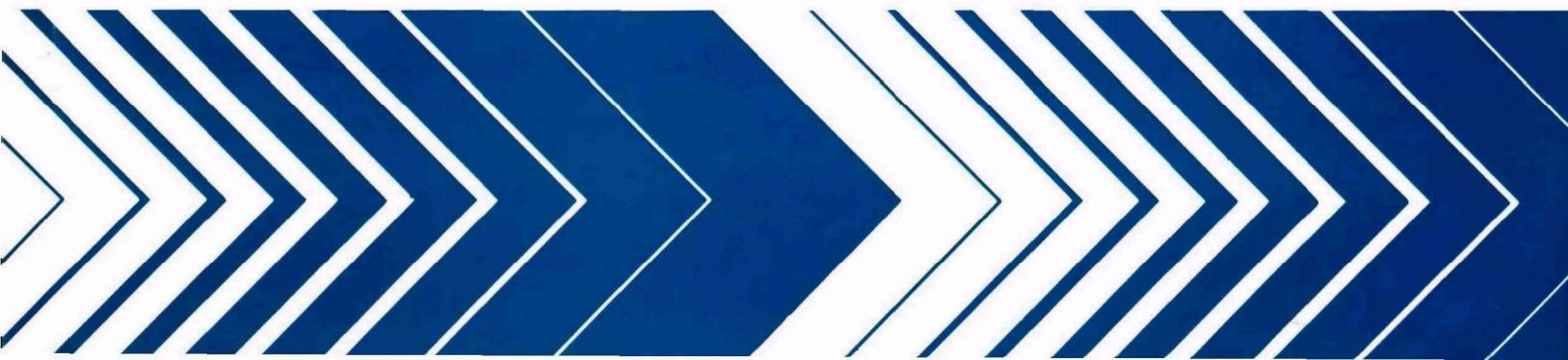




# Distribution of Phytoplankton in Kansas Lakes

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DISTRIBUTION OF PHYTOPLANKTON IN KANSAS LAKES

by

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## FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to freshwater lakes and reservoirs. The Survey was designed to develop, in conjunction with State environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and State management practices relating to point source discharge reduction and nonpoint source pollution abatement in lake watershed.

The Survey collected physical, chemical, and biological data from 815 lakes and reservoirs throughout the contiguous United States. To date, the Survey has yielded more than two million data points. In-depth analyses are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's freshwater lakes.

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## INTRODUCTION

The collection and analysis of phytoplankton data were included in the National Eutrophication Survey in an effort to determine relationships between algal characteristics and trophic status of individual lakes.

During spring, summer, and fall of 1974, the Survey sampled 179 lakes in 10 States. Over 700 algal species and varieties were identified and enumerated from the 573 water samples examined.

This report presents the species and abundance of phytoplankton in the 15 lakes sampled in the State of Kansas (Table 1). The Nygaard's Trophic State (Nygaard 1949), Palmer's Organic Pollution (Palmer 1969), and species diversity and abundance indices are also included.

TABLE 1. LAKES SAMPLED IN THE STATE OF KANSAS

STORET No.	Lake Name	County
2001	Cedar Bluff Reservoir	Trego
2002	Council Grove	Morris
2003	Elk City	Montgomery
2004	Fall River Reservoir	Greenwood
2005	John Redmond Reservoir	Coffey
2006	Kanopolis Reservoir	Ellsworth
2007	Marion Reservoir	Marion
2008	Melvern Reservoir	Osage
2009	Milford Reservoir	Clay, Geary, Riley
2010	Norton Reservoir	Norton
2011	Perry Reservoir	Jefferson

(Continued)

TABLE 1. LAKES SAMPLED IN THE STATE OF KANSAS (Continued)

STORET No.	Lake Name	County
2012	Pomona Reservoir	Osage
2013	Toronto Reservoir	Greenwood, Woodson
2014	Tuttle Creek Reservoir	Marshall, Riley, Pottawatomie
2015	Wilson Reservoir	Russell, Lincoln

## MATERIALS AND METHODS

### LAKE AND SITE SELECTION

Lakes and reservoirs included in the Survey were selected through discussions with State water pollution agency personnel and U.S. Environmental Protection Agency Regional Offices (U.S. Environmental Protection Agency 1975). Screening and selection strongly emphasized lakes with actual or potential accelerated eutrophication problems. As a result, the selection was limited to lakes:

- (1) impacted by one or more municipal sewage treatment plant outfalls either directly into the lake or by discharge to an inlet tributary within approximately 40 kilometers of the lake;
- (2) 40 hectares or larger in size; and
- (3) with a mean hydraulic retention time of at least 30 days.

Specific selection criteria were waived for some lakes of particular State interest.

Sampling sites for a lake were selected based on available information on lake morphometry, potential major sources of nutrient input, and on-site judgment of the field limnologist (U.S. Environmental Protection Agency 1975). Primary sampling sites were chosen to reflect the deepest portion of each major basin in a test lake. Where many basins were present, selection was guided by nutrient source information on hand. At each sampling site, a depth-integrated phytoplankton sample was taken. Depth-integrated samples were uniform mixtures of water from the surface to a depth of 15 feet (4.6 meters) or from the surface to the lower limit of the photic zone representing 1 percent of the incident light, whichever was greater. If the depth at the sampling site was less than 15 feet (4.6 meters), the sample was taken from just off the bottom to the surface. Normally, a lake was sampled three times in 1 year, providing information on spring, summer, and fall conditions.

### SAMPLE PREPARATION

To preserve the sample 4 milliliters (ml) of Acid-Lugol's solution (Prescott 1970) were added to each 130-ml sample from each site at the time of collection. The samples were shipped to the Environmental Monitoring and Support Laboratory, Las Vegas, Nevada, where equal volumes from each site

were mixed to form two 130-ml composite samples for a given lake. One composite sample was put into storage and the other was used for the examination.

Prior to examination, the composite samples were concentrated by the settling method. Solids were allowed to settle for at least 24 hours prior to siphoning off the supernate. The volume of the removed supernate and the volume of the remaining concentrate were measured and concentrations determined. A small (8-ml) library subsample of the concentrate was then taken. The remaining concentrate was gently agitated to resuspend the plankton and poured into a capped, graduated test tube. If a preliminary examination of a sample indicated the need for a more concentrated sample, the contents of the test tube were further concentrated by repeating the settling method. Final concentrations varied from 15 to 40 times the original.

Permanent slides were prepared from concentrated samples after analysis was complete. A ring of clear Karo® corn syrup with phenol (a few crystals of phenol were added to each 100 ml of syrup) was placed on a glass slide. A drop of superconcentrate from the bottom of the test tube was placed in the ring. This solution was thoroughly mixed and topped with a coverglass. After the syrup at the edges of the coverglass had hardened, the excess was scraped away and the mount was sealed with clear fingernail polish. Permanent diatom slides were prepared by drying sample material on a coverglass, heating in a muffle furnace at 400° C for 45 minutes, and mounting in Hyrax®. Finally, the mounts were sealed with clear fingernail polish.

Backup samples, library samples, permanent sample slides, and Hyrax®-mounted diatom slides are being stored and maintained at the Environmental Monitoring and Support Laboratory-Las Vegas.

## EXAMINATION

The phytoplankton samples were examined with the aid of binocular compound microscopes. A preliminary examination was performed to precisely identify and list all forms encountered. The length of this examination varied depending on the complexity of the sample. An attempt was made to find and identify all of the forms present in each sample. Often forms were observed which could not be identified to species or to genus. Abbreviated descriptions were used to keep a record of these forms (e.g., lunate cell, blue-green filament, Navicula #1). Diatom slides were examined using a standard light microscope. If greater resolution was essential to accurately identify the diatoms, a phase-contrast microscope was used.

After the species list was compiled, phytoplankton were enumerated using a Neubauer Counting Chamber with a 40X objective lens and a 10X ocular lens. All forms within each field were counted. The count was continued until a minimum of 100 fields had been viewed, or until the dominant form had been observed a minimum of 100 times.

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## QUALITY CONTROL

Project phycologists performed internal quality control intercomparisons regularly on 7 percent of the species identification and counts. Although an individual had primary responsibility for analyzing a sample, taxonomic problems were discussed among the phycologists.

Additional quality control checks were performed on the Survey samples by Dr. G. W. Prescott of the University of Montana at the rate of 5 percent. Quality control checks were made on 75 percent of these samples to verify species identifications while checks were made on the remaining 25 percent of the samples to verify genus counts. Presently, the agreement between quality control checks for species identification and genus enumerations is satisfactory.

## RESULTS

A phytoplankton species list for the State is presented in Appendix A. Appendix B summarizes all of the phytoplankton data collected from the State by the Survey. The latter is organized by lake, and includes an alphabetical phytoplankton species list with concentrations for individual species given by sampling date. Results from the application of several indices are presented (Nygaard's Trophic State, Palmer's Organic Pollution, and species diversity and abundance). Each lake has been assigned a four-digit STORET number. (STORET (STOrage and RETrieval) is the U.S. Environmental Protection Agency's computer system which processes and maintains water quality data.) The first two digits of the STORET number identify the State; the last two digits identify the lake.

### NYGAARD'S TROPHIC STATE INDICES

Five indices devised by Nygaard (1949) were proposed under the assumption that certain algal groups are indicative of levels of nutrient enrichment. These indices were calculated in order to aid in determining the surveyed lakes' trophic status. As a general rule, Cyanophyta, Euglenophyta, centric diatoms, and members of the Chlorococcales are found in waters that are eutrophic (rich in nutrients), while desmids and many pennate diatoms generally cannot tolerate high nutrient levels and so are found in oligotrophic waters (poor in nutrients).

In applying the indices to the Survey data, the number of taxa in each major group was determined from the species list for each sample. The ratios of these groups give numerical values which can be used as a biological index of water richness. The five indices and the ranges of values established for Danish lakes by Nygaard for each trophic state are presented in Table 2. The appropriate symbol, (E) eutrophic and (O) oligotrophic, follows each calculated value in the tables in Appendix B. A question mark (?) following a calculated value in these tables was entered when that value was within the range of both classifications.

### PALMER'S ORGANIC POLLUTION INDICES

Palmer (1969) analyzed reports from 165 authors and developed algal pollution indices for use in rating water samples with high organic pollution. Two lists of organic-pollution-tolerant forms were prepared, one containing 20 genera, the other, 20 species (Tables 3 and 4). Each form was assigned a pollution index number ranging from 1 for moderately tolerant forms to 6 for

TABLE 2. NYGAARD'S TROPHIC STATE INDICES ADAPTED FROM HUTCHINSON (1967)

Index	Calculation	Oligotrophic	Eutrophic
Myxophycean	<u>Myxophyceae</u> Desmideae	0.0-0.4	0.1-3.0
Chlorophycean	<u>Chlorococcales</u> Desmideae	0.0-0.7	0.2-9.0
Diatom	<u>Centric Diatoms</u> <u>Pennate Diatoms</u>	0.0-0.3	0.0-1.75
Euglenophyte	<u>Euglenophyta</u> <u>Myxophyceae + Chlorococcales</u>	0.0-0.2	0.0-1.0
Compound	<u>Myxophyceae + Chlorococcales +</u> <u>Centric Diatoms + Euglenophyta</u> Desmideae	0.0-1.0	1.2-25

TABLE 3. ALGAL GENUS POLLUTION INDEX  
(Palmer 1969)

Genus	Pollution Index
<u>Anacystis</u>	1
<u>Ankistrodesmus</u>	2
<u>Chlamydomonas</u>	4
<u>Chlorella</u>	3
<u>Closterium</u>	1
<u>Cyclotella</u>	1
<u>Euglena</u>	5
<u>Gomphonema</u>	1
<u>Lepocinclis</u>	1
<u>Melosira</u>	1
<u>Micractinium</u>	1
<u>Navicula</u>	3
<u>Nitzschia</u>	3
<u>Oscillatoria</u>	5
<u>Pandorina</u>	1
<u>Phacus</u>	2
<u>Phormidium</u>	1
<u>Scenedesmus</u>	4
<u>Stigeoclonium</u>	2
<u>Synedra</u>	2

TABLE 4. ALGAL SPECIES POLLUTION INDEX (Palmer 1969)

Species	Pollution Index
<u>Ankistrodesmus falcatus</u>	3
<u>Arthrosphaera jenneri</u>	2
<u>Chlorella vulgaris</u>	2
<u>Cyclotella meneghiniana</u>	2
<u>Euglena gracilis</u>	1
<u>Euglena viridis</u>	6
<u>Gomphonema parvulum</u>	1
<u>Melosira varians</u>	2
<u>Navicula cryptocephala</u>	1
<u>Nitzschia acicularis</u>	1
<u>Nitzschia palea</u>	5
<u>Oscillatoria chlorina</u>	2
<u>Oscillatoria limosa</u>	4
<u>Oscillatoria princeps</u>	1
<u>Oscillatoria putrida</u>	1
<u>Oscillatoria tenuis</u>	4
<u>Pandorina morum</u>	3
<u>Scenedesmus quadricauda</u>	4
<u>Stigeoclonium tenue</u>	3
<u>Synedra ulna</u>	3

extremely tolerant forms. Palmer based the index numbers on occurrence records and/or where emphasized by the authors as being especially tolerant of organic pollution.

In analyzing a water sample, any of the 20 genera or species of algae present in concentrations of 50 per milliliter or more are recorded. The pollution index numbers of the algae present are totaled, providing a genus score and a species score. Palmer determined that a score of 20 or more for either index can be taken as evidence of high organic pollution, while a score of 15 to 19 is taken as probable evidence of high organic pollution. Lower figures suggest that the organic pollution of the sample is not high, that the sample is not representative, or that some substance or factor interfering with algal persistence is present and active.

