NJ Department of Environmental Protection
Water Monitoring and Standards

AMBIENT LAKES MONITORING NETWORK

Panel 2

Volume 1 of 2

Echo Lake, West Milford, Passaic County

December 2011

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December 2011

AMBIENT LAKES MONITORING NETWORK
Panel 2

Volume 1 of 2

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ACKNOWLEDGEMENTS

This report would not have been possible without the significant contributions from environmental scientists at the New Jersey Department of Environmental Protection and the United States Environmental Protection Agency. Alfred Korndoerfer, Debra Hammond, Kevin Berry, Leslie McGeorge, and Alena Baldwin-Brown, of NJDEP Water Monitoring and Standards provided useful editorial comments and interpretation of results. Jim Kurtenbach at U.S. EPA Region 2 provided guidance on the Network's design and implementation. Tony Olsen at USEPA National Health and Environmental Effects, Research Lab/ORD Western Ecology Division created the probabilistically-based design of the Network. Many thanks to all involved for the successful implementation of the Ambient Lakes Monitoring Network.

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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 2006, 40 Panel 2 lakes were sampled. Of these 40 lakes, 18 had an excursion from the SWQS Criterion [7] for TP from at least one in-lake station. Very low DO levels (the SWQC of < 4.0 mg/l) were observed in 15 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.

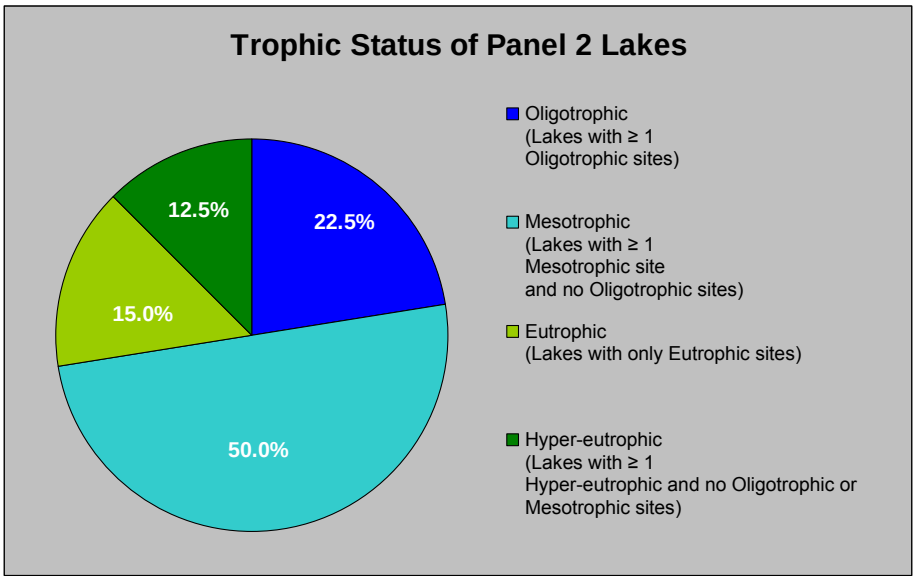

Figure ES1. Panel 2 Summary of Trophic Status.

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 TP (TP), chlorophyll "a", and Secchi disk transparency. Nine (9) lakes (Keswick Lake, Dennisville Lake, Greenwood Lake, Taunton Lake, Harrisville Lake, Mount Misery Lake, Stony Lake, Irisado Lake, and Lefferts Lake) had a TSI rating of Oligotrophic for at least one station and one season. This rating always occurred in the spring or fall, with the exception of Lefferts Lake which received an oligotrophic rating in the summer.

Three lakes (Harrisville Lake, Mount Misery Lake, and Lefferts Lake) were a combination of oligotrophic and mesotrophic for all seasons sampled. All other lakes sampled had a TSI rating of eutrophic or hyper-eutrophic for at least one site during one season. (Figure ES1)

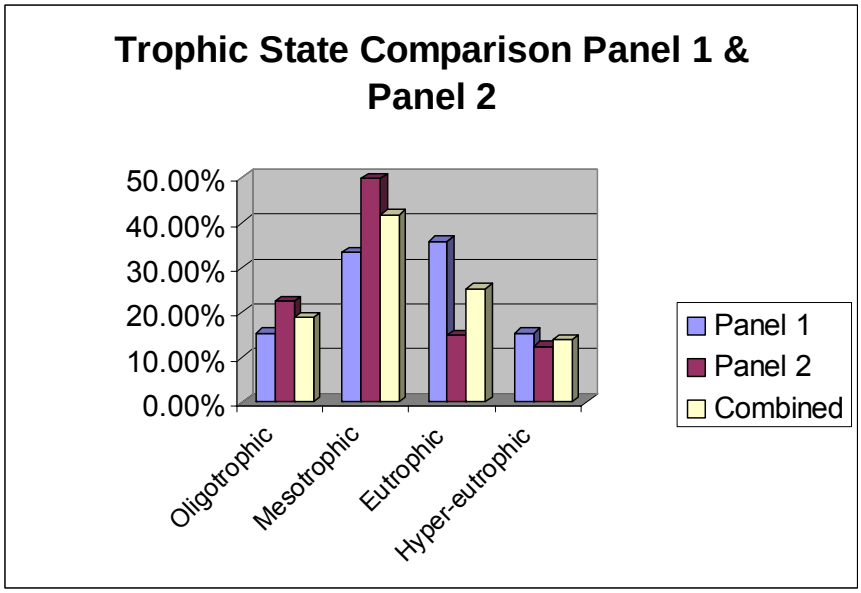

Figure ES2. Comparison of Panel 1 & Panel 2 Lakes

The Panel 2 monitoring data and assessments provide a continuing, but preliminary, estimate of the statewide status of New Jersey lakes (Figure ES1). As in Panel 1, the number of Panel 2 lakes exhibiting periods of oligotrophy was limited and no lakes were oligotrophic for all three seasons. This demonstrates that lakes assessed for the Network to date (Panel 1 and Panel 2) 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.

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

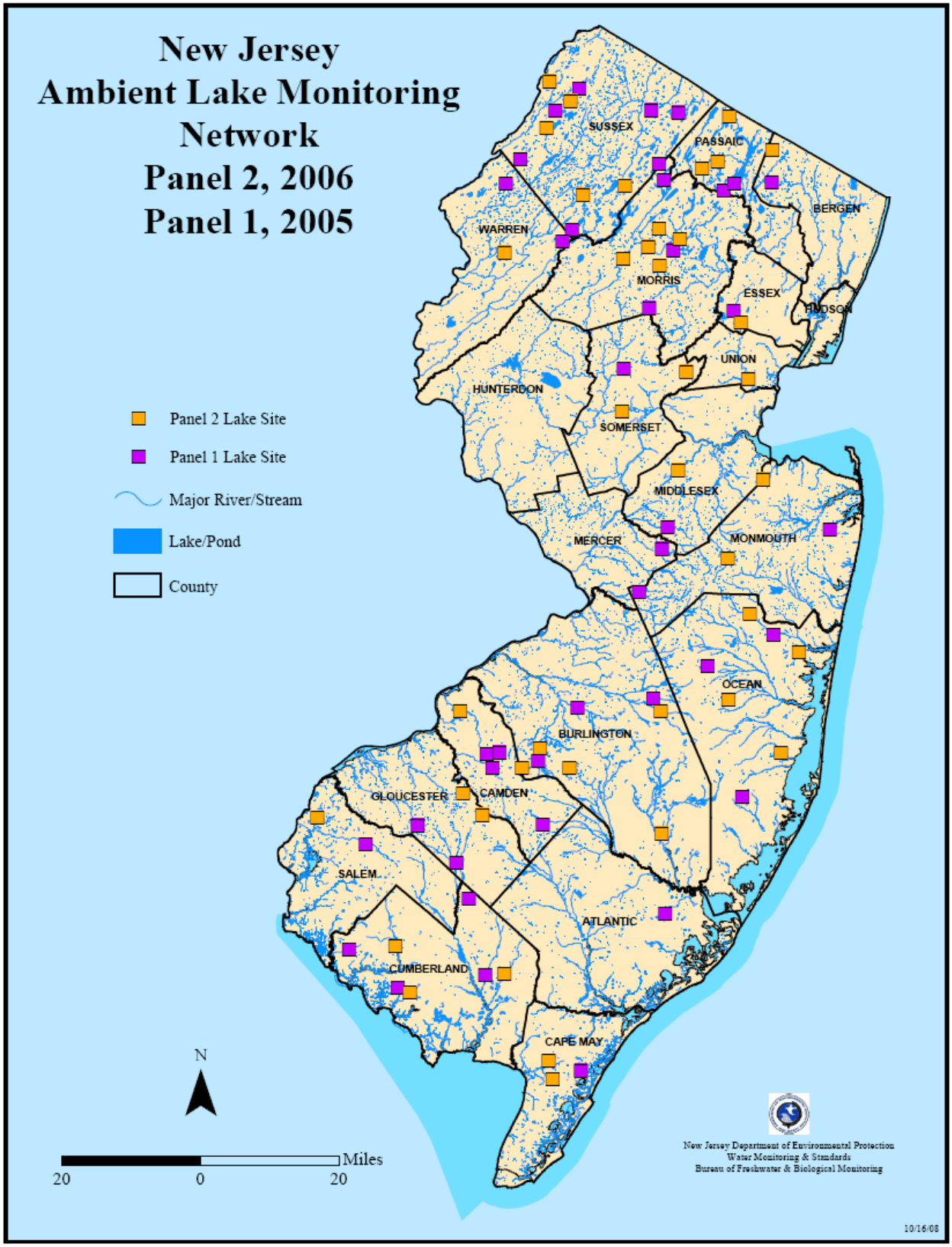

Figure ES3. Panel 1 and 2 Lakes

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).

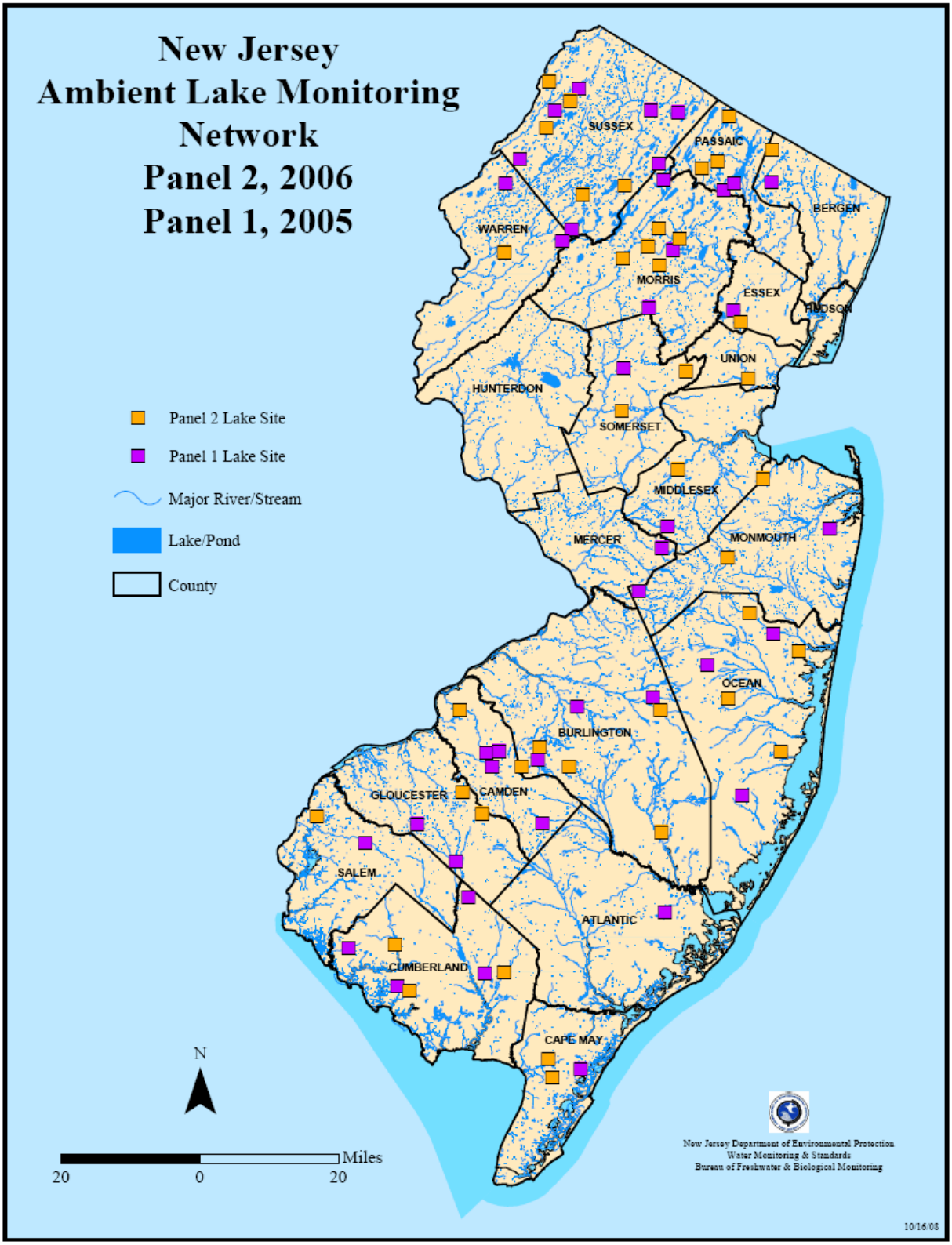

Figure 1. Panel 1 and 2 Lakes

Table 1.
2006 (Panel 2) Active Sites

SITE ID	NAME	COUNTY	MUNICIPALITY
NJW04459-048	A. Clemente Inc. Pond	SALEM	CARNEYS POINT TWP
NJW04459-240	Bear Swamp Lake	BERGEN	MAHWAH
NJW04459-078	Bells Lake	GLOUCESTER	WASHINGTON TWP
NJW04459-079	Bennetts Pond	OCEAN	JACKSON TWP
NJW04459-062	Bowlby Pond	MORRIS	DOVER TOWN
NJW04459-052	Campbells Pond	ESSEX	MILLBURN TWP
NJW04459-055	Cedar Lake	MORRIS	DENVILLE TWP
NJW04459-243	Cedar Lake	CUMBERLAND	LAWRENCE TWP
NJW04459-051	Chesler Lake	MORRIS	ROXBURY TWP
NJW04459-073	Clint Millpond	CAPE MAY	DENNIS TWP
NJW04459-047	Cooper River Lake	CAMDEN	COLLINGSWOOD BORO
NJW04459-045	Crystal Spring Lake	GLOUCESTER	MONROE TWP
NJW04459-053	Cumberland Pond	CUMBERLAND	MAURICE RIVER TWP
NJW04459-046	Dennisville Lake	CAPE MAY	DENNIS TWP
NJW04459-072	Echo Lake	PASSAIC	WEST MILFORD TWP
NJW04459-060	Farrington Lake	MIDDLESEX	EAST BRUNSWICK TWP
NJW04459-071	Flamingo Lake	BURLINGTON	EVESHAM TWP
NJW04459-075	Gardners Pond	SUSSEX	ANDOVER TWP
NJW04459-049	Greenwood Lake	PASSAIC	WEST MILFORD TWP
NJW04459-057	Harrisville Lake	BURLINGTON	WASHINGTON TWP
NJW04459-077	Irisado Lake	OCEAN	BRICK TWP
NJW04459-061	Jeddy's Pond	CUMBERLAND	BRIDGETON CITY
NJW04459-042	Keswick Lake	OCEAN	MANCHESTER TWP
NJW04459-054	Kittatinny Camp Lake	SUSSEX	SANDYSTON TWP
NJW04459-242	Lake 31A	SOMERSET	HILLSBOROUGH TWP
NJW04459-080	Lefferts Lake	MONMOUTH	MATAWAN BORO
NJW04459-246	Liberty Lake	WARREN	LIBERTY TWP
NJW04459-068	Lower Lake	OCEAN	LACEY TWP
NJW04459-059	Mecca Lake	SUSSEX	HAMPTON TWP
NJW04459-074	Millhurst Pond	MONMOUTH	MANALAPAN TWP
NJW04459-058	Mt. Misery Lake	BURLINGTON	PEMBERTON TWP
NJW04459-041	Openaka Lake	MORRIS	DENVILLE TWP
NJW04459-044	Rahway River Park Lake	UNION	RAHWAY CITY
NJW04459-064	Saginaw Lake	SUSSEX	SPARTA TWP
NJW04459-065	Shadow Lake	BURLINGTON	SHAMONG TWP
NJW04459-063	Stony Lake	SUSSEX	SANDYSTON TWP
NJW04459-050	Taunton Lake	BURLINGTON	MEDFORD TWP
NJW04459-076	Upper Mount Glenn Lake	PASSAIC	WEST MILFORD TWP
NJW04459-070	Upper Mount Hope Lake	MORRIS	ROCKAWAY TWP
NJW04459-245	Watchung Lake	SOMERSET	WATCHUNG BORO

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 DO 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 TP 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 NJDEP's Office of Quality Assurance (OQA) and are on file with that Office as part of the laboratory's certification application.

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 2 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 WM&S/BFBM lab system, which is analyzed twice per year at a NJ certified laboratory for applicable parameters).

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

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

For stratified lakes, these samples (with the exception of chlorophyll "a") were also collected from the epilimnion and hypolimnion. Turbidity was also measured from these discrete samples, using a HACH 2100P Turbidity meter. All samples collected, except for turbitity, were analyzed off-site 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 TP, 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
- DO.

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.

Sampling was also performed, using the above methods and same parameters, at observed "hot spots" in a lake. A "hot spot" is defined as a small area of the lake which has unusual characteristics as compared to the rest of the lake. These characteristics include dense algal growth and unusual odor or color. A "hot spot" was sampled at only one lake, Taunton Lake, during the 2006 sampling where dense algal growth was observed throughout the water column.

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

Other Parameters Sampled / Measured / or Observed

Aquatic vegetation: A gross estimate of total areal coverage of dominant type(s) of surface macrophytes was recorded. Lake macrophyte areal extent is determined by preparing an aerial photograph map of each lake prior to the sampling date. This is done using the latest version of aerial photography available and using GIS shapefiles for lake identification. The map includes the entire area of the lake so that it can be used for navigation/identification while on the lake. During the summer sampling season, all

surface vegetation observed at each lake was marked on the aerial photograph map. This is done using a combination of landmarks (such as houses, bridges, etc.), lake shoreline features and estimated distances to these features. Areal extent is recorded as accurately as possible so it can be transcribed to GIS maps. Upon return to the office, the aerial photograph map is modified with the polygon that best represents the areal extent of the macrophytes present in each lake.

Algal Concentration: As mentioned previously, a sample was collected from the submerged horizontal sampler for chlorophyll "a". Sample analyses were performed by WM&S/BFBM staff, in the Bureau's certified laboratory, using a modified "EPA Method 445.0".

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

CALCULATING CARLSON'S TROPHIC INDEX

Trophic State

As previously noted, *Carlson's Trophic State 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, TP, 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]

TP 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 DO. There are temporary algae and aquatic plant problems.

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

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

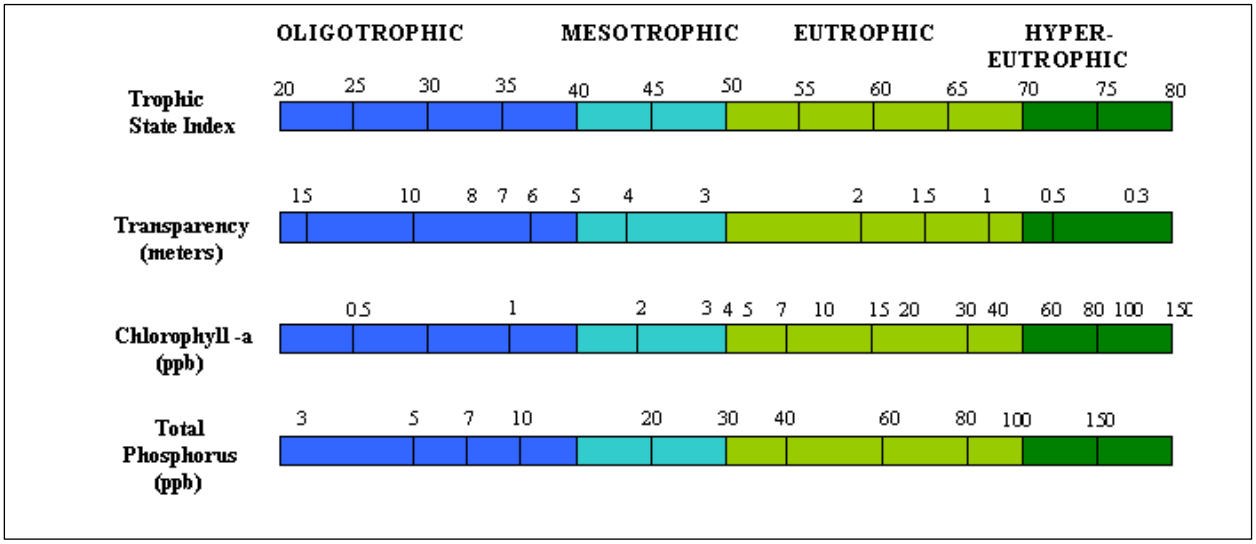

Figure 2. Carlson Trophic State Index viewed as a continuum.[1]

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

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

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

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

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

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

RESULTS AND DISCUSSION

It should be noted that a complete statewide assessment of New Jersey's lakes cannot be performed until data for the entire network of 200 lakes is collected. Data and assessments from this 2nd 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 2006 (Panel 2) 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), and 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.

Figure 3. Upper Mt. Glenn Lake surface vegetation

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).

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
NJW04459-048	A. Clemente Inc. Pond	2.92%	X
NJW04459-240	Bear Swamp Lake	85.33%	
NJW04459-078	Bells Lake	12.33%	X
NJW04459-079	Bennetts Pond	11.14%	
NJW04459-062	Bowlby Pond	100.00%	
NJW04459-052	Campbells Pond	0.00%	X
NJW04459-055	Cedar Lake	0.80%	
NJW04459-243	Cedar Lake	1.54%	X
NJW04459-051	Chesler Lake	11.23%	
NJW04459-047	Cooper River Lake	0.00%	X
NJW04459-053	Cumberland Pond	26.57%	
NJW04459-046	Dennisville Lake	12.93%	
NJW04459-060	Farrington Lake	10.68%	X
NJW04459-071	Flamingo Lake	2.63%	X
NJW04459-075	Gardners Pond	21.00%	
NJW04459-057	Harrisville Lake	38.89%	
NJW04459-077	Irisado Lake	13.94%	X
NJW04459-061	Jeddy's Pond	0.00%	X
NJW04459-042	Keswick Lake	5.20%	
NJW04459-242	Lake 31A	24.67%	
NJW04459-080	Lefferts Lake	2.04%	X
NJW04459-246	Liberty Lake	8.51%	
NJW04459-068	Lower Lake	10.04%	
NJW04459-059	Mecca Lake	43.73%	
NJW04459-074	Millhurst Pond	21.11%	X
NJW04459-058	Mt. Misery Lake	2.58%	
NJW04459-041	Openaka Lake	8.23%	
NJW04459-044	Rahway River Park Lake	22.26%	
NJW04459-064	Saginaw Lake	6.07%	
NJW04459-065	Shadow Lake	0.83%	X
NJW04459-063	Stony Lake	27.63%	
NJW04459-050	Taunton Lake	4.05%	X
NJW04459-076	Upper Mount Glenn Lake	86.45%	X
NJW04459-070	Upper Mount Hope Lake	1.86%	
NJW04459-245	Watchung Lake	14.02%	X

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); no notices were observed at any Panel 2 lake at the time of sampling. Fifteen lakes sampled were permitted through the NJDEP Pesticide Control Program (Table 2). Vegetation observed at these lakes ranged from absent to 86.45% (see Table 2).

Chlorophyll 'a'

Algal concentrations in the water column are measured through Chlorophyll 'a' analysis. Chlorophyll 'a' concentrations ≥ 4 µg/l are in the eutrophic range as assessed by Carlson's TSI. Concentrations at Panel 2 sites ranged from 0.2 µg/l to 209.2 µg/l. with the higher concentrations occurring predominantly in the summer months. There is not a numeric SWQC for Chlorophyll 'a'. However, it may be inferred that concentrations greater than 10 µg/l may be indicative of impacted water quality. As shown by Carlson's TSI continuum (Figure 2) a Chlorophyll 'a' concentration of 10 µg/l approximately corresponds to a Total Phosphorus (TP) concentration of 0.05 mg/l, the lower threshold for the TP SWQC (see further discussion below).

Total Phosphorus (TP)

Of the 40 lakes sampled in 2006, 18 lakes had at least one excursion above the total phosphorus criteria of 0.05 mg/L (Figure 4). TP results ranged from non-detected to 0.217 mg/l in the spring, 0.345 mg/l in the summer and 0.331 mg/l in the fall. It should be noted that the 0.331 mg/l fall concentration, measured at Cooper River Lake, was significantly higher than all others. Other concentrations measured in the fall were 0.186 mg/l (Rahway River Park Lake) and less. All samples collected at Rahway River Park Lake, Crystal Spring Lake, Cooper River Lake, and Lake 31A were above the TP criterion. 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 2, the TSI for TP and Chlorophyll "a" were 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

DO, temperature, pH, conductivity, and turbidity were measured in the field, while alkalinity and hardness samples were collected using a submerged horizontal sampler. DO, pH, and turbidity results showed a strong correlation with a lake's trophic state. As expected, temperature showed a strong relationship with DO as low DO only occurred in the summer. Very low DO levels (below the SWQC, Figure 4) were observed in

Figure 5. Campbells Pond - Supersaturated DO and high Chl "a" concentrations.

lakes in the mesotrophic-through-hypereutrophic range during the summer months. The majority of lakes with very low DO were shallow (approximately 1 – 2 meters in depth). Shallow depths can limit the ability of a lake to maintain cooler temperatures, because of the penetration of sunlight. As a result, they tend to exhibit unstable DO concentrations. It could not be determined whether lake depth or other factors had the greater influence on low DO concentrations. Furthermore, waters with high algal levels will generally have fluctuating DO levels. DO rises when algae are in the growth state and respiring, and 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.

