



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



# **AMBIENT LAKES MONITORING NETWORK**

**Panel 1**

**Volume 1 of 2**



**September 2008**

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September 2008

## **AMBIENT LAKES MONITORING NETWORK**

### **Panel 1**

**(Calendar Year 2005)**

### **Volume 1 of 2**

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## EXECUTIVE SUMMARY

The NJ Department of Environmental Protection (NJDEP) initiated a renewed ambient lake monitoring network in 2005. This renewed 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 <sup>[12]</sup> of the state's water monitoring programs, recommendations from EPA's "Elements of a State Water Monitoring and Assessment Program" (March 2003) <sup>[10]</sup>, as well as needs identified by the Department's Watershed Management and Water Quality Assessment programs.

Lakes were selected randomly, using EPA's Generalized Random Tessellation Stratified (GRTS) survey design, but in a manner that equalizes selections over all Omerik Level III Ecoregions <sup>[8]</sup>, 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; in this case the population being New Jersey named lakes. Based on available resources, the network consists of 200 lakes, divided into five Panels of 40 lakes each.

Data is collected to evaluate 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 trend and statewide status, information for New Jersey lakes. Water quality monitoring will take place at up to three in-lake stations that best represent the limnological aspects of the lake. Sites are expected to be sampled three times per year (spring, summer, fall).

In 2005, 40 Panel 1 lakes were sampled. One lake (Menantico Sand Ponds) was, however, deleted from the Panel after sampling was completed because results showed that the lake was under tidal influence, which did not fit the criteria for lake selection. Therefore only 39 lakes were considered sampled for Panel 1. Although the design calls for sampling in the Spring, Summer and Fall, a delay in certification of the analytical lab used resulted in only the Summer and Fall samplings for this Panel.

Of the final 39 lakes that were sampled in 2005, 19 lakes exceeded the New Jersey Water Quality Criteria <sup>[7]</sup> <http://www.state.nj.us/dep/wms/bwqsa/swqs.htm> for total phosphorus (TP) of > 0.05 mg/L from at least one in-lake station. When the TP exceeds the SWQC for two sampling visits, the lake is listed as "non-support of aquatic life use" in the New Jersey Integrated Water Quality Monitoring and Assessment Report (Integrated Report) <sup>[6]</sup> <http://www.state.nj.us/dep/wms/bwqsa/generalinfo.htm> .

Very low dissolved oxygen levels (the SWQC of < 4.0mg/l) were observed in some lakes in the mesotrophic-through-hypereutrophic range during the summer months. When the DO exceeds the SWQC for two sampling visits, the lake is listed as "non-attainment of aquatic life use" in the Integrated Report.

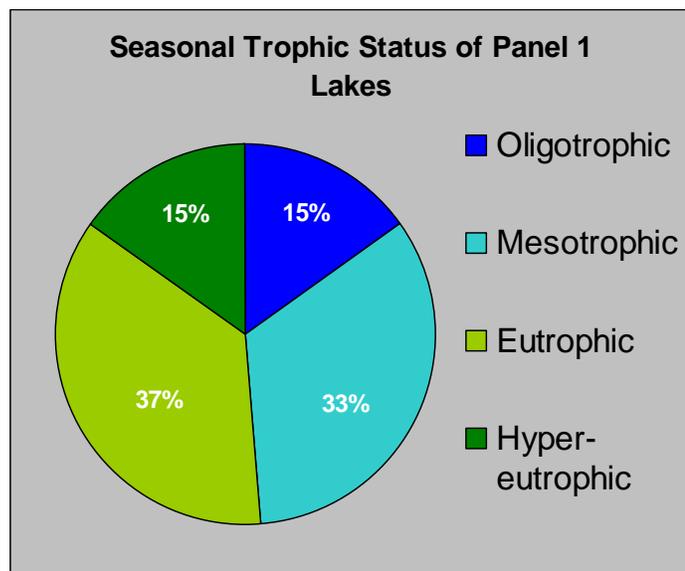
The SWQC for pH is between 6.5 and 8.5 for lakes within waters designated as FW2 waters and between 3.5 and 5.5 designated as PL waters. Elevated pH levels showed a strong correlation to algae concentrations. Lakes with higher pH measurements also had higher chlorophyll “a” concentrations. See Table 1 for lakes listed in the Integrated Report for “non-attainment of aquatic life use” and the parameters in violation. See Volume 2 of this report for all raw data results.

It should be noted that other data or factors, not collected or observed for the Ambient Lakes Monitoring Network can be used to determine how a lake is listed in the Integrated Report. The Integrated Report should be referred to for the definitive assessment of a specific lake and its support, or non-support, of aquatic life use.

NAME	Use Attainment	TP violation	pH violation	DO violations
Allentown Lake	Non Attain	X		
Anchor Lake One	Non Attain		X	
Braddocks Millpond	Non Attain		X	
Butler Pond	Non Attain	X		
Fawn Lake	Non Attain		X	
Hubers Lake	Non Attain	X		X
Kirkwood	Non Attain	X		
Ledells Pond	Non Attain	X		X
Memorial Lake	Non Attain	X		
Peddie Lake	Non Attain	X		X
Pickerel Lake	Non Attain		X	
Vincetown Millpond	Non Attain	X	X if PL waters	X

**Table 1. Lakes listed in the Integrated Report as non-attainment of aquatic life use.**

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 hyper-eutrophic, and are viewed as a continuum on this scale. Carlson’s TSI is based on the interrelationships of Total Phosphorus (TP), chlorophyll “a”, and Secchi disk transparency. Six (6) lakes (Bass Lake, Gilman Lake, Hubers Lake, Indian Lake, Moss Mill Lake, Wapalanne Lake) had a TSI rating of Oligotrophic for at least one station, and only during the fall season. All other lakes sampled had TSI ratings in the Eutrophic range (Mesotrophic, Eutrophic, or Hypereutrophic) for both seasons sampled. As these results demonstrate, (see Volume 2), the trophic state of a lake is highly related to the season. Except for Silver Lake in Gibbsboro, which was mesotrophic for both seasons, oligotrophic and

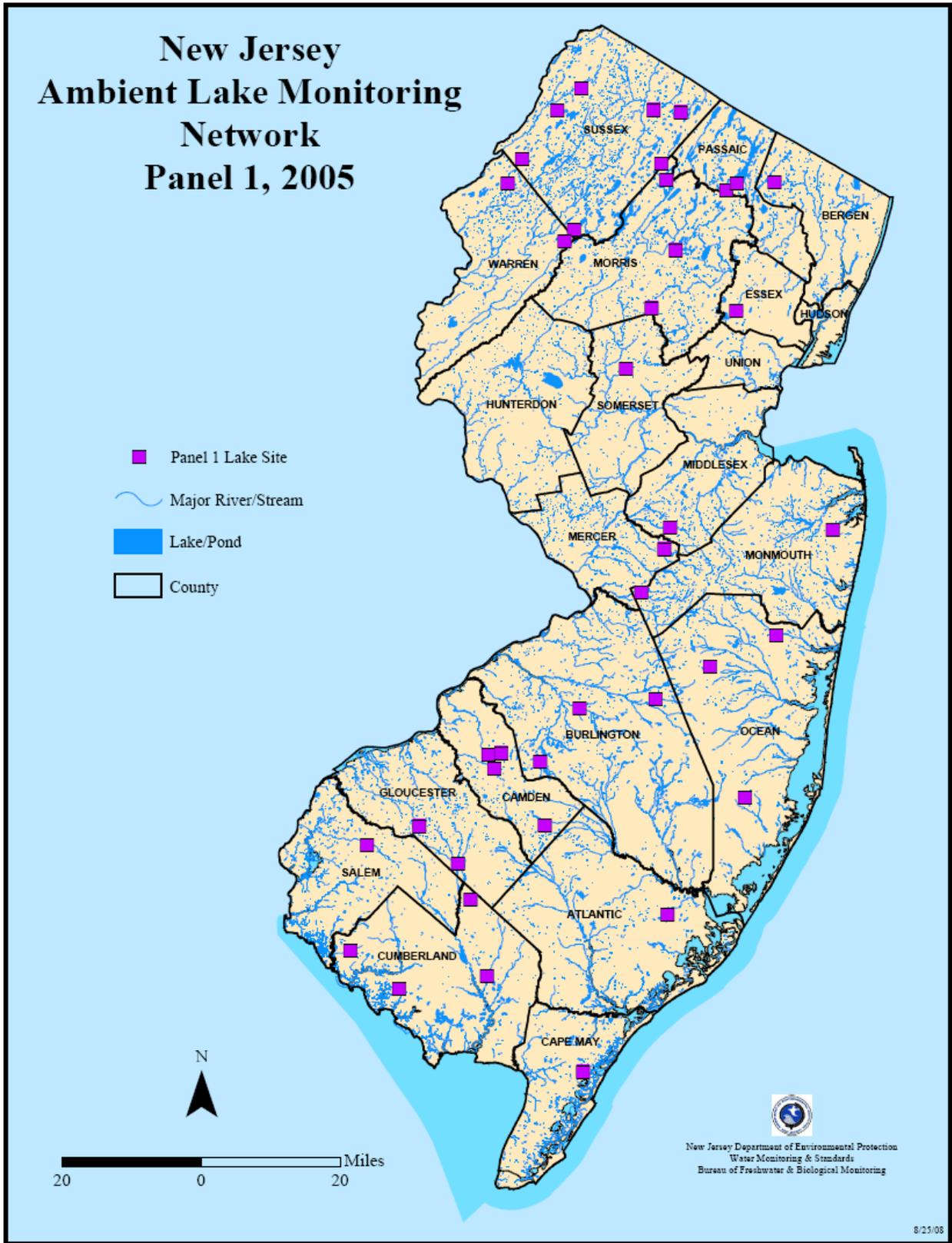


**Figure 1. Summary of Seasonal TSI Results.**

mesotrophic states only occurred during the fall. This occurrence could not be attributed to a single TSI parameter, as all three parameters decreased in value in relation to the trophic state. Subsequent data collection in all seasons for the remaining network panels will provide more insight on the relationship between trophic state and season.

Data and assessments from this initial Panel of sampling serves as a preliminary estimate of the Statewide status of New Jersey lakes. Lakes entirely oligotrophic were not represented in Panel 1, and the number of lakes exhibiting periods of oligotrophy was very limited. All lakes had periods in a eutrophic state. This demonstrates that all Panel 1 lakes sampled are in, or may be accelerating toward, an entirely eutrophic state.

# New Jersey Ambient Lake Monitoring Network Panel 1, 2005



**Figure 2. Panel 1 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, <sup>[12]</sup> the recommendations from EPA's "Elements of a State Water Monitoring and Assessment Program" <sup>[10]</sup>, as well as needs identified by the Department's Watershed Management and Water Quality Assessment programs. Of particular concern to the OIG was that the state needed a network design that would capture the status of lake water quality statewide – a task the OIG felt could only be accomplished by a probabilistically designed network. Members of the Workgroup included representatives from BFBM, the Bureau of Environmental Analysis and Restoration (BEAR) in the Division of Watershed Management (which is responsible for developing TMDLs); the Water Assessment Team (WAT) within WM&S' Bureau of Water Quality Standards and Assessment which is responsible for preparing the Integrated Water Quality Monitoring and Assessment Report; 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 being 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. A query of the NJDEP's GIS databases indicated a potential sampling population of approximately 1100 named lakes. 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) survey design, but in a manner that equalizes selections over all Omerik Level III Ecoregions <sup>[8]</sup>, of which there are six (6) in the state. Additional design stratifications included 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. Based on available resources, the 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. In 2005, 40 Panel 1 lakes were sampled (see Table 1 and Figure 2). Menantico Sand Ponds was deleted from Panel 1 after sampling was completed because results showed that the lake was under tidal influence. Therefore, only 39 lakes were sampled for Panel 1. A replacement lake will be added for the second sampling round.

## Lake Eutrophication (aging) Process

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

Generally, as the oligotrophic lake ages, it gradually accumulates sediment and nutrients and moves toward and eventually into the eutrophic stage. There is a transitional stage between the oligotrophic and eutrophic conditions and this has been labeled the mesotrophic condition. 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 rush oligotrophic type lakes into the eutrophic conditions in a matter of a human generation or two.

To measure the trophic state of the lakes sampled, the Carlson’s Trophic State Index (TSI), calculated using Total Phosphorus concentrations, Chlorophyll-a concentrations, and Secchi disk transparency measurements, was selected as the indicator of choice.<sup>[3]</sup>

**Table 2. Panel 1, 2005 Active Sites**

<b>SITEID</b>	<b>NAME</b>	<b>COUNTY</b>	<b>MUNICIPALITY</b>
NJW04459-231	Allentown Lake	MONMOUTH	ALLENTOWN BORO
NJW04459-235	Anchor Lake One	CAMDEN	WINSLOW TWP
NJW04459-017	Bass Lake	WARREN	HARDWICK TWP
NJW04459-230	Braddocks Millpond	BURLINGTON	MEDFORD TWP
NJW04459-033	Brainerd Lake	MIDDLESEX	CRANBURY TWP
NJW04459-014	Burnt Mill Pond	CUMBERLAND	VINELAND CITY
NJW04459-037	Butler Pond	ESSEX	LIVINGSTON TWP
NJW04459-025	Cedarville Block Sand & Gravel Company Pond	CUMBERLAND	LAWRENCE TWP
NJW04459-237	Cold Spring Lake	PASSAIC	BLOOMINGDALE BORO
NJW04459-006	Davis Mill pond	CUMBERLAND	STOW CREEK TWP
NJW04459-009	Deer Park Pond	WARREN	ALLAMUCHY TWP
NJW04459-236	Eastern Gate Lake	GLOUCESTER	FRANKLIN TWP
NJW04459-010	Fairview Lake	SUSSEX	STILLWATER TWP
NJW04459-224	Fawn Lake	OCEAN	STAFFORD TWP
NJW04459-005	Gilman Lake	GLOUCESTER	HARRISON TWP
NJW04459-022	Highland Lake 1	SUSSEX	VERNON TWP
NJW04459-001	Hubers Lake	BERGEN	OAKLAND BORO
NJW04459-031	Indian Lake	MORRIS	DENVILLE TWP
NJW04459-002	Kirkwood 18	CAMDEN	VOORHEES TWP
NJW04459-013	Lake Ashroe	SUSSEX	SANDYSTON TWP
NJW04459-019	Lake loscoe	PASSAIC	BLOOMINGDALE BORO
NJW04459-034	Lake Manetta	OCEAN	LAKEWOOD TWP
NJW04459-021	Lake Stockholm	SUSSEX	HARDYSTON TWP
NJW04459-223	Ledells Pond	MORRIS	MENDHAM TWP
NJW04459-020	Long Lake	BURLINGTON	PEMBERTON TWP
NJW04459-228	Magnolia Lake	CAPE MAY	DENNIS TWP
NJW04459-229	Memorial Lake	SALEM	WOODSTOWN
NJW04459-032	Menantico Sand Ponds (deleted due to tidal influence)	CUMBERLAND	MILLVILLE CITY
NJW04459-027	Moss Mill Lake	ATLANTIC	GALLOWAY TWP
NJW04459-024	Peddie Lake	MERCER	HIGHTSTOWN BORO
NJW04459-008	Pickerel Lake	OCEAN	JACKSON TWP
NJW04459-023	Pleasant Valley Lake	SUSSEX	VERNON TWP
NJW04459-007	Silver Lake	CAMDEN	CLEMENTON BORO
NJW04459-234	Silver Lake	CAMDEN	GIBBSBORO
NJW04459-040	Sunset Lake	SOMERSET	BRIDGEWATER TWP
NJW04459-015	Vincentown Millpond	BURLINGTON	SOUTHAMPTON TWP
NJW04459-222	Wampum Lake	MONMOUTH	EATONTOWN BORO
NJW04459-036	Wapalanne Lake	SUSSEX	SANDYSTON TWP
NJW04459-233	Watchu Pond	SUSSEX	BYRAM TWP
NJW04459-226	White Rock Lake	MORRIS	JEFFERSON TWP

## METHODS and MATERIALS

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

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

**Physical / Chemical Sampling Procedures and Parameters:** Samples were collected at multiple lake locations (up to three in-lake stations). In addition, the outlet(s) of each lake were sampled. Samples were collected as per "NJDEP Field Sampling Procedures Manual", 2005.<sup>[5]</sup> 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), metalimnion (transition layer), and hypolimnion (lower layer). However, no Panel 1 lakes exhibited characteristics of stratification. While every attempt was made to select lakes with a depth of at least one meter, some lakes had depths of slightly less than one meter. A drop in depth to below one meter was usually attributed to seasonality. In lakes less than one meter deep, samples were collected at 0.5 meters below the surface or mid-depth. Samples were collected using a submerged horizontal sampler. A combination field blank and equipment blank of PICO® water was collected on-site from the submerged horizontal sampler prior to the first sample for each lake (PICO® water, an ultra clean water, is supplied from the BFBM lab system, which is analyzed twice per year at a NJ certified laboratory for applicable parameters).

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

- Total Phosphorus
- Nitrite and Nitrate
- Ammonia
- TKN
- Hardness
- Alkalinity
- Turbidity
- Chlorophyll "a".

For stratified lakes, these samples (with the exception of chlorophyll “a”) were also collected from the epilimnion, metalimnion, and hypolimnion. Turbidity was also measured from these discrete samples, using a HACH 2100P Turbidity meter. All samples were analyzed at a New Jersey certified laboratory. Analytical results are reported in exact concentrations except when a result is at a level below the method Reporting Limit (RL) and a definitive concentration cannot be determined. In these cases, the result is reported as less than (<) the RL value. For Total Phosphorus, the RL changed near the end of the summer sampling. This was due to an upgrade in analytical instrumentation at the laboratory, resulting in greater sensitivity and a lower RL (see Volume 2, raw data sheets).

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

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

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

Sampling was also performed, using the above methods and same parameters, at observed “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 algae growth and unusual odor or color. A “hot spot” was sampled at only one lake, Lake Ioscoe, during the 2005 sampling. This “hot spot” was specifically observed as dense algae at this site.

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, <sup>[5]</sup> <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 BFBM staff using a modified "EPA Method 445.0" .

**Storm Water Outfall Pipes:** The presence of storm water outfall pipes was noted and their locations recorded using a Global Positioning Unit (GPU). The diameter of the pipes were measured and the material of their composition was recorded.

# CALCULATING CARLSON'S TROPHIC INDEX

## Trophic State

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

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. <sup>[2]</sup> 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. <sup>[2]</sup> 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 <sup>[3]</sup>

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

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

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 3), on this scale.

### **Oligotrophic. TSI values range from 0 to 40.**

Lakes have low nutrient levels, are usually deep, and have high oxygen levels in the bottom waters. These lakes have very few algal blooms.

### **Mesotrophic. TSI values range from 41-50.**

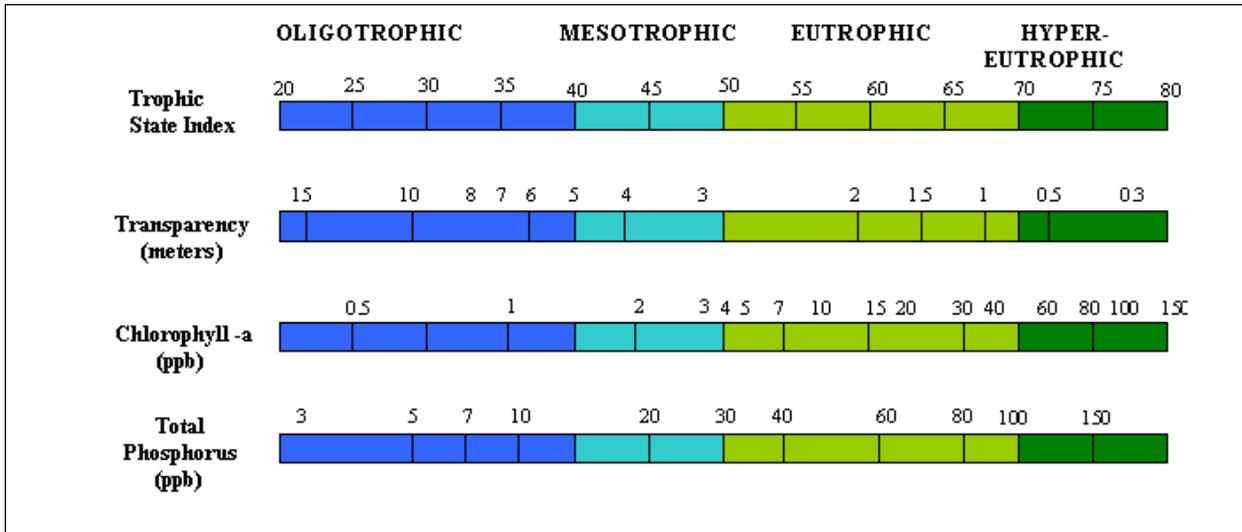
Lakes are in the "middle" of the trophic scale. They have increasing amounts of nutrients and slightly lower amounts of dissolved oxygen. There are temporary algae and aquatic plant problems.

**Eutrophic. TSI values range from 51-70.**

Lakes are nutrient rich. They are usually shallow, "green" lakes that have limited oxygen levels in the bottom waters. They have persistent algae and aquatic plant problems.

**Hypereutrophic. TSI range is >70.**

Lakes are very green and have little or no oxygen in the bottom layers. There are extreme algae and aquatic plant problems.



**Figure 3. Carlson Trophic State Index viewed as a continuum.<sup>[1]</sup>**

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<sup>[3]</sup> 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.<sup>[2]</sup>

For the purpose of demonstrating a preliminary 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, Total Phosphorus was not used in the "average" if the concentration was below the analytical reporting limit. It should be noted averaging the TSI parameters is merely a convention used to compare lakes on a statewide basis; averaging TSI values does not provide a definitive assessment of an individual lake's trophic state. Each lake should be studied individually to more definitively assess its trophic state. 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.<sup>[3]</sup> The TSI should serve as

standard measurement against which comparisons can be made between the many biological and physical/chemical components of the lake system, and how these components relate to each other and the lake ecosystem as a whole.<sup>[3]</sup> 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 the definitive assessment of a specific lake and its support, or non-support, of aquatic life use.

## RESULTS AND DISCUSSION

It should be noted that a definitive statewide assessment of New Jersey's lakes cannot be performed until data for the entire network of 200 lakes is collected. Data and assessments from this initial Panel sampling of lakes serve as a preliminary estimate of the Statewide status of New Jersey lakes.

In 2005, 40 Panel 1 lakes were sampled. One lake (Menantico Sand Ponds) was, however, deleted from the Panel after sampling was completed because results showed that the lake was under tidal influence. Therefore only 39 lakes were considered sampled for Panel 1. A replacement lake will be added for the second sampling round. Although the network design calls for sampling in the Spring, Summer and Fall, 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 this Panel.

In this volume of the report a summary of the results from the 2005 – Panel 1 monitoring is presented. A full accounting of the results, by lake sampled, can be found in Volume 2 of this report. A discussion on the relationships between trophic state and the physical/ chemical and biological results follows:

### SUMMARY OF IN-LAKE PHYSICAL/ CHEMICAL AND BIOLOGICAL MEASURES

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

#### Surface Vegetation

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

Surface vegetation can be described in four ways: none present, minimal (small areas along the shoreline), moderate (larger areas along the shoreline and extending into lake), extensive (majority of lake covered by vegetation as is Figure 4). A direct correlation



**Figure 4. Watchu Pond. Extensive surface vegetation.**

between vegetation coverage and trophic state could not be determined. Although extensive surface vegetation was not observed in lakes with oligotrophic states, one did have moderate growth. Moderate-to-extensive vegetation was observed in lakes that had mesotrophic through hypereutrophic states. Inversely, absent-to-minimal vegetation was also observed in lakes of all trophic levels.