#### SPECIES DIVERSITY AND ABUNDANCE INDICES

"Information content" of biological samples is being used commonly by biologists as a measure of diversity. Diversity in this connection means the degree of uncertainty attached to the specific identity of any randomly selected individual. The greater the number of taxa and the more equal their proportions, the greater the uncertainty, and hence, the diversity (Pielou 1966). There are several methods of measuring diversity, e.g., the formulas given by Brillouin (1962) and Shannon and Weaver (1963). The method which is appropriate depends on the type of biological sample on hand.

Pielou (1966) classifies the types of biological samples and gives the measure of diversity appropriate for each type. The Survey phytoplankton samples are what she classifies as larger samples (collections in Pielou's terminology) from which random subsamples can be drawn. According to Pielou, the average diversity per individual ( $H$ ) for these types of samples can be estimated from the Shannon-Wiener formula (Shannon and Weaver 1963):

$$H = -\sum_{i=1}^S p_i \log_x p_i$$

where  $P$  is the proportion of the  $i$ th taxon in the sample, which is calculated from  $n_i/N$ ;  $n_i$  is the number of individuals per milliliter of the  $i$ th taxon;  $N$  is the total number of individuals per ml; and  $S$  is the total number of taxa. However, Basharin (1959) and Pielou (1966) have pointed out that  $H$  calculated from the subsample is a biased estimator of the sample  $H$ , and if this bias is to be accounted for, we must know the total number of taxa present in the sample since the magnitude of this bias depends on it.

Pielou (1966) suggests that if the number of taxa in the subsample falls only slightly short of the number in the larger sample, no appreciable error will result in considering  $S$ , estimated from the subsample, as being equal to the sample value. Even though considerable effort was made to find and identify all taxa, the Survey samples undoubtedly contain a fair number of rare phytoplankton taxa which were not encountered.

In the Shannon-Wiener formula, an increase in the number of taxa and/or an increase in the evenness of the distribution of individuals among taxa will increase the average diversity per individual from its minimal value of zero. Sager and Hasler (1969) found that the richness of taxa was of minor importance in determination of average diversity per individual for phytoplankton and they concluded that phytoplankton taxa in excess of the 10 to 15 most abundant ones have little effect on H. This was verified by our own calculations. Our counts are in number per milliliter and since logarithms to the base 2 were used in our calculations, H is expressed in units of bits per individual. When individuals of a taxon were so rare that they were not counted, a value of 1/130 per milliliter or 0.008 per milliliter was used in the calculations since at least one individual of the taxon must have been present in the collection.

A Survey sample for a given lake represents a composite of all phytoplankton collected at different sampling sites on the lake during a given sampling period. Since the number of samples (M) making up a composite is a function of both the complexity of the lake sampled and its size, it should affect the richness-of-taxa component of the diversity of our phytoplankton collections. The maximum diversity (MaxH) (i.e., when the individuals are distributed among the taxa as evenly as possible) was estimated from  $\log_2 S$  (Pielou 1966), while the minimum diversity (MinH), was estimated from the formula:

$$\text{MinH} = -\frac{S-1}{N} \log_2 \frac{1}{N} - \left[ \frac{N - (S-1)}{N} \right] \log_2 \left[ \frac{N - (S-1)}{N} \right]$$

given by Zand (1976). The total diversity (D) was calculated from HN (Pielou 1966). Also given in Appendix B are L (the mean number of individuals per taxa per milliliter) and K (the number of individuals per milliliter of the most abundant taxon in the sample).

The evenness component of diversity (J) was estimated from H/MaxH (Pielou 1966). Relative evenness (RJ) was calculated from the formula:

$$RJ = \frac{H-\text{MinH}}{\text{MaxH}-\text{MinH}}$$

given by Zand (1976). Zand suggests that RJ be used as a substitute for both J and the redundancy expression given by Wilhm and Dorris (1968). As pointed out by Zand, the redundancy expression given by Wilhm and Dorris does not properly express what it is intended to show, i.e., the position of H in the range between MaxH and MinH. RJ may range from 0 to 1; being 1 for the most even samples and 0 for the least even samples.

Zand (1976) suggests that diversity indices be expressed in units of "sits", i.e., in logarithms to base S (where S is the total number of taxa in the sample) instead of in "bits", i.e., in logarithms to base 2. Zand points out that the diversity index in sits per individual is a normalized number ranging from 1 for the most evenly distributed samples to 0 for the least evenly distributed samples. Also, it can be used to compare different samples, independent of the number of taxa in each. The diversity in bits per

individual should not be used in direct comparisons involving various samples which have different numbers of taxa. Since MaxH equals  $\log S$ , the expression in sites is equal to  $\log S$ , or 1. Therefore diversity in sites per individual is numerically equivalent to J, the evenness component for the Shannon-Wiener formula.

#### SPECIES OCCURRENCE AND ABUNDANCE

The alphabetic phytoplankton species list for each lake, presented in Appendix B, gives the concentrations of individual species by sampling date. Concentrations are in cells, colonies, or filaments (CEL, COL, FIL) per milliliter. An "X" after a species name indicates that the species identified in the preliminary examination was in such a low concentration that it did not appear in the count. A blank space indicates that the organism was not found in the sample collected on that date. Column S is used to designate the examiner's subjective opinion of the five dominant taxa in a sample, based upon relative size and concentration of the organism. The percent column (%C) presents, by abundance, the percentage composition of each taxon.

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**APPENDIX A**  
**PHYTOPLANKTON SPECIES FOR THE STATE OF KANSAS**

<i>Actinastrum gracile</i>	<i>Dactylococcopsis irregularis</i>
<i>Anabaena</i> sp.	<i>Diatoma vulgare</i>
<i>Anabaenopsis</i> sp.	<i>Dictyosphaerium pulchellum</i>
<i>Ankistrodesmus falcatus</i>	<i>Dinobryon divergens</i>
<i>Ankistrodesmus falcatus</i>	<i>Dinobryon sertularia</i>
v. <i>acicularis</i>	<i>Dinobryon sociale</i>
<i>Ankistrodesmus falcatus</i>	<i>Diploneis smithii</i>
v. <i>mirabilis</i>	v. <i>pumila</i>
<i>Aphanizomenon flos-aquae</i>	<i>Diplopsalis acuta</i>
<i>Asterionella formosa</i>	<i>Elakatothrix gelatinosa</i>
<i>Asterionella formosa</i>	<i>Entomoneis alata</i>
v. <i>gracillima</i>	<i>Euastrum</i> sp.
<i>Botryococcus sudeticus</i>	<i>Eudorina</i> sp.
<i>Carteria klebsii</i>	<i>Euglena acus</i>
<i>Ceratium hirundinella</i>	<i>Euglena ehrenbergii</i>
f. <i>brachyceras</i>	<i>Euglena gracilis</i>
<i>Ceratium hirundinella</i>	<i>Euglena oxyuris</i>
f. <i>furcoides</i>	v. <i>minor</i>
<i>Ceratium hirundinella</i>	<i>Euglena tripteris</i>
f. <i>scotticum</i>	<i>Fragilaria cotonensis</i>
<i>Characium limneticum</i>	<i>Fragilaria intermedia</i>
<i>Characium naegelii</i> ?	<i>Glenodinium edax</i>
<i>Chlamydomonas globosa</i>	<i>Glenodinium oculatum</i>
<i>Chlorogonium</i> sp.	<i>Gloeocystis</i> sp.
<i>Chroomonas acuta</i>	<i>Golenkinia</i> sp.
<i>Closteriopsis</i> sp.	<i>Gomphonema gracile</i>
<i>Closterium</i> sp.	<i>Gomphonema olivaceum</i>
<i>Coccconeis pediculus</i> ?	<i>Gymnodinium albulum</i>
<i>Coelastrum cambricum</i>	<i>Gymnodinium ordinatum</i>
v. <i>intermedium</i>	<i>Gyrosigma</i> sp.
<i>Coelastrum microporum</i>	<i>Hantzschia amphioxys</i>
<i>Coelastrum reticulatum</i>	<i>Kirchneriella contorta</i>
<i>Coelastrum reticulatum</i>	<i>Lagerheimia</i> sp.
v. <i>polychordon</i>	<i>Lepocinclis</i> sp.
<i>Coelosphaerium naegelianum</i>	<i>Lyngbya</i> sp.
<i>Cosmarium granatum</i>	<i>Mallomonas</i> sp.
<i>Crucigenia apiculata</i>	<i>Melosira distans</i>
<i>Crucigenia fenestrata</i>	<i>Melosira granulata</i>
<i>Crucigenia quadrata</i>	<i>Melosira granulata</i>
<i>Crucigenia tetrapedia</i>	v. <i>angustissima</i>
<i>Cryptomonas erosa</i>	<i>Melosira granulata</i>
<i>Cryptomonas erosa</i>	v. <i>angustissima</i> f. <i>spiralis</i>
v. <i>reflexa</i>	<i>Melosira italicica</i>
<i>Cryptomonas marssonii</i>	<i>Melosira italicica</i>
<i>Cryptomonas reflexa</i>	v. <i>tenuissima</i>
<i>Cyclotella meneghiniana</i>	<i>Melosira varians</i>
<i>Cyclotella michiganiana</i> ?	<i>Merismopedia minima</i>
<i>Cyclotella stelligera</i>	<i>Merismopedia punctata</i>
<i>Cymatopleura solea</i>	<i>Merismopedia tenuissima</i>
<i>Cymbella affinis</i>	<i>Mesostigma viridis</i>
<i>Dactylococcopsis acicularis</i>	

<i>Micractinium pusillum</i>	<i>Scenedesmus arcuatus</i>
<i>Microcystis aeruginosa</i>	<i>Scenedesmus balatonicus</i>
<i>Microcystis incerta</i>	<i>Scenedesmus bijuga</i>
<i>Navicula cryptocephala</i> ?	<i>Scenedesmus denticulatus</i>
<i>Navicula cuspidata</i>	<i>Scenedesmus dimorphus</i>
<i>Navicula heufleri</i>	<i>Scenedesmus intermedius</i>
<i>Navicula salinarium</i>	<i>Scenedesmus intermedius</i>
v. <i>intermedia</i>	v. <i>bicaudatus</i>
<i>Nephrocytium</i> sp.	<i>Scenedesmus opoliensis</i>
<i>Nitzschia acicularis</i>	<i>Scenedesmus quadriacauda</i>
<i>Nitzschia apiculata</i> ?	<i>Scenedesmus quadriacauda</i>
<i>Nitzschia dissipata</i>	v. <i>longispina</i>
<i>Nitzschia holsatica</i>	<i>Schroederia setigera</i>
<i>Nitzschia hungarica</i>	<i>Skeletonema potamos</i>
<i>Nitzschia longissima</i>	<i>Sphaerocystis schroeteri</i>
v. <i>reversa</i>	<i>Staurastrum tetracerum</i>
<i>Nitzschia sigmoidea</i>	<i>Stephanodiscus astraea</i>
<i>Nitzschia tryblionella</i>	v. <i>minutula</i>
<i>Nitzschia tryblionella</i>	<i>Stephanodiscus hantzschia</i>
v. <i>debilis</i> ?	<i>Stephanodiscus invistatus</i>
<i>Nitzschia vermicularis</i>	<i>Stephanodiscus tenuis</i>
<i>Oocystis</i> sp.	<i>Surirella angusta</i>
<i>Oscillatoria agardhii</i>	<i>Surirella linearis</i>
<i>Oscillatoria limnetica</i>	v. <i>helvetica</i> ?
<i>Pandorina morum</i>	<i>Surirella ovata</i>
<i>Pediastrum boryanum</i>	<i>Synedra acus</i>
<i>Pediastrum duplex</i>	<i>Synedra minuscula</i>
v. <i>clathratum</i>	<i>Synedra rumpens</i>
<i>Pediastrum duplex</i>	<i>Synedra ulna</i>
v. <i>reticulatum</i>	<i>Tetraedron minium</i>
<i>Pediastrum simplex</i>	<i>Tetraedron minium</i>
v. <i>duodenarium</i>	v. <i>scrobiculatum</i>
<i>Pediastrum tetras</i>	<i>Tetraedron muticum</i>
<i>Pediastrum tetras</i>	<i>Tetrastrum elegans</i>
v. <i>tetraodon</i>	<i>Tetrastrum glabrum</i>
<i>Peridinium quadridens</i>	<i>Tetrastrum staurogeniaeforme</i>
<i>Phacus acuminatus</i>	<i>Trachelomonas australica</i>
<i>Phacus caudatus</i>	<i>Trachelomonas bulla</i>
<i>Phacus helikoides</i>	<i>Trachelomonas fluviatilis</i>
<i>Phacus longicauda</i>	<i>Trachelomonas gibberosa</i>
<i>Phacus megalopsis</i>	<i>Trachelomonas girardiana</i>
<i>Phacus orbicularis</i>	<i>Trachelomonas hispida</i>
<i>Phacus pseudonordstedtii</i>	<i>Trachelomonas intermedia</i>
<i>Phormidium</i> sp.	<i>Trachelomonas oblonga</i>
<i>Pinnularia</i> sp.	<i>Trachelomonas scabra</i>
<i>Pteromonas angulosa</i>	<i>Trachelomonas schauinslandii</i>
<i>Scenedesmus abundans</i>	<i>Trachelomonas verrucosa</i>
<i>Scenedesmus acuminatus</i>	<i>Trachelomonas volvocina</i>

## APPENDIX B. SUMMARY OF PHYTOPLANKTON DATA

This appendix was generated by computer. Because it was only possible to use upper case letters in the printout, all scientific names are printed in upper case and are not italicized.

