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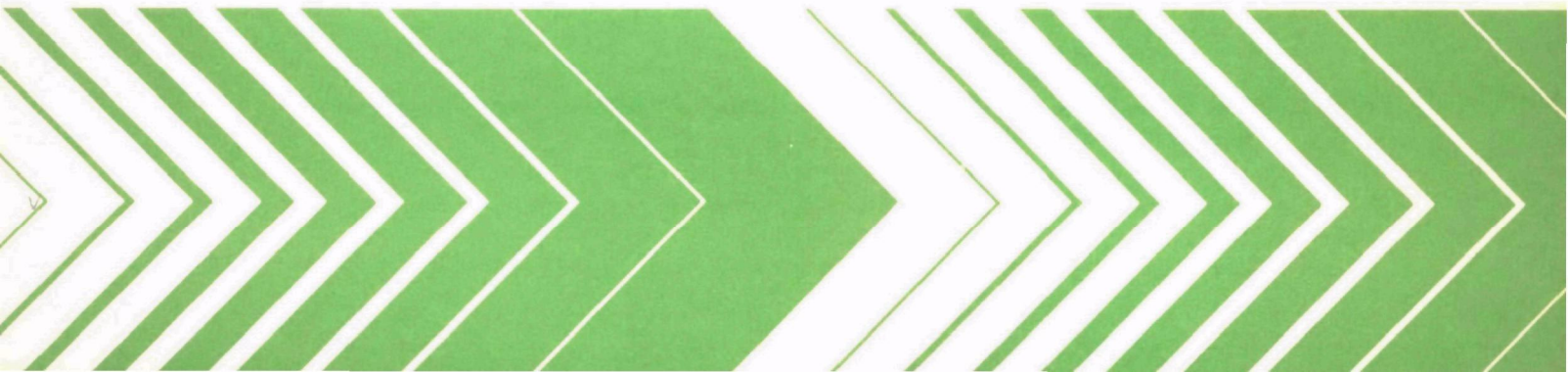
Distribution of Phytoplankton in Oklahoma Lakes



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DISTRIBUTION OF PHYTOPLANKTON IN OKLAHOMA LAKES

by

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FOREWORD

Protection of the environment requires effective regulatory actions which are based on sound technical and scientific information. This information must include the quantitative description and linking of pollutant sources, transport mechanisms, interactions, and resulting effects on man and his environment. Because of the complexities involved, assessment of specific pollutants in the environment requires a total systems approach which transcends the media of air, water, and land. The Environmental Monitoring and Support Laboratory-Las Vegas contributes to the formation and enhancement of a sound monitoring data base for exposure assessment through programs designed to:

- develop and optimize systems and strategies for monitoring pollutants and their impact on the environment
- demonstrate new monitoring systems and technologies by applying them to fulfill special monitoring needs of the Agency's operating programs

This report presents the species and abundance of phytoplankton in the 15 lakes sampled by the National Eutrophication Survey in the State of Oklahoma, along with results from the calculation of several commonly used biological indices of water quality and community structure. These data can be used to biologically characterize the study lakes, and as baseline data for future investigations. This report was written for use by Federal, State, and local governmental agencies concerned with water quality analysis, monitoring, and or regulation. Private industry and individuals similarly involved with the biological aspects of water quality will find the document useful. For further information contact the Water and Land Quality Branch, Monitoring Operations Division.

George B. Morgan
Director
Environmental Monitoring and Support Laboratory
Las Vegas

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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 Oklahoma (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 OKLAHOMA

STORET No.	Lake Name	County
4001	Altus Reservoir	Greer, Kiowa
4002	Arbuckle Lake	Murray
4003	Lake Ellsworth	Caddo, Comanche
4004	Lake Eufaula	Haskell, McIntosh, Okmulgee, Pittsburg
4005	Fort Cobb Reservoir	Caddo
4006	Fort Supply Reservoir	Woodward
4007	Foss Dam Reservoir	Custer
4008	Lake Frances	Adair
4009	Grand Lake O' The Cherokees	Mayes, Delaware, Craig, Ottowa
4010	Lake Hefner	Oklahoma

(Continued)

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

STORET No.	Lake Name	County
4011	Keystone Reservoir	Tulsa, Creek, Osage, Pawnee
4012	Oologah Lake	Nowata, Rogers
4013	Tenkiller Ferry Reservoir	Cherokee, Sequoyah
4014	Lake Thunderbird	Cleveland
4015	Wister Reservoir	LeFlore

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	$\frac{\text{Myxophyceae}}{\text{Desmideae}}$	0.0-0.4	0.1-3.0
Chlorophycean	$\frac{\text{Chlorococcales}}{\text{Desmideae}}$	0.0-0.7	0.2-9.0
Diatom	$\frac{\text{Centric Diatoms}}{\text{Pennate Diatoms}}$	0.0-0.3	0.0-1.75
Euglenophyte	$\frac{\text{Euglenophyta}}{\text{Myxophyceae + Chlorococcales}}$	0.0-0.2	0.0-1.0
Compound	$\frac{\text{Myxophyceae + Chlorococcales + Centric Diatoms + Euglenophyta}}{\text{Desmideae}}$	0.0-1.0	1.2-25

TABLE 3. ALGAL GENUS POLLUTION INDEX (Palmer 1969)

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

TABLE 4. ALGAL SPECIES POLLUTION INDEX (Palmer 1969)

Species	Pollution Index
Ankistrodesmus falcatus	3
Arthrospira jenneri	2
Chlorella vulgaris	2
Cyclotella meneghiniana	2
Euglena gracilis	1
Euglena viridis	6
Gomphonema parvulum	1
Melosira varians	2
Navicula cryptocephala	1
Nitzschia acicularis	1
Nitzschia palea	5
Oscillatoria chlorina	2
Oscillatoria limosa	4
Oscillatoria princeps	1
Oscillatoria putrida	1
Oscillatoria tenuis	4
Pandorina morum	3
Scenedesmus quadricauda	4
Stigeoclonium tenue	3
Synedra ulna	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 ith taxon in the sample, which is calculated from n_i/N; n_i is the number of individuals per milliliter of the ith 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:

$$\text{MinH} = -\frac{S-1}{N}\log_2\frac{1}{N} - \frac{N-(S-1)}{N}\log_2\frac{N-(S-1)}{N}$$

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:

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

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 sits is equal to $\log_S S$, or 1. Therefore diversity in sits 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 LIST FOR THE STATE OF OKLAHOMA

Achnanthes lanceolata
Achnanthes microcephala
Actinastrum gracilimum
Actinastrum hantzschii
v. *fluviatile*
Anabaena planctonica
Anabaenopsis circularis
Ankistrodesmus falcatus
Ankistrodesmus falcatus
v. *acicularis*
Ankistrodesmus falcatus
v. *mirabilis*
Aphanizomenon flos-aquae
Aphanocapsa sp.
Aphanothece sp.
Asterionella formosa
Attheya zachariasi
Binuclearia ? sp.
Botryococcus braunii
Carteria sp.
Cerasterias irregulare
Ceratium hirundinella
f. *brachyceras*
Ceratium hirundinella
f. *furcoides*
Chlamydomonas sp.
Chlorogonium sp.
Chroococcus dispersus
Chroomonas acuta
Closterium aciculare
Cocconeis sp.
Coelastrum cambricum
Coelastrum microporum
Coelastrum reticulatum
Coelastrum reticulatum
v. *polychordon*
Coelastrum sphaericum
Coelosphaerium naegelianum
Coelosphaerium pallidum
Coscinodiscus sp.
Cosmarium clepsydra
v. *nanum*
Crucigenia apiculata
Crucigenia crucifera
Crucigenia quadrata
Crucigenia tetrapedia
Crucigenia truncata
Cryptomonas erosa
Cryptomonas marssonii
Cryptomonas reflexa
Cyclotella meneghiniana
Cyclotella stelligera
Cymatopleura solea
Cymbella sp.
Dactylococcopsis sp.
Diatoma vulgare
Dictyosphaerium pulchellum
Dinobryon bavaricum
Dinobryon divergens
Dinobryon sertularia
Dinobryon sociale
Diploneis smithii
Diploneis smithii
f. *elliptica ?*
Diplopsalis acuta
Elakatothrix gelatinosa
Entomoneis paludosa
Euastrum sp.
Eudorina elegans
Euglena acus
Euglena ehrenbergii
Euglena gracilis
Euglena oxyuris
v. *minor*
Euglena subehrenbergii
Euglena tripteris
Eunotia pectinalis
Fragilaria crotonensis
Franceia sp.
Glenodinium gymnodinium
Glenodinium gymnodinium
v. *biscutelliforme*
Glenodinium oculatum
Gloeocystis sp.
Golenkinia radiata
Gomphonema parvulum
Gomphosphaeria sp.
Gymnodinium albulum
Gyrosigma fasciola ?
Hantzschia sp.
Kirchneriella contorta
Lagerheimia sp.
Lepocinclis fusiformis ?
Lyngbya lagerheimii
Mallomonas acaroides
Mastogloia sp.
Melosira ambigua
Melosira distans
Melosira granulata
Melosira granulata
v. *angustissima*
Melosira granulata
v. *angustissima* f. *spiralis*
Melosira italica

Melosira varians
Merismopedia glauca
Merismopedia minima
Merismopedia tenuissima
Mesostigma viridis
Micractinium pusillum
Microcystis aeruginosa
Microcystis incerta
Mougeotia sp.
Navicula citrus ?
Navicula cuspidata
Navicula pygmaea
Nitzschia acicularis
Nitzschia apiculata
Nitzschia filiformis
Nitzschia hantzschiana
Nitzschia holsatica
Nitzschia longissima
v. *reversa*
Nitzschia tryblionella
v. *debilis*
Nitzschia vermicularis
Oocystis sp.
Oscillatoria agardhii
Oscillatoria limnetica
Pandorina morum
Pediastrum biradiatum
v. *longecornutum*
Pediastrum boryanum
Pediastrum duplex
Pediastrum duplex
v. *clathratum*
Pediastrum duplex
v. *reticulatum*
Pediastrum simplex
Pediastrum simplex
v. *duodenarium*
Pediastrum tetras
v. *tetraodon*
Peridinium inconspicuum
Peridinium quadridens
Phacus acuminatus
Phacus acuminatus
v. *drezepolskii*
Phacus caudatus
Phacus caudatus
v. *minor*
Phacus curvicauda
Phacus helikoides
Phacus megalopsis
Phacus nordstedtii
Phacus pleuronectes
Phacus pseudonordstedtii
Phacus suecicus
Phacus tortus
Phormidium sp.
Pleurosigma delicatulum
Pteromonas aculeata
Raphidiopsis curvata
Rhizosolenia sp.
Rhodomonas ? minuta
Rhoicosphenia curvata
Scenedesmus abundans
Scenedesmus acuminatus
Scenedesmus arcuatus
Scenedesmus arcuatus
v. *platydisca*
Scenedesmus balatonicus
Scenedesmus bicaudatus
Scenedesmus bijuga
Scenedesmus denticulatus
Scenedesmus dimorphus
Scenedesmus intermedius
Scenedesmus intermedius
v. *bicaudatus*
Scenedesmus obliquus
Scenedesmus opoliensis
Scenedesmus protuberans
Scenedesmus quadricauda
Scenedesmus quadricauda
v. *longispina* f. *granulatus*
Scenedesmus raciborskii
Schroederia setigera
Skeletonema potamos
Sphaerocystis schroeteri
Staurastrum leptocladum
Staurastrum tetracerum
Stephanodiscus astraea
v. *minutula*
Surirella angusta
Surirella ovata
Synedra acus
Synedra delicatissima
Synedra delicatissima
v. *angustissima*
Synedra ulna
Synura ? sp.
Tabellaria fenestrata
Tetraedron caudatum
v. *longispinum*
Tetraedron constrictum
Tetraedron gracile
Tetraedron gracile
v. *excavatum*

Tetraedron minimum
Tetraedron minimum
v. *scrobiculatum*
Tetraedron muticum
Tetraedron trigonum
Tetraedron victoriae
Tetrastrum elegans
Tetrastrum glabrum
Tetrastrum heteracanthum
Tetrastrum staurogeniaeforme

Trachelomonas bulla ?
Trachelomonas fluviatilis
Trachelomonas hispida
Trachelomonas intermedia
Trachelomonas pulchella
Trachelomonas volvocina
Trachelomonas volvocina
v. *compressa*
Treubaria setigerum
Treubaria triappendiculata

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.

ERRATA

Minimum and evenness are misspelled in the computer printout of the species diversity and abundance indices data.

