4	1.000	3.362	0.51
outlet	0.025	0.397	0.014	0.005	34.2	1.000	3.548	6.03

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	0.014	0.260	0.117	0.006	1.8	1.000	2.851	2.04
outlet	0.01	0.239	0.127	0.006	1.5	1.000	2.887	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	ND	0.058	0.014	0.027	1.06	2.000	2.814	0.55
outlet	ND	0.058	0.017	0.031	1.46	1.000	2.819	0.49

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Japanese Garden A
Site ID NJW04459-105

County Somerset
Municipality Hillsborough Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	44.13	68.12	67.36	59.87 Eutrophic
Summer Station 1	73.66	69.84	69.99	71.16 Hypereutrophic
Fall Station 1	70.41	70.07	73.2	71.23 Hypereutrophic

73.66 Total Phosphorus exceeds SWQC threshold (See Datasheet for actual concentration)

Observations

Spring - frogs, turtles, geese; no outlet stream. Water falls into another lake.
 Summer - Duck weed on surface, green, turbid

AMBIENT LAKE MONITORING NETWORK

Lake Name: Japanese Garden A

County: SOMERSET

SiteID: NJW04459-105

Municipality: HILLSBOROUGH 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	0.6	17.96	7.36	77.3	6.98	0.155

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	1.1	0.5	0.5	28.38	6.67	85.9	7.72	0.28

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	1.2	1	0.4	21.74	4.41	50	7.39	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: Japanese Garden A

County: SOMERSET

SiteID: NJW04459-105

Municipality: HILLSBOROUGH 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	0.759	0.014	0.049	45.8	20.000	63.597	14.1

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	0.124	1.120	0.023	0.072	54.6	65.000	86.207	13

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	0.099	1.090	0.018	0.046	55.89	32.000	85.569	14.4

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Kings Grant Lake County Burlington
 Site ID NJW04459-251 Municipality Evesham Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	45	41.38	65.14	50.51 Eutrophic
Spring Station 2	49.98	39.97	65.14	51.70 Eutrophic
Summer Station 1	67.52	58.51	73.2	66.41 Eutrophic
Summer Station 2	67.34	56.13	67.36	63.61 Eutrophic
Fall Station 1	68.88	73.54	77.35	73.26 Hypereutrophic
Fall Station 2	70.12	71.96	77.35	73.16 Hypereutrophic

67.52 Total Phosphorus exceeds SWQC threshold (See Datasheet for actual concentration)

Observations

Spring - lake is fed mainly by stormwater according to lake assoc. executive director
 Summer - goose repelling strobes on lake outlet, goose repelling strobes floating on lake

AMBIENT LAKE MONITORING NETWORK

Lake Name: Kings Grant Lake

County: BURLINGTON

SiteID: NJW04459-251

Municipality: EVESHAM TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.1	0.5	0.7	7.97	9.95	84.5	5.07	0.078
2	1.6	1	0.7	8.09	9.99	85.1	5.14	0.079
outlet	1.3	0.6		7.92	10.73	91.1	5.65	0.08

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.1	0.5	0.4	24.8	5.69	68	6.07	0.106
2	1.6	1	0.6	23.85	5.12	60.1	6.15	0.104
outlet	0.9	0.5		24.64	5.73	68.3	6.26	0.109

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1	0.5	0.3	20.72	8.04	88.3	6.18	0.114
2	1.3	1	0.3	19.73	7.1	76.4	6.38	0.114
outlet	0.8	0.4		19.57	4.59	49.2	6.27	0.117

-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: Kings Grant Lake

County: BURLINGTON

SiteID: NJW04459-251

Municipality: EVESHAM 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	0.017	0.423	0.094	0.030	3.0	2.000	3.375	5.32
2	0.024	0.458	0.095	0.032	2.6	3.100	12.328	5.23
outlet	0.026	0.432	0.088	0.045	2.5	3.100	12.337	5.07

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	0.081	0.878	0.069	0.114	17.2	33.000	19.382	10.1
2	0.08	0.831	0.057	0.119	13.5	68.000	20.003	10.5
outlet	0.093	0.951	0.067	0.204	16.3	20.000	21.382	11.7

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	0.089	1.850	0.018	0.077	79.63	7.000	22.669	28.0
2	0.097	1.730	0.016	0.084	67.78	2.000	22.486	23.1
outlet	0.102	1.690	0.039	0.122	63.27	10.000	24.484	20.2

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Lake at the Woods
Site ID NJW04459-094

County Burlington
Municipality New Hanover Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	47.5	B	47.50 Mesotrophic
Summer Station 1	48.05	44.91	B	46.48 Mesotrophic
Fall Station 1	ND	45.33	B	45.33 Mesotrophic

ND - TP concentration below detection limit

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

Observations

Spring - lilly pads, geese

Summer - domestic geese, some SAV present

Fall - blue herons

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Lake at the Woods

County: BURLINGTON

SiteID: NJW04459-094

Municipality: NEW HANOVER TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	2.5	1	2.5	8.86	10.26	88.2	6.55	0.135
1	2.5	2	2.5	8.84	10.15	87.3	6.41	0.135
outlet	0.2	0.2		8.81	10.29	88.5	6.74	0.135

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	2.2	1	2.2	23.68	6.31	74.7	6.25	0.123
1	2.2	2	2.2	19.14	9.71	105.5	6.3	0.127
outlet		0.2		25.52	7.3	89.7	6.45	0.124

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	2.3	1	2.3	23.4	6.05	70.5	6.44	0.144
1	2.3	2	2.3	23.19	5.24	60.9	6.24	0.145
outlet	0.3	0.3		23.4	7.05	82.3	6.69	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: Lake at the Woods

County: BURLINGTON

SiteID: NJW04459-094

Municipality: NEW 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	ND	0.318	0.047	0.005	5.6	10.200	27.779	1.18
outlet	ND	0.310	0.060	0.005	4.7	10.200	27.324	1.60

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	0.021	0.321	0.131	0.006	4.3	18.000	25.350	1.57
outlet	0.015	0.384	0.140	0.014	4.3	10.000	25.069	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	ND	0.298	0.017	0.027	4.49	10.000	26.769	1.33
outlet	ND	0.151	0.015	0.045	5.35	15.000	27.474	2.02

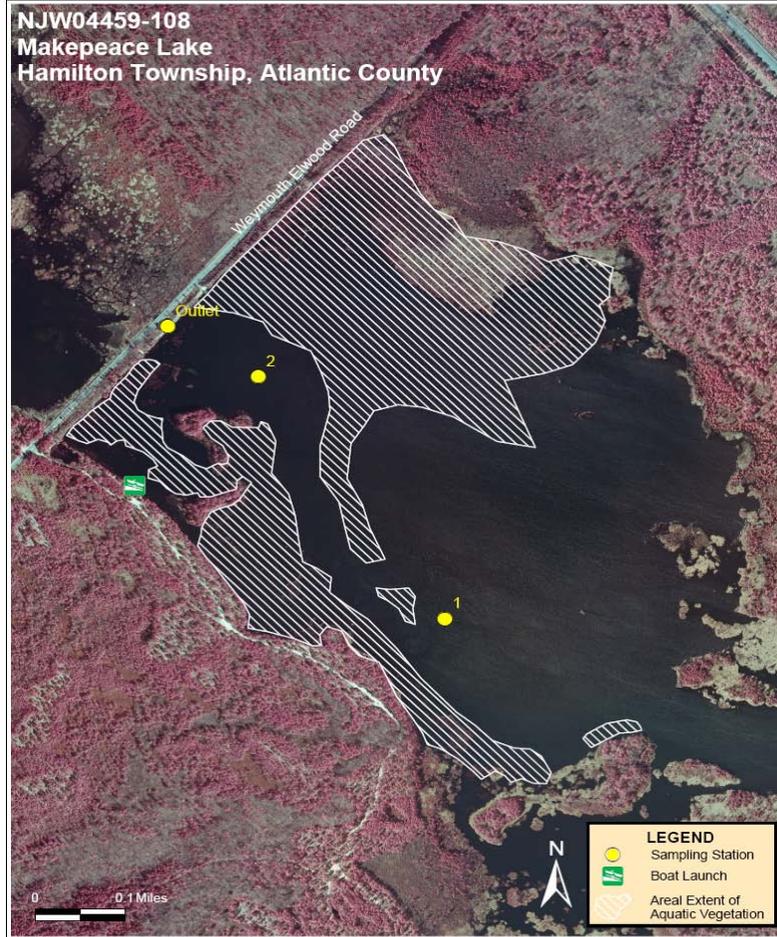
Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Makepeace Lake **County** Atlantic
Site ID NJW04459-108 **Municipality** Hamilton Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	45.83	42.31	B	44.07 Mesotrophic
Spring Station 2	37.35	43.95	61.52	47.61 Mesotrophic
Summer Station 1	59.97	43.17	B	51.57 Eutrophic
Summer Station 2	53.67	46.19	B	49.93 Mesotrophic
Fall Station 1	ND	39.02	B	39.02 Oligotrophic
Fall Station 2	ND	43.49	B	43.49 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, SAV

Fall - filamentous algae, SAV throughout; egrets; water level low

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Makepeace Lake

County: ATLANTIC

SiteID: NJW04459-108

Municipality: HAMILTON TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1	0.5	1	14.11	9.42	91.6	4.6	0.088
2	1	0.5	0.9	15.3	9.07	90.6	4.89	0.081
outlet	0.2	0.2		14.56	9.44	92.8	4.58	0.086

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	0.7	0.3	0.7	26.18	6.56	80.9	3.96	0.082
2	0.9	0.5	0.9	26.35	6.35	78.5	3.9	0.083
outlet		0.1		28.4	6.85	88	4.02	0.085

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	0.8	0.4	0.8	26.67	5.37	67.1	3.87	0.114
2	0.5	0.2	0.5	26.12	6.85	84.8	3.81	0.116
outlet	0.3	0.3		25.76	3.74	46	4.14	0.097