The alphabetic phytoplankton lists include taxa without species names (e.g., EUNOTIA, EUNOTIA #1, FLAGELLATE, FLAGELLATES, MICROCYSTIS INCERTA ?, CHLOROPHYTAN COCCOID CELLED COLONY). When species determinations were not possible, symbols or descriptive phrases were used to separate taxa for enumeration purposes. Each name on a list, however, represents a unique species different from any other name on the same list, unless otherwise noted, for counting purposes.

Numbers were used to separate unidentified species of the same genus. A generic name listed alone is also a unique species. A question mark (?) is placed immediately after the portion of a name which was assigned with uncertainty. Numbered, questioned, or otherwise designated taxa were established on a lake-by-lake basis; therefore NAVICULA #2 from lake A cannot be compared to NAVICULA #2 from lake B. Pluralized categories (e.g., FLAGELLATES, CENTRIC DIATOMS, SPP.) were used for counting purposes when taxa could not be properly differentiated on the counting chamber.

LAKE NAME: CEDAR BLUFF RES.  
STCRET NUMBER: 2001

NYGAARD TROPHIC STATE INDICES

	DATE	04 14 74	06 26 74	10 01 74
MYXOPHYCEAN		0/03 0	1.00 E	2.50 E
CHLOROPHYCEAN		2.00 E	5.00 E	3.00 E
EUGLENOPHYTE		0/06 ?	0.33 E	0.27 E
DIATOM		0.43 E	0.75 E	0.67 E
COMPOUND		3.00 E	11.0 E	8.00 E

PALMER'S ORGANIC POLLUTION INDICES

	DATE	04 14 74	06 26 74	10 01 74
GENUS		03	00	05
SPECIES		00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

	DATE	04 14 74	06 26 74	10 01 74
AVERAGE DIVERSITY	H	1.63	1.02	2.53
NUMBER OF TAXA	S	22.00	24.00	26.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	2.00	2.00
MAXIMUM DIVERSITY MAXH	MAXH	4.46	4.58	4.70
MINIMUM DIVERSITY MINH	MINH	0.45	0.45	0.15
TOTAL DIVERSITY	D	792.18	542.64	5353.48
TOTAL NUMBER OF INDIVIDUALS/ML	N	486.00	532.00	2116.00
EVENNESS COMPGNENT	J	0.37	0.22	0.54
RELATIVE EVENNESS	RJ	0.30	0.14	0.53
MEAN NUMBER OF INDIVIDUALS/TAXA	L	22.09	22.17	21.38
NUMBERS/ML OF MOST ABUNDANT TAXON	K	312.00	437.00	1041.00

TAXA	FORM	04 14 74			06 26 74			10 01 74		
		IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML
CARTERIA	CEL	1	1		1	1				X
CARTERIA KLEBSII	CEL	1	1		141	3.61	19			
CERATIUM HIRUNDINELLA	CEL	1	1				X			
CHRUOMONAS ACUTA	CEL	1	1		1182.11	437	1149.21	1041		
CLADOFIUM	CEL	1	1					2.91	61	
COELASTRUM MICROKURUM	CEL	1	1		X					
COELASTRUM RETICULATUM	COL	1	1		X					
CUSMARIA	CEL	1	1		X		X			
CRUCIGENIA QUADRATA	COL	1	1							X
CRYPTOMONAS	CEL	151	7.21	35			X			
CRYPTOMONAS FRUSA	CEL	1	1							
CRYPTOMONAS MARSSONII	CEL	1	1		121	7.11	30	21	5.81	123
CRYPTOMONAS REFLEXA	CEL	1	1		X					
CYCLOTELLA MENECHINIANA	CEL	1	1							
CYCLOTELLA MICHIGANIANA ?	CEL	12014.21		69						X
CYMBELLA	CEL	1	1		X		X			
CYST	CFL	1	1							
DACTYLOCOPCUSIS	CEL	1	1							
DINOBRYON DIVERGINS	CEL	1	1		X	151	3.61	19		X
ELAKATOTHRIX GELATINOSA	CEL	1	1		X					
EUGLENA	CEL	1	1							
EUGLENA IHRENBURGII ?	CEL	1	1				X			
FLAGELLATE	CEL	1	1				X			
FRAGILARIA CRUTUNENSIS	CEL	1	1		X					
GYRUSIGRA	CEL	1	1							
MELUSIRA DISTANS	CEL	1	1		X					
MELUSIRA ITALICA	CEL	1	1		X		X			
MERISMOPEDIA MINIMA	COL	1	1						1.51	31
MERISMOPEDIA PUNCTATA	COL	1	1							
MICROCYSTIS AERUGINOSA	COL	1	1				X			
NAVICULA	CEL	1	1		X					
HITZSCHIA #1	CFL	1	1		X					
HITZSCHIA #2	CFL	1	1		X					
DOCYSTIS	CEL	151	7.21	35			X	131	5.81	123
OSCILLATORIA	FIL	1	1							
OSCILLATORIA LINNELLICA	FIL	1	1							
PEDIASTRUM BORYANUM	FIL	1	1						1.51	31
PEDIASTRUM DUPLEX	CUL	1	1				X			
V. CLATHRATUM	CUL	1	1							
PENNATE DIATOM	CFL	1	1							
PERIDINIUM QUADRIVIDES	CEL	1	1				X			
PHACUS MIGALOPODIS	CEL	1	1						1.51	31
SCENEDESMUS ABUNDANS	COL	1	1						1.51	31
SCENEDESMUS BALATONICUS	COL	1	1						1.51	31
SCENEDESMUS BIJUGA	COL	1	1				X			
SCENEDESMUS QUADRICAUDA	COL	131	7.21	35			X			
SCENEDESMUS QUADRICAUDA	COL	1	1							
V. LONGISPINA	CUL	1	1							
SPHAEROCYSTIS SCHROETERI	COL	1	1							
STAURASTRUM TETRACERUM	CFL	1	1		X					
STEPHANOUDISCUS	CEL	1	1		X	131	3.61	19		
STEPHANOUDISCUS ASTREA	CEL	1	1							
V. MINUTULA	CEL	1	1							
SYNEDRA	CEL	1	1							
SYNEDRA ACUS	CEL	131	64.21	312			X		1.51	31
SYNEDRA MINUSCULA	CEL	1	1							
TETRAEDROM MINIMUM	CEL	1	1							
V. SCRUBICULATUM	CEL	1	1							
TRACHELOMONAS INTERMEDIA	CEL	1	1						151	5.81
TRACHELOMONAS OBLUNGA	CEL	1	1				X			
TOTAL				486			532		2116	

LAKE NAME: COUNCIL GROVE  
STORE NUMBER: 2002

NYGAARD TROPHIC STATE INDICES

	DATE	04 11 74	06 25 74	10 02 74
MYXOPHYCEAN		0/01 0	0/02 0	0.25 ?
CHLOROPHYCEAN		5.00 E	1.00 E	0.75 E
EUGLENOPHYTE		0.60 E	2.50 E	1.50 E
DIATOM		0.50 E	0.40 E	0.83 E
COMPOUND		13.0 E	5.50 E	3.75 E

PALMER'S ORGANIC POLLUTION INDICES

	DATE	04 11 74	06 25 74	10 02 74
GENUS		09	01	08
SPECIES		05	00	03

SPECIES DIVERSITY AND ABUNDANCE INDICES

	DATE	04 11 74	06 25 74	10 02 74
AVERAGE DIVERSITY	H	2.72	1.76	1.07
NUMBER OF TAXA	S	28.00	17.00	30.00
NUMBER OF SAMPLES COMPOSITED	M	3.00	3.00	3.00
MAXIMUM DIVERSITY	MAXH	4.81	4.09	4.91
MINIMUM DIVERSITY	MINH	0.09	0.23	0.13
TOTAL DIVERSITY	D	10852.80	1545.26	4701.05
TOTAL NUMBER OF INDIVIDUALS/ML	N	3990.00	878.00	2815.00
EVENNESS COMPONENT	J	0.57	0.43	0.34
RELATIVE EVENNESS	RJ	0.56	0.41	0.33
MEAN NUMBER OF INDIVIDUALS/TAXA	L	142.50	51.65	93.83
NUMBER/ML OF MOST ABUNDANT TAXON	K	1020.00	527.00	1583.00

TAXA	FURN	04 11 74			06 25 74			10 02 74		
		IS	XC	ALGAL UNITS PER ML	IS	XC	ALGAL UNITS PER ML	IS	XC	ALGAL UNITS PER ML
ANKISTRUDESMUS FALCATUS	FIL	1	0.8	30	1	1	1	1	1	1
V. ACICULARIS	FIL	1	3.8	150	1	1	1	1	1	1
ANKISTRUDESMUS FALCATUS	CEL	1	24.0	990	1	1	2.1	1	59	1
V. MIRABILIS	FIL	1	0.8	30	1	1	1	1	1	1
APHANIZIENUM FLOS-AQUAE	CEL	1	1	1	1	1	1	1	1	1
ASTERIUM FURMOSA	CEL	1	0.8	30	1	1	1	1	1	1
CERATIUM HIRUNDINELLA	CEL	1	1	1	1	1	1	1	1	1
CERATIUM HIRUNDINELLA	CEL	1	1	1	1	1	1	1	1	1
F. BRACHYTERAS	CEL	1	25.6	1020	1	1	527	1	1	1
CHRODORUNAS ACUTA	CEL	1	1	1	1	1	1	1	1	1
CHRYSOPHYTAN CELL #1	CEL	1	1	1	1	1	1	1	1	1
CLUSTERIUM #1	CEL	1	1	1	1	1	1	1	1	1
CLUSTERIUM #2	CEL	1	1	1	1	1	1	1	1	1
CLUSTERIUM #3	CEL	1	1	1	1	1	1	1	1	1
CLUSTERIUM #4	CEL	1	1	1	1	1	1	1	1	1
COELASTRUM MICROPORUM	COL	1	1	1	1	1	1	1	1	1
COSMARIA GRANATUM	CEL	1	1	1	1	1	1	1	1	1
CRYPTORUNAS	CEL	1	6.8	270	1	1	1	1	1	1
CRYPTORUNAS EROSA	CEL	1	1	1	1	1	1	1	1	1
CRYPTORUNAS REFLEXA	CEL	1	1	1	1	1	1	1	1	1
CYCLIELLA	CEL	1	1	1	1	1	1	1	1	1
CYCLOTELLA NELEGHINTANA	CEL	1	2.3	90	1	1	1	1	1	1
CYMBELLA	CEL	1	1	1	1	1	1	1	1	1
DIATOMA VULGARE	CEL	1	1	1	1	1	1	1	1	1
DIPLOPSALIS ACUTA	CEL	1	1	1	1	1	1	1	1	1
(LAKAIUTIRIX GLATTINUSA	CEL	1	1	1	1	1	1	1	1	1
EUGLENA	CEL	1	1	1	1	1	1	1	1	1
EUGLENA #1	CEL	1	1	1	1	1	1	1	1	1
EUGLENA #2	CEL	1	1	1	1	1	1	1	1	1
EUGLENA #3	CEL	1	1	1	1	1	1	1	1	1
EUGLENA EHRENBURGII	CEL	1	1	1	1	1	1	1	1	1
EUGLENA URYURIS	CEL	1	1	1	1	1	1	1	1	1
V. MINOR	CEL	1	1	1	1	1	1	1	1	1
EUGLENA TRIPERIS	CEL	1	1	1	1	1	1	1	1	1
FRAGILARIA	CEL	1	1	1	1	1	1	1	1	1
GLENUDINUM EDAY	CEL	1	0.8	30	1	1	1	1	1	1
GORPHOMELIA	CEL	1	1	1	1	1	1	1	1	1
GYROSIGMA	CEL	1	1	1	1	1	1	1	1	1
HANTZSCHIA AMPHIODYS	CEL	1	1	1	1	1	1	1	1	1
MELOSIRA	CEL	1	1	1	1	1	1	1	1	1
MELOSIRA DISTANS	CEL	1	1	1	1	1	1	1	1	1
MELOSIRA GRANULATA	CEL	1	51	8.3	330	1	1	176	1	1
MELOSIRA GRANULATA	CEL	1	1	1	1	1	1	1	1	1
V. ANGUSTISSIMA	CEL	1	1	1	1	1	1	1	1	1
MELOSIRA VARIANS	CEL	1	1	1	1	1	1	1	1	1
NAVICULA	CEL	1	1	1	1	1	1	1	1	1
HITZSCHIA	CEL	1	1	1	1	1	1	1	1	1
HITZSCHIA VERNICULARIS	CEL	1	1	1	1	1	1	1	1	1
PEDIASTRUM TETRAS	COL	1	1	1	1	1	1	1	1	1
V. TETRAODON	CEL	1	1	1	1	1	1	1	1	1
PHACUS HELIKOIDES	CEL	1	1	1	1	1	1	1	1	1
PHACUS MEGALUPSIS	CEL	1	1	1	1	1	1	1	1	1
PENNULARIA	CEL	1	1	1	1	1	1	1	1	1
SCENEDESmus QUADRICAUDA	COL	1	1	1	1	1	1	1	1	1
SKELETONEMA PUTAMUS	COL	1	1	1	1	1	1	1	1	1
STEPHANO-DISCUS ASTREA	COL	1	1	1	1	1	1	1	1	1
V. MINUTULA	CEL	1	22.6	900	1	1	8.0	1	70	1
SURIRELLA	CEL	1	1	1	1	1	1	1	1	1
SYNEDRA ACUS	CEL	1	1	1	1	1	1	1	1	1
SYNEDRA ULNA	CEL	1	1	1	1	1	1	1	1	1
TETRASTRUM STAUROGEMIAEFORME	COL	1	2.3	90	1	1	1	1	1	1
TRACHELUNOMAS	CEL	1	1	1	1	1	1	1	1	1
TRACHELUNOMAS SCHAUINSLANDII	CEL	1	1	1	1	1	1	1	1	1
TOTAL					3990			878		2815