LAKE NAME: ALTUS RES.
STORET NUMBER: 4001

NYGAARD TROPHIC STATE INDICES

DATE	03 29 74	06 10 74	10 24 74
MYXOPHYCEAN	1.50 E	2.00 E	3.00 E
CHLOROPHYCEAN	3.00 E	1.67 E	3.00 E
EUGLENOPHYTE	0.22 E	0.27 E	0.17 ?
DIATOM	0.50 E	0.46 E	0.60 E
COMPOUND	6.50 E	5.33 E	8.50 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 29 74	06 10 74	10 24 74
GENUS	05	18	14
SPECIES	00	03	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

	DATE	03 29 74	06 10 74	10 24 74
AVERAGE DIVERSITY	H	0.62	2.85	1.92
NUMBER OF TAXA	S	24.00	32.00	26.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	3.00	3.00
MAXIMUM DIVERSITY	MAXH	4.58	5.00	4.70
MINIMUM DIVERSITY	MINH	0.04	0.14	0.05
TOTAL DIVERSITY	D	4945.74	8438.85	14878.06
TOTAL NUMBER OF INDIVIDUALS/ML	N	7977.00	2961.00	7749.00
EVENESS COMPONENT	J	0.14	0.57	0.41
RELATIVE EVENESS	RJ	0.13	0.56	0.41
MEAN NUMBER OF INDIVIDUALS/TAXA	L	332.38	92.53	298.04
NUMBER/ML OF MOST ABUNDANT TAXON	K	7319.00	1330.00	4825.00

LAKE NAME: ALTUS RES.
STORET NUMBER: 4001

CONTINUED

TAXA	FORM	03 29 74 IS	03 29 74 %C	03 29 74 ALGAL UNITS PER ML	06 10 74 IS	06 10 74 %C	06 10 74 ALGAL UNITS PER ML	10 24 74 IS	10 24 74 %C	10 24 74 ALGAL UNITS PER ML
ANABAENA	FIL			X	1	1.0	30			
ANABAENOPSIS CIRCULARIS	FIL									X
ANKISTRODESMUS FALCATUS	CEL									X
ANKISTRODESMUS FALCATUS V. ACICULARIS	CEL					2.0	60			
ANKISTRODESMUS FALCATUS V. MIRABILIS	CEL			X						
APHANIZOMENON FLOS-AQUAE	FIL				14	1.0	30			
ATTHEYA	CEL					1.0	30			
CARTERIA	CEL	12	1.9	155	12	8.2	242			
CENTRIC DIATOMS	CEL							13	8.6	667
CERATIUM HIRUNDINELLA F. FURCOIDES	CEL						X			
CHLAMYDOMONAS	CEL						X			
CHROOMONAS ACUTA	CEL	13	2.9	232		9.2	272		0.7	51
CLOSTERIUM #1	CEL					3.1	91		0.7	51
CLOSTERIUM #2	CEL			X			X			
COELASTRUM MICROPORUM	COL									X
COSCINODISCUS	CEL									X
COSMARIUM CLEPSYDRA V. NANUM	CEL									X
CRUCIGENIA TETRAPEDIA	COL			X						X
CRYPTOMONAS EROSA	CEL					1.0	30			
CRYPTOMONAS MARSSONII	CEL							14	2.6	205
CRYPTOMONAS REFLEXA	CEL			X						
CYCLOTELLA	CEL						X			
CYCLOTELLA MENEGHINIANA	CEL									X
CYMBELLA	CEL	1	0.5	39						
DACTYLOCOCCOPSIS	CEL	14	1.0	77						
DICTYOSPHAERIUM PULCHELLUM	COL			X						
DIPLOPSALIS ACUTA	CEL						X			
ENTOMONEIS	CEL			X						
EUGLENA	CEL			X	13	5.1	151			
FLAGELLATE #2	CEL			X		5.1	151			
FRAGILARIA	CEL			X						
FRAGILARIA CROTONENSIS	CEL			X						
GYMNODINIUM ALBULUM	CEL						X			
GYROSIGMA FASCIOLA ?	CEL									X
LYNGBYA	FIL								2.6	205
MELOSIRA GRANULATA V. ANGUSTISSIMA	CEL			X						
MERISMOPEDIA MINIMA	COL					7.2	212			X
MICROCYSTIS	COL					8.2	242			
MICROCYSTIS INCERTA	COL						X			X
NAVICULA #1	CEL							11	62.3	4825
NAVICULA #2	CEL								1.3	103
NITZSCHIA	CEL					1.0	30			
NITZSCHIA #1	CEL						X			
NITZSCHIA #5	CEL			X						
NITZSCHIA LONGISSIMA V. REVERSA	CEL								0.7	51
NITZSCHIA TRYBLIONELLA V. DEBILIS	CEL						X			
OOCYSTIS	COL			X			X		0.7	51
OSCILLATORIA #1	FIL							12	15.9	1232
OSCILLATORIA #2	FIL							15	2.6	205
OSCILLATORIA AGARDHII	FIL	11	91.8	7319	11	44.9	1330			
PEDIASTRUM DUPLEX V. CLATHRATUM	COL						X			
PHACUS	CEL						X			X
PHACUS CAUDATUS V. MINOR	CEL									X
PHACUS NORDSTEDTII	CEL		0.5	39						
SCENEDESMUS BALATONICUS	COL			X	15	2.0	60			
SCENEDESMUS BIJUGA	COL									X
SCENEDESMUS QUADRICAUDA	COL		0.5	39			X			
STAURASTRUM	CEL			X			X			
STEPHANODISCUS	CEL	15	1.0	77						
SYNEDRA DELICATISSIMA V. ANGUSTISSIMA	CEL						X		1.3	103
SYNEDRA ULNA	CEL						X			
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL									X
TRACHELOMONAS PULCHELLA	CEL						X			
TOTAL				7977			2961			7749

LAKE NAME: ARBUCKLE LAKE
STORET NUMBER: 4002

NYGAARD TROPHIC STATE INDICES

DATE	03 30 74	06 12 74	10 23 74
MYXOPHYCEAN	0.04 D	0.83 E	1.29 E
CHLOROPHYCEAN	1.50 E	0.83 E	1.86 E
EUGLENOPHYTE	0.33 E	0.50 E	0.36 E
DIATOM	0.62 E	5.00 E	0.50 E
COMPOUND	3.25 E	3.33 E	4.71 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 30 74	06 12 74	10 23 74
GENUS	12	01	07
SPECIES	09	00	04

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 30 74	06 12 74	10 23 74
AVERAGE DIVERSITY	H	0.98	3.68	4.33
NUMBER OF TAXA	S	30.00	38.00	54.00
NUMBER OF SAMPLES COMPOSITED	M	3.00	4.00	4.00
MAXIMUM DIVERSITY	MAXH	4.91	5.25	5.75
MINIMUM DIVERSITY	MINH	0.00	0.34	0.49
TOTAL DIVERSITY	D	13287.82	3973.20	5429.82
TOTAL NUMBER OF INDIVIDUALS/ML	N	13559.00	1290.00	1254.00
EVENESS COMPONENT	J	0.20	0.59	0.75
RELATIVE EVENESS	RJ	0.20	0.56	0.74
MEAN NUMBER OF INDIVIDUALS/TAXA	L	451.97	33.95	23.22
NUMBER/ML OF MOST ABUNDANT TAXON	K	11709.00	430.00	164.00

LAKE NAME: ARBUCKLE LAKE
STORET NUMBER: 4002

CONTINUED

TAXA	FORM	03 30 74 %S	03 30 74 %C	03 30 74 ALGAL UNITS PER ML	06 12 74 %S	06 12 74 %C	06 12 74 ALGAL UNITS PER ML	10 23 74 %S	10 23 74 %C	10 23 74 ALGAL UNITS PER ML
ANABAENA	FIL								X	
ANABAENA #1	FIL				15	7.41	95	14	7.84	98
ANKISTRODESMUS FALCATUS										
V. MIRABILIS	CEL		1.11	150						
APHANIZOMENON FLOS-AQUAE	FIL						X			X
ASTERIONELLA FORMOSA	CEL		X							
CARTERIA	CEL								1.31	16
CERATIUM HIRUNDINELLA										
F. BRACHYCERAS	CEL						X		1.31	16
CHLAMYDOMONAS	CEL					3.71	48			
CHLOROPHYTAN COCCOID CELLED COLONY	COL						X			
CHROOMONAS ACUTA	CEL	15	3.31	450					7.84	98
CLOSTERIUM	CEL		0.41	50		3.71	48		2.61	33
CLOSTERIUM ACICULARE	CEL		X				X			X
COELASTRUM MICROPORUM	COL						X		1.31	16
COELASTRUM RETICULATUM	COL								3.91	49
COELOSPHAERIUM NAEGELIANUM	CEL						X			X
COELOSPHAERIUM PALLIDUM	COL								1.31	16
COSMARIUM	CEL						X			X
COSMARIUM #2	CEL		X			3.71	48			
COSMARIUM CLEPSYDRA										
V. NANUM	CEL								1.31	16
CRUCIGENIA TETRAPEDIA	COL								2.61	33
CRYPTOMONAS	CEL								3.91	49
CRYPTOMONAS EROSA	CEL	14	1.61	250	13	11.11	143			
CYCLOTELLA MENEGHINIANA	CEL	12	3.31	450						
CYCLOTELLA STELLIGERA	CEL					3.71	48			
CYMATOPLEURA SOLEA	CEL						X			
CYMBELLA	CEL									X
DIATOMA VULGARE	CEL		X							
DICTYOSPHAERIUM PULCHELLUM	COL								1.31	16
DINOBRYON DIVERGENS	CEL						X			
DIPLONEIS	CEL		X							
DIPLOPSALIS ACUTA	CEL						X		1.31	16
ELAKATOTHRIX	CEL									X
ELAKATOTHRIX GELATINOSA	CEL						X			
EUASTRUM	CEL						X			X
EUGLENA #1	CEL						X			X
EUGLENA #2	CEL						X		1.31	16
EUGLENA #3	CEL									X
EUGLENA #4	CEL									X
FRAGILARIA	CEL		X							
GLENODINIUM GYMNODINIUM										
V. BISCUTELLIFORME	CEL						X			
GLENODINIUM OCULATUM	CEL						X			
GYMNODINIUM ALBULUM	CEL									X
GYROSIGMA	CEL		X							
LYNGBYA	FIL								1.31	16
MALLOMONAS ACAROIDES	CEL		X							X
MELOSIRA	CEL	0.41	50			3.71	48	15	5.21	65
MELOSIRA DISTANS	CEL	11	86.41	11700	82	33.31	430	82	10.41	131
MELOSIRA VARIANS	CEL		X							
MERISMOPEDIA MINIMA	COL									X
MESOSTIGMA VIRIDIS	CEL						X			
MICROCYSTIS AERUGINOSA	COL						X			
MICROCYSTIS INCERTA	COL					3.71	48		3.91	49
MOUGEOTIA	FIL					7.41	95			X
NAVICULA	CEL									X
NAVICULA #1	CEL		X							
NAVICULA #2	CEL	0.41	50							
NITZSCHIA #1	CEL								1.31	16
OOCYSTIS	CEL		X				X	11	13.31	164
OSCILLATORIA	FIL									X
PEDIASTRUM BORYANUM	COL		X							
PEDIASTRUM DUPLEX										
V. 7	COL		X							
PEDIASTRUM SIMPLEX										
V. DUODENARIUM	COL		X		11	14.81	191	13	5.21	65
PENNATE DIATOM	CEL									X
PERIDINIUM #1	CEL		X							
PERIDINIUM #2	CEL		X							
PERIDINIUM INCONSPICUUM	CEL						X			
PHACUS	CEL									X
PHACUS ACUMINATUS	CEL						X			
PHACUS CURVICAUDA	CEL		X							
PHACUS HELIKOIDES	CEL									X
PHACUS MEGALOPSIS	CEL									X
SCENEDESMUS ARCUATUS	COL									X
SCENEDESMUS BALATONICUS	COL									X
SCENEDESMUS DENTICULATUS	COL								5.21	65
SCENEDESMUS INTERMEDIUS	COL								1.31	16
SCENEDESMUS QUADRICAUDA	COL	13	1.51	200			X		5.21	65

LAKE NAME: ARBUCKLE LAKE
STORET NUMBER: 4002

CONTINUED

TAXA	FORM	05 30 74			06 12 74			10 23 74		
		BS	%C	ALGAL UNITS PER ML	BS	%C	ALGAL UNITS PER ML	BS	%C	ALGAL UNITS PER ML
STAURASTRUM	CEL		0.7	100		X				
STAURASTRUM LEPTOCLADUM	CEL								X	
STAURASTRUM TETRACERUM	CEL								X	
STEPHANODISCUS	CEL					X				
STEPHANODISCUS ASTRAEA										
V. MINUTULA	CEL		0.4	50	14	3.7	48	2	2.6	33
SURIRELLA	CEL								X	
SYNEDRA DELICATISSIMA	CEL							5	5.2	65
SYNEDRA ULNA	CEL			X						
TETRAEDRON MINIMUM										
V. SCROBICULATUM	CEL							1	1.3	16
TRACHELOMONAS FLUVIATILIS	CEL					X				
TRACHELOMONAS HISPIDA	CEL		0.4	50		X				
TRACHELOMONAS INTERMEDIA	CEL								X	
TOTAL				13559			1290			1254