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. Sixteen lakes sampled were permitted through the NJDEP Pesticide Control Program (Table 3). Vegetation observed at these lakes ranged from absent to extensive. (see Volume 2)

NAME	COUNTY	MUNICIPALITY	Pesticide Control Program Permit
Moss Mill Lake	ATLANTIC	GALLOWAY TWP	X
Hubers Lake	BERGEN	OAKLAND BORO	X
Vincentown Millpond	BURLINGTON	SOUTHAMPTON TWP	
Long Lake	BURLINGTON	PEMBERTON TWP	
Braddocks Millpond	BURLINGTON	MEDFORD TWP	
Kirkwood	CAMDEN	VOORHEES TWP	
Silver Lake	CAMDEN	CLEMENTON BORO	
Silver Lake	CAMDEN	GIBBSBORO	X
Anchor Lake One	CAMDEN	WINSLOW TWP	
Magnolia Lake	CAPE MAY	DENNIS TWP	
Davis Mill pond	CUMBERLAND	STOW CREEK TWP	
Burnt Mill Pond	CUMBERLAND	VINELAND CITY	X
Cedarville Block Sand & Gravel Co. Pond	CUMBERLAND	LAWRENCE TWP	
Menantico Sand Ponds	CUMBERLAND	MILLVILLE CITY	
Butler Pond	ESSEX	LIVINGSTON TWP	
Gilman Lake	GLOUCESTER	HARRISON TWP	
Eastern Gate Lake	GLOUCESTER	FRANKLIN TWP	
Peddie Lake	MERCER	HIGHTSTOWN BORO	
Brainard Lake	MIDDLESEX	CRANBURY TWP	
Wampum Lake	MONMOUTH	EATONTOWN BORO	
Allentown Lake	MONMOUTH	ALLENTOWN BORO	
Indian Lake	MORRIS	DENVILLE TWP	X
Ledells Pond	MORRIS	MENDHAM TWP	
White Rock Lake	MORRIS	JEFFERSON TWP	X
Pickerel Lake	OCEAN	JACKSON TWP	
Lake Manetta	OCEAN	LAKEWOOD TWP	X
Fawn Lake	OCEAN	STAFFORD TWP	
Lake loscoe	PASSAIC	BLOOMINGDALE BORO	X
Cold Spring Lake	PASSAIC	BLOOMINGDALE BORO	X
Memorial Lake	SALEM	WOODSTOWN	
Sunset Lake	SOMERSET	BRIDGEWATER TWP	X
Fairview Lake	SUSSEX	STILLWATER TWP	
Lake Ashroe	SUSSEX	SANDYSTON TWP	X
Lake Stockholm	SUSSEX	HARDYSTON TWP	X
Highland Lake	SUSSEX	VERNON TWP	X
Pleasant Valley Lake	SUSSEX	VERNON TWP	X
Wapalanne Lake	SUSSEX	SANDYSTON TWP	X
Watchu Pond	SUSSEX	BYRAM TWP	
Deer Park Pond	WARREN	ALLAMUCHY TWP	
Bass Lake	WARREN	HARDWICK TWP	X

**Table 3. Panel 1 lakes with Pesticide Control Program permits.**

**Total Phosphorus**

Of the 39 lakes sampled in 2005, 19 lakes exceeded the New Jersey Surface Water Quality Criteria (SWQC) maximum for total phosphorus (TP) of 0.05 mg/L from at least one in-lake sampling station. TP results from all lakes ranged from non-detected to 0.258mg/l in the summer and non-detected to 0.579mg/l in the fall. See Volume 2 for results for each lake.

When the TP exceeds the SWQC for two sampling visits, the lake is listed as “non-support of aquatic life use” in the New Jersey Integrated Water Quality Monitoring and Assessment Report (Integrated Report) [6] See Table 4 for lakes listed in the Integrated Report for “non-attainment of aquatic life use” and the parameters in violation. See Volume 2 of this report for all raw data results.

NAME	Use Attainment	TP violation	pH violation	DO violations
Allentown Lake	Non Attain	X		
Anchor Lake One	Non Attain		X	
Braddocks Millpond	Non Attain		X	
Butler Pond	Non Attain	X		
Fawn Lake	Non Attain		X	
Hubers Lake	Non Attain	X		X
Kirkwood	Non Attain	X		
Ledells Pond	Non Attain	X		X
Memorial Lake	Non Attain	X		
Peddie Lake	Non Attain	X		X
Pickereel Lake	Non Attain		X	
Vincetown Millpond	Non Attain	X	X if PL waters	X

**Table 4. Lakes listed in the Integrated Report as non-attainment of aquatic life use.**

Phosphorus is essential to the growth of organisms and can be the nutrient that limits primary productivity of a body of water.<sup>[9]</sup> Of the nutrients analyzed, Total Phosphorus exhibited the best correlation to trophic state and algae concentrations. Lakes with high Total Phosphorus were always in the eutrophic or hypereutrophic range. Furthermore, lakes exceeded the SWQC for Total Phosphorus only while in a eutrophic or hypereutrophic state. When Total Phosphorus levels were elevated, algae 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 Total Phosphorus limits the algae growth. If they are not equal, then light or other nutrients are likely the limiting factors.<sup>[11]</sup>

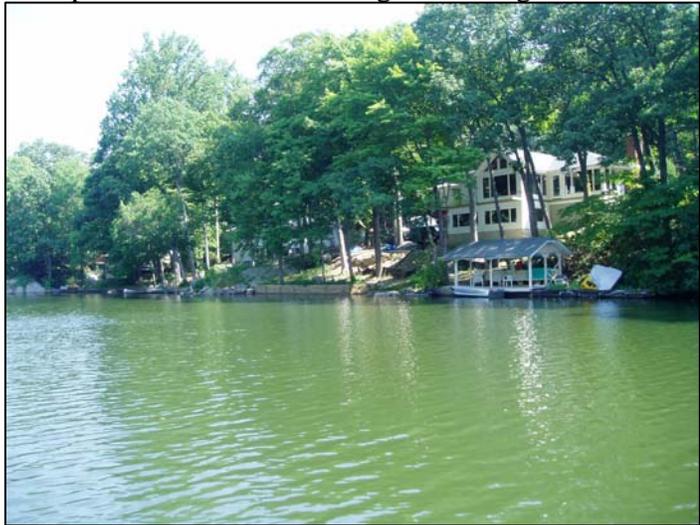
Although the TSI is not a direct measure of water quality, some correlation can be made between trophic state and Total Phosphorus (TP) concentrations. Lakes which exceeded the SWQC for TP always received a eutrophic or hypereutrophic rating for the season in which TP exceeded the SWQC. Two lakes, Bass Lake and Huber Lake, had a TP result which exceeded SWQC in conjunction with a eutrophic state in the summer season, but recovered to an oligotrophic state in the fall with TP concentrations also decreasing to meet SWQC.

### Other Nutrients

The other analyzed nutrients, Total Kjeldahl Nitrogen (TKN, also referred to as organic nitrogen), Total Nitrite + Nitrate Nitrogen, and Ammonia Nitrogen, did not show strong correlations with a lake's trophic state. When a lake was in its oligotrophic state, nutrient levels remained low (results close to the analytical reporting limit). However, when a lake entered a mesotrophic-to-hypereutrophic state, nutrient levels in some lakes rose, although not consistently throughout the entire panel of lakes.

### Physical / Chemical Measurements

Dissolved oxygen, temperature, pH, conductivity, and turbidity were measured in the field, while alkalinity and hardness samples were collected using a submerged horizontal sampler. Dissolved oxygen, pH, and turbidity results showed a strong correlation with a lake's trophic state. As expected, temperature showed a strong relationship with dissolved oxygen as low dissolved oxygen only occurred in the summer. Very low dissolved oxygen levels (below the SWQC of 4.0mg/l) were observed in some lakes in the mesotrophic-through-hypereutrophic range during the summer months.



When the DO exceeds the SWQC for two sampling visits, the lake is listed as “non-attainment of aquatic life use” in the New Jersey Integrated

**Figure 5. Lake Ioscoe with a high Chlorophyll “a” level and supersaturated dissolved oxygen concentrations.**

Water Quality Monitoring and Assessment Report (Integrated Report). (see Table for non-attainment and violation) The majority of lakes with very low dissolved oxygen were shallow (approximately 1 – 2 meters in depth). Shallow depths can limit the ability of a lake to maintain cooler temperatures, because of the penetration of sunlight. As a result, they tend to exhibit unstable dissolved oxygen concentrations. It could not be determined whether lake depth or other factors had the greater influence on low dissolved oxygen concentrations. Furthermore, waters with high algae levels will generally have fluctuating dissolved oxygen levels. Dissolved oxygen rises when algae is in its growth state and respiring, and recedes when algae growth slows. This was demonstrated in five lakes where the dissolved oxygen was super-saturated (greater than 100% saturation) with corresponding high Chlorophyll “a” concentrations (see Figure 5). A diurnal study of lakes with very low dissolved oxygen would be necessary to definitively determine if water level, or algae, is affecting the dissolved oxygen. A similar study would be necessary to record the fluctuating dissolved oxygen where super-saturation was observed.

The SWQC for pH is between 6.5 and 8.5 for lakes within waters designated as FW2 and between 3.5 and 5.5 within waters designated as PL. (see Table for non-attainment and violation) Elevated pH levels showed a strong correlation to algae 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 were present. Furthermore, lakes with the highest pH measurements also had supersaturated dissolved oxygen concentrations. Both the pH and dissolved oxygen concentrations measured are likely part of the diurnal cycle associated with algae growth. These relationships demonstrate how the trophic state and algae 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 ).

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

### **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 algae growth and unusual odor or color that can indicate contamination which may be tracked to a source. A “hot spot” was sampled at only one lake, Lake Ioscoe, during the 2005 sampling where dense algae growth was observed throughout the water column (Figure 5). There were no significant differences observed in the levels of any parameter measured, as compared to the results from the other in lake stations.

## Additional Physical / Chemical Monitoring

### Lake Outlet Stream Measurements

All of the Panel 1 lakes, with the exception of Eastern Gate Lake (Gloucester County) and Cedarville Block, Sand, and Gravel Co. Pond (Cumberland County), had outlet streams. These two lakes were created from historic gravel and sand mining operations and not a direct stream impoundment. Outlets were not sampled unless they were actively flowing. It is important to remember that the total phosphorus Surface Water Quality Criteria (SWQC) for streams, 0.1 mg/L, is higher than for lakes.<sup>[7]</sup> Three outlet streams exceeded the Total Phosphorus (TP) Criteria at the time of sampling. These included outlets from Braddocks Mill Pond, Magnolia Lake, and Wampum Lake. TP concentrations within these lakes also exceeded the SWQC, which is likely having a direct influence on the respective outlet streams.



**Figure 6. Memorial Lake Outlet. The receiving stream was greatly impacted by the lake's influence.**

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, as observed at Memorial Lake, Figure 6. Approximately 55% of the outlet streams (if present) were affected by their lake's influence in the zone immediately downstream of the impoundment. Gilman Lake had periods in an oligotrophic state, while Silver Lake (in Gibbsboro) was in a mesotrophic state and their outlet streams had similar results to the respective lake. In all other cases where the outlet stream had elevated physical, chemical, and/ or nutrient levels, the upstream lake was in a eutrophic state. In the majority of streams where TP or nutrient concentrations were elevated, those same parameters were also elevated in the feeder lake.

Turbidity was the next parameter in which outlet stream levels were similar to that of the feeder lake. Chlorophyll "a" and dissolved oxygen levels, to a lesser extent than TP and turbidity, were also parameters which exhibited levels similar to that of the feeder lake. Additional sampling stations at intervals downstream in the outlet stream(s) would be necessary to construct a profile of the degree, and zone, of a lake's influence.

## TROPHIC STATE INDEX (TSI) DISCUSSION

As previously noted, *Carlson's Trophic State Index* (TSI) is used as the basis for estimating the trophic state of New Jersey lakes. The trophic state for lake sampling sites ranges from oligotrophic to hypereutrophic, and is viewed as a continuum on this scale (Figure 3). Carlson's TSI is based on the interrelationships of Total Phosphorus (TP), chlorophyll "a", and Secchi disk transparency.

### Oligotrophic Lakes

Lakes entirely oligotrophic were not represented in Panel 1, and the number of lakes exhibiting periods of oligotrophy was very limited. Only 6 of the 39 Panel 1 lakes had stations which were in an oligotrophic state. Bass Lake, Gilman Lake, Hubers Lake, Indian Lake, Moss Mill Lake, Wapalanne Lake (Figure 7) exhibited a TSI rating of oligotrophic for at least one station, but only during the fall season. And of these, none remained in a constant oligotrophic state for both seasons sampled.



**Figure 7. Wapalanne Lake, one of six lakes to have an oligotrophic state.**

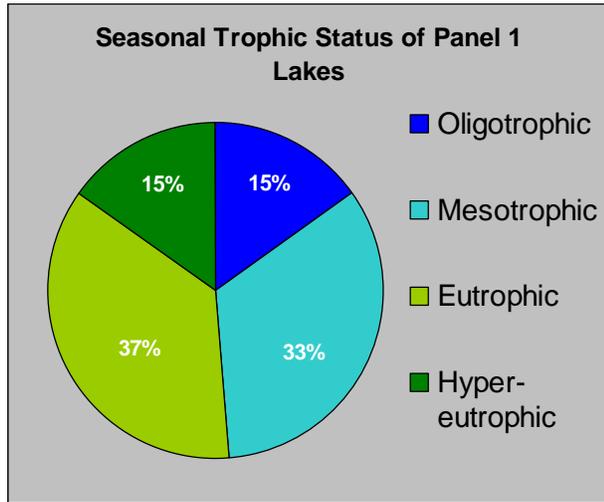
### Mesotrophic Lakes

Lakes having periods of a mesotrophic state, which are by definition in transition to a eutrophic state, were more prevalent than oligotrophic states. Thirteen lakes had stations in a mesotrophic state but only one of these, Silver Lake (in Gibbsboro), maintained its mesotrophic state throughout both seasons. However, Silver Lake (in Gibbsboro) is likely to degrade quickly into an entirely eutrophic state due to impacts from its five storm water outfalls and elevated nutrient concentrations.

### **Eutrophic and Hypereutrophic Lakes**

The majority of Panel 1 lakes exhibited TSI ratings in the Eutrophic range (Eutrophic or Hypereutrophic) for both seasons sampled. Figure 8 shows a summary of the percentage of lakes exhibiting each trophic state.

All Panel 1 lakes exhibited degrees of eutrophication depending on the season and / or area of the lake sampled. Accordingly, this data demonstrates that all Panel 1 lakes are in, or accelerating towards, an entirely eutrophic state.

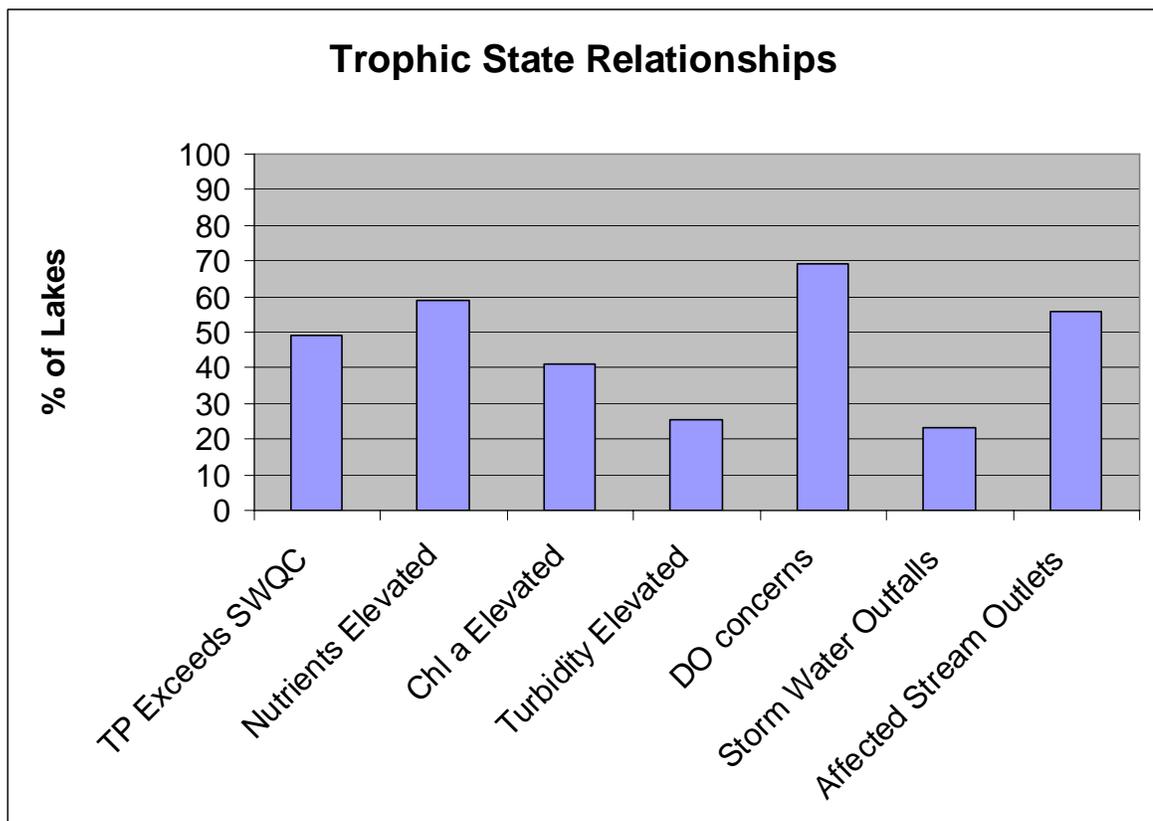


**Figure 8. Summary of Seasonal TSI Results.**

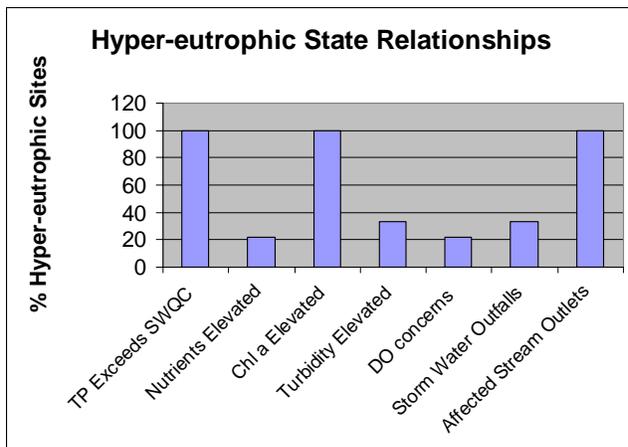
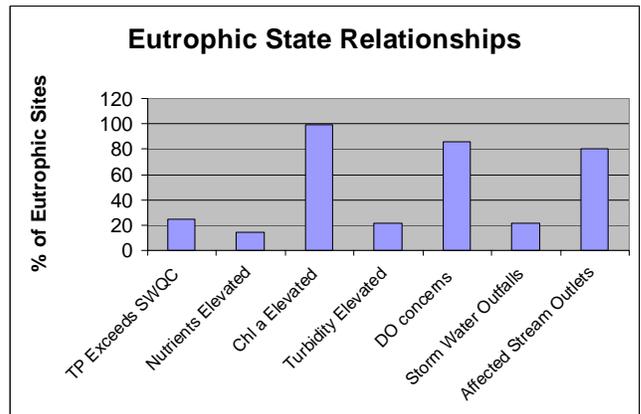
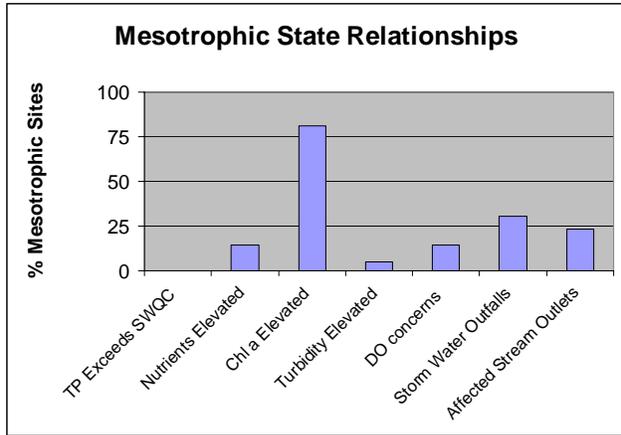
## Relationship Between Trophic State Index and Parameters Measured

It should be noted that a definitive statewide assessment of New Jersey's lakes cannot be performed until data for the entire network is collected, however, certain relationships between trophic state and results were observed. As each Panel is completed, and more data is available, these relationships are anticipated to become more defined.

Figure 9 summarizes the percentage of lakes exhibiting exceedances of key parameters. Figure 10 demonstrates the general relationships between each of the trophic states, and the parameters measured. For these purposes, nutrients are defined as Total Kjeldahl Nitrogen (TKN, also referred to as organic nitrogen), Total Nitrite + Nitrate Nitrogen, and Ammonia Nitrogen. Concentrations were noted as elevated when levels exceeded 0.8 mg/l for TKN and 0.1mg/l for Total Nitrite + Nitrate Nitrogen or Ammonia Nitrogen, as these concentrations are significantly higher than the analytical reporting level for those parameters; 0.1 mg/l and 0.01 mg/l respectively. In-lake dissolved oxygen (DO) levels were of concern when observed either as a low concentration (< 4.0mg/l, and below the SWQC ) or a super-saturation (>100%, and indicative of an algae problem). The graphs in Figures 9 and 10 also show the percentage of lakes with storm water outfalls and the percentage of lakes where the outlet stream was affected by its lake. "Affected stream outlets" are those that show similar results to their respective feeder lake when that lake's results are elevated.



**Figure 9. Percentage of lakes showing parameters at significant levels and observations of note.**



**Figure 10. The relationship of individual trophic states with parameters and observations of significance. Lakes exhibiting an oligotrophic state had no parameters at significant levels when in that state.**

### Seasonal Variation In TSI

As the results demonstrate (see Volume 2), the trophic state of a lake is highly related to the season. Except for Silver Lake in Gibbsboro, which was mesotrophic for both seasons, oligotrophic and mesotrophic states only occurred during the fall. This occurrence could not be attributed to a single TSI parameter, as all three parameters decreased in value in relation to the trophic state. Subsequent data collection in all seasons for the remaining network panels will provide more insight on the relationship between trophic state and season.

## POTENTIAL STRESSORS

### Storm Water Outfalls

Storm water outfall pipes (Figure 9) were observed at some lakes. These pipes were made of cement, corrugated metal, PVC, or vitrified clay. Eight lakes had storm water outfalls entering the lake. These eight lakes showed a strong relationship between trophic state and elevated nutrient levels. No lake with an oligotrophic state had any outfalls. Only two lakes from this subset of eight, Lake Manetta and Silver Lake (in Gibbsboro), did not exceed SWQC for Total Phosphorus or have elevated nutrient levels. Of the remaining six lakes, five exceeded the SWQC for Total Phosphorus and had elevated nutrients, while one had only elevated nutrients.



**Figure 9. Storm water outfalls like this one, draining into Brainerd Lake, can contribute to numerous problems such as: elevated nutrient levels, high turbidity, and the exceedance of SWQC for Total Phosphorus.**

In addition to TP, turbidity was also at extremely high levels in seven of the eight lakes with outfall pipes. It is likely that these storm water pipes serve as a conduit for the increased turbidity levels observed. Storm water monitoring studies on these lakes would be helpful to determine the loading of nutrients, and other pollutants, from these outfalls.