LAKE NAME: ELK CITY  
STORER NUMBER: 2003

NYGAARD TROPHIC STATE INDICES

DATE	04 10 74	06 24 74	10 03 74
MYXOPHYCEAN	0.370 E	0.370 E	2.00 E
CHLOROPHYCEAN	0.210 E	0.710 E	2.00 E
EUGLENOPHYTE	0.840 E	0.90 E	0.25 E
DIATOM	0.60 E	0.83 E	4.00 E
COMPOUND	13.70 L	24.70 E	9.00 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 10 74	06 24 74	10 03 74
GENUS	13	07	01
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE	04 10 74	06 24 74	10 03 74
AVERAGE DIVERSITY	H	3.10	3.59
NUMBER OF TAXA	S	31.00	36.00
NUMBER OF SAMPLES COMPOSITED	M	1.00	2.00
MAXIMUM DIVERSITY MAXH	M	4.95	5.17
MINIMUM DIVERSITY MINH	M	0.14	0.19
TOTAL DIVERSITY	D	6666.00	6156.48
TOTAL NUMBER OF INDIVIDUALS/ML	N	2860.00	2272.00
EVENNESS COMPONENT	J	0.63	0.69
RELATIVE EVENNESS	RJ	0.62	0.69
MEAN NUMBER OF INDIVIDUALS/TAXA	L	42.26	63.11
NUMBER/ML OF MOST ABUNDANT TAXON	K	664.00	436.00
			129.00

TAXA	FORM	04 10 74			06 24 74			10 03 74		
		IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML
ANABAENA	FIL									x
APIANIZUMENUM FLOS-AQUA	FIL									
CENTRIC DIATOMS	CEL	11123.21	664	2132.1		275		11120.31	78	
CLARIATUM HIRUNDINELLA										
P. FORCIPIDES	CEL									x
CHAMYDUMONAS GLUBOSA	CEL		4.31	124						x
CHLOROPHYTAN CELL	CEL									x
CHILOMONAS	CEL			x						
CHILOMONAS ACUTA	CEL	12117.41	498	10.1	229	15133.21		14133.41	129	
CLUSTERIUM	CEL									52
COLLASTIKUM CANDRICUM										
V. INTERMEDIUM	CEL						x			
COLLASTRUM MICRUPORUM	COL									x
CRUCIGENIA TETRAPTERIA	COL					1.0	23			
CRYPTOMONAS	CEL			x						
CRYPTOMONAS ERUSA	CEL			x		6.1	138	13113.41	52	
CRYPTOMONAS REFLEXA	CEL			x				1216.71	26	
CRYPTOMONAS SPP.	CEL	14113.01	373							
CYCLEIETTA	CEL						x			
CYCLEIETTA RENEGHINIANA	CEL			x						
CYCLEIETTA STELLIGERA	CEL			x						
CYMBELLA	CEL			x						
DACTYLOCUCUPYSIS	CEL			x			x			
DINOBRYUM DIVERGENS	CEL			x			x			
EUGLEMA	CEL		2.91	83						
EUGLEMA #1	CEL						x			
EUGLEMA #2	CEL						x			
EUGLEMA UXURIES	CEL						x			
EUGLEMA SPP.	CEL						x			x
EUGLEMA TRIPTERIS	CEL						x			
FRAGILARIA INTERMEDIA	CEL			x			x			
GULENKINIA	CEL			x			x			
GYRPHUNEMA GRACILE	CEL			x			x			
GYMNODIUM ORDINATUM	CEL	1518.71	249							
GYROSIGRA	CEL			x		1.0	23			
HANTZSCHIA AMPHIOPSYS	CEL			x			x			
LEPOCINCLIS	CEL			x		2.0	46			
HELOSIRA DISTANS	CEL	1114.31	124							x
HELOSIRA GRANULATA	CEL			x			x			
HELOSIRA GRANULATA	CEL			x			x			
V. ARGUSTISSIMA	CEL									
HESOXIUM VIRENTIS ?	CEL	13117.41	498			7.1	161			
MICRUCYSTIS	COL					2.0	46			
NAVICULA	CEL						x			
NAVICULA #1	CEL			x			x			
NAVICULA #2	CEL		1.41	41						
NAVICULA #3	CEL		1.41	41						
NITZSCHIA	CEL									
NITZSCHIA #1	CEL			x		1.0	23			
NITZSCHIA ACICULARIS	CEL			x			x			
NITZSCHIA HUNGARICA	CEL			x			x			
NITZSCHIA TRYBLIONELLA	CEL			x			x			
V. DEBILIS ?	CEL			x			x			
OSCILLATORIA	FIL		1.41	41						
PHACUS ACUMINATUS	CEL			x			x			
PHACUS REGALUPSIS	CEL			x			x			
PHORMIDIUM	FIL			x		11119.21	436			
PILARUMONAS ANGULOSA	CEL			x		12.11	275			
SCENEDESIUS BICAUVATUS	COL									6.71
SCENEDESIUS DENTIFOLIATUS	CEL					2.0	46			26
SCENEDESIUS DINOPHUS	COL		1.41	41						
SCENEDESIUS QUADRICAUDA	COL			x			x			
SCHREUERIA SETIGERA	CEL					2.0	46			
SKELERIUM PUTAMUS	CEL					6.1	138			
STEPHANOJUS SCUS	CEL			x			x			
SURIRELLA OVATA	CEL			x			x			
TETRASTRUM GLABRUM	CEL		2.91	83						
TETRASTRUM STAURUGENIA FORME	COL					2.0	46			
TRACHELUMONAS AUSTRALICA	CEL						x			
TRACHELUMONAS INTERMEDIA	CEL			x			x			
TRACHELUMONAS SCABRA	CEL			x			x			
TRACHELUMONAS SPP.	CEL			x		1314.11	206			
TOTAL					2860		2272		389	

LAKE NAME: FALL RIVER RES.  
STORET NUMBER: 2004

NYGAARD TROPHIC STATE INDICES

	DATE	04 10 74	06 24 74	10 02 74
MYXOPHYCEAN		0.50 L	1.00 E	2.00 E
CHLOROPHYCLAN		0.02 D	1.00 E	1.00 E
EUGLENOPHYTE		2.00 E	2.00 E	1.00 E
DIATOM		0.83 E	0.75 E	2.50 E
COMPOUND		4.00 E	7.50 L	11.0 E

PALMER'S ORGANIC POLLUTION INDICES

	DATE	04 10 74	06 24 74	10 02 74
GENUS		01	02	01
SPECIES		00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

	DATE	04 10 74	06 24 74	10 02 74
AVERAGE DIVERSITY	H	2.87	1.81	1.78
NUMBER OF TAXA	S	21.00	27.00	17.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	2.00	2.00
MAXIMUM DIVERSITY	MAXH	4.39	4.75	4.09
MINIMUM DIVERSITY	MINH	0.25	0.12	0.20
TOTAL DIVERSITY	D	2566.05	5268.91	1566.46
TOTAL NUMBER OF INDIVIDUALS/ML	N	895.00	2911.00	880.00
EVENNESS COMPONENT	J	0.65	0.36	0.44
RELATIVE EVENNESS	RJ	0.64	0.37	0.41
MEAN NUMBER OF INDIVIDUALS/TAXA	L	42.62	107.81	51.76
NUMBER/ML OF MOST ABUNDANT TAXON	K	211.00	1202.00	550.00

TAXA	TURN	06 10 74			06 24 74			10 02 74		
		IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML
ANABALNA	FIL	1	1							
APIANIZOMENON FLUS-AQUAL	FIL	1	1							
ASTERIONELLA FORMOSA	CFL	11123.61	211							
CLEMATIS VITIFOLIA	CEL	1	1							x
CERATIUM HIRUNDINELLA P. BRACHYCEPHALUS	CEL	1	1							x
CERATIUM HIRUNDINELLA P. FURCULOIDES	CEL	1	1							x
CHILOMONAS ACUTA	CEL	15117.71	158	11127.21	791					
CLOSTERIUM 01	CEL			x						
CLOSTERIUM 02	CEL			x						
COCCUNEAIS	CEL	1	1							
CRYPTOMONAS ERUSA	CEL	13111.71	105	11141.31	1202					x
CRYPTOMONAS MARSSUNII	CEL	14111.71	105							
CRYPTOMONAS REFLEXA	CEL	1	1	x						
DACTYLUCOCOPSIS	CEL	1	1	5.91	53					x
DINOBRYON SLEKTARIA	CEL	1	1	5.91	53					x
DIPLOPSALIS ACUTA	CEL	1	1							
EUGLENA	CEL	1	1							
EUGLENA ACUS	CEL	1	1	x						x
EUGLENA IHREMBERGII 2	CEL	1	1							
EUGLENA GRACILIS	CEL	1	1							
EUGLENA TRIPTERIS	CEL	1	1							
GLENODINIUM OCULATUM	CEL	1	1							
GYROSIGMA	CEL	1	1							
HELOSIRA	CEL	1	1							
HELOSIRA DISTANS	CEL	111.71	105							
HELOSIRA GRANULATA	CEL	1	1	x						
HELOSIRA GRANULATA V. ANGUSTISSIMA	CEL	1	1	x						x
HITZSCHIA 01	CEL	1	1	x						
HITZSCHIA VERMICULARIS	CEL	1	1	x						22
PEDIASTRUM DUPLEX	COL	1	1							
PEDIASTRUM CLATHRATUM	COL	1	1							
PEDIASTRUM TETRAS	COL	1	1							
PHACUS	CEL	1	1							
PHACUS ACUMINATUS	CEL	1	1	x						
PHACUS LONGICAUDA 2	CEL	1	1							
SCHROEDERIA SETIGLRA	CEL	1	1							
SKELETONIMA POTAMUS	CEL	1	1							
STEPHANODISCUS	CEL	12111.71	105							
STEPHANODISCUS ASTRALIA	CEL	1	1	x						
V. MINUJULA	CEL	1	1	x	12127.21	791	151	2.51	22	
SURIRELLA	CEL	1	1	x						
SYNEDRA	CEL	1	1	x	141	2.21	63			
SYNEDRA ACUS	CEL	1	1	x						
SYNEDRA ULNA	CEL	1	1	x						
TRACHELOMONAS	CEL	1	1							
TRACHELOMONAS INTERMEDIA	CEL	1	1							x
TOTAL				895			2911		880	

LAKE NAME: JOHN REDMUND RES.  
STORET NUMBER: 2005

NYGAARD TROPHIC STATE INDICES

	DATE	04 11 74	06 25 74	10 01 74
MYXOPHYCEAN		02/0 E	C1/C E	1.00 E
CHLOROPHYCEAN		03/0 E	05/0 E	6.00 E
EUGLENOPHYTE		0.40 E	1.33 E	0.86 E
DIATOM		1.25 E	2.00 E	2.00 E
COMPGND		12/0 E	20/0 E	17.0 E

PALMER'S ORGANIC POLLUTION INDICES

	DATE	04 11 74	06 25 74	10 01 74
GENUS		11	12	00
SPECIES		04	01	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

	DATE	04 11 74	06 25 74	10 01 74
AVERAGE DIVERSITY	H	2.73	3.21	2.23
NUMBER OF TAXA	S	20.00	25.00	24.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	2.00	2.00
MAXIMUM DIVERSITY MAXH	M	4.32	4.64	4.58
MINIMUM DIVERSITY MINH	M	0.07	0.24	0.42
TOTAL DIVERSITY	D	9191.91	3761.38	1302.32
TOTAL NUMBER OF INDIVIDUALS/ML	N	3367.00	1178.00	584.00
EVENNESS COMPONENT	J	0.63	0.69	0.49
RELATIVE EVENNESS	RJ	0.03	0.68	0.44
MEAN NUMBER OF INDIVIDUALS/TAXA	L	166.35	47.12	24.33
NUMBER/ML OF MOST ABUNDANT TAXON	K	1143.00	337.00	167.00