LAKE NAME: LAKE ELLSWORTH
STORET NUMBER: 4003

NYGAARD TROPHIC STATE INDICES

DATE	04 01 74	06 10 74	10 24 74
MYXOPHYCEAN	1.00 E	1.67 E	3.00 E
CHLOROPHYCEAN	9.00 E	4.00 E	12.0 E
EUGLENOPHYTE	0.10 ?	0.41 E	0.20 ?
DIATOM	1.33 E	0.70 E	1.50 E
COMPOUND	15.0 E	9.00 E	21.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 01 74	06 10 74	10 24 74
GENUS	05	10	01
SPECIES	03	03	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 01 74	06 10 74	10 24 74
AVERAGE DIVERSITY	H	2.10	3.02	1.89
NUMBER OF TAXA	S	26.00	42.00	29.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	4.00	4.00
MAXIMUM DIVERSITY	MAXH	4.70	5.39	4.86
MINIMUM DIVERSITY	MINH	0.07	0.12	0.16
TOTAL DIVERSITY	D	10777.20	14541.30	4023.81
TOTAL NUMBER OF INDIVIDUALS/ML	N	5132.00	4815.00	2129.00
EVENESS COMPONENT	J	0.45	0.56	0.39
RELATIVE EVENESS	RJ	0.44	0.56	0.37
MEAN NUMBER OF INDIVIDUALS/TAXA	L	197.38	114.64	73.41
NUMBER/ML OF MOST ABUNDANT TAXON	K	2532.00	1605.00	1352.00

LAKE NAME: LAKE ELLSWORTH CONTINUED
STORET NUMBER: 4003

TAXA	FORM	04 01 74 IS	04 01 74 %C	04 01 74 ALGAL UNITS PER ML	06 10 74 IS	06 10 74 %C	06 10 74 ALGAL UNITS PER ML	10 24 74 IS	10 24 74 %C	10 24 74 ALGAL UNITS PER ML
ACTINASTRUM HANTZSCHII										
V. FLUVIATILE	CEL									X
ANABAENA	FIL						X			
ANKISTRODESMUS FALCATUS										
V. MIRABILIS	CEL		13.2	675		5.9	188		1.4	29
APHANIZOMENON FLOS-AQUAE	FIL				15	2.3	113			
APHANOTHECE	COL						X			
CARTERIA	CEL				11	37.5	1805	11	63.5	1352
CERATIUM HIRUNDINELLA										
F. BRACHYCERAS	CEL						X			X
CHLAMYDOMONAS	CEL				22	16.4	790			
CHLOROCOCCALEAN COLONY #9	COL					0.8	38			
CHLOROPHYTAN COCCOID CELL	CEL					0.8	38			
CHLOROPHYTAN LUNATE CELLED COLONY	COL			X						
CHROOMONAS ACUTA	CEL	12	49.3	2532		2.3	113		5.4	115
CLOSTERIUM #1	CEL						X			
CLOSTERIUM #2	CEL						X			
COELASTRUM MICROPORUM	COL			X		0.8	38	15	1.4	29
COSMARIUM CLEPSYDRA										
V. NANUM	CEL									X
CRUCIGENIA CRUCIFERA	COL									X
CRUCIGENIA QUADRATA	COL			X						
CRUCIGENIA TRUNCATA	COL						X			
CRYPTOMONAS EROSA	CEL			X	13	11.7	564	14	2.7	58
CRYPTOMONAS MARSSONII	CEL			X						
CRYPTOMONAS REFLEXA	CEL			X						
CRYPTOMONAS SPP.	CEL	11	21.0	1080						
CYMBELLA	CEL			X						X
DACTYLOCOCCOPSIS	CEL									X
DICTYOSPHAERIUM PULCHELLUM	COL			X			X			
DIPLOPSALIS ACUTA	CEL						X			
EUASTRUM	CEL			X			X			
EUGLENA	CEL						X			X
EUGLENA EHRENBERGII	CEL						X			
EUGLENA TRIPTERIS	CEL						X			X
FLAGELLATE	CEL					3.9	188			
FRAGILARIA	CEL									X
GLENODINIUM	CEL		0.7	34						
GLENODINIUM GYMNODINIUM										
V. BISCUTELLIFORME	CEL						X			
MELOSIRA	CEL					1.6	75			
MELOSIRA AMBIGUA	CEL			X						
MELOSIRA DISTANS	CEL		4.0	203		1.6	75			X
MELOSIRA GRANULATA	CEL	14	2.6	135				12	10.8	230
MERISMOPEDIA MINIMA	COL								1.4	29
MESOSTIGMA VIRIDIS	CEL					1.6	75			X
MICROCYSTIS INCERTA	COL					1.6	75			
MOUGEOTIA	FIL						X			
NAVICULA	CEL			X						
OOCYSTIS	CEL			X					4.0	86
OSCILLATORIA	FIL			X						X
OSCILLATORIA LIMNETICA	FIL					0.8	38			
PEDIASTRUM DUPLEX										
V. CLATHRATUM	COL									X
PEDIASTRUM DUPLEX										
V. RETICULATUM	COL						X			
PEDIASTRUM TETRAS										
V. TETRAODON	COL						X			X
PERIDINIUM QUADRIDENS	CEL						X			
PHACUS	CEL									X
PHACUS ACUMINATUS										
V. DREZEPOLSKII	CEL					1.6	75			
PHACUS CURVICAUDA	CEL						X			
PHACUS TORTUS	CEL						X			
SCENEDESMUS BICAUDATUS	COL									X
SCENEDESMUS BIJUGA	COL						X			X
SCENEDESMUS DENTICULATUS	COL									X
SCENEDESMUS INTERMEDIUS										
V. BICAUDATUS	COL			X						
SCHROEDERIA SETIGERA	CEL						X			
STEPHANODISCUS	CEL			X				13	9.4	201
STEPHANODISCUS ASTRAEA										
V. MINUTULA	CEL				14	10.2	489			
SYNEDRA	CEL	13	7.9	405						
TETRAEDRON CONSTRICTUM	CEL									X
TETRAEDRON GRACILE	CEL						X			
TETRAEDRON MUTICUM	CEL					0.8	38			
TETRASTRUM ELEGANS	COL			X						
TETRASTRUM STAURODENIAEFORME	COL			X						X
TRACHELOMONAS	CEL	15	1.3	66						
TRACHELOMONAS HISPIDA	CEL						X			
TREUBARIA SETIGERUM	CEL			X			X			
TOTAL				5132			4615			2129

LAKE NAME: LAKE EUFAULA
STORET NUMBER: 4004

NYGAARD TROPHIC STATE INDICES

DATE	04 01 74	06 31 74	08 28 74	10 21 74
MYXOPHYCEAN	0170 E	1.00 E	4.50 E	7.00 E
CHLOROPHYCEAN	0470 E	4.50 E	4.50 E	8.00 E
EUGLENOPHYTE	0.20 ?	0.55 E	0.28 E	0.13 ?
DIATOM	2.50 E	0570 E	2.00 E	1.00 E
COMPOUND	1170 E	11.0 E	14.5 E	22.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 01 74	06 31 74	08 28 74	10 21 74
GENUS	08	05	03	05
SPECIES	03	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 01 74	06 31 74	08 28 74	10 21 74
AVERAGE DIVERSITY	H	3.11	3.05	2.77	2.14
NUMBER OF TAXA	S	15.00	31.00	36.00	34.00
NUMBER OF SAMPLES COMPOSITED	M	9.00	1.00	9.00	9.00
MAXIMUM DIVERSITY	MAXH	3.91	4.95	5.25	5.09
MINUMUM DIVERSITY	MINH	0.11	0.26	0.23	0.22
TOTAL DIVERSITY	D	4826.72	4181.55	5506.76	3971.84
TOTAL NUMBER OF INDIVIDUALS/ML	N	1552.00	1371.00	1988.00	1856.00
EVENESS COMPONENT	J	0.80	0.62	0.53	0.42
RELATIVE EVENESS	RJ	0.79	0.60	0.51	0.40
MEAN NUMBER OF INDIVIDUALS/TAXA	L	103.47	44.23	52.32	54.59
NUMBER/ML OF MOST ABUNDANT TAXON	K	355.00	351.00	891.00	817.00

LAKE NAME: LAKE EUBAULA CONTINUED
STORET NUMBER: 4904

TAXA	FORM	04 01 74			06 01 74			08 28 74			10 21 74		
		BS	%C	ALGAL UNITS PER ML	BS	%C	ALGAL UNITS PER ML	BS	%C	ALGAL UNITS PER ML	BS	%C	ALGAL UNITS PER ML
ACTINASTRUM	CEL					2.1	29						X
ANABAENA #1	FIL												X
ANABAENA #3	FIL						X	1	3.5	69			
ANABAENOPSIS	FIL								1.7	34			
ANKISTRODESMUS	CEL						X						
ANKISTRODESMUS FALCATUS V. MIRABILIS	CEL		5.7	89									
APHANIZOMENON	FIL					2.1	29		1.7	34			X
BOTRYOCOCCUS BRAUNII	COL									X			
CARTERIA	CEL					4.2	58						X
CENTRIC DIATOM	CEL					4.2	58				1	16.0	297
CERATIUM HIRUNDINELLA F. BRACHYCERAS	CEL									X			
CHLAMYDOMONAS	CEL					6.4	88		1.7	34	12	20.0	371
CHROOMONAS ACUTA	CEL	12	22.9	355	12	25.6	351	14	10.4	206	11	44.0	817
CHRYSOPHYTAN CELL #9	CEL						X						X
CLOSTERIUM	CEL						X			X			X
COELASTRUM MICROPORUM	COL				1	4.2	58			X			X
COSMARIUM	CEL						X						
COSMARIUM CLEPSYDRA V. NANUM	CEL									X			
CRYPTOMONAS	CEL	1	2.8	44						X			
CRYPTOMONAS EROSA	CEL				3	19.2	263				3	12.0	223
CYCLOTELLA	CEL		8.6	133									
CYMBELLA	CEL												X
EUDORINA ELEGANS	COL												X
EUGLENA	CEL		2.8	44									
EUGLENA #1	CEL						X			X			X
EUGLENA #2	CEL						X						
EUGLENA #3	CEL						X						
FRAGILARIA CROTONENSIS	CEL									X			
GLENODINIUM OCULATUM	CEL						X						
GOMPHONEMA	CEL												X
GOMPHOSPHAERIA	COL									X			
LYNGBYA	FIL								1.7	34			
LYNGBYA LAGERHEIMII	FIL									X			X
MELOSIRA DISTANS	CEL	3	17.1	266	1	4.2	58	3	19.4	206	1	5.3	99
MELOSIRA GRANULATA	CEL			X			X	11	44.8	891			X
MELOSIRA GRANULATA V. ANGUSTISSIMA	CEL			X						X			X
MELOSIRA GRANULATA V. ANGUSTISSIMA F. SPIRALIS	CEL									X			
MELOSIRA VARIANS	CEL									X			
MERISMOPEDIA MINIMA	COL												X
MICROCYSTIS AERUGINOSA	COL												X
MICROCYSTIS INCERTA	COL								1.7	34			
NAVICULA	CEL			X									X
NITZSCHIA	CEL		2.8	44									X
NITZSCHIA #1	CEL									X		2.6	49
OOCYSTIS	CEL									X			
OSCILLATORIA	FIL									X			
OSCILLATORIA #1	FIL			X					1.7	34			X
OSCILLATORIA #2	FIL												X
PEDIASTRUM DUPLEX V. RETICULATUM	COL						X			X			
PEDIASTRUM SIMPLEX V. DUODENARIUM	COL						X						
PHACUS	CEL						X						
PTEROMONAS	CEL						X						
SCENEDESMUS ACUMINATUS	COL	1	5.7	89									
SCENEDESMUS DENTICULATUS	COL									X			
SCENEDESMUS DIMORPHUS	COL					2.1	29						X
SCENEDESMUS INTERMEDIUS	COL	3	17.1	266									X
SCENEDESMUS OPOLIENSIS	COL						X						X
SCENEDESMUS QUADRICAUDA	COL									X			X
SCHROEDERIA SETIGERA	CEL					2.1	29		3.5	69			X
SKELETONEMA POTAMUS	CEL		5.7	89		2.1	29						X
SPHAEROCYSTIS SCHROETERI	COL												X
STEPHANODISCUS	CEL				3	21.3	292						
STEPHANODISCUS ASTRAEA V. MINUTULA	CEL							12	12.1	240			
SYNEDRA	CEL								3.5	69			
TETRAEDRON MINIMUM	CEL								1.7	34			
TETRASTRUM STAUROGENIAEFORME	COL		8.6	133			X						
TRACHELOMONAS	CEL												X
TRACHELOMONAS #2	CEL									X			
TRACHELOMONAS #3	CEL									X			
TRACHELOMONAS INTERMEDIA	CEL						X			X			
TRACHELOMONAS VOLVOCINA	CEL						X			X			
TREUBARIA	CEL									X			
TOTAL				1552			1371			1988			1856