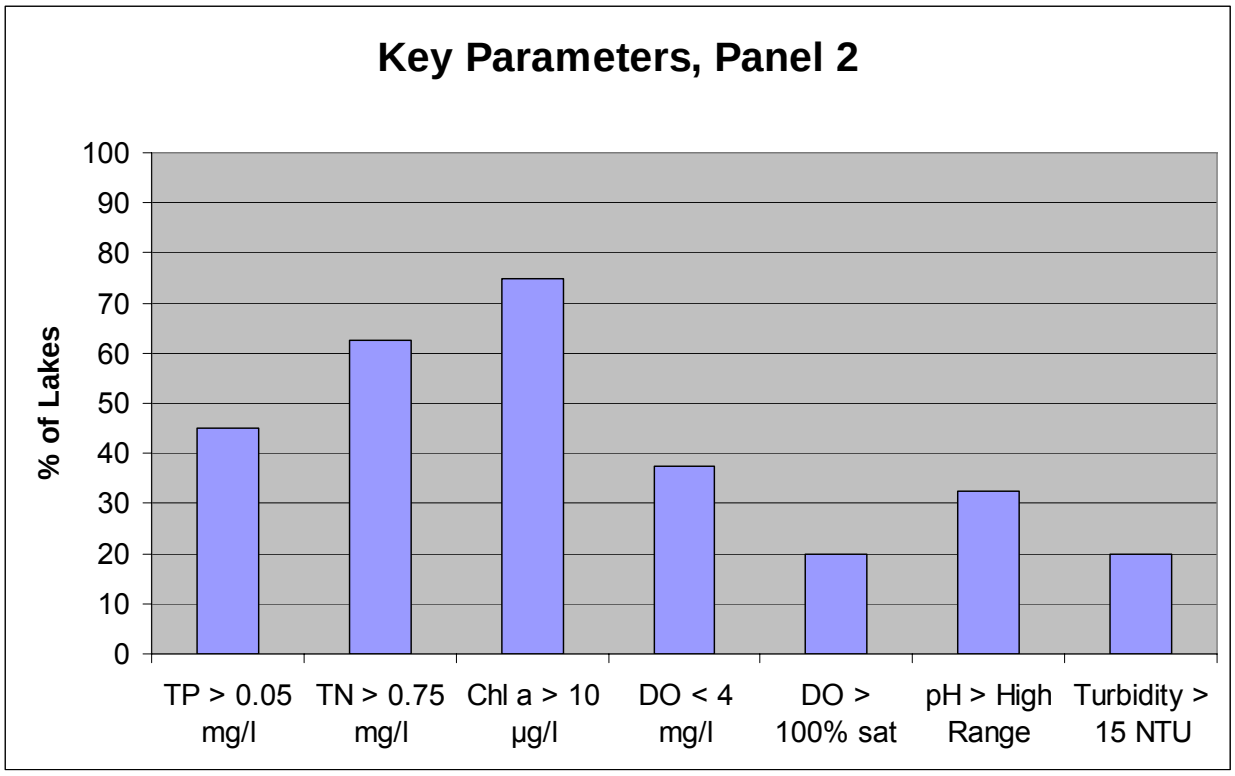

Figure 6. Percentage of Panel 2 lakes showing key parameters with levels exceeding thresholds for at least one in-lake site during the sampling season. TP, DO mg/l, and pH are SWQC thresholds. pH high range is determined by Water Basin specific thresholds (see Figure 4).

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

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

Conductivity exceeded 1000 µS/cm at two lakes - Rahway River Park Lake which is hyper-eutrophic, and Campbells Pond which is eutrophic.

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.

Hot Spots

A "hot spot" is defined as a small area of the lake which has unusual characteristics as compared to the rest of the lake. These characteristics include dense algal growth and unusual odor or color that can indicate contamination which may be tracked to a source. A "hot spot" was observed and sampled at only one lake, Taunton Lake, during the 2006 sampling where dense algal growth was observed throughout the water column. This "hot spot" did indeed exceed the SWQC for TP and had a high turbidity level.

Additional Physical / Chemical Monitoring

Lake Outlet Stream Measurements

Thirty-six of the 40 Panel 2 lakes had stream outlets. An example of an outlet is shown in Figure 7. Outlets were not sampled unless they were actively flowing.

Figure 7. Rahway River Lake Outlet

An outlet stream is determined to be directly affected by the lake when any parameter exhibits elevated results similar to those in its feeder lake. Approximately 67% of the outlet streams (if present) were affected by their lake's influence in the zone immediately downstream of the impoundment.

It is important to remember that the SWQC for TP in streams, 0.1 mg/L, is higher than for lakes.[8] Eight outlet streams had a TP concentration ≥ 0.1 mg/L for at least one season sampled. TP concentrations within five of these eight lakes had an excursion from 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, but 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.

Figure 8. Harrisville Lake - One of nine lakes with oligotrophic sites.

Oligotrophic Lakes

Lakes that were entirely oligotrophic were not represented in Panel 2, and the number of lakes exhibiting periods of oligotrophy was limited. Only 9 of the 40 Panel 2 lakes had stations which were in an oligotrophic state. Keswick Lake, Dennisville Lake, Greenwood Lake, Taunton Lake, Harrisville Lake, Mount Misery Lake, Stony Lake, Irisado Lake, and Lefferts Lake exhibited a TSI rating of oligotrophic for at least one station, mostly in the spring and/ or fall season. Lefferts Lake was the only lake which had an oligotrophic site in the summer. No lake remained in a constant oligotrophic state for all seasons sampled. This suggests that the trophic state is likely affected by seasonal variation.

Three of the lakes which had an oligotrophic site are of particular note, Lefferts Lake, Mt. Misery Lake, and Harrisville Lake (Figure 8). 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. Twenty lakes had stations in a mesotrophic state, but only two of these, Chesler Lake and Gardeners Pond, maintained a mesotrophic state throughout all seasons.

Eutrophic and Hyper-eutrophic Lakes

Eleven Panel 2 lakes exhibited TSI ratings exclusively in the eutrophic range (Eutrophic, or Hypereutrophic) for all seasons sampled.

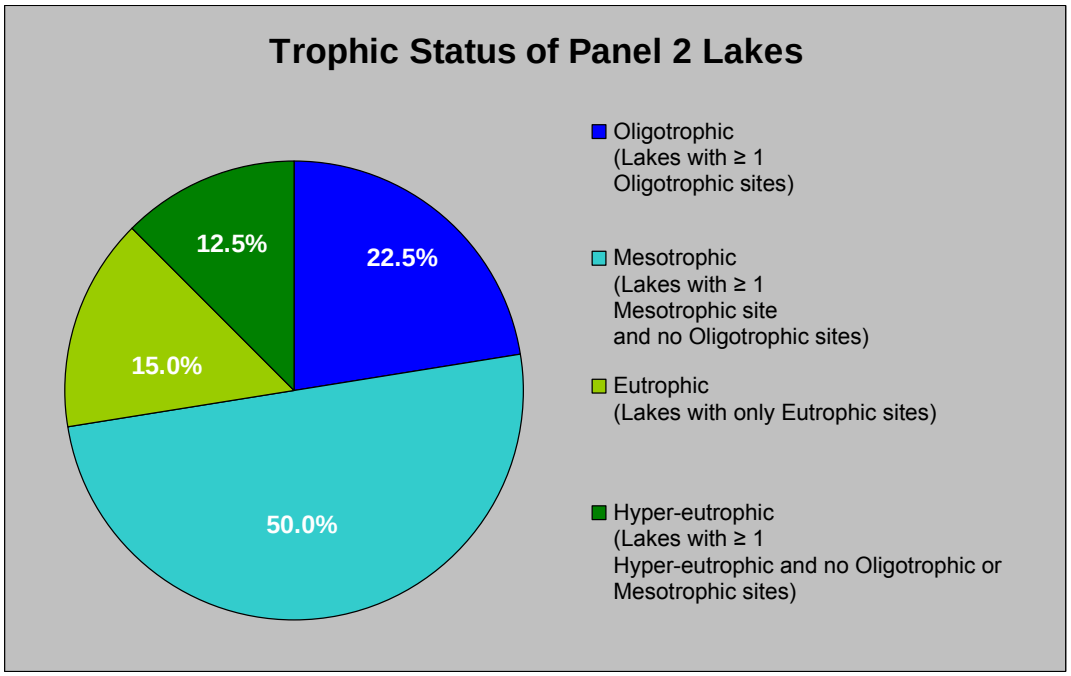

Figure 9. Panel 2 Summary of TSI Results.

All Panel 2 lakes exhibited degrees of eutrophication depending on the season and / or area of the lake sampled. Accordingly, this data demonstrates that all Panel 2 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 and Panel 2 TSI Comparison

A review of the Panel 2 lakes monitoring data reveals an increase in lakes with sampling sites exhibiting either an oligotrophic or mesotrophic TSI when compared to the Panel 1 lake monitoring results (Figure 10). Panel 2 lakes had less sampling sites exhibiting either a eutrophic or a hyper-eutrophic TSI than did the Panel 1 lakes. Due to a delay in certification of the analytical lab used for the chemical analysis, only the summer and fall samplings could be completed for Panel 1. As shown in Panel 2 results, oligotrophic and mesotrophic TSI results are more likely to occur in the spring and fall. The lower percentages of oligotrophic and mesotrophic lakes in Panel 1 are likely because spring samples were not represented.

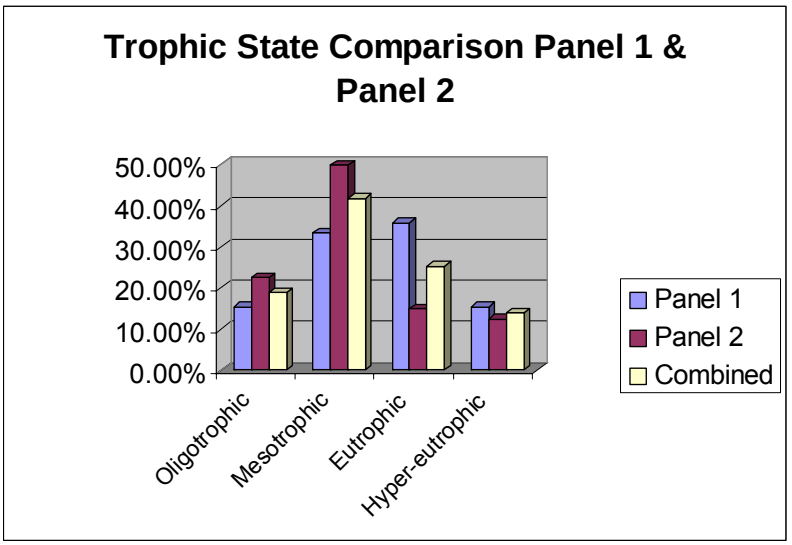

Figure 10. Comparison of Panel 1 & Panel 2 Lakes

Seasonal Variation in TSI

As the results demonstrate (see Volume 2), the trophic state of a lake is highly related to the season. Eutrophic and hyper-eutrophic TSI results were most common in the summer, while oligotrophic and mesotrophic TSI results occurred mostly in the spring or fall (Figure 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).

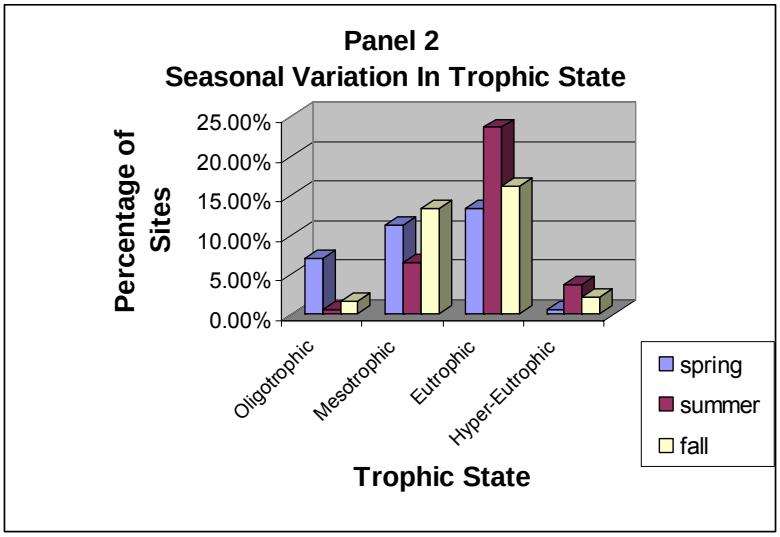

Figure 11. Trophic State by Season

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, landuse, and pollution. [15] All of these factors can be influenced by season. For example, nutrients can accumulate in snowpacks and ice in winter and release rapidly and in large amounts in the spring. [15] Another source is from the release of sediment-bound phosphorus due to changes in sediment-water interface. Exchanges of phosphorus across the sediment-water interface are regulated by oxidation-reduction interactions dependent on oxygen supply, metabolic activities of bacteria, and turbulence from physical activities. [10] All of these interactions are variable by season.

POTENTIAL STRESSORS

Stormwater Outfalls

Stormwater outfall pipes were observed at some lakes. An example of an outfall pipe is shown in Figure 12. These pipes were made of cement, corrugated metal, PVC, or vitrified clay. Twelve Panel 2 lakes had stormwater outfalls entering the lake. Previously, Panel 1 lakes showed a strong relationship between trophic status and the presence of these outfalls. In Panel 1, no lake with an oligotrophic status had outfalls and all but two lakes with outfalls exceeded the SWQC for TP. In addition to TP, turbidity was also at high levels in most of Panel 1 lakes with outfall pipes. It was concluded that these stormwater pipes likely served as a conduit for the increased levels observed.

Figure 12. Stormwater outfalls like this one, draining into Farrington Lake, can contribute to numerous problems such as excursions from the SWQC for TP.

Panel 2 lakes did not show as strong of a relationship between trophic state and the presence of outfall pipes as only four lakes from this subset were eutrophic for all seasons sampled. However, there was a strong relationship observed between TP, turbidity, and the presence of outfall pipes. Fifty percent (50%) of lakes with outfalls exceeded the SWQC for TP, and twenty-five percent (25%) had high turbidity, for at least one season.

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

Lakeshore Habitat

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

RECOMMENDATIONS

Stormwater outfalls seem to be a major stressor for lakes. Twelve lakes in Panel 2 had stormwater outfall pipes entering the lake. As stated above, TP and turbidity were at significant concentrations in lakes with outfalls. It is likely that these stormwater pipes serve as a conduit for the increased levels observed. Stormwater monitoring studies on these lakes would be helpful to determine the loading of nutrients, and other pollutants, from these outfalls. Such a study should include analysis in mixing zones of the outfalls.

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

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

Approximately 65% of the lake outlet streams (if present and flowing) were affected by their lake's influence in the zone immediately downstream of the impoundment. In the majority of streams where TP or other nutrient concentrations were elevated, those same parameters were also elevated in the feeder lake. Turbidity, Chlorophyll "a", and DO were also parameters which had similar concentrations to that of the feeder lake. Additional sampling stations at intervals downstream in the outlet stream(s) would be necessary to construct a profile of the degree, and zone, of a lake's influence. Once the USEPA biological monitoring methods are available, the addition of lentic biological indices should be considered. In-stream, lotic, biological monitoring, for both macroinvertebrates and fish, would also be recommended at intervals downstream to determine the lake's effect on the in-stream biota.

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

Additional Information

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

Raw data is posted on this website by the end of the calendar year that the data is received and validated.

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

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

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NJ Department of Environmental Protection
Water Monitoring and Standards

AMBIENT LAKES MONITORING NETWORK

Panel 2

Volume 2 of 2

Data and Results

Echo Lake, West Milford, Passaic 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 2

Volume 2 of 2

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This Volume contains Panel 2 lakes raw data, observations, and trophic state assessments as described below. See Volume 1 of this report for detailed methods and discussion of results.

Carlson Trophic State Index (TSI)

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

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

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

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

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

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

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

Surface Water Quality Criteria Thresholds for Lakes

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	A. Clemente Inc. Pond	**County**	Salem
Site ID	NJW04459-048	**Municipality**	Carneys Point Twp.

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	37.35	44.2	43.24	41.60 Mesotrophic
Spring Station 2	ND	48.5	B	48.50 Mesotrophic
Summer Station 1	38.73	50.37	48.64	45.91 Mesotrophic
Summer Station 2	59.67	71.07	57.37	62.70 Eutrophic
Fall Station 1	41.14	43.95	51.53	45.54 Mesotrophic
Fall Station 2	44.13	47.32	B	45.73 Mesotrophic

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

Observations

Spring
-SAV, turtles

Summer
-no outlet, wetlands, kayakers, swimming, fishing

AMBIENT LAKE MONITORING NETWORK

Lake Name: A. Clemente Inc. Pond **County:** SALEM

SiteID: NJW04459-048 **Municipality:** CARNEYS POINT TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	8.3	1	3.2	18.91	8.47	92.1	7.35	0.195
1	8.3	2	3.2	18.58	8.47	91.5	7.39	0.195
1	8.3	3	3.2	18.2	8.75	93.8	7.52	0.195
1	8.3	4	3.2	17.53	9.03	95.6	7.52	0.196
1	8.3	5	3.2	13.98	12.06	118.3	8.65	0.2
1	8.3	6	3.2	10.86	10.39	95	7.09	0.199
1	8.3	7	3.2	9.65	4.8	42.7	6.37	0.2
2	1.4	1	1.4	20.53	8.38	94.2	7.07	0.194

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	8.2	1	2.2	29.21	7.6	99.2	8.5	0.192
1	8.2	2	2.2	28.91	7.64	99.1	8.42	0.192
1	8.2	3	2.2	28.79	7.71	99.8	8.36	0.192
1	8.2	4	2.2	28.46	7.69	99.1	8.03	0.192
1	8.2	5	2.2	25.73	10.69	131	7.56	0.203
1	8.2	6	2.2	22.19	8.67	99.5	7.09	0.21
1	8.2	7	2.2	18.48	4.77	50.5	6.69	0.213
1	8.2	8	2.2	15.38	0.72	7.2	6.5	0.241
2	1.4	1	1.2	28.62	7.38	95.5	6.92	0.19

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	8.3	1	1.8	19.31	7.64	81.5	6.78	0.169
1	8.3	2	1.8	19.06	7.69	81.6	6.78	0.169
1	8.3	3	1.8	18.88	7.36	77.9	6.76	0.169
1	8.3	4	1.8	18.76	7.08	74.7	6.71	0.169
1	8.3	5	1.8	18.68	6.69	70.5	6.66	0.169
1	8.3	6	1.8	18.57	6.47	68	6.62	0.17
1	8.3	7	1.8	18.51	5.75	60.5	6.57	0.17
1	8.3	8	1.8	18.4	0.9	9.4	6.59	0.34
2	1.3	1	1.3	18.11	7.52	78.3	6.69	0.167

-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: A. Clemente Inc. Pond
County: SALEM
SiteID: NJW04459-048
Municipality: CARNEYS POINT TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.01	0.501	0.568	0.056	4	12	57.199	2.6
2	ND	0.532	0.341	0.070	6.2	15	56.828	2.18

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.011	0.414	0.161	0.005	7.5	12	51.210	1.67
2	0.047	0.725	0.016	0.004	61.9	14	51.636	4.53

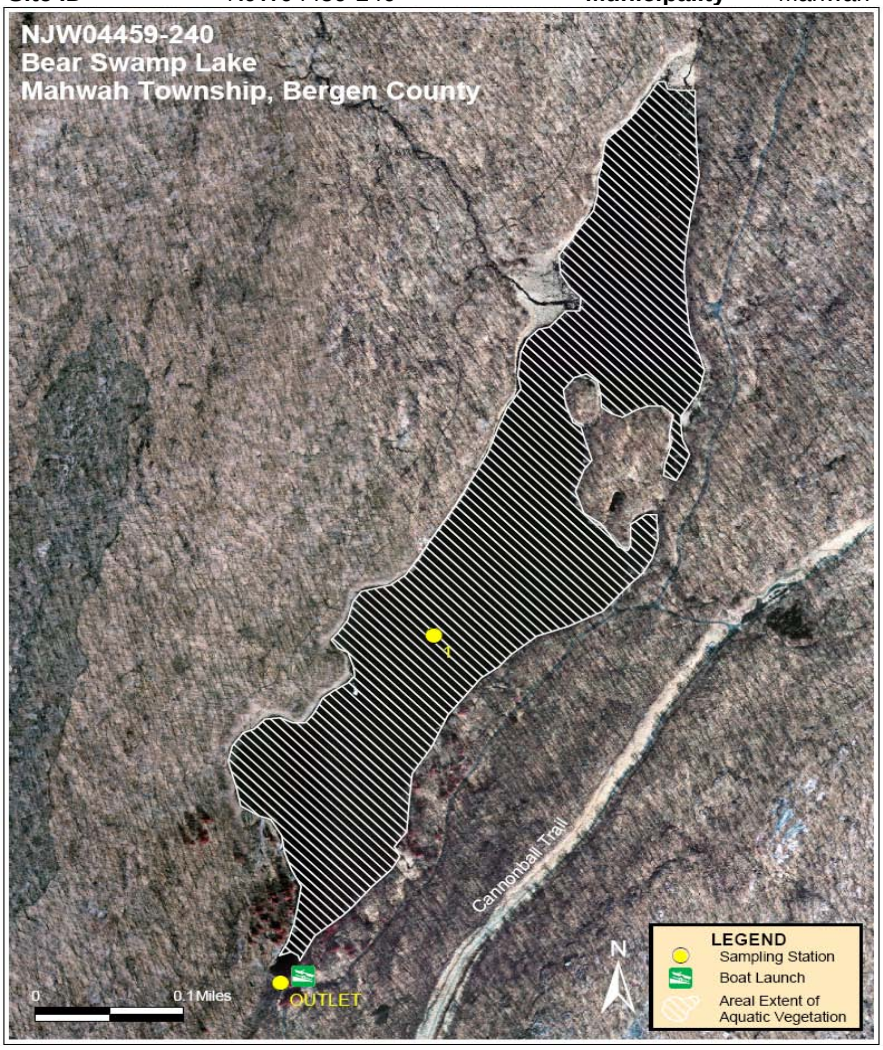
Season: Fall

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	0.316	0.154	0.118	3.9	12	53.245	2.18
2	0.016	0.381	0.095	0.079	5.5	13	53.281	1.03

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Bear Swamp Lake	**County**	Bergen
Site ID	NJW04459-240	**Municipality**	Mahwah



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	34.14	43.43	63.22	46.93 Mesotrophic
Summer Station 1	52.2	55.22	77.35	61.59 Eutrophic
Fall Station 1	50.57	42.01	B	46.29 Mesotrophic

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

Observations

Spring

-water snakes at outlet, area north of island too shallow and full of vegetation to access

Summer

-cedar colored water, extensive SAV and surface lillies, many water snakes near outlet

Fall

-cedar colored water, SAV

AMBIENT LAKE MONITORING NETWORK

Lake Name: Bear Swamp Lake **County:** BERGEN

SiteID: NJW04459-240 **Municipality:** MAHWAH

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.2	0.6	0.8	14.46	5.82	59.7	5.64	0.024
outlet	0.2	0.2		15.76	7.64	80.4	5.88	0.023

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.7	0.3	0.3	20.85	0.11	1.3	5.27	0.035
outlet	0.1	0.1		21.87	4.08	47.6	5.75	0.031

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	7.08	7.03	59.4	5.84	0.031
outlet	0.1	0.1		7.27	9.61	81.7	5.86	0.029

-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: Bear Swamp Lake
County: BERGEN
SiteID: NJW04459-240
Municipality: MAHWAH

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	0.008	0.470	0.006	0.018	3.7	5	10.461	1.27
outlet	ND	0.446	0.020	0.017	2.5	5	9.638	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	0.028	0.707	0.010	0.022	12.3	11	16.755	1.61
outlet	0.024	0.602	0.015	0.065	7.9	10	13.425	1.73

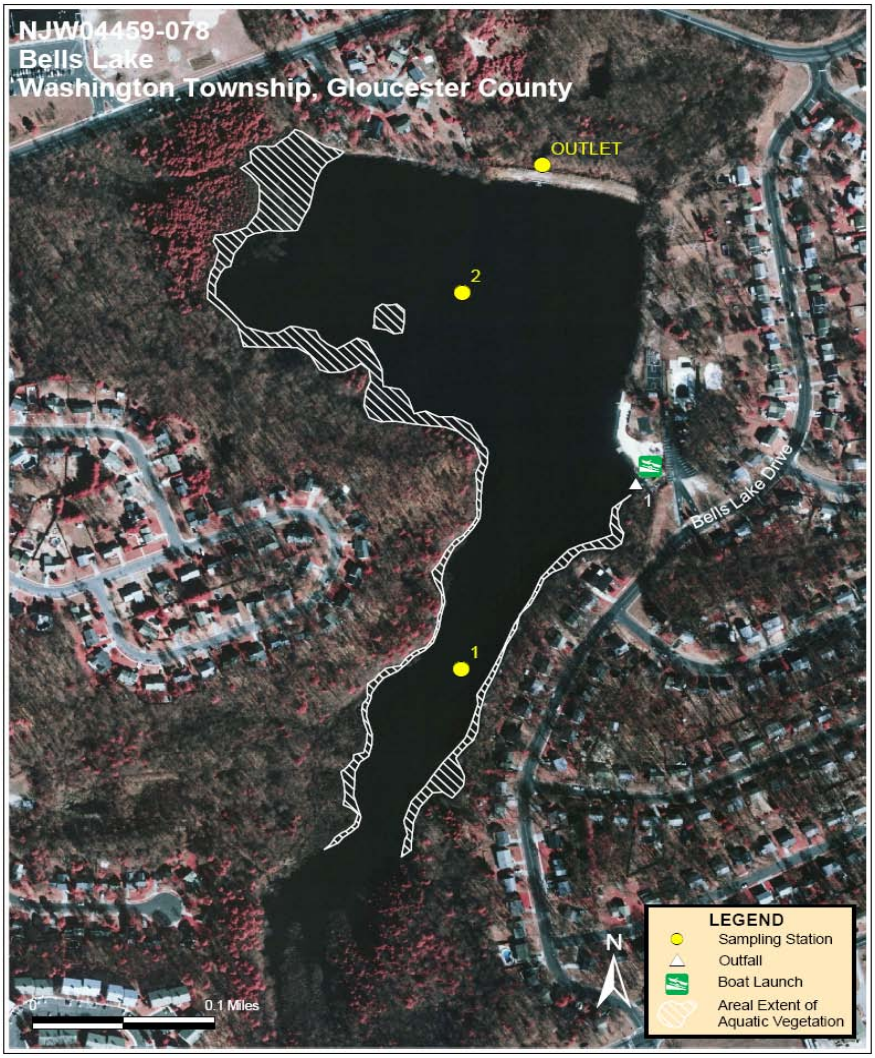
Season: Fall

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	0.322	0.002	0.014	3.2	8.200	13.629	0.83
outlet	0.017	0.275	0.002	0.015	2.3	14.300	12.277	0.6

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Bells Lake	**County**	Gloucester
Site ID	NJW04459-078	**Municipality**	Washington Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	48.72	57.36	B	53.04 Eutrophic
Spring Station 2	39.98	59.12	54.16	51.09 Eutrophic
Summer Station 1	57.34	47.32	57.37	54.01 Eutrophic
Summer Station 2	53.2	54.73	58.63	55.52 Eutrophic
Fall Station 1	58.72	66.91	61.52	62.38 Eutrophic
Fall Station 2	54.57	65.59	60	60.05 Eutrophic

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

Observations

Fall

-SAV throughout station 1, filamentous algae, bladderwort

AMBIENT LAKE MONITORING NETWORK

Lake Name: Bells Lake **County:** GLOUCESTER

SiteID: NJW04459-078 **Municipality:** WASHINGTON TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.2	1	1.2	13.24	9.11	85.9	6.85	0.156
2	2.3	1	1.5	14.08	10.73	102.8	7.31	0.152
2	2.3	2	1.5	12.85	9.19	85.8	6.85	0.152
outlet	0.1	0.1		14.2	9.42	90.6	7.18	0.151

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	1.2	21.96	3.36	38.3	6.4	0.124
2	2.3	1	1.1	23.78	4.32	51	6.55	0.124
2	2.3	2	1.1	23.15	0.94	10.7	6.45	0.109
outlet	0.2	0.2		23.95	6.93	82.1	6.79	0.126

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	18.25	7.69	80.4	6.69	0.174
2	2.2	1	1	20.67	8.36	91.7	6.84	0.13
2	2.2	2	1	20.45	4.65	50.8	6.55	0.136
outlet	0.1	0.1		20.58	7.9	86.5	6.91	0.128

-Secchi measurements are not recorded for outlets.