-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: Makepeace Lake

County: ATLANTIC

SiteID: NJW04459-108

Municipality: HAMILTON 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	0.018	0.429	0.079	0.007	3.3	1.000	4.033	1.58
2	0.01	0.441	0.068	0.026	3.9	1.000	4.003	1.42
outlet	0.016	0.435	0.052	0.018	4.5	1.000	4.268	1.42

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	0.730	0.072	0.018	3.6	1.000	3.188	.76
2	0.031	0.752	0.077	0.039	4.9	1.000	3.350	.86
outlet	0.022	0.649	0.083	0.052	3.8	1.000	3.575	.72

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	0.282	0.019	0.034	2.36	1.000	4.554	1.19
2	ND	0.467	0.018	0.044	3.72	1.000	4.634	2.29
outlet	ND	0.397	0.026	0.047	4.83	1.000	6.464	3.72

Sample Device - Horizontal Polycarbonate Sampler

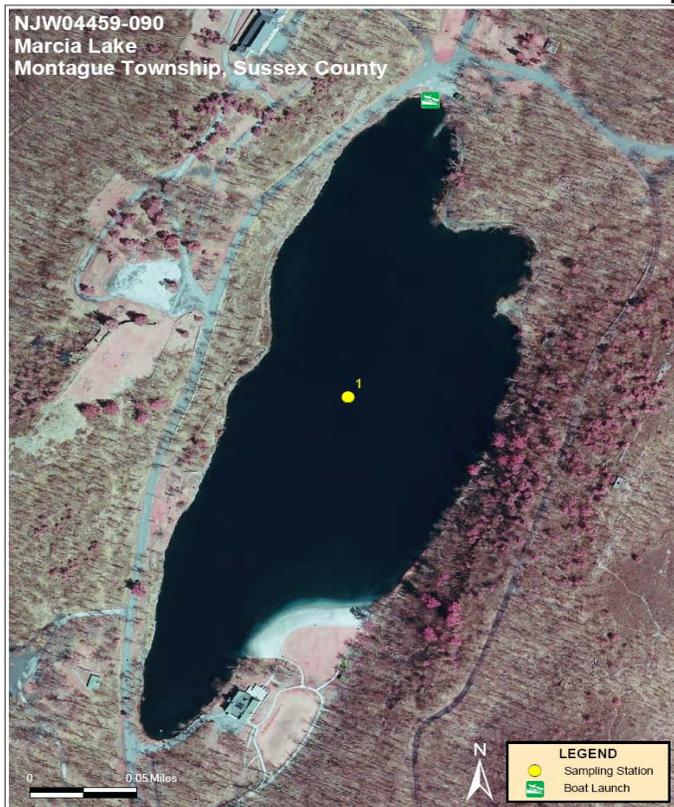
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume I, Methods.

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Marcia Lake
Site ID NJW04459-090

County Sussex
Municipality Montague Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	49.36	40.34	41.54	43.75 Mesotrophic
Summer Station 1	38.73	47.66	45.69	44.02 Mesotrophic
Fall Station 1	42.21	53.5	45.16	46.96 Mesotrophic

Observations

Summer - outlet not flowing

AMBIENT LAKE MONITORING NETWORK

Lake Name: Marcia Lake

County: SUSSEX

SiteID: NJW04459-090

Municipality: MONTAGUE TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	6.2	1	3.6	17.6	8.22	89.4	7.42	0.206
1	6.2	2	3.6	17.07	7.9	85.1	7.47	0.207
1	6.2	3	3.6	15.98	7.96	83.8	7.47	0.206
1	6.2	4	3.6	12.08	10.58	102.2	7.54	0.2
1	6.2	5	3.6	9.83	9.41	86.3	7.46	0.202
1	6.2	6	3.6	9.46	5.75	52.2	7.29	0.203
Outlet	0.1	0.1		18.48	8.71	96.6	7.69	0.208

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	6.3	1	2.7	23.28	7.87	96.8	7.4	0.199
1	6.3	2	2.7	22.1	8.77	105.5	8.35	0.2
1	6.3	3	2.7	20.05	8.58	99.1	8.36	0.197
1	6.3	4	2.7	19.19	5.7	64.7	7.93	0.197
1	6.3	5	2.7	18.5	3.03	33.6	7.38	0.2
1	6.3	6	2.7	15.64	0.1	1.1	7.23	0.282

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	6.2	1	2.8	15.65	8.24	87.7	7.15	0.2
1	6.2	2	2.8	15.68	8.36	89	7.23	0.2
1	6.2	3	2.8	15.59	8.01	85.1	7.26	0.201
1	6.2	4	2.8	15.47	7.91	83.8	7.27	0.201
1	6.2	5	2.8	15.28	7.75	81.8	7.25	0.202
1	6.2	6	2.8	14.74	3	31.2	6.99	0.212

-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: Marcia Lake

County: SUSSEX

SiteID: NJW04459-090

Municipality: MONTAGUE 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	0.023	0.338	0.166	0.005	2.7	33.000	45.112	1.12
outlet	0.017	0.338	0.151	0.005	2.8	41.000	45.194	1.22

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	0.011	0.349	0.033	0.016	5.69	94.000	46.525	1.71

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	0.027	0.396	0.041	0.070	10.32	31.000	53.841	1.43

Sample Device - Horizontal Polycarbonate Sampler

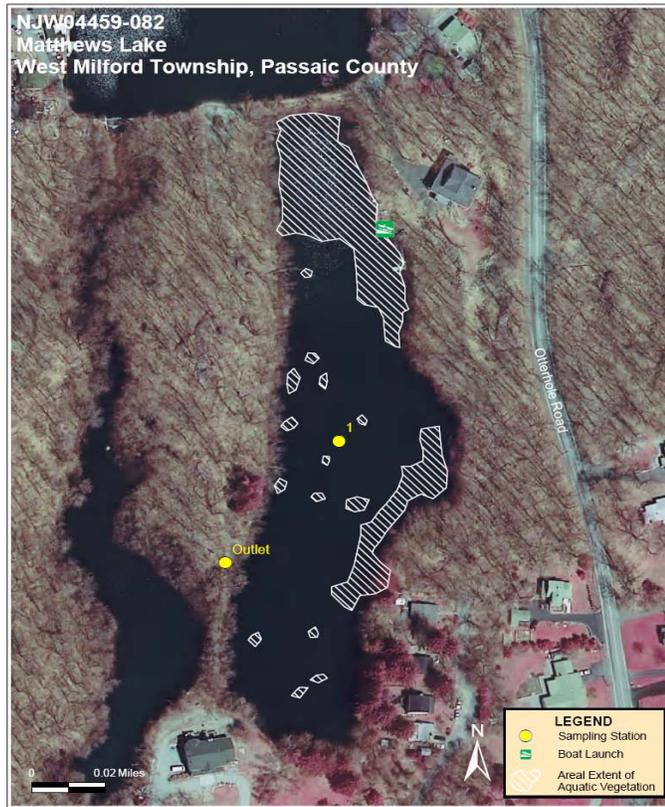
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume I, Methods.

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Matthews Lake
Site ID NJW04459-082

County Passaic
Municipality West Milford Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	45.83	45.13	B	45.48 Mesotrophic
Summer Station 1	44.13	44.91	B	44.52 Mesotrophic
Fall Station 1	ND	46.35	55.15	50.75 Eutrophic

ND - TP concentration below detection limit

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

Observations

Spring - no outlet, geese, gosling, SAV, lily, water snake, secchi reaches bottom

Fall - secchi obscured by plants

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Matthews Lake

County: PASSAIC

SiteID: NJW04459-082

Municipality: WEST MILFORD TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.8	1	1.8	20.57	8.16	93.6	6.91	0.202

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.6	1	1.6	26.14	6.65	83.6	7.2	0.2

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.7	1	1.4	19.41	4.72	52.7	6.95	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: Matthews Lake

County: PASSAIC

SiteID: NJW04459-082

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	0.018	0.381	0.047	0.005	4.4	20.000	32.460	1.79

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	0.373	0.039	0.006	4.3	18.400	29.707	1.16

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	0.322	0.032	0.022	4.98	16.000	30.315	1.45

Sample Device - Horizontal Polycarbonate Sampler

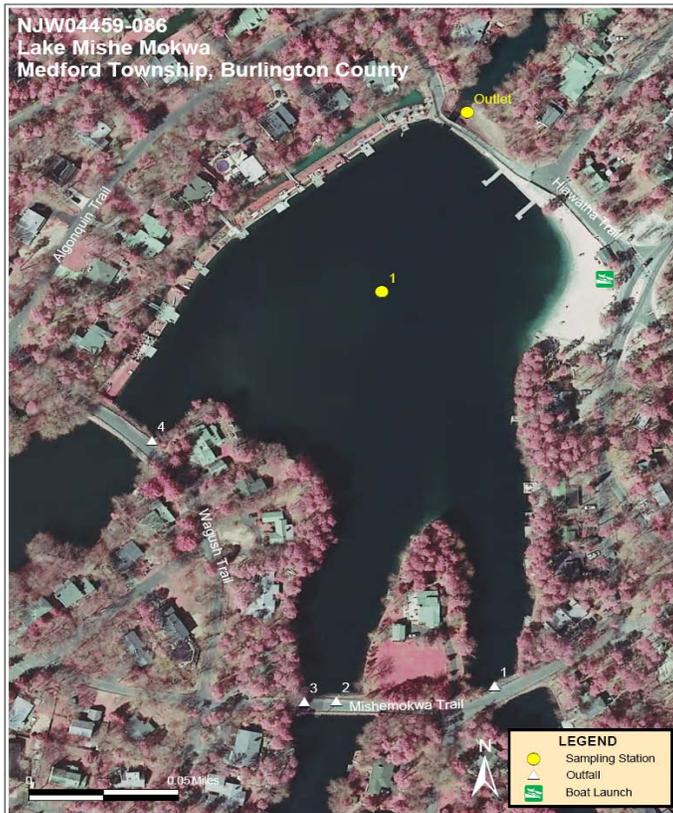
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume I, Methods.