LAKE NAME: FT. COBB RES.
STORET NUMBER: 4005

NYGAARD TROPHIC STATE INDICES

DATE	04 01 74	06 11 74	10 24 74
MYXOPHYCEAN	1.67 E	1.60 E	1.50 E
CHLOROPHYCEAN	4.33 E	3.20 E	2.00 E
EUGLENOPHYTE	0.39 E	0.37 E	0.38 E
DIATOM	0.50 E	3.00 E	4.00 E
COMPOUND	9.67 E	7.80 E	5.50 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 01 74	06 11 74	10 24 74
GENUS	05	07	05
SPECIES	03	03	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 01 74	06 11 74	10 24 74
AVERAGE DIVERSITY	H	1.98	3.64	3.38
NUMBER OF TAXA	S	45.00	54.00	45.00
NUMBER OF SAMPLES COMPOSITED	M	3.00	3.00	3.00
MAXIMUM DIVERSITY	MAXH	5.49	5.75	5.49
MINIMUM DIVERSITY	MINH	0.12	0.14	0.36
TOTAL DIVERSITY	D	10054.44	18294.64	4674.54
TOTAL NUMBER OF INDIVIDUALS/ML	N	5078.00	5026.00	1383.00
EVENESS COMPONENT	J	0.36	0.63	0.62
RELATIVE EVENESS	RJ	0.35	0.63	0.59
MEAN NUMBER OF INDIVIDUALS/TAXA	L	112.84	93.07	30.73
NUMBER/ML OF MOST ABUNDANT TAXON	K	2443.00	1138.00	268.00

LAKE NAME: FT. COPB RES.
STORET NUMBER: 4005

CONTINUED

TAXA	FORM	04 01 74 IS	04 01 74 %C	04 01 74 ALGAL UNITS PER ML	06 11 74 IS	06 11 74 %C	06 11 74 ALGAL UNITS PER ML	10 24 74 IS	10 24 74 %C	10 24 74 ALGAL UNITS PER ML
ACTINASTRUM GRACILIMUM	CEL			X						X
ANABAENA	FIL					1.4	69			
ANABAENA #1	FIL							14	6.1	112
ANKISTRODESMUS FALCATUS	CEL					1.4	69			
ANKISTRODESMUS FALCATUS V. ACICULARIS	CEL	15	2.5	129						
APHANIZOMENON FLOS-AQUAE	FIL			X		0.7	34		1.6	22
BOTRYOCOCCUS BRAUNII	COL			X						X
CARTERIA	CEL				11	22.6	1138		1.6	22
CENTRIC DIATOM	CEL	11	48.1	2443						
CERATIUM HIRUNDINELLA F. BRACHYCERAS	CEL						X			X
CHLOROCOCCALEAN COLONY #9	CEL					2.0	103			
CHLOROPHYTAN FLAGELLATED COLONY	COL						X			
CHROOCOCCUS	COL						X			
CHROOMONAS ACUTA	CEL	12	35.4	1800	15	15.6	793	15	19.4	268
CLOSTERIUM #1	CEL			X			X			
CLOSTERIUM #2	CEL			X		0.7	34			
CLOSTERIUM #3	CEL						X			X
CLOSTERIUM #4	CEL								3.3	45
CLOSTERIUM #5	CEL									X
COELASTRUM	COL			X						
COELASTRUM MICROPORUM	COL						X			X
COELASTRUM RETICULATUM V. POLYCHAEDON	COL						X		1.6	22
COELOSPHAERIUM NAEGELIANUM	COL						X			
COELOSPHAERIUM PALLIDUM	COL		1.3	64					8.1	112
COSCINODISCUS	CEL							12	19.4	268
CLOSMARIUM #1	CEL						X			X
COSMARIUM #2	CEL									X
COSMARIUM #3	CEL									X
CRUCIGENIA	COL					0.7	34			
CRUCIGENIA TETRAPEDIA	CEL			X						
CRYPTOMONAS	CEL								3.3	45
CRYPTOMONAS EROSA	CEL	33	3.8	193	12	15.1	758			
CYCLOTELLA	CEL						X			
CYMATOPLEURA SOLEA	CEL			X						
CYMBELLA	CEL						X			
CYST	CEL			X						
DACTYLOCOCCOPSIS	CEL		1.3	64						
DICTYOSPHAERIUM PULCHELLUM	COL			X			X		1.6	22
DINOBRYON DIVERGENS	CEL	14	3.2	161						
ELAKATOTHRIX GELATINOSA	CEL					4.1	207			
EUDORINA ELEGANS	COL						X			
EUGLENA #1	CEL						X			
EUGLENA #2	CEL						X			
EUGLENA #3	CEL									X
EUGLENA #4	CEL									X
EUGLENA ACUS	CEL			X			X			X
EUGLENA EHRENBERGII	CEL						X			
EUGLENA GRACILIS	CEL			X						
EUGLENA OXYURIS V. MINOR	CEL			X			X			X
EUGLENA SUBEHRENBERGII	CEL									X
EUGLENA TRIPTERIS	CEL			X						
FRAGILARIA	CEL			X						
GLENODINIUM GYMNODINIUM	CEL					0.7	34			
GLENODINIUM GYMNODINIUM V. BISCUTELLIFORME	CEL									X
GOLENKINIA	CEL									X
GYMNOSTIGMA ?	CEL			X			X			
KIRCHNERIELLA CONTORTA	COL					0.7	34			
LEPOCINCLIS	CEL						X			X
MELOSIRA DISTANS	CEL				14	6.2	313			X
MELOSIRA GRANULATA	CEL			X		0.7	34			X
MELOSIRA GRANULATA V. ANGUSTISSIMA	CEL		0.6	32			X			X
MERISMOPEDIA MINIMA	COL								1.6	22
MERISMOPEDIA TENUISSIMA	COL					1.4	69			
MESOSTIGMA VIRIDIS	CEL					0.7	34			
MICROCYSTIS AERUGINOSA	COL						X			X
MICROCYSTIS INCERTA	COL					0.7	34		1.6	22
NAVICULA	CEL			X						
NITZSCHIA	CEL		1.3	64					1.6	22
NITZSCHIA VERMICULARIS	CEL			X						
OOCYSTIS	CEL		0.6	32		2.0	103			X
OSCILLATORIA #1	FIL			X			X	11	17.8	246
OSCILLATORIA #2	FIL									X
OSCILLATORIA LIMNETICA	FIL			X						
PEDIASTRUM DUPLEX V. RETICULATUM	COL			X		0.7	34			

LAKE NAME: FT. CUPR RES.
STORET NUMBER: 4005

CONTINUED

TAXA	FORM	04 01 74 BS	04 01 74 ZC	04 01 74 ALGAL UNITS PER ML	06 11 74 BS	06 11 74 ZC	06 11 74 ALGAL UNITS PER ML	10 24 74 BS	10 24 74 ZC	10 24 74 ALGAL UNITS PER ML
PEDIASTRUM SIMPLEX										
V. DUODENARIUM	COL			X			X	13	6.4	89
PERIDINIUM INCONSPICUUM	CEL			X						
PHACUS	CEL									X
PHACUS CURVICAUDA	CEL			X			X			
PHACUS HELIKOIDES	CEL			X				1	1.6	22
PHACUS MEGALOPSIS	CEL			X						
PHACUS PSEUDONORDSTEDTII	CEL					0.7	34			
PHACUS TORTUS	CEL						X			
SCENEDESMUS ARCUATUS	COL									X
SCENEDESMUS BALATONICUS	COL									X
SCENEDESMUS BIJUGA	COL					0.7	34			
SCENEDESMUS QUADRICAUDA	COL		0.6	32		0.7	34			
SCHROEDERIA SETIGERA	CEL					3.4	172			X
SKELETONEMA POTAMOS	CEL					3.4	172			
SPHAEROCYSTIS SCHROETERI	COL			X		1.4	69	1	1.6	22
STAURASTRUM #1	CEL			X						
STAURASTRUM #2	CEL						X			
STAURASTRUM LEPTOCLADUM V. ?	CEL									X
STEPHANODISCUS ASTRAEA V. MINUTULA	CEL			X	13	11.0	552			
SYNEDRA ACUS	CEL		0.6	32						
SYNEDRA ULNA	CEL			X						
TETRAEDRON GRACILE	CEL			X		0.7	34			
TETRAEDRON GRACILE V. EXCAVATUM	CEL									X
TETRASTRUM ELEGANS	COL		0.6	32						
TOTAL				5078			5026			1383

LAKE NAME: FORT SUPPLY RES.
STORET NUMBER: 4006

NYGAARD TROPHIC STATE INDICES

DATE	03 29 74	06 10 74	10 24 74
MYXOPHYCEAN	1.50 E	0.50 E	1.33 E
CHLOROPHYCEAN	4.00 E	3.25 E	4.67 E
EUGLENOPHYTE	0.27 E	0.20 ?	0.28 E
DIATOM	0.43 E	0.40 E	0.29 ?
COMPOUND	8.50 E	5.00 E	8.33 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 29 74	06 10 74	10 24 74
GENUS	14	06	16
SPECIES	03	03	03

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 29 74	06 10 74	10 24 74
AVERAGE DIVERSITY	H	2.74	2.63	3.38
NUMBER OF TAXA	S	31.00	33.00	39.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	2.00	2.00
MAXIMUM DIVERSITY	MAXH	4.95	5.04	5.29
MINIMUM DIVERSITY	MINH	0.07	0.23	0.19
TOTAL DIVERSITY	D	17067.46	4484.15	6416.20
TOTAL NUMBER OF INDIVIDUALS/ML	N	6229.00	1705.00	2490.00
EVENESS COMPONENT	J	0.55	0.52	0.64
RELATIVE EVENESS	RJ	0.55	0.53	0.63
MEAN NUMBER OF INDIVIDUALS/TAXA	L	200.94	51.67	63.85
NUMBER/ML OF MOST ABUNDANT TAXON	K	3098.00	682.00	557.00