## RECOMMENDATIONS

Storm water outfalls seem to be a major stressor for lakes. Of the eight lakes with observed outfalls, none exhibited an oligotrophic state. Only two lakes from this subset of eight, Lake Manetta and Silver Lake (in Gibbsboro), did not exceed SWQC for Total Phosphorus or have elevated nutrient levels. Of the remaining six lakes, five exceeded the SWQC for Total Phosphorus and had elevated nutrients, while one had only elevated nutrients. Turbidity was also at extremely high levels in seven of the eight lakes with outfall pipes. It is likely that these storm water pipes serve as a conduit for the increased turbidity levels observed. Storm water monitoring studies on these lakes would be helpful to determine the loading of nutrients, and other pollutants, from these outfalls. Such a study should include analysis at mixing zones of the outfalls.

Dissolved oxygen rises when algae is in its growth state and respiring, and recedes when algae growth slows. This was demonstrated in five lakes where the dissolved oxygen was supersaturated (greater than 100% saturation) with corresponding high Chlorophyll “a”

concentrations. A diurnal study of lakes exhibiting either very low or supersaturated dissolved oxygen is necessary to definitively determine if water level or algae is affecting the dissolved oxygen concentrations measured.

Although there exists Surface Water Quality Criteria for TP in lakes, the same cannot be said for other nutrients, namely Total Kjeldahl Nitrogen (TKN), Total Nitrite + Nitrate Nitrogen, and Ammonia Nitrogen. Nutrient levels were observed at elevated levels in some eutrophied lakes. However, a clear correlation between nutrients and water quality and/ or trophic state cannot be made without established criteria. Studies defining the concentrations at which these nutrients affect water quality are recommended to improve the resolution of lake assessments.

Approximately 55% of the lake outlet streams (if present) were affected by their lake's influence in the zone immediately downstream of the impoundment. In the majority of streams where TP or other nutrient concentrations were elevated, those same parameters were also elevated in the feeder lake. Turbidity, Chlorophyll "a", and dissolved oxygen 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 developed and approved biological monitoring methods are available, the addition of lentic biological indices would be advisable. 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. 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](http://www.state.nj.us/dep/wms/bfbm).**

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



# **AMBIENT LAKES MONITORING NETWORK**

**Panel 1**

**Data and Results**

**Volume 2 of 2**



**September 2008**

**State of New Jersey  
Jon S. Corzine, Governor**

**NJ Department of Environmental Protection  
Lisa Jackson, Commissioner**

NJ Department of Environmental Protection



Land Use Management  
Mark N. Mauriello, Assistant Commissioner

Water Monitoring and Standards  
Leslie J. McGeorge, Administrator

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

September 2008

## **AMBIENT LAKES MONITORING NETWORK**

### **Panel 1**

**(Calendar Year 2005)**

### **Volume 2 of 2**

#### **REPORT DESIGN**

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## Data and Results

NJDEP initiated, in 2005, a renewed ambient lake monitoring network designed to provide the water quality data necessary to assess the ecological health of the State's lentic water resource. This program involves the testing of randomly selected lakes from the state's approximately 1100 named lakes. The water quality measurements conducted at each lake include parameters such as dissolved oxygen, pH, nutrients, and chlorophyll a. Such testing will assist New Jersey in determining the status and trends in lake water quality, as needed to meet our Clean Water Act requirements and our Total Maximum Daily Load (TMDL)-related water quality assessment obligations.

Water Monitoring & Standards, Bureau of Freshwater & Biological Monitoring has worked to develop a monitoring program that would address both the deficiencies cited in the 1999 USEPA's Office of Inspector General's Audit Report, and the needs of the watershed management and water quality assessment (305(b)/303(d)) programs. This approach comports with the guidance provided in USEPA's publication, "Elements of a State Water Monitoring and Assessment Program," March 2003, which requires that states develop and implement long-term strategies which include monitoring of all state waterbody types, including lakes.

The lake monitoring network design is as follows:

1. **Target Population:** All lakes, man-made or natural, excepting water supply reservoirs, wholly or partially within the State of NJ political boundaries. A lake is defined as a permanent body of water of at least two hectares in surface, and a minimum depth of one meter. Lakes were selected randomly, using the USEPA - Generalized Random Tessellation Stratified (GRTS) survey design, but in a manner that equalizes selections over all Omernik level III ecoregions (6 within state). The New Jersey GIS coverage containing approximately 1,100 polygons of named lakes was used for the selection process.
2. **Network Stations:** The network consists of 200 lakes, each sampled once every five years, with forty lakes sampled per year. Depending on the lake size and characteristics, up to four sampling locations are monitored in each lake. Lakes not exhibiting temperature stratification are sampled at one meter below the surface, unless the lake is too shallow, in which case the sample is taken at mid-depth below the surface. Lakes exhibiting stratification are sampled above and below the thermocline. Depth to bottom is measured at each station .
3. **Sampling Frequency:** All lakes in the network will be sampled once every five years, with each lake being sampled at least three times during the year (Spring, Summer, and Fall).
4. **Monitoring Parameters:** Total Phosphorus, Total Kjeldahl Nitrogen, Total Nitrite+Nitrate Nitrogen, Ammonia Nitrogen, Dissolved Oxygen, Temperature, Specific Conductance, Alkalinity, Hardness, Secchi depths, and Chlorophyll are collected and analyzed at each station. Qualitative evaluations of algal blooms and aquatic vegetation are performed at each lake.

**This Volume contains Panel 1 lakes raw data, observations, and trophic state assessments as described above.**

## 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.

<b>Total Phosphorus TSI</b>	$(TSIP) = 14.42 \ln(TP) + 4.15$
<b>Chlorophyll "<u>a</u>" TSI</b>	$(TSIC) = 9.81 \ln(\text{Chl } \underline{a}) + 30.6$
<b>Secchi Disk TSI</b>	$(TSIS) = 60 - 14.41 \ln(SD)$

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. An individual average TSI rating was calculated for each in-lake site and for each season.

### **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.

# AMBIENT LAKE MONITORING NETWORK

**Lake Name** Allentown Lake  
**Site ID** NJW04459-231

**County** Monmouth  
**Municipality** Allentown Borough



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	63.18	82.47	60	68.55 Eutrophic
Fall Station 1	73.05	75.42	69.99	72.82 Hypereutrophic

  Total Phosphorus exceeds SWQC (See Datasheet for actual concentration)

## Observations

### Summer

-Filamentous algae present

### Fall

-Lake level slightly lower than summer.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Allentown Lake  
SiteID: NJW04459-231

County: MONMOUTH  
Municipality: ALLENTOWN BORO

## Surface to Bottom Profile

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	0.9	1.0	26.11	7.72	95.4	7.14	0.204
outlet	0.6	0.6		26.68	7.11	88.9	7.2	0.203

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.3	0.9	0.5	23.27	8.61	100.5	7.47	0.235
outlet	0.8	0.5		24.29	7.15	85	7.32	0.235

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Allentown Lake

County: MONMOUTH

SiteID: NJW04459-231

Municipality: ALLENTOWN BORO

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	59.94	1.07	0.298	0.075	197.8	37	59.9	17.9
outlet	73.72	0.717	0.249	0.032	111.4	39	62.4	15.2

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	118.91	1.09	0.21	0.034	96.5	43	75.8	21.3
outlet	83.79	0.827	0.18	0.054	65.9	39	75.5	21.7

Sample Device - Horizontal Polycarbonate Sampler

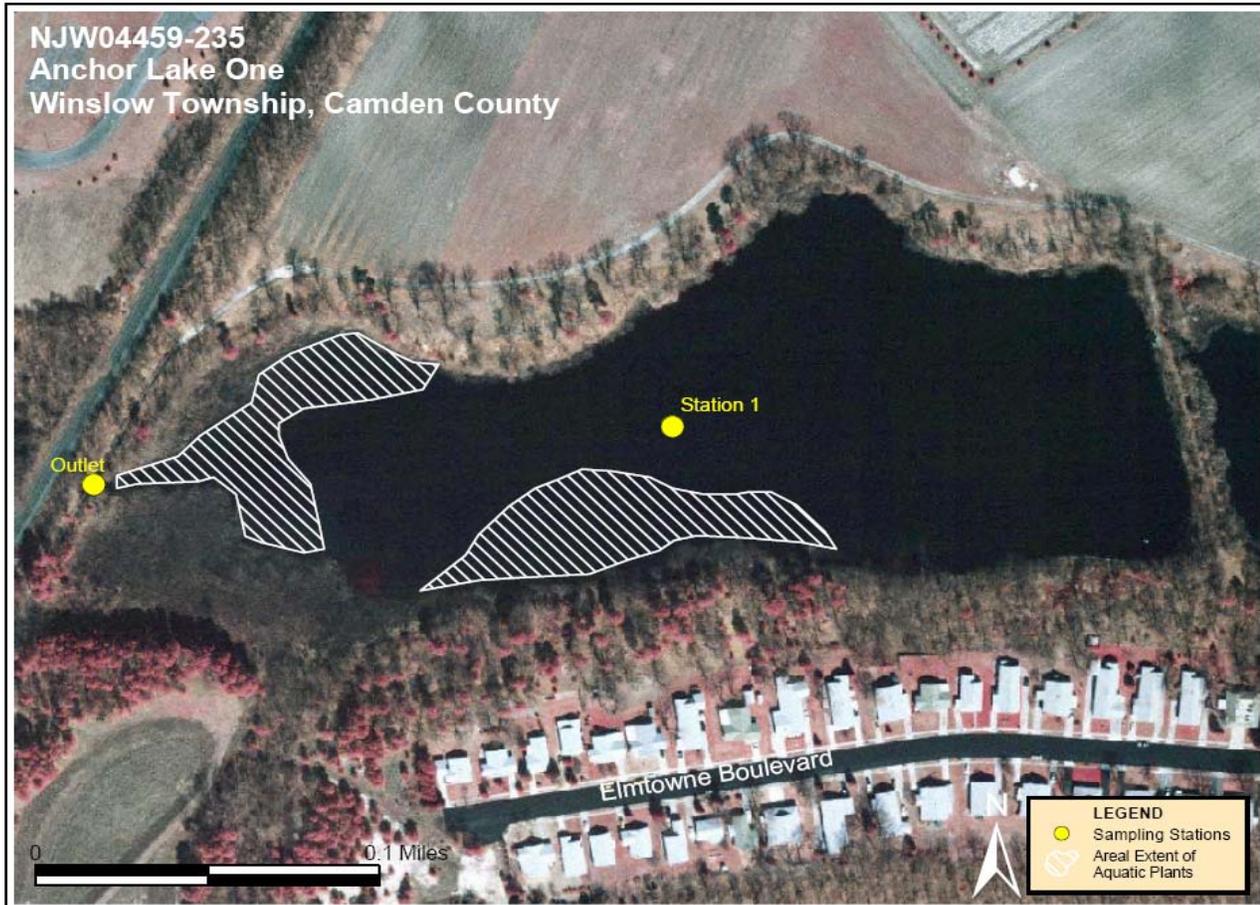
"<" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

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

# AMBIENT LAKE MONITORING NETWORK

**Lake Name** Anchor Lake One  
**Site ID** NJW04459-235

**County** Camden  
**Municipality** Winslow Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	59.47	59.83	63.22	60.84 Eutrophic
Fall Station 1	54.28	51.21	69.99	58.49 Eutrophic

## Observations

### Summer

-Submerged aquatic vegetation throughout. Duckweed. Surface algae.

### Fall

-Lake level slightly lower than summer.

# AMBIENT LAKE MONITORING NETWORK

**Lake Name:** Anchor Lake One  
**SiteID:** NJW04459-235

**County:** CAMDEN  
**Municipality:** WINSLOW TWP

## Surface to Bottom Profile

**Season:** Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	0.8	0.5	0.8	25.22	6.18	74.6	6.01	0.095
outlet	0.6	0.3		27.34	5.5	69	6.13	0.094

**Season:** Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	0.5	0.3	0.5	24.88	9.12	109.6	6.81	0.1
outlet	0.5	0.3		26.42	7.01	86.2	7.57	0.099

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Anchor Lake One

County: CAMDEN

SiteID: NJW04459-235

Municipality: WINSLOW TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	46.35	0.353	0.094	0.071	19.7	14	15.2	2.6
outlet	45.86	0.321	0.014	0.052	23.7	13	14.4	2.14

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	32.34	0.329	0.372	0.091	8.2	8	14.9	2.12
outlet	21.36	0.394	0.011	0.052	7.4	9	12.8	1.12

Sample Device - Horizontal Polycarbonate Sampler

"<" 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 Ashroe  
**Site ID** NJW04459-013

**County** Sussex  
**Municipality** Sandyston Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.25	58.96	50.01	55.07 Eutrophic
Summer Station 2	47.46	60.67	50.01	57.72 Eutrophic
Fall Station 1	37.88	49.01	49.31	45.40 Mesotrophic
Fall Station 2	42.09	53.21	44.66	46.65 Mesotrophic

## Observations

### Summer

-Submerged aquatic vegetation.

### Fall

-Snails observed.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Lake Ashroe

County: SUSSEX

SiteID: NJW04459-013

Municipality: SANDYSTON TWP

## Surface to Bottom Profile

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.2	0.9	2.0	25.1	7.22	87.2	7.49	0.061
2	3.4	0.9	2.0	24.55	6.23	73.6	7.33	0.078
2	3.4	1.8	2.0	24.2	6.5	76.3	7.28	0.078
2	3.4	2.7	2.0	24.03	5.63	63.4	7.09	0.078

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.1	0.9	2.1	8.12	9.03	78.1	6.4	0.051
1	2.1	1.8	2.1	8.1	8.97	77.5	6.41	0.051
2	3.5	0.9	2.9	8.93	8.31	73.2	6.35	0.051
2	3.5	1.8	2.9	8.91	8.29	73	6.34	0.051
2	3.5	2.7	2.9	8.87	8.33	73.2	6.35	0.051
outlet	0.2	0.2		8.93	9.62	84.8	6.59	0.051

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Lake Ashroe

County: SUSSEX

SiteID: NJW04459-013

Municipality: SANDYSTON TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	37.08	0.312	<0.006	0.032	18.0	17	21.1	2.18
2	20.16	0.273	0.006	0.030	21.4	22	24.8	2.59

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	<10.37	0.199	<0.006	<0.004	6.5	12	18.2	0.84
2	13.89	0.268	<0.006	<0.004	10.0	7	17.6	1.25
outlet	12.69	0.265	<0.006	<0.006	10.1	13	18	1.04

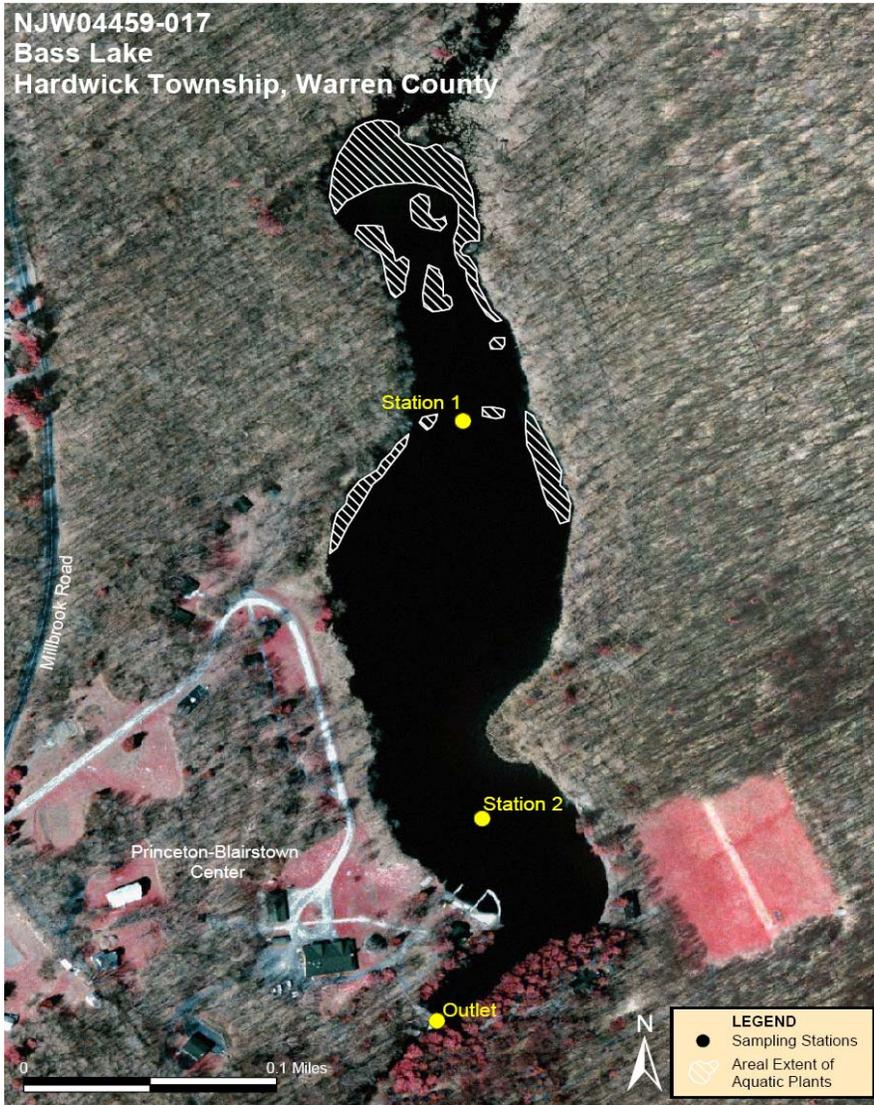
Sample Device - Horizontal Polycarbonate Sampler

"<" 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** Bass Lake      **County** Warren  
**Site ID** NJW04459-017      **Municipality** Hardwick Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	63.45	68.75	65.17	65.78 Eutrophic
Summer Station 2	65.58	70.16	63.22	66.32 Eutrophic
Fall Station 1	39.64	37.77	NA	38.71 Oligotrophic
Fall Station 2	41.91	41.87	46.23	43.34 Mesotrophic

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

### Observations

#### Summer

-Lake herbicide treated on 8/16/05 (day before sampling). Lily pads. Ducks.

#### Fall

-Station 1 heavily silted.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Bass Lake

County: WARREN

SiteID: NJW04459-017

Municipality: HARDWICK TWP

## Surface to Bottom Profile

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	0.6	0.7	24.32	6.64	81.4	7.38	0.143
2	3.2	0.9	0.8	24.65	6.34	78.1	7.27	0.144
2	3.2	1.8	0.8	24.06	2.54	31	6.47	0.146
2	3.2	2.7	0.8	23.32	1.4	16.9	6.36	0.151
outlet	<0.2	<0.2		24.5	5.7	70.1	6.92	0.149

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	0.7	0.5	0.7	11.59	8.32	78.2	6.52	0.094
2	2.8	0.9	2.6	13.21	7.76	75.7	6.29	0.089
2	2.8	1.8	2.6	12.95	7.75	75.2	6.37	0.089
outlet	0.3	0.3		12.74	8.71	84.1	6.43	0.091

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Bass Lake

County: WARREN

SiteID: NJW04459-017

Municipality: HARDWICK TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	61.09	0.415	0.006	0.023	48.9	36	45.7	7.23
2	70.8	0.562	<0.006	0.024	56.4	38	47.5	6.91
outlet	51.86	0.483	0.009	0.062	37.4	36	46.8	5.08

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	11.72	0.276	0.056	0.02	2.1	4	26.6	1.63
2	13.72	0.246	0.074	0.028	3.2	13	25.4	1.27
outlet	17.29	0.289	0.071	0.036	2.7	11	24.8	2.61

Sample Device - Horizontal Polycarbonate Sampler

"<" 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** Braddocks Mill Pond  
**Site ID** NJW04459-230

**County** Burlington  
**Municipality** Medford Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer				54.06
Summer Station 1	56.76	51.35	NA	Eutrophic
Summer Station 2	56.76	54.03	52.35	Eutrophic
Summer Station 3	56.76	54.51	54.16	Eutrophic
Fall				40.96
Fall Station 1	37.88	44.04	NA	Mesotrophic
Fall Station 2	37.88	46.22	49.31	Mesotrophic
Fall Station 3	37.88	48.75	49.31	Mesotrophic

## Observations

### Summer

-No significant observations.

### Fall

-No significant observations.

# ***AMBIENT LAKE MONITORING NETWORK***

**Lake Name:** Braddocks Millpond  
**SiteID:** NJW04459-230

**County:** BURLINGTON  
**Municipality:** MEDFORD TWP

## ***Surface to Bottom Profile***

**Season:** *Summer*

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.1	0.9	1.1	26.23	8.45	103.9	6.37	0.079
2	2.3	0.9	1.7	26.13	7.47	91.7	6.03	0.083
2	2.3	1.8	1.7	23.73	0.64	8.2	5.26	0.092
3	3.0	0.9	1.5	26.39	7.6	93.8	5.92	0.082
3	3.0	1.8	1.5	23.85	0.34	4	5.07	0.088
3	3.0	2.7	1.5	18.32	0.09	0.9	6.29	0.143
outlet	0.3	0.3		28.27	7.95	101.4	6.16	0.083

**Season:** *Fall*

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	0.9	0.8	0.9	23.8	7.43	87.8	5.95	0.078
2	2.3	0.9	2.1	23.82	8.02	94.7	6.04	0.081
2	2.3	1.8	2.1	22.96	7.7	89.4	5.76	0.08
3	2.8	0.9	2.1	23.92	8.02	94.8	6.1	0.081
3	2.8	1.8	2.1	22.94	7.37	85.6	5.73	0.08
3	2.8	2.7	2.1	21.41	0.88	9.9	5.51	0.088
outlet	0.3	0.2		23.91	7.77	91.9	6.08	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 because visibility was obscured by vegetation.*

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Braddocks Millpond

County: BURLINGTON

SiteID: NJW04459-230

Municipality: MEDFORD TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	< 38.41	0.302	0.183	0.031	8.3	7	12.3	2.07
2	< 38.41	0.356	0.217	0.032	10.9	7	12.3	2.29
3	< 38.41	0.318	0.24	0.031	11.4	7	12.4	2.23
outlet	< 38.41	0.285	0.246	0.035	9.8	8	12.6	2.21

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	<10.37	0.331	0.309	0.033	3.9	6	12	0.96
2	<10.37	0.268	0.273	0.028	4.9	7	12.2	1.25
3	<10.37	0.309	0.258	0.028	6.4	6	12.1	1.14
outlet	<10.37	0.29	0.255	0.032	5.7	8	12.5	1.98

Sample Device - Horizontal Polycarbonate Sampler

"<" 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** Brainerd Lake      **County** Middlesex  
**Site ID** NJW04459-033      **Municipality** Cranbury Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	70.84	54.9	77.35	67.70 Eutrophic
Summer Station 2	67.1	56.28	77.35	66.91 Eutrophic
Fall Station 1	58.63	62.99	67.36	63.00 Eutrophic
Fall Station 2	57.61	65.9	65.14	62.88 Eutrophic

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

### Observations

#### Summer

-Lake Cloudy and turbid. Water level elevated due to rain 48 hours prior to sampling.