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Lake Mishe Mokwa
Site ID NJW04459-086

County Burlington
Municipality Medford Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	51.59	B	51.59 Eutrophic
Summer Station 1	50.57	51.24	B	50.90 Eutrophic
Fall Station 1	ND	48.27	B	48.27 Mesotrophic

ND - TP concentration below detection limit

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

Observations

Fall - outlet not flowing

AMBIENT LAKE MONITORING NETWORK

Lake Name: Lake Mishe-Mokwa

County: BURLINGTON

SiteID: NJW04459-086

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	1.3	0.5	1.3	9.24	10.96	94.7	6.53	0.187
outlet	0.6	0.6		9.01	9.21	79.1	6.31	0.168

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	0.5	1.3	25.74	8.07	98.8	7.02	0.202
outlet	0.2	0.2		23.71	6.6	77.9	6.52	0.174

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	0.5	1.3	20.67	7.18	78.9	6.45	0.223

-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: Lake Mishe-Mokwa

County: BURLINGTON

SiteID: NJW04459-086

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	ND	0.247	0.188	0.005	8.5	9.200	24.103	1.80
outlet	ND	0.351	0.139	0.051	6.1	12.200	23.341	3.43

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	0.025	0.441	0.168	0.006	8.2	24.000	23.951	2.45
outlet	0.039	0.529	0.134	0.042	16.3	15.000	24.027	4.26

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	0.368	0.027	0.013	6.06	15.000	22.115	1.24

Sample Device - Horizontal Polycarbonate Sampler

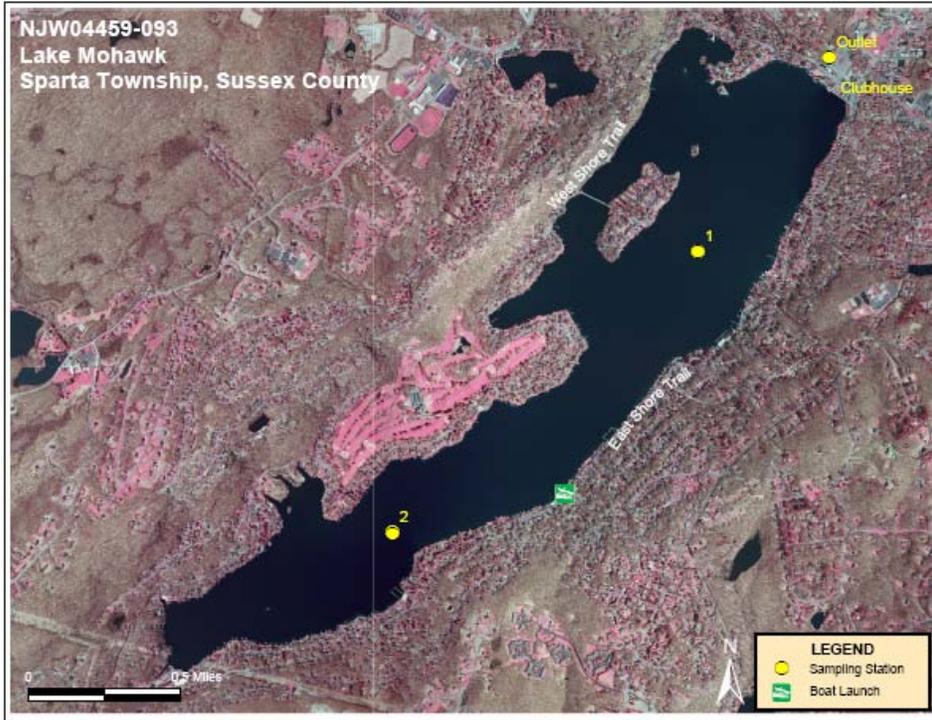
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume I, Methods.

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Lake Mohawk
 Site ID NJW04459-093

County Sussex
 Municipality Sparta Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	52.2	60.65	51.53	54.79 Eutrophic
Spring Station 2	55.82	61.44	48.64	55.30 Eutrophic
Summer Station 1	62.7	61.62	58.63	60.98 Eutrophic
Summer Station 2	64.78	64.19	58.63	62.53 Eutrophic
Fall Station 1	56.98	64.31	54.16	58.48 Eutrophic
Fall Station 2	54.57	63.85	B	59.21 Eutrophic

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

Observations

Spring - SAV

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Lake Mohawk

County: SUSSEX

SiteID: NJW04459-093

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	6.2	1	1.8	19.72	9.1	102	8.32	0.556
1	6.2	2	1.8	19.32	9.09	101	8.29	0.555
1	6.2	3	1.8	19.2	8.8	97.6	8.23	0.556
1	6.2	4	1.8	19.12	8.59	95.1	8.2	0.557
1	6.2	5	1.8	18.94	8.23	90.8	8.11	0.559
1	6.2	6	1.8	18.52	7.47	81.7	7.96	0.564
2	5	1	2.2	19.68	9.11	102.1	8.27	0.555
2	5	2	2.2	19.09	9.26	102.4	8.23	0.554
2	5	3	2.2	18.84	8.64	95.2	8.12	0.556
outlet	0.1	1		20.4	9.01	102.4	8.28	0.554

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	5.7	1	1.1	26.52	7.45	95.1	8.15	0.533
1	5.7	2	1.1	26.32	7.27	92.5	8.1	0.533
1	5.7	3	1.1	26.09	6.19	78.4	7.91	0.535
1	5.7	4	1.1	25.29	3.07	38.3	7.53	0.535
1	5.7	5	1.1	24.86	0.62	7.6	7.32	0.537
2	4.1	1	1.1	26.4	8.04	102.5	8.26	0.533
2	4.1	2	1.1	25.74	6.77	85.3	8.01	0.534
2	4.1	3	1.1	25.38	4.53	56.7	7.67	0.534
2	4.1	4	1.1	24.77	0.43	5.3	7.28	0.536
outlet	0.3	0.3		27.97	7.78	101.9	8.17	0.53

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	5.7	1	1.5	17.59	6.56	69.9	7.95	0.545
1	5.7	2	1.5	17.5	6.28	66.9	7.88	0.547
1	5.7	3	1.5	17.47	6.06	64.5	7.83	0.549
1	5.7	4	1.5	17.45	5.91	62.8	7.8	0.548
1	5.7	5	1.5	17.27	4.56	48.3	7.65	0.549
2	4.2	1		17.44	7.96	84.6	8.2	0.543
2	4.2	2		17.35	7.68	81.4	8.13	0.545
2	4.2	3		17.16	6.86	72.5	8	0.546
2	4.2	4		16.87	3.64	38.3	7.65	0.548
outlet	0.3	0.3		17.71	7.23	77.3	7.81	0.549

-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: Lake Mohawk

County: SUSSEX

SiteID: NJW04459-093

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	0.028	0.415	0.026	0.005	21.4	92.000	159.400	4.97
2	0.036	0.427	0.026	0.005	23.2	111.0	160.700	3.64
outlet	0.034	0.440	0.041	0.010	19.1	106.0	162.200	3.95

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	0.058	0.418	0.047	0.014	23.62	92.000	153.200	5.88
2	0.067	0.515	0.039	0.015	30.69	122.0	154.100	6.12
outlet	0.056	0.503	0.044	0.015	15.9	107.0	149.700	4.85

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	0.039	0.585	0.046	0.083	31.06	112.0	165.600	3.27
2	0.033	0.559	0.050	0.040	29.64	104.0	164.300	3.36
outlet	0.026	0.524	0.053	0.114	21.34	95.000	161.000	3.35

Sample Device - Horizontal Polycarbonate Sampler

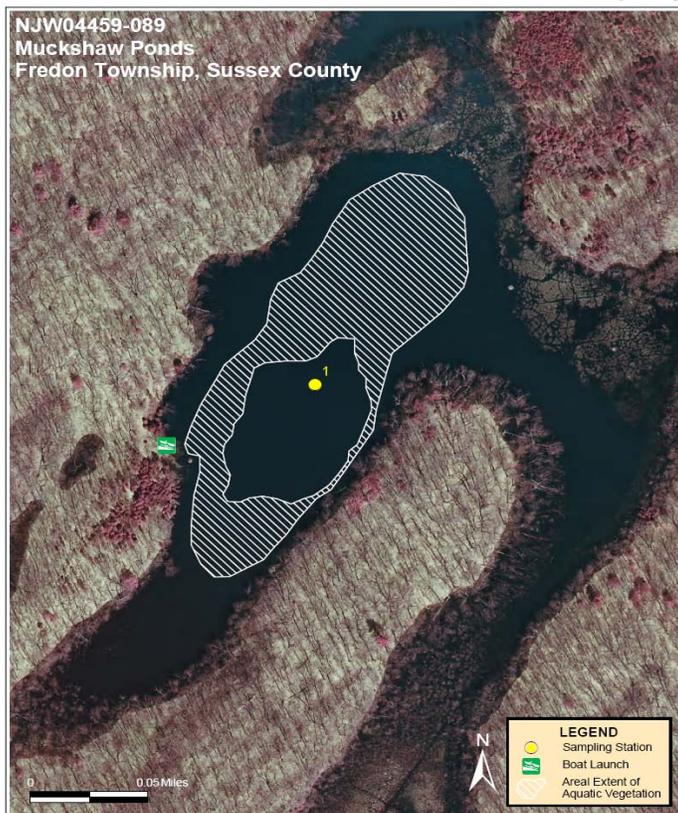
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume I, Methods.