LAKE NAME: FORT SUPPLY RES.
STORET NUMBER: 4956

CONTINUED

TAXA	FORM	06 29 74 IS	06 29 74 %C	06 29 74 ALGAL UNITS PER ML	08 10 74 IS	08 10 74 %C	08 10 74 ALGAL UNITS PER ML	10 24 74 IS	10 24 74 %C	10 24 74 ALGAL UNITS PER ML
ANKISTRODESMUS	CEL	1	1.1	70						
ANKISTRODESMUS FALCATUS	CEL				1	0.6	146	1	2.4	59
APHANIZOMENON ?	FIL									X
CARTERIA	CEL									X
CHLAMYDOMONAS	CEL				2	1.2	243	2	14.1	352
CHROOMONAS	CEL			X						
CHROOMONAS ACUTA	CEL	5	5.7	352	1	1.4	195	1	10.6	264
CLOSTERIUM	CEL	1	1.1	70						
CLOSTERIUM #1	CEL			X			X		1.2	29
CLOSTERIUM ACICULARE	CEL						X		1.2	29
COELASTRUM MICROPORUM	COL			X			X			X
COELOSPHAERIUM ? PALLIDUM	COL					2.9	49			
COSMARIUM	CEL									X
COSMARIUM #1	CEL						X			
COSMARIUM #2	CEL						X			
CRUCIGENIA QUADRATA	CEL	1	1.1	70					4.7	117
CRYPTOMONAS	CEL						X		2.4	59
CRYPTOMONAS EROSA	CEL	1	0.6	35						
CRYPTOMONAS REFLEXA	CEL	1	0.6	35						
CYCLOTELLA MENEGHINIANA	CEL	1	5.7	352						
CYMBELLA #1	CEL			X						
CYMBELLA #2	CEL			X						
DACTYLOCOCCOPSIS	CEL	2	2.3	141						
DIATOMA	CEL			X						
DICTYOSPHAERIUM PULCHELLUM	COL									X
DIPLONEIS SMITHII F. ELLIPTICA ?	CEL	14	2.3	141			X		1.2	29
DIPLOPSALIS ACUTA	CEL						X			
ELAKATOTHRIX	COL	1	0.6	35						
ELAKATOTHRIX GELATINOSA	CEL						X			
EUGLENA	CEL						X			
EUGLENA #1	CEL			X						
EUGLENA OXYURIS V. MINOR	CEL									X
EUGLENA TRIPTERIS ?	CEL									X
FLAGELLATE #2	CEL	1	1.7	106						
FRAGILARIA	CEL									X
KIRCHNERIELLA	CEL	11	49.7	3098						X
KIRCHNERIELLA CONTORTA	COL				1	5.7	97			
MELOSIRA	CEL									X
MELOSIRA GRANULATA	CEL			X						
MELOSIRA GRANULATA V. ANGUSTISSIMA	CEL	1	1.1	70			X			
MERISMOPEDIA TENUISSIMA	COL						X			
MICROCYSTIS AERUGINOSA	COL									X
MICROCYSTIS INCERTA	COL	12	10.2	634				13	15.3	381
NITZSCHIA	CEL								1.2	29
NITZSCHIA #1	CEL								1.2	29
NITZSCHIA #2	CEL					2.9	49			X
NITZSCHIA #3	CEL						X			
NITZSCHIA ACICULARIS	CEL	1	1.1	70						
NITZSCHIA FILIFORMIS	CEL			X						
NITZSCHIA LONGISSIMA V. REVERSA	CEL						X			
NITZSCHIA TRYBLIONELLA V. DEBILIS	CEL						X			
OOCYSTIS	CEL	13	7.9	493	11	40.0	682	14	14.1	352
OSCILLATORIA	FIL	1	6.8	422						
OSCILLATORIA AGARDHII	FIL								2.4	59
PEDIASTRUM BORYANUM	COL						X			X
PEDIASTRUM DUPLEX V. RETICULATUM	COL						X			X
PENNATE DIATOM	CEL									X
PHACUS	CEL						X		1.2	29
PHACUS #2	CEL			X						
PHACUS ACUMINATUS	CEL			X						
PHACUS HELIKOIDES	CEL									X
PHACUS MEGALOPSIS	CEL						X			
PLEUROSIGMA	CEL			X						
SCENEDESMUS ARCUATUS V. PLATYDISCA	COL									X
SCENEDESMUS INTERMEDIUS	COL						X			X
SCENEDESMUS PROTUBERANS	COL						X			
SCENEDESMUS QUADRICAUDA	COL			X			X			
SCENEDESMUS RACIBORSKII	COL								1.2	29
SCHROEDERIA SETIGERA	CEL	1	0.6	35	1	2.9	49		1.2	29
SPHAEROCYSTIS SCHROETERI	COL						X		1.2	29
STEPHANODISCUS ASTRAEA V. MINUTULA	CEL				2	11.4	195	11	22.4	557
SYNEDRA ULNA	CEL									X
TETRASTRUM STAUROGENIAEFORME	COL						X		1.2	29
TRACHELOMONAS INTERMEDIA	CEL									X
TOTAL				6229			1705			2490

LAKE NAME: TOSS DAM RES.
STORET NUMBER: 4007

NYGAARD TROPHIC STATE INDICES

DATE	03 29 74	06 10 74	10 24 74
MYXOPHYCEAN	0670 E	4.50 E	2.50 E
CHLOROPHYCEAN	0570 E	4.50 E	2.50 E
EUGLENOPHYTE	0.27 E	0.28 E	0.10 ?
DIATOM	0.40 E	0.50 E	0701 ?
COMPOUND	1870 E	12.5 E	5.50 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 29 74	06 10 74	10 24 74
GENUS	12	07	05
SPECIES	03	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 29 74	06 10 74	10 24 74
AVERAGE DIVERSITY	H	2.72	2.97	1.35
NUMBER OF TAXA	S	30.00	37.00	16.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	3.00	3.00
MAXIMUM DIVERSITY	MAXH	4.91	5.21	4.00
MINUMUM DIVERSITY	MINH	0.13	0.34	0.06
TOTAL DIVERSITY	D	7591.52	3670.92	4363.20
TOTAL NUMBER OF INDIVIDUALS/ML	N	2791.00	1236.00	3232.00
EVENESS COMPONENT	J	0.55	0.57	0.34
RELATIVE EVENESS	RJ	0.55	0.55	0.33
MEAN NUMBER OF INDIVIDUALS/TAXA	L	93.03	33.41	202.00
NUMBER/ML OF MOST ABUNDANT TAXON	K	1029.00	555.00	2471.00

LAKE NAME: FOSS DAM RES.
STORET NUMBER: 4007

CONTINUED

TAXA	FORM	03 29 74 IS	03 29 74 %C	03 29 74 ALGAL UNITS PER ML	06 10 74 IS	06 10 74 %C	06 10 74 ALGAL UNITS PER ML	10 24 74 IS	10 24 74 %C	10 24 74 ALGAL UNITS PER ML
ACTINASTRUM HANTZSCHII										
V. FLUVIATILE	CEL						X			
ANABAENA	FIL						X			
ANKISTRODESMUS	CEL				14	12.1	149			
ANKISTRODESMUS FALCATUS	CEL	1	2.1	59				1	0.7	23
ANKISTRODESMUS FALCATUS										
V. MIRABILIS	CEL	6	6.3	176						
APHANIZOMENON	FIL						X			
CARTERIA	CEL						X			
CENTRIC DIATOM	CEL	1	1.0	29						
CERATIUM HIRUNDINELLA										
F. FURCOIDES	CEL				15	1.7	21			
CHROOMONAS ACUTA	CEL	1	1.0	29	1	5.2	64	1	0.7	23
CLOSTERIUM	CEL						X	14	0.7	23
COELOSPHAERIUM PALLIDUM	COL				13	1.7	21			X
COSMARIUM	CEL				1	3.5	43	1	0.7	23
CRYPTOMONAS	CEL				12	3.5	43	15	0.7	23
CYCLOTELLA MENEGHINIANA	CEL			X			X			
CYMATOPLEURA SOLEA	CEL			X						
CYMBELLA	CEL	1	1.0	29						
DACTYLOCOCCOPSIS	CEL	13	36.9	1029						
DIPLOPSALIS ACUTA	CEL						X			
EUGLENA #1	CEL	1	1.0	29			X			
EUGLENA #2	CEL						X			
EUGLENA ACUS	CEL			X						
EUGLENA SUBEHRENBERGII	CEL						X			
GLENODINIUM	CEL	1	1.0	29						
KIRCHNERIELLA CONTORTA	CEL			X						
LYNGBYA #1	FIL				1	1.7	21			
LYNGBYA #2	FIL			X						
MELOSIRA GRANULATA	CEL	1	1.0	29						
MERISMOPEDIA MINIMA	COL				1	6.9	85			
MICROCYSTIS AERUGINOSA	COL			X			X			
MICROCYSTIS INCERTA	COL									X
NOUGEOTIA	CEL				1	5.2	64			
NAVICULA	CEL	15	5.3	147	1	3.5	43			
NITZSCHIA LONGISSIMA										
V. REVERSA	CEL				1	1.7	21			
NITZSCHIA VERMICULARIS	CEL			X						
OOCYSTIS	CEL						X	1	2.8	92
OSCILLATORIA	FIL			X						
OSCILLATORIA #1	FIL	42	12.6	353	11	44.9	555	11	76.5	2471
OSCILLATORIA #2	FIL	1	1				X	12	12.2	393
OSCILLATORIA #3	FIL						X			
OSCILLATORIA LIMNETICA	FIL	1	2.1	59						
PHACUS CAUDATUS										
V. MINOR	CEL			X			X			
PHACUS MEGALOPSIS	CEL				1	1.7	21			
PLEUROSIGMA	CEL			X						
RAPHIDIOPSIS	FIL							1	2.1	69
RHOICOSPHENIA CURVATA	CEL			X						
SCENEDESMUS BIJUGA	COL			X	1	1.7	21			
SCENEDESMUS DIMORPHUS	COL			X			X			X
SCENEDESMUS QUADRICAUDA	COL						X			
SPHAEROCYSTIS SCHROETERI	COL						X			
STEPHANODISCUS	CEL				1	3.5	43			
STEPHANODISCUS ASTRAEA										
V. MINUTULA	CEL	14	4.2	118						
SURIRELLA	CEL						X			
SURIRELLA #9	CEL			X						
SURIRELLA OVATA	CEL			X						
SYNEDRA	CEL	11	24.2	676						
SYNEDRA DELICATISSIMA	CEL						X	13	0.7	23
SYNEDRA ULNA	CEL			X						
TETRAEDRUM MINIMUM										
V. SCROBICULATUM	CEL						X	1	2.1	69
TETRASTRUM STAURODENIAEFORME	COL				1	1.7	21			X
TRACHELOMONAS	CEL				1					X
TOTAL				2791			1236			3232

LAKE NAME: LAKE FRANCES
STORET NUMBER: 4008

NYGAARD TROPHIC STATE INDICES

DATE	04 03 74	06 14 74	10 18 74
MYXOPHYCEAN	03/0 E	1.67 E	1.00 E
CHLOROPHYCEAN	03/0 E	2.00 E	3.00 E
EUGLENOPHYTE	0.17 ?	0.55 E	0.62 E
DIATOM	0.42 E	0.67 E	2.00 E
COMPOUND	12/0 E	7.00 E	9.50 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 03 74	06 14 74	10 18 74
GENUS	09	01	05
SPECIES	03	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 03 74	06 14 74	10 18 74
AVERAGE DIVERSITY	H	3.02	2.37	2.46
NUMBER OF TAXA	S	30.00	33.00	28.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	2.00	2.00
MAXIMUM DIVERSITY	MAXH	4.91	5.04	4.81
MINUMUM DIVERSITY	MINH	0.18	1.20	0.08
TOTAL DIVERSITY	D	6064.16	587.76	11525.10
TOTAL NUMBER OF INDIVIDUALS/ML	N	2008.00	248.00	4685.00
EVENESS COMPONENT	J	0.62	0.47	0.51
RELATIVE EVENESS	RJ	0.61	0.31	0.51
MEAN NUMBER OF INDIVIDUALS/TAXA	L	66.93	7.52	167.32
NUMBER/ML OF MOST ABUNDANT TAXON	K	476.00	82.00	1745.00

LAKE NAME: LAKE FRANCES
STORET NUMBER: 4008

CONTINUED

TAXA	FORM	74 03 74 IS	74 03 74 %C	74 03 74 ALGAL UNITS PER ML	74 06 14 IS	74 06 14 %C	74 06 14 ALGAL UNITS PER ML	74 10 18 IS	74 10 18 %C	74 10 18 ALGAL UNITS PER ML
ACHNANTHES LANCEOLATA	CEL			X						
ACTINASTRUM GRACILIMUM	CEL						X			X
ANABAENA PLANCTONICA	FIL				12	16.5	41			
ANABAENOPSIS CIRCULARIS	FIL			X						
ANKISTRODESMUS FALCATUS	CEL		3.4	79			X			
ANKISTRODESMUS FALCATUS V. MIRABILIS	CEL								0.7	32
APHANIZOMENON FLOS-AQUAE	FIL				4	8.5	21			
ASTERIONELLA FORMOSA	CEL	3	10.5	211	5	8.5	21			
CENTRIC DIATOMS	CEL	12	22.4	449						
CHLAMYDOMONAS	CEL			X					0.7	32
CHLOROCOCCALEAN COLONY #9	COL									X
CHROOMONAS ACUTA	CEL		13.1	264						
CLOSTERIUM	CEL									X
CLOSTERIUM #1	CEL						X			
COELASTRUM MICROPORUM	COL			X						
COSMARIUM	CEL									X
COSMARIUM #1	CEL						X			
CRYPTOMONAS EROSA	CEL	4	6.6	132	3	25.0	62	3	11.0	517
CYCLOTELLA	CEL							11	37.2	1745
CYMBELLA	CEL			X						X
CYMBELLA #1	CEL						X			
DACTYLOCOCCOPSIS	CEL								1.4	65
DICTYOSPHAERIUM PULCHELLUM	COL		2.6	53					0.7	32
DINOBRYON DIVERGENS	CEL		2.6	53						
ELAKATOTHRIX GELATINOSA	CEL								0.7	32
EUGLENA #1	CEL						X		0.7	32
EUGLENA #2	CEL						X			
EUGLENA #3	CEL						X			
EUGLENA ACUS	CEL						X			X
GLENODINIUM OCULATUM	CEL						X			
GOMPHONEMA	CEL		2.6	53						
GYROSIGMA	CEL			X			X			
MELOSIRA DISTANS	CEL			X			X	5	9.0	420
MELOSIRA GRANULATA	CEL				13	33.1	82			X
MELOSIRA GRANULATA V. ANGUSTISSIMA	CEL					8.5	21			
MELOSIRA GRANULATA V. ANGUSTISSIMA F. SPIRALIS	CEL									X
MELOSIRA ITALICA	CEL	5	9.2	185						
MELOSIRA VARIANS	CEL			X			X			
MESOSTIGMA VIRIDIS	CEL									X
MICROCYSTIS AERUGINOSA	COL						X			
MICROCYSTIS INCERTA	COL									X
NAVICULA	CEL		2.6	53						
NAVICULA #1	CEL						X			
NITZSCHIA	CEL							1	5.5	259
NITZSCHIA #1	CEL						X			
OSCILLATORIA #1	FIL			X						
OSCILLATORIA #2	FIL			X						
OSCILLATORIA #3	FIL						X			
PANDORINA MORUM	COL			X						X
PENNATE DIATOM	CEL			X						
PHACUS CAUDATUS	CEL						X			
PHACUS CURVICAUDA	CEL									X
PHACUS PLEURONECTES	CEL									X
PTEROMONAS ACULEATA	CEL						X			
RAPHIDIOPSIS CURVATA	FIL						X			
SCENEDESMUS BIJUGA	COL						X			
SCENEDESMUS DIMORPHUS	COL									X
SCENEDESMUS DIMORPHUS ?	COL						X			
SCENEDESMUS OPOLIENSIS	COL						X			
SCENEDESMUS QUADRICAUDA	COL						X			
SKELETONEMA POTAMOS	CEL							12	28.3	1325
STAURASTRUM	CEL						X			
STEPHANODISCUS	CEL			X						
STEPHANODISCUS ASTRAEA V. MINUTULA	CEL								4.1	194
SURIRELLA	CEL			X						
SYNEDRA #1	CEL			X						
SYNEDRA #2	CEL			X						
SYNEDRA DELICATISSIMA V. ANGUSTISSIMA	CEL			X						
SYNEDRA SPP.	CEL	11	23.7	476						
SYNEDRA ULNA	CEL			X			X			X
TRACHELOMONAS	CEL			X						
TRACHELOMONAS FLUVIATILIS	CEL						X			
TRACHELOMONAS HISPIDA	CEL									X
TOTAL				2.08			248			4685