TAXA	FORM	04 31 74			06 25 74			10 03 74		
		IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML
ACTINIASTRUM	CEL			7.21	291					
ANASTRODESMUS FALCATUS	CEL	141	3.61	120						x
V. ACICULARIS	FIL									x
APHANTIDIUMENON FLUS-AQUAE	CEL	12125.01	042							
CENTRIC DIATOM	CEL						x			
CHARACIUM #2	CEL									
CHARACIUM LIMNETICUM ?	CEL						x			
CHODOMUNAS ACUTA	CEL	13112.51	421					13123.81	139	
CLUSTERICOPSIS	CEL									x
CLOSTILKUM	CEL									x
COELASTRUM MICROPURUM	CEL									x
CRUCIGEREA TETRAPLORIA	COL									
CRYPTOMUNAS EROSA	CEL		3.61	120	141	3.61	42	13114.21	83	
CYCIDILLIA	CEL					7.11	84			
CYNBELLA	CEL		3.61	120			x			
DACTYLDICOCCUPSISS	CEL			x						x
EUGLENA #2	CEL									
EUGLENA ACUS	CEL						x			
EUGLENA GRACILIS	CEL		1.81	60	121	7.11	84			x
EUGLENA OXYURIS	CEL									x
V. MINOR ?	CEL									x
EUGLENA TRIPTERIS	CEL									x
FLAGELLATE #2	CEL			x						
FLAGELLATE #3	CEL					14.31	169	12123.81	139	
GLOEOTYSSIS	CEL									
GOMPHIUMENA	CEL						x			
KIRCHNERIELLA	CEL									
LYNGBYA	FIL		1.81	60						
MELOSIRA DISTANS	CEL			x				x		
MELOSIRA GRANULATA	CEL					3.61	42			x
MELOSIRA GRANULATA	CEL									x
V. ANGSTISSIMA	CEL				13120.61		337			x
MELOSIRA ITALICA	CEL	15	5.31	180						
NAVICULA	CEL			x						
MITZSCHIA #1	CEL						x			
MITZSCHIA #2	CEL									
MITZSCHIA #3	CEL			x						
MITZSCHIA #4	CEL									x
MITZSCHIA SPP.	CEL		1.81	60						
ONCYSTIS	CEL									
OSCILLATORIA	FIL					7.11	84			
PEDIASTRUM DUPLEX	CEL									x
V. CLATHRATUM	COL									
PENNATE DIATOMS	CEL									
PHACUS ACURINATUS	CEL						x		141 9.61	56
PHACUS CAUDATUS	CEL									x
PHACUS MEGALOPSIS	CEL					3.61	42			
PHACUS PSEUDOMURKOSITIDI	CEL			x						x
PTEROMUNAS	CEL									x
SCENEDESMUS BIJUGA	COL									
SCENEDESMUS DIMORPHUS	CEL					3.61	42			x
SCHROEDERIA SETIGERA	CEL									
SKELETONEMA PUTARUS	CEL					7.11	84			
STEPHANODISCUS	CEL	11133.91	1143		13110.71		126			
STEPHANODISCUS ASTRAEA	CEL			x						
V. MINUTULA	CEL							11128.61	167	
TRACHELLUMNAS AUSTRALICA ?	CEL						x			x
TRACHELLUMNAS BULLA	CEL									
TRACHELLUMNAS GIBBERUSA	CEL				151	3.61	42			
TRACHELLUMNAS GIRARDIANA	CEL						x			
TRACHELLUMNAS INTERMEDIA	CEL						x			
TOTAL					3367		1178		584	

LAKE NAME: KANOPOLIS RES.  
STORET NUMBER: 2006

NYGAARD TROPHIC STATE INDICES

	DATE	04 12 74	06 27 74	10 01 74
MYXOPHYCEAN		01/0 E	02/0 E	1.00 E
CHLOROPHYCEAN		02/0 E	11/0 E	5.00 E
EUGLENOPHYTE		0.33 E	0.62 E	0.33 E
DIATOM		1.25 E	0.80 E	1.00 E
COMPOUND		09/0 E	25/0 E	10.0 E

PALMER'S ORGANIC POLLUTION INDICES

	DATE	04 12 74	06 27 74	10 01 74
GENUS		11	22	06
SPECIES		01	02	03

SPECIES DIVERSITY AND ABUNDANCE INDICES

	DATE	04 12 74	06 27 74	10 01 74
AVERAGE DIVERSITY	H	2.89	2.77	2.61
NUMBER OF TAXA	S	18.00	38.00	17.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	2.00	2.00
MAXIMUM DIVERSITY MAXH	M	4.17	5.25	4.09
MINIMUM DIVERSITY MINH	M	0.03	0.08	0.05
TOTAL DIVERSITY	D	25353.97	18293.06	11384.82
TOTAL NUMBER OF INDIVIDUALS/ML	N	6773.00	6604.00	4362.00
EVENNESS COMPONENT	J	0.69	0.53	0.64
RELATIVE EVENNESS	RJ	0.70	0.53	0.64
MEAN NUMBER OF INDIVIDUALS/TAXA	L	487.39	173.79	256.59
NUMBER/ML OF MOST ABUNDANT TAXON	K	2563.00	3393.00	1410.00

TAXA	FORM	04 12 74			06 27 74			10 01 74		
		IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML
ACTINASTRUM	COL									
ANKISTRODESMUS FALCATUS	CEL									
ANKISTRODESMUS FALCATUS	CEL									
V. ACICULARIS	CEL									
CELL	CEL									
CENTRIC DIATOMS	CEL	1122.31	1955							
CHLAMYDOMONAS	CEL									
CHROMUNAS ACUTA	CEL	8.41	738	11151.41	3393	11				
CHEILOSPHYTAN CELL	CEL	7.41	652	10.11	664	16132.11				529
CLUSTERIUM	CEL									
COELASTIUM CAMBRICUM	COL									
V. INTERMEDIUM	COL									
CRYPTOMONAS EROSA	CEL	114.51	391	1612.21	148	12131.11				485
CRYPTOMONAS MARSSUNII	CEL									
CRYPTOMONAS REFLEXA	CEL	1511.51	130	1	0.61	37				
CYCLOTELLA	CEL									
CYCLOTELLA MNECHENIANA	CEL									
DACTYLOCUCUPPSIS	CEL	12129.21	2563	1	2.21	148				
DICHIOSPHAERIUM PULCHELLUM	COL									
DIPLOPSALIS ACUTA	CEL									
ENTOMONEIS	CEL	0.51	43							
EUGLENA	CEL									
EUGLENA ACUS	CEL									
EUGLENA GRACILIS	CEL	1315.91	521	1	3.91	250				
FLAGELLATE	CEL									
GLENODIUM EDAX	CEL									
GLENODIUM OCELLATUM	CEL									
GOLENKINIA	CEL									
MELOSTRA DISTANS	CEL									
MERISMOPEDIA TENUISSIMA	COL									
NAVICULA	CEL	3.51	304							
MITZSCHIA #2	CEL									
MITZSCHIA #5	CEL	1.51	130	1	3.31	221				
MITZSCHIA ACICULARIS	CEL									
MITZSCHIA LONGISSIMA	CEL									
V. REVERSA	CEL									
OSCILLATORIA	CEL									
PEDIASTRUM DUPLEX	COL									
V. CLATHRATUM	COL									
PENNATE DIATOM	CEL	0.51	43	1	0.61	37				
PHACUS ACUMINATUS	CEL									
PHACUS HELIKOIDES	CEL									
PHACUS MEGALOPODISIS	CEL									
SCHEDESMUS BIJUGA	COL									
SCHEDESMUS DENTICULATUS	CUL									
SCHEDESMUS DINORPHUS	CUL									
SCHEDESMUS UPOLIENSIS	COL									
SCHEDESMUS QUADRICAUDA	CUL									
SCHREUERIA SETIGERA	CEL									
SKELETUMENA POTAMUS	CEL	1414.41	1260	1	1.71	111	1516.11			264
STEPHANUDISCUS	CEL									
STEPHANUDISCUS ASTRAEA	CEL									
V. MINUTULA	CEL									
SURIRELLA	CEL									
SYNEDRA ACUS	CEL									
TETRAEDRON NUTICUM	CEL									
TETRASTRUM GLABRUM	COL									
TETRASTRUM STAUROGENIAEFORME	COL	0.51	43							
TRACHELUNMAS FLUVIATILIS	CEL									
TRACHELUNMAS HISPIDA	CFL									
TRACHELUNMAS INTERMEDIA	CEL									
ZUOSPORE	CEL									
TOTAL				8773			6604		4362	

LAKE NAME: MARION RES.  
STCET NUMBER: 2007

NYGAARD TRUPHIC STATE INDICES

	DATE	04 12 74	06 27 74	10 02 74
MYXOPHYCEAN		1.00 E	2.00 E	4.00 E
CHLOROPHYCEAN		6.00 E	6.00 E	14.0 E
EUGLENOPHYTE		0.07 ?	0.37 E	0.17 ?
DIATOM		0.37 E	2.50 E	1.00 E
COMPOUND		10.0 E	16.0 E	25.0 E

PALMER'S ORGANIC POLLUTION INDICES

	DATE	04 12 74	06 27 74	10 02 74
GENUS		09	01	07
SPECIES		05	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

	DATE	04 12 74	06 27 74	10 02 74
AVERAGE DIVERSITY	H	1.00	2.95	3.57
NUMBER OF TAXA	S	22.00	23.00	36.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	2.00	2.00
MAXIMUM DIVERSITY	MAXH	4.46	4.92	5.17
MINIMUM DIVERSITY	MINH	0.01	0.22	0.11
TOTAL DIVERSITY	D	38915.00	3360.05	15079.68
TOTAL NUMBER OF INDIVIDUALS/ML	N	38915.00	1139.00	4224.00
EVENNESS COMPONENT	J	0.22	0.65	0.69
RELATIVE EVENESS	RJ	0.23	0.64	0.69
MEAN NUMBER OF INDIVIDUALS/TAXA	L	1766.86	49.52	117.33
NUMBER/ML OF MOST ABUNDANT TAXON	K	36716.00	308.00	660.00

TAXA	FORM	04 12 74			06 27 74			10 02 74		
		IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML
ACTINASTRUM GRACILIRUM	CFL									X
ANABAENA	FIL						X			
ANKISTRODESMUS FALCATUS	CFL									
V. ACICULARIS	CFL	0.2	85							X
APIANIZOMENUM FLUSS-AQUAE	FIL			X						2.11
CARTERIA	CFL									88
CERATIUM ITALIUM	CFL									1115.61
F. BRACHYCELAS	CFL						X			660
CHLAMYDOMMAS	CFL									
CHLOROPHYTAN COCCOID CELLED COLONY	COL			X						
CHROODOMAS ACUTA	CFL				5114.61		166		14114.61	616
CLOSTRIDIUM	CFL			X	12.11		24			X
COELASTRUM MICROPORUM	COL	0.11	42				X			
CRUCIGERIA QUADRATA	CUL	0.41	169							X
CRUCIGERIA TETRAPERIA	COL			X						
CRYPTODOMMAS ERUSA	CFL	0.11	42	2112.51			142		7.31	308
CRYPTODOMMAS ERUSA V. REFLEXA	CFL									3.31
CRYPTODOMMAS REFLEXA	CFL						X			132
CYCLOSTELLA MENEGHINIANA	CFL	1178.91	30718				X			
DACTYLUCOCCOPSIS	CFL						X			9.41
DICTYOSPHAERIUM PULCHELLUM	COL				2.11		24		1.01	44
DIPLONEIS	CFL									X
ELAKATUTIRIX GELATINOSA	CFL									
EUGLENA	CFL									X
EUGLENA #1	CFL						X			
EUGLENA OXYURIS	CFL									
V. MINOR	CFL						X			
GYRNOIDIUM ALBULUM	CFL			X						1.01
GYROSIGMA	CFL									X
LAGERHEIMIA	CFL			X						1.01
LIPOCINCLIS	CFL									44
MELUSIRA DISTANS	CFL	216.01	6211	3116.71			190		1.01	44
MELUSIRA GRANULATA	CFL						X			
MELUSIRA GRANULATA V. ANGSTISSIMA	CFL				410.41		118			X
MERISMOPEDIA MINIMA	COL									1.01
MICROCYSTIS	CFL									X
NAVICULA	CFL	0.2	85							
NITZSCHIA	CFL			X						
NITZSCHIA #1	CFL				2.11		24			
NITZSCHIA #2	CFL			X						
NITZSCHIA MULSATICA	CFL									12113.51
NITZSCHIA VERRICULARIS	CFL			X						572
OCYCYSTIS	CFL			X	0.31		95		4.21	176
OCELLATORIA	FIL						X			
PEDIASTRUM DUPLEX	CFL									X
V. RETICULATUM	COL						X			
PENNATE DIATOM	CFL						X			
PHACUS	CFL						X			
SCHEDESMUS INTERMEDIUS	CFL									X
V. BICAUDAUS	CFL									
SCHEDESMUS QUADRICAUDA	CFL	0.1	42							44
SCHROEDERIA SETIGERA	CFL				2.11		24		1.01	44
SKELETONCHA PUTAROS	CFL									44
STEPHANOIDES ASTRaea	CFL									
V. MINIULA	CFL	1313.41	13110	1127.01			308	13111.51		484
SURIRELLA #9	CFL			X						
SYNEDRA ACUS	CFL	1410.51	211							
SYNEDRA ULNA	CFL			X						
TETRAEUKUM RUTICUM	CFL									X
TETRASTRUM ELEGANS	CFL				2.11		24			
TETRASTRUM STAUDINGERIAEFORME	COL									1.01
TRACHELUMMAS INTERMEDIA	CFL									X
TOTAL				38915			1139		4224	

LAKE NAME: MELVERN RES.  
STCRET NUMBER: 2008

NYGAARD TROPHIC STATE INDICES

	DATE	04 12 74	06 25 74	10 01 74
MYXOPHYCEAN		1.00 E	1.00 E	2.50 E
CHLOROPHYCEAN		1.00 E	5.00 E	1.50 E
EUGLENOPHYTE		1.50 E	0.25 E	0.25 E
DIATOM		0.62 E	0.370 E	3.50 E
COMPOUND		10.0 E	9.00 E	8.50 E

PALMER'S ORGANIC POLLUTION INDICES

	DATE	04 12 74	06 25 74	10 01 74
GENUS		06	01	02
SPECIES		03	00	10

SPECIES DIVERSITY AND ABUNDANCE INDICES

	DATE	04 12 74	06 25 74	10 01 74
AVERAGE DIVERSITY	H	1.26	2.44	2.29
NUMBER OF TAXA	S	46.00	24.00	24.00
NUMBER OF SAMPLES COMPOSITED	M	3.00	3.00	3.00
MAXIMUM DIVERSITY MAXH		5.52	4.58	4.58
MINIMUM DIVERSITY MINH		0.03	0.29	0.11
TOTAL DIVERSITY	D	29136.64	2137.44	6153.23
TOTAL NUMBER OF INDIVIDUALS/ML	N	22763.00	876.00	2687.00
EVENNESS COMPONENT	J	0.23	0.53	0.50
RELATIVE EVENNESS	RJ	0.23	0.51	0.49
MEAN NUMBER OF INDIVIDUALS/TAXA	L	494.85	36.50	111.96
NUMBER/ML OF MOST ABUNDANT TAXON	K	18106.00	243.00	1399.00