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name: Bells Lake
County: GLOUCESTER
SiteID: NJW04459-078
Municipality: WASHINGTON TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.022	0.354	0.840	0.045	15.3	18	43.865	2.98
2	0.012	0.346	0.598	0.019	18.3	18	41.293	2.36
outlet	0.016	0.341	0.578	0.032	23.3	19	38.244	2.4

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	0.04	0.700	0.388	0.186	5.5	18	31.053	3.68
2	0.03	0.657	0.239	0.134	11.7	13	30.017	3.93
outlet	0.047	0.640	0.236	0.136	13.4	19	29.393	4.03

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	1.080	0.454	0.023	40.5	19	36.156	8.41
2	0.033	0.743	0.212	0.022	35.4	20	31.901	6.75
outlet	0.024	0.664	0.211	0.063	37.9	19	32.026	6.14

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Bennetts Pond	**County**	Ocean
Site ID	NJW04459-079	**Municipality**	Jackson Twp.

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	54.57	46.39	60	53.65 Eutrophic
Spring Station 2	45	39.97	57.37	47.45 Mesotrophic
Summer Station 1	62.95	56.13	69.99	63.02 Eutrophic
Summer Station 2	59.97	65.08	69.99	65.01 Eutrophic
Fall Station 1	56.6	39.97	B	48.29 Mesotrophic
Fall Station 2	57.34	46.77	57.37	53.83 Eutrophic

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

Observations

Summer
-poor water clarity, turtles, heron

Fall
-waterfowl

AMBIENT LAKE MONITORING NETWORK

Lake Name: Bennetts Pond **County:** OCEAN

SiteID: NJW04459-079 **Municipality:** JACKSON 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	1	1	13.25	8.49	81	5.98	0.11
2	1.8	1	1.2	14.3	8.02	78.4	6.04	0.109
outlet	0.7	0.4		14.64	9.94	97.8	6.15	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	0.9	0.5	0.5	22.56	2.04	23.7	5.87	0.115
2	1.6	1	0.5	23.07	4.18	49.2	6.03	0.127
outlet	0.5	0.3		25.67	6.88	84.5	6.68	0.12

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	19.13	6.26	68.3	6.35	0.115
2	1.5	1	1.2	19.51	6.25	68.7	6.37	0.111
outlet	0.2	0.2		19.81	7.5	83	6.57	0.111

-Secchi measurements are not recorded for outlets.

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name: Bennetts Pond **County:** OCEAN

SiteID: NJW04459-079 **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	0.033	0.380	0.134	0.043	5	5	18.645	6.55
2	0.017	0.309	0.134	0.053	2.6	15	18.504	4.65
outlet	0.016	0.294	0.144	0.053	2.9	4	18.637	4.79

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	0.059	0.620	0.266	0.035	13.5	12	28.545	20.5
2	0.048	0.522	0.246	0.020	33.6	6	27.670	16
outlet	0.047	0.673	0.211	0.014	48.4	12	27.329	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	0.038	0.351	0.254	0.064	2.6	11	24.995	6.42
2	0.04	0.382	0.205	0.070	5.2	9	23.532	6.04
outlet	0.04	0.324	0.219	0.061	9.2	9	23.746	6.15

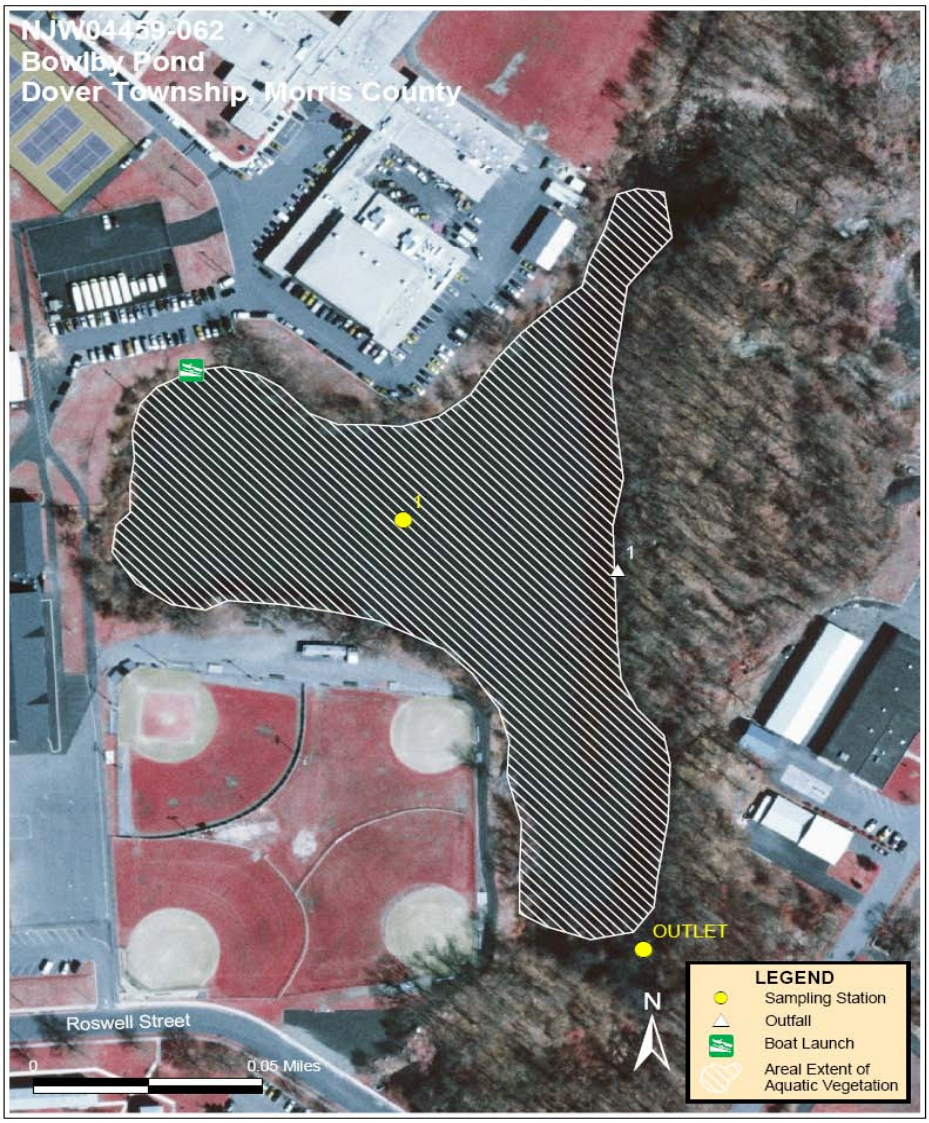
Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Bowlby Pond	**County**	Morris
Site ID	NJW04459-062	**Municipality**	Dover Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	49.36	75.96	B	62.66 Eutrophic
Summer Station 1	49.98	50.62	69.99	56.86 Eutrophic
Fall Station 1	52.71	48.96	B	50.83 Eutrophic

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

Observations

Spring

-frogs, geese, swans, fish

Summer

-SAV and lillies throughout, outlet not flowing

Fall

-SAV and lillies throughout, outlet not flowing

AMBIENT LAKE MONITORING NETWORK

Lake Name: Bowlby Pond **County:** MORRIS

SiteID: NJW04459-062 **Municipality:** DOVER TOWN

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.7	0.4	0.7	17.03	7.83	83.4	8.26	0.564
outlet	0.1	0.1		16	2.28	23.7	6.93	0.627

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.7	0.3	0.5	29.29	1.75	23.3	7	0.388

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	0.5	0.3	0.5	17.86	7.28	77.8	7.09	0.298

-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: Bowlby Pond
County: MORRIS
SiteID: NJW04459-062
Municipality: DOVER TOWN

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	0.963	0.006	0.027	101.9	70	101.2	6.02
outlet	0.2	1.390	0.018	0.127	4.7	78	113.0	159

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	0.781	0.006	0.004	7.7	130.0	138.5	7.96

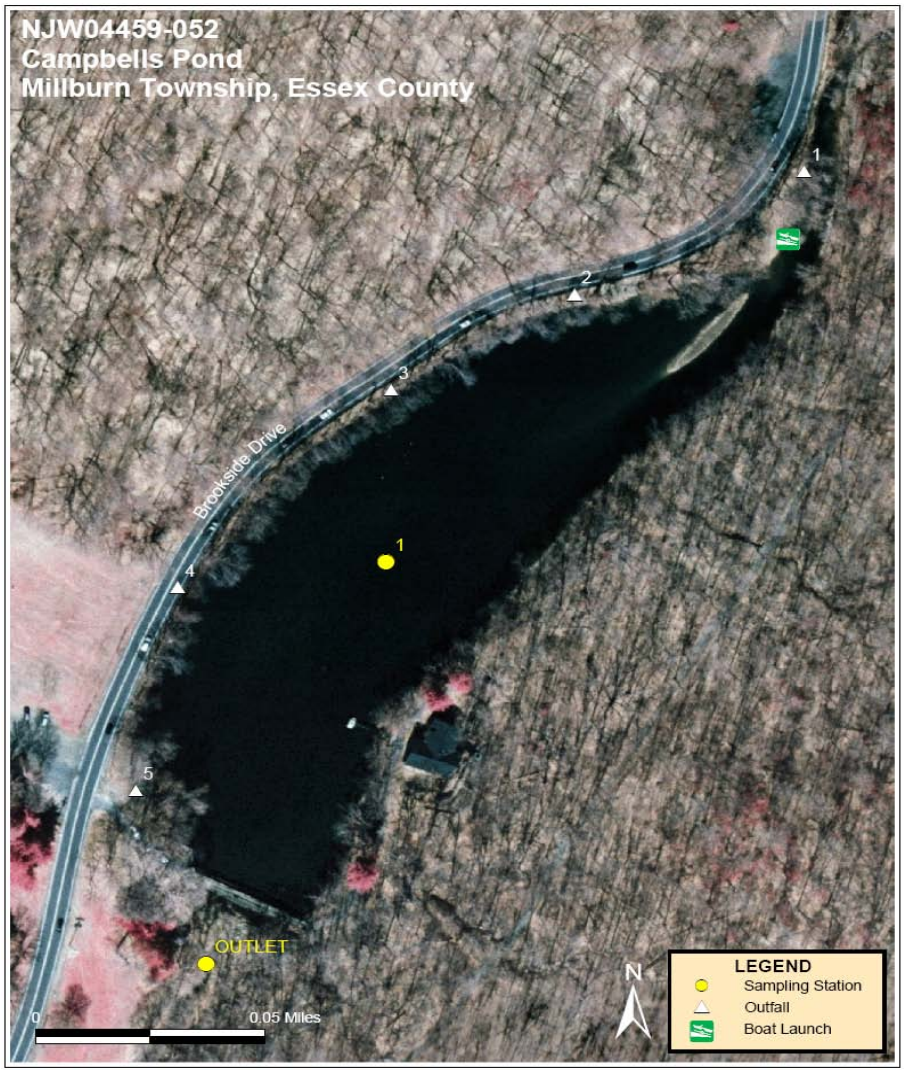
Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.029	0.628	0.057	0.119	6.5	102.0	112.5	4.65

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Campbells Pond	**County**	Essex
Site ID	NJW04459-052	**Municipality**	Millburn Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	44.13	55.84	56.22	52.06 Eutrophic
Summer Station 1	68.21	61.1	56.22	61.84 Eutrophic
Fall Station 1	66.97	52.37	NA	59.67 Eutrophic

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

NA - Reading not available.

Observations

Summer

-bluegreen scum line around lake perimeter

Fall

-aprox 50% of lake surface covered by filamentous algae, some duckweed

AMBIENT LAKE MONITORING NETWORK

Lake Name: Campbells Pond **County:** ESSEX

SiteID: NJW04459-052 **Municipality:** MILLBURN TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.9	1	1.3	14.94	11.8	118.3	7.68	1
outlet	0.2	0.2		15.49	10.45	106.1	7.31	1.011

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	1.6	1	1.3	21.78	4.51	51.9	7.14	0.654
outlet	0.2	0.2		23.92	6.25	75	7.56	0.619

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.9	1		18.59	3.82	40.8	7.13	0.328
outlet	0.1	0.1		18.69	7.04	75.4	7.43	0.337

-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: Campbells Pond
County: ESSEX
SiteID: NJW04459-052
Municipality: MILLBURN 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	0.410	0.100	0.022	13.1	46	123.1	2.47
outlet	0.034	0.609	0.127	0.079	12.3	45	128.4	1.84

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.085	0.652	0.339	0.084	22.4	52	124.5	5.55
outlet	0.107	0.693	0.300	0.100	15.8	52	116.5	6.64

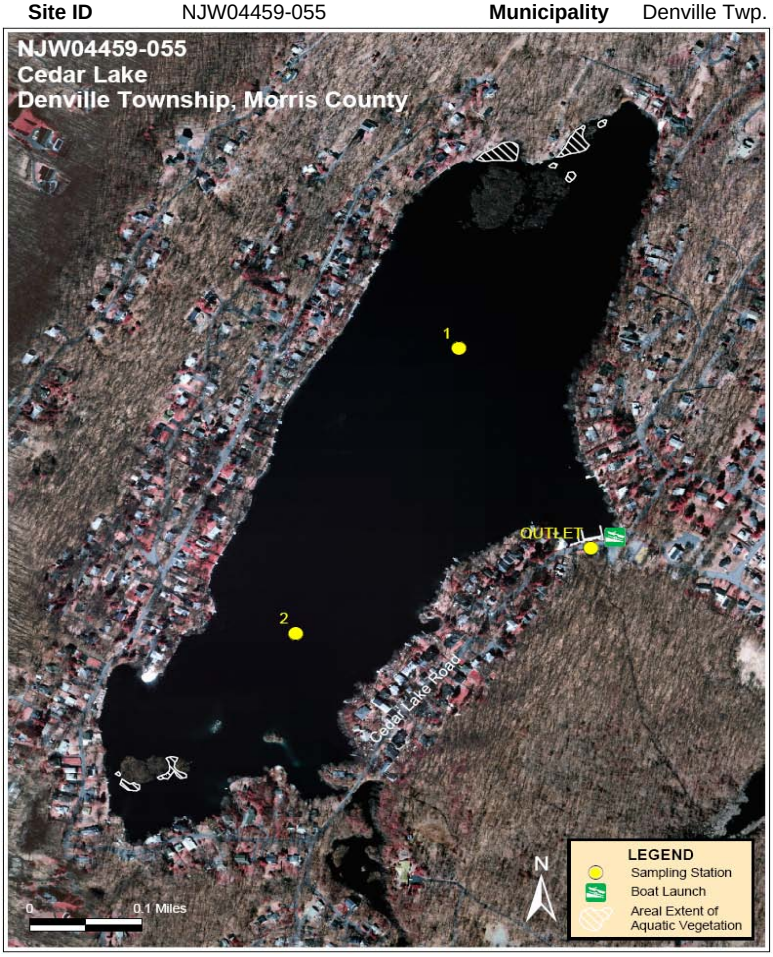
Season: Fall

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	0.078	0.446	0.504	0.090	9.2	43	82.625	3.54
outlet	0.08	0.434	0.484	0.106	9.7	44	82.830	3.36

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Cedar Lake	**County**	Morris
Site ID	NJW04459-055	**Municipality**	Denville Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	44.2	43.7	43.95 Mesotrophic
Spring Station 2	41.14	45.57	B	43.35 Mesotrophic
Summer Station 1	45.83	53.19	50.01	49.69 Mesotrophic
Summer Station 2	57.7	51.48	B	54.59 Eutrophic
Fall Station 1	48.72	51.93	NA	50.33 Eutrophic
Fall Station 2	48.72	45.57	B	47.15 Mesotrophic

ND - TP concentration below detection limit
B - Secchi visible to Lake bottom. (See Datasheet for total depth)
NA - Reading not available.

Observations

Spring
-SAV, outlet dry

Summer
-filamentous algae, outlet not flowing, treated w/ CuSO4 in swimming area on 7/25/06, treated w/ SONAR in May

Fall
-freshwater jellyfish

AMBIENT LAKE MONITORING NETWORK

Lake Name: Cedar Lake **County:** MORRIS

SiteID: NJW04459-055 **Municipality:** DENVILLE TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.1	1	3.1	17.95	7.66	82.9	6.6	0.238
1	4.1	2	3.1	17.35	7.46	79.8	6.89	0.239
1	4.1	3	3.1	17.09	7.18	76.4	6.86	0.239
2	1.8	1	1.8	18.15	7.13	77.6	6.94	0.24

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	3.8	1	2	27.36	6.89	88.3	7.37	0.214
1	3.8	2	2	27.15	6.72	85.9	7.18	0.214
1	3.8	3	2	26.91	4.12	52.4	6.83	0.215
2	1.8	1	1.8	27.16	6.37	81.4	6.99	0.213

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	3	1		19.7	7.5	82.9	6.82	0.172
1	3	2		19.57	7.61	83.9	6.8	0.172
2	1.8	1	1.8	19.2	7.3	79.9	6.78	0.171
outlet	0.1	0.1		19.4	7.56	83.1	6.97	0.171

-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: Cedar Lake
County: MORRIS
SiteID: NJW04459-055
Municipality: DENVILLE 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	0.482	0.140	0.125	4	13	44.642	2.11
2	0.013	0.562	0.136	0.143	4.6	12	44.142	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	0.018	0.513	0.006	0.004	10	8	34.913	1.36
2	0.041	0.557	0.006	0.004	8.4	9	34.322	1.56

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.022	0.346	0.004	0.026	8.8	6	31.161	1.03
2	0.022	0.358	0.007	0.044	4.6	6	30.753	0.95
outlet	0.027	0.344	0.006	0.040	6.6	6	30.913	0.84

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Cedar Lake	**County**	Cumberland
Site ID	NJW04459-243	**Municipality**	Lawrence Twp.

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	55	55.61	58.63	56.47 Eutrophic
Summer Station 1	73.19	70.73	65.14	69.99 Eutrophic
Fall Station 1	ND	71.34	65.14	68.24 Eutrophic

Total Phosphorus exceeds SWQC threshold (See Datasheet for actual concentration)
ND - TP concentration below detection limit

Observations

Summer
-turtles, frogs, geese, macrophytes

Fall
-geese, bright green algae on banks

AMBIENT LAKE MONITORING NETWORK

Lake Name: Cedar Lake **County:** CUMBERLAND

SiteID: NJW04459-243 **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	1.2	1	1.1	10.91	9.08	82.1	6.87	0.069
outlet 1	0.4	0.4		11.67	9.19	84.6	7.1	0.071
outlet 2	0.3	0.3		11.7	9.31	85.6	6.9	0.07

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	1	0.7	18.39	8.4	89.1	6.63	0.061
outlet 1	0.3	0.3		21.59	8.13	92	8.65	0.065
outlet 2	0.3	0.3		21.28	8.91	100.6	7.37	1.201

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	0.7	20.16	4.83	53.1	6.71	0.081
outlet 1	0.1	0.1		22.69	8.41	97.8	6.51	0.08
outlet 2	0.1	0.1		22.44	7.63	88.1	6.21	0.082

-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: Cedar Lake **County:** CUMBERLAND

SiteID: NJW04459-243 **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	0.034	0.444	1.020	0.034	12.8	9	22.169	5.28
outlet 1	0.025	0.450	0.969	0.037	21.7	9	22.709	4.28
outlet 2	0.031	0.543	0.956	0.129	15.8	9	22.343	4.86

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	0.12	1.200	0.175	0.015	59.8	14	21.574	12.1
Outlet 1	0.102	1.010	0.080	0.015	37.2	13	21.564	10.6
Outlet 2	0.115	1.270	0.242	0.062	55.3	17	109.1	17

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	1.520	0.635	0.085	63.6	10	24.830	27.4
outlet 1	0.115	0.812	0.410	0.021	37.4	10	24.068	10.6
outlet 2	0.101	0.674	0.429	0.036	31.7	11	24.308	9.94

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Chesler Lake	**County**	Morris
Site ID	NJW04459-051	**Municipality**	Roxbury Twp.