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Muckshaw Ponds
Site ID NJW04459-089

County Sussex
Municipality Fredon Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	49.36	45.57	B	47.47 Mesotrophic
Summer Station 1	42.21	45.57	B	43.89 Mesotrophic
Fall Station 1	41.14	40.77	B	40.95 Mesotrophic

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

Observations

Spring - geese, fish

Summer - 2 beaver dens

Fall - lily pads, frogs, ducks, beaver den, bear

AMBIENT LAKE MONITORING NETWORK

Lake Name: Muckshaw Ponds

County: SUSSEX

SiteID: NJW04459-089

Municipality: FREDON 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	20.31	9.44	106.8	7.89	0.382
1	2.7	2	2.7	17.72	11.84	126.8	7.91	0.379

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	2.3	1	2.3	24.97	3.88	47.7	7.12	0.344
1	2.3	2	2.3	24.56	4.35	53.2	7.08	0.35

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	18.33	4.45	47.9	7.84	0.286

-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: Muckshaw Ponds

County: SUSSEX

SiteID: NJW04459-089

Municipality: FREDON 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	0.023	0.358	0.288	0.005	4.6	137.0	169.500	1.43

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	0.014	0.535	0.030	0.006	4.6	144.0	163.100	.91

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	0.013	0.508	0.028	0.018	2.82	150.0	156.600	0.65

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Nomahegan Park Lake **County** Union
Site ID NJW04459-250 **Municipality** Cranford Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	75.91	71.4	67.36	71.56 Hypereutrophic
Spring Station 2	79.35	74.82	69.99	74.72 Hypereutrophic
Spring Station 3	76.97	74.29	67.36	72.87 Hypereutrophic
Summer Station 1	91.46	60.56	67.36	73.13 Hypereutrophic
Summer Station 2	93.85	56.7	67.36	72.67 Hypereutrophic
Summer Station 3	94.16	52.48	73.2	73.28 Hypereutrophic
Fall Station 1	67.52	54.45	B	60.98 Eutrophic
Fall Station 2	68.21	50.47	B	59.34 Eutrophic
Fall Station 3	66.79	47.07	B	56.93 Eutrophic

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

Observations

Spring - lake bank heavily eroded around entire lake.

Summer - dam reinforced with soil cobble mix, filamentous algae near outlet, 6 white suckers dead by outfall

Fall - outlet not flowing

AMBIENT LAKE MONITORING NETWORK

Lake Name: Nomahegan Park Lake

County: UNION

SiteID: NJW04459-250

Municipality: CRANFORD TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.3	0.5	0.6	14.88	9.95	98.2	7.04	0.38
2	0.8	0.5	0.5	16.48	11.15	113.8	7.6	0.246
3	1.2	0.5	0.6	15.94	9.5	95.7	7.24	0.191
outlet	0.1	0.1		15.84	8.31	83.6	7.5	0.229

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.3	0.5	0.6	25.81	3.8	46.6	6.87	0.138
2	0.8	0.5	0.6	27.07	4.28	53.8	7	0.121
3	1.2	0.5	0.4	26.35	2.86	35.4	6.93	0.116
outlet	0.1	0.1		23.22	4.52	52.9	6.87	0.241

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.1	0.5	1.1	21.88	5.5	62.5	7.21	0.241
2	0.8	0.5	0.8	21.76	5.83	66.2	7.01	0.188
3	1.5	1	1.5	18.22	2.27	24	6.72	0.166

-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: Nomahegan Park Lake

County: UNION

SiteID: NJW04459-250

Municipality: CRANFORD 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	0.145	0.853	0.745	0.120	64.0	66.000	131.100	9.16
2	0.184	1.280	0.146	0.192	90.7	33.000	77.497	13.1
3	0.156	0.962	0.207	0.134	85.9	31.000	59.053	12.5
outlet	0.151	0.951	0.256	0.131	68.7	43.000	58.469	10.4

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	0.426	1.130	0.339	0.207	21.2	4.100	48.353	10.2
2	0.503	0.938	0.187	0.097	14.3	36.000	42.574	11.5
3	0.514	0.891	0.293	0.214	9.3	26.000	39.660	14.2
outlet	0.182	0.896	0.575	0.159	15.6	26.000	73.550	22.3

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	0.081	0.649	0.036	0.104	11.37	54.000	86.368	5.68
2	0.085	0.827	0.036	0.161	7.58	40.000	62.135	5.90
3	0.077	0.673	0.114	0.190	5.36	21.000	53.493	3.51

Sample Device - Horizontal Polycarbonate Sampler

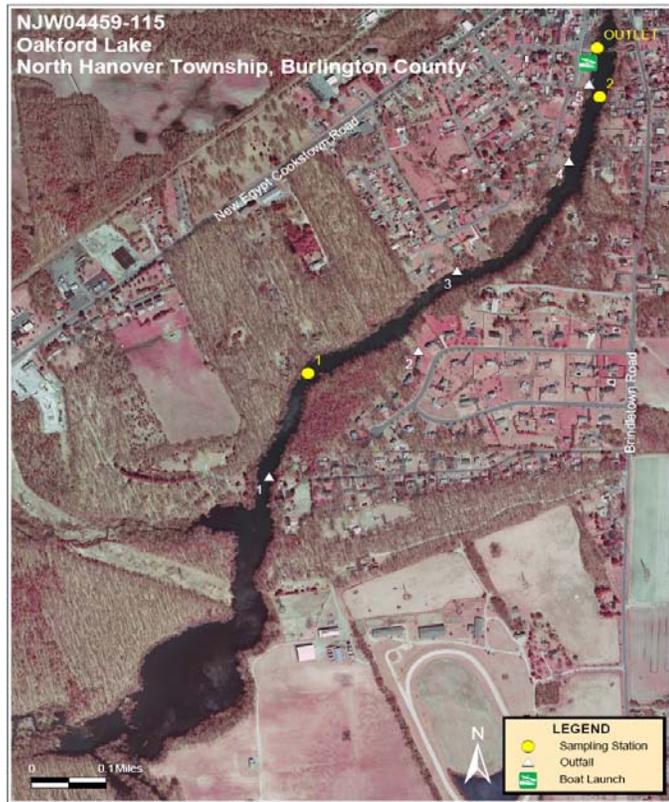
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume I, Methods.

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Oakford Lake
Site ID NJW04459-115

County Burlington
Municipality North Hanover Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	64.56	45.78	67.36	59.24 Eutrophic
Spring Station 2	67.34	46.39	67.36	60.36 Eutrophic
Summer Station 1	72.32	50.1	67.36	63.26 Eutrophic
Summer Station 2	69.04	60.92	67.36	65.77 Eutrophic
Fall Station 1	69.51	50.48	69.99	63.33 Eutrophic
Fall Station 2	63.19	55.2	61.52	59.97 Eutrophic

Total Phosphorus exceeds SWQC threshold (See Datasheet for actual concentration)

Observations

Summer - frogs, ducks

Fall - water appears to have a sheen on surface around sample station

AMBIENT LAKE MONITORING NETWORK

Lake Name: Oakford Lake

County: BURLINGTON

SiteID: NJW04459-115

Municipality: NORTH 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	1.6	1	0.6	10.59	7.11	62.9	7.2	0.133
2	1.7	1	0.6	12.49	7.73	71.4	6.62	0.135
outlet	1	1		13.01	8.67	81.1	6.6	0.135

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	0.6	24.65	4.17	50.1	6.37	0.207
2	1.7	1	0.6	27.04	6.85	86	6.96	0.207
outlet	0.1	0.1		28.19	7.52	96.4	7.45	0.203

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	0.5	21.8	4.37	49.7	6.68	0.196
2	1.6	1	0.9	23.3	5.08	59.4	6.86	0.186
outlet	0.5	0.3		23.95	6.33	74.9	7.11	0.185

-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: Oakford Lake

County: BURLINGTON

SiteID: NJW04459-115

Municipality: NORTH 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	0.066	0.401	0.426	0.092	4.7	19.400	45.745	11.3
2	0.08	0.397	0.481	0.090	5	16.300	46.409	10.3
outlet	0.075	0.423	0.478	0.073	6.6	19.400	45.994	10.3

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	0.113	0.527	0.338	0.161	7.3	51.000	76.315	16.1
2	0.09	0.518	0.272	0.050	22.0	46.000	76.570	12.1
outlet	0.125	0.785	0.162	0.045	74.7	35.000	76.073	13.5

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	0.093	0.463	0.232	0.126	7.59	4.000	79.262	14.8
2	0.06	0.372	0.161	0.094	12.28	50.000	78.153	8.42
outlet	0.061	0.369	0.143	0.097	9.13	62.000	77.739	7.24

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Osborne Pond
Site ID NJW04459-117

County
Municipality

Monmouth
 Wall Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	67.69	49.69	60	59.13 Eutrophic
Summer Station 1	64.12	60.88	NR	62.5 Eutrophic
Fall Station 1	69.04	76.94	65.14	70.37 Hypereutrophic

67.69 Total Phosphorus exceeds SWQC threshold (See Datasheet for actual concentration)

NR - No result

Observations

Spring - SAV and algal mats throughout; secchi obstructed by algae

Summer - dense algal mats through much of lake, SAV and filamentous algae, swans

Fall - SAV and filamentous algae throughout; secchi obscured by SAV

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Osborne Pond

County: MONMOUTH

SiteID: NJW04459-117

Municipality: WALL 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	15.02	5.42	53.9	6.33	0.26
outlet	0.4	0.4		19.79	7.89	86.6	6.44	0.226

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		25.72	3.61	44.2	6.3	0.201
outlet	0.6	0.6		27.25	7.07	88.9	6.32	0.18

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	1	0.7	17.08	4.53	46.4	6.69	0.21
outlet	0.5	0.5		17.43	8.97	92.6	6.46	0.207

-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: Osborne Pond

County: MONMOUTH

SiteID: NJW04459-117

Municipality: WALL 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	0.082	0.801	0.511	0.074	7.0	19.000	34.752	6.91
outlet	0.054	0.588	0.516	0.052	8.7	12.000	34.776	5.38

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	0.586	0.198	0.061	21.9	14.000	29.091	3.66
outlet	0.101	0.494	0.184	0.049	21.3	31.000	28.608	2.97

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	0.09	0.922	0.179	0.044	112.64	12.000	14.633	6.54
outlet	0.01	0.223	0.214	0.032	5.24	14.000	32.507	2.80