TAXA	FORM	04 12 74			06 25 74			10 01 74		
		IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML
ANABAENA #1	FIL							1		2.31
ANABAENA #2	FIL				151	5.6	49	141	6.31	160
ANKISTRODESUS FALCATUS	CEL		1.0	221			X			
V. ACICULARIS	FIL									
APHANIZUMENON	FIL									
APHANIZUMENON FLOWS-AQUAE	CEL									
ASTERIONELLA FURMOSA	CEL									
BOITYOCOCCUS SUDETICUS	COL									
CENTRIC DIATOMS	CEL	1179.5		18106						
CERATIUM HIRUNDINELLA	CEL									
CERATIUM HIRUNDINELLA	CEL									
F.?	CEL									
CHLOROPHYTAN CUCOID CELLED COLONY	COL									
CHLOROPHYTAN COLONY	COL		0.1	22						
CHRODORHAS ACUTA	CEL	131	4.11	927	14116.71	346				
CLOSTERIUM #1	CEL									
CLOSTERIUM #2	CEL									
CLOSTERIUM #3	CEL									
CLOSTERIUM #4	CEL									
COELASTRUM MICROPGRUM	COL									
COELASTRUM RETICULATUM	COL									
V. POLYCHORON	COL									
COELOSphaerium HALGELIANUM	COL									
COSMARIA	CEL									
CRUCIGENIA APICULATA	COL									
CRYPTOMONAS	CEL									
CRYPTOMONAS ERosa	CEL	151	1.01	442	1127.71	243				
CRYPTOMONAS REFLEXA	CEL		0.41	88						
CYCLOIELLA MELICHINIANA	CEL									
CYCLOIELLA STELLIGERA	CEL									
CYBELLA AFFINIS	CEL		0.31	22						
CYST	CEL									
DICTYOSPHERIUM PULLHELLUM	CEL		0.11	22						
DIOMUBRYON SICIALE	CEL		0.31	66						
EUGLENA #1	CEL									
EUGLENA #2	CEL									
EUGLENA ACUS	CEL									
EUGLENA TRIPTERIS	CEL									
FLAGELLATE #2	CEL		0.31	66						
FRAGILARIA	CEL									
GOMPHUNEMA OLIVACIUM	CEL		0.11	22						
GYROSIGMA	CEL									
LEPUDINCILIS	CEL									
LUNATE CELLED COLONY	COL									
LYNGBYA	FIL									
NELOSIRA DISTANS	CEL	121	8.71	1907						
NELOSIRA GRANULATA	CEL									
NELOSIRA GRANULATA	CEL									
V. ANGUSTISSIMA	CEL									
NELOSIRA ITALICA	CEL	151	2.21	508						
NELOSIRA VARIANS	CEL									
MICROCYSTIS	COL									
NAVICULA #2	CEL		0.11	22						
NAVICULA CUSPIDATA	CEL									
NITZSCHIA #2	CEL									
NITZSCHIA #5	CEL									
NITZSCHIA ACICULARIS	CEL									
NITZSCHIA DISSIPATA	CEL									
NITZSCHIA HUNGARICA	CEL		0.21	44						
NITZSCHIA VERNICULARIS	CEL		0.11	22						
OUCYSTIS	CEL									
PEDIASTRUM DUPLEX	COL									
V. RETSCULATUM	COL									
PEDIASTRUM SIMPLEX	COL									
V. DUODENARIUM	COL		0.11	22						
PHACUS PSEUDOGRUSTEDII	CEL									
SCENEDESMUS ARCUATUS	COL									
SCENEDESMUS DIURPIUS	COL									
SCHREUERIA SETIFERA	CEL									
SKELETONEMA POTAMUS	CEL		0.41	88	12122.31	195				
STAURASTRUM	CEL									
STEPHANODISCUS	CEL									
STEPHANODISCUS ASTRaea	CEL									
V. MINUTULA	CEL									
SURIRELLA ANGUSTA	CEL									
SYNEDRA ACUS	CEL									
SYNEDRA KUMPENS	CEL									
V.?	CEL									
SYNEDRA ULNA	CEL		0.21	44						
TRACHELOMINAS	CEL									
TRACHELOMINAS INTERMEDIA	CEL		0.11	22						
TRACHELOMINAS VULVOCINA	CEL									

TOTAL

22763

876

2687

LAKE NAME: MILFORD RES.  
STORET NUMBER: 2009

NYGAARD TROPHIC STATE INDICES

	DATE	04 11 74	06 26 74	10 03 74
MYXOPHYCEAN		01/0 E	06/0 E	02/0 E
CHLOROPHYCEAN		03/0 E	04/0 E	05/0 E
EUGLENOPHYTE		0.25 E	0.50 E	0.71 E
DIATOM		0.44 E	0.80 E	1.67 E
COMPOUND		09/0 E	19/0 E	17/0 E

PALMER'S ORGANIC POLLUTION INDICES

	DATE	04 11 74	06 26 74	10 03 74
GENUS		07	13	07
SPECIES		03	01	04

SPECIES DIVERSITY AND ABUNDANCE INDICES

	DATE	04 11 74	06 26 74	10 03 74
AVERAGE DIVERSITY	H	1.60	3.13	1.70
NUMBER OF TAXA	S	22.00	27.00	24.00
NUMBER OF SAMPLES COMPOSITED	M	4.00	4.00	4.00
MAXIMUM DIVERSITY	MAXH	4.46	4.75	4.56
MINIMUM DIVERSITY	MINH	0.01	0.22	0.04
TOTAL DIVERSITY	D	37084.00	4294.36	12920.00
TOTAL NUMBER OF INDIVIDUALS/ML	N	23550.00	1372.00	76.00
EVENNESS COMPONENT	J	0.36	0.66	0.37
RELATIVE EVENNESS	RJ	0.36	0.65	0.37
MEAN NUMBER OF INDIVIDUALS/TAXA	L	1070.45	50.81	316.67
NUMBER/ML OF MOST ABUNDANT TAXON	K	11528.00	284.00	5182.00

04 11 74      06 26 74      10 03 74

TAXA	FORM	IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML
ACTINASTRUM GRACILEMUM	CEL			X						
ANABAENA #1	FIL						X			
ANABAENOPSIS	FIL						X			
ANKistrodesmus FALCATUS										
V. ACICULARIS	CEL	151	1.9	450						
APHANIZOMON	FIL			X			X			
ASTERIUMILLA FIRMISSIMA	CEL									
CENTRIC DIATOMS	CEL				11120.71	284				
CHLOROPHYTAN COLONY	COL									
CHLOROMMAS ACUTA	CEL	131	7.6	1801	141	6.91	95	12110.41	790	
COCCOID CELL	CEL			X						
COLLASTIKUM MICROPORUM	COL									
CRUCIGENIA TETRAPLOIA	COL									
CRYPTOMMAS	CEL				12110.31	142				
CRYPTOMMAS EROSA	CEL	141	1.01	225			X	151	1.31	99
CYCLOTILLA	CEL			X						
CYMATIOPLEURA SOLIA	CEL									
DACTYLOLUCUPPSIS IRREGULARIS	CEL							3.91	296	
EUGLENA	CEL			X						
EUGLENA ACUS	CEL									
EUGLENA GRACILIS	CEL				131	6.91	95	141	0.61	49
EUGLENA TRIPTERIS	CEL						X			
FLAGELLATE	CEL				15110.31	142				
GYMNODINIUM ALBULUM	CEL									
GYRUSIGMA	CEL									
LEPOCINCLES	CEL						X			
LYNGBYA	CEL						X			
MELOSIRA DISTANS	FIL		0.21	45						
MELOSIRKA GRANULATA	CEL			X				151	1.31	99
V. ANGUSTISSIMA										
MELOSIRKA GRANULATA	CEL						X			
V. ANGUSTISSIMA F. SPIRALIS	CEL									
MELOSIRKA ITALICA	CEL			X						
MICROCYSTIS ALRUGINOSA	COL						X			
MICROCYSTIS INCERTA	CUL				17.21	236				
NAVICULA #1	CEL			X			X			
NAVICULA #2	CEL			X						
NITZSCHEA #1	CEL									
NITZSCHEA #2	CEL	141	0.61	135						
NITZSCHEA #3	CEL				10.31	142				
NITZSCHEA SIGMOIDEA	CEL			X						
NITZSCHEA TRYBLIUNELLA	CEL						X			
OOCYSTIS	CEL						X			
OSCILLATORIA #1	FIL									
OSCILLATORIA #2	FIL				3.41	47				
PEDIASTRUM DUPLEX										
V. CLATHRATUM	COL									
PEDIASTRUM TETRAS										
V. TETRAUDON	COL						X			
PERIDIUM QUADRIDENTS	CEL			X						
PHACUS ACUMINATUS	CEL									
PHACUS LONGICAUDA	CEL						X			
PHACUS URBICULARIS	CEL						X			
PHACUS PSEUDOMUROSTEDII	CEL									
SCENEDESmus BICAUDATUS	COL				10.31	142				
SCENEDESmus DIMORPHUS	COL			X				141	0.61	49
SCENEDESmus QUADRICAUDA	COL				3.41	47	151	1.31	99	148
SKELETONEMA POTAMUS	CEL							131	9.71	740
STEPHANODISCUS	CEL	12149.01	11526				X			
STEPHANODISCUS ASTRAEA	CEL									
V. MINUTULA	CEL	11139.21	9231					1168.2	5182	
SURIRELLA #9	CEL	1110.21	45							
SURIRELLA ANGUSTA	CEL			X						
SURIRELLA LINEARIS	CEL									
V. HELVETICA ?	CEL						X			
SYNEURA ACUS	CEL	1110.41	90					1111.91	148	
TOTAL				23550			1372		7600	

LAKE NAME: NORTON RES.  
STORET NUMBER: 2010

NYGAARD TROPHIC STATE INDICES

DATE	04 15 74	06 28 74	09 30 74
MYXOPHYCEAN	03/0 E	04/0 E	04/0 E
CHLOROPHYCEAN	08/0 E	11/0 E	11/0 E
EUGLENOPHYTE	0.18 ?	0.07 ?	0.33 E
DIATOM	0.20 ?	1.00 E	1.33 E
COMPOUND	14/0 E	20/0 E	24/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 15 74	06 28 74	09 30 74
GENUS	14	17	20
SPECIES	03	03	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE	04 15 74	06 28 74	09 30 74
AVERAGE DIVERSITY	H	3.04	2.51
NUMBER OF TAXA	S	26.00	31.00
NUMBER OF SAMPLES COMPOSITED	M	1.00	2.00
MAXIMUM DIVERSITY MAXH	H	4.70	4.95
MINIMUM DIVERSITY MINH	H	0.03	0.02
TOTAL DIVERSITY	D	45506.80	71610.30
TOTAL NUMBER OF INDIVIDUALS/ML	N	14970.00	28530.00
EVENNESS COMPONENT	J	0.65	0.51
RELATIVE EVENNESS	RJ	0.65	0.51
MEAN NUMBER OF INDIVIDUALS/TAXA	L	575.77	920.32
NUMBER/ML OF MOST ABUNDANT TAXON	K	4786.00	11142.00
			239.24
			1837.00