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	29.99	55.91	52.35	46.08 Mesotrophic
Summer Station 1	45	51.48	48	48.16 Mesotrophic
Fall Station 1	ND	47.32	40.09	43.86 Mesotrophic

ND - TP concentration below detection limit

AMBIENT LAKE MONITORING NETWORK

Lake Name: Chesler Lake **County:** MORRIS

SiteID: NJW04459-051 **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	6.4	1	1.7	13.21	10.06	98.7	8.8	0.499
1	6.4	2	1.7	13.18	10.29	101	8.75	0.499
1	6.4	3	1.7	13.12	10.52	103	8.76	0.5
1	6.4	4	1.7	8.58	11.98	105.6	8.67	0.504
1	6.4	5	1.7	7.38	9.96	85.2	8.24	0.505
1	6.4	6	1.7	6.93	6.99	59.2	7.81	0.467

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	7.4	1	2.3	24.1	7.53	91.9	8.66	0.482
1	7.4	2	2.3	23.89	7.59	92.4	8.62	0.484
1	7.4	3	2.3	23.36	7.24	87.3	8.52	0.49
1	7.4	4	2.3	19.64	7.27	81.5	8.4	0.514
1	7.4	5	2.3	14.85	6.36	64.5	7.93	0.528
1	7.4	6	2.3	11.57	3.39	32	7.5	0.531
1	7.4	7	2.3	9.68	0.26	2.4	7.29	0.531

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	7.2	1	3.9	20.93	8.15	92.8	8.52	0.48
1	7.2	2	3.9	20.77	8.12	92.2	8.5	0.48
1	7.2	3	3.9	20.5	7.93	89.4	8.47	0.48
1	7.2	4	3.9	20.31	7.42	83.4	8.41	0.481
1	7.2	5	3.9	19.76	6.47	72	8.18	0.485
1	7.2	6	3.9	17.16	1.87	19.8	7.68	0.511
1	7.2	7	3.9	14.39	0.59	5.9	7.51	0.527

-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: Chesler Lake **County:** MORRIS

SiteID: NJW04459-051 **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	0.006	0.349	0.006	0.016	13.2	115.0	174.2	1.69

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	0.317	0.013	0.034	8.4	95	153.9	1.44

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	0.241	0.002	0.019	5.5	98	152.4	1.13

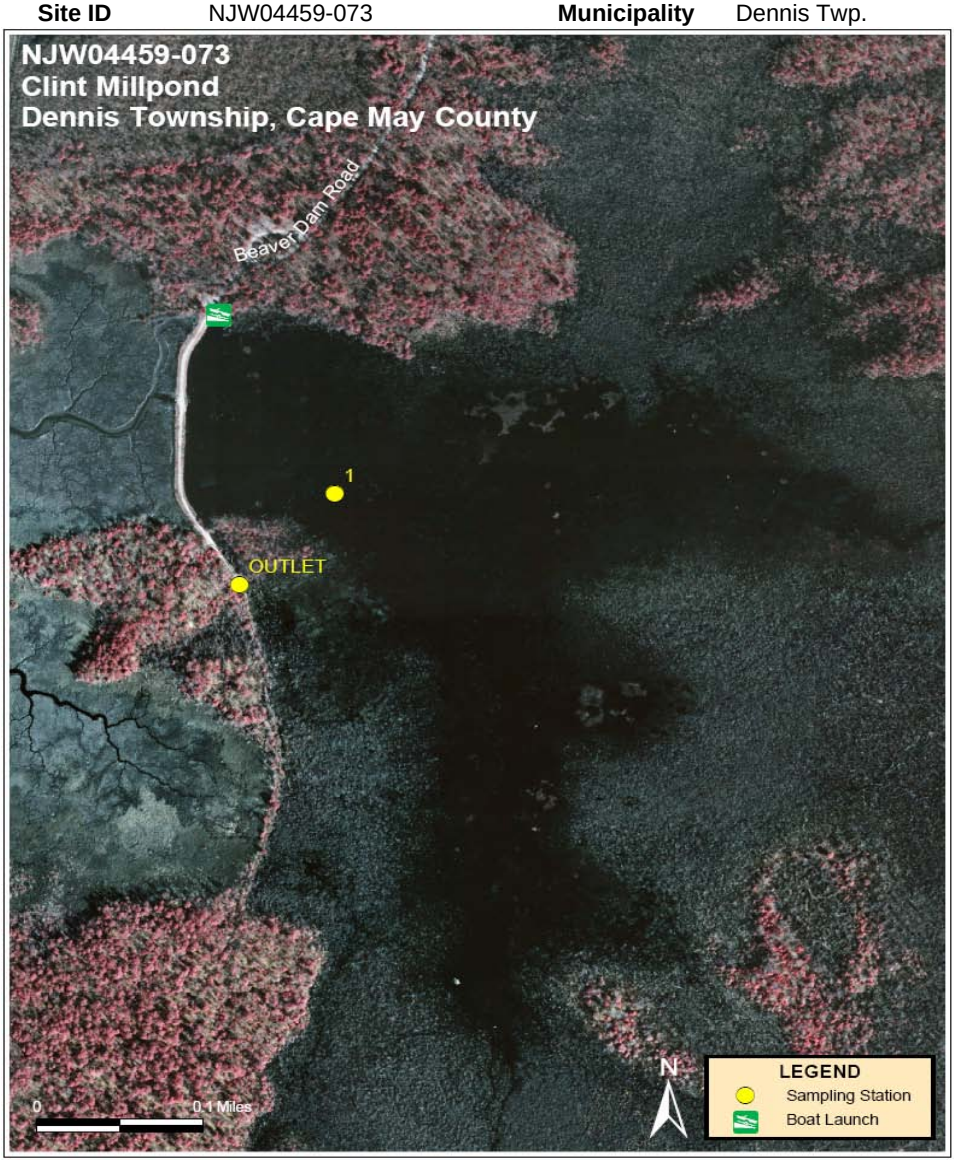
Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Clint Millpond	**County**	Cape May
Site ID	NJW04459-073	**Municipality**	Dennis Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	49.11	63.22	56.16 Eutrophic
Summer Station 1	62.95	42.01	77.35	60.77 Eutrophic
Fall Station 1	ND	49.97	73.2	61.58 Eutrophic

ND - TP concentration below detection limit

Observations

Spring

-located in Beaver Swamp WMA, outlet boarded up and pipe clamped shut, F&W limit travel to portion of lake until 7/31 due to bald eagle nesting

Summer

-cedar water

AMBIENT LAKE MONITORING NETWORK

Lake Name: Clint Millpond **County:** CAPE_MAY

SiteID: NJW04459-073 **Municipality:** DENNIS 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	1.4	1	0.8	12.08	8.52	78.2	4.12	0.076
outlet	0.1	0.1		14.81	9.38	91.3	4.35	0.075

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	1.4	1	0.3	19.46	2.67	29.1	4.33	0.069
outlet	0.1	0.1		20.79	2.93	32.6	4.33	0.068

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	0.4	20.66	4.1	45	4.57	0.087
outlet	0.1	0.1		20.8	2.95	32.5	4.67	0.089

-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: Clint Millpond
County: CAPE_MAY
SiteID: NJW04459-073
Municipality: DENNIS 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	0.646	0.007	0.017	6.6	1	9.209	1.5
outlet	ND	0.673	0.006	0.020	10.3	1	9.003	1.74

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	0.059	1.020	0.025	0.050	3.2	2	8.069	1.94
outlet	0.028	0.876	0.021	0.047	7.3	1	8.061	1.47

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	0.895	0.013	0.115	7.2	2	10.876	4.4
outlet	ND	0.864	0.002	0.026	3.9	1	11.093	2.24

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Cooper River Lake	**County**	Camden
Site ID	NJW04459-047	**Municipality**	Collingswood Boro

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	81.73	68.7	75.13	75.18 Hypereutrophic
Spring Station 2	66.79	72.65	67.36	68.93 Eutrophic
Spring Station 3	68.04	71.99	67.36	69.13 Eutrophic
Summer Station 1	82.5	61.86	73.2	72.52 Hypereutrophic
Summer Station 2	71.26	71.31	73.2	71.92 Hypereutrophic
Summer Station 3	72.32	73.3	69.99	71.87 Hypereutrophic
Fall Station 1	87.82	72.98	77.35	79.38 Hypereutrophic
Fall Station 2	69.35	69.8	67.36	68.84 Eutrophic
Fall Station 3	67.16	69.15	67.36	67.89 Eutrophic

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

AMBIENT LAKE MONITORING NETWORK

Lake Name: Cooper River Lake **County:** CAMDEN

SiteID: NJW04459-047 **Municipality:** COLLINGSWOOD 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	0.6	0.3	0.35	16.55	8.5	87	6.99	0.323
2	1.7	1	0.6	17.41	10.95	114.1	8.42	0.32
3	1.9	1	0.6	17.55	10.08	105.3	8.29	0.301
outlet	4.1	1		17.66	10.4	108.9	8.48	0.298

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	0.6	0.3	0.4	28.99	2.65	34.3	6.69	0.281
2	1.6	1	0.4	30.28	6.75	89	7.58	0.238
3	1.9	1	0.5	29.33	7.01	91.1	7.69	0.219
outlet	4.1	1		29.18	5.8	75.2	7.25	0.219

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	0.5	0.3	0.3	18.44	5.46	57.5	6.83	0.263
2	1.7	1	0.6	19.94	7.69	83.4	7.4	0.245
3	1.8	1	0.6	20.23	7.72	84.2	7.55	0.233
outlet	4	1		20.43	7.76	84.9	7.56	0.229

-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: Cooper River Lake
County: CAMDEN
SiteID: NJW04459-047
Municipality: COLLINGSWOOD 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	0.217	0.625	0.316	0.075	48.6	31	78.671	29.2
2	0.077	0.969	0.006	0.024	72.7	34	69.430	9.55
3	0.084	0.855	0.006	0.043	68	32	60.102	10.4
outlet	0.085	0.871	0.006	0.024	76	38	59.688	12.5

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	0.229	1.120	0.233	0.362	24.2	37	73.992	22.8
2	0.105	0.881	0.015	0.015	63.4	35	64.128	15.8
3	0.113	0.899	0.011	0.015	77.7	31	60.481	15.1
outlet	0.11	0.919	0.023	0.024	71.9	32	60.066	14.5

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	0.331	1.160	0.516	0.182	75.2	38	81.168	35
2	0.092	0.651	0.268	0.024	54.4	41	76.401	9.51
3	0.079	0.618	0.167	0.021	50.9	38	71.510	8.27
outlet	0.063	0.641	0.176	0.032	52.2	37	72.133	8.75

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Crystal Spring Lake	**County**	Gloucester
Site ID	NJW04459-045	**Municipality**	Monroe Twp.

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	66.41	58.62	77.35	67.46 Eutrophic
Summer Station 1	88.41	83.02	93.18	88.20 Hypereutrophic
Fall Station 1	78.54	78.54	83.19	76.93 Hypereutrophic

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

Observations

Spring
-outlet not flowing

Summer
-outlet not flowing

Fall
-outlet not flowing, filamentous algae throughout

AMBIENT LAKE MONITORING NETWORK

Lake Name: Crystal Spring Lake **County:** GLOUCESTER

SiteID: NJW04459-045 **Municipality:** MONROE TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.8	0.5	0.3	16.34	9.2	92.8	7.32	0.167

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	0.5	0.3	0.1	25.98	4.67	57.5	6.83	0.111

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	0.2	19.9	4.92	53.2	6.76	0.058

-Secchi measurements are not recorded for outlets.

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name: Crystal Spring Lake
County: GLOUCESTER
SiteID: NJW04459-045
Municipality: MONROE 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	0.075	0.945	0.006	0.032	17.4	18	14.795	39.8

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	0.345	4.820	0.006	0.033	209.2	15	15.585	138

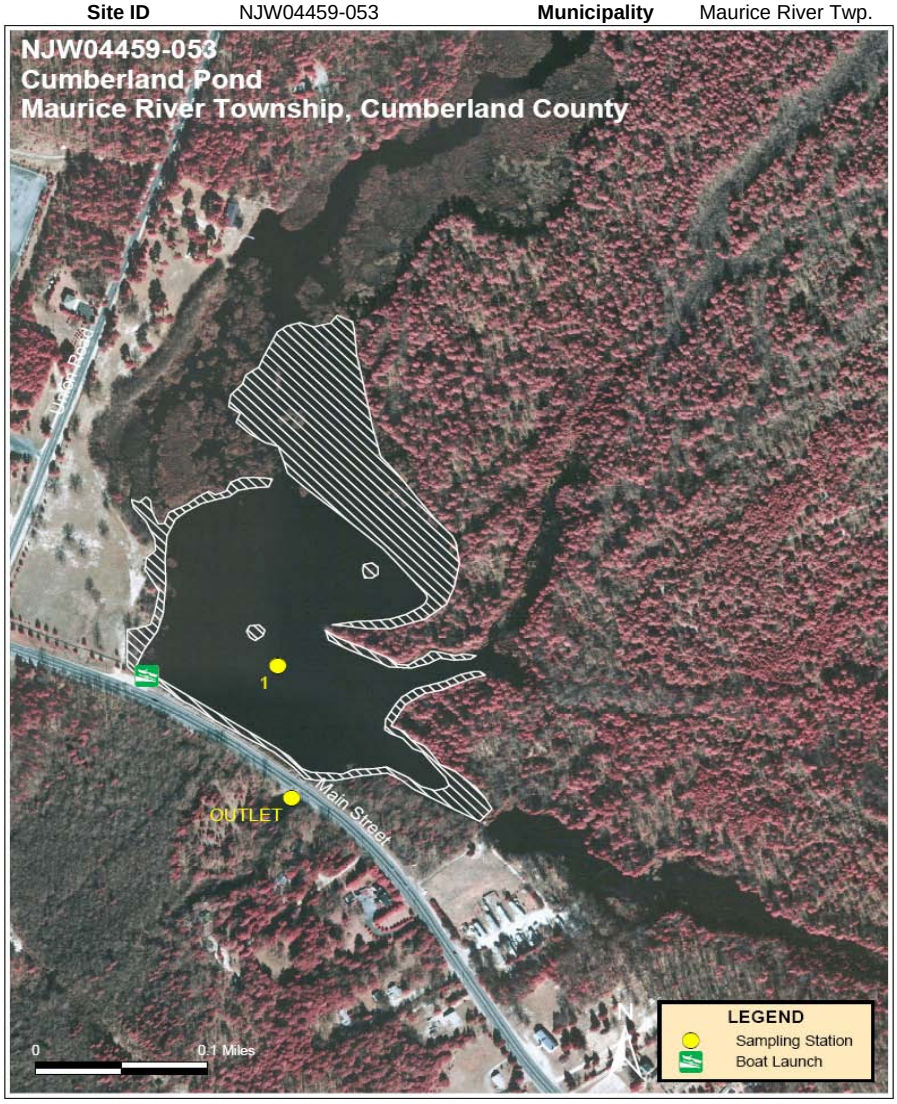
Season: Fall

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	0.174	1.540	0.002	0.063	50.4	14	14.584	32.9

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Cumberland Pond	**County**	Cumberland
Site ID	NJW04459-053	**Municipality**	Maurice River Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	53.48	B	53.48 Eutrophic
Summer Station 1	61.4	68.43	B	64.92 Eutrophic
Fall Station 1	56.22	33.17	B	44.70 Mesotrophic

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

Observations

Spring
-fish ladder at outlet

Summer
-SAV throughout, filamentous algae

Fall
-SAV throughout

AMBIENT LAKE MONITORING NETWORK

Lake Name: Cumberland Pond **County:** CUMBERLAND

SiteID: NJW04459-053 **Municipality:** MAURICE RIVER 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	1	1.1	10.7	9.49	85.2	4.52	0.037
outlet	1.3	0.6		10.18	9.36	83.1	4.57	0.038

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	1.2	17.11	7.77	80.4	4.3	0.033
outlet	1.2	0.6		18	8.79	92.7	4.29	0.032

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	17.59	4.9	51.3	4.42	0.056
outlet	1.6	1.6		18.54	5.24	56.1	4.34	0.057

-Secchi measurements are not recorded for outlets.

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name: Cumberland Pond **County:** CUMBERLAND

SiteID: NJW04459-053 **Municipality:** MAURICE 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	0.261	0.006	0.030	10.3	1	4.271	2
outlet	ND	0.189	0.006	0.029	3.2	1	4.467	1.18

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.053	0.327	0.012	0.016	47.3	1	3.595	3.77
outlet	0.012	0.169	0.011	0.017	2.8	1	3.750	1.01

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.037	0.216	0.017	0.026	1.3	1	4.750	0.95
outlet	0.024	0.250	0.103	0.030	1.4	1	4.639	0.97

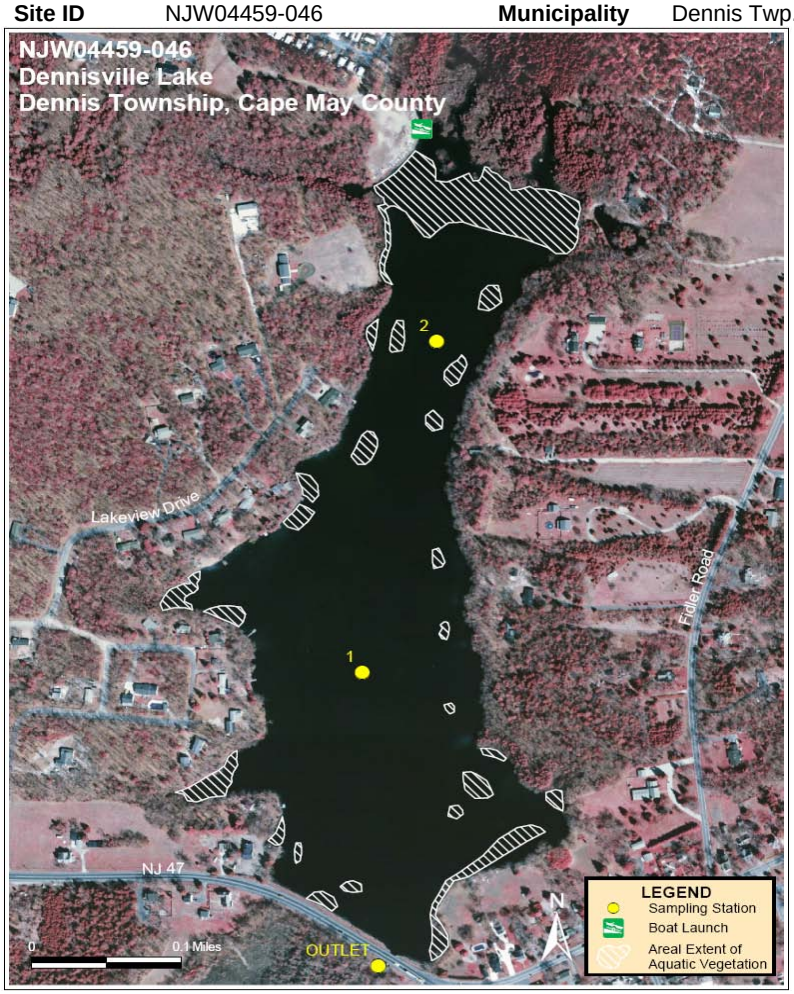
Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Dennisville Lake	**County**	Cape May
Site ID	NJW04459-046	**Municipality**	Dennis Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	33.9	B	33.90 Oligotrophic
Spring Station 2	ND	37.88	B	37.88 Oligotrophic
Summer Station 1	38.73	46.77	B	42.75 Mesotrophic
Summer Station 2	51.13	51.24	B	51.19 Eutrophic
Fall Station 1	ND	45.35	B	45.35 Mesotrophic
Fall Station 2	ND	42.31	B	42.31 Mesotrophic

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

Observations

Spring
-F&W trout stocked

Summer
-turtles

AMBIENT LAKE MONITORING NETWORK

Lake Name: Dennisville Lake **County:** CAPE_MAY

SiteID: NJW04459-046 **Municipality:** DENNIS TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.3	1	1.3	13.39	9.19	86.9	5.98	0.072
2	0.9	0.5	0.9	13.83	9.14	87.1	5.64	0.073
outlet	0.1	0.1		12.64	9.04	84	6.39	0.359

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.3	1	1.3	21.53	7.76	87.9	6.15	0.063
2	0.8	0.4	0.8	21.41	7.78	88	5.76	0.062
outlet	0.2	0.2		21.46	7.28	82.4	6.36	0.064

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	1.3	21.97	8.23	92.7	5.36	0.077
2	0.8	0.4	0.8	21.74	7.4	83	5.21	0.077
outlet	0.4	0.2		22.3	7.4	83.9	5.75	0.186

-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: Dennisville Lake **County:** CAPE_MAY

SiteID: NJW04459-046 **Municipality:** DENNIS 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	0.255	0.291	0.017	1.4	5	13.245	0.53
2	ND	0.296	0.324	0.031	2.1	2	13.269	0.68
outlet	0.021	0.568	0.079	0.040	20.9	58	1718.6	7.8

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	0.384	0.006	0.025	5.2	6	11.336	0.9
2	0.026	0.411	0.034	0.029	8.2		11.370	0.91
outlet	0.011	0.379	0.009	0.031	5		12.164	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	ND	0.353	0.029	0.014	4.5	2	12.427	1.11
2	ND	0.303	0.050	0.021	3.3	2	12.445	0.93
outlet	ND	0.294	0.013	0.043	4.2	4	13.214	1.47

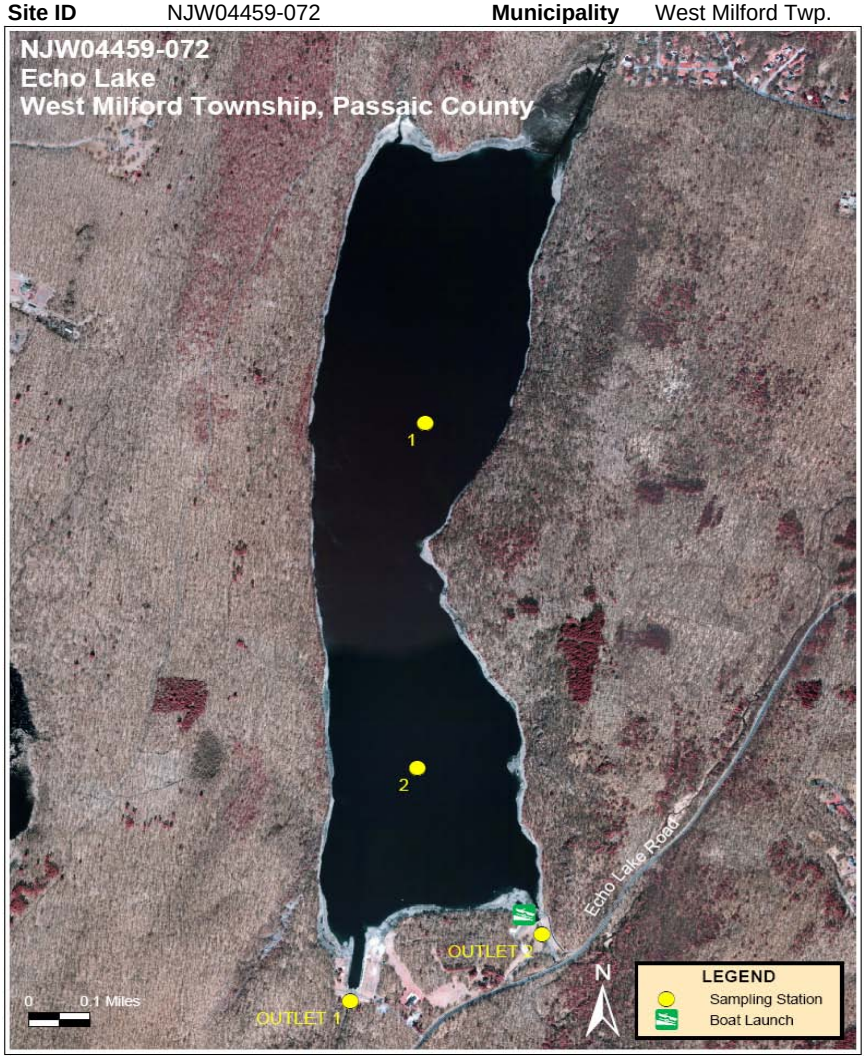
Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Echo Lake	**County**	Passaic
Site ID	NJW04459-072	**Municipality**	West Milford Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	44.13	59.01	58.63	53.92 Eutrophic
Spring Station 2	49.98	59.69	58.63	56.10 Eutrophic
Summer Station 1	54.13	55.76	52.35	54.08 Eutrophic
Summer Station 2	57.7	55.84	53.23	55.59 Eutrophic
Fall Station 1	56.22	61.65	55.15	57.67 Eutrophic
Fall Station 2	57.7	64.66	56.22	59.53 Eutrophic

Observations

Summer
-outlet 1 not flowing, outlet 2 dry

Fall
-outlet 1 not flowing

AMBIENT LAKE MONITORING NETWORK

Lake Name: Echo Lake **County:** PASSAIC

SiteID: NJW04459-072 **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	9.1	1	1.1	14.76	8.21	81.4	7.43	0.155
1	9.1	3	1.1	14.65	8.05	79.6	7.12	0.156
1	9.1	6	1.1	13.89	6.21	60.3	6.92	0.157
1	9.1	7	1.1	11.3	0.98	9	6.31	0.161
2	10.1	1	1.1	14.91	8.2	81.6	7.12	0.155
2	10.1	3	1.1	14.87	7.67	76.2	7.14	0.156
2	10.1	6	1.1	13.58	6.83	67.4	6.99	0.158
2	10.1	7	1.1	12.3	1.78	16.8	6.85	0.16
outlet 1	0.1	0.1		12.01	5.76	53.7	6.79	0.257
outlet 2	0.1	0.1		16.45	7.98	82.3	7.82	0.166

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	9.2	1	1.7	25.26	7.34	91	7.87	0.136
1	9.2	2	1.7	24.83	7.24	89	7.81	0.137
1	9.2	3	1.7	24.62	6.98	85.6	7.69	0.137
1	9.2	4	1.7	22.57	2.79	32.8	7.08	0.136
1	9.2	5	1.7	17.11	1.51	16	6.96	0.144
1	9.2	6	1.7	14.46	0.42	4.2	6.82	0.148
1	9.2	7	1.7	12.9	0.3	2.8	6.71	0.154
1	9.2	8	1.7	11.96	0.19	1.8	6.67	0.163
2	7.7	1	1.6	25.37	6.97	86.6	7.84	0.137
2	7.7	2	1.6	25.16	6.66	82.2	7.57	0.137
2	7.7	3	1.6	24.62	3.9	47.8	6.87	0.137
2	7.7	4	1.6	22.97	0.83	9.9	6.79	0.137
2	7.7	5	1.6	16.17	0.3	3.1	6.83	0.146
2	7.7	6	1.6	13.31	0.39	3.8	6.83	0.153
2	7.7	7	1.6	12.36	0.62	5.9	6.88	0.16

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	9.2	1	1.4	14.84	6.58	66.7	7.46	0.132
1	9.2	2	1.4	14.53	5.8	58.4	7.16	0.132
1	9.2	3	1.4	14.34	5.32	53.4	7.02	0.132
1	9.2	4	1.4	14.22	4.82	48.3	6.96	0.132
1	9.2	5	1.4	14.18	4.92	49.1	6.94	0.133
1	9.2	6	1.4	14.15	4.92	49.2	6.91	0.132
1	9.2	7	1.4	14.01	5.12	51	6.9	0.132
1	9.2	8	1.4	13.86	2.72	27	6.81	0.136
2	8.1	1	1.3	14.88	6.71	68	7.15	0.132
2	8.1	2	1.3	14.46	5.9	59.4	7.07	0.132
2	8.1	3	1.3	14.27	5.65	56.7	7.03	0.132
2	8.1	4	1.3	14.19	5.29	52.9	6.97	0.132
2	8.1	5	1.3	14.06	5.07	50.6	6.93	0.132
2	8.1	6	1.3	14.03	5.11	50.8	6.91	0.133
2	8.1	7	1.3	14	5.1	50.8	6.89	0.133
outlet 2	0.2	0.2		14.84	7.66	77.7	7.54	0.143

-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: Echo Lake
County: PASSAIC
SiteID: NJW04459-072
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	0.016	0.585	0.006	0.008	18.1	18	37.807	3.54
2	0.024	0.662	0.006	0.007	19.4	20	36.754	3.53
outlet 1	0.049	0.673	0.093	0.004	41.6	97	127.1	3.67
outlet 2	0.035	0.769	0.015	0.014	17.5	20	38.279	3.69

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.032	.621	.0082	.011	13	21	38.034	4.31
2	0.041	.673	.0084	.012	13.1	21	37.529	2.92

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	0.037	0.687	0.014	0.092	23.7	24	39.076	2.23
2	0.041	0.777	0.012	0.086	32.2	25	38.570	2.57
outlet 2	0.041	0.735	0.036	0.068	25.9	28	41.653	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 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Farrington Lake	**County**	Middlesex
Site ID	NJW04459-060	**Municipality**	East Brunswick Twp.