#### Fall

-No significant observations.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Brainerd Lake

County: MIDDLESEX

SiteID: NJW04459-033

Municipality: CRANBURY TWP

## Surface to Bottom Profile

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	0.9	0.3	24.75	0.14	1.7	6.65	0.163
2	1.7	0.9	0.3	24.84	4.08	48.9	6.07	0.152
outlet	0.6	0.6		25.26	4.79	58.1	5.98	0.137

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	0.9	0.6	24.68	5.67	69.1	6.33	0.236
2	1.7	0.9	0.7	25.96	8.01	100	6.69	0.224
outlet	0.6	0.3		25.78	5.97	74.2	6.42	0.225

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Brainerd Lake

County: MIDDLESEX

SiteID: NJW04459-033

Municipality: CRANBURY TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	102.02	0.916	0.588	0.173	11.9	15	30.3	42
2	78.71	0.929	0.526	0.078	13.7	16	28	36.2
outlet	89.83	0.966	0.475	0.122	18.6	16	25.3	36.7

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	43.74	0.743	0.6	0.102	27.2	25	51.2	9.84
2	40.74	0.811	0.661	0.114	36.6	23	50.9	9.79
outlet	33.24	0.865	0.587	0.207	42.3	25	50.7	7.66

Sample Device - Horizontal Polycarbonate Sampler

"<" 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 Burnt Mill Pond  
 Site ID NJW04459-014

County Cumberland  
 Municipality Vineland City



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	65.97	58.63	60.45 Eutrophic
Fall Station 1	37.88	42.12	58.63	46.21 Mesotrophic

## Observations

### Summer

-Submerged aquatic vegetation throughout. Filamentous algae. Duckweed. Lily pads. Fish.

### Fall

-Submerged aquatic vegetation throughout. Filamentous algae.

# AMBIENT LAKE MONITORING NETWORK

**Lake Name:** Burnt Mill Pond  
**SiteID:** NJW04459-014

**County:** CUMBERLAND  
**Municipality:** VINELAND CITY

## Surface to Bottom Profile

**Season:** Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.1	0.9	1.1	25.56	12.25	149.3	6.93	0.148
outlet	0.5	0.5		29.41	9.39	122.7	8.44	0.159

**Season:** Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.1	0.9	1.1	22.51	8.64	98.6	6.97	0.158
outlet	0.8	0.5		23.9	9.2	107.7	9.02	0.16

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

**Lake Name:** Burnt Mill Pond  
**SiteID:** NJW04459-014

**County:** CUMBERLAND  
**Municipality:** VINELAND CITY

## Lake Profile Raw Data

**Season:** Summer

<i>Station</i>	<i>Tot Phos</i> <i>(ug/L)</i>	<i>TKN</i> <i>(mg/L)</i>	<i>Nitrite-Nitrate</i> <i>(mg/L)</i>	<i>Ammonia-N</i> <i>(mg/L)</i>	<i>Chl a</i> <i>(ug/L)</i>	<i>Alk</i> <i>(ppm)</i>	<i>Hard</i> <i>(ppm)</i>	<i>Turbidity</i> <i>(NTU)</i>
1	< 38.41	0.352	4.71	0.029	36.8	15	42	2.27
outlet	< 38.41	0.398	3.87	0.043	4.5	20	39.6	0.93

**Season:** Fall

<i>Station</i>	<i>Tot Phos</i> <i>(ug/L)</i>	<i>TKN</i> <i>(mg/L)</i>	<i>Nitrite-Nitrate</i> <i>(mg/L)</i>	<i>Ammonia-N</i> <i>(mg/L)</i>	<i>Chl a</i> <i>(ug/L)</i>	<i>Alk</i> <i>(ppm)</i>	<i>Hard</i> <i>(ppm)</i>	<i>Turbidity</i> <i>(NTU)</i>
1	<10.37	0.24	4.54	0.028	3.2	18	37.7	0.71
outlet	21.19	0.206	3.94	0.03	2.2	17	36.7	0.42

*Sample Device - Horizontal Polycarbonate Sampler*

*"<" 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** Butler Pond      **County** Essex  
**Site ID** NJW04459-037      **Municipality** Livingston Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	74.95	65.72	83.19	74.62 Hypereutrophic
Fall Station 1	67.69	64.75	83.19	71.88 Hypereutrophic

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

### Observations

#### Summer

-Lily pads.

#### Fall

-Heavy rain during two weeks prior to sampling. Fish observed.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Butler Pond

County: ESSEX

SiteID: NJW04459-037

Municipality: LIVINGSTON TWP

## Surface to Bottom Profile

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	0.4	0.3	0.2	21.71	4.55	51.3	7.26	0.496

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	0.6	0.2	9.15	9.1	80.1	7.09	0.184
outlet	0.2	0.2		9.09	10.21	89.7	7.23	0.19

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Butler Pond

County: ESSEX

SiteID: NJW04459-037

Municipality: LIVINGSTON TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	135.65	1.51	0.023	0.184	35.9	124	120.6	177

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	81.99	0.836	0.263	<0.004	32.5	47	65.6	43.7
outlet	78.81	0.867	0.27	<0.004	33.4	44	66.8	46.7

Sample Device - Horizontal Polycarbonate Sampler

"<" 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** Cedarville Block, Sand & Gravel Co. Pond    **County** Cumberland  
**Site ID** NJW04459-025    **Municipality** Lawrence Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	56.64	50.75	54.72 Eutrophic
Summer Station 2	56.76	56.75	49.31	54.27 Eutrophic
Fall Station 1	57.86	56.9	61.52	58.76 Eutrophic
Fall Station 2	49.64	57.3	57.37	54.77 Eutrophic

## Observations

### Summer

- Many geese. Blue heron. Lake previously used to rear hybrid striped bass.
- Lake water used for irrigation of surrounding farms.

### Fall

- No significant observations.

# ***AMBIENT LAKE MONITORING NETWORK***

**Lake Name:** Cedarville Block Sand & Gravel Company Pond      **County:** CUMBERLAND  
**SiteID:** NJW04459-025      **Municipality:** LAWRENCE TWP

## ***Surface to Bottom Profile***

**Season:** *Summer*

<i><b>Station</b></i>	<i><b>Tot. Depth (M)</b></i>	<i><b>Profile Depth (M)</b></i>	<i><b>Secchi (M)</b></i>	<i><b>Water Temp (C)</b></i>	<i><b>DO (mg/L)</b></i>	<i><b>DO (%Sat)</b></i>	<i><b>pH (SU)</b></i>	<i><b>Conductivity (mS/cm)</b></i>
1	4.7	0.9	1.9	29.89	9.4	124	8.88	0.27
1	4.7	1.8	1.9	29.64	9.65	126.5	8.93	0.27
1	4.7	2.7	1.9	28.78	9.97	128.7	8.76	0.269
1	4.7	3.6	1.9	28.13	9.86	125.9	8.2	0.271
1	4.7	4.6	1.9	25.64	2.32	28.3	6.46	0.29
2	4.9	0.9	2.1	29.86	9.26	121.9	8.94	0.27
2	4.9	1.8	2.1	29.67	9.51	124.7	8.95	0.27
2	4.9	2.7	2.1	28.9	10.94	141.5	9.04	0.268
2	4.9	3.6	2.1	27.89	12.52	159.2	8.26	0.27
2	4.9	4.6	2.1	24.97	6.37	77.6	6.45	0.272

**Season:** *Fall*

<i><b>Station</b></i>	<i><b>Tot. Depth (M)</b></i>	<i><b>Profile Depth (M)</b></i>	<i><b>Secchi (M)</b></i>	<i><b>Water Temp (C)</b></i>	<i><b>DO (mg/L)</b></i>	<i><b>DO (%Sat)</b></i>	<i><b>pH (SU)</b></i>	<i><b>Conductivity (mS/cm)</b></i>
1	4.4	0.9	0.9	23.79	4.58	53.9	7.05	0.274
1	4.4	1.8	0.9	23.79	4.39	51.7	7.05	0.273
1	4.4	2.7	0.9	23.78	4.46	52.5	7.08	0.274
1	4.4	3.6	0.9	23.76	4.3	50.7	7.03	0.275
2	4.4	0.9	1.2	23.84	5.08	60	7.16	0.275
2	4.4	1.8	1.2	23.84	5.03	59.3	7.16	0.275
2	4.4	2.7	1.2	23.81	4.96	58.4	7.17	0.275
2	4.4	3.6	1.2	23.79	5	58.9	7.2	0.274

*-Secchi measurements are not recorded for outlets.*

*-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.*

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

# AMBIENT LAKE MONITORING NETWORK

**Lake Name:** Cedarville Block Sand & Gravel Company Pond      **County:** CUMBERLAND  
**SiteID:** NJW04459-025      **Municipality:** LAWRENCE TWP

## Lake Profile Raw Data

**Season:** Summer

<i>Station</i>	<i>Tot Phos</i> <i>(ug/L)</i>	<i>TKN</i> <i>(mg/L)</i>	<i>Nitrite-Nitrate</i> <i>(mg/L)</i>	<i>Ammonia-N</i> <i>(mg/L)</i>	<i>Chl a</i> <i>(ug/L)</i>	<i>Alk</i> <i>(ppm)</i>	<i>Hard</i> <i>(ppm)</i>	<i>Turbidity</i> <i>(NTU)</i>
1	< 38.41	0.382	3.15	0.03	14.2	48	102.3	3.82
2	< 38.41	0.428	3.3	0.029	14.4	45	104.1	3.09

**Season:** Fall

<i>Station</i>	<i>Tot Phos</i> <i>(ug/L)</i>	<i>TKN</i> <i>(mg/L)</i>	<i>Nitrite-Nitrate</i> <i>(mg/L)</i>	<i>Ammonia-N</i> <i>(mg/L)</i>	<i>Chl a</i> <i>(ug/L)</i>	<i>Alk</i> <i>(ppm)</i>	<i>Hard</i> <i>(ppm)</i>	<i>Turbidity</i> <i>(NTU)</i>
1	41.45	0.957	1.94	0.466	14.6	62	109.6	8.07
2	23.44	0.848	1.98	0.4	15.2	65	109.1	6.18

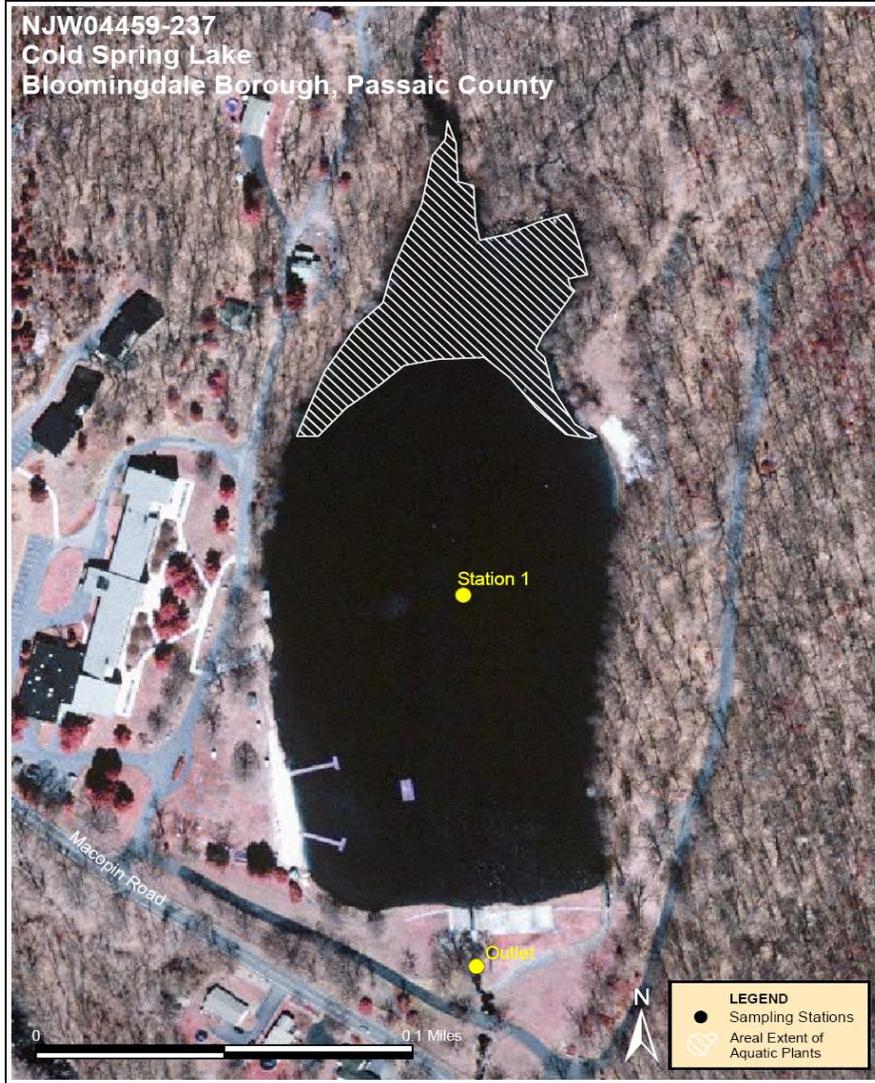
*Sample Device - Horizontal Polycarbonate Sampler*

*"<" 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** Cold Spring Lake      **County** Passaic  
**Site ID** NJW04459-237      **Municipality** Bloomingdale Borough



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	50.25	48	51.67 Eutrophic
Fall Station 1	39.01	46.16	46.23	43.80 Mesotrophic

## Observations

### Summer

- Lily pads. Submerged aquatic vegetation. Geese. Freshwater jelly fish.

### Fall

- Freshwater jelly fish.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Cold Spring Lake  
SiteID: NJW04459-237

County: PASSAIC  
Municipality: BLOOMINGDALE BORO

## Surface to Bottom Profile

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.6	0.9	2.3	28.08	6.24	81.6	7.15	0.157
1	2.6	1.8	2.3	27.76	6	78.2	7.08	0.157
outlet	<0.2	<0.2	1.0	18.18	1.34	14.6	6.43	0.173

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	2.6	0.9	2.6	21.57	6.36	73.4	6.86	0.164
1	2.6	1.8	2.6	20.62	6.25	70.9	6.83	0.164
outlet	<0.2	<0.2		16.84	0.9	9.4	6.38	0.192

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Cold Spring Lake

County: PASSAIC

SiteID: NJW04459-237

Municipality: BLOOMINGDALE BORO

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	< 38.41	0.159	<0.006	0.022	7.4	19	25.8	1.2
outlet	< 38.41	0.137	0.359	0.105	0.1	42	44	1.77

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	11.22	0.296	0.007	0.039	4.9	17	27.4	1.14
outlet	<10.37	0.273	0.277	0.197	0.0	45	50.6	3.81

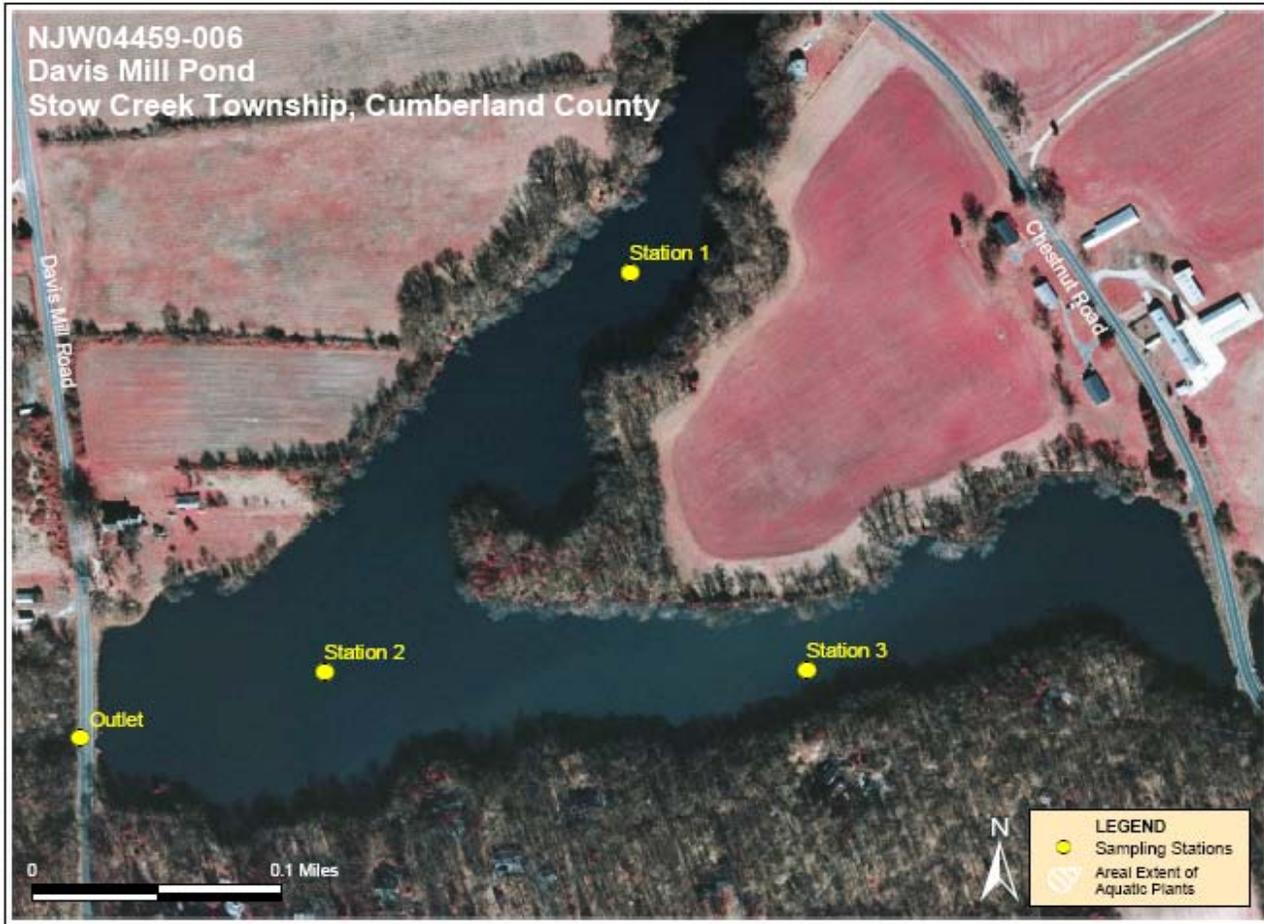
Sample Device - Horizontal Polycarbonate Sampler

"<" 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** Davis Mill Pond      **County** Cumberland  
**Site ID** NJW04459-006      **Municipality** Stow Creek Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	60.73	73.15	67.36	67.08 Eutrophic
Summer Station 2	59.36	74.29	69.99	67.88 Eutrophic
Summer Station 3	56.76	71.69	69.99	66.15 Eutrophic
Fall Station 1	68.25	71.63	73.2	71.03 Hypereutrophic
Fall Station 2	69.3	72.15	73.2	71.55 Hypereutrophic
Fall Station 3	65.73	72.45	69.99	69.39 Eutrophic

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

### Observations

#### Summer

-Geese. Duckweed. Fish.

#### Fall

-No significant observations.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Davis Mill pond  
SiteID: NJW04459-006

County: CUMBERLAND  
Municipality: STOW CREEK TWP

## Surface to Bottom Profile

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	0.9	0.6	29.03	7.75	100.6	6.91	0.139
2	2.6	0.9	0.5	29.19	9.76	127.1	8.59	0.138
2	2.6	1.8	0.5	28.3	3.19	40.9	6.59	0.141
3	2.2	0.9	0.5	29.43	9.41	123.1	8.43	0.139
3	2.2	1.8	0.5	28.7	4.6	59.3	6.71	0.141
outlet	0.5	0.3		28.41	5.8	74.4	6.95	0.17

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	0.9	0.4	23.55	6.5	75.6	6.84	0.144
2	2.6	0.9	0.4	24.26	7.76	91.6	7.39	0.143
2	2.6	1.8	0.4	24.11	6.63	78.2	6.98	0.144
3	2.2	0.9	0.5	24.04	7.27	85.3	7.03	0.143
3	2.2	1.8	0.5	23.98	6.85	80.4	6.91	0.144
outlet	0.6	0.3		23.77	6.23	72.8	6.8	0.232

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Davis Mill pond

County: CUMBERLAND

SiteID: NJW04459-006

Municipality: STOW CREEK TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	50.6	0.842	0.026	0.022	76.5	25	50.2	17.9
2	46	0.828	0.01	0.025	86.0	25	48.5	10.6
3	< 38.41	0.734	0.064	0.016	66.0	24	48.7	10.8
outlet	< 38.41	0.887	0.044	0.045	90.9	26	51.1	16

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	85.19	0.839	0.006	0.034	65.5	24	51.8	12.6
2	91.64	0.811	<0.006	0.029	69.1	26	51.7	12.7
3	71.55	0.8	<0.006	0.022	71.3	25	51.6	14
outlet	87.83	1.18	0.025	0.064	64.9	30	59.6	15.1

Sample Device - Horizontal Polycarbonate Sampler

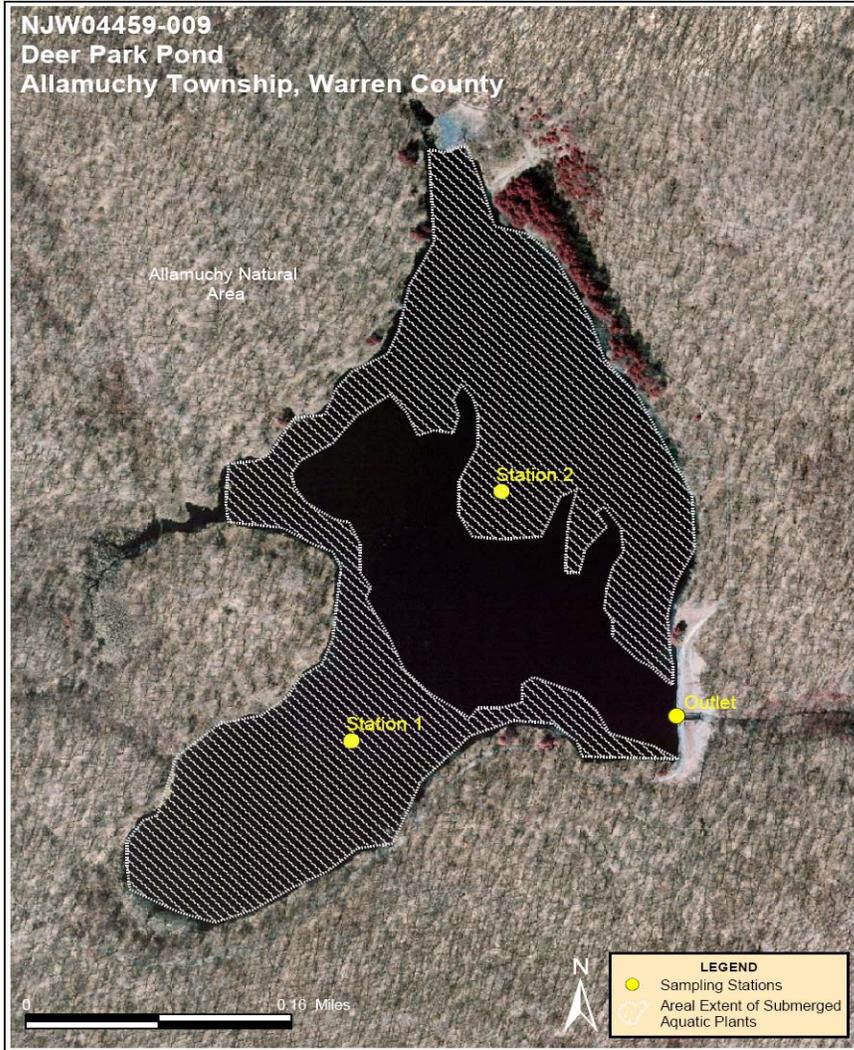
"<" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

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

# AMBIENT LAKE MONITORING NETWORK

**Lake Name** Deer Park Pond  
**Site ID** NJW04459-009

**County** Warren  
**Municipality** Allamuchy Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	51.18	NA	53.97 Eutrophic
Summer Station 2	56.76	50.36	54.16	59.60 Eutrophic
Fall Station 1	39.51	50.67	51.53	47.24 Mesotrophic
Fall Station 2	42.42	51.17	49.31	47.63 Mesotrophic

## Observations

### Summer

-Secchi reading obscured by plants at Station 1. Ducks. Beaver dam.