LAKE NAME: GRAND LAKE CHEROKEES
STORET NUMBER: 4009

NYGAARD TROPHIC STATE INDICES

DATE	04 02 74	06 14 74	08 29 74	10 21 74
MYXOPHYCEAN	02/0 E	05/0 E	2.50 E	4.00 E
CHLOROPHYCEAN	06/0 E	20/0 E	6.50 E	9.00 E
EUGLENOPHYTE	0.12 ?	0.20 ?	0.44 E	0.15 ?
DIATOM	3.00 E	1.17 E	1.50 E	2.50 E
COMPOUND	12/0 E	37/0 E	16.0 E	20.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 02 74	06 14 74	08 29 74	10 21 74
GENUS	11	14	21	01
SPECIES	00	03	07	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 02 74	06 14 74	08 29 74	10 21 74
AVERAGE DIVERSITY	H	2.63	2.97	3.30	3.12
NUMBER OF TAXA	S	15.00	51.00	49.00	28.00
NUMBER OF SAMPLES COMPOSITED	M	7.00	7.00	7.00	7.00
MAXIMUM DIVERSITY	MAXH	3.91	5.67	5.61	4.81
MINIMUM DIVERSITY	MINH	0.14	0.19	0.17	0.24
TOTAL DIVERSITY	D	3313.93	10424.70	12507.00	4084.08
TOTAL NUMBER OF INDIVIDUALS/ML	N	1171.00	3510.00	3790.00	1309.00
EVENESS COMPONENT	J	0.72	0.52	0.59	0.65
RELATIVE EVENESS	RJ	0.72	0.51	0.58	0.64
MEAN NUMBER OF INDIVIDUALS/TAXA	L	78.07	68.82	77.35	46.75
NUMBER/ML OF MOST ABUNDANT TAXON	K	306.00	1387.00	1430.00	367.00

LAKE NAME: GRAND LAKE CHEROKEES CONTINUED
STUDY NUMBER: 4009

TAXA	FORM	04 22 74			06 14 74			08 29 74			10 21 74		
		BS	ZC	ALGAL UNITS PER ML	BS	ZC	ALGAL UNITS PER ML	BS	ZC	ALGAL UNITS PER ML	BS	ZC	ALGAL UNITS PER ML
ACTINASTRUM GRACILIMUM	CEL						X						
ANKISTRODESMUS FALCATUS	CEL		X						4.4	167		3.5	46
ANKISTRODESMUS FALCATUS V. ACICULARIS	CEL		X										
ANKISTRODESMUS FALCATUS V. MIRABILIS	CEL					2.6	69						X
APHANIZOMENON	FIL						X						
CENTRIC DIATOM	CEL	2	23.8	279		1.3	46						
CERATIUM HIRUNDINELLA F. BRACHYCERAS	CEL						X			X			
CHLAMYDOMONAS	CEL				3	6.6	231		1.3	48			
CHLOROGONIUM	CEL								1.3	48			
CHROOMONAS ACUTA	CEL	1	26.1	306		2.6	92		7.5	286	1	21.0	275
CLOSTERIUM	CEL									X			X
COCCONEIS	CEL												X
COELASTRUM MICROPORUM	COL						X			X			
COELASTRUM RETICULATUM V. POLYCHORDON	COL									X			
CRUCIGENIA TETRAPEDIA	COL					2.6	92						
CRYPTOMONAS	CEL	14	7.2	84	14	2.6	92						
CRYPTOMONAS EROSA	CEL								1.9	71	5	3.5	46
CRYPTOMONAS KEFLEXA	CEL								0.6	24			X
CYCLOTELLA MENEGHINIANA	CEL									X		3.5	46
DICTYOSPHAERIUM PULCHELLUM	COL					0.7	23						X
DIPLOPSALIS ACUTA	CEL						X						
EUASTRUM	CEL									X			
EUGLENA	CEL		4.6	56			X	1	1.9	71			
EUGLENA #1	CEL									X			X
EUGLENA #2	CEL									X			
FLAGELLATE #2	CEL										1	14.1	184
FRANCEIA	CEL						X						
GLENODINIUM	CEL									X			
GOLENKINIA	CEL								0.6	24			
GOLENKINIA RADIATA	CEL										1	3.5	46
GOMPHONEMA PARVULUM	CEL									X			
KIRCHNERIELLA	CEL						X						
LAGERHEIMIA	CEL		X										
LEPOCINCLIS	CEL									X			
MELOSIRA DISTANS	CEL	15	14.3	167		2.6	92		14.5	546	13	28.0	367
MELOSIRA GRANULATA	CEL		4.8	56	11	25.7	902	12	6.3	238	12	7.0	92
MELOSIRA GRANULATA V. ANGUSTISSIMA	CEL					1.3	46			X		3.5	46
MELOSIRA GRANULATA V. ANGUSTISSIMA F. SPIRALIS	CEL									X			
MELOSIRA VARIANS	CEL						X						
MERISMOPEDIA MINIMA	COL									X		1.8	23
MERISMOPEDIA TENUISSIMA	COL									X			
MESOSTIGMA VIRIDIS	CEL						X		1.3	48		3.5	46
MICRACTINIUM	COL	3	9.5	111									
MICROCYSTIS INCERTA	COL					0.7	23		1.9	71			X
NAVICULA CITRUS ?	CEL						X						
NITZSCHIA	CEL						X					3.5	46
NITZSCHIA ACICULARIS	CEL								0.6	24			
NITZSCHIA HANTZSCHIANA	CEL								2.5	95			
NITZSCHIA HOLSATICA	CEL					3.3	116						
NITZSCHIA VERMICULARIS	CEL		X										
OOCYSTIS	CEL						X			X			
OSCILLATORIA	FIL					0.7	23	11	37.7	1430			
OSCILLATORIA #1	FIL		X				X						
OSCILLATORIA #2	FIL		X				X						X
PANDORINA MORUM	COL						X			X			
PEDIASTRUM BIRADIATUM V. LONGECORNUTUM	COL						X						
PEDIASTRUM DUPLEX V. CLATHRATUM	COL									X			
PEDIASTRUM DUPLEX V. RETICULATUM	COL				5	0.7	23						
PEDIASTRUM TETRAS V. TETRAODON	COL												X
PENNATE DIATOM	CEL					0.7	23						
PERIDINIUM QUADRIDENS ?	CEL									X			
PHACUS	CEL						X						
PHACUS ACUMINATUS	CEL									X			
PHACUS MEGALOPSIS	CEL						X						
PHACUS PLEURONECTES	CEL									X			
PHORMIDIUM													X
PTEROMONAS	CEL						X						
PTEROMONAS ACULEATA	CEL									X			
RAPHIDIOPSIS CURVATA	FIL							15	3.1	119			
SCENEDESMUS ACUMINATUS	COL		4.8	56									
SCENEDESMUS BICAUDATUS	COL								1.3	48		3.5	46
SCENEDESMUS BIJUGA	COL								0.6	24			
SCENEDESMUS DENTICULATUS	COL					0.7	23						

LAKE NAME: GRAND LAKE CHERUBEES CONTINUED
STORET NUMBER: 4009

TAXA	FORM	04 02 74 IS	04 02 74 %C	04 02 74 ALGAL UNITS PER ML	06 14 74 IS	06 14 74 %C	06 14 74 ALGAL UNITS PER ML	08 29 74 IS	08 29 74 %C	08 29 74 ALGAL UNITS PER ML	10 21 74 IS	10 21 74 %C	10 21 74 ALGAL UNITS PER ML
SCENEDESMUS DIMORPHUS	COL					X			X			X	
SCENEDESMUS INTERMEDIUS	COL				1.3	46							
SCENEDESMUS INTERMEDIUS V. BICAUDATUS	COL					X							
SCENEDESMUS OPLIQUUS	COL	4.8	96										
SCENEDESMUS PROTUBERANS	COL				0.7	23							
SCENEDESMUS QUADRICAUDA	COL							3.8	143				
SCENEDESMUS QUADRICAUDA V. LONGISPINA F. GRANULATUS	COL								X			X	
SCHROEDERIA SETIGERA	CEL				1.3	46		0.6	24			X	
SKELETONEMA POTAMOS	CEL				0.7	23		5.0	191			X	
SPHAEROCYSTIS SCHROETERI	COL					X							
STEPHANODISCUS ASTRAEA V. MINUTULA	CEL				12	39.5	1387						
SURIRELLA	CEL				0.7	23							
SYNEDRA DELICATISSIMA ?	CEL					X							
SYNEDRA DELICATISSIMA V. ANGUSTISSIMA	CEL								X				
TETRAEDRON MINIMUM	CEL							1.3	48				
TETRAEDRON MUTICUM	CEL					X							
TETRASTRUM STAUROGENIAEFORME	COL				0.7	23							
TRACHELOMONAS	CEL					X			X				
TRACHELOMONAS FLUVIATILIS	CEL								X				
TRACHELOMONAS HISPIDA	CEL											X	
TRACHELOMONAS INTERMEDIA	CEL				0.7	23							
TREUBARIA TRIAPPENDICULATA	CEL					X							
TOTAL				1171		3510			3790			1309	

LAKE NAME: LAKE HEFNER
STORET NUMBER: 4010

NYGAARD TROPHIC STATE INDICES

DATE	03 29 74	06 11 74	10 24 74
MYXOPHYCEAN	2.00 E	6.00 E	5.00 E
CHLOROPHYCEAN	2.00 E	2.00 E	5.00 E
EUGLENOPHYTE	0/04 ?	0.12 ?	0/10 ?
DIATOM	0.33 E	02/0 E	3.00 E
COMPOUND	5.00 E	11.0 E	13.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 29 74	06 11 74	10 24 74
GENUS	01	01	00
SPECIES	02	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 29 74	06 11 74	10 24 74
AVERAGE DIVERSITY	H	2.04	2.68	2.05
NUMBER OF TAXA	S	13.00	15.00	19.00
NUMBER OF SAMPLES COMPOSITED	M	1.00	3.00	3.00
MAXIMUM DIVERSITY	MAXH	3.70	3.91	4.25
MINIMUM DIVERSITY	MINH	0.58	0.11	0.23
TOTAL DIVERSITY	D	373.32	4070.92	1756.85
TOTAL NUMBER OF INDIVIDUALS/ML	N	183.00	1519.00	857.00
EVENESS COMPONENT	J	0.55	0.69	0.48
RELATIVE EVENESS	RJ	0.47	0.68	0.46
MEAN NUMBER OF INDIVIDUALS/TAXA	L	14.08	101.27	45.11
NUMBER/ML OF MOST ABUNDANT TAXON	K	74.00	507.00	556.00