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	44.2	B	44.20 Mesotrophic
Spring Station 2	ND	50.37	51.53	50.95 Eutrophic
Spring Station 3	ND	54.21	51.53	52.87 Eutrophic
Summer Station 1	63.89	41.38	B	52.64 Eutrophic
Summer Station 2	63.43	64.65	67.36	65.05 Eutrophic
Summer Station 3	63.19	64.51	65.14	64.28 Eutrophic
Fall Station 1	59.36	47.67	63.22	56.75 Eutrophic
Fall Station 2	62.45	49.83	64.14	59.14 Eutrophic
Fall Station 3	57.34	56.97	61.52	58.61 Eutrophic

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

AMBIENT LAKE MONITORING NETWORK

Lake Name: Farrington Lake **County:** MIDDLESEX

SiteID: NJW04459-060 **Municipality:** EAST BRUNSWICK TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.1	0.9	1.1	9.78	9.73	84.8	6.85	0.341
2	3.7	1	1.8	10	10.1	88.6	7.41	0.481
2	3.7	2	1.8	9.39	10.43	90.2	7.37	0.483
2	3.7	3	1.8	8.46	8.55	72.3	7.03	0.539
3	5.5	1	1.8	9.8	10.7	93.4	8.21	0.573
3	5.5	2	1.8	8.87	10.86	92.7	8.08	0.574
3	5.5	3	1.8	8.29	10.15	85.5	7.63	0.576
3	5.5	4	1.8	8.09	9.74	81.6	7.22	0.58
3	5.5	5	1.8	7.87	8.43	70.2	6.7	0.58
outlet	0.4	0.4		11.84	9.4	86.1	10	0.573

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	0.5	0.25	0.5	18.37	6.37	67.8	6.41	0.148
2	3.6	1	0.6	20.97	6.63	74.3	6.58	0.139
2	3.6	2	0.6	19.63	6.05	65.9	6.47	0.139
2	3.6	3	0.6	19.07	5.88	63.5	6.41	0.133
3	5.1	1	0.7	20.92	6.02	67.5	6.46	0.143
3	5.1	2	0.7	19.7	4.46	49.4	6.36	0.167
3	5.1	3	0.7	18.36	3.43	36.5	6.31	0.184
3	5.1	4	0.7	15.7	2.11	21.3	6.29	0.243
outlet		0.1		20.74	8.17	91.2	6.95	0.155

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.1	0.5	0.8	19.39	5.25	56.2	6.23	0.129
2	3.5	1	0.7	20.18	5.31	57.8	6.37	0.126
2	3.5	2	0.7	19.37	4.91	52.4	6.26	0.123
2	3.5	3	0.7	19.15	4.41	47	6.23	0.125
3	5.4	1	0.9	20.74	5.63	61.9	6.63	0.188
3	5.4	2	0.9	20.27	4.93	53.6	6.57	0.194
3	5.4	3	0.9	19.82	4.36	47.1	6.53	0.195
3	5.4	4	0.9	18.97	2.39	25.5	6.41	0.188
3	5.4	5	0.9	16.17	0.48	4.8	6.65	0.369
outlet	0.4	0.4		20.71	7.37	80.9	7.13	0.208

-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: Farrington Lake **County:** MIDDLESEX

SiteID: NJW04459-060 **Municipality:** EAST BRUNSWICK TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.333	0.903	0.025	4	6	55.506	4.32
2	ND	0.317	0.806	0.011	7.5	26	58.083	2.64
3	ND	0.331	0.749	0.011	11.1	15	57.017	2.88
outlet	ND	0.302	0.748	0.017	6.6	13	56.147	2.41

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.063	0.966	0.336	0.157	3	8	29.713	6.31
2	0.061	0.820	0.394	0.082	31.2	16	27.494	9.61
3	0.06	0.762	0.397	0.133	31.7	16	28.519	8.33
outlet	0.055	0.773	0.404	0.134	36.7	18	29.655	9.37

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	0.046	0.600	0.615	0.100	5.7	14	24.990	8.86
2	0.057	0.525	0.602	0.051	7.1	14	24.470	14.2
3	0.04	0.547	0.379	0.161	14.7	20	34.797	8.35
outlet	ND	0.760	0.311	0.136	23.4	23	39.265	10.9

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Flamingo Lake	**County**	Burlington
Site ID	NJW04459-071	**Municipality**	Evesham Twp.

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	42.31	B	42.31 Mesotrophic
Summer Station 1	48.05	71.1	69.99	63.05 Eutrophic
Fall Station 1	ND	41.38	B	41.38 Mesotrophic

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

AMBIENT LAKE MONITORING NETWORK

Lake Name: Flamingo Lake **County:** BURLINGTON

SiteID: NJW04459-071 **Municipality:** EVESHAM 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	15.98	8.39	84.7	6.79	0.127
outlet	0.2	0.2		16.18	8.41	85.4	6.66	0.128

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	0.5	27.98	7.08	90.2	6.83	0.088
outlet	0.2	0.2		27.52	6.92	87.4	6.61	0.089

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	19.73	8.11	87	6.27	0.102
outlet	0.1	0.1		20.91	8.34	91.6	5.96	0.102

-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: Flamingo Lake
County: BURLINGTON
SiteID: NJW04459-071
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	ND	0.326	1.000	0.045	3.3	9	18.838	3.51
outlet	0.006	0.330	1.030	0.042	3.7	9	18.863	4.3

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.021	0.694	0.268	0.013	62.1	12	19.269	8.22
outlet	0.027	0.865	0.257	0.016	62.9	12	19.485	9.75

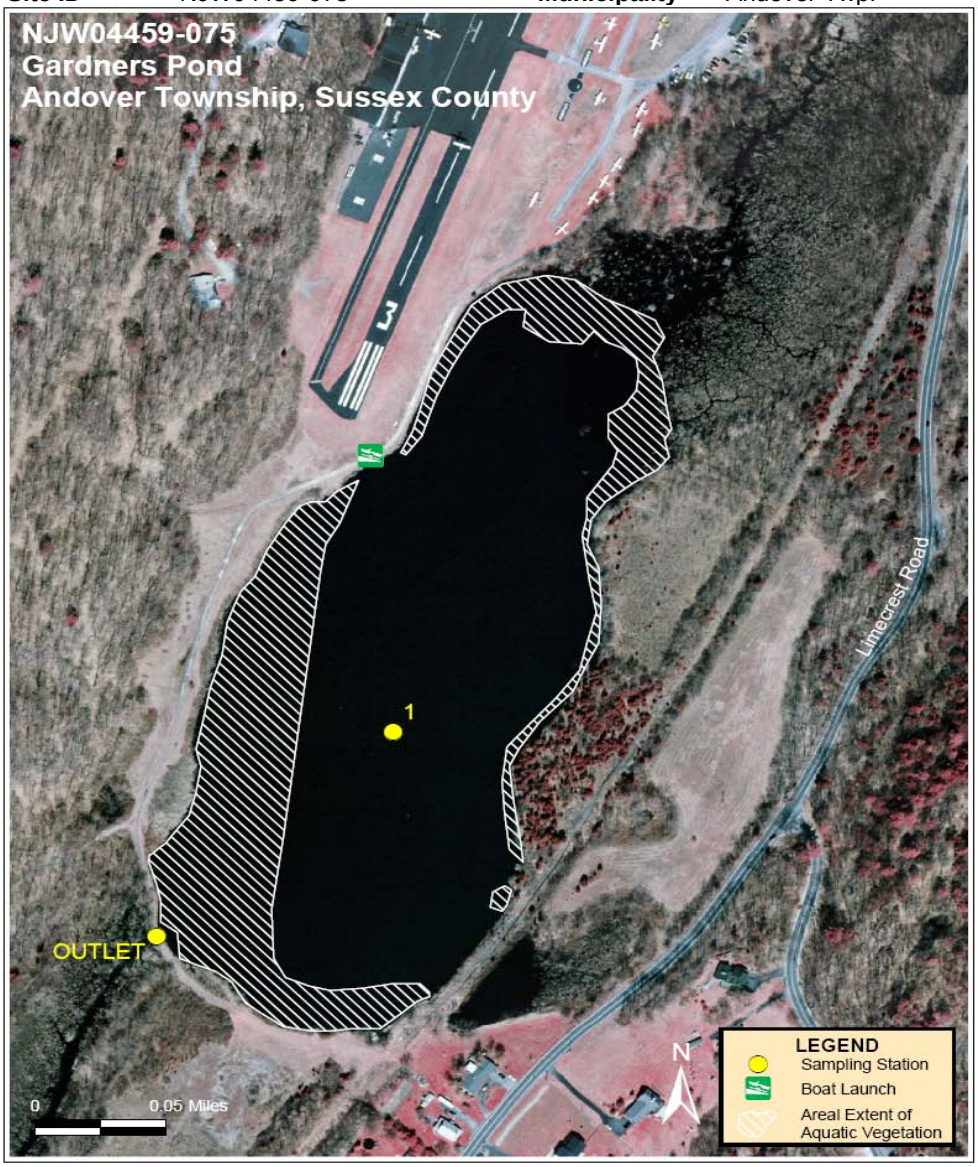
Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.442	0.830	0.170	3	10	18.068	2.97
outlet	ND	0.400	0.779	0.183	2.9	10	18.011	3.4

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Gardners Pond	**County**	Sussex
Site ID	NJW04459-075	**Municipality**	Andover Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	45.83	46.39	48	46.74 Mesotrophic
Summer Station 1	54.13	45.13	41.15	46.80 Mesotrophic
Fall Station 1	45	51.24	46.8	47.68 Mesotrophic

Observations

Spring

-fish, limecrest quarry (closed) is contributing to water level - flowing over portions of dam

Summer

-fish

AMBIENT LAKE MONITORING NETWORK

Lake Name: Gardners Pond **County:** SUSSEX

SiteID: NJW04459-075 **Municipality:** ANDOVER TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	10.2	1	2.3	17.05	7.71	82.6	8.14	0.427
1	10.2	2	2.3	16.87	7.61	81.3	8.13	0.428
1	10.2	3	2.3	15.95	6.45	67.6	7.72	0.437
1	10.2	4	2.3	13.49	9.83	97.7	8.23	0.436
1	10.2	5	2.3	9.35	11.23	101.5	8.29	0.437
1	10.2	6	2.3	7.42	9.4	81	7.87	0.441
1	10.2	7	2.3	6.7	7.25	61.5	7.65	0.441
1	10.2	8	2.3	6.16	4.56	38.1	7.45	0.442
1	10.2	9	2.3	5.8	0.95	7.9	7.31	0.44
outlet	0.8	0.8		17.51	8.06	87.3	8.19	0.427

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	9.5	1	3.7	24.84	5.38	65.8	7.71	0.388
1	9.5	2	3.7	24.71	5.33	65.1	7.67	0.388
1	9.5	3	3.7	24.02	4.09	49.3	7.43	0.391
1	9.5	4	3.7	20.13	8.7	97	7.85	0.389
1	9.5	5	3.7	15.17	19.5	196.9	8.82	0.356
1	9.5	6	3.7	10.71	3.51	31.9	7.45	0.383
1	9.5	7	3.7	8.35	1.44	12.6	7.44	0.415
1	9.5	8	3.7	7.11	0.9	7.6	7.4	0.413
1	9.5	9	3.7	6.57	0.56	4.7	7.27	0.418
outlet	0.3	0.3		24.72	4.09	50	7.45	0.388

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	8.9	1	2.5	16.86	6.63	70.3	7.86	0.425
1	8.9	2	2.5	16.19	6.4	67.1	7.72	0.423
1	8.9	3	2.5	15.75	6.35	65.7	7.69	0.424
1	8.9	4	2.5	15.41	5.36	55.1	7.57	0.424
1	8.9	5	2.5	14.96	3.95	40.3	7.41	0.424
1	8.9	6	2.5	13.59	0.58	5.8	7.18	0.423
1	8.9	7	2.5	10.07	0.43	3.8	7.34	0.48
1	8.9	8	2.5	8.03	0.32	2.8	7.31	0.482
outlet	0.6	0.6		16.55	5.13	54	7.62	0.428

-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: Gardners Pond **County:** SUSSEX

SiteID: NJW04459-075 **Municipality:** ANDOVER TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.018	0.518	0.006	0.004	5	1	173.0	1.06
outlet	0.006	0.525	0.006	0.007	4.8	1	173.7	1.6

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	0.032	0.394	.0059	.008	4.4	151	175.800	0.9
outlet	0.048	0.916	.0144	.023	4.9	150	186.748	7.74

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	0.343	0.003	0.007	8.2	150.0	170.9	1.22
outlet	0.023	0.335	0.003	0.007	5.8	143.0	169.6	1.41

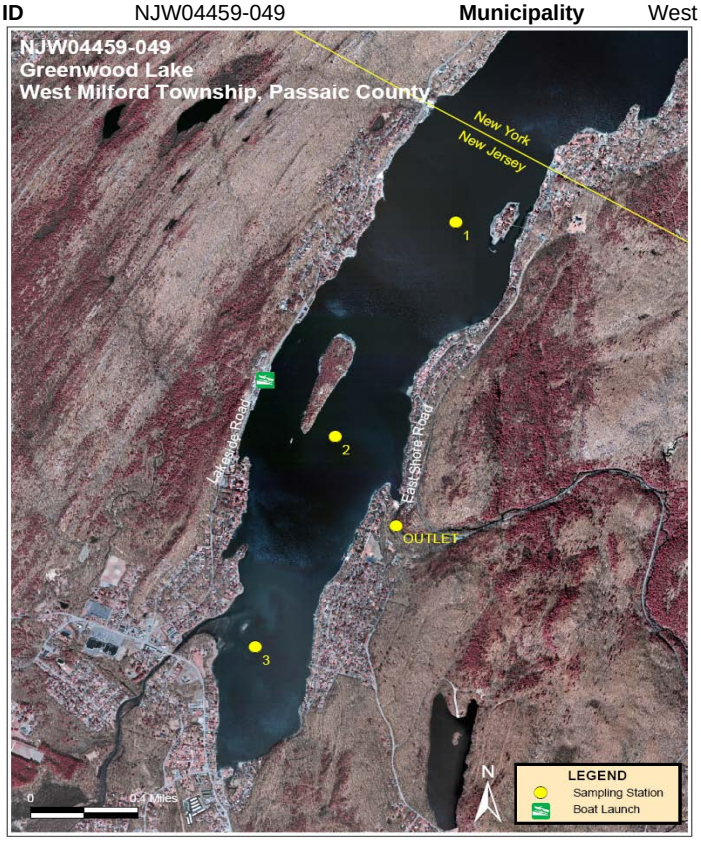
Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Greenwood Lake	**County**	Passaic
Site ID	NJW04459-049	**Municipality**	West Milford Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	56.22	51.36	46.23	51.27 Eutrophic
Spring Station 2	34.14	36.9	O	35.52 Oligotrophic
Spring Station 3	44.13	54.12	O	49.13 Mesotrophic
Summer Station 1	47.35	61.69	53.23	54.09 Eutrophic
Summer Station 2	56.6	63.87	61.52	60.66 Eutrophic
Summer Station 3	64.78	66.08	61.52	64.13 Eutrophic
Fall Station 1	ND	55.22	51.53	53.37 Eutrophic
Fall Station 2	38.73	53.76	52.35	48.28 Mesotrophic
Fall Station 3	54.13	58.45	61.52	58.03 Eutrophic

Total Phosphorus exceeds SWQC threshold (See Datasheet for actual concentration)
ND - TP concentration below detection limit
O - Secchi obstructed by vegetation.

Observations

Spring
-outlet sampled at USGS gauging station on Wanaque River downstream of dam

Fall
-SAV

AMBIENT LAKE MONITORING NETWORK

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

SiteID: NJW04459-049 **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	7	1	2.6	21.6	9.35	106.7	8.55	0.206
1	7	2	2.6	20.12	9.52	105.4	8.44	0.206
1	7	3	2.6	18.23	9.33	99.5	8.17	0.207
1	7	4	2.6	17.47	8.29	87.2	7.85	0.207
1	7	5	2.6	15.16	6	59.8	7.49	0.207
1	7	6	2.6	14.16	5.01	49.1	7.22	0.208
2	2.7	1	2.6	21.38	8.93	101.5	9.5	0.221
2	2.7	2	2.6	15.13	1.58	15.8	7.56	0.234
3	1.8	1	1.7	21.13	5.64	63.4	7.68	0.197
outlet	0.3	0.1		22.92	7.1	83.1	9.21	0.219

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	7.2	1	1.6	22.23	6.87	79.2	7.52	0.183
1	7.2	2	1.6	22.22	6.86	79	7.47	0.183
1	7.2	3	1.6	22.18	6.84	78.8	7.44	0.183
1	7.2	4	1.6	22.14	6.83	78.5	7.42	0.183
1	7.2	5	1.6	22.1	6.75	77.6	7.41	0.183
1	7.2	6	1.6	22	6.75	77.4	7.39	0.183
1	7.2	7	1.6	21.99	0.67	7.7	6.96	0.205
2	2.8	1	0.9	21.13	6.64	74.9	7.3	0.181
2	2.8	2	0.9	21.14	6.48	73.1	7.28	0.181
3	2	1	0.9	20.12	7.52	83.2	7.46	0.176
3	2	2	0.9	21.14	6.48	73.1	7.28	0.181
outlet	0.7	0.7		20.87	7.47	83.8	7.55	0.183

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	7.2	1	1.8	11.89	8.18	77.3	7.51	0.167
1	7.2	2	1.8	11.67	7.73	72.6	7.29	0.166
1	7.2	3	1.8	11.53	7.96	74.6	7.23	0.166
1	7.2	4	1.8	11.48	8	75	7.21	0.166
1	7.2	5	1.8	11.46	8.04	75.2	7.2	0.166
1	7.2	6	1.8	10.38	8.63	78.8	7.25	0.166
2	2.5	1	1.7	8.98	8.86	78.2	7.28	0.157
2	2.5	2	1.7	8.85	8.61	75.9	7.2	0.156
3	1.7	1	0.9	8.43	9.12	79.4	7.22	0.14
outlet	0.7	0.4		8.71	9.51	83.4	7.2	0.153

-Secchi measurements are not recorded for outlets.

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

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

AMBIENT LAKE MONITORING NETWORK

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

SiteID: NJW04459-049 **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	0.037	0.452	0.006	0.009	8.3	31	44.961	1.66
2	0.008	0.284	0.006	0.009	1.9	28	46.449	0.83
3	0.016	0.404	0.008	0.017	11	31	49.427	2.96
outlet	0.042	0.363	0.012	0.028	1.9	26	47.819	1.09

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.02	0.491	0.006	0.019	23.8	29	45.293	3.63
2	0.038	0.667	0.033	0.070	29.7	29	45.582	7.27
3	0.067	0.793	0.083	0.055	37.2	30	43.000	8.69
outlet	0.051	0.649	0.051	0.085	30.7	29	41.756	7.85

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	ND	0.425	0.041	0.173	12.3	31	44.627	2.06
2	0.011	0.357	0.048	0.043	10.6	30	42.459	3.21
3	0.032	0.382	0.074	0.026	17.1	30	44.570	7.24
outlet	0.024	0.352	0.046	0.032	13.5	34	43.458	4.02

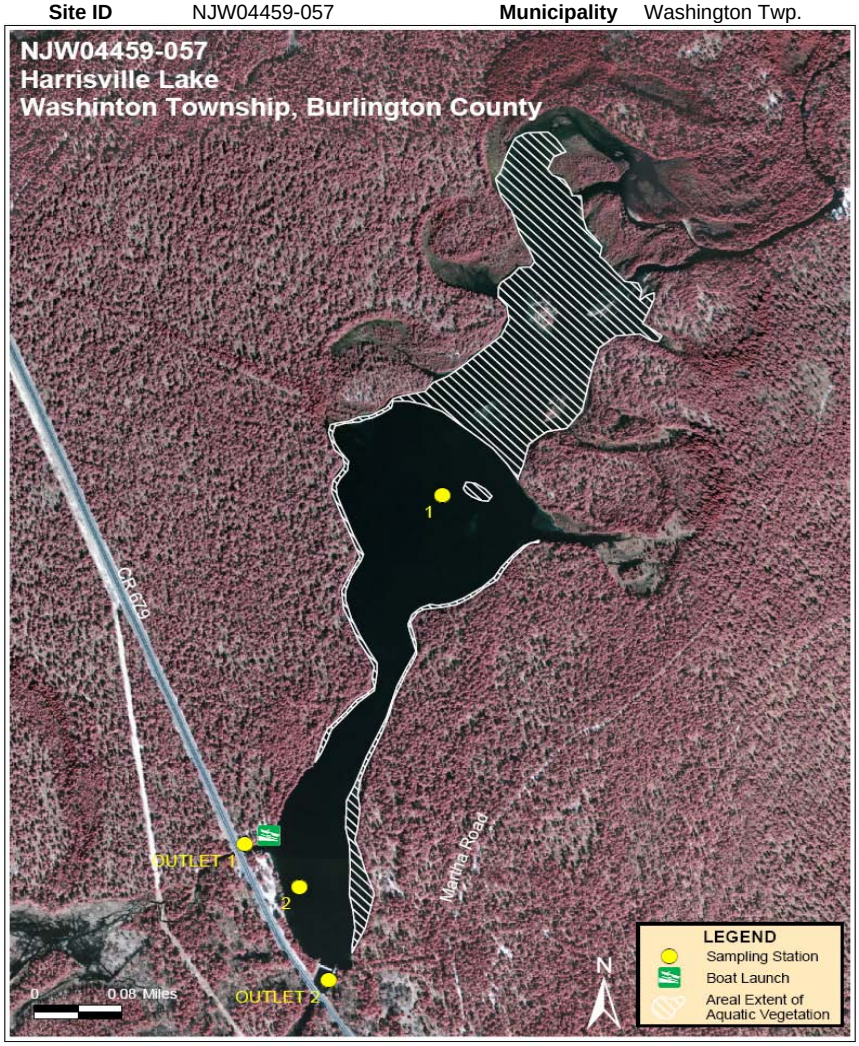
Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Harrisville Lake	**County**	Burlington
Site ID	NJW04459-057	**Municipality**	Washington Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	34.58	B	34.58 Oligotrophic
Spring Station 2	32.21	28.41	B	30.31 Oligotrophic
Summer Station 1	54.57	44.91	O	49.74 Mesotrophic
Summer Station 2	39.98	35.81	54.16	43.32 Mesotrophic
Fall Station 1	ND	28.41	B	28.41 Oligotrophic
Fall Station 2	ND	31.53	61.52	46.53 Mesotrophic

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

Observations

Summer
-fish, SAV

Fall
-filamentous algae mats

AMBIENT LAKE MONITORING NETWORK

Lake Name: Harrisville Lake **County:** BURLINGTON

SiteID: NJW04459-057 **Municipality:** WASHINGTON TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.6	0.3	0.6	14.63	9.22	91.5	4.39	0.033
2	0.7	0.4	0.7	14.75	8.68	86.3	4.41	0.035
outlet 1	0.2	0.2		14.77	8.91	88.7	4.47	0.034
outlet 2	0.4	0.4		15.21	9.06	91	4.39	0.034

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.8	0.4	0.8	26.04	5.77	70.5	4.17	0.035
2	1.9	1	1.5	27.39	5.05	63.2	4.13	0.04
outlet 1	0.4	0.1		28.03	5.64	71.5	4.16	0.038
outlet 2	0.4	0.1		28.15	6.18	78.4	4.12	0.039

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.6	0.3	0.6	14.07	7.66	73	4.28	0.036
2	1.1	0.5	0.9	16.29	7.66	76.6	4.26	0.038
outlet 1	0.2	0.2		15.9	8.17	81	4.22	0.037
outlet 2	0.2	0.2		16.28	8.9	89	4.26	0.037

-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: Harrisville Lake **County:** BURLINGTON

SiteID: NJW04459-057 **Municipality:** WASHINGTON TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.260	0.006	0.012	1.5	1	2.989	1.94
2	0.007	0.209	0.006	0.020	0.8	1	2.913	1.64
outlet 1	ND	0.147	0.006	0.020	1	1	3.028	2.02
outlet 2	ND	0.122	0.006	0.022	1.1	1	2.976	1.84

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.033	0.156	0.006	0.011	4.3	1	2.742	3.72
2	0.012	0.120	0.006	0.008	1.7	1	2.717	2.97
outlet 1	ND	0.127	0.006	0.009	1.5	1	2.717	2.93
outlet 2	0.01	0.116	0.007	0.018	2	1	2.793	3.3

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	ND	0.134	0.004	0.026	0.8	1	2.603	1.95
2	ND	0.085	0.002	0.026	1.1	1	2.688	2.17
outlet 1	0.011	0.065	0.002	0.028	0.9	1	2.735	2.06
outlet 2	0.018	0.167	0.007	0.025	3.3	1	2.786	2.94

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Irisado Lake	**County**	Ocean
Site ID	NJW04459-077	**Municipality**	Brick Twp.