TAXA	FORM	04 15 74			06 28 74			09 30 74		
		IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML
ANABAENA	ETL	1	1	1	1	1	X	1	1	1
ANKistrodesmus	CEL	1	1	1	1	1	X	1	1	1
ANKistrodesmus falcatus	CEL	1132.01	4786		0.41	104				
V. aciculans	CEL	1	1	1	1	1	X	1	1	1
ASTERIOPHORA FORMUSA	CEL	1	1	1	1	1	X	1	1	1
CHARACIUM #2	CEL	1	1	1	1	1	X	1	1	1
CHARACIUM NAEGELII ?	CEL	1	1	1	12139.91	5675	1.91	149	1	1
CHLAMYDOMUNAS	CEL	1	1	1	151	5.51	1562	6.91	546	1
CHROOCOMUNAS ACUTA	CEL	14124.81	3717							
COELASTIUM CAMBRICUM	CEL	1	1	1	1	1				
V. INTERMEDIUM	COL	1	1	1	1	1	0.61	50	1	1
CRUCIGENIA	COL	1	1	1	1	1				
CRUCIGENIA FESTESTRATA	COL	1	1	4.81	713	1				
CRUCIGENIA TRAPEDIA	COL	1	1	3.21	458	1	0.51	156	1	1
CRYPTOMUNAS	CEL	1	1	1	1	1				
CRYPTOMUNAS ERUSA	CEL	1	1	1	1	1	0.61	50	1	1
CRYPTOMUNAS MAHSSUNII	CEL	1	1	1	X	1				
CRYPTOMUNAS SPP.	CEL	131	8.21	1222	1	1	X	5.71	447	1
CYCLOTELLA	CEL	1	1	1	1	1				
DACTYLOCUCUPYSIS	CEL	1	1	2.41	356	1	1	6.31	496	1
DICTYOSPHAERIUM PULCHELLUM	COL	1	1	1	X	1				
DINOFLAGELLATE	CEL	1	1	1	1	1		0.61	50	1
ELAKATOTHRIX	CEL	1	1	1	1	1				
EPiphyte	CEL	1	1	1	1213.91	6248	1			
EUGLENA #1	CEL	1	1	1	1	1	1	3.81	298	1
EUGLENA #2	CEL	1	1	1.01	153	1				
EUGLENA #3	CEL	1	1	1	1	1	X	1	1	1
EUGLENA ACUS	CEL	1	1	1	1	1				
FLAGELLATE #2	CEL	1	1	4.41	662	1		2.5	199	1
GLENODINIUM EDAX	CEL	1	1	0.71	102	1	0.41	104	1	1
GLOLOCYSTIS ?	COL	1	1	1	1	1				
GOMPHUNEMA	CEL	1	1	1	X	1				
KIRCHNERIELLA	CEL	1	1	1	1	1		2.51	199	1
LUNATE CILLS	CEL	1	1	1.01	153	1				
MALLOMUNAS	CEL	1	1	1	1	1	X	1	1	1
MELOSIRA DISTANS	CEL	1	1	1	1	1		0.61	50	1
MELOSIRA GRANULATA	CEL	1	1	1	2.71	781	1			
MELOSIRA GRANULATA	CEL	1	1	1	1	1				
V. ANGUSTISSIMA	CEL	1	1	1	11139.11	11142	1			
MERISMOPEDIA MINIMA	COL	1	0.31	51	1	1	X	1123.31	1837	1
MERISMOPEDIA TENUISSIMA	COL	1	1	1	1	1	0.21	52	1	1
MESOSTIGMA VIRIDIS	CEL	1	0.31	51	1	1				
MICROCYSTIS	COL	1	0.71	102	1	1	0.51	156	1	1
MICROCYSTIS INCERTA	COL	1	1	1	1	1	0.51	156	1	1
NAVICULA #1	CEL	1	1	1	X	1				
NAVICULA #2	CEL	1	1	1	1	1	0.21	52	1	1
NAVICULA ILUFLERE	CEL	1	1	1	1	1				
NEPHROCYTIDIUM	COL	1	1	1	X	1				
NETZSCHIA	CEL	1	1	1	1	1	0.21	52	1	1
NETZSCHIA #1	CEL	1	1	1	1	1				
NETZSCHIA #2	CEL	1	1	1	1	1				
NETZSCHIA TRYBLIONELLA	CEL	1	1	1	1	1	0.41	104	1	1
NOCYSTIS	CEL	1	1	1	3.61	1041	1			
PANDORINA MUNUM	COL	1	1	1	31	0.51	156	1	1	1
PEDIASTRUM DUPLEX	COL	1	1	1	1	1				
V. CLATHRATUM	COL	1	1	1	1	1	X	1	1	1
PHACUS	CEL	1	1	1	1	1	1	1	1	1
PHACUS ALGALOPSIS	CEL	1	1	1	1	1		0.61	50	1
SCENEDESMUS	COL	1	1	1	1	1	1	1	1	1
SCENEDESMUS ACUMINATUS	COL	1	0.31	51	1	1	0.21	52	1	1
SCENEDESMUS BIJUGA	COL	1	1	1	1	1				
SCENEDESMUS DENTICULATUS	COL	1	1	1	1	1				
SCENEDESMUS DIMORPHUS	COL	1	3.31	458	1	1	X	1	0.61	50
SCHROEDERIA SETIGERA	CEL	1	1	1	1	1	2.91	833	1	1
STEPHAHEDISCUS	CEL	121	8.51	1273	1	0.71	208	1	0.31	496
SYMEDRA	CEL	1	1	1.41	204	1				
SYMEDRA #1	CEL	1	1	1	X	1				
SYMEDRA #2	CEL	1	1	1	X	1				
TETRAEDRUM	CEL	1	1	1	1	1		1.31	99	1
TETRASTRUM STAUROGENIAEFORME	CEL	1	1	0.31	51	1		X	1	1
TRACHELOMUNAS	CEL	151	2.71	407	1	1		2.51	199	1
								1	0.61	50
TOTAL				14970			28530		7895	

LAKE NAME: PERRY RES.  
STORET NUMBER: 2011

NYGAARD TROPHIC STATE INDICES

	DATE	04 12 74	06 25 74	10 02 74
MYXOPHYCEAN		01/0 E	01/0 D	2.00 E
CHLOROPHYCEAN		10/0 E	36/0 E	8.00 E
EUGLENOPHYTE		0.27 E	0.50 E	0.20 ?
DIAZOM		1.00 E	5.00 E	2.00 E
COMPOUND		21/0 E	14/0 E	16.0 E

PALMER'S ORGANIC POLLUTION INDICES

	DATE	04 12 74	06 25 74	10 02 74
GENUS		03	00	11
SPECIES		03	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

	DATE	04 12 74	06 25 74	10 02 74
AVERAGE DIVERSITY	H	3.05	2.63	2.73
NUMBER OF TAXA	S	33.00	22.00	26.00
NUMBER OF SAMPLES COMPOSITED	M	4.00	5.00	5.00
MAXIMUM DIVERSITY MAXH		5.04	4.46	4.70
MINIMUM DIVERSITY MINH		0.13	0.22	0.13
TOTAL DIVERSITY	D	4439.75	2906.15	6535.62
TOTAL NUMBER OF INDIVIDUALS/ML	N	3095.00	1105.00	2394.00
EVENNESS COMPONENT	J	0.61	0.59	0.58
RELATIVE EVENNESS	RJ	0.60	0.57	0.57
MEAN NUMBER OF INDIVIDUALS/TAXA	L	93.79	50.23	92.08
NUMBER/ML OF MOST ABUNDANT TAXON	K	806.00	368.00	741.00

TAXA	FURN	04 12 74			06 25 74			10 02 74		
		IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML
ACTINOSTRUM GRACILIUM	CEL			X						
ANKISTRUGESMUS FALCATUS	CEL									X
ANKISTRUGESMUS FALCATUS	CEL		2.7	85			X			
V. ACICULARIS										
ANKISTRODESMUS FALCATUS	CEL			X						X
V. MIRABILIS	CEL			X						
ASTERIONELLA FORMOSA	CEL			X						
CERATIUM HIRUNDINELLA	CEL									
F. BRACHYCEPAS	CEL									X
CHLAMYDOMONAS	CEL		1.4	42			X		2.4	57
CHLOROCOCCALEAN CELL	CEL		4.1	127						X
CHLOROGONIUM	CEL									
CHLORODONAS ACUTA	CEL		126.0	866		13.3	147		31.0	748
COCCONEIS PEDICULUS ?	CEL			X						
COELASTRUM	COL									X
COLLOSTRUM MICROPURUM	COL					3.3	37			
CRYPTOMPHAS	CEL					33.3	368		11.9	285
CRYPTOMPHAS EROSA	CEL		4.1	127						
CYCLOTELLA MENEGHINIANA	CEL						X			
CYCLUTELLA STELLIGERA	CEL			X						
CIATOMA VULGARE	CEL			X						
CYCTIOSPHAERIUM PULCHELLUM	CGL			X						
DINOFLAGELLATE	CEL									X
CIPLOPSALIS ACUTA	CEL						X			
EUAESTRUM	CEL								2.4	57
EUGLENA	CEL						X			
EUGLENA #1	CEL		1.4	42						
FLAGELLATE	CEL					20.0	221			
GLENDIJINUM OCULATUM ?	CEL						X			
GYRAGGINIUM ALBULUM	CEL			X						
KIRCHWERDERIA	COL									
LUNATE CELLED CULONY	COL		1.4	42						
MELOSIRA	CEL		13.7	424						
MELOSIRA DISTANS	CEL		12.3	382			X			
MELOSIRA GRANULATA	CEL								219.0	456
MELOSIRA GRANULATA										
V. ANGUSTISSIMA	CEL						X			
MELOSIRA ITALICA	CEL			X						
MELOSIRA VARIANS	CEL			X						
MERISMOPEDIA MINIMA	COL									X
MESOSTIGMA VIRIDIS	CEL									
MICRACIINIUM PUSILLUM	COL			X						
MICRUCYSTIS INCERTA	COL									X
NAVICULA	CEL								2.4	57
NITZSCIA	CEL								119.0	456
OUCYSTIS	CEL			X						X
OSCILLATORIA	FIL		1.4	42						
PANDORINA MURUM	COL						X			
PLEDIASTRUM DUPLEX										
V. CLATHRATUM	COL									X
PHACUS	CEL									X
PHACUS #1	CEL					3.3	37			
PHACUS MEGALOPSIS	CEL									
SCENEDESMUS ACUMINATUS	COL			X						
SCENEDESMUS BICAUDATUS	COL			X						X
SCENEDESMUS DENTICULATUS	COL									X
SCENEDESMUS INTERMEDIA										
V. BICAUDATUS	COL					3.3	37			
SCENEDESMUS GUARDICAUDE	COL						X			
SCHNUEDERIA SETIGERA	CEL						X		2.4	57
SKELETOMERA PUTAMIS	CEL						X		4.0	116
STEPHANODISCUS	CEL								4.0	116
STEPHANODISCUS ASTHAEA										
V. MINUTULA	CEL		9.6	297		3.3	37			
STEPHANODISCUS FENUUS	CEL		19.2	596						
SURIRELLA ANGUSTA	CEL			X						
SYNEGRA	CEL						X			
SYNEGRA ACUS	CEL			X						
SYNEDRA RUMPENS	CEL			X						
SYNEDRA ULNA	CEL			X						
TETRASTRUM ELEGANS	COL			X						
TETRASTRUM STAURUGENIAEFORME	COL		2.7	85						
TRACHELOMONAS	CEL			X						
TRACHELOMONAS INTERMEDIA	CEL					116.7	184			X

TOTAL

3695

1105

2394

LAKE NAME: POMONA RES.  
STORET NUMBER: 2012

NYGAARD TRUPHIC STATE INDICES

	DATE	04 11 74	06 25 74	10 01 74
MYXOPHYCEAN		0/0 J	01/0 E	2.00 E
CHLOROPHYCEAN		01/0 E	01/0 E	1.00 E
EUGLENOPHYTE		1.00 E	3.00 E	0.67 E
DIATOM		1.00 E	3.00 E	2.00 E
COMPOUND		06/0 E	11/0 E	9.00 E

PALMER'S ORGANIC POLLUTION INDICES

	DATE	04 11 74	06 25 74	10 01 74
GENUS		03	06	01
SPECIES		03	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

	DATE	04 11 74	06 25 74	10 01 74
AVERAGE DIVERSITY	H	1.95	1.72	1.84
NUMBER OF TAXA	S	12.00	15.00	17.00
NUMBER OF SAMPLES COMPOSITED	M	3.00	3.00	3.00
MAXIMUM DIVERSITY	MAXH	3.58	3.91	4.09
MINIMUM DIVERSITY	MINH	0.05	0.05	0.39
TOTAL DIVERSITY	D	5912.40	6640.92	761.76
TOTAL NUMBER OF INDIVIDUALS/ML	N	3032.00	3861.00	414.00
EVENNESS COMPONENT	J	0.54	0.44	0.45
RELATIVE EVENNESS	RJ	0.54	0.44	0.40
MEAN NUMBER OF INDIVIDUALS/TAXA	L	252.67	257.40	24.35
NUMBER/ML OF MOST ABUNDANT TAXON	K	1663.00	2119.00	184.00

TAXA	FORM	04 11 74			06 25 74			10 01 74		
		IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML
ANKistrodesmus falcatus	CEL	11154.8	1663							x
V. mirabilis	FIL	11					x			x
APHAENIZUMENON FLOD-AQUAE										
CERATIUM MIRUNDINELLA										
F. BRACHYCELAS	CEL	11								x
CHLOROPHYTAN COCCOID CELLED COLONY	COL	19111.3	342			x		13122.21	92	
CHROOMONAS ACUTA	CEL	19111.3	342							
CLADOKERIUM	CEL	11								x
CRYPTOMONAS	CEL	146 4.8	147							
CRYPTOMONAS EROSA	CEL	11			1.21	47				x
DIPLOPSALIS ACUTA	CEL	11				x				x
EUGLENA #1	CEL	11								x
EUGLENA #2	CEL	11								x
EUGLENA ACUS	CEL	11			141 1.21	47				
EUGLENA EHRENSBERGII	CEL	11				x				
EUGLENA GRACILIS	CEL	11			51 1.21	47				
EUGLENA TRIPTERIS	CEL	11				x				
GLENDONIUM OCULATUM	CEL	11						12111.11	46	
GYROSIGMA	CEL	11								
HELOSIRA DISTANS	CEL	11 3.21	98							x
HELOSIRA GRANULATA	CEL	11		11154.9	2119					x
HELOSIRA GRANULATA										
V. ANGUSTISSIMA	CEL	130 9.71	293	31119.51	753					
HELOSIRA ITALICA	CEL	11						11154.41	184	
PERISPUPEDIA TENUISSIMA	COL	11						14122.21	92	
MITZSCHIA	CEL	11		x						
MITZSCHIA #1	CEL	11					x			
MITZSCHIA VERMICULARIS	CEL	11		x						
PHACUS ACUMINATUS	CEL	11				x				
PHACUS NEGALOPSIS	CEL	11		x						
PHACUS PSEUDOUNDOSTEGII	CEL	11				x				
SCENEDIASMUS BICAUDATUS	COL	11			1.21	47				
STEPHANODISCUS	CEL	11		x						
STEPHANODISCUS ASTRALIS										
V. MINUTULA	CEL	12116.31	489	12120.71	801					x
SPIRELLA	CEL	11		x						x
SYNEORA	CEL	11	1	x	1	1				
SYNEORA ACUS	CEL	11	1	x	1	1				
TOTAL				3932		3861		414		