### Fall

-No significant observations.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Deer Park Pond  
SiteID: NJW04459-009

County: WARREN  
Municipality: ALLAMUCHY TWP

## Surface to Bottom Profile

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.3	0.9	0.9	25.37	3.61	45.1	6.41	0.088
2	2.1	0.9	1.5	26.21	6.22	78.9	7.35	0.087
2	2.1	1.8	1.5	25.73	3.48	44.3	6.55	0.091

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.8	0.9	1.8	13.47	6.92	68.6	6.54	0.076
1	1.8	1.8	1.8	13.14	4.46	43.9	6.47	0.078
2	2.4	0.9	2.1	14.01	7.13	71.5	6.71	0.076
2	2.4	1.8	2.1	13.67	6.92	68.9	6.68	0.076
outlet	<0.2	<0.2		14.74	8.47	86.3	7.12	0.077

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Deer Park Pond

County: WARREN

SiteID: NJW04459-009

Municipality: ALLAMUCHY TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	< 38.41	0.468	0.007	0.032	8.1	39	42.1	1.07
2	<38.41	0.634	0.006	0.025	44.7	38	42.3	3.99

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	11.61	0.436	<0.006	0.018	7.7	26	37.3	0.67
2	14.21	0.44	0.011	0.038	8.1	25	35.7	0.68
outlet	<10.37	0.512	0.006	0.021	4.6	25	37.1	0.56

Sample Device - Horizontal Polycarbonate Sampler

"<" 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** Eastern Gate Lake      **County** Gloucester  
**Site ID** NJW04459-236      **Municipality** Franklin Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	51.16	53.23	53.71 Eutrophic
Fall Station 1	37.88	50.05	44.66	44.19 Mesotrophic

### Observations

#### Summer

-No significant observations.

#### Fall

-No significant observations.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Eastern Gate Lake  
SiteID: NJW04459-236

County: GLOUCESTER  
Municipality: FRANKLIN TWP

## Surface to Bottom Profile

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	5.0	0.9	1.6	29.4	9.19	120.2	8.64	0.166
1	5.0	1.8	1.6	29.02	9.26	120.3	8.68	0.165
1	5.0	2.7	1.6	28.85	9.26	120	8.68	0.165
1	5.0	3.6	1.6	28.23	6.95	89.1	7.67	0.167
1	5.0	4.6	1.6	24.46	3.81	45.6	7.36	0.192

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	4.9	0.9	2.9	23.48	6.26	73.8	7.46	0.191
1	4.9	1.8	2.9	23.48	6.05	71.3	7.49	0.192
1	4.9	2.7	2.9	23.47	6	70.7	7.48	0.191
1	4.9	3.6	2.9	23.47	6.01	70.8	7.48	0.191
1	4.9	4.6	2.9	23.44	5.96	70.1	7.46	0.192

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

**Lake Name:** Eastern Gate Lake

**County:** GLOUCESTER

**SiteID:** NJW04459-236

**Municipality:** FRANKLIN TWP

## Lake Profile Raw Data

**Season:** Summer

<i>Station</i>	<i>Tot Phos</i> (ug/L)	<i>TKN</i> (mg/L)	<i>Nitrite-Nitrate</i> (mg/L)	<i>Ammonia-N</i> (mg/L)	<i>Chl a</i> (ug/L)	<i>Alk</i> (ppm)	<i>Hard</i> (ppm)	<i>Turbidity</i> (NTU)
1	< 38.41	0.309	0.146	0.028	8.1	53	58	1.09

**Season:** Fall

<i>Station</i>	<i>Tot Phos</i> (ug/L)	<i>TKN</i> (mg/L)	<i>Nitrite-Nitrate</i> (mg/L)	<i>Ammonia-N</i> (mg/L)	<i>Chl a</i> (ug/L)	<i>Alk</i> (ppm)	<i>Hard</i> (ppm)	<i>Turbidity</i> (NTU)
1	<10.37	0.304	0.104	0.079	7.3	59	65.4	1.75

*Sample Device - Horizontal Polycarbonate Sampler*

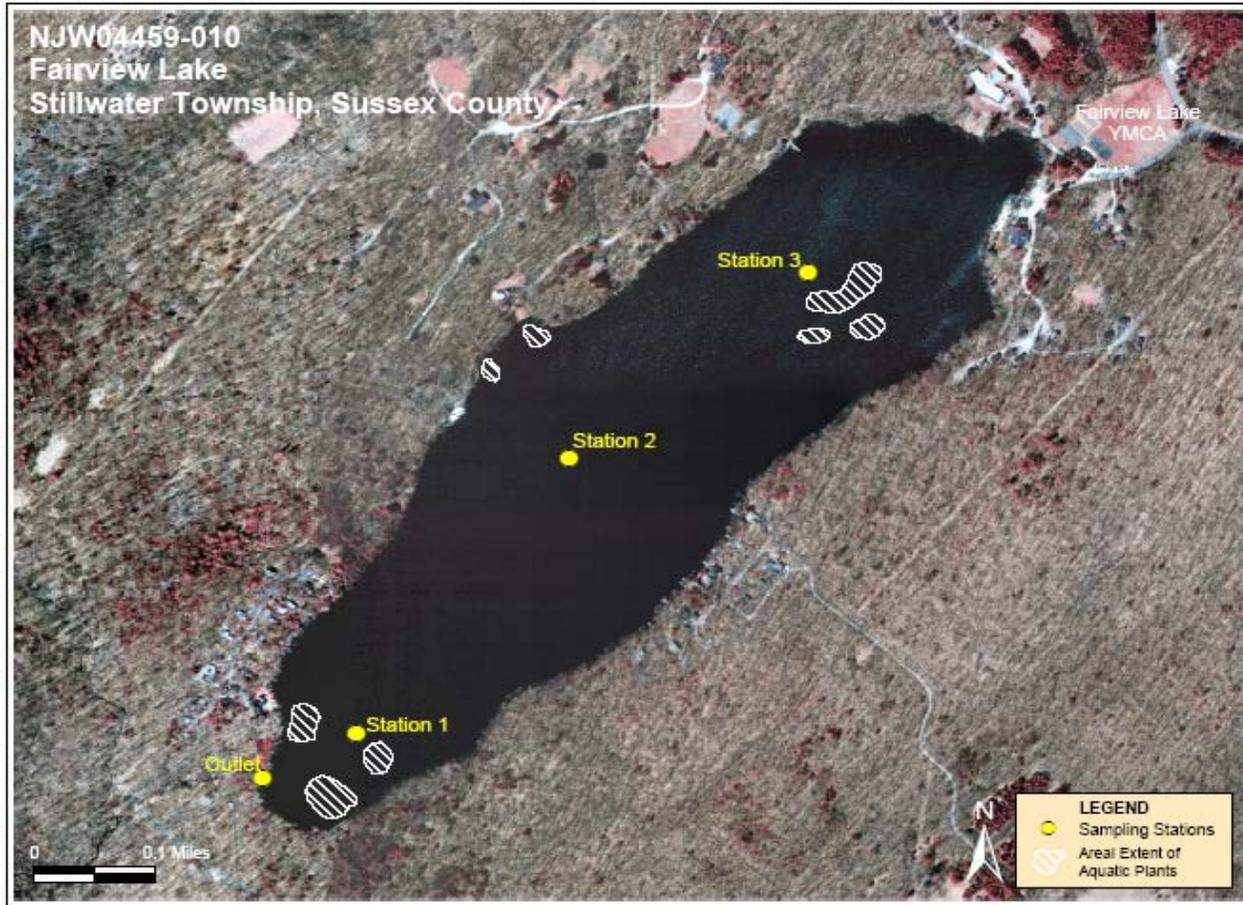
*"<" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.*

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

# AMBIENT LAKE MONITORING NETWORK

**Lake Name** Fairview Lake  
**Site ID** NJW04459-010

**County** Sussex  
**Municipality** Stillwater Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	46.49	62.55	54.16	54.40 Eutrophic
Summer Station 2	53.57	63.72	57.37	58.22 Eutrophic
Summer Station 3	49.9	68.71	58.63	59.08 Eutrophic
Fall Station 1	54.06	64.79	55.15	58.00 Eutrophic
Fall Station 2	63.72	64.46	56.22	61.47 Eutrophic
Fall Station 3	53.73	64.54	NA	59.14 Eutrophic

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

### Observations

#### Summer

-Filamentous algae. Heron.

#### Fall

-No significant observations.

# *AMBIENT LAKE MONITORING NETWORK*

**Lake Name:** Fairview Lake  
**SiteID:** NJW04459-010

**County:** SUSSEX  
**Municipality:** STILLWATER TWP

## *Surface to Bottom Profile*

**Season:** *Summer*

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	3.5	0.9	1.5	25.32	6.87	86.1	7.92	0.059
1	3.5	1.8	1.5	25.14	6.8	85	7.9	0.058
1	3.5	2.7	1.5	25.07	6.71	83.9	7.68	0.06
2	5.5	0.9	1.2	25.04	6.76	84.3	7.76	0.059
2	5.5	1.8	1.2	24.92	6.62	82.4	7.48	0.06
2	5.5	2.7	1.2	24.85	6.4	79.5	7.19	0.059
2	5.5	3.6	1.2	24.6	3.47	43	6.24	0.06
2	5.5	4.6	1.2	23.73	0.06	0.7	6.09	0.066
2	5.5	5.4	1.2	18.75	0.02	0.2	6.48	0.176
3	4.5	0.9	1.1	24.92	6.7	83.4	7.59	0.059
3	4.5	1.8	1.1	24.8	6.5	80.8	7.31	0.059
3	4.5	2.7	1.1	24.66	6.47	80.2	7.29	0.059
3	4.5	3.6	1.1	24.43	6.19	76.4	6.98	0.06
outlet	0.2	0.2		25.48	6.22	78.3	6.68	0.059

**Season:** *Fall*

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	3.81	0.9	1.4	14.82	8.44	86.6	6.97	0.06
1	3.81	1.8	1.4	14.82	8.31	85.5	7	0.06
1	3.81	2.7	1.4	14.76	8.25	84.6	6.97	0.06
1	3.81	3.6	1.4	14.7	8.08	82.7	6.89	0.061
2	5.7	0.9	1.3	15.06	8.26	85.1	7.01	0.06
2	5.7	1.8	1.3	14.85	8.1	83.2	6.94	0.061
2	5.7	2.7	1.3	14.81	8.02	82.3	6.9	0.06
2	5.7	3.6	1.3	14.8	8.03	82.4	6.92	0.06
2	5.7	4.6	1.3	14.76	8.04	82.5	6.9	0.06
2	5.7	5.4	1.3	14.75	8.05	82.6	6.88	0.06
3	4.6	0.9		14.85	8.38	86.1	7.04	0.06
3	4.6	1.8		14.57	8.16	83.3	6.93	0.06
3	4.6	2.7		14.54	8.2	83.7	6.93	0.061
3	4.6	3.6		14.36	8.27	84.1	6.94	0.06
outlet	0.2	0.2		14.74	8.82	90.4	6.86	0.06

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Fairview Lake

County: SUSSEX

SiteID: NJW04459-010

Municipality: STILLWATER TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	18.84	0.177	<0.006	0.032	26.0	16	20.6	2.08
2	30.79	0.175	<0.006	0.03	29.2	16	20.4	1.99
3	23.87	0.165	<0.006	0.03	48.7	15	20.3	3.04
outlet	10.65	0.152	0.01	0.047	12.9	15	20	1.48

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	31.85	0.733	0.06	0.355	32.6	17	20	3.16
2	62.23	0.769	0.055	0.368	31.6	17	20.4	2.86
3	31.14	0.737	0.057	0.356	31.8	19	20.6	3.04
outlet	20.03	0.685	0.072	0.342	30.1	17	20.5	3.4

Sample Device - Horizontal Polycarbonate Sampler

"<" 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** Fawn Lake  
**Site ID** NJW04459-224

**County** Ocean  
**Municipality** Stafford Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	56.1	61.52	58.13 Eutrophic
Summer Station 2	56.76	62.36	61.52	60.21 Eutrophic
Fall Station 1	50.5	51.8	NA	51.15 Eutrophic
Fall Station 2	42.38	41.77	NA	42.08 Mesotrophic

## Observations

### Summer

-Cedar brown water.

### Fall

-Cedar brown water. Fish. Frogs. Kingfisher.  
 Secchi transparency reaches bottom of lake.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Fawn Lake

County: OCEAN

SiteID: NJW04459-224

Municipality: STAFFORD TWP

## Surface to Bottom Profile

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	0.9	0.9	26.33	6.72		6.37	0.141
2	1.7	0.9	0.9	26.89	5.96		6.6	0.142
outlet	0.2	0.2		28.53	6.61		7.44	0.06

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	0.6	0.9	20.21	8.5	92.1	6.73	0.177
2	1.1	0.9	1.1	19.97	7.97	86	6.68	0.177

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Fawn Lake

County: OCEAN

SiteID: NJW04459-224

Municipality: STAFFORD TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	< 38.41	0.299	<0.006	0.019	13.5	12	13.2	17.1
2	< 38.41	0.389	<0.006	0.024	25.5	12	13.1	8.53
outlet	< 38.41	0.462	<0.006	0.026	19.3	12	13	4.37

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	24.89	0.666	<0.006	0.08	8.7	13	14.8	5.02
2	14.17	0.577	<0.006	0.084	3.1	12	14.5	2.92

Sample Device - Horizontal Polycarbonate Sampler

"<" 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 Gilman Lake  
 Site ID NJW04459-005

County Gloucester  
 Municipality Harrison Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	43.48	NA	50.12 Eutrophic
Summer Station 2	56.76	54.25	NA	55.50 Eutrophic
Summer Station 3	56.76	55.16	NA	55.96 Eutrophic
Fall Station 1	37.88	36.42	NA	37.15 Oligotrophic
Fall Station 2	37.88	39.8	NA	38.84 Oligotrophic
Fall Station 3	37.88	38.26	NA	38.07 Oligotrophic

## Observations

### Summer

- Submerged aquatic vegetation throughout.
- Informed by Gilman Lake Association that Petroleum Hydrocarbons (possibly oil or diesel) were detected in samples collected by Association.

### Fall

- No significant observations.

\*Secchi transparency reaches bottom of lake.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Gilman Lake  
SiteID: NJW04459-005

County: GLOUCESTER  
Municipality: HARRISON TWP

## Surface to Bottom Profile

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	0.9	1.2	23.54	7.7	90.6	7.53	0.166
2	1.3	0.9	1.3	26.57	7.64	95.2	7.61	0.14
3	2.0	0.9	1.8	25.57	9.33	114	7.81	0.156
3	2.0	1.8	1.8	23.66	10.09	120.7	7.68	0.144
outlet	0.2	0.2		30.64	6.45	86.3	8.06	0.152

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	0.9	1.2	20.71	6.75	75.2	6.07	0.171
2	1.3	0.9	1.3	20.01	6.42	70.3	6.03	0.157
3	2.2	0.9	2.2	22.22	8.18	93.5	6.28	0.161
3	2.2	1.8	2.2	22.17	8.22	94	6.32	0.161
outlet	<0.2	<0.2		22.65	7.93	91.5	6.48	0.163

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Gilman Lake

County: GLOUCESTER

SiteID: NJW04459-005

Municipality: HARRISON TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	< 38.41	0.361	2.66	0.037	3.7	8	48.2	0.91
2	< 38.41	0.307	2.32	0.039	11.1	12	46.2	1.65
3	< 38.41	0.3	2.47	0.026	12.2	12	48.2	1.57
outlet	< 38.41	0.302	2.17	0.028	20.0	14	47.1	1.46

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	<10.37	0.281	2.4	0.064	1.8	11	49.7	1.24
2	<10.37	0.283	2.09	0.063	2.6	13	48.1	1.21
3	<10.37	0.265	2.08	0.059	2.2	12	48.4	1.12
outlet	<10.37	0.275	2.11	0.059	2.4	11	48.2	0.9

Sample Device - Horizontal Polycarbonate Sampler

"<" 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** Highland Lake      **County** Sussex  
**Site ID** NJW04459-022      **Municipality** Vernon Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	56.56	51.53	58.28 Eutrophic
Fall Station 1	67.12	68.89	63.22	66.41 Eutrophic

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

## Observations

### Summer

-Lake treated with SONAR herbicide on 5/12/05.

### Fall

-Lake has golden/ mustard colored tint. Aeration units in lake operating.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Highland Lake

County: SUSSEX

SiteID: NJW04459-022

Municipality: VERNON TWP

## Surface to Bottom Profile

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.5	0.9	0.9	26.09	1.5	18.8	7.1	0.389
1	2.5	1.8	0.9	25.61	1	12.4	7.13	0.389

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	0.9	0.8	19.07	9	97.9	8.47	0.407
1	2.4	1.8	0.8	17.51	5.39	56.7	7.52	0.41

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Highland Lake

County: SUSSEX

SiteID: NJW04459-022

Municipality: VERNON TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	< 38.41	0.76	0.009	0.252	14.1	89	105.1	5.92

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	78.82	1.05	<0.006	0.076	49.6	92	111.6	

Sample Device - Horizontal Polycarbonate Sampler

"<" 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** Hubers Lake                      **County** Bergen  
**Site ID** NJW04459-001                      **Municipality** Oakland Borough



**Carlson's Trophic Index (TSI)**

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	66.43	73.19	57.37	65.66 Eutrophic
Summer Station 2	72.29	61.56	53.23	62.36 Eutrophic
Fall Station 1	75.27	34.26	60	56.51 Eutrophic
Fall Station 2	44.2	29.66	NA	36.93 Oligotrophic

  Total Phosphorus exceeds SWQC (See Datasheet for actual concentration)

**Observations**

**Summer**

-Geese. Duckweed. Decomposing leaves.

**Fall**

-No significant observations.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Hubers Lake  
SiteID: NJW04459-001

County: BERGEN  
Municipality: OAKLAND BORO

## Surface to Bottom Profile

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	0.9	1.2	24.53	3.14	38	7.15	0.561
2	3.2	0.9	1.6	24.58	1.99	24.2	7.08	0.561
2	3.2	1.8	1.6	24.14	3.43	41.2	7.17	0.565
2	3.2	2.7	1.6	20.35	0.06	0.7	6.57	0.872
outlet	0.8	0.5		22.57	4.9	57.2	7.11	0.624

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	0.9	1.0	13.84	7.18	67.9	6.98	0.417
2	3.1	0.9		13.93	6.68	64.1	6.95	0.402
2	3.1	1.8		13.87	6.13	60.5	6.89	0.403
2	3.1	2.7		13.81	5.87	56	6.82	0.447
outlet	0.6	0.3		14.14	9.02	89	7.09	0.405

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Hubers Lake

County: BERGEN

SiteID: NJW04459-001

Municipality: OAKLAND BORO

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	75.1	0.936	0.082	0.168	76.8	105	144.7	5.39
2	112.81	0.773	0.078	0.212	23.5	101	144.7	3.4
outlet	84.56	0.771	0.076	0.215	16.2	99	144.4	2.81

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	138.63	1.06	3.4	0.161	1.5	61	110.2	3.22
2	16.08	0.714	3.42	0.167	0.9	58	104.8	2.07
outlet	46.69	0.694	3.44	0.167	0.8	59	104.4	2.21

Sample Device - Horizontal Polycarbonate Sampler

"<" 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** Indian Lake      **County** Morris  
**Site ID** NJW04459-031      **Municipality** Denville Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	57.17	60	57.98 Eutrophic
Summer Station 2	56.76	56.75	58.63	57.38 Eutrophic
Summer Station 3	56.76	60.47	NA	58.62 Eutrophic
Fall Station 1	37.88	40.92	NA	39.40 Oligotrophic
Fall Station 2	37.88	41.7	NA	39.79 Oligotrophic
Fall Station 3	47.57	49.55	NA	48.56 Mesotrophic

## Observations

### Summer

-Filamentous algae. Ducks. Geese. Swans. Snails.  
 Secchi transparency reaches bottom of lake at Station 3.

### Fall

-Thick mat of algae on lake bottom.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Indian Lake

County: MORRIS

SiteID: NJW04459-031

Municipality: DENVILLE TWP

## Surface to Bottom Profile

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	0.9	1.0	29.66	6.12	81.7	8.54	0.328
2	1.4	0.9	1.1	29.06	6.24	82.5	8.67	0.325
3	1.0	0.9	1.0	29.08	5.07	67	8.37	0.324
outlet	0.3	0.3		28.63	4.86	63.8	7.35	0.322

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.8	0.9	1.8	19.78			8.44	0.327
1	1.8	1.5	1.8	19.76			8.57	0.327
2	1.4	0.9	1.4	20.12			8.86	0.324
3	1.0	0.6	1.0	20.53			8.08	0.326
outlet	0.2	0.2		21.02			7.72	0.332

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Indian Lake

County: MORRIS

SiteID: NJW04459-031

Municipality: DENVILLE TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	< 38.41	0.402	<0.006	0.037	15.0	38	72.5	4.59
2	< 38.41	0.358	<0.006	0.023	14.4	39	74.3	4.68
3	< 38.41	0.467	<0.006	0.023	21.0	42	76.7	5.52
outlet	44.89	0.448	<0.006	0.025	16.4	40	72.4	4.02

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	<10.37	0.475	<0.006	0.062	2.9	41	81	1.31
2	<10.37	0.508	<0.006	0.071	3.1	44	82.5	1.63
3	20.31	0.506	<0.006	0.08	6.9	45	83.5	2.51
outlet	24.96	0.508	<0.006	0.075	7.7	40	80	2.84

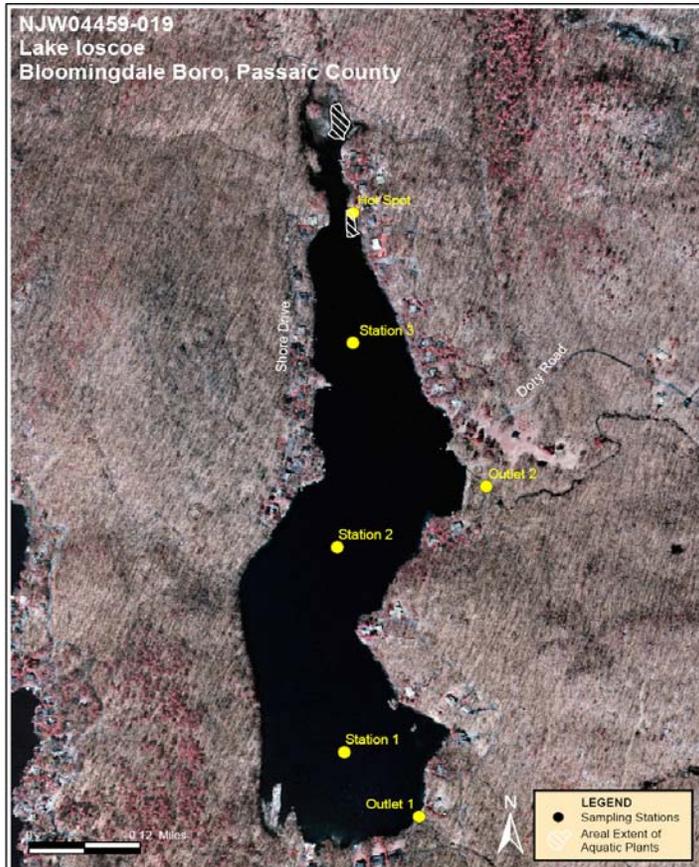
Sample Device - Horizontal Polycarbonate Sampler

"<" 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 loscoe      **County** Passaic  
**Site ID** NJW04459-019      **Municipality** Bloomingdale Boro



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	65.14	58.63	60.18 Eutrophic
Summer Station 2	56.76	66.93	58.63	60.77 Eutrophic
Summer Station 3	56.76	67.93	60	61.56 Eutrophic
Summer "Hot Spot"*	56.76	not sampled	65.14	60.95 Eutrophic
Fall Station 1	53.05	64.69	54.16	57.30 Eutrophic
Fall Station 2	60.21	65.8	52.35	59.46 Eutrophic
Fall Station 3	56.54	65.32	52.35	58.07 Eutrophic
Fall "Hot Spot"*	59.84	65.39	NA	62.62 Eutrophic

**Observations**

Summer

-Lake treated with copper sulfate on 7/27/05. Filamentous algae abundant at "hot spot"

Fall

-Lake unusually high due to release of water from Glen Wild Lake upstream.