Sample Device - Horizontal Polycarbonate Sampler

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

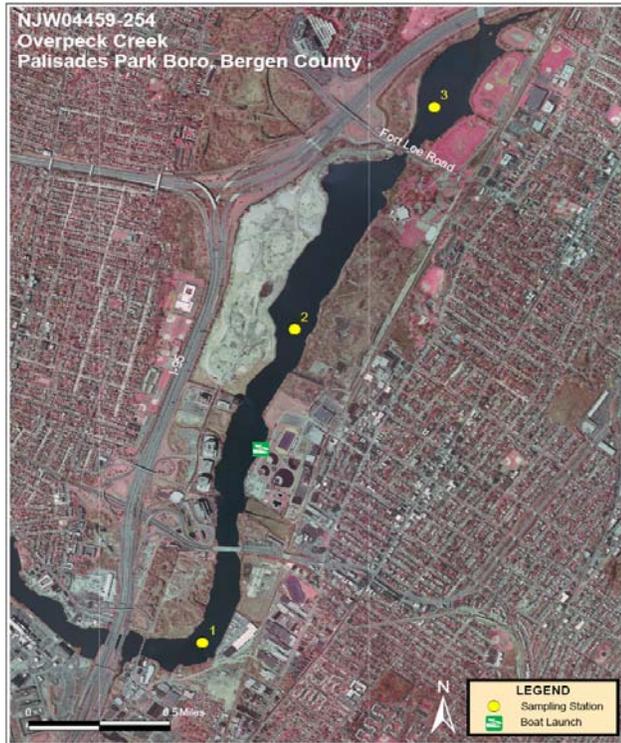
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name Overpeck Creek
Site ID NJW04459-254

County
Municipality

Bergen
 Palisades Park Boro



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	65.21	71.04	63.22	69.49 Eutrophic
Spring Station 2	66.02	71.96	65.14	67.71 Eutrophic
Spring Station 3	69.2	74.59	67.36	70.38 Hypereutrophic
Summer Station 1	67.69	69.23	65.14	67.35 Eutrophic
Summer Station 2	65.62	66.49	65.14	65.75 Eutrophic
Summer Station 3	73.31	69.66	65.14	69.37 Eutrophic
Fall Station 1	70.41	75.83	67.36	71.20 Hypereutrophic
Fall Station 2	73.77	79.53	73.2	75.50 Hypereutrophic
Fall Station 3	75.91	80.69	69.99	75.53 Hypereutrophic

 Total Phosphorus exceeds SWQC threshold (See Datasheet for actual concentration)

Observations

Spring - no outlet sample, tide gate at outlet

AMBIENT LAKE MONITORING NETWORK

Lake Name: Overpeck Creek
SiteID: NJW04459-254

County: BERGEN
Municipality: RIDGEFIELD PARK VILLAGE

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	7.1	1	0.8	16.4	9.63	96.8	7.55	0.48
1	7.1	2	0.8	16.24	9.55	95.7	7.65	0.481
1	7.1	3	0.8	16.09	8.96	89.4	7.6	0.481
1	7.1	4	0.8	15.97	6.9	68.8	7.42	0.475
1	7.1	5	0.8	15.37	4.06	39.9	7.25	0.483
1	7.1	6	0.8	13.27	0.61	5.9	7.09	0.503
2	3.2	1	0.7	16.44	10.36	104.1	8.01	0.482
2	3.2	2	0.7	16.18	9.91	99.1	7.83	0.482
2	3.2	3	0.7	15.81	8.58	85.2	7.62	0.49
3	2	1	0.6	16.63	11.42	115.4	7.87	0.652

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	7.3	1	0.7	27.35	7.56	95.3	8.24	0.578
1	7.3	2	0.7	26.96	6.6	82.6	8.01	0.631
1	7.3	3	0.7	25.3	1.09	13.2	7.25	1.089
1	7.3	4	0.7	22.52	0.21	2.4	7.14	0.843
1	7.3	5	0.7	20.59	0.11	1.2	7.04	2.02
1	7.3	6	0.7	18.59	0.09	0.9	6.99	2.39
1	7.3	7	0.7	17.45	0.08	0.8	6.94	2.42
2	3.1	1	0.7	28.03	6.6	84.1	8.1	0.459
2	3.1	2	0.7	27.36	5.92	74.6	7.91	0.466
3	2	1	0.7	27.67	6.32	80	7.46	0.483

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	7.3	1	0.6	20.52	9.21	101.8	8.2	1.59
1	7.3	2	0.6	20.7	8.8	97.7	8.14	1.88
1	7.3	3	0.6	21.41	2.12	24.1	7.32	3.13
1	7.3	4	0.6	21.84	0.71	8.1	7.14	3.86
1	7.3	5	0.6	21.88	0.16	1.8	7.02	4.15
1	7.3	6	0.6	21.77	0.12	1.4	7.03	4.42
1	7.3	7	0.6	21.22	0.08	0.9	6.91	4.55
2	3.2	1	0.4	21.02	8.42	93.7	8.03	0.849
2	3.2	2	0.4	20.82	7.8	86.5	7.87	0.887
2	3.2	3	0.4	20.56	4.14	45.7	7.43	1.238
3	2.0	1	0.5	21.13	12.93	144.4	8.59	0.7

-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: Overpeck Creek

County: BERGEN

SiteID: NJW04459-254

Municipality: RIDGEFIELD PARK VILLAGE

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	0.069	1.190	0.990	0.109	61.7	51.000	117.000	6.97
2	0.073	0.931	1.020	0.124	67.8	71.000	122.800	9.76
3	0.091	1.060	1.010	0.144	88.6	84.000	166.400	11.7

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	0.082	1.100	0.237	0.042	51.3	79.000	124.500	8.93
2	0.071	1.050	0.223	0.194	38.8	71.000	112.200	9.27
3	0.121	1.220	0.341	0.198	53.6	63.000	124.100	9.36

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	0.099	1.380	0.435	0.113	100.51	106.0	218.900	8.36
2	0.125	1.450	0.407	0.077	146.63	101.0	166.300	13.6
3	0.145	1.570	0.101	0.083	164.97	110.0	164.300	10.8

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Panorama Lake
Site ID NJW04459-249

County Sussex
Municipality Vernon Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	47.35	44.44	52.35	48.05 Mesotrophic
Summer Station 1	56.6	56.2	51.53	54.78 Eutrophic
Fall Station 1	42.21	44.2	45.16	43.86 Mesotrophic

Observations

Spring - outlet not flowing, aeration bubbler NE at beach

Summer - outlet not flowing. SAV, filamentous algae

Fall - outlet dry.SAV

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Panorama Lake

County: SUSSEX

SiteID: NJW04459-249

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	2.8	1	1.7	20.55	9.53	111.8	8.78	0.737
1	2.8	2	1.7	20.09	9.47	110.2	8.78	0.738

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	2.8	1	1.8	27.37	6.35	83	7.78	0.765
1	2.8	2	1.8	27.14	6.09	79.3	7.78	0.764

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	2.8	1	2.8	20.64	7.33	85	8.95	0.719
1	2.8	2	2.8	20.62	7.27	84.1	8.93	0.719

-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: Panorama Lake

County: SUSSEX

SiteID: NJW04459-249

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	0.02	0.464	0.148	0.005	4.1	77.000	113.500	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	0.038	0.471	0.058	0.023	13.59	82.000	111.500	2.42

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	0.390	0.024	0.017	4	58.000	104.200	1.22

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Pilgrim Lake **County** Burlington
Site ID NJW04459-112 **Municipality** Bass River Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	28.41	58.63	43.52 Mesotrophic
Summer Station 1	45	33.9	63.22	47.37 Mesotrophic
Fall Station 1	ND	36.84	B	36.84 Oligotrophic

ND - TP concentration below detection limit

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

Observations

Spring - bald eagle

AMBIENT LAKE MONITORING NETWORK

Lake Name: Pilgrim Lake

County: BURLINGTON

SiteID: NJW04459-112

Municipality: BASS RIVER TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.1	0.5	1.1	7.89	9.76	82.8	4.02	0.039
outlet	0.5	0.5		7.59	10.48	88.2	3.97	0.038

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1	0.5	0.8	23.31	7.04	82.2	4.36	0.028
outlet	0.2	0.2		23.8	7.07	83.4	4.34	0.028

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1	0.5	1	18.55	8.21	86.2	4.41	0.027
outlet	0.1	0.1		18.9	7.75	82	4.42	0.028

-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: Pilgrim Lake

County: BURLINGTON

SiteID: NJW04459-112

Municipality: BASS RIVER 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	0.197	0.031	0.019	0.8	1.000	12.005	0.96
outlet	ND	0.167	0.030	0.023	0.8	1.000	3.185	0.98

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	0.222	0.161	0.006	1.4	1.000	2.569	.64
outlet	0.018	0.222	0.146	0.006	1.3	1.000	2.566	.58

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	0.070	0.024	0.006	1.89	1.000	2.661	0.59
outlet	ND	0.131	0.019	0.007	1.4	1.000	2.590	0.41

Sample Device - Horizontal Polycarbonate Sampler

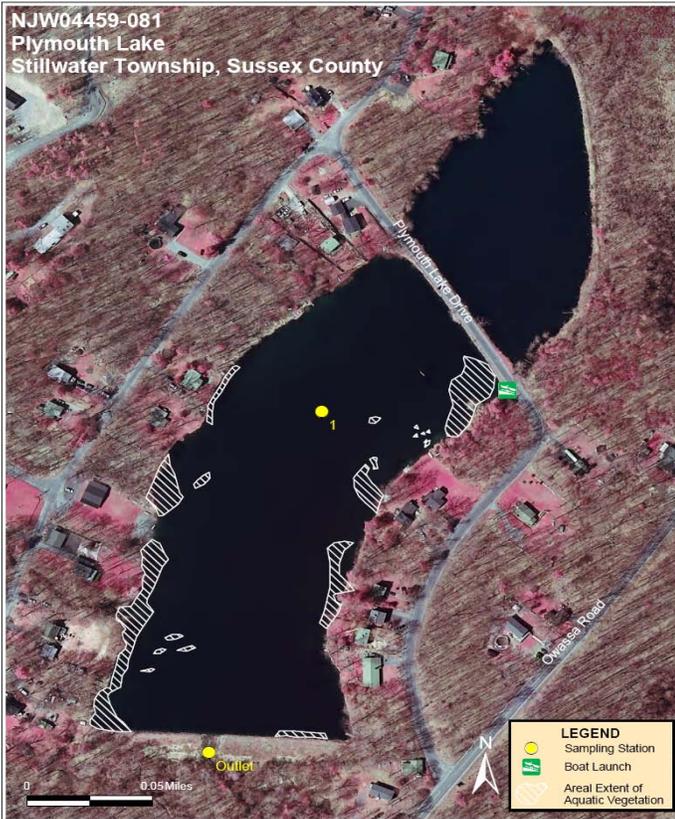
"ND" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume I, Methods.