LAKE NAME: LAKE HIENER
STORET NUMBER: 4010

CONTINUED

TAXA	FORM	03 29 74 IS	03 29 74 %C	03 29 74 ALGAL UNITS PER ML	06 11 74 IS	06 11 74 %C	06 11 74 ALGAL UNITS PER ML	10 24 74 IS	10 24 74 %C	10 24 74 ALGAL UNITS PER ML
ANABAENA	FIL				12	11.9	181		1.4	12
APHANIZOMENON FLOS-AQUAE	FIL			X			X		1.4	12
CARTERIA	CEL								0.7	6
CERATIUM HIRUNDINELLA F. FURCOIDES	CEL				1	2.4	36			
CHROOCOCCUS DISPERSUS	COL						X			
CHROOMONAS ACUTA	CEL	14	9.8	16	13	33.4	507		64.9	556
CLOSTERIUM	CEL			X			X		1.4	12
COELASTRUM MICROPORUM	COL									X
COELOSPHAERIUM PALLIDUM	COL			X		2.4	36		8.8	75
CRYPTOMONAS	CEL								0.7	6
CRYPTOMONAS EROSA	CEL			X		2.4	36			
CRYPTOMONAS REFLEXA	CEL	12	9.8	16						
CYCLOTELLA MENEGHINIANA	CEL	13	40.4	74						X
DACTYLOCOCCOPSIS	CEL								3.6	31
DINOBRYON SOCIALE	CEL			X						
DIPLONEIS SMITHII	CEL			X						
GLOEOCYSTIS	COL									X
MASTOGLOIA	CEL			X						
MELOSIRA DISTANS	CEL						X			
MELOSIRA GRANULATA	CEL									X
MICROCYSTIS AERUGINOSA	COL				11	23.8	362		2.1	18
MICROCYSTIS INCERTA	COL					4.7	72			
NITZSCHIA #1	CEL	1	9.8	18						
NITZSCHIA LONGISSIMA V. REVERSA	CEL									X
OOCYSTIS	COL	1	30.1	55	1	11.9	181		1.4	12
PHACUS	CEL					2.4	36			
SCHROEDERIA SETIGERA	CEL			X		4.7	72		2.1	18
SPHAEROCYSTIS SCHROETERI	COL								0.7	6
STEPHANODISCUS	CEL						X		7.9	68
TETRASTRUM GLABRUM	COL								2.9	25
TOTAL				183			1519			857

LAKE NAME: KEYSTONE RES.
STORET NUMBER: 4011

NYGAARD TROPHIC STATE INDICES

DATE	04 02 74	06 12 74	10 23 74
MYXOPHYCEAN	02/0 E	01/0 E	5.00 E
CHLOROPHYCEAN	15/0 E	02/0 E	16.0 E
EUGLENOPHYTE	0.12 ?	0/03 ?	0.24 E
DIATOM	0.46 E	3.00 E	0.30 ?
COMPOUND	25/0 E	06/0 E	29.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 02 74	06 12 74	10 23 74
GENUS	19	05	14
SPECIES	04	00	05

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 02 74	06 12 74	10 23 74
AVERAGE DIVERSITY	H	2.83	1.95	2.51
NUMBER OF TAXA	S	44.00	10.00	47.00
NUMBER OF SAMPLES COMPOSITED	M	9.00	9.00	9.00
MAXIMUM DIVERSITY	MAXH	5.46	3.32	5.55
MINIMUM DIVERSITY	MINH	0.13	0.13	0.05
TOTAL DIVERSITY	D	12500.11	1548.30	32456.81
TOTAL NUMBER OF INDIVIDUALS/ML	N	4417.00	794.00	12931.00
EVENESS COMPONENT	J	0.52	0.59	0.45
RELATIVE EVENESS	RJ	0.51	0.58	0.45
MEAN NUMBER OF INDIVIDUALS/TAXA	L	100.39	79.40	275.13
NUMBER/ML OF MOST ABUNDANT TAXON	K	2146.00	344.00	4551.00

LAKE NAME: KEYSTONE RES. CONTINUED
STORET NUMBER: 4011

TAXA	FORM	04 02 74 IS	04 02 74 %	04 02 74 ALGAL UNITS PER ML	06 12 74 IS	06 12 74 %	06 12 74 ALGAL UNITS PER ML	10 23 74 IS	10 23 74 %	10 23 74 ALGAL UNITS PER ML
ACTINASTRUM GRACILIMUM	COL	1	0.6	26				1	0.1	18
ANABAENOPSIS	CEL							1	0.3	37
ANKISTRODESMUS FALCATUS	CEL							1	3.6	461
ANKISTRODESMUS FALCATUS V. ACICULARIS	CEL			X						
ANKISTRODESMUS FALCATUS V. MIRABILIS	CEL	1	6.0	265						
ASTERIONELLA FORMOSA	CEL			X						
BINUCLEARIA ?	FIL									X
CENTRIC DIATOMS	CEL	11	48.6	2146						
CHLAMYDOMONAS	CEL	1	1.2	53	14	6.7	53	12	27.2	3519
CHROOMONAS ACUTA	CEL	13	11.4	503	12	43.3	344	1	2.1	276
CHRYSOPHYTAN CELL	CEL	12	10.2	450						
CHRYSOPHYTAN CELL #9	CEL							14	2.3	295
CLOSTERIUM #1	CEL									X
COELASTRUM MICROPORUM	COL	1	0.6	26			X			X
CRUCIGENIA APICULATA	COL									X
CRUCIGENIA TETRAPEDIA	COL									X
CRYPTOMONAS	CEL	14	3.6	159						
CRYPTOMONAS EROSA	CEL				11	30.0	238			
CRYPTOMONAS REFLEXA	CEL			X						
CYCLOTELLA	CEL				13	13.4	106			
CYCLOTELLA MENEGHINIANA	CEL			X				13	22.2	2874
DICTYOSPHAERIUM PULCHELLUM	COL			X						X
ENTOMONEIS	CEL								0.1	18
ENTOMONEIS PALUDOSA	CEL	15	1.2	53						X
EUGLENA	CEL	1	3.0	132					0.1	18
GLENODINIUM OCULATUM	CEL							15	1.0	129
GLOEOTRICHIA	CEL			X						
GOMPHONEMA	CEL			X						
LYNGBYA	FIL			X					0.1	18
MELOSIRA DISTANS	CEL	1	1.8	79			X		0.1	18
MELOSIRA VARIANS	CEL			X						
MERISMOPEDIA MINIMA	COL						X			X
MICROCYSTIS INCERTA	COL									X
NAVICULA #1	CEL									X
NAVICULA #2	CEL			X						
NAVICULA #3	CEL			X			X			
NAVICULA CUSPIDATA	CEL									X
NAVICULA PYGMAEA	CEL									X
NITZSCHIA #1	CEL	1	1.2	53					0.4	55
NITZSCHIA #2	CEL								0.4	55
NITZSCHIA #3	CEL			X						
NITZSCHIA ACICULARIS	CEL	4	4.2	185						
NITZSCHIA APICULATA	CEL								0.3	37
NITZSCHIA LONGISSIMA V. REVERSA	CEL			X					0.6	74
NITZSCHIA TRYBLIONELLA V. DEBILIS	CEL								0.4	55
NITZSCHIA TRYBLIONELLA V. DEBILIS ?	CEL			X						
NITZSCHIA VERMICULARIS	CEL		0.6	26						X
OOCYSTIS	CEL		0.6	26			X		0.6	74
OSCILLATORIA #1	FIL									X
OSCILLATORIA #3	FIL			X						
PEDIASTRUM BORYANUM	COL	1	0.6	26						X
PHACUS	CEL									X
PHACUS ACUMINATUS V. PREZEPOLSKII	CEL			X						
PHACUS MEGALOPSIS	CEL								0.3	37
PLEUROSIGMA DELICATULUM	CEL									X
SCENEDESMUS ACUMINATUS	COL	1	0.6	26						
SCENEDESMUS BALATONICUS	COL									X
SCENEDESMUS BIJUGA	COL			X						X
SCENEDESMUS DENTICULATUS	COL	1	0.6	26						
SCENEDESMUS DIMORPHUS	COL								1.3	166
SCENEDESMUS INTERMEDIUS	COL	1	0.6	26					0.3	37
SCENEDESMUS PROTUBERANS	COL			X					0.4	55
SCENEDESMUS QUADRICAUDA	COL	1	0.6	26						
SCHROEDERIA SETIGERA	CEL								0.1	18
SKELETONEMA POTAMOS	CEL	1	1.8	79	15	6.7	53	81	35.2	4551
STEPHANODISCUS	CEL			X						
SURIRELLA	CEL	1	0.6	26						
SURIRELLA ANGUSTA	CEL			X						
SYNEDRA	CEL			X						
TETRASTRUM HETERACANTHUM	COL									X
TETRASTRUM STAUROGENIAEFORME	COL			X						
TRACHELOMONAS #1	CEL								0.1	18
TRACHELOMONAS INTERMEDIA	CEL									X
									0.1	18
TOTAL				4417			794			12931

LAKE NAME: ODLOGAH LAKE
STORET NUMBER: 4012

NYGAARD TROPHIC STATE INDICES

DATE	04 07 74	06 13 74	08 28 74	10 21 74
MYXOPHYCEAN	01/0 E	0/0 O	1.00 E	1.33 E
CHLOROPHYCEAN	05/0 E	02/0 E	2.50 E	3.00 E
EUGLENOPHYTE	0.33 E	0.50 E	1.14 E	0.62 E
DIATOM	1.50 E	1.00 E	5.00 E	2.00 E
COMPOUND	11/0 E	07/0 E	10.0 E	9.00 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 07 74	06 13 74	08 28 74	10 21 74
GENUS	01	04	01	07
SPECIES	00	00	00	02

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 07 74	06 13 74	08 28 74	10 21 74
AVERAGE DIVERSITY	H	2.12	1.46	2.39	1.58
NUMBER OF TAXA	S	17.00	11.00	29.00	41.00
NUMBER OF SAMPLES COMPOSITED	M	6.00	6.00	6.00	6.00
MAXIMUM DIVERSITY	MAXH	4.09	3.46	4.86	5.36
MINUMUM DIVERSITY	MINH	0.19	0.45	0.28	0.11
TOTAL DIVERSITY	D	2734.04	293.46	2791.52	7948.98
TOTAL NUMBER OF INDIVIDUALS/ML	N	1292.00	201.00	1166.00	5031.00
EVENESS COMPONENT	J	0.52	0.42	0.49	0.29
RELATIVE EVENESS	RJ	0.50	0.34	0.47	0.28
MEAN NUMBER OF INDIVIDUALS/TAXA	L	76.00	18.27	40.28	122.71
NUMBER/ML OF MOST ABUNDANT TAXON	K	494.00	80.00	567.00	3783.00