-"hot spot" total depth, 0.7 m, too shallow for accurate Secchi measurement.

\*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 algae growth and unusual odor or color, that can indicate contamination which may be tracked to a source. See following data sheet for actual results.

# *AMBIENT LAKE MONITORING NETWORK*

**Lake Name:** Lake Ioscoe

**County:** PASSAIC

**SiteID:** NJW04459-019

**Municipality:** BLOOMINGDALE BORO

## *Surface to Bottom Profile*

**Season:** *Summer*

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	2.5	0.9	1.1	28.06	8.02	103.3	8.39	0.137
1	2.5	1.8	1.1	27.14	5.97	75.8	7.41	0.137
2	3.0	0.9	1.1	28	7.91	101.9	8.6	0.137
2	3.0	1.8	1.1	26.84	4.49	57	6.95	0.138
2	3.0	2.7	1.1	26.52	1.08	13.6	6.59	0.141
3	1.6	0.9	1.0	27.24	7.19	91.4	8.08	0.136
hotspot	0.7	0.3	0.7	28.25	7.87	101.9	8.3	0.136
outlet 1	<0.2	<0.2		26.08	3.29	40.9	6.73	0.149
outlet 2	<0.2	<0.2		28	6.62	85.3	7.8	0.136

**Season:** *Fall*

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	2.5	0.9	1.5	21.4	9.1	100.5	6.96	0.15
1	2.5	1.8	1.5	21.38	9.17	105.3	7.05	0.152
2	3.0	0.9	1.7	21.65	9.53	109.7	7.07	0.147
2	3.0	1.8	1.7	21.47	9.31	107.3	7.04	0.147
2	3.0	2.7	1.7	21.39	8.89	101.9	7.02	0.148
3	2.0	0.9	1.7	21.63	9.72	112.2	7.04	0.147
3	2.0	1.8	1.7	21.47	9.12	105.7	7.04	0.147
hotspot	0.7	0.5		21.55	10.39	119.7	7.15	0.146
outlet 1	0.2	0.2		20.25	8.45	94.8	6.9	0.153
outlet 2	0.3	0.3		21.69	10.52	121.5	7.14	0.148

*-Secchi measurements are not recorded for outlets.*

*-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.*

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Lake Ioscoe

County: PASSAIC

SiteID: NJW04459-019

Municipality: BLOOMINGDALE BORO

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	< 38.41	0.312	<0.006	0.017	33.8	26	33.7	6.15
2	< 38.41	0.406	<0.006	0.018	40.6	25	33.9	6.13
3	< 38.41	0.38	<0.006	0.018	45.0	25	33.8	6.85
hotspot	< 38.41	0.391	<0.006	0.018				3.26
outlet 1	< 38.41	0.372	0.111	0.081	12.0	30	37.8	2.71
outlet 2	< 38.41	0.42	0.01	0.028	36.1	26	32.9	6.35

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	29.7	0.423	<0.006	0.03	32.3	25	35.2	6.69
2	48.81	0.535	<0.006	0.029	36.2	24	34.9	7.33
3	37.84	0.557	<0.006	0.029	34.4	26	35.2	6.68
hotspot	47.56	0.549	<0.006	0.029	34.7	25	35	6.69
outlet 1	34.28	0.426	0.052	0.053	18.0	25	36.8	6.48
outlet 2	35.5	0.417	<0.006	0.031	35.8	25	35.3	6.91

Sample Device - Horizontal Polycarbonate Sampler

"<" 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** Kirkwood Lake      **County** Camden  
**Site ID** NJW04459-002      **Municipality** Voorhees Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	79.04	70.8	73.2	74.35 Hypereutrophic
Summer Station 2	80.32	70.66	73.2	74.73 Hypereutrophic
Fall Station 1	80.29	69.77	77.35	75.80 Hypereutrophic
Fall Station 2	95.88	73.28	77.35	82.17 Hypereutrophic

     Total Phosphorus exceeds SWQC (See Datasheet for actual concentration)

### Observations

#### Summer

-Lily pads. Carp.

#### Fall

-Flocculent green particles throughout lake.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Kirkwood

County: CAMDEN

SiteID: NJW04459-002

Municipality: VOORHEES TWP

## Surface to Bottom Profile

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	0.4	29.55	4.42	57.5	6.86	0.231
2	1.0	0.6	0.4	29.41	4.53	59.3	6.89	0.221
outlet	0.9	0.6		29.96	5.83	77.1	7.05	0.215

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	0.5	0.3	23.66	5.93	69.9	6.9	0.237
2	0.9	0.8	0.3	23.66	5.87	69.1	6.88	0.231
outlet	0.3	0.3		23.35	5.53	64.8	6.9	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 because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Kirkwood

County: CAMDEN

SiteID: NJW04459-002

Municipality: VOORHEES TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	180.08	0.613	0.012	0.014	60.2	48	58.5	17.1
2	196.83	0.609	0.009	0.022	59.4	47	56	14.5
outlet	139.41	0.53	0.01	0.023	35.7	43	52.9	10

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	196.44	1.08	<0.006	0.021	54.2	47	57.4	21.3
2	579.03	1.35	<0.006	<0.015	77.5	51	58.1	29.4
outlet	219.82	1.2	0.077	0.065	59.6	47	57	21.4

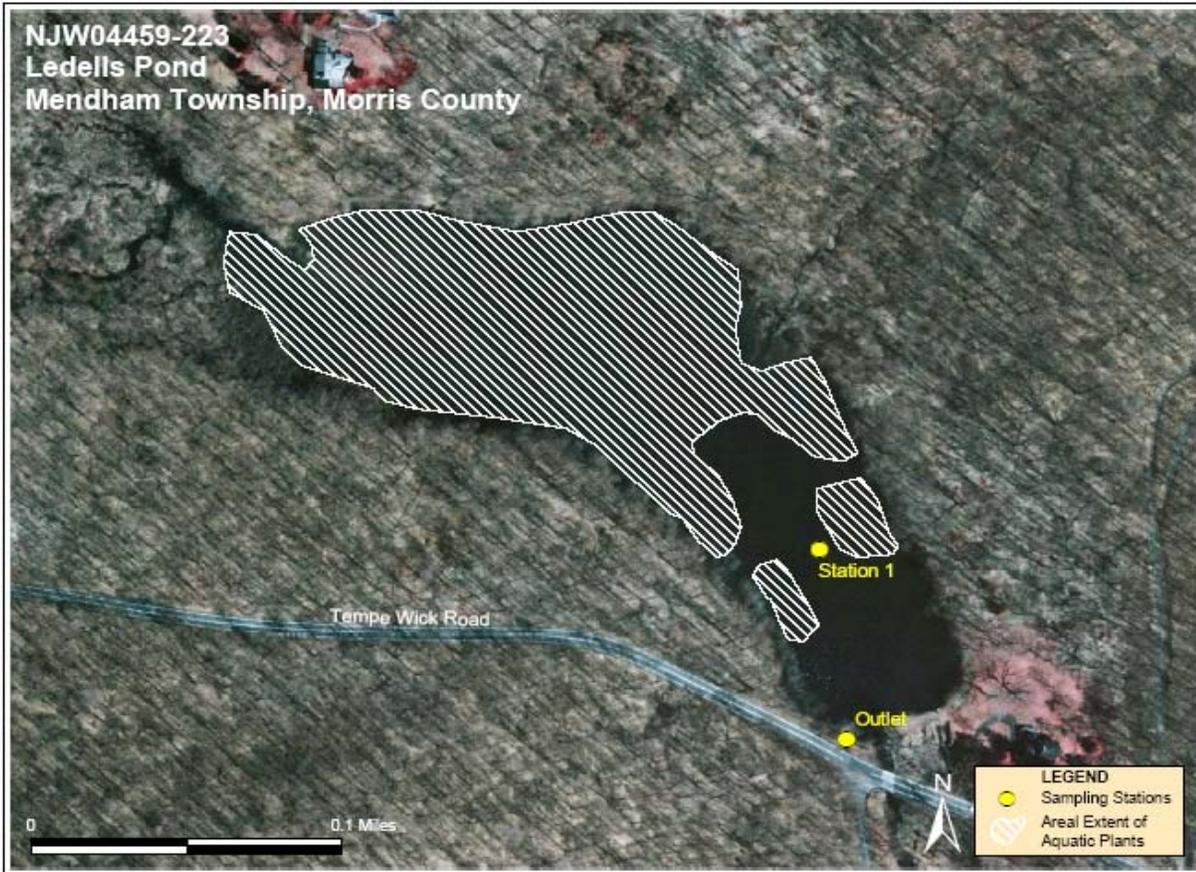
Sample Device - Horizontal Polycarbonate Sampler

"<" 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** Ledells Pond      **County** Morris  
**Site ID** NJW04459-223      **Municipality** Mendham Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	62.47	60.72	NA	61.60 Eutrophic
Fall Station 1	63.16	69.05	NA	66.11 Eutrophic

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

## Observations

### Summer

-Plants obscured accurate Secchi reading.  
 Submerged aquatic vegetation. Lily pads. Filamentous algae. Duckweed.  
 Frogs. Fish. Snails. Mollusks.

### Fall

-No submerged aquatic vegetation visible. Duckweed. Ducks. Heavy rain during two weeks prior to sampling.  
 Plants obscured accurate Secchi reading.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Ledells Pond

County: MORRIS

SiteID: NJW04459-223

Municipality: MENDHAM TWP

## Surface to Bottom Profile

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	0.6	0.9	21.49	1.59	18.6	6.71	0.258
outlet	0.2	0.2		21.45	5.46	63.7	6.87	0.257

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	0.6		8.98	8.26	72.3	6.63	0.184
outlet	0.3	0.2		8.61	10.39	90.2	7.3	0.175

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Ledells Pond

County: MORRIS

SiteID: NJW04459-223

Municipality: MENDHAM TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	57.09	0.329	0.271	0.087	21.6	62	100.4	4.27
outlet	31.58	0.187	0.319	0.053	7.4	142	99.9	2.58

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	59.88	0.479	0.58	0.026	9.4	36	63.7	15
outlet	45.57	0.468	0.583	0.023	4.9	34	60.6	12.6

Sample Device - Horizontal Polycarbonate Sampler

"<" 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 Long Lake County Burlington  
 Site ID NJW04459-020 Municipality Pemberton Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	72.38	77.35	68.83 Eutrophic
Summer Station 2	56.76	50.74	77.35	61.62 Eutrophic
Summer Station 3	56.76	66.09	83.19	68.68 Eutrophic
Fall Station 1	83.38	71.61	77.35	77.45 Hypereutrophic
Fall Station 2	82.36	59.96	77.35	72.23 Hypereutrophic
Fall Station 3	83.04	70.67	77.35	77.02 Hypereutrophic

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

## Observations

### Summer

- Cedar brown water. Many tree stumps on lake bottom.
- Turtles and geese present.

### Fall

- Cedar brown water.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Long Lake

County: BURLINGTON

SiteID: NJW04459-020

Municipality: PEMBERTON TWP

## Surface to Bottom Profile

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	0.9	0.3	24.06	0.11	1.4	4.46	0.051
2	1.4	0.9	0.3	24.37	0.17	2	4.07	0.059
3	1.9	0.9	0.2	23.92	0.06	0.8	4.04	0.057
outlet	1.1	1.1		26.5	5.36	66.5	4.35	0.046

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.0	0.6	0.3	21.32	5.57	63	4.55	0.055
2	0.8	0.5	0.3	22.48	5.63	63.4	4.55	0.055
3	1.6	0.9	0.3	23.09	4.95	58.5	4.6	0.055
outlet	0.5	0.3		23.08	4.68	54.2	4.53	0.055

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

**Lake Name:** Long Lake  
**SiteID:** NJW04459-020

**County:** BURLINGTON  
**Municipality:** PEMBERTON TWP

## Lake Profile Raw Data

**Season:** Summer

<i>Station</i>	<i>Tot Phos</i> <i>(ug/L)</i>	<i>TKN</i> <i>(mg/L)</i>	<i>Nitrite-Nitrate</i> <i>(mg/L)</i>	<i>Ammonia-N</i> <i>(mg/L)</i>	<i>Chl a</i> <i>(ug/L)</i>	<i>Alk</i> <i>(ppm)</i>	<i>Hard</i> <i>(ppm)</i>	<i>Turbidity</i> <i>(NTU)</i>
1	< 38.41	1.19	0.023	0.035	70.7	1	4.8	25.2
2	< 38.41	1.81	0.022	0.104	7.8	1	4.54	9.26
3	< 38.41	1.28	0.017	0.046	37.3	1	4.63	14.1
outlet	152.19	1.23	0.018	0.034	42.0	1	4.83	15.1

**Season:** Fall

<i>Station</i>	<i>Tot Phos</i> <i>(ug/L)</i>	<i>TKN</i> <i>(mg/L)</i>	<i>Nitrite-Nitrate</i> <i>(mg/L)</i>	<i>Ammonia-N</i> <i>(mg/L)</i>	<i>Chl a</i> <i>(ug/L)</i>	<i>Alk</i> <i>(ppm)</i>	<i>Hard</i> <i>(ppm)</i>	<i>Turbidity</i> <i>(NTU)</i>
1	243.42	0.994	<0.006	0.029	65.4	<1	5.92	18.8
2	227.22	0.807	0.007	0.019	19.9	<1	5.9	17.3
3	237.66	0.969	<0.006	0.023	59.4	<1	5.99	18.3
outlet	259.09	1.03	<0.006	0.021	86.0	<1	5.98	18.7

*Sample Device - Horizontal Polycarbonate Sampler*

*"<" 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** Magnolia Lake  
**Site ID** NJW04459-228

**County** Cape May  
**Municipality** Dennis Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	56.16	NA	56.46 Eutrophic
Summer Station 2	56.76	57.92	NA	57.34 Eutrophic
Fall Station 1	74.14	44.91	NA	59.53 Eutrophic
Fall Station 2	37.88	52.77	NA	45.33 Mesotrophic

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

### Observations

Summer

-Submerged aquatic vegetation throughout. Lily pads.

Fall

-No significant observations.

Secchi transparency reaches bottom of lake.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Magnolia Lake

County: CAPE MAY

SiteID: NJW04459-228

Municipality: DENNIS TWP

## Surface to Bottom Profile

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	0.9	1.0	26.25	6.45	80	5.98	0.117
2	1.3	0.9	1.3	28.4	6.58	84.8	6.39	0.107
outlet	0.9	0.6		28.89	6.46	84.3	6.95	1.419

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	0.5	0.8	24.33	7.05	83.7	6.05	0.115
2	0.9	0.8	0.9	25.35	6.26	75.8	6.29	0.108
outlet	0.9	0.5		23.92	4.32	52.6	6.39	8.9

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Magnolia Lake

County: CAPE MAY

SiteID: NJW04459-228

Municipality: DENNIS TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	< 38.41	0.49	0.364	0.049	13.5	14	33.1	2.13
2	< 38.41	0.409	0.082	0.053	16.2	14	23.6	1.98
outlet	< 38.41	0.449	0.072	0.065	9.6	15	43.8	1.81

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	128.24	0.495	0.583	0.064	4.3	13	25.9	1.83
2	<10.37	0.5	0.085	0.066	9.6	12	22.5	1.22
outlet	50.02	0.827	0.086	0.235	10.2	34	401.1	6.12

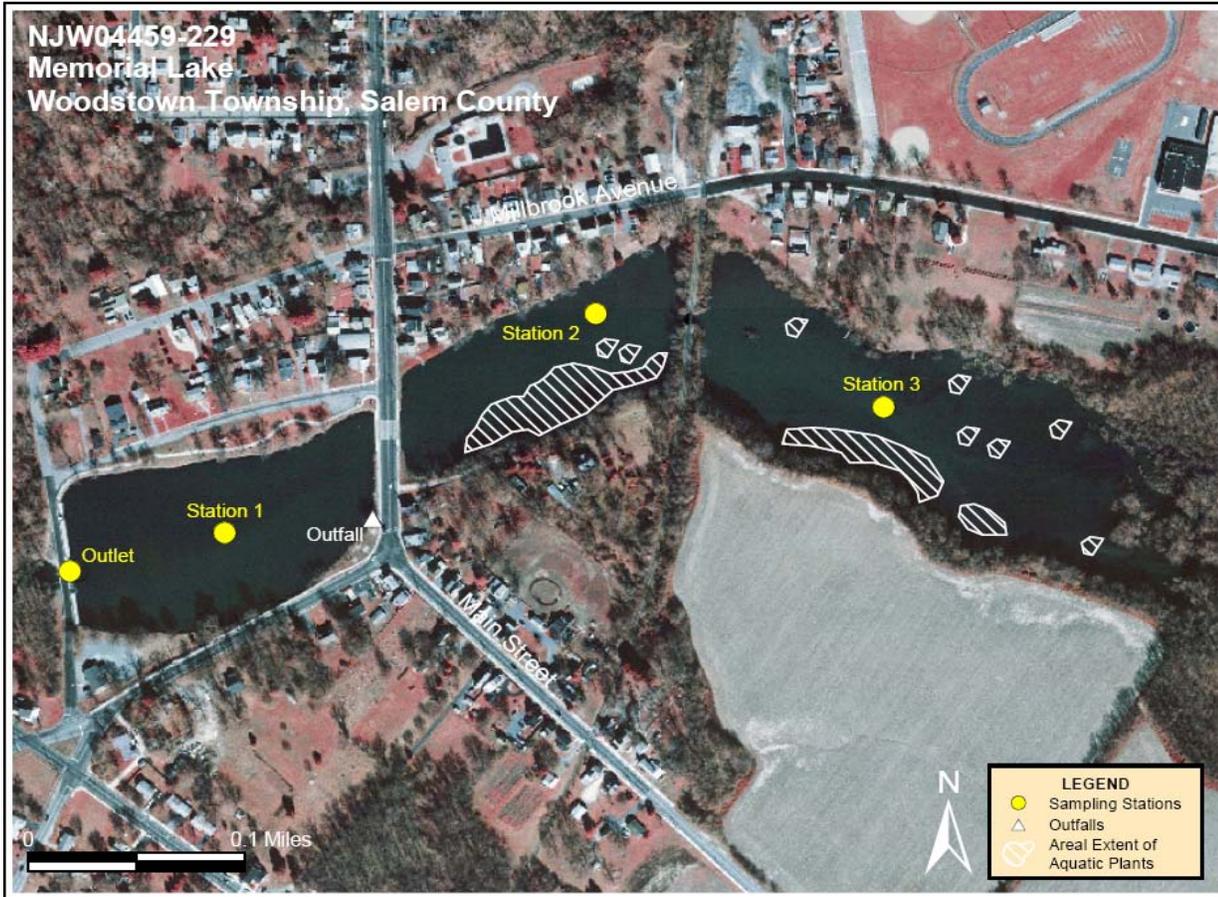
Sample Device - Horizontal Polycarbonate Sampler

"<" 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** Memorial Lake      **County** Salem  
**Site ID** NJW04459-229      **Municipality** Woodstown Twp.



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	75.21	72.98	77.35	75.18 Hypereutrophic
Summer Station 2	75.22	73.04	77.35	75.20 Hypereutrophic
Summer Station 3	84.25	76.52	79.37	79.37 Hypereutrophic
Fall Station 1	74.53	72.24	73.2	73.32 Hypereutrophic
Fall Station 2	77.42	72.58	77.35	75.78 Hypereutrophic
Fall Station 3	84.45	75.96	77.35	79.25 Hypereutrophic

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

**Observations**

**Summer**  
 -No significant observations.  
**Fall**  
 -No significant observations.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Memorial Lake

County: SALEM

SiteID: NJW04459-229

Municipality: WOODSTOWN

## Surface to Bottom Profile

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	0.8	0.3	27.49	7.88	99.7	7.68	0.255
2	1.1	0.8	0.3	27.74	11.16	141.9	8.7	0.259
3	0.9	0.6	0.3	26.73	9.21	116.1	8.41	0.265
outlet	0.6	0.3		28.56	7.33	94.5	8.42	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	1.1	0.8	0.4	25.5	6.26	76.1	7.48	0.278
2	1.1	0.8	0.3	25.56	6.28	76.5	7.33	0.276
3	0.9	0.6	0.3	24.44	5.72	68.3	7.44	0.275
outlet	0.6	0.3		25.61	6.4	77.9	7.41	0.279

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Memorial Lake

County: SALEM

SiteID: NJW04459-229

Municipality: WOODSTOWN

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	138.07	1.29	0.104	0.157	75.3	58	90	33.6
2	138.14	1.17	0.336	0.074	75.7	59	95.7	21.4
3	258.41	1.47	0.774	0.136	107.8	58	96	43.9
outlet	131.96	1.55	0.091	0.148	77.2	58	90.1	23.4

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	131.68	0.991	0.507	0.046	69.7	57	104.5	14.4
2	160.93	0.953	0.559	0.075	72.2	58	103.6	23.4
3	262.15		0.614	0.075	101.8	59	102.9	27.8
outlet	134.46	0.928	0.572	0.069	44.9	58	103	12.8

Sample Device - Horizontal Polycarbonate Sampler

"<" 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 Manetta  
**Site ID** NJW04459-034

**County** Ocean  
**Municipality** Lakewood Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	52.43	61.52	56.90 Eutrophic
Summer Station 2	56.76	57.06	63.22	59.01 Eutrophic
Fall Station 1	43.58	57.07	NA	50.33 Eutrophic
Fall Station 2	37.88	48.18	NA	43.03 Mesotrophic

## Observations

### Summer

-Herbicide treated 7/19/05. Submerged aquatic vegetation. Filamentous algae. Cedar brown color. Fish ladder at outlet.