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Plymouth Lake
Site ID NJW04459-081

County Sussex
Municipality Stillwater Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	49.36	47.5	48.64	48.50 Mesotrophic
Summer Station 1	53.67	58.34	50.75	54.25 Eutrophic
Fall Station 1	ND	48.36	B	48.36 Mesotrophic

ND - TP concentration below detection limit

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

Observations

Spring - beaver den, lillies

Summer - beaver den, lillies

Fall - beaver den, lillies

AMBIENT LAKE MONITORING NETWORK

Lake Name: Plymouth Lake

County: SUSSEX

SiteID: NJW04459-081

Municipality: STILLWATER TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	2.4	1	2.2	19	8.73	95.7	6.76	0.053
1	2.4	2	2.2	18.39	8.83	95.5	6.61	0.053
outlet	0.1	0.1		19.88	7.02	78.3	6.8	0.054

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	2.3	1	1.9	22.88	7.31	87.9	6.29	0.04
1	2.3	2	1.9	20.92	1.82	21	5.88	0.038
outlet	0.2	0.2		23.19	7.36	89	6.18	0.042

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	2.5	1	2.5	11.21	8.5	78.6	6.56	0.042
1	2.5	2	2.5	10.92	8.5	78.1	6.47	0.043
outlet	0.1	0.1		11.09	9.6	88.5	6.79	0.04

-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: Plymouth Lake

County: SUSSEX

SiteID: NJW04459-081

Municipality: STILLWATER 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	0.023	0.269	0.031	0.005	5.6	20.000	14.943	1.11
outlet	0.027	0.271	0.071	0.005	2.6	3.100	14.761	1.88

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	0.228	0.036	0.022	16.9	9.200	14.775	1.74
outlet	0.033	0.139	0.037	0.025	11.58	26.000	15.506	1.77

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	0.181	0.036	0.039	6.11	4.000	12.377	1.40
outlet	0.018	0.109	0.043	0.039	5.83	2.000	11.953	1.55

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Pumping Station Pond **County** Cape May
Site ID NJW04459-095 **Municipality** Middle Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	52.2	48.81	63.22	54.74 Eutrophic
Summer Station 1	58.05	67.27	B	62.66 Eutrophic
Fall Station 1	47.35	54	B	50.67 Eutrophic

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

Observations

Spring - frogs; cedar brown water

Summer - SAV, station 1 the Secchi was obscured by plants, but bottom visible

Fall - Osprey; water level low (0.8 M lower than first visit)

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Pumping Station Pond

County: CAPE MAY

SiteID: NJW04459-095

Municipality: MIDDLE 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	0.5	0.8	7.78	10.2	84.8	6.5	0.098
outlet	0.3	0.3		7.51	10.57	87.3	6.75	0.101

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	23.86	5.73	68.7	6.85	0.149
outlet	0.5	0.3		24.63	4.89	59.4	6.91	0.149

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	0.2	0.4	25.44	5.56	67.1	6.96	0.18
outlet	0.1	0.1		25.13	3.65	43.9	6.47	0.176

-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: Pumping Station Pond

County: CAPE MAY

SiteID: NJW04459-095

Municipality: MIDDLE 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	0.028	0.441	0.111	0.005	6.4	6.100	26.516	2.06
outlet	0.022	0.508	0.140	0.006	6	9.200	27.204	2.03

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	0.879	0.067	0.012	42.0	15.000	46.686	4.12
outlet	ND	0.765	0.066	0.022	18.0	26.000	45.939	1.83

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	0.613	0.011	0.027	10.86	45.000	58.940	1.63
outlet	0.018	0.724	0.026	0.050	8.39	25.000	56.531	0.73

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Spooky Brook Pond **County** Somerset
Site ID NJW04459-257 **Municipality** Franklin Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	78.71	56.49	B	67.60 Eutrophic
Summer Station 1	77.78	71.81	61.52	70.37 Hypereutrophic
Fall Station 1	78.46	71.41	65.14	71.67 Hypereutrophic

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

Observations

Spring - no outlet, drains into adjoining pond, turtles, frogs, ducks, geese, filamentous algae

AMBIENT LAKE MONITORING NETWORK

Lake Name: Spooky Brook Pond

County: SOMERSET

SiteID: NJW04459-257

Municipality: FRANKLIN 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	2	20.65	9.31	101.8	7.36	0.154

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	23.36	5.67	65.9	6.71	0.155
1	2.2	2	0.9	21.28	0.26	2.9	6.45	0.165

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	0.7	12.57	6.23	57.5	6.86	0.146
1	2.4	2	0.7	11.44	4.81	43.2	6.71	0.163

-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: Spooky Brook Pond

County: SOMERSET

SiteID: NJW04459-257

Municipality: FRANKLIN 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	0.176	0.774	0.130	0.022	14.0	19.400	41.608	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	0.165	0.907	0.229	0.071	66.72	41.000	42.996	4.86

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	0.173	1.170	0.403	0.233	64.09	32.000	42.383	11.6

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Lake Stockwell County Burlington
 Site ID NJW04459-098 Municipality Medford Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	32.39	B	32.39 Oligotrophic
Spring Station 2	ND	46.19	51.53	48.86 Mesotrophic
Spring Station 3	ND	44.2	B	44.20 Mesotrophic
Summer Station 1	58.05	58.04	B	58.04 Eutrophic
Summer Station 2	58.39	51.71	52.35	54.15 Eutrophic
Summer Station 3	51.13	45.99	B	48.56 Mesotrophic
Fall Station 1	ND	55.51	B	55.51 Eutrophic
Fall Station 2	ND	56.4	51.53	53.97 Eutrophic
Fall Station 3	ND	50.64	B	50.64 Eutrophic

ND - TP concentration below detection limit

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

Observations

Summer - SAV throughout

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Lake Stockwell

County: BURLINGTON

SiteID: NJW04459-098

Municipality: MEDFORD TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.1	0.5	1.1	8.88	10.64	91.1	4.46	0.108
2	2.2	1	1.8	8.98	10.77	92.4	4.54	0.101
3	1.3	1	1.3	8.96	10.25	88	5.06	0.1
outlet	1.1	0.1		9.43	10.53	91.3	4.88	0.099

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.1	0.5	1.1	23.22	8.3	97	5.75	0.122
2	2	1	1.7	19.86	5.58	61.1	5.13	0.123
3	1.3	1		20.06	9.39	103.2	5.43	0.123
outlet	0.1	0.1		25.95	7.79	95.7	6.17	0.118

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1	0.5	1	17.69	8.31	86	6.11	0.13
2	2.0	1	1.8	18.75	8.22	86.9	6.07	0.129
3	1.3	1	1.3	18.48	7.66	80.6	5.98	0.126
outlet	0.3	0.3		18.63	8.37	88.3	6.44	0.132

-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: Lake Stockwell

County: BURLINGTON

SiteID: NJW04459-098

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	0.219	0.807	0.005	1.2	1.000	11.909	0.89
2	ND	0.274	0.562	0.005	4.9	1.000	11.678	1.15
3	ND	0.263	0.405	0.005	4.0	1.000	11.323	1.62
outlet	ND	0.265	0.566	0.005	5.1	1.000	11.936	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	0.042	0.527	0.611	0.006	16.4	3.100	11.810	1.78
2	0.043	0.474	0.590	0.017	8.6	20.000	11.744	1.78
3	0.026	0.364	0.465	0.013	4.8	3.100	11.554	1.65
outlet	0.026	0.467	0.486	0.014	5.7	24.000	12.359	1.65

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	0.228	0.427	0.007	12.67	4.000	11.982	1.62
2	ND	0.250	0.344	0.009	13.88	3.000	11.427	1.78
3	ND	0.319	0.187	0.012	7.71	21.000	11.666	1.24
outlet	ND	0.302	0.333	0.018	13.88	2.000	12.746	2.12

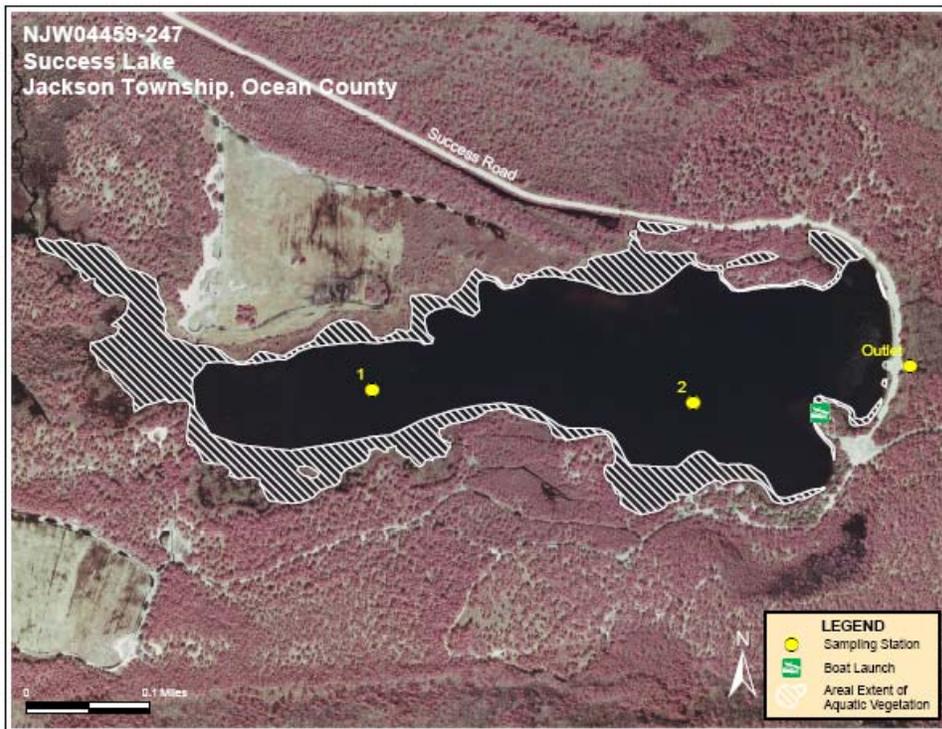
Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Success Lake **County** Ocean
Site ID NJW04459-247 **Municipality** Jackson Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	42.21	31.53	61.52	45.09 Mesotrophic
Spring Station 2	39.98	32.39	61.52	44.63 Mesotrophic
Summer Station 1	58.39	49.83	NR	54.12 Eutrophic
Summer Station 2	55	42.89	69.99	55.96 Eutrophic
Fall Station 1	ND	48.53	63.22	55.87 Eutrophic
Fall Station 2	ND	49.55	67.36	58.45 Eutrophic