LAKE NAME: TORONTO RES.  
STORET NUMBER: 2013

NYGAARD TROPHIC STATE INDICES

	DATE	04 10 74	06 24 74	10 02 74
MYXOPHYCEAN	0/0	0	1.00 E	3.00 E
CHLOROPHYCEAN	02/0	E	1.00 E	3.00 E
EUGLENOPHYTE	1.00	E	2.00 E	0.50 E
DIATOM	0.50	E	1.00 E	1.25 E
COMPOUND	07/0	E	9.00 E	14.0 E

PALMER'S ORGANIC POLLUTION INDICES

	DATE	04 10 74	06 24 74	10 02 74
GENUS		03	01	01
SPECIES		03	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

	DATE	04 10 74	06 24 74	10 02 74
AVERAGE DIVERSITY	H	1.73	1.76	3.01
NUMBER OF TAXA	S	17.00	17.00	23.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	2.00	2.00
MAXIMUM DIVERSITY	MAXH	4.09	4.09	4.52
MINIMUM DIVERSITY	MINH	0.06	0.26	0.45
TOTAL DIVERSITY	D	6402.73	1195.04	1547.14
TOTAL NUMBER OF INDIVIDUALS/ML	N	3701.00	679.00	514.00
EVENNESS COMPONENT	J	0.42	0.43	0.67
RELATIVE EVENNESS	RJ	0.42	0.40	0.63
MEAN NUMBER OF INDIVIDUALS/TAXA	L	217.71	39.94	22.35
NUMBER/ML OF MOST ABUNDANT TAXON	K	2355.00	255.00	153.00

TAXA	FORM	04 10 74			06 24 74			10 02 74		
		IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML
ANABAENA #1	FIL						X			X
ANABAENA #2	FIL							120.01	103	
ANKISTRUS DESMUS FALCATUS	CEL		4.51	168						
V. MIRABILIS										
CERATIUM HIRUNDINELLA	CEL									
F. FURCIDES	CEL									
CHLAMYDOMONAS	CEL			X				6.61	34	
CHLAMYDOMONAS ACUTA	CEL		10.61	393	2137.61	255		13.41	69	
CLUSTERIUM	CEL						X			X
COELASTRUM MICROPORUM	COL						X			X
CRUCIGENIA TETRAPODIA	COL						X			X
KRYPTOMONAS EROSA	CEL		12.11	449	1137.61	255		6.61	34	
CYCLUTELLA NELEGHINIANA	CEL						X	120.01	103	
CYMATOPLEURA SOLEA	CEL			X						
CYMBELLA	CEL			X						
DINOBRYON SERIULARIA	CEL			X						
DIPLOONEIS SMITHII	CEL									
V. PURPURA	CEL						X			
EUDORINA	CEL						X			
EUGLENA	CEL									X
EUGLENA ACUS	CEL						X			
EUGLENA EHRENSBERGII	CEL						X			
EUGLENA GRACILIS	CEL			X						
GYPSODINIUM ALBULUM	CEL						X			
GYROSIGMA	CEL						X			
KIRCHNERIELLA CONTORTA	CEL			X						
MELUSIRA DISTANS	CEL		3.01	112				13.41	69	
MELUSIRA GRANULATA	CEL		6.11	224	3116.71	127				
MELUSIRA GRANULATA V. ANGUSTISSIMA	CEL						X			
NAVICULA SALINARIUM	CEL									X
V. INTERMEDIA	CEL									X
NETZSCHIA	CEL			X						
NETZSCHIA #1	CFL						X			X
NETZSCHIA APICULATA ?	CEL			X						
NETZSCHIA SIGMOIDEA	CEL			X						
OSCILLATORIA	FIL									
PENNATE DIATOM	CFL							6.61	34	
PHACUS #1	CEL									
PHACUS #2	CEL						X			
PHACUS ACUMINATUS	CEL			X						
SCHPUTEDERIA SETIGERA	CEL							6.61	34	
STEPHANODISCUS	CEL		63.61	2355						
STEPHANODISCUS ASTRAEA	CEL									
V. MINIULIA	CEL				141.6.21	42				X
STEPHANODISCUS HANTZSCHEI	CEL			X			-			X
SYNEDRA ULMIA	CEL						X	6.61	34	
TRACHELOMONAS INTERMEDIA	CEL.									
TOTAL					3703		679		514	

LAKE NAME: TUTTLE CREEK RES.  
STORET NUMBER: 2014

NYGAARD TROPHIC STATE INDICES

	DATE	04 11 74	06 25 74	10 02 74
MYXOPHYCEAN		01/0 E	0/0 0	02/0 E
CHLOROPHYCEAN		04/0 E	02/0 E	09/0 E
EUGLENOPHYTE		0.40 E	1.00 E	0.09 ?
DIATOM		0.29 ?	02/0 E	1.17 E
COMPOUND		09/0 E	06/0 E	19/0 E

PALMER'S ORGANIC POLLUTION INDICES

	DATE	04 11 74	06 25 74	10 02 74
GENUS		09	01	03
SPECIES		03	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

	DATE	04 11 74	06 25 74	10 02 74
AVERAGE DIVERSITY	H	0.95	0.95	2.15
NUMBER OF TAXA	S	22.00	9.00	30.00
NUMBER OF SAMPLES COMPOSITED	M	3.00	3.00	3.00
MAXIMUM DIVERSITY	MAXH	4.46	3.17	4.91
MINIMUM DIVERSITY	MINH	0.02	0.05	0.10
TOTAL DIVERSITY	D	13040.65	1935.15	8213.00
TOTAL NUMBER OF INDIVIDUALS/ML	N	13727.00	2037.00	3820.00
EVENNESS COMPONENT	J	0.21	0.30	0.44
RELATIVE EVENNESS	RJ	0.21	0.29	0.43
MEAN NUMBER OF INDIVIDUALS/TAXA	L	623.95	226.33	127.33
NUMBER/ML OF MOST ABUNDANT TAXON	K	10947.00	1703.00	1641.00

TAXA	FORM	04 11 74			06 25 74			10 02 74		
		IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML
ACTINASTRUM GRACILIMUM	CEL			X						
ANKISTRODESMUS FALCATUS	CEL									
V. ACICULARIS	CEL		1.31	181						
ANKISTRODESMUS FALCATUS	CEL									
V. MIRABILIS	CEL									
CHRUOMONAS ACUTA	CEL		16.31	2238		9.21	183		4.11	158
COCCOID CELL	CEL			X						
CRUCIGENIA TETRAPODEA	COL									
CRYPTOMONAS	CEL									
CRYPTOMONAS ERUSA	CEL		1.31	181						
CRYPTOMONAS REFLEXA	CEL		0.41	60						
CYCLOTELLA MENEGHINIANA	CEL			X						
CYST	CEL			X						
DACTYLUCOCCOPSIS ACICULARES	CEL									
DICTYOSPHAERIUM PULCHELLUM	COL			X						
DIPLOPSALIS ACUTA	CEL									
EUGLENA	CEL									
EUGLENA GRACILIS	CEL									
FLAGELLATE	CEL									
GLENOGINIUM OCULATUM	CEL			X						
GLENOGINIUM OCULATUM ?	CEL									
GUMPHUNEMA OLIVACEUM	CEL									
GYNOSIGMA	CEL									
MELOSIRA DISTANS	CEL									
MELOSIRA GRANULATA	CEL									
MELOSIRA ITALICA	CEL									
MELOSIRA ITALICA	CEL									
V. TENUISSIMA	CEL									
NAVICULA	CEL									
NAVICULA CRYPTOCHEPHALA ?	CEL			X						
NITZSCHIA	CEL									
NITZSCHIA #1	CEL									
NITZSCHIA #2	CEL		0.41	60						
NITZSCHIA LONGISSIMA	CEL									
V. REVERSA	CEL									
NITZSCHIA SIGMOIDEA	CEL			X						
OSCILLATORIA	FIL									
OSCILLATORIA AGARDHII	FIL			X						
PHACUS NEGALOPSI	CEL			X						
PTEROMONAS ANGULOSA	CEL									
SCENEDESMUS ABUMENS	COL									
SCENEDESMUS ARCUATUS	COL									
SCENEDESMUS DIMORPHUS	COL		0.41	60		1.51	30			
SCENEDESMUS INTEPREDIUS	COL									
SCHROEDERIA SETIGERA	CEL									
SKELETONEMA POTAMOS	CEL									
STEPHANOIDESCUS	CEL	79.71	15947							
STEPHANOIDESCUS ASTREA	CEL									
V. MINUTULA	CEL									
SURIRELLA	CEL			X						
SURIRELLA #9	CEL			X						
SURIRELLA ANGUSTA	CEL			X						
SYMLORA ACUS	CEL			X						
TRACHELONOMAS INTERMEDIA	CEL						X			
TRACHELONOMAS VERFUCOSA	CEL			X						
TOTAL					13727			2037		3820

LAKE NAME: WILSON RES.  
STORET NUMBER: 2015

NYGAARD TROPHIC STATE INDICES

	DATE	04 12 74	06 26 74	10 01 74
MYXOPHYCEAN		3.00 E	0/0 0	1.00 E
CHLOROPHYCEAN		9.00 E	07/0 E	2.00 E
EUGLENOPHYTE		0.17 ?	0/07 ?	0.13 ?
DIATOM		0.29 ?	0/01 ?	0.50 E
COMPOUND		16.0 E	07/0 E	3.60 E

PALMER'S ORGANIC POLLUTION INDICES

	DATE	04 12 74	06 26 74	10 01 74
GENUS		09	00	07
SPECIES		03	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

	DATE	04 12 74	06 26 74	10 01 74
AVERAGE DIVERSITY	H	2.75	1.32	2.52
NUMBER OF TAXA	S	28.00	12.00	28.00
NUMBER OF SAMPLES COMPOSITED	M	3.00	3.00	3.00
MAXIMUM DIVERSITY	MAXH	4.81	3.58	4.81
MINIMUM DIVERSITY	MINH	0.04	0.15	0.08
TOTAL DIVERSITY	D	25250.50	1103.52	11476.08
TOTAL NUMBER OF INDIVIDUALS/ML	N	9182.00	836.00	4554.00
EVENNESS COMPONENT	J	0.57	0.37	0.52
RELATIVE EVENNESS	RJ	0.57	0.35	0.52
MEAN NUMBER OF INDIVIDUALS/TAXA	L	327.93	69.67	162.64
NUMBER/ML OF MOST ABUNDANT TAXON	K	3438.00	575.00	1847.00

TAXA	FORM	04 12 74			06 26 74			10 01 74		
		IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML	IS	ZC	ALGAL UNITS PER ML
ACTINASTRUM GRACILINUM	CEL								X	
AMNISTRIDESMUS FALCATUS	CEL		7.2	659				0.91	43	
V. MIRABILIS	CEL			X						
ASTERIUNELLA FORMOSA	COL					X				
V. GRACILLIMA	CEL					X				
BOTRYOCUCUS SUDETICUS	COL									
CEFRATIUM HIRUNDINELLA	CEL									
F. SCOTTICUM	CEL					X				
CHLAMYDOMONAS	CEL					X				
CHLAMYDOMONAS ACUTA	CEL	14115.4	1413	11168.81	575		1.91	86		
CLOSTERIUM	CEL			X				X		
COCCONEIS ?	CEL			X						
COELASTRUM MICROPORUM	COL			X		X	1.91	86		
COSMARIUM	CEL						0.91	43		
COSMARIUM #1	CEL							X		
COSMARIUM #2	CEL							X		
CRUCIGENIA QUADRATA	COL		1.0	94						
CRUCIGENIA TETRAPEDIA	COL		1.0	94		X	2.81	129		
CRYPTOCYANAS	CEL	51	4.1	377	2116.81	157		1.91	86	
CRYPTOCYANAS EROSA	CEL							2.81	129	
DACTYLOCOCCOPSIS IRREGULARIS	CEL		0.7	612						
DIPLONEIS SMITHII	CEL									
V. PUMILA	CEL					X				
DIPLOPSALIS ACUTA	CFL								X	
ELAKAIDOTHRIX GELATINGSA	CEL			X						
ENTOMONEIS ALATA	CEL			X						
EUGLENA	CEL			X						
EUGLENA GRACILIS	CEL								X	
GYMNODINIUM ALBULUM ?	CEL			X					X	
SYROSIGMA ?	CEL			X					X	
MICROCYSTIS AERUGINOSA	COL								X	
MICROCYSTIS INCERTA	COL								X	
NITZSCHIA #1	CEL		0.51	47						
OOCYSTIS	COL	2112.81	1083	1316.41	52		5.71	258		
OSCILLATORIA	FIL			X				0.91	43	
OSCILLATORIA LINNETICA	FIL		1.0	94			13125.51	1160		
PEDIASIUM DUPLEX	COL									
V. CLATHRATUM	COL			X					X	
PHACUS ACURINATUS	CEL			X						
PHACUS MEGALOPSIS	CEL								X	
SCENEDESMUS BALATONICUS	COL			X						
SCENEDESMUS DIMORPHUS	COL					X		0.91	43	
SCENEDESMUS QUADRIFICAUDA	COL			X					X	
SKELETONEMA PUTAROS	CEL		1.0	94						
SPHAEROCYSTIS SCHROETERI	COL			1416.21	52					
STAURASTRUM	CEL								X	
STEPHANOIDESCUS INVISITATUS	CEL	13112.31	1130				11140.61	1847		
SUBIRELLA #9	CEL		0.51	47						
SYNEDOCA ACUS	CEL	11137.41	3438				12113.21	601		
SYNEDOCA ULMA	CEL			X						
TETRAEDRUM MINIMUM	CEL					X				
TOTAL				9182			836		4554	