### Fall

-Secchi reading obscured by plants.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Lake Manetta

County: OCEAN

SiteID: NJW04459-034

Municipality: LAKEWOOD TWP

## Surface to Bottom Profile

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	0.9	0.9	20.11	5.94	65.6	5.8	0.135
2	1.8	0.9	0.8	24.21	4.99	59.6	6.15	0.126
outlet	0.6	0.3		24.58	6.96	84.1	6.56	0.13

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.0	0.9	1.0	18.44	7.48	79.4	5.8	0.131
2	1.7	0.9	1.7	21.86	8.3	94.2	6.63	0.14
outlet	0.6	0.6		22.73	7.6	87.7	6.77	0.149

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Lake Manetta

County: OCEAN

SiteID: NJW04459-034

Municipality: LAKEWOOD TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	< 38.41	0.386	0.591	0.094	9.3	12	21.7	4.85
2	< 38.41	0.474	0.391	0.075	14.8	12	22	7.72
outlet	< 38.41	0.436	0.339	0.096	18.0	14	24.5	7.86

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	15.4	0.362	0.465	0.029	14.8	13	23.9	4.58
2	<10.37	0.253	0.352	0.027	6.0	15	25.7	3.02
outlet	23.97	0.855	0.286	0.048	9.9	17	28.9	6.75

Sample Device - Horizontal Polycarbonate Sampler

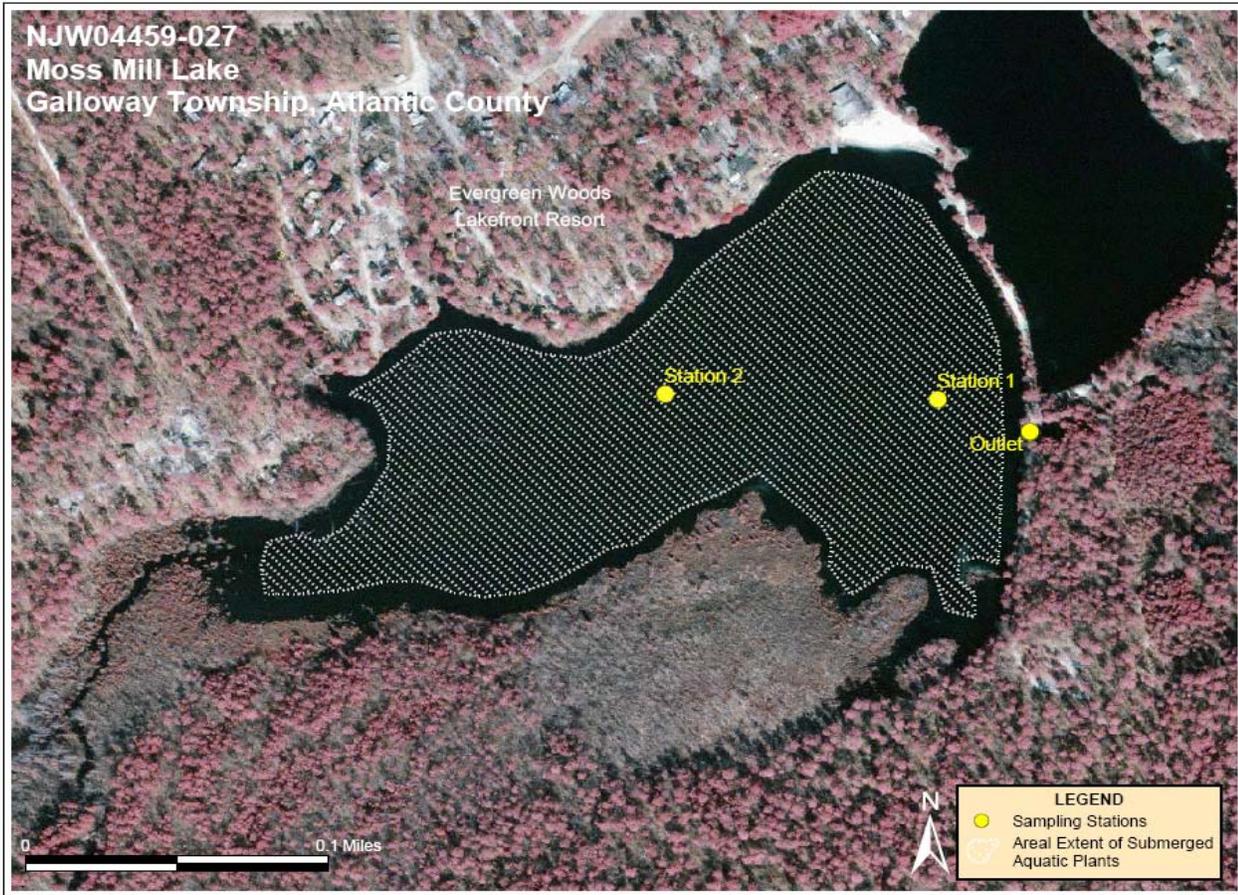
"<" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

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

# AMBIENT LAKE MONITORING NETWORK

**Lake Name** Moss Mill Lake  
**Site ID** NJW04459-027

**County** Atlantic  
**Municipality** Galloway Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	55.94	NA	56.35 Eutrophic
Summer Station 2	56.76	73.93	NA	65.35 Eutrophic
Fall Station 1	37.88	37.85	NA	37.87 Oligotrophic
Fall Station 2	38.82	41.82	NA	40.32 Mesotrophic

## Observations

### Summer

-Submerged aquatic vegetation throughout.

### Fall

-Water level is low due to dam replacement on lake property owned by Stockton College.

\*Secchi transparency reaches bottom of lake.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Moss Mill Lake

County: ATLANTIC

SiteID: NJW04459-027

Municipality: GALLOWAY TWP

## Surface to Bottom Profile

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	0.9	1.1	26.2	7.61		5.32	0.086
2	0.9	0.6	0.9	24.8	7.01		5.31	0.087
outlet	0.3	0.2		26.49	6.65		5.38	0.086

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	0.6	0.9	21.92	6.62	75.7	5.42	0.098
2	0.9	0.6	0.9	22.39	6.75	77.9	5.47	0.098
outlet	<0.2	<0.2		21.77	6.99	79.7	5.45	0.098

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Moss Mill Lake

County: ATLANTIC

SiteID: NJW04459-027

Municipality: GALLOWAY TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	< 38.41	0.223	<0.006	0.02	13.2	4	10.8	3.74
2	< 38.41	0.578	<0.006	0.02	82.8	2	10.8	3.81
outlet	< 38.41	0.166	<0.006	0.029	2.9	2	10.6	0.062

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	<10.37	0.307	<0.006	0.032	2.1	2	11.1	0.74
2	11.07	0.377	<0.006	0.03	3.1	2	11.2	1.73
outlet	<10.37	0.382	<0.006	0.033	1.8	2	11	0.58

Sample Device - Horizontal Polycarbonate Sampler

"<" 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 Peddie Lake County Mercer  
 Site ID NJW04459-024 Municipality Hightstown Borough



Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	63.7	69.96	65.14	66.27 Eutrophic
Summer Station 2	68.33	71.19	65.14	68.22 Eutrophic
Fall Station 1	66.77	66.24	61.52	64.84 Eutrophic
Fall Station 2	62.34	65.11	58.63	62.03 Eutrophic

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

## Observations

### Summer

- Lake cloudy and very turbid. Heavy rain 48 hours prior to sampling.
- Minimal submerged vegetation.

### Fall

- Pollen deposition on surface near Station 2.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Peddie Lake

County: MERCER

SiteID: NJW04459-024

Municipality: HIGHTSTOWN BORO

## Surface to Bottom Profile

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.5	0.9	0.7	25.13	3.23	39.1	6.2	0.191
1	2.5	1.8	0.7	22.03	0.24	2.7	6.01	0.19
2	2.7	0.9	0.7	24.91	4.7	56.8	6.37	0.233
2	2.7	1.8	0.7	21.36	0.3	3.4	6.04	0.208
outlet	0.5	0.3		28.6	7.05		7.72	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	2.5	0.9	0.9	24.45	7.45	88.1	6.94	0.25
1	2.5	1.8	0.9	23.91	7.1	83	6.88	0.249
2	2.5	0.9	1.1	23.92	8.12	95.1	7.04	0.245
2	2.5	1.8	1.1	23.64	7.74	90.2	7.03	0.245
outlet	0.6	0.3		24.23	7.45	87.7	6.97	0.253

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Peddie Lake

County: MERCER

SiteID: NJW04459-024

Municipality: HIGHTSTOWN BORO

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	62.17	0.564	0.661	0.034	55.3	22	41	14
2	85.7	0.519	0.602	0.019	62.6	22	41.3	14
outlet	85.43	0.864	0.565	0.032	111.9	24	41.4	14.6

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	76.89	0.761	0.404	0.096	37.8	36	55.8	7.66
2	56.57	0.545	0.476	0.041	33.7	34	56.2	6.67
outlet	90.9	0.833	0.379	0.165	52.7	34	57.4	7.68

Sample Device - Horizontal Polycarbonate Sampler

"<" 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** Pickerel Lake  
**Site ID** NJW04459-008

**County** Ocean  
**Municipality** Jackson Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	51.18	NA	53.97 Eutrophic
Summer Station 2	56.76	50.36	NA	53.56 Eutrophic
Fall Station 1	37.88	50.29	NA	44.09 Mesotrophic
Fall Station 2	51.35	59.14	NA	55.25 Eutrophic

## Observations

### Summer

-Submerged aquatic vegetation throughout. Thunderstorms 24 hours prior to sampling.

### Fall

-Submerged aquatic vegetation throughout.

\*Secchi transparency reaches bottom of lake.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Pickerel Lake

County: OCEAN

SiteID: NJW04459-008

Municipality: JACKSON TWP

## Surface to Bottom Profile

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	0.9	1.2	27.65	5.42		5.13	0.027
2	0.9	0.6	0.9	27.3	5.6		5.14	0.027
outlet	0.6	0.3		28.43	5.4		5.73	0.033

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	0.7	0.3	0.7	25.62	6.79	83.9	5.5	0.028
2	0.6	0.3	0.6	25.68	6.9	84.8	5.47	0.028
outlet	0.3	0.2		25.26	5.61	68	5.82	0.032

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Pickerel Lake

County: OCEAN

SiteID: NJW04459-008

Municipality: JACKSON TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	< 38.41	0.221	0.007	0.032	13.1	3	4.62	3.35
2	< 38.41	0.244	0.01	0.032	7.5	2	4.85	3.11
outlet	< 38.41	0.26	0.015	0.046	4.7		6.81	3.39

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	<10.37	0.187	0.056	0.027	7.4	3	4.38	0.99
2	26.4	0.392	0.011	0.028	18.3	3	4.68	5.35
outlet	12.65	0.311	0.014	0.047	21.0	4	7.59	2.61

Sample Device - Horizontal Polycarbonate Sampler

"<" 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 Pleasant Valley Lake  
 Site ID NJW04459-023

County Sussex  
 Municipality Vernon Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	67.83	60	61.53 Eutrophic
Summer Station 2	56.76	68.91	60	61.89 Eutrophic
Summer Station 3	66.43	70.27	60	65.56 Eutrophic
Fall Station 1	55.74	64.06	61.52	60.44 Eutrophic
Fall Station 2	54.62	65.54	61.52	60.56 Eutrophic
Fall Station 3	58.51	67.44	63.22	63.06 Eutrophic

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

## Observations

### Summer

-Lake treated with SONAR herbicide 5/3/05. Filamentous algae throughout.

### Fall

-Lake has strong green tint.

# *AMBIENT LAKE MONITORING NETWORK*

**Lake Name:** Pleasant Valley Lake  
**SiteID:** NJW04459-023

**County:** SUSSEX  
**Municipality:** VERNON TWP

## *Surface to Bottom Profile*

**Season:** *Summer*

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	2.1	0.9	1.0	26.57	5.21	65.8	7.82	0.458
1	2.1	1.8	1.0	26.41	4.04	50.9	7.55	0.462
2	3.6	0.9	1.0	26.96	5.08	64.6	7.84	0.457
2	3.6	1.8	1.0	26.89	4.83	61.4	7.77	0.458
2	3.6	2.7	1.0	26.83	4.8	60.9	7.8	0.458
3	5.1	0.9	1.0	27.1	5.61	71.7	8.06	0.456
3	5.1	1.8	1.0	27.05	5.39	68.8	8.02	0.456
3	5.1	2.7	1.0	27.01	5.16	65.8	7.96	0.457
3	5.1	3.6	1.0	25.85	0.14	1.8	7.04	0.458
3	5.1	4.6	1.0	22.16	0.05	0.6	7.04	0.481

**Season:** *Fall*

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.8	0.9	0.9	18.97	7.25	78.6	8.17	0.488
2	3.3	0.9	0.9	19.6	8.54	93.8	8.4	0.486
2	3.3	1.8	0.9	18.74	4.85	52.3	7.71	0.489
2	3.3	2.7	0.9	18.14	2.85	30.4	7.44	0.494
3	5.8	0.9	0.8	20.35	8.76	97.7	8.48	0.487
3	5.8	1.8	0.8	18.73	5.3	57.2	7.76	0.489
3	5.8	2.7	0.8	18.44	4.1	44.1	7.6	0.489
3	5.8	3.6	0.8	18.33	4.06	43.5	7.58	0.49
3	5.8	4.6	0.8	18.22	3.31	35.4	7.51	0.491
3	5.8	5.4	0.8	18.06	2.08	22.2	7.45	0.496

*-Secchi measurements are not recorded for outlets.*

*-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.*

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Pleasant Valley Lake

County: SUSSEX

SiteID: NJW04459-023

Municipality: VERNON TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	< 38.41	0.348	<0.006	0.018	44.5	100	138.3	5.87
2	< 38.41	0.372	<0.006	0.016	49.7	103	137.7	7.41
3	75.09	0.388	<0.006	0.018	57.0	102	138.8	6.72

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	35.79	0.74	<0.006	0.065	30.3	105	150.8	11
2	33.11	0.72	<0.006	0.071	35.2	102	152	9.93
3	43.37	0.945	<0.006	0.051	42.8	113	149.8	12.5

Sample Device - Horizontal Polycarbonate Sampler

"<" 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

<b>Lake Name</b>	Silver Lake	<b>County</b>	Camden
<b>Site ID</b>	NJW04459-007	<b>Municipality</b>	Clementon Borough



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	67.56	NA	62.16 Eutrophic
Fall Station 1	37.88	43.54	NA	40.71 Mesotrophic

### Observations

#### Summer

-Submerged aquatic vegetation, filamentous algae abundant. Fish. Water fowl. Macroinvertebrates.

#### Fall

-Submerged aquatic vegetation abundant.

\*Secchi transparency reaches bottom of lake.

# AMBIENT LAKE MONITORING NETWORK

**Lake Name:** Silver Lake  
**SiteID:** NJW04459-007

**County:** CAMDEN  
**Municipality:** CLEMENTON BORO

## Surface to Bottom Profile

**Season:** Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.1	0.9	1.1	24.79	3.28	39.6	6.2	0.18
outlet	0.2	0.2		26.34	6.71	83.1	6.6	0.193

**Season:** Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.0	0.8	1.0	21.49	6.4	72.3	6.2	0.176
outlet	0.2	0.2		21.4	7.08	79.9	6.31	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 because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Silver Lake

County: CAMDEN

SiteID: NJW04459-007

Municipality: CLEMENTON BORO

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	< 38.41	0.766	0.85	0.215	43.8	19	30.1	11.4
outlet	< 38.41	0.309	0.699	0.119	8.0	16	29.5	2.8

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	<10.37	0.151	0.976	0.048	3.7	13	27.5	1.76
outlet	<10.37	0.228	0.733	0.065	2.6	14	30.3	2.13

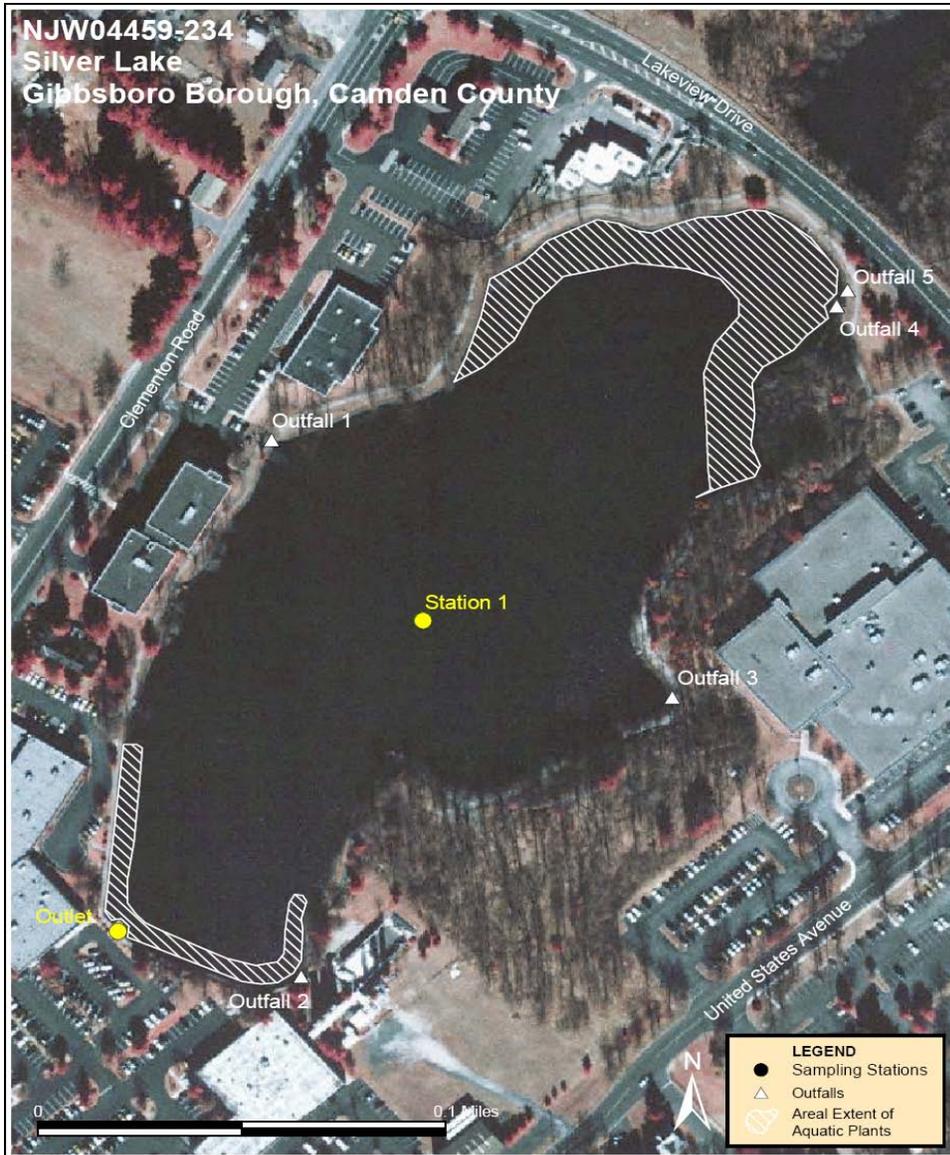
Sample Device - Horizontal Polycarbonate Sampler

"<" 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** Silver Lake                      **County** Camden  
**Site ID** NJW04459-234                      **Municipality** Gibbsboro Borough



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	40.63	53.67	51.53	48.61 Mesotrophic
Fall Station 1	39.62	48.17	55.15	47.65 Mesotrophic

## Observations

### Summer

-Submerged aquatic vegetation, filamentous algae abundant. Fish. Ducks. Snails.

### Fall

-No significant observations.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Silver Lake  
SiteID: NJW04459-234

County: CAMDEN  
Municipality: GIBBSBORO

## Surface to Bottom Profile

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.5	0.9	1.8	25.96	5.51	68.2	7.07	0.292
1	2.5	1.8	1.8	25.28	0.07	0.9	6.53	0.304
outlet	2.5	0.2		25.95	4.67	57.5	6.93	0.291

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	2.6	0.9	1.4	10.34	7.7	67.9	6.97	0.187
1	2.6	1.8	1.4	10.27	7.53	66.3	6.94	0.189
outlet	1.0	0.3		10.99	7.52	67.3	6.83	0.253

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Silver Lake

County: CAMDEN

SiteID: NJW04459-234

Municipality: GIBBSBORO

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	12.55	0.393	<0.006	0.032	10.5	158	73.6	3.24
outlet	55.4	0.393	<0.006	0.029	7.2	67	72.4	2.73

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	11.7	0.774	0.125	0.252	6.0	42	55.5	6.48
outlet	18.84	0.835	0.178	0.266	3.7	51	67.7	7.61

Sample Device - Horizontal Polycarbonate Sampler

"<" 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 Stockholm      **County** Sussex  
**Site ID** NJW04459-021      **Municipality** Hardyston Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	45.49	56.06	NA	50.78 Eutrophic
Summer Station 2	50.3	57.57	50.01	52.63 Eutrophic
Fall Station 1	44.51	55.8	61.52	53.94 Eutrophic
Fall Station 2	49.56	57.81	65.14	57.50 Eutrophic

## Observations

### Summer

-Plants obscured Secchi reading at Station 1. Submerged aquatic vegetation.  
 Lake treated with copper sulfate 8/19/05.

### Fall

-No significant observations.

# AMBIENT LAKE MONITORING NETWORK

**Lake Name:** Lake Stockholm  
**SiteID:** NJW04459-021

**County:** SUSSEX  
**Municipality:** HARDYSTON TWP

## Surface to Bottom Profile

**Season:** Summer

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.8	0.9	1.8	23.6	5.82	70.5	7.54	0.434
2	4.0	0.9	2.0	23.83	5.16	62.8	7.42	0.433
2	4.0	1.8	2.0	23.77	5.18	63	7.41	0.434
2	4.0	2.7	2.0	23.69	5.47	66.4	7.44	0.434
2	4.0	3.6	2.0	22.99	5.41	64.8	7.44	0.435

**Season:** Fall

<i>Station</i>	<i>Tot. Depth (M)</i>	<i>Profile Depth (M)</i>	<i>Secchi (M)</i>	<i>Water Temp (C)</i>	<i>DO (mg/L)</i>	<i>DO (%Sat)</i>	<i>pH (SU)</i>	<i>Conductivity (mS/cm)</i>
1	1.9	0.9	0.9	8.55	9.58	82.3	7.17	0.317
1	1.9	1.8	0.9	8.47	4.16	36	7.08	0.313
2	4.7	0.9	0.7	9.17	9.35	81.9	7.37	0.321
2	4.7	1.8	0.7	9.11	9.33	81.4	7.45	0.32
2	4.7	2.7	0.7	9.06	9.35	82.1	7.45	0.321
2	4.7	3.6	0.7	8.63	9.19	79.4	7.4	0.329
outlet	0.2	0.2		9.15	9.84	86.3	7.18	0.323

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

**Lake Name:** Lake Stockholm

**County:** SUSSEX

**SiteID:** NJW04459-021

**Municipality:** HARDYSTON TWP

## Lake Profile Raw Data

**Season:** Summer

<b>Station</b>	<b>Tot Phos (ug/L)</b>	<b>TKN (mg/L)</b>	<b>Nitrite-Nitrate (mg/L)</b>	<b>Ammonia-N (mg/L)</b>	<b>Chl a (ug/L)</b>	<b>Alk (ppm)</b>	<b>Hard (ppm)</b>	<b>Turbidity (NTU)</b>
1	17.58	0.35	<0.006	0.026	13.4	143	78.8	2.3
2	24.55	0.387	<0.006	0.036	15.6	144	77.5	3.1

**Season:** Fall

<b>Station</b>	<b>Tot Phos (ug/L)</b>	<b>TKN (mg/L)</b>	<b>Nitrite-Nitrate (mg/L)</b>	<b>Ammonia-N (mg/L)</b>	<b>Chl a (ug/L)</b>	<b>Alk (ppm)</b>	<b>Hard (ppm)</b>	<b>Turbidity (NTU)</b>
1	16.43	0.354	0.24	<0.004	13.1	44	63.1	3.13
2	23.31	0.367	0.238	<0.004	16.0	47	64.7	2.22
outlet	17.15	0.396	0.247	<0.004	14.7	46	64.5	1.95

*Sample Device - Horizontal Polycarbonate Sampler*

*"<" 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** Sunset Lake      **County** Somerset  
**Site ID** NJW04459-040      **Municipality** Bridgewater Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	61.67	70.45	61.52	64.54 Eutrophic
Summer Station 2	63.77	77.36	65.14	62.75 Eutrophic
Fall Station 1	55.81	46.03	65.14	57.89 Eutrophic
Fall Station 2	56.11	45.62	61.52	67.50 Eutrophic

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

## Observations

### Summer

-Lake treated with copper sulfate 8/19/05.