ND - TP concentration below detection limit
 NR - No Reading

Observations

Fall - blue heron

AMBIENT LAKE MONITORING NETWORK

Lake Name: Success Lake

County: OCEAN

SiteID: NJW04459-247

Municipality: JACKSON TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.1	0.5	0.9	13.12	6.28	59.5	3.94	0.061
2	1.5	1	0.9	13.66	7.26	69.6	3.92	0.06
outlet	0.6	0.3		15.95	8.6	86.6	3.98	0.059

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1	0.5		24.64	3.37	40.8	4.8	0.052
2	1.6	1	0.5	25.47	3.12	38.3	4.78	0.053
outlet	0.4	0.2		29.57	5.94	78.3	4.92	0.051

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	0.9	0.5	0.8	18.5	5.16	54.5	4.65	0.046
2	1.5	1	0.6	18.37	5.96	62.8	4.53	0.047
outlet	0.3	0.3		18.26	8.03	84.4	4.64	0.047

-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: Success Lake

County: OCEAN

SiteID: NJW04459-247

Municipality: JACKSON 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	0.014	0.309	0.047	0.017	1.1	1.000	6.494	1.09
2	0.012	0.379	0.049	0.021	1.2	1.000	6.096	0.76
outlet	0.011	0.289	0.045	0.022	1.1	1.000	6.112	0.79

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	0.043	0.665	0.043	0.016	7.1	3.100	7.541	2.43
2	0.034	0.601	0.043	0.029	3.5	1.000	7.345	2.94
outlet	0.029	0.587	0.039	0.013	7.7	2.000	7.312	2.88

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	0.445	0.023	0.009	6.22	3.000	6.905	2.82
2	ND	0.462	0.032	0.008	6.9	2.000	6.946	3.71
outlet	0.012	0.499	0.018	0.016	6.98	1.000	7.008	4.55

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Sun Air Campground **County** Morris
Site ID NJW04459-083 **Municipality** Jefferson Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	45	52.58	B	48.79 Mesotrophic
Summer Station 1	47.35	41.7	B	44.52 Mesotrophic
Fall Station 1	ND	39.71	B	39.71 Oligotrophic

ND - TP concentration below detection limit

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

Observations

Spring - SAV

Summer - SAV's dense throughout, mostly milfoil, no surface veg.

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Sun Air Campground

County: MORRIS

SiteID: NJW04459-083

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	1.7	1	1.7	18.04	13.86	150.1	7.82	0.372
outlet	0.2	0.2		19.12	12.22	135.3	7.8	0.37

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	1.7	26.74	9.9	126.7	9.23	0.256
outlet	0.2	0.2		28.07	8.77	115	9.34	0.251

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	17.64	10.11	107	8.63	0.342
outlet	0.1	0.1		18.26	7.62	81.7	8.72	0.319

-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: Sun Air Campground

County: MORRIS

SiteID: NJW04459-083

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	0.017	0.422	0.634	0.015	9.4	87.000	126.700	1.48
outlet	0.023	0.657	0.642	0.019	16.8	84.000	127.800	3.05

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	0.563	0.029	0.014	3.1	79.000	98.843	2.12
outlet	0.021	0.574	0.028	0.025	8.9	79.000	96.022	1.11

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	ND	0.361	0.033	0.006	2.53	87.000	111.800	0.8
outlet	0.026	0.451	0.032	0.006	5.53	77.000	100.800	1.48

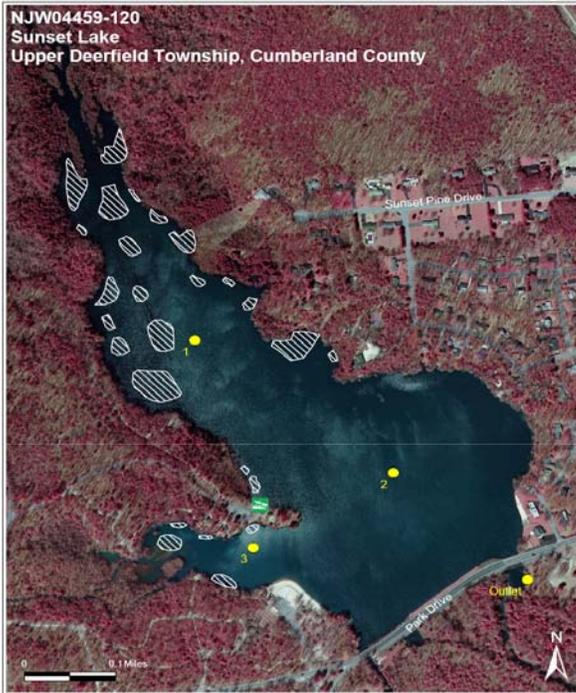
Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Sunset Lake **County** Cumberland
Site ID NJW04459-120 **Municipality** Upper Deerfield Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	65	52.89	63.22	60.37 Eutrophic
Spring Station 2	67.87	56.83	67.36	64.02 Eutrophic
Spring Station 3	74.67	60.74	73.2	69.54 Eutrophic
Summer Station 1	61.67	56.63	63.22	60.50 Eutrophic
Summer Station 2	62.45	63.08	63.22	62.91 Eutrophic
Summer Station 3	63.43	62.06	61.54	62.34 Eutrophic
Fall Station 1	50.57	54.59	60	55.05 Eutrophic
Fall Station 2	48.05	54.24	54.16	52.15 Eutrophic
Fall Station 3	49.36	56.4	60	55.26 Eutrophic

Total Phosphorus exceeds SWQC threshold (See Datasheet for actual concentration)

Observations

Spring - 2 outlets that converge approx. 0.1 mi downstream; sampled larger outlet; canal from lake connects to Cohansy R; fish ladder from outlet stream to lake; outlet very turbid, may be cedar colored
 Summer - turtles, swans, filamentous algae
 Fall - filamentous algae floating and along shoreline; strong odor from filamentous algae @ boatramp and along shoreline

AMBIENT LAKE MONITORING NETWORK

Lake Name: Sunset Lake

County: CUMBERLAND

SiteID: NJW04459-120

Municipality: UPPER DEERFIELD TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1	0.5	0.8	8.71	9.31	78.9	5.93	0.175
2	1.9	1	0.6	8.54	10.57	89.2	6.44	0.159
3	1.2	0.5	0.4	8.75	9.98	84.7	6.64	0.151
outlet	1	1		8.98	10.24	87.3	6.7	0.16

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1	0.5	0.8	19.65	6	65.4	6.49	0.179
2	1.9	1	0.8	22.11	7.84	89.7	6.88	0.173
3	1.1	0.5	0.9	22.32	7.83	89.9	6.87	0.169
outlet		0.2		21.47	7.3	82.5	6.1	0.174

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1	0.5	1	23.21	7.09	81.6	6.83	0.189
2	1.8	1	1.5	24.59	10.41	123.2	8.19	0.186
3	1.1	0.5	1	24.49	7.83	92.6	7.26	0.172
outlet	0.3	0.3		23.39	7.64	88.5	6.04	0.184

-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: Sunset Lake

County: CUMBERLAND

SiteID: NJW04459-120

Municipality: UPPER DEERFIELD 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	0.068	0.411	4.820	0.073	9.7	11.200	58.074	14.9
2	0.083	0.372	3.620	0.104	14.5	11.200	50.255	20.7
3	0.133	0.544	3.170	0.157	21.6	13.300	48.692	32.6
outlet	0.07	0.282	3.890	0.087	12.2	10.200	49.024	15.6

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	0.054	0.650	3.720	0.024	14.2	14.000	63.122	6.95
2	0.057	0.641	3.380	0.006	27.4	24.000	61.258	8.97
3	0.061	0.686	0.017	0.024	24.7	17.000	58.944	7.26
outlet	0.053	0.663	0.017	0.014	22.5	13.000	60.141	7.31

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	0.025	0.404	3.680	0.031	11.54	19.000	63.039	3.48
2	0.021	0.853	3.410	0.023	11.13	70.000	63.163	3.55
3	0.023	0.469	2.490	0.033	13.88	18.000	60.517	5.60
outlet	0.014	0.456	3.560	0.032	10.49	21.000	62.126	3.28

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Lake Tranquility
Site ID NJW04459-255

County Sussex
Municipality Green Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	56.22	51.12	50.01	52.45 Eutrophic
Spring Station 2	58.39	50.75	58.63	55.92 Eutrophic
Summer Station 1	55.42	62.09	60	59.17 Eutrophic
Summer Station 2	56.22	59.48	57.37	57.69 Eutrophic
Fall Station 1	38.73	47.27	B	43 Mesotrophic
Fall Station 2	39.93	52.69	57.37	50.01 Eutrophic

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

Observations

Spring - treated with lutrine ultra on 5/10/07, filamentous algae, SAV, secchi obscured by plants @ station 2
 Summer - treated with ward and sutrine ultra on 8/14/07 by applied biological, duckweed at inlet, SAV throughout, lake surface appears to have scum over entire lake, white downy feathers cover lake too, purple loosestrife
 Fall - SAV, Numerous swan and some geese. Secchi at station 2 obscured by plants.