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	34.14	42.89	B	38.51 Oligotrophic
Spring Station 2	37.35	41.38	B	39.37 Oligotrophic
Summer Station 1	ND	57.92	58.63	58.27 Eutrophic
Summer Station 2	54.57	61.9	B	58.23 Eutrophic
Fall Station 1	52.2	59.28	B	55.74 Eutrophic
Fall Station 2	49.36	58.95	57.37	55.23 Eutrophic

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

Observations

Spring
-2 piped outlets, 1 on private property and not able to sample, cedar water

Summer
-cedar water, fish

Fall
-numerous waterfowl, some SAV

AMBIENT LAKE MONITORING NETWORK

Lake Name: Irisado Lake **County:** OCEAN

SiteID: NJW04459-077 **Municipality:** BRICK 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	16.63	7.83	81.2	6.33	0.162
2	1.7	1	1.7	17.16	7.75	81.4	6.68	0.16

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	1.1	26.49	5.92	73.7	6.58	0.119
2	1.3	1	1.3	26.74	5.95	74.3	6.72	0.111

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	1	1.1	21.65	5.3	60.8	6.79	0.111
2	1.5	1	1.2	21.88	5.57	64.4	6.72	0.102

-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: Irisado Lake
County: OCEAN
SiteID: NJW04459-077
Municipality: BRICK 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	0.008	0.305	0.735	0.042	3.5	9	18.405	1.66
2	0.01	0.278	0.552	0.047	3	10	17.877	1.26
outlet	0.011	0.299	0.551	0.049	2.5	10	17.870	1.51

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	.392	.259	.062	16.2	12	18.312	1.94
2	0.033	.415	.107	.047	24.3	11	17.086	2.3
outlet	0.034	.559	.103	.069	39.7	11	17.103	2.81

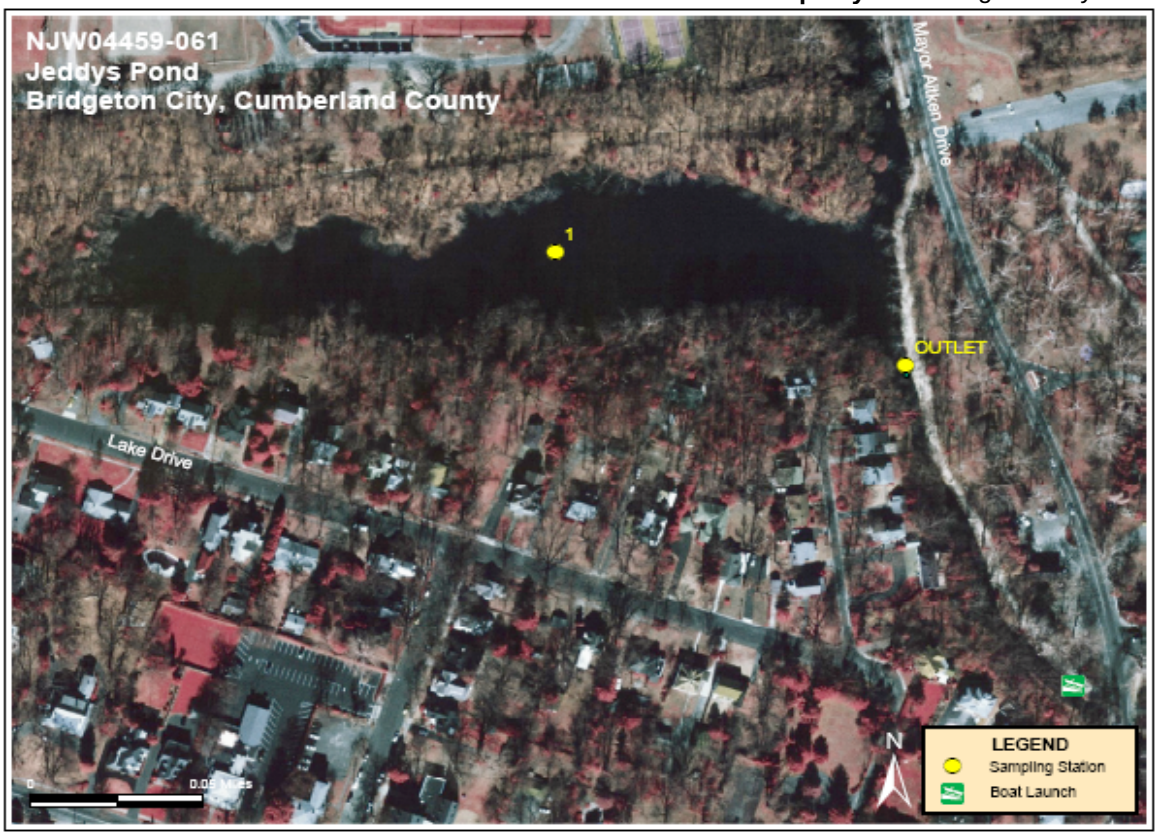
Season: Fall

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	0.028	0.456	0.291	0.083	18.6	12	17.062	5.07
2	0.023	0.512	0.230	0.103	18	10	15.255	2.53
outlet	0.023	0.486	0.241	0.099		11	15.305	2.24

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Jeddy's Pond	**County**	Cumberland
Site ID	NJW04459-061	**Municipality**	Bridgeton City



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	41.14	59.38	60	53.51 Eutrophic
Summer Station 1	80.91	59.28	83.19	74.46 Hypereutrophic
Fall Station 1	58.72	59.48	61.52	59.91 Eutrophic

TP exceeds SWQC threshold (See Datasheet for actual concentration)

Observations

Spring

-no dam at outlet of lake (empties into raceway), turtles

Summer

-water is very cloudy brown, turtles

AMBIENT LAKE MONITORING NETWORK

Lake Name: Jeddy's Pond **County:** CUMBERLAND

SiteID: NJW04459-061 **Municipality:** BRIDGETON 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	2.7	1	1	18.07	8.4	89.8	6.85	0.175
1	2.7	2	1	16.68	6.92	71.9	6.64	0.176
outlet	1.4	0.7		18.3	8.07	86.8	6.9	0.177

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	0.2	24.32	2.15	25.5	6.3	0.104
1	2.8	2	0.2	23.61	0.47	5.5	6.18	0.101
outlet	1.6	1		24.63	3.23	38.8	6.33	0.117

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.7	1	0.9	19.68	6.18	66.6	6.68	0.172
1	2.7	2	0.9	19.56	6.05	65.2	6.61	0.172
outlet	1.5	1		19.73	6.28	67.9	6.66	0.173

-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: Jeddy's Pond
County: CUMBERLAND
SiteID: NJW04459-061
Municipality: BRIDGETON 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	0.013	0.608	3.130	0.024	18.8	17	54.136	5.1
outlet	0.018	0.475	3.300	0.028	16.4	16	55.047	8.79

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	0.205	0.992	0.964	0.143	18.6	15	29.746	70.1
Outlet	0.195	1.040	1.130	0.181	11.4	17	31.473	58.8

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.044	0.311	3.050	0.052	19	20	57.945	6.7
outlet	0.038	0.320	3.340	0.054	10.5	21	59.310	4.92

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Keswick Lake	**County**	Ocean
Site ID	NJW04459-042	**Municipality**	Manchester Twp.

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	39.97	B	39.97 Oligotrophic
Summer Station 1	57.34	45.13	B	51.24 Eutrophic
Fall Station 1	ND	37.88	B	37.88 Oligotrophic

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

Observations

Spring
-SAV, water lillies (spadderdock), turtles, water snake, swan

Summer
-ducks, turtles, sunfish, swan, water cedar brown

Fall
-SAV throughout

AMBIENT LAKE MONITORING NETWORK

Lake Name: Keswick Lake **County:** OCEAN

SiteID: NJW04459-042 **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	1.9	1	1.9	17.86	6.71	72.1	5.82	0.098
outlet	0.1	0.1		20.3	7.52	71.6	6.11	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	1.7	1	1.7	25	8.33	99.2	5.88	0.091
outlet	0.1	0.1		25.27	6.57	78.7	5.97	0.094

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	11.4	8.88	79.5	5.65	0.083
outlet	0.1	0.1		12.63	9.43	86.8	5.8	0.085

-Secchi measurements are not recorded for outlets.

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name: Keswick Lake
County: OCEAN
SiteID: NJW04459-042
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	0.423	0.138	0.026	2.6	3	12.533	1.77
outlet	0.016	0.307	0.144	0.033	2.6	4	12.674	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	0.04	.463	.0079	.010	4.4	5	13.404	1.49
outlet	0.017	0.496	.0507	.041	5.6	5	13.821	2.93

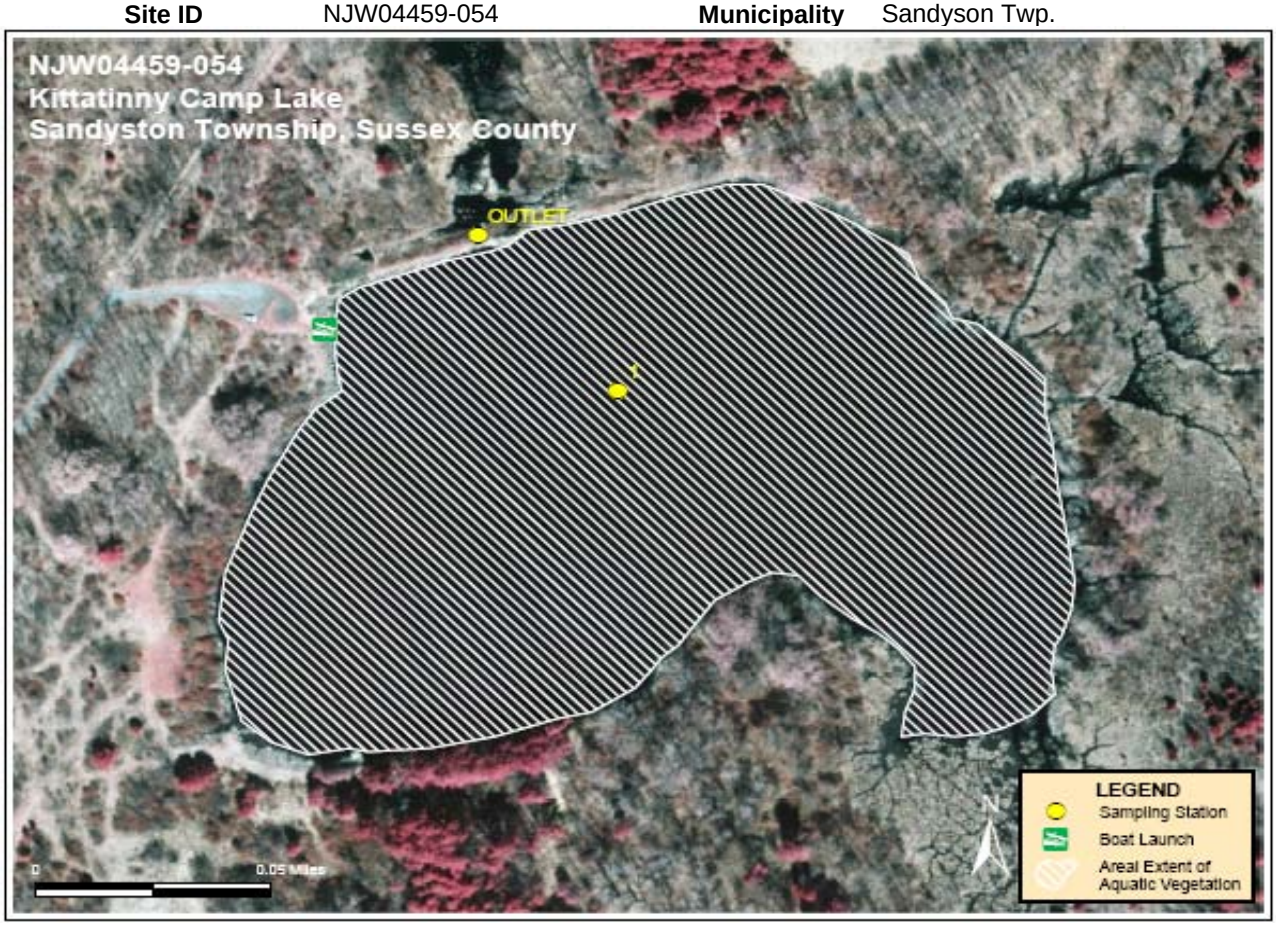
Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.280	0.153	0.019	2.1	4	12.083	0.8
outlet	0.021	0.315	0.133	0.024	1.6	4	12.249	0.93

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Kittatinny Camp Lake	**County**	Sussex
Site ID	NJW04459-054	**Municipality**	Sandyson Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	42.21	45.57	60	49.26 Mesotrophic
Summer Station 1	60.27	64.78	O	62.53 Eutrophic
Fall Station 1	62.45	63.73	O	63.09 Eutrophic

Total Phosphorus exceeds SWQC threshold (See Datasheet for actual concentration)
O - Secchi obstructed by vegetation.

Observations

Spring
-SAV throughout, turtles, filamentous algae, duckweed, beaver dam

Summer
-duckweed, water milfoil, top layer of aquatic veg appears "bleached". Outlet too shallow to sample.

Fall
-duckweed, SAV throughout

AMBIENT LAKE MONITORING NETWORK

Lake Name: Kittatinny Camp Lake **County:** SUSSEX

SiteID: NJW04459-054 **Municipality:** SANDYSTON TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.5	1	1	14.27	11.15	112	8.76	0.221
outlet	0.1	0.1		16.01	7.6	79.3	8.31	0.229

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	0.5	20.29	0.81	9.2	6.84	0.252

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.6	1.1	0.5	16.21	0.92	9.4	7.12	0.205
outlet	0.1	0.1		17.04	5.11	53.5	7.57	0.239

-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: Kittatinny Camp Lake
County: SUSSEX
SiteID: NJW04459-054
Municipality: SANDYSTON 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	0.347	0.006	0.023	4.6	87	103.7	2.77
outlet	0.086	1.930	0.007	0.041	29.8	88	104.0	6.99

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.049	0.790	0.006	0.039	32.6	78	100.6	8.7
outlet	ND	0.467	0.013	0.044	3.2	83	98.401	1.79

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	0.057	1.100	0.002	0.033	29.3	102.0	119.5	9.87
outlet	0.038	0.343	0.035	0.047	5.1	124.0	129.9	2.7

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Lake 31A	**County**	Somerset
Site ID	NJW04459-242	**Municipality**	Hillsborough Twp.

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	64.56	45.35	B	54.96 Eutrophic
Spring Station 2	73.89	47.32	B	60.61 Eutrophic
Summer Station 1	76.11	77.48	69.99	74.53 Hypereutrophic
Summer Station 2	79.43	79.37	73.2	77.34 Hypereutrophic
Fall Station 1	76.4	58.51	B	67.46 Eutrophic
Fall Station 2	78.12	60.79	63.22	67.38 Eutrophic

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

Observations

Spring
-excessive algae growth, SAV, turtles, fish

Fall
-some duckweed, small clumps of algae throughout

AMBIENT LAKE MONITORING NETWORK

Lake Name: Lake 31A **County:** SOMERSET

SiteID: NJW04459-242 **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	0.4	1	17	5.57	58.7	7.14	0.316
2	1	0.5	1	17.21	3.04	32.3	7.09	0.314
outlet		0.5		16.71	4.78	50	7.23	0.315

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	0.5	27.7	4.53	57.4	7.3	0.254
2	0.9	0.5	0.4	27.81	4.63	58.4	7.48	0.256
outlet	1	0.5		27.53	3.3	41.6	7.21	0.256

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.1	0.5	1.1	17.24	4.38	45.6	7.48	0.249
2	1	0.5	0.8	17.01	3.85	39.9	7.31	0.247
outlet	0.2	0.2		17.22	3.98	41.2	7.2	0.25

-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 31A
County: SOMERSET
SiteID: NJW04459-242
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	0.066	0.709	0.010	0.041	4.5	59	91.059	1.8
2	0.126	0.689	0.006	0.020	5.5	65	90.702	2.02
outlet	0.071	0.833	0.008	0.037	15.3	59	90.439	2.83

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	0.147		0.006	0.039	119	59	84.122	13.1
2	0.185	1.780	0.006	0.015	144.3	61	84.660	15.8
outlet	0.183	2.110	0.016	0.100	100.4	65	94.527	17.3

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	0.15	1.700	0.094	0.728	17.2	67	84.395	6.77
2	0.169	1.900	0.064	0.769	21.7	66	85.520	16.9
outlet	0.151	1.870	0.133	0.672	21.7	67	84.436	7.58

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Lefferts Lake	**County**	Monmouth
Site ID	NJW04459-080	**Municipality**	Matawan Boro

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	14.81	43.24	29.03 Oligotrophic
Spring Station 2	ND	33.9	53.23	43.56 Mesotrophic
Summer Station 1	53.2	42.89	45.16	47.08 Mesotrophic
Summer Station 2	32.21	45.13	B	38.67 Oligotrophic
Fall Station 1	44.13	48.34	51.53	48.00 Mesotrophic
Fall Station 2	35.83	48.01	57.37	47.07 Mesotrophic

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

Observations

Spring
-lake extremely green, some SAV, outlet possibly tidal and brackish

Summer
-outlet too shallow to sample (low tide), SAV, many budding macrophytes on shoreline

Fall
-bald eagle, osprey, SAV, outlet not sampled (bridge construction)

AMBIENT LAKE MONITORING NETWORK

Lake Name: Lefferts Lake **County:** MONMOUTH

SiteID: NJW04459-080 **Municipality:** MATAWAN BORO

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	3.6	1	3.2	16.7	8.12	83.7	5.33	0.307
1	3.6	2	3.2	16.68	8.18	84.2	5.37	0.308
1	3.6	3	3.2	16.69	7.76	79.9	5.38	0.308
2	2	1	1.6	16.81	6.82	70.6	5.03	0.262
outlet	0.8	0.5		16.17	8.54	88.8	6.4	5.26

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	2.9	1	2.8	29.37	6.82	89.2	7.01	0.167
1	2.9	2	2.8	28.69	7.08	91.4	6.85	0.166
2	1.8	1	1.8	29.26	7.98	103.9	6.71	0.162

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	3.6	1	1.8	21.34	8.39	95.8	7.16	0.147
1	3.6	2	1.8	20.35	6.25	70	7.16	0.16
1	3.6	3	1.8	20.01	5.67	63.1	7.35	0.162
2	1.3	1	1.2	20.7	8.81	99.3	7.33	0.154

-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: Lefferts Lake
County: MONMOUTH
SiteID: NJW04459-080
Municipality: MATAWAN 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	0.337	0.346	0.247	0.2	1	50.745	1.25
2	ND	0.495	0.247	0.262	1.4	1	46.969	3.99
outlet	ND	0.558	0.305	0.218	2.5	13	533.6	2.65

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	0.03	0.231	0.245	0.015	3.5	11	45.074	1.03
2	0.007	0.246	0.161	0.011	4.4	10	44.040	1.84

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.016	0.284	0.413	0.036	6.1	9	37.950	3.15
2	0.009	0.375	0.442	0.058	5.9	10	43.178	6.92

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

AMBIENT LAKE MONITORING NETWORK

Lake Nam Liberty Lake
Site ID NJW04459-246

County Warren
Municipality Liberty Twp.

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	52.2	49.69	54.16	52.02 Eutrophic
Summer Station 1	62.45	69.06	58.63	63.38 Eutrophic
Fall Station 1	44.13	39.19	50.01	44.44 Mesotrophic

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

Observations

Spring
-SAV throughout

Summer
-SAV on east bank

Fall
-filamentous algae, SAV

AMBIENT LAKE MONITORING NETWORK

Lake Name: Liberty Lake **County:** WARREN

SiteID: NJW04459-246 **Municipality:** LIBERTY TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.2	1	1.5	15.66	12.51	129.3	9.77	0.171
1	2.2	2	1.5	13.97	6.68	66.5	8.56	0.183
outlet	0.3	0.3		19.21	9.72	108.1	9.67	0.175

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	1.1	24.65	3.75	46.6	7.51	0.247
1	2.1	2	1.1	23.45	0.96	11.5	6.9	0.341
outlet	0.1	0.1		25.21	6.64	81.5	7.71	0.245

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	8.44	8.53	74.2	7.67	0.209
1	2.2	2	2	8.66	3.2	28	7.23	0.209
outlet	0.3	0.3		8.58	9.7	84.9	7.52	0.208

-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: Liberty Lake
County: WARREN
SiteID: NJW04459-246
Municipality: LIBERTY TWP

Lake Profile Raw Data

Season: Spring

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.028	0.448	0.006	0.006	7	68	91.120	3.73
outlet	0.02	0.373	0.006	0.018	11.3	69	89.385	3.49

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.057	0.736	0.006	0.009	50.4	96	113.6	5.79
outlet	0.052	0.520	0.038	0.032	11.4	95	109.4	2.1

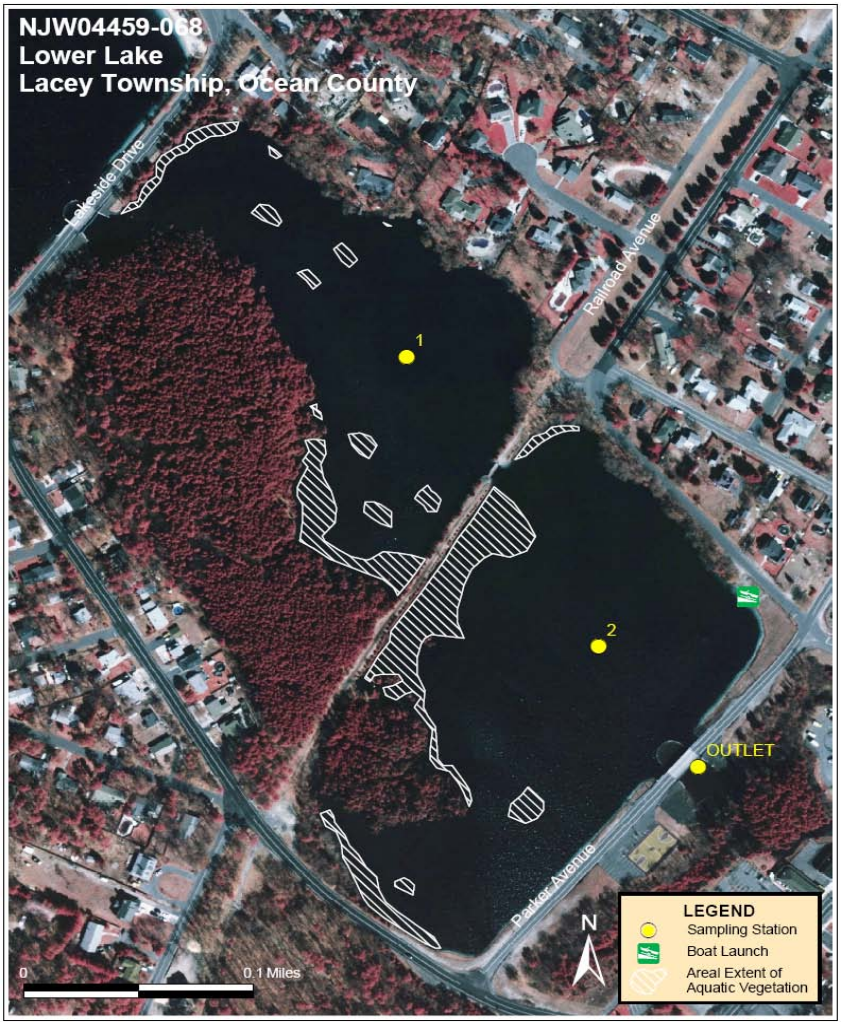
Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.016	0.283	0.009	0.037	2.4	89.800	123.7	2.48
outlet	ND	0.233	0.023	0.019	5.1	90.800	122.8	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 1, Methods.
-A blank parameter result means the parameter could not be analyzed due to laboratory error.

AMBIENT LAKE MONITORING NETWORK

Lake Name	Lower Lake	**County**	Ocean
Site ID	NJW04459-068	**Municipality**	Lacey Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	29.99	44.91	63.22	46.04 Mesotrophic
Spring Station 2	57.7	49.41	63.22	56.77 Eutrophic
Summer Station 1	38.73	56.63	60	51.79 Eutrophic
Summer Station 2	60.85	48.34	O	54.59 Eutrophic
Fall Station 1	ND	65.81	57.37	46.59 Mesotrophic
Fall Station 2	ND	48.81	O	48.81 Mesotrophic

ND - TP concentration below detection limit
O - Secchi obstructed by vegetation.

Observations

Spring
-cedar colored water

Fall
-SAV throughout, cedar colored water

AMBIENT LAKE MONITORING NETWORK

Lake Name: Lower Lake **County:** OCEAN

SiteID: NJW04459-068 **Municipality:** LACEY TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.5	1	0.8	15.13	7.57	75.8	4.53	0.063
2	0.9	0.5	0.8	15.31	7.81	78.6	4.39	0.064
outlet	0.1	0.1		14.98	7.93	79.2	4.6	0.062

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.8	1	1	28.31	3.47	44	4.37	0.063
2	0.9	0.5	0.7	31.28	5.2	69.9	4.5	0.057
outlet	0.1	0.1		30.73	6.19	82.3	4.62	0.057

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	1.2	18.63	6.39	67.3	4.34	0.061
2	0.9	0.5	0.7	18.89	7.69	81.4	4.44	0.06
outlet	0.2	0.2		19.6	8.09	86.8	4.33	0.059

-Secchi measurements are not recorded for outlets.