### Fall

-No significant observations.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Sunset Lake

County: SOMERSET

SiteID: NJW04459-040

Municipality: BRIDGEWATER TWP

## Surface to Bottom Profile

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	3.2	0.9	0.9	25.61	6.31	79.6	7.76	0.399
1	3.2	1.8	0.9	25.46	5.23	65.9	7.55	0.4
1	3.2	2.7	0.9	24.47	0.13	1.6	6.77	0.414
2	2.6	0.9	0.7	26.19	8.2	104.6	8.25	0.397
2	2.6	1.8	0.7	26.11	7.6	96.8	8.19	0.398
outlet	0.3	0.2		25.66	4.55	57.5	7.17	0.415

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	0.9	0.7	10.87	9.3	84.2	7.33	0.222
1	3.6	1.8	0.7	10.86	9.13	83.7	7.23	0.223
1	3.6	2.7	0.7	10.74	9.11	83.9	7.18	0.226
2	2.1	0.9	0.9	10.66	9.68	87.6	7.11	0.223
2	2.1	1.8	0.9	10.66	9.48	85.9	7.11	0.224
outlet	0.3	0.2		10.96	10.76	98.8	7.56	0.226

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

**Lake Name:** Sunset Lake  
**SiteID:** NJW04459-040

**County:** SOMERSET  
**Municipality:** BRIDGEWATER TWP

## Lake Profile Raw Data

**Season:** Summer

<b>Station</b>	<b>Tot Phos (ug/L)</b>	<b>TKN (mg/L)</b>	<b>Nitrite-Nitrate (mg/L)</b>	<b>Ammonia-N (mg/L)</b>	<b>Chl a (ug/L)</b>	<b>Alk (ppm)</b>	<b>Hard (ppm)</b>	<b>Turbidity (NTU)</b>
1	53.98	0.431	<0.006	0.027	58.1	215	133.3	7.53
2	62.44	0.507	<0.006	0.028	117.5	218	134	9.62
outlet	64.88	0.538	0.007	0.034	47.4	215	133.1	6.41

**Season:** Fall

<b>Station</b>	<b>Tot Phos (ug/L)</b>	<b>TKN (mg/L)</b>	<b>Nitrite-Nitrate (mg/L)</b>	<b>Ammonia-N (mg/L)</b>	<b>Chl a (ug/L)</b>	<b>Alk (ppm)</b>	<b>Hard (ppm)</b>	<b>Turbidity (NTU)</b>
1	35.97	0.493	0.764	0.015	4.8	38	69.4	8.82
2	36.72	0.438	0.783	0.012	4.6	41	69.4	8.94
outlet	35.12	0.461	0.76	0.017	2.2	35	69.4	9.29

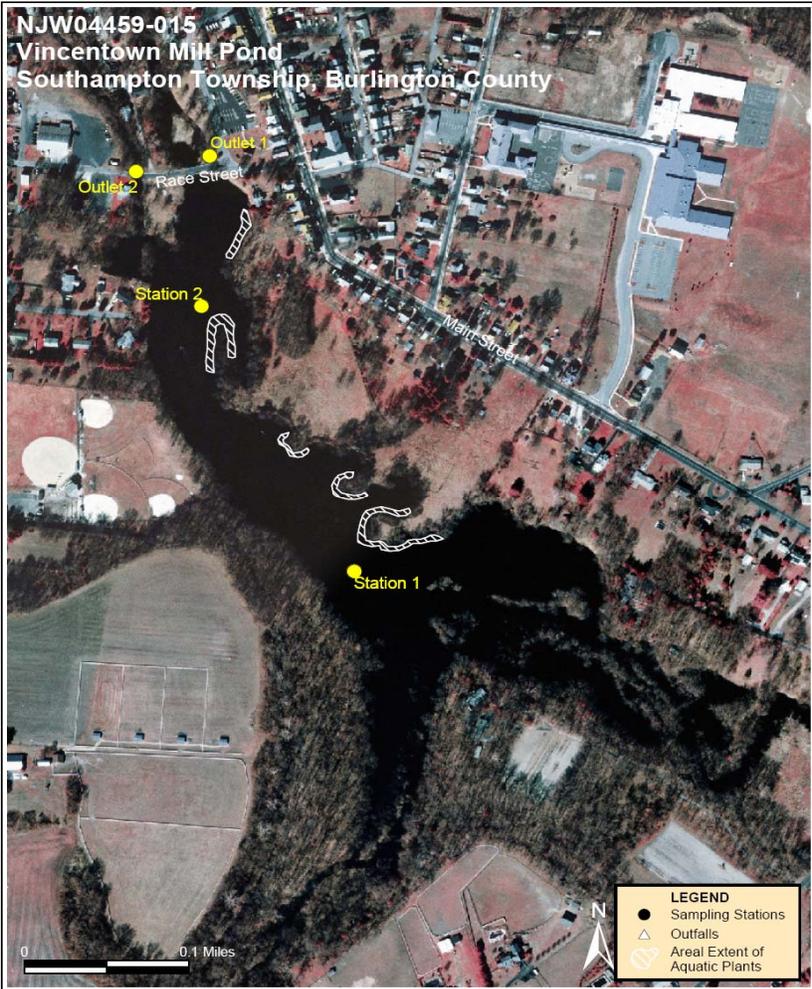
*Sample Device - Horizontal Polycarbonate Sampler*

*"<" 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** Vincetown Mill Pond      **County** Burlington  
**Site ID** NJW04459-015              **Municipality** Southampton Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	63.84	56.4	69.99	63.41 Eutrophic
Summer Station 2	63.79	47	69.99	60.26 Eutrophic
Fall Station 1	81.06	47.43	67.36	65.28 Eutrophic
Fall Station 2	79.14	60.89	67.36	69.13 Eutrophic

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

## Observations

### Summer

-Fish ladder at outlet. Recent bridge/dam structure construction completed.

### Fall

-No significant observations.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Vincentown Millpond  
SiteID: NJW04459-015

County: BURLINGTON  
Municipality: SOUTHAMPTON TWP

## Surface to Bottom Profile

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	0.9	0.5	27.48	4.42	55.8	4.85	0.079
2	1.5	0.9	0.5	27.04	3.4	42.6	5.01	0.082
outlet	0.9	0.9		28.18	5.19	66.4	4.92	0.079

Season: Fall

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	1.1	0.9	0.6	22.36	3.86	44.3	4.66	0.092
2	1.3	0.9	0.6	21.78	2.35	26.7	4.69	0.095
outlet	0.6	0.3		23.71	5.89	69.5	4.74	0.092

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

**Lake Name:** Vincentown Millpond

**County:** BURLINGTON

**SiteID:** NJW04459-015

**Municipality:** SOUTHAMPTON TWP

## Lake Profile Raw Data

**Season:** Summer

<i>Station</i>	<i>Tot Phos</i> (ug/L)	<i>TKN</i> (mg/L)	<i>Nitrite-Nitrate</i> (mg/L)	<i>Ammonia-N</i> (mg/L)	<i>Chl a</i> (ug/L)	<i>Alk</i> (ppm)	<i>Hard</i> (ppm)	<i>Turbidity</i> (NTU)
1	62.77	0.908	0.189	0.154	13.9	5	14.6	7.38
2	62.56	0.938	0.177	0.204	5.3	5	16.7	9.35
outlet	57.98	0.926	0.184	0.172	14.4	4	15.2	8

**Season:** Fall

<i>Station</i>	<i>Tot Phos</i> (ug/L)	<i>TKN</i> (mg/L)	<i>Nitrite-Nitrate</i> (mg/L)	<i>Ammonia-N</i> (mg/L)	<i>Chl a</i> (ug/L)	<i>Alk</i> (ppm)	<i>Hard</i> (ppm)	<i>Turbidity</i> (NTU)
1	207.17	0.446	0.056	0.091	5.6	2	13.3	4.71
2	181.4	0.635	0.019	0.059	21.9	2	14.2	4.75
outlet	177.42	0.578	0.026	0.07	17.0	3	14.4	5.01

*Sample Device - Horizontal Polycarbonate Sampler*

*"<" 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** Wampum Lake      **County** Monmouth  
**Site ID** NJW04459-222      **Municipality** Eatontown Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	58	68.72	63.22	63.31 Eutrophic
Summer Station 2	60.71	64.32	63.22	63.22 Eutrophic
Fall Station 1	37.88	65.81	69.99	57.89 Eutrophic
Fall Station 2	63.46	69.05	69.99	67.50 Eutrophic

 Total Phosphorus exceeds SWQC (See Datasheet for actual concentration)

### Observations

#### Summer

-Submerged aquatic vegetation.

#### Fall

-No significant observations.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Wampum Lake  
SiteID: NJW04459-222

County: MONMOUTH  
Municipality: EATONTOWN BORO

## Surface to Bottom Profile

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	0.8	0.8	22.69	5.5		6.54	0.403
2	1.7	0.9	0.8	23.7	3.98		6.55	0.413
outlet	0.3	0.2		24.81	7.32		6.85	0.412

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	0.6	0.5	21.97	7.54	86.1	6.59	0.423
2	1.7	0.9	0.5	22.06	5.37	61.4	6.73	0.423
outlet	0.6	0.3		22.71	7.56	87.7	7.01	0.424

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Wampum Lake

County: MONMOUTH

SiteID: NJW04459-222

Municipality: EATONTOWN BORO

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	41.87	0.435	0.59	0.069	48.7	37	90.5	18.6
2	50.53	0.765	0.593	0.179	31.1	37	89.8	26.1
outlet	59.44	0.659	0.613	0.157	39.1	38	88.9	24.7

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	<10.37	0.465	0.394	0.04	36.2	37	97.3	11.7
2	61.15	0.528	0.419	0.072	50.3	36	97	15.5
outlet	61.55	0.552	0.402	0.074	60.4	39	99.6	13.7

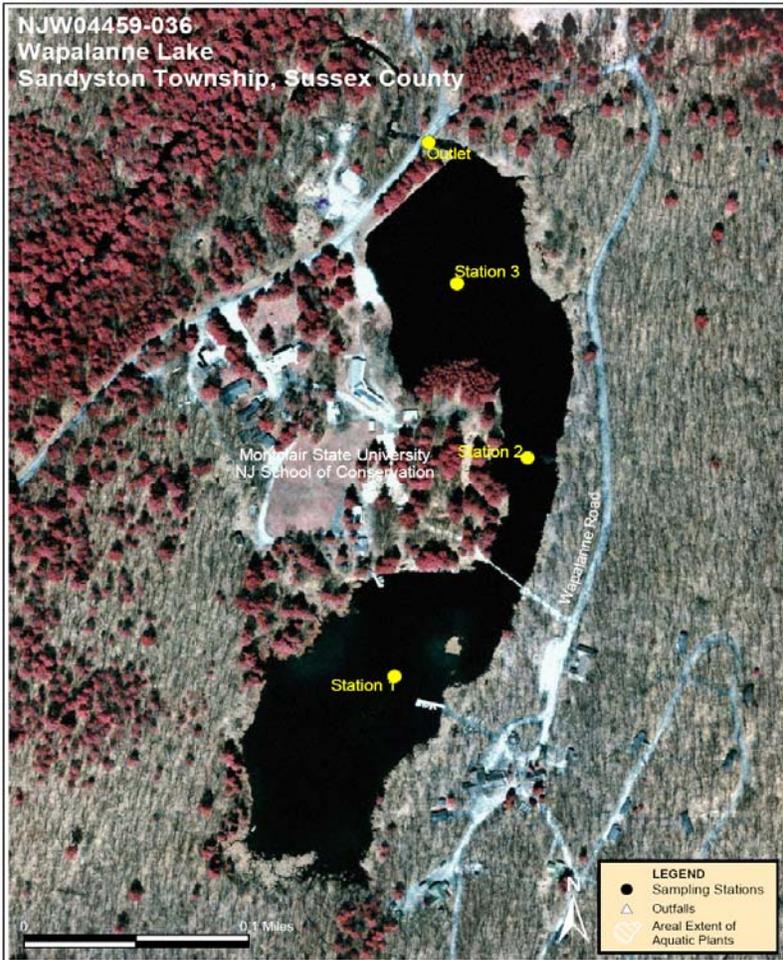
Sample Device - Horizontal Polycarbonate Sampler

"<" 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** Wapalanne Lake      **County** Sussex  
**Site ID** NJW04459-036      **Municipality** Sandyston Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	60.66	57.76	NA	59.21 Eutrophic
Summer Station 2	51.36	56.06	NA	53.71 Eutrophic
Summer Station 3	46.79	60.86	51.53	51.53 Eutrophic
Fall Station 1	37.88	15.33	NA	26.61 Oligotrophic
Fall Station 2	37.88	19.06	NA	28.47 Oligotrophic
Fall Station 3	39.27	20.93	NA	30.10 Oligotrophic

## Observations

### Summer

-Secchi transparency reaches bottom of lake, except Station 3.

### Fall

-Secchi transparency reaches bottom of lake.

Spotted newts observed.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Wapalanne Lake  
SiteID: NJW04459-036

County: SUSSEX  
Municipality: SANDYSTON TWP

## Surface to Bottom Profile

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	0.6	0.8	24.13	10.69	130.9	9.08	0.076
2	1.4	0.9	1.4	23.85	7.64	93.2	8.02	0.071
3	2.2	0.9	1.8	23.77	7.26	88.2	7.57	0.07
3	2.2	1.8	1.8	23.2	2.11	25.2	6.43	0.073
outlet	0.2	0.2	0.2	24.45	7.64	94.2	7.95	0.07

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	0.6	0.8	7.85	9.19	79.4	6.92	0.04
2	1.2	0.9	1.2	8.78	9.72	85.1	6.56	0.039
3	1.4	0.9	1.4	7.87	9.88	85.6	6.6	0.038
3	1.4	1.4	1.4	7.62	9.83	84.2	6.66	0.038
outlet	0.2	0.2		8.81	9.99	87.8	8.91	0.039

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Wapalanne Lake

County: SUSSEX

SiteID: NJW04459-036

Municipality: SANDYSTON TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	50.35	0.365	<0.006	0.029	15.9	76	34	5.21
2	26.41	0.286	0.009	0.026	13.4	71	31.8	3.29
3	19.24	0.282	0.008	0.026	21.9	68	31.4	2.45
outlet	16.82	0.359	0.008	0.03	13.1	69	30.9	2.18

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	<10.37	0.193	<0.006	<0.004	0.2	9	15.4	0.89
2	<10.37	0.212	<0.006	<0.004	0.3	9	15.5	1.11
3	11.42	0.281	<0.006	<0.004	0.4	8	14.6	0.69
outlet	<10.37	0.209	<0.006	<0.004	0.4	6	16.4	2.81

Sample Device - Horizontal Polycarbonate Sampler

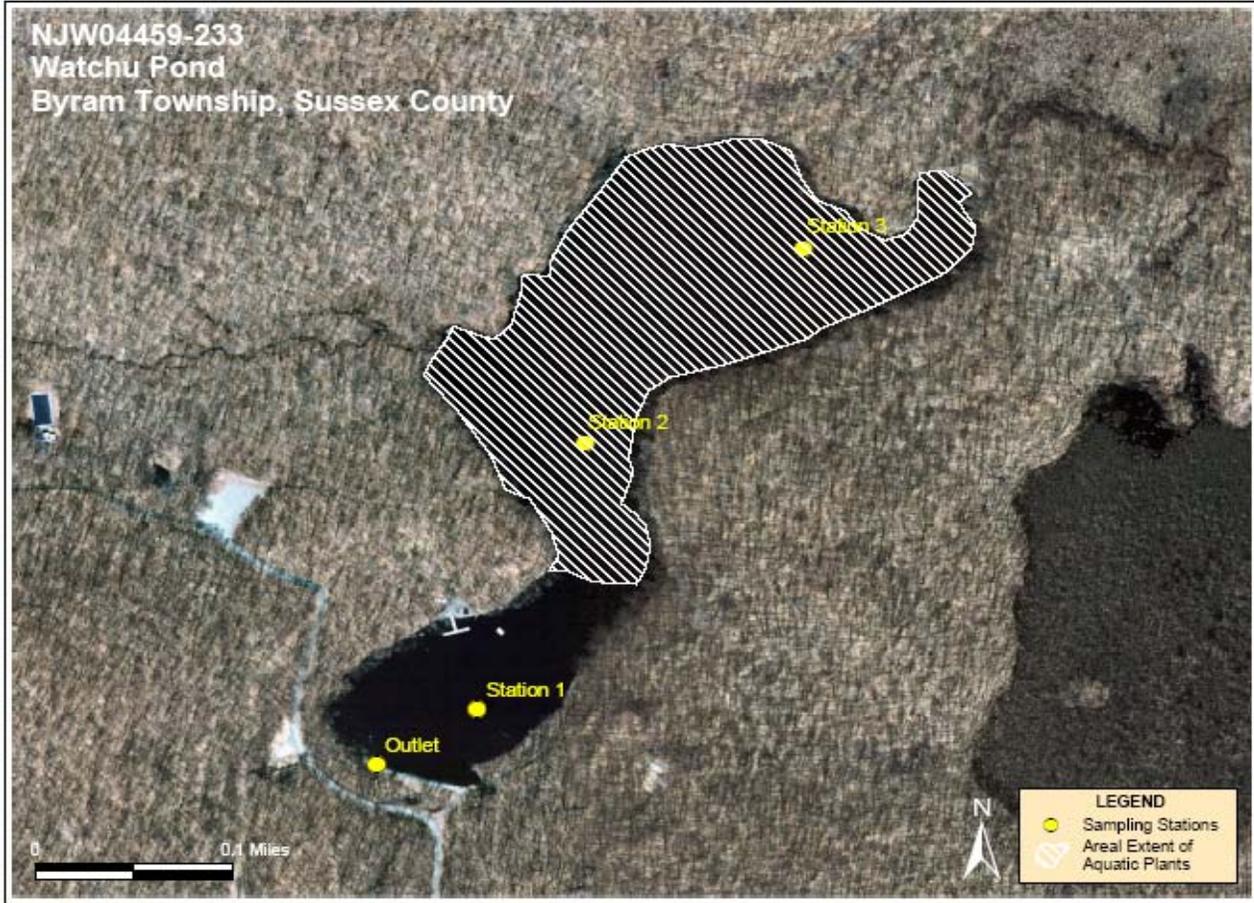
"<" indicates the result is at a concentration below the analytical method's Reporting Limit (RL). See Volume 1, Methods.

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

# AMBIENT LAKE MONITORING NETWORK

**Lake Name** Watchu Pond  
**Site ID** NJW04459-233

**County** Sussex  
**Municipality** Byram Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	58.32	61.52	58.87 Eutrophic
Summer Station 2	61.07	62.24	77.35	66.89 Eutrophic
Fall Station 1	40.9	43.87	63.22	49.66 Mesotrophic
Fall Station 2	62.75	47.72	63.22	57.89 Eutrophic
Fall Station 3	37.88	58.23	61.52	52.54 Eutrophic

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

## Observations

### Summer

- Station 3 could not be sampled in the summer; excessive plant growth inhibited passage of boat.
- Submerged aquatic vegetation throughout.

### Fall

- Submerged aquatic vegetation dense throughout.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: Watchu Pond  
SiteID: NJW04459-233

County: SUSSEX  
Municipality: BYRAM TWP

## Surface to Bottom Profile

Season: Summer

Station	Tot. Depth (M)	Profile Depth (M)	Secchi (M)	Water Temp (C)	DO (mg/L)	DO (%Sat)	pH (SU)	Conductivity (mS/cm)
1	2.4	0.9	0.9	25.7	2.73	33.6	6.97	0.129
2	1.1	0.9	0.3	24.1	1.65	19.7	6.02	0.14

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	0.9	0.8	12.98	8.2	73.4	7.48	0.098
2	1.3	0.9	0.8	12.39	8.34	67.6	7.46	0.079
3	1.1	0.8	0.9	13.12	7.8	60.2	7.35	0.079
outlet	0.2	0.2		13.01	8.39	74	7.14	0.104

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

**Lake Name:** Watchu Pond  
**SiteID:** NJW04459-233

**County:** SUSSEX  
**Municipality:** BYRAM TWP

## Lake Profile Raw Data

**Season:** Summer

<b>Station</b>	<b>Tot Phos (ug/L)</b>	<b>TKN (mg/L)</b>	<b>Nitrite-Nitrate (mg/L)</b>	<b>Ammonia-N (mg/L)</b>	<b>Chl a (ug/L)</b>	<b>Alk (ppm)</b>	<b>Hard (ppm)</b>	<b>Turbidity (NTU)</b>
1	< 38.41	0.541	<0.006	0.022	16.9	63	64.2	2.23
2	51.79	0.585	<0.006	0.023	25.2	62	64.4	2.77

**Season:** Fall

<b>Station</b>	<b>Tot Phos (ug/L)</b>	<b>TKN (mg/L)</b>	<b>Nitrite-Nitrate (mg/L)</b>	<b>Ammonia-N (mg/L)</b>	<b>Chl a (ug/L)</b>	<b>Alk (ppm)</b>	<b>Hard (ppm)</b>	<b>Turbidity (NTU)</b>
1	12.79	0.4	<0.006	0.019	3.9	34	46.7	0.77
2	58.18	0.414	<0.006	0.014	5.7	27	40.6	1.25
3	<10.37	0.493	<0.006	0.01	16.7	25	36.1	2.86
outlet	35.67	0.681	<0.006	0.029	6.0	42	50.5	0.55

*Sample Device - Horizontal Polycarbonate Sampler*

*"<" 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

<b>Lake Name</b>	White Rock Lake	<b>County</b>	Morris
<b>Site ID</b>	NJW04459-226	<b>Municipality</b>	Jefferson Twp.



## Carlson's Trophic Index (TSI)

Season	TSIP	TSIC	TSIS	TSI
Summer Station 1	56.76	59.1	51.53	55.80 Eutrophic
Fall Station 1	51.21	61.16	55.15	55.84 Eutrophic

## Observations

### Summer

-Duckweed. Filamentous algae. Cattails.

### Fall

-No significant observations.

# AMBIENT LAKE MONITORING NETWORK

Lake Name: White Rock Lake  
SiteID: NJW04459-226

County: MORRIS  
Municipality: JEFFERSON TWP

## Surface to Bottom Profile

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	2.7	0.9	1.8	27.21	5.83	75.2	7.71	0.454
1	2.7	1.8	1.8	27.02	5.29	68.1	7.59	0.455
outlet	<0.2	<0.2		26.46	6.07	77.3	7.81	0.456

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	2.6	0.9	1.4	20.25	5.82	65.6	7.4	0.462
1	2.6	1.8	1.4	20.08	5.4	60.7	7.37	0.462

-Secchi measurements are not recorded for outlets.

-A blank Secchi measurement for lake stations means that an accurate measurement could not be recorded because visibility was obscured by vegetation.

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

# AMBIENT LAKE MONITORING NETWORK

Lake Name: White Rock Lake

County: MORRIS

SiteID: NJW04459-226

Municipality: JEFFERSON TWP

## Lake Profile Raw Data

Season: Summer

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	< 38.41	0.359	<0.006	0.02	18.3	71	119.1	2.47
outlet	< 38.41	0.531	0.05	0.088	17.7	74	120.8	3.34

Season: Fall

Station	Tot Phos (ug/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Ammonia-N (mg/L)	Chl a (ug/L)	Alk (ppm)	Hard (ppm)	Turbidity (NTU)
1	26.15	0.551	<0.006	0.024	22.5	92	122.1	3.63

Sample Device - Horizontal Polycarbonate Sampler

"<" 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.