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Lake Tranquility
SiteID: NJW04459-255

County: SUSSEX
Municipality: GREEN TWP

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	3.1	1	2	20.56	10.16	113.3	8.66	0.367
1	3.1	2	2	20.03	10.1	111.5	8.61	0.369
1	3.1	3	2	17.78	2.6	27.3	7.73	0.378
2	2.3	1	1.1	20.45	13.08	145.4	8.78	0.385
2	2.3	2	1.1	17.59	4.2	44.2	7.25	0.548
outlet	0.2	0.2		20.64	8.8	98.2	8.41	0.365

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	3.2	1	1	25.64	8.43	105.2	8.45	0.361
1	3.2	2	1	25.54	7.25	90.5	8.29	0.363
1	3.2	3	1	24.92	1.43	17.6	7.43	0.376
2	2.2	1	1.2	25.62	8.83	110.3	8.45	0.364
2	2.2	2	1.2	23.9	3.35	40.5	7.54	0.42
outlet	0.2	0.2		25.54	7.29	90.9	8.39	0.359

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	3.0	1	3.0	13.36	11.7	112.2	8.98	0.296
1	3.0	2	3.0	13.33	11.95	114.5	9.01	0.295
2	2.0	1	1.2	11.55	10.05	92.6	8.2	0.324
outlet	0.3	0.3		12.48	10.63	99.9	8.67	0.294

-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: Lake Tranquility
SiteID: NJW04459-255

County: SUSSEX
Municipality: GREEN TWP

Lake Profile Raw Data

Season: Spring

<i>Station</i>	<i>Tot Phos</i> (mg/L)	<i>TKN</i> (mg/L)	<i>Nitrite-Nitrate</i> (mg/L)	<i>Ammonia-N</i> (mg/L)	<i>Chl a</i> (ug/L)	<i>Alk</i> (ppm)	<i>Hard</i> (ppm)	<i>Turbidity</i> (NTU)
1	0.037	0.621	0.161	0.005	8.1	135.0	163.700	1.91
2	0.043	0.693	0.180	0.005	7.8	150.0	173.600	2.01
outlet	0.043	0.803	0.157	0.007	9.9	159.0	164.800	1.94

Season: Summer

<i>Station</i>	<i>Tot Phos</i> (mg/L)	<i>TKN</i> (mg/L)	<i>Nitrite-Nitrate</i> (mg/L)	<i>Ammonia-N</i> (mg/L)	<i>Chl a</i> (ug/L)	<i>Alk</i> (ppm)	<i>Hard</i> (ppm)	<i>Turbidity</i> (NTU)
1	0.035	0.656	0.043	0.013	24.78	135.0	163.800	2.6
2	0.037	0.525	0.050	0.018	19	1.000	166.700	2.53
outlet	0.037	0.541	0.042	0.027	20.01	122.0	164.100	2.51

Season: Fall

<i>Station</i>	<i>Tot Phos</i> (mg/L)	<i>TKN</i> (mg/L)	<i>Nitrite-Nitrate</i> (mg/L)	<i>Ammonia-N</i> (mg/L)	<i>Chl a</i> (ug/L)	<i>Alk</i> (ppm)	<i>Hard</i> (ppm)	<i>Turbidity</i> (NTU)
1	0.011	0.315	0.042	0.031	5.47	95.000	146.600	1.02
2	0.012	0.348	0.269	0.034	9.5	102.0	164.600	1.29
outlet	ND	0.317	0.034	0.034	5.05	84.000	146.900	0.63

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Washington Lake **County** Passaic
Site ID NJW04459-100 **Municipality** Wanaque Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	59.97	50.5	58.63	56.37 Eutrophic
Spring Station 2	55	49.69	51.53	52.07 Eutrophic
Summer Station 1	57.7	65.48	57.37	60.19 Eutrophic
Summer Station 2	59.67	64.61	58.63	60.97 Eutrophic
Fall Station 1	58.72	57.68	B	58.20 Eutrophic
Fall Station 2	59.67	63.69	60	61.12 Eutrophic

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

Observations

Spring - geese, filamentous algae, SAV

Summer - SAV throughout, purple loosestrife

Fall - outlet not sampled due to bridge construction, lake is lowered and water is being pumped out of lake at outlet

SAV = Submerged Aquatic Vegetation

AMBIENT LAKE MONITORING NETWORK

Lake Name: Washington Lake

County: PASSAIC

SiteID: NJW04459-100

Municipality: WANAQUE BORO

Surface to Bottom Profile

Season: Spring

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.4	1	1.1	20.06	5.49	62.7	6.6	0.108
2	3.2	1	1.8	21.17	7.69	89.8	6.91	0.109
2	3.2	2	1.8	18.1	9.93	109.1	7	0.102
2	3.2	3	1.8	12.59	9.41	91.7	6.89	0.09
outlet	0.2	0.2		21.64	7.75	91.3	7.01	0.121

Season: Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.5	1	1.2	27.16	4.86	61.7	6.64	0.096
2	3	1	1.1	27.6	7.42	95.4	7.11	0.099
2	3	2	1.1	25.15	3.55	43.8	6.74	0.102
outlet	0.1	0.1		25.59	6.74	83.6	6.85	0.14

Season: Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	0.3	0.1	0.3	14.8	7.5	73.8	6.22	0.119
2	3.5	1	1	15.17	6.51	64.5	6.52	0.131
2	3.5	2	1	14.92	4.19	41.3	6.53	0.133
2	3.5	2.9	1	14.6	2.93	28.8	6.5	0.134

-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: Washington Lake

County: PASSAIC

SiteID: NJW04459-100

Municipality: WANAQUE 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	0.048	0.485	0.269	0.005	7.6	22.000	31.603	3.35
2	0.034	0.528	0.156	0.005	7.0	26.000	31.562	2.39
outlet	0.026	0.598	0.450	0.106	4.9	20.000	50.982	2.44

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	0.507	0.050	0.031	35.02	15.000	33.669	5
2	0.047	0.494	0.041	0.024	32.05	20.000	34.838	4.58
outlet	0.041	0.732	0.438	0.333	13.92	39.000	49.286	4.14

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	0.044	0.568	0.076	0.197	15.81	40.000	37.494	4.48
2	0.047	0.914	0.122	0.471	29.18	30.000	43.615	5.18

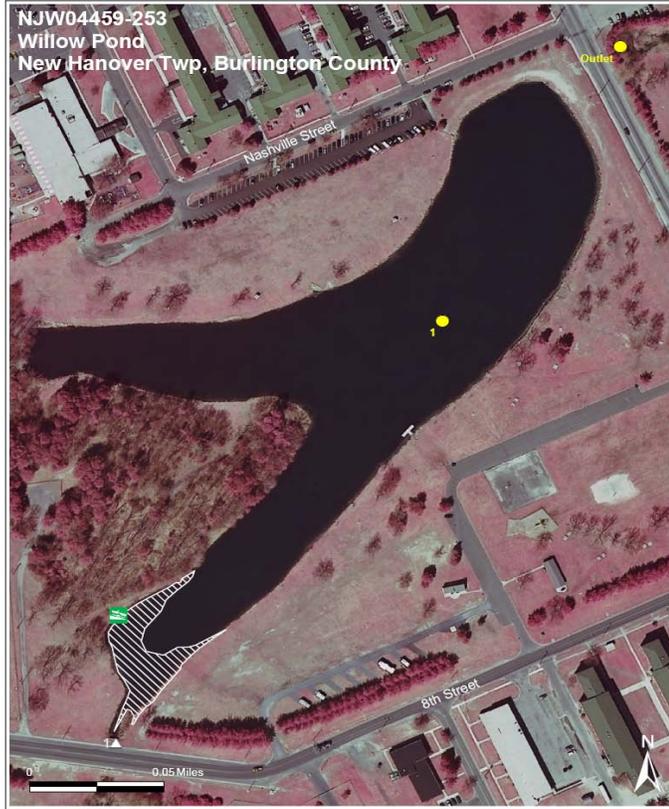
Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Willow Pond **County** Burlington
Site ID NJW04459-253 **Municipality** New Hanover Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	46.61	41.38	B	43.99 Mesotrophic
Summer Station 1	58.39	51.82	58.63	56.28 Eutrophic
Fall Station 1	48.05	48.93	48.64	48.54 Mesotrophic

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

Observations

Spring - filamentous algae; geese, ducks, blue heron

AMBIENT LAKE MONITORING NETWORK

Lake Name: Willow Pond

County: BURLINGTON

SiteID: NJW04459-253

Municipality: NEW 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	2.3	1	2.3	7.99	10.14	85.7	6.26	0.317
1	2.3	2	2.3	7.97	10.12	85.3	6.2	0.317
outlet	1	0.3		10.47	7.71	69.1	5.9	0.339

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	2.3	1	1.1	24.04	5.95	70.3	6.56	0.23
1	2.3	2	1.1	23.89	5.67	66.8	6.65	0.229
outlet	0.5	0.3		16.72	3.86	39.5	6.09	0.363

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	2.2	1	2.2	24.17	6.81	80.6	6.86	0.227
1	2.2	2	2.2	24.13	6.65	78.7	6.89	0.227
outlet	0.1	0.1		17.97	4.58	48	5.92	0.426

-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: Willow Pond

County: BURLINGTON

SiteID: NJW04459-253

Municipality: NEW 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	0.019	0.483	0.228	0.087	3.0	5.100	34.612	2.33
outlet	0.02	0.309	1.400	0.086	1.5	3.100	67.996	1.43

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	0.043	0.473	0.042	0.006	8.7	18.000	35.018	7.27
outlet	0.045	0.385	1.730	0.108	1.6	21.000	76.542	2.54

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	0.386	0.021	0.049	6.48	30.000	33.838	2.49
outlet	0.023	0.106	2.160	0.076	0.45	32.000	88.478	1.27

Sample Device - Horizontal Polycarbonate Sampler

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

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