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name: Lower Lake **County:** OCEAN

SiteID: NJW04459-068 **Municipality:** LACEY 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	0.006	0.376	0.038	0.035	4.3	1	6.137	2.59
2	0.041	0.351	0.037	0.039	6.8	1	6.407	2.91
outlet	ND	0.418	0.036	0.037	4.8	1	6.997	2.34

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.011	0.340	0.010	0.014	14.2	1	5.471	2.68
2	0.051	0.270	0.006	0.015	6.1	1	5.291	1.58
outlet	0.016	0.265	0.006	0.036	6.7	3	6.166	1.76

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	ND	0.275	0.073	0.053	1.7	1	6.125	1.99
2	ND	0.349	0.058	0.025	6.4	1	6.312	2.05
outlet	ND	0.384	0.058	0.070	2.2	1	7.239	1.89

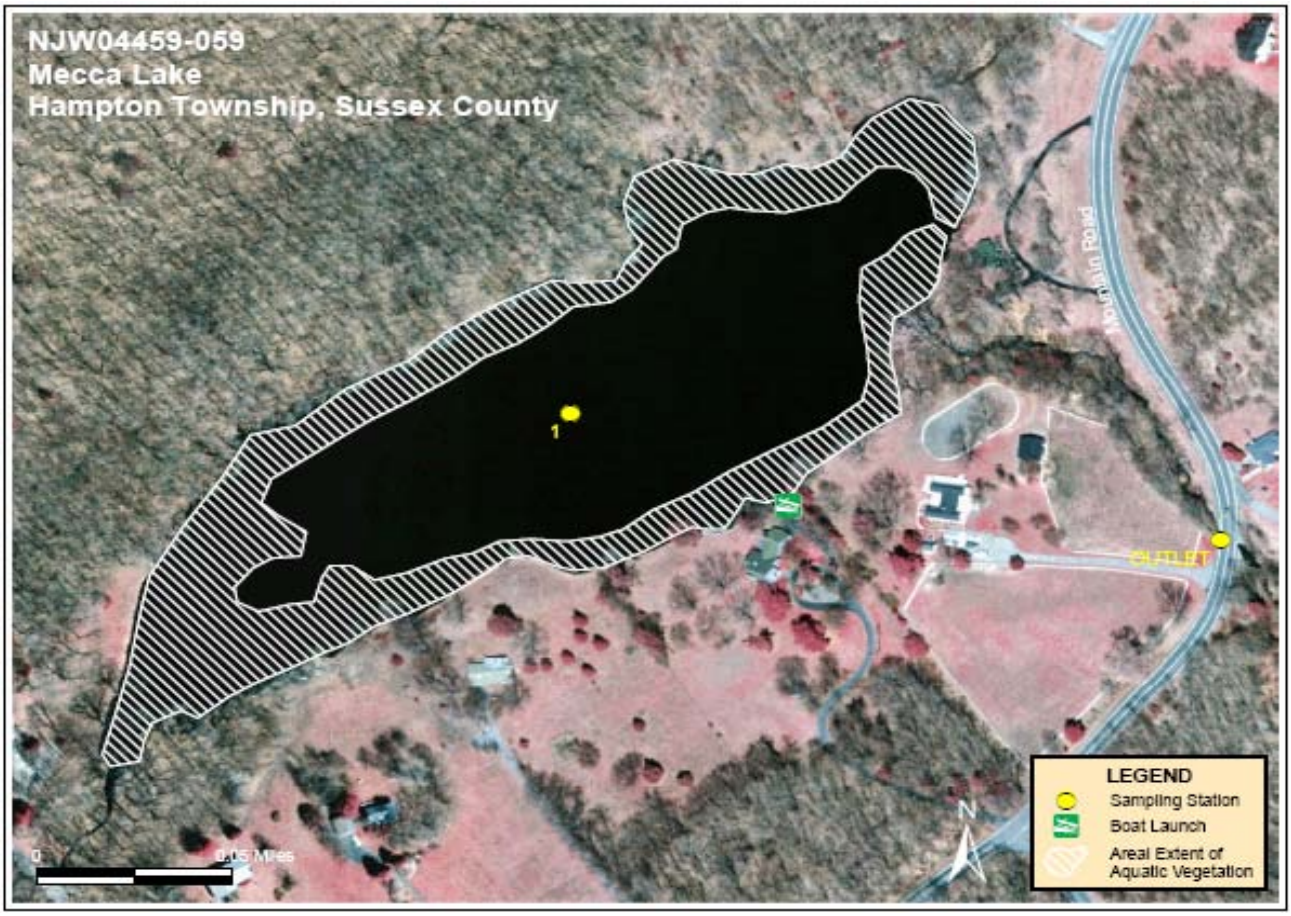
Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Mecca Lake	**County**	Sussex
Site ID	NJW04459-059	**Municipality**	Hampton Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	48.72	58.68	58.63	55.34 Eutrophic
Summer Station 1	46.61	52.58	53.23	50.81 Eutrophic
Fall Station 1	ND	42.01	57.37	49.69 Mesotrophic

ND - TP concentration below detection limit

Observations

Spring

-turtles, decomposing plant/ algae mats, outlet stream sampled at Mountain Rd.

AMBIENT LAKE MONITORING NETWORK

Lake Name: Mecca Lake **County:** SUSSEX

SiteID: NJW04459-059 **Municipality:** HAMPTON 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	2.4	1	1.1	14.96	7.73	78.4	6.09	0.055
1	2.4	2	1.1	13.73	6.05	59.7	5.91	0.05
outlet	0.3	0.2		16.03	8.21	85.1	6.64	0.058

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.4	1	1.6	22.93	4.1	48.5	5.98	0.055
1	2.4	2	1.6	18.86	0.38	4.1	5.67	0.071
outlet	0.1	0.1		21.22	6.59	75.3	6.8	0.087

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	1.2	9.52	6.96	63.4	6.36	0.047
1	2.4	2	1.2	9.42	6.46	58.7	6.22	0.047
outlet	0.3	0.3		9.53	9.89	90.1	6.49	0.049

-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: Mecca Lake
County: SUSSEX
SiteID: NJW04459-059
Municipality: HAMPTON 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	0.495	0.006	0.009	17.5	6	14.208	2.01
outlet	0.022	0.497	0.019	0.008	15.1	9	16.878	2.12

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.019	0.466	0.006	0.009	9.4	8	15.198	1.02
outlet	0.147	0.628	0.149	0.019	3.7	18	27.809	0.92

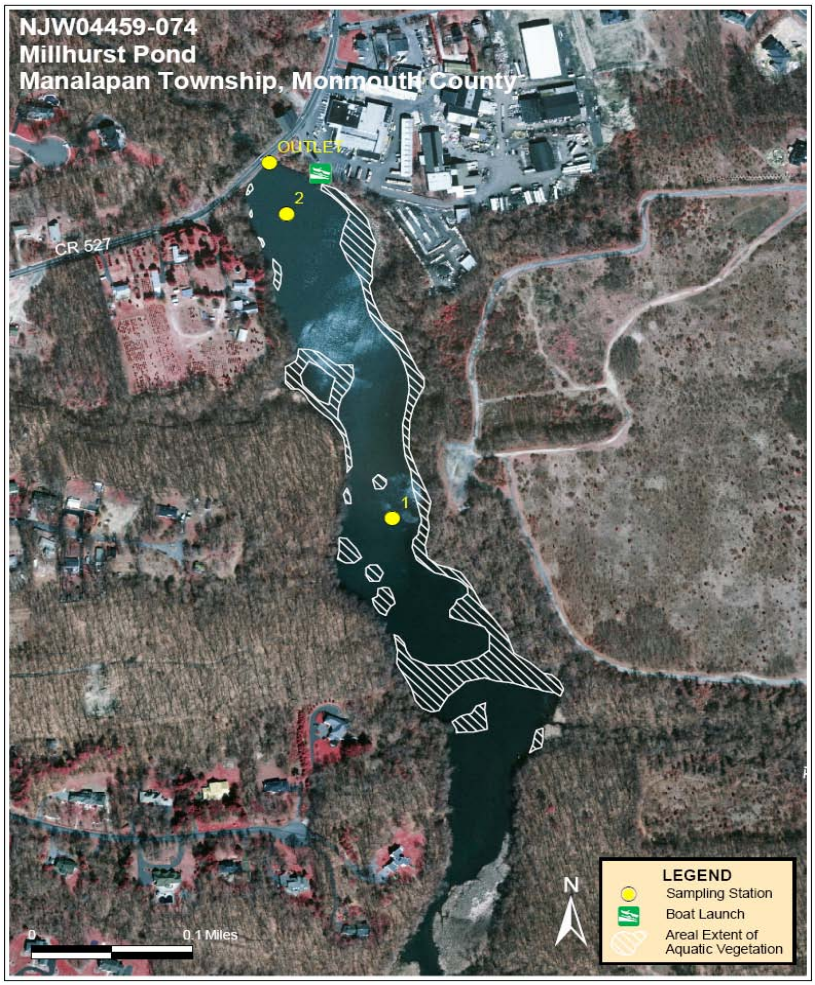
Season: Fall

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	ND	0.397	0.007	0.021	3.2	8.200	14.758	1.04
outlet	0.017	0.332	0.021	0.020	2.8	10.200	15.004	1.06

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Millhurst Pond	**County**	Monmouth
Site ID	NJW04459-074	**Municipality**	Manalapan



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	51.13	48.81	B	49.97 Mesotrophic
Spring Station 2	54.13	55.84	61.52	57.16 Eutrophic
Summer Station 1	60.27	48.18	B	54.22 Eutrophic
Summer Station 2	44.13	46.19	58.63	49.65 Mesotrophic
Fall Station 1	60.85	53.57	69.99	61.47 Eutrophic
Fall Station 2	57.34	49.55	58.63	55.17 Eutrophic

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

Observations

Summer
-SAV throughout

Fall
-SAV throughout

AMBIENT LAKE MONITORING NETWORK

Lake Name: Millhurst Pond **County:** MONMOUTH

SiteID: NJW04459-074 **Municipality:** MANALAPAN TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.6	0.5	0.6	12.72	8.54	80.6	6.59	0.19
2	1.2	1	0.9	14.71	7.63	75.2	6.52	0.179
outlet	0.5	0.5		16.33	9.07	92.5	6.95	0.182

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	0.5	0.2	0.5	28.17	4.45	56.8	6.86	0.233
2	1.2	0.5	1.1	28.93	6.37	82.5	7.21	0.222
outlet	0.1	0.1		29.18	6.12	79.5	7.2	0.224

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	0.5	20.39	7.38	84.4	7.41	0.211
2	1.5	1	1.1	18.86	4.45	48.4	7.07	0.176
outlet	0.1	0.1		23.41	7.2	85.5	7.11	0.201

-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: Millhurst Pond
County: MONMOUTH
SiteID: NJW04459-074
Municipality: MANALAPAN 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	0.026	0.375	0.937	0.098	6.4	12	33.380	8.28
2	0.032	0.545	0.683	0.100	13.1	13	31.920	10.9
outlet	0.026	0.359	0.716	0.089	6	12	31.934	9.1

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	0.049	0.386	0.546	0.032	6	17	41.247	7.69
2	0.016	0.545	0.534	0.033	4.9	19	41.249	4.16
outlet	0.028	0.639	0.566	0.066	3.2	14	41.489	5.34

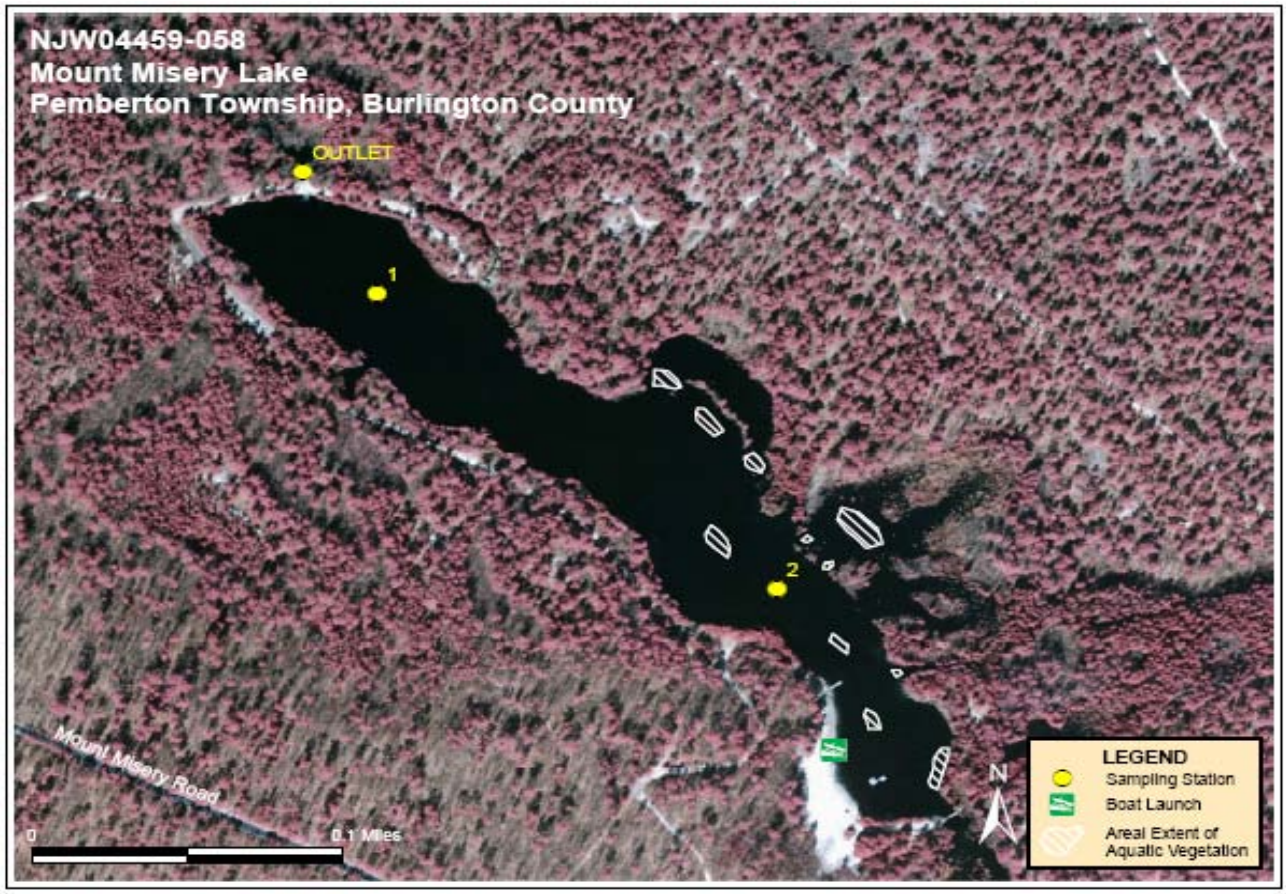
Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.051	0.436	0.896	0.084	10.4	15	37.244	10.1
2	0.04	0.384	0.667	0.048	6.9	14	34.177	6.31
outlet	0.032	0.352	0.690	0.049	3.9	14	34.418	4.83

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Mt. Misery Lake
Site ID NJW04459-058
County Burlington
Municipality Pemberton Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	23.8	B	23.80 Oligotrophic
Spring Station 2	ND	25.59	B	25.59 Oligotrophic
Summer Station 1	34.14	33.9	61.52	43.18 Mesotrophic
Summer Station 2	38.73	36.37	61.52	45.54 Mesotrophic
Fall Station 1	ND	27.1	54.16	40.63 Mesotrophic
Fall Station 2	56.6	25.59	B	41.10 Mesotrophic

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

Observations

Summer
-cedar water

Fall
-beaver dens, excessive foam at outlet, road construction at outlet

AMBIENT LAKE MONITORING NETWORK

Lake Name: Mt. Misery Lake **County:** BURLINGTON

SiteID: NJW04459-058 **Municipality:** PEMBERTON TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.5	1	1.5	6.97	8.53	69.6	5.03	0.041
2	1.3	1	1.3	7.11	8.39	68.6	5.54	0.04
outlet	0.5	0.5		7.52	9.51	78.6	5.99	0.039

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	0.9	15.84	6.06	62.3	4.37	0.036
2	1.4	1	0.9	15.63	5.71	58.4	4.28	0.035
outlet	0.1	0.1		16.11	7.67	79.2	4.27	0.035

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	1.5	17.17	5.78	60.1	4.02	0.059
2	1.3	1	1.3	17.3	6.01	62.8	3.93	0.059
outlet	1.2	1.2		17.21	7.51	78.1	4.23	0.058

-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: Mt. Misery Lake
County: BURLINGTON
SiteID: NJW04459-058
Municipality: PEMBERTON 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	0.165	0.023	0.014	0.5	1	3.163	0.58
2	ND	0.269	0.023	0.012	0.6	1	3.138	0.76
outlet	ND	0.342	0.019	0.012	0.6	1	3.198	0.65

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	0.008	0.373	0.024	0.039	1.4	1	2.720	1.89
2	0.011	0.437	0.022	0.043	1.8	1	2.684	1.5
outlet	0.012	0.347	0.024	0.037	1.7	2	2.807	1.6

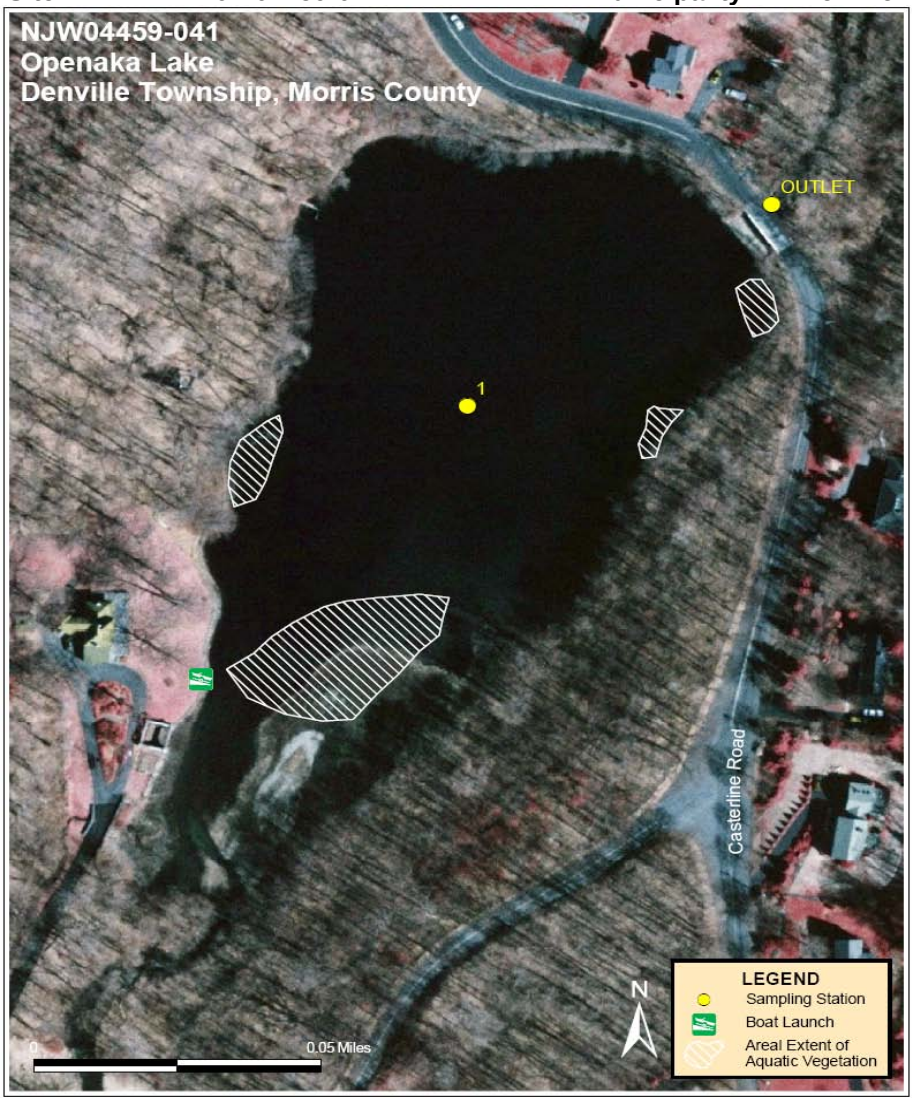
Season: Fall

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	.298	.0185	.021	0.7	1.0	3.333	0.97
2	0.038	.276	.0172	.019	0.6	1.0	3.303	0.89
outlet	ND	.312	.0172	.020	0.7	1.0	3.278	1.32

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Openaka Lake	**County**	Morris
Site ID	NJW04459-041	**Municipality**	Denville Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	35.83	50.23	51.53	45.87 Mesotrophic
Summer Station 1	52.2	51.59	54.16	52.65 Eutrophic
Fall Station 1	48.05	47.84	B	47.95 Mesotrophic

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

Observations

Summer

-turtles, grebes, lillipads, water milfoil (most reaches surface)

AMBIENT LAKE MONITORING NETWORK

Lake Name: Openaka Lake **County:** MORRIS

SiteID: NJW04459-041 **Municipality:** DENVILLE TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2	1	1.8	15.15	7.85	80.2	7.22	0.392
outlet	0.1	0.1		16.25	7.21	75.4	7.57	0.392

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.9	1	1.5	24.34	6.93	82.9	7.03	0.236
outlet	0.2	0.2		25.71	6.94	86	7.26	0.242

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.9	1	1.9	19.65	7.81	86.6	7.17	0.209
outlet	0.2	0.2		21.08	7.83	89.3	7.5	0.214

-Secchi measurements are not recorded for outlets.

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name: Openaka Lake
County: MORRIS
SiteID: NJW04459-041
Municipality: DENVILLE 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	0.009	0.281	0.459	0.033	7.4	26	70.846	2.37
outlet	0.007	0.276	0.460	0.025	15.8	25	66.694	2.01

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.028	0.428	0.331	0.066	8.5	29	54.477	2.47
outlet	0.025	0.425	0.322	0.072	5.2	27	56.470	3.99

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	0.307	0.331	0.042	5.8	29	51.612	1.47
outlet	0.013	0.306	0.311	0.052	3.1	27	52.068	1.16

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Rahway River Park Lake	**County**	Union
Site ID	NJW04459-044	**Municipality**	Rahway City

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	64.12	74.09	69.99	69.40 Eutrophic
Spring Station 2	63.19	74.68	NA	68.93 Eutrophic
Summer Station 1	69.97	66.54	67.36	67.96 Eutrophic
Summer Station 2	70.7	66.31	67.36	68.12 Eutrophic
Fall Station 1	78.12	76.11	65.14	73.13 Hypereutrophic
Fall Station 2	79.51	71.88	O	75.69 Hypereutrophic

Total Phosphorus exceeds SWQC threshold (See Datasheet for actual concentration)
O - Secchi obstructed by vegetation.
NA - Reading not available.

Observations

Summer
-filamentous algae, duckweed, SAV, flowering macrophytes (abundance). Outlet not flowing.

Fall
-ducks, geese, SAV and algae dense throughout, duckweed on 90% of surface

AMBIENT LAKE MONITORING NETWORK

Lake Name: Rahway River Park Lake **County:** UNION

SiteID: NJW04459-044 **Municipality:** RAHWAY CITY

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.5	1	0.5	12.24	12.09	111.6	8.63	0.995
2	1.4	1		12.02	11.83	108.7	8.58	1.011
outlet	0.1	0.1		14.19	9.44	91	8.53	1.005

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	26.19	3.78	46.5	6.75	0.261
2	1.3	1	0.6	25.95	5.9	72.2	6.98	0.245

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	0.7	18.84	4.77	51	7.25	0.179
2	1.3	1	0.2	18.68	0.42	4.5	6.87	0.288
outlet	0.1	0.1		19.28	4.98	53.6	7.03	0.156

-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: Rahway River Park Lake
County: UNION
SiteID: NJW04459-044
Municipality: RAHWAY 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	0.064	1.320	0.142	0.025	84.2	73	133.0	9.18
2	0.06	1.350	0.086	0.024	89.4	71	130.9	9.92
outlet	0.056	0.953	0.137	0.065	46.5	71	129.7	6.95

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	0.096	1.140	0.006	0.008	39	50	63.359	7.96
2	0.101	1.080	0.009	0.010	38.1	96	60.953	8

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.169	0.974	0.002	0.021	103.5	95	55.645	8.21
2	0.186	1.120	0.013	0.042	67.2	42	58.188	38.8
outlet	0.078	0.456	0.139	0.092	13.7	40	49.827	1.65

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Saginaw Lake	**County**	Sussex
Site ID	NJW04459-064	**Municipality**	Sparta Twp.

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	29.99	45.35	46.8	40.71 Mesotrophic
Summer Station 1	51.68	56.35	50.01	52.68 Eutrophic
Fall Station 1	52.2	62.06	55.15	56.47 Eutrophic

Observations

Spring
-filamentous algae

Summer
-snails, fish, treated on 7/31/06 with REWARD and copper sulfate

AMBIENT LAKE MONITORING NETWORK

Lake Name: Saginaw Lake **County:** SUSSEX

SiteID: NJW04459-064 **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	3.8	1	2.5	14.75	7.7	79.7	7.5	0.475
1	3.8	2	2.5	14.09	7.86	80.2	7.45	0.412
1	3.8	3	2.5	12.93	7.91	78.7	7.45	0.415
outlet	0.1	0.1		15.01	8.36	87.1	7.56	0.484

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	3.6	1	2	24.33	7.16	87.7	7.81	0.462
1	3.6	2	2	23.88	5.04	61.2	7.39	0.472
1	3.6	3	2	22.42	1.22	14.4	7	0.458
outlet	0.1	0.1		20.32	5.07	57.5	7.33	0.574

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	3.7	1	1.4	15.94	7.85	81.7	7.73	0.53
1	3.7	2	1.4	15.39	7.68	79	7.64	0.535
1	3.7	3	1.4	14.98	4.83	49.3	7.39	0.548
outlet	0.1	0.1		16.04	6.3	65.8	7.5	0.597

-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: Saginaw Lake
County: SUSSEX
SiteID: NJW04459-064
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	0.006	0.549	0.036	0.024	4.5	146.0	83.358	1.83
outlet	0.017	0.518	0.035	0.027	2.6	31	82.477	2.02

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	0.027	.549	.066	.009	13.8	84	102.434	1.52
outlet	0.065	.606	.200	.117	6.9	109	145.410	2.67

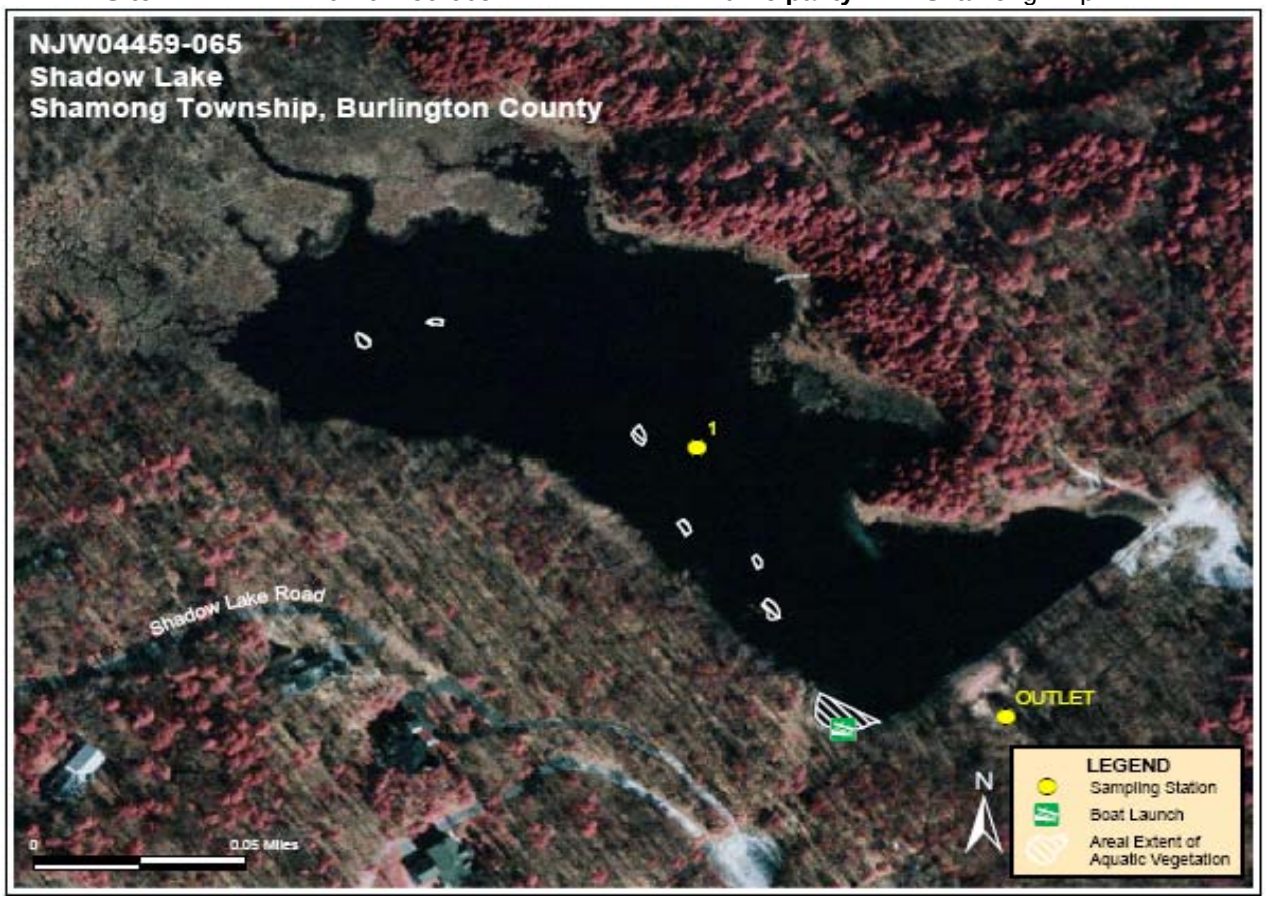
Season: Fall

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	0.028	0.399	0.002	0.009	24.7	80	104.1	3.09
outlet	0.029	0.349	0.099	0.058	9.5	98	129.3	1.82

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Shadow Lake	**County**	Burlington
Site ID	NJW04459-065	**Municipality**	Shamong Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	48.5	B	48.50 Mesotrophic
Summer Station 1	59.04	81.09	63.22	67.78 Eutrophic
Fall Station 1	57.34	63.6	65.14	62.03 Eutrophic

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

Observations

Summer
-SAV throughout, cedar colored water

AMBIENT LAKE MONITORING NETWORK

Lake Name: Shadow Lake **County:** BURLINGTON

SiteID: NJW04459-065 **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	0.9	0.7	0.9	11.32	9.05	81.6	5.44	0.076
outlet	0.3	0.3		13.71	9.74	92.7	5.76	0.076

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	0.8	23.96	6.01	71.1	5.42	0.075
outlet	0.1	0.1		24.91	7.14	85.9	5.63	0.076

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	0.7	19.84	5.95	63.7	5.12	0.1
outlet	0.1	0.1		19.83	6.19	66.3	6.05	0.109

-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: Shadow Lake **County:** BURLINGTON

SiteID: NJW04459-065 **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	0.402	0.455	0.029	6.2	3	14.889	1.87
outlet	ND	0.406	0.449	0.028	6	3	14.591	1.73

Season: Summer

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.045	1.450	0.063	0.013	171.8	6	14.194	4.6
outlet	0.055	0.712	0.070	0.027	22.6	5	14.177	2.74

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	0.800	0.348	0.021	28.9	3	20.389	6.01
outlet	0.042	0.856	0.156	0.191	20.4	15	30.515	2.46

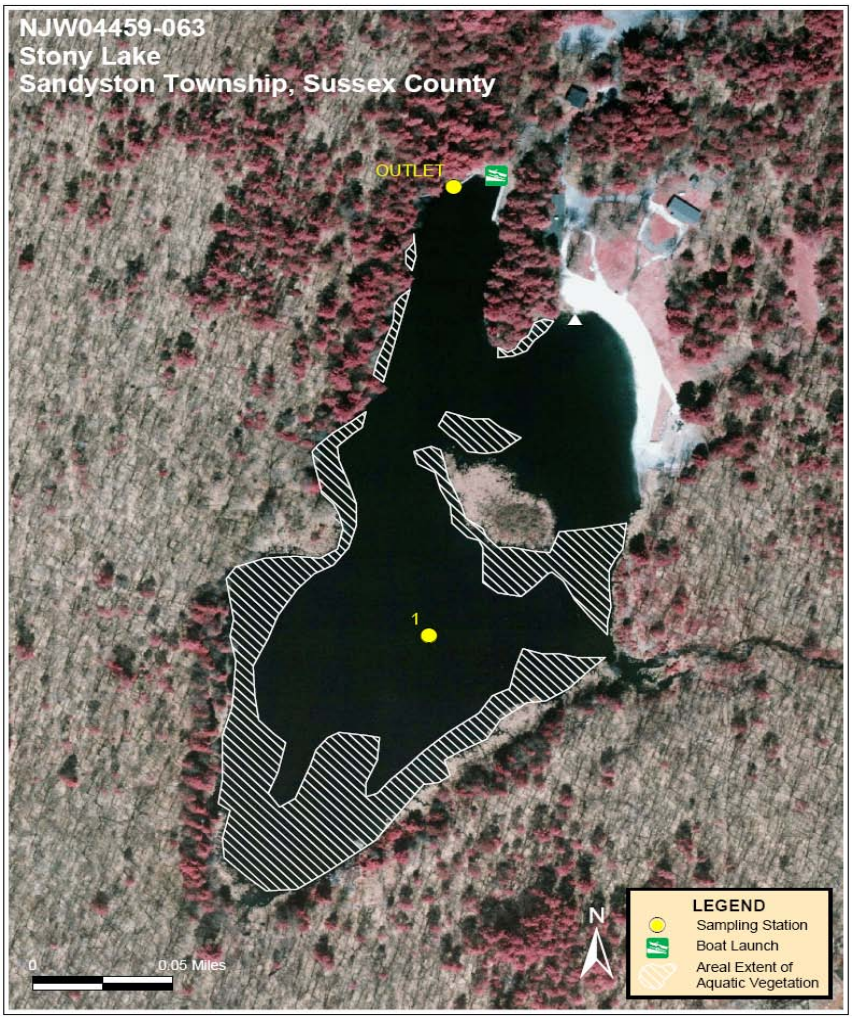
Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Stony Lake	**County**	Sussex
Site ID	NJW04459-063	**Municipality**	Sandyson Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	32.31	36.37	B	34.29 Oligotrophic
Summer Station 1	44.13	55.46	51.53	50.37 Eutrophic
Fall Station 1	41.14	32.39	B	36.76 Oligotrophic

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

Observations

Spring

-beaver, turtles, fish, outfall from filtered artesian well (water is excess flow from well used for restrooms)

Summer

-SAV throughout

Fall

-SAV

AMBIENT LAKE MONITORING NETWORK

Lake Name: Stony Lake **County:** SUSSEX

SiteID: NJW04459-063 **Municipality:** SANDYSTON TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.2	1	2.2	14.35	8.42	84.5	6.07	0.023
1	2.2	2	2.2	12.96	8.34	81.2	5.97	0.023
outlet	0.3	0.3		14.54	8.53	86	6.5	0.025

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	1.8	23.67	4.5	53.9	6.26	0.043
outlet	0.1	0.1		21.49	4.49	51.4	6.72	0.064

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	9.77	8.67	79.5	5.88	0.026
1	2.2	2	2.2	8.54	9.37	83.4	5.78	0.024
outlet	0.2	0.2		9.87	9.59	88.1	6.34	0.027

-Secchi measurements are not recorded for outlets.

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name: Stony Lake **County:** SUSSEX

SiteID: NJW04459-063 **Municipality:** SANDYSTON 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	0.007	0.230	0.007	0.006	1.8		9.609	0.81
outlet	0.008	0.185	0.006	0.006	2.1	5	10.352	0.8

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	0.226	0.006	0.006	12.6	14	18.489	1.43
outlet	0.02	0.207	0.030	0.061	2.6	28	26.908	4.76

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.013	0.046	0.004	0.012	1.2	3.100	9.884	0.56
outlet	ND	0.046	0.003	0.016	1.6	7.100	11.148	0.71

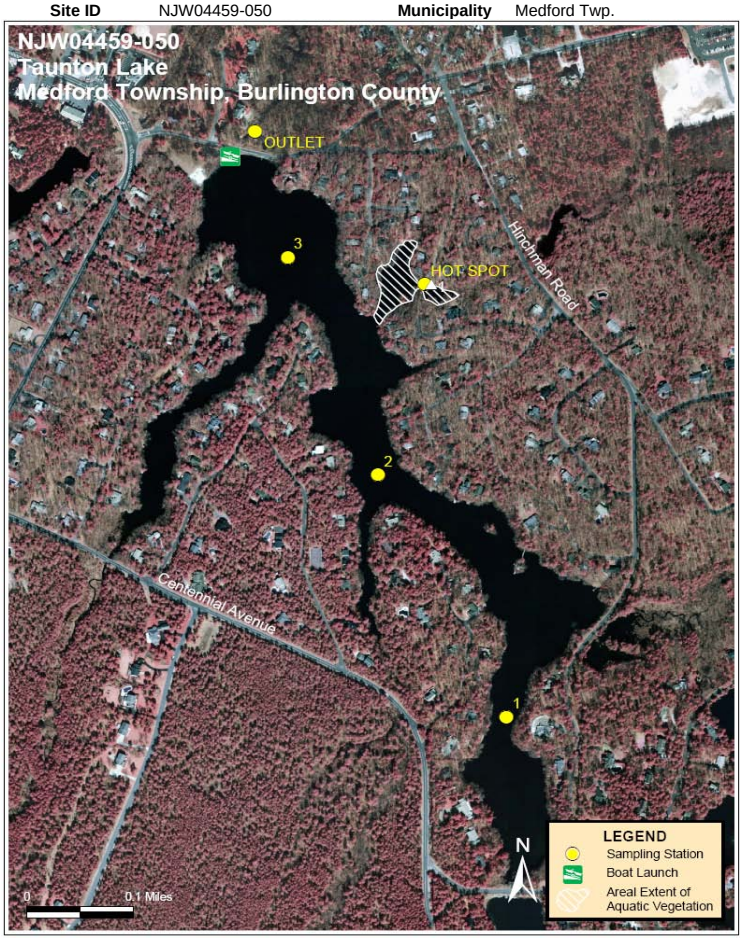
Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name Taunton Lake **County** Burlington
Site ID NJW04459-050 **Municipality** Medford Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	ND	44.91	B	44.91 Mesotrophic
Spring Station 2	42.21	44.44	NA	43.32 Mesotrophic
Spring Station 3	32.21	45.78	NA	39.00 Oligotrophic
Spring Hot Spot	35.83	48.18	NA	42.01 Mesotrophic
Summer Station 1	56.22	59.59	B	57.90 Eutrophic
Summer Station 2	55	57.61	56.22	56.28 Eutrophic
Summer Station 3	57.7	56.97	57.37	57.35 Eutrophic
Summer Hot Spot	73.06	60.61	67.36	67.01 Eutrophic
Fall Station 1	50.57	50.62	65.14	55.44 Eutrophic
Fall Station 2	43.2	45.99	57.37	48.85 Mesotrophic
Fall Station 3	49.98	42.31	56.22	49.50 Mesotrophic
Summer Hot Spot	49.98	55.99	69.99	58.65 Eutrophic

Total Phosphorus exceeds SWQC threshold (See Datasheet for actual concentration)
ND - TP concentration below detection limit
B - Secchi visible to Lake bottom. (See Datasheet for total depth)
NA - Reading not available.

Observations

Summer
-turtles

Fall
-white scum along eastern shore

AMBIENT LAKE MONITORING NETWORK

Lake Name: Taunton Lake **County:** BURLINGTON

SiteID: NJW04459-050 **Municipality:** MEDFORD TWP

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1	0.8	1	10.49	9.76	86.4	5.41	0.07
2	1.7	1		11.6	9.32	84.6	5.11	0.07
3	1.9	1		11.3	8.77	79.1	5.57	0.073
hotspot	1	0.5		7.75	9.8	81.2	4.3	0.083
outlet	0.4	0.4		11.18	10.11	90.9	5.69	0.07

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	1	1.2	21.55	7.25	82.4	5.85	0.075
2	1.5	1	1.3	21.03	6.9	77	5.48	0.075
3	1.8	1	1.2	20.13	5.54	61.2	5.58	0.091
hotspot	0.7	0.5	0.6	17.36	4.86	50.8	4.47	0.076
outlet	0.3	0.3		21.77	6.91	78.8	5.59	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	0.8	0.4	0.7	21.5	6.26	69.3	4.93	0.062
2	1.5	1	1.2	22.02	6.41	71.5	5.12	0.061
3	1.9	1	1.3	22.13	6.23	69.7	5.41	0.072
hotspot	0.6	0.3	0.5	20.93	5.26	57.6	4.95	0.066
outlet	0.5	0.5		21.81	7.02	78.2	5.26	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: Taunton Lake **County:** BURLINGTON

SiteID: NJW04459-050 **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	0.162	0.691	0.024	4.3	3	12.471	1.34
2	0.014	0.139	0.551	0.021	4.1	2	12.132	1.48
3	0.007	0.206	0.495	0.022	4.7	2	14.499	2.25
hotspot	0.009	0.297	0.108	0.021	6	1	8.895	1.31
outlet	0.012	0.304	0.508	0.020	5.1	3	13.760	2.15

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	0.037	0.409	0.080	0.018	19.2	5	10.288	1.69
2	0.034	0.397	0.078	0.015	15.7	4	10.255	2.31
3	0.041	0.402	0.123	0.026	14.7	5	11.310	3.09
hotspot	0.119	1.290	0.063	0.037	21.3	4	10.330	15.7
outlet	0.025	0.462	0.109	0.037	14.1	3	11.691	2.47

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	0.615	0.159	0.065	7.7	2	9.171	4.36
2	0.015	0.474	0.121	0.055	4.8	2	9.378	3.43
3	0.024	0.493	0.170	0.056	3.3	4	11.379	3.32
hotspot	0.024	0.774	0.101	0.066	13.3	2	9.810	5.87
outlet	0.01	0.496	0.161	0.068	4.5	2	11.056	3.66

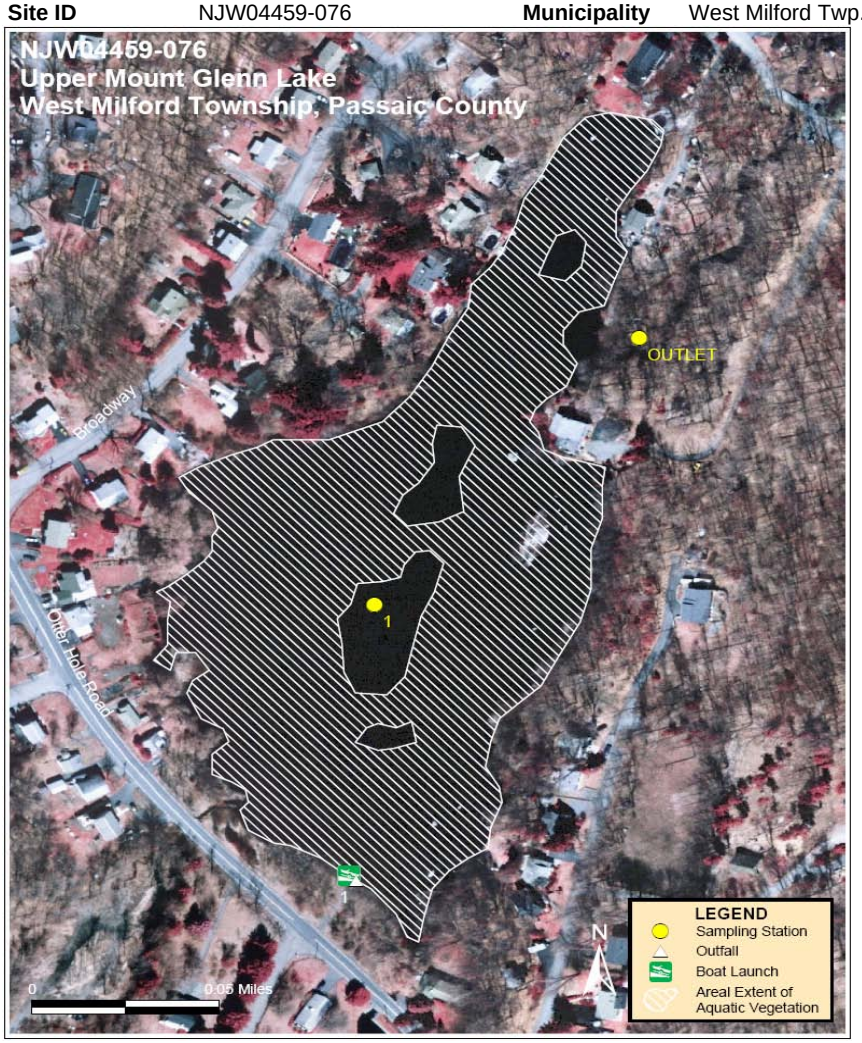
Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Upper Mount Glenn Lake	**County**	Passaic
Site ID	NJW04459-076	**Municipality**	West Milford Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	49.36	44.68	B	47.02 Mesotrophic
Summer Station 1	65	54.47	O	59.73 Eutrophic
Fall Station 1	54.13	56.77	B	55.45 Eutrophic

B - Secchi visible to Lake bottom. (See Datasheet for total depth)
O - Secchi obstructed by vegetation.

Observations

Spring
-excessive filamentous algae, lillies, frogs, geese, ducks, tea colored water

Summer
-SAV throughout, sediment from storm run-off, outlet not flowing

Fall
-SAV throughout

AMBIENT LAKE MONITORING NETWORK

Lake Name: Upper Mount Glenn Lake **County:** PASSAIC

SiteID: NJW04459-076 **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	0.5	1	13.48	8.42	81.2	7.35	0.274
outlet	0.2	0.2		13.97	8.34	81.3	7.36	0.31

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	0.5	20.84	3.38	38.6	7.05	0.535

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.1	0.5	1.1	13.48	7.88	77.6	7.25	0.526
outlet	0.3	0.3		13.07	8.2	80.1	7.17	0.316

-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: Upper Mount Glenn Lake
County: PASSAIC
SiteID: NJW04459-076
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	0.518	0.567	0.066	4.2	25	52.133	1.57
outlet	0.012	0.583	0.580	0.100	6.3	30	58.480	1.76

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	0.068	.571	.0067	.012	11.4	69	123.231	3.45

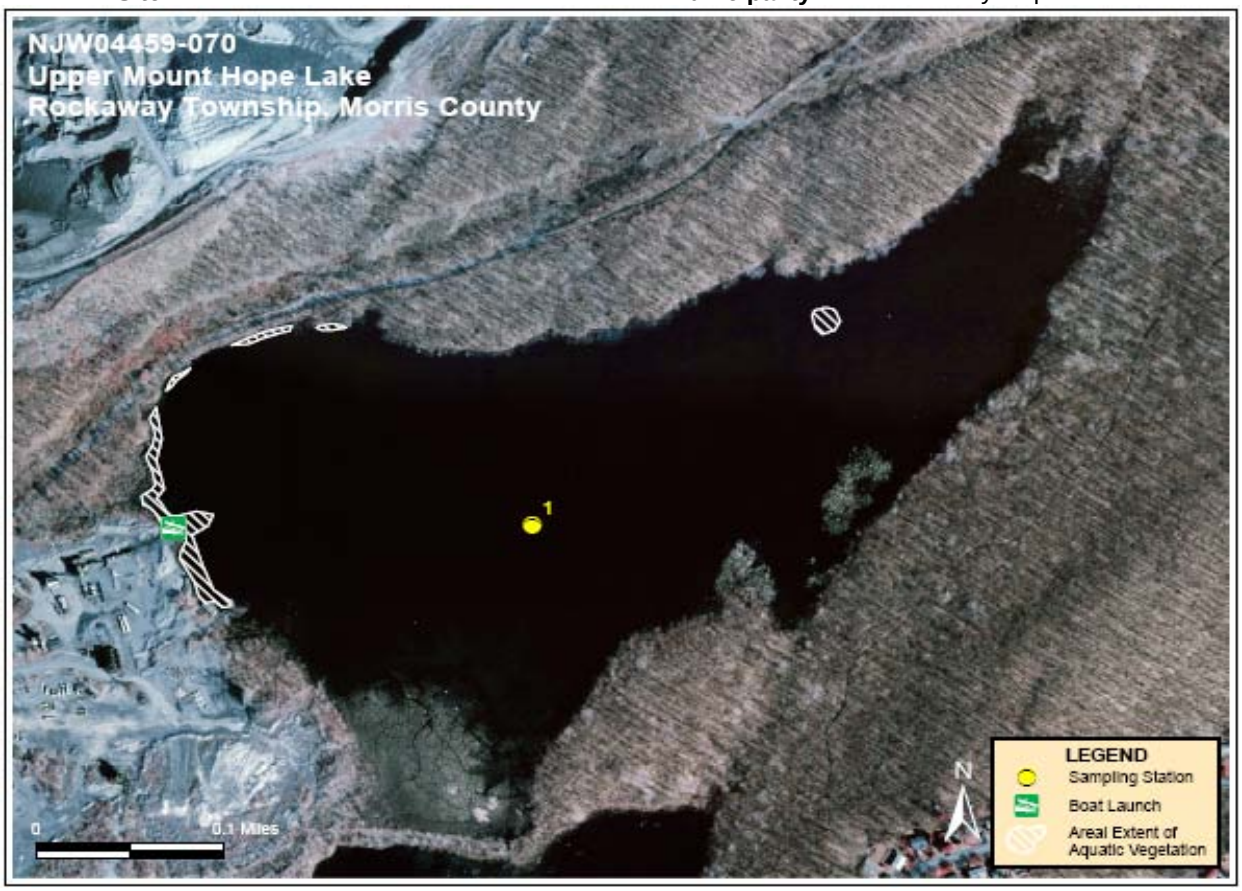
Season: Fall

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	0.032	0.733	0.551	0.171	14.4	64	104.7	1.72
outlet	0.03	0.584	0.345	0.077	10.4	46	69.768	1.14

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Upper Mount Hope Lake	**County**	Morris
Site ID	NJW04459-070	**Municipality**	Rockaway Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	60.56	43.7	65.14	56.47 Eutrophic
Summer Station 1	46.61	54.3	O	50.45 Eutrophic
Fall Station 1	38.73	47.14	B	42.94 Mesotrophic

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

Observations

Spring
-highly vegetated on bottom of entire lake, no outlet observed, possible lake to lake outlet, drainage ditch on north side of boat launch

Summer
-excess SAV throughout, swans, fish, ducks, heron, filamentous algae covers approx 50% of lake

Fall
-some SAV

AMBIENT LAKE MONITORING NETWORK

Lake Name: Upper Mount Hope Lake **County:** MORRIS

SiteID: NJW04459-070 **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	1.7	1	0.7	16.3	7.59	77.8	9.96	0.3

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	1.6	1	1.6	26.02	3.8	47.8	7.69	0.278

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.5	1	1.5	17.9	7.58	81.8	7.92	0.293

-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: Upper Mount Hope Lake **County:** MORRIS

SiteID: NJW04459-070 **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	0.05	0.681	0.006	0.020	3.8	37	80.857	2.11

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	0.019	0.638	0.006	0.004	11.2	56	83.223	1.46

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	0.455	0.004	0.029	5.4	83	116.0	1.39

Sample Device - Horizontal Polycarbonate Sampler

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

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

AMBIENT LAKE MONITORING NETWORK

Lake Name	Watchung Lake	**County**	Somerset
Site ID	NJW04459-245	**Municipality**	Watchung Boro

Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Spring Station 1	32.21	58.68	58.63	49.84 Mesotrophic
Summer Station 1	65	68.94	63.22	65.72 Eutrophic
Fall Station 1	61.67	53.76	51.53	55.65 Eutrophic

TP exceeds SWQC threshold (See Datasheet for actual concentration)

Observations

Spring

-filamentous algae

Fall

-algae along banks

AMBIENT LAKE MONITORING NETWORK

Lake Name: Watchung Lake **County:** SOMERSET

SiteID: NJW04459-245 **Municipality:** WATCHUNG BORO

Surface to Bottom Profile

Season: Spring

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.4	1	1.1	22.98	8.78	102.8	8.34	0.458
1	2.4	2	1.1	15.96	6.75	68.4	7.29	0.44
outlet	0.2	0.1		25.23	5.99	72.9	7.98	0.452

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	0.8	27.38	9.7	120.7	8.57	0.355
1	2.3	2	0.8	25.92	7.99	91.4	7.89	0.378
outlet	1	0.1		28.54	5.04	64.6	8.22	0.355

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.7	1	1.8	16.48	7.21	73.6	7.31	0.302
1	2.7	2	1.8	16.07	5.45	56.4	7.24	0.317
outlet	0.1	0.1		16.37	7.55	77.3	7.48	0.314

-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: Watchung Lake
County: SOMERSET
SiteID: NJW04459-245
Municipality: WATCHUNG 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	0.007	0.468	0.291	0.017	17.5	66	144.2	3.22
outlet	0.03	0.494	0.333	0.050	11.7	68	145.9	2.98

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	0.068	0.979	0.006	0.017	49.8	68	128.9	9.51
outlet	0.057	0.654	0.069	0.033	24.5	71	128.9	5.57

Season: Fall

Station	Tot Phos (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	0.054	0.478	0.554	0.204	10.6	64	110.7	4.98
outlet	0.05	0.405	0.736	0.089	5.9	61	116.4	4.19

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