LAKE NAME: DOLOGAH LAKE
STORET NUMBER: 4012

CONTINUED

TAXA	FORM	04 07 74 IS	04 07 74 %	04 07 74 ALGAL UNITS PER ML	06 13 74 IS	06 13 74 %	06 13 74 ALGAL UNITS PER ML	08 26 74 IS	08 26 74 %	08 26 74 ALGAL UNITS PER ML	10 21 74 IS	10 21 74 %	10 21 74 ALGAL UNITS PER ML
ANABAENA	FIL							14	3.0	35			X
ANKISTRODESMUS FALCATUS V. ACICULARIS	CEL			X						X			X
ANKISTRODESMUS FALCATUS V. MIRABILIS	CEL			X									
APHANIZOMENON FLOS-AQUAE	FIL						X						
CENTRIC DIATOM	CEL												X
CERATIUM HIRUNDINELLA F. BRACHYCERAS	CEL										1	1.1	54
CHLAMYDOMONAS	CEL									X			
CHLOROPHYTAN COLONY	COL								6.1	71	13	75.2	3763
CHROOMONAS ACUTA	CEL	12	36.2	494						X			X
CLOSTERIUM #1	CEL									X			X
CLOSTERIUM #2	CEL												
CLOSTERIUM #3	CEL									X			X
COELASTRUM ?	COL												
COELASTRUM MICROPORUM	COL										1	0.5	27
CRUCIGENIA TETRAPEDIA	COL												
CRYPTOMONAS	CEL			X				3	15.2	177	2	3.8	190
CRYPTOMONAS EROSA	CEL												
CRYPTOMONAS SPP.	CEL	11	29.4	380							3	8.1	408
CYCLOTELLA MENEGHINIANA	CEL												X
DACTYLICOCCOPSIS	CEL	1	5.9	76									X
DIPLOPSALIS ACUTA	CEL									X			X
EUGLENA #1	CEL												X
EUGLENA #2	CEL												
EUGLENA #3	CEL			X						X			
EUGLENA #5	CEL							1	3.0	35			
EUGLENA ACUS	CEL												
EUGLENA GRACILIS										X			
EUGLENA OXYURIS V. MINOR	CEL									X			
EUGLENA TRIPTERIS	CEL										1	0.5	27
GLENODINIUM	CEL												X
GLENODINIUM OCULATUM	CEL							1	3.0	35			X
GLOEOCYSTIS	COL												
GOMPHONEMA	CEL			X						X			
GYROSIGMA	CEL						X						
MANTZSCHIA	CEL						X						X
LEPOCINCLIS	CEL												
MELOSIRA #2	CEL						X			X	1	2.7	136
MELOSIRA DISTANS	CEL	13	17.6	228	11	42.8	86	11	48.5	567	1	0.5	27
MELOSIRA GRANULATA	CEL												X
MELOSIRA GRANULATA V. ANGUSTISSIMA	CEL									X			
MICROCYSTIS INCERTA	COL									X	1	1.1	54
NAVICULA	CEL			X									
NITZSCHIA	CEL						X				1	0.5	27
NITZSCHIA #1	CEL				12	42.8	86						
OOCYSTIS	CEL						X						
PEDIASTRUM DUPLEX V. RETICULATUM	COL									X			X
PEDIASTRUM SIMPLEX V. DUODENARIUM	COL												
PENNATE DIATOM	CEL										1	1.1	54
PERIDINIUM QUADRIDENS	CEL									X			X
PHACUS	CEL												X
PHACUS CAUDATUS	CEL									X			X
PHACUS CURVICAUDA	CEL												
PHACUS PSEUDONORDSTEDTII	CEL									X			X
PTEROMONAS	CEL			X									
RHODOMONAS ? MINUTA	COL				13	14.4	29	1	3.0	35			
SCENEDESMUS BICAUDATUS	COL			X									X
SCENEDESMUS DENTICULATUS	COL			X							1	0.5	27
SCENEDESMUS DIMORPHUS	COL												X
SCENEDESMUS QUADRICAUDA	CEL										14	3.2	103
SCHROEDERIA SETIGERA	CEL	14	5.9	76			X	1	6.1	71			
SKELETONEMA POTAMOS	COL									X			
SPHAEROCYSTIS SCHROETERI	CEL			X									
STEPHANODISCUS													X
STEPHANODISCUS ASTRAEA V. MINUTULA	CEL							12	12.2	142			X
SYNEDRA ULNA	CEL												X
TETRAEDRON GRACILE	CEL										1	0.5	27
TETRASTRUM GLABRUM	COL												
TETRASTRUM STAUROGENIAEFORME	CEL	15	2.9	38			X			X			
TRACHELOMONAS	CEL			X									X
TRACHELOMONAS BULLA ?	CEL									X			
TRACHELOMONAS FLUVIATILIS	CEL										1	0.5	27
TRACHELOMONAS INTERMEDIA	CEL												
TOTAL				1292			201			1168			5031

LAKE NAME: TENKILLER FERRY RES.
STORET NUMBER: 4013

NYGAARD TROPHIC STATE INDICES

DATE	04 03 74	06 14 74	08 30 74	10 21 74
MYXOPHYCEAN	0170 E	0170 E	2.50 E	0470 E
CHLOROPHYCEAN	0?0 D	0770 E	4.50 E	1170 E
EUGLENOPHYTE	0?.1 ?	0?08 ?	0.14 ?	0.07 ?
DIATOM	0.87 E	1.25 E	0.60 E	1.00 E
COMPOUND	0870 E	1370 E	9.50 E	1970 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 03 74	06 14 74	08 30 74	10 21 74
GENUS	02	02	08	05
SPECIES	02	02	04	05

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 03 74	06 14 74	08 30 74	10 21 74
AVERAGE DIVERSITY	H	1.79	2.04	3.20	3.03
NUMBER OF TAXA	S	20.00	23.00	32.00	26.00
NUMBER OF SAMPLES COMPOSITED	M	4.00	4.00	4.00	4.00
MAXIMUM DIVERSITY	MAXH	4.32	4.52	5.00	4.81
MINIMUM DIVERSITY	MINH	0.09	0.28	0.13	0.10
TOTAL DIVERSITY	D	4909.97	1785.00	9960.80	10914.06
TOTAL NUMBER OF INDIVIDUALS/ML	N	2743.00	875.00	3119.00	3602.00
EVENESS COMPONENT	J	0.41	0.45	0.64	0.63
RELATIVE EVENESS	RJ	0.41	0.42	0.64	0.63
MEAN NUMBER OF INDIVIDUALS/TAXA	L	137.15	38.04	97.47	128.64
NUMBER/ML OF MOST ABUNDANT TAXON	K	1685.00	369.00	873.00	1328.00

LAKE NAME: TINKILLEK FERRY RES. CONTINUED
STORET NUMBER: 4013

TAXA	FORM	04 03 74			06 14 74			08 30 74			10 21 74		
		IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML
ACHNANTHES MICROCEPHALA	CEL							13	26.0	873			
ANABAENA	FIL						X						
ANKISTRODESMUS FALCATUS	CEL										12	7.0	253
ANKISTRODESMUS FALCATUS V. MIRABILIS	CEL								2.7	83			
APHANOCAPSA	COL								2.7	83			
ASTERIONELLA FORMOSA	CEL			X									
CERATIUM HIRUNDINELLA F. BRACHYCERAS	CEL						X			X			X
CHLAMYDOMONAS	CEL				14	5.3	46						X
CHLOROGONIUM	CEL						X						
CHROOMONAS ACUTA	CEL	14	10.5	289			X				1	8.8	316
COELASTRUM MICROPORUM	COL									X			X
COSMARIUM	CEL									X			
CRYPTOMONAS	CEL	15	1.7	48				15	4.0	125			X
CRYPTOMONAS EROSA	CEL				13	21.0	184						
CYCLOTELLA MENEGHINIANA	CEL	1	3.5	96	12	42.2	369				13	12.3	443
CYMATOPLEURA SOLEA	CEL			X									
CYMBELLA	CEL			X									
DACTYLOCOCCOPSIS	CEL			X							1	3.5	126
EUDORINA ELEGANS	CEL									X			
FLAGELLATE #2	CEL						X				1	3.5	126
FRAGILARIA CROTONENSIS	CEL						X				1	1.7	63
FRANCEIA	CEL									X			
GLENODINIUM	CEL			X						X			
GLENODINIUM GYMNODINIUM	CEL									X			
GOLENKINIA	CEL						X						
GOLENKINIA RADIATA	CEL												X
GOMPHONEMA	CEL			X									X
KIRCHNERIELLA	COL						X				1	1.7	63
LAGERHEIMIA	CEL								2.7	83			
LYNGBYA	FIL									X			
MELOSIRA DISTANS	CEL			X			X				8	10.5	379
MELOSIRA GRANULATA	CEL	12	17.5	481	11	21.0	184				11	36.9	1328
MELOSIRA GRANULATA V. ANGUSTISSIMA	CEL				15	11.6	92						
MELOSIRA GRANULATA V. ANGUSTISSIMA F. SPIRALIS	CEL									X			
MELOSIRA VARIANS	CEL			X									
MERISMOPEDIA GLAUCA	COL								1.3	42			X
MERISMOPEDIA TENUISSIMA	COL												X
MICROCYSTIS INCERTA	COL											3.5	126
NAVICULA #1	CEL		1.7	48									
NAVICULA #2	CEL			X									
NITZSCHIA	CEL		1.7	48									
NITZSCHIA #1	CEL									X			
NITZSCHIA #2	CEL								4.0	125			
NITZSCHIA ACICULARIS	CEL						X		6.7	208			
NITZSCHIA HOLSATICA	CEL						X						
OSCILLATORIA	FIL									X			
PANDORINA MORUM	COL			X									
PEDIASTRUM BIRADIATUM V. LONGECORNUTUM	COL									X			
PEDIASTRUM DUPLEX	COL						X						
PEDIASTRUM SIMPLEX	COL						X						
PEDIASTRUM TETRAS V. TETRADON	COL												
PERIDINIUM INCONSPICUUM	CEL												X
PERIDINIUM QUADRIDENS	CEL									X	15	1.7	63
PHACUS	CEL									X			
RAPHIDIOPSIS	FIL							11	14.7	457			
RHIZOSOLENIA	CEL									X			
RHOICOSPHENIA CURVATA	CEL										1	3.5	126
SCENEDESMUS ABUNDANS	COL						X						
SCENEDESMUS BICAUDATUS	COL												X
SCENEDESMUS BIJUGA	COL												X
SCENEDESMUS DENTICULATUS	COL								1.3	42			
SCENEDESMUS DIMORPHUS	COL												X
SCENEDESMUS QUADRICAUDA	COL						X			X			X
SCHROEDERIA SETIGERA	CEL						X						
SKELETONEMA POTAMOS	CEL			X			X						
STAURASTRUM TETRACERUM	CEL									X			
STEPHANODISCUS	CEL							14	12.0	374			
STEPHANODISCUS #1	CEL			X									
STEPHANODISCUS ASTRAEA V. MINUTULA	CEL	11	61.4	1685									
SYNEDRA	CEL						X	12	13.3	416			
SYNEDRA DELICATISSIMA V. ANGUSTISSIMA	CEL	13	1.7	48									
TETRAEDRON CAUDATUM V. LONGISPINUM	CEL												
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL								5.3	166	14	5.3	190
TRACHELOMONAS	CEL									X			
TRACHELOMONAS VOLVOCINA	CEL												X
TREUBARIA	CEL								1.3	42			
TOTAL				2743			875			3119			3602

LAKE NAME: THUNDERBIRD LAKE
STORET NUMBER: 4014

NYGAARD TROPHIC STATE INDICES

DATE	03 30 74	06 11 74	10 23 74
MYXOPHYCEAN	1.00 E	2.50 E	8.00 E
CHLOROPHYCEAN	2.00 E	2.50 E	3.00 E
EUGLENOPHYTE	0/03 ?	0.40 E	0.09 ?
DIATOM	1.50 E	1.00 E	4.00 E
COMPOUND	6.00 E	6.00 E	18.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 30 74	06 11 74	10 23 74
GENUS	01	00	00
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 30 74	06 11 74	10 23 74
AVERAGE DIVERSITY	H	0.99	1.32	3.07
NUMBER OF TAXA	S	13.00	23.00	22.00
NUMBER OF SAMPLES COMPOSITED	M	3.00	3.00	3.00
MAXIMUM DIVERSITY	MAXH	3.70	4.52	4.46
MINUMUM DIVERSITY	MINH	0.03	0.14	0.15
TOTAL DIVERSITY	D	6511.23	2558.16	5099.27
TOTAL NUMBER OF INDIVIDUALS/ML	N	6577.00	1936.00	1661.00
EVENESS COMPONENT	J	0.27	0.29	0.69
RELATIVE EVENESS	RJ	0.27	0.27	0.68
MEAN NUMBER OF INDIVIDUALS/TAXA	L	505.92	84.26	75.50
NUMBER/ML OF MOST ABUNDANT TAXON	K	5622.00	1366.00	456.00

LAKE NAME: THUNDERBIRD LAKE CONTINUED
STUDY NUMBER: 4014

TAXA	FORM	03 30 74			06 11 74			10 23 74		
		%	%	ALGAL UNITS PER ML	%	%	ALGAL UNITS PER ML	%	%	ALGAL UNITS PER ML
ANABAENA	FIL				4%	2.3%	44			X
ANKISTRODESMUS FALCATUS										
V. ACICULARIS	CEL		0.6%	38						
APHANIZOMENON	FIL	4%	0.6%	38						
APHANIZOMENON FLOS-AQUAE	FIL						X			X
ASTERIONELLA FORMOSA	CEL	12%	5.2%	344						
CARTERIA	CEL						X			X
CHLAMYDOMONAS	CEL							4%	6.7%	111
CHLOROMONAS ACUTA	CEL		1.7%	115	11%	70.5%	1366		11.1%	184
CLOSTERIUM	CEL			X	4%	2.3%	44			X
COELASTRUM MICROPORUM	COL						X			
COELASTRUM SPHAERICUM	COL							4%	4.5%	74
COELOSPHAERIUM	COL								2.2%	37
CRYPTOMONAS	CEL				12%	16.2%	352		4.5%	74
CRYPTOMONAS EROSA	CEL	4%	1.2%	76						
CRYPTOMONAS REFLEXA	CEL		0.6%	38						
CYCLOTELLA MENEGHINIANA	CEL									X
CYCLOTELLA STELLIGERA	CEL									X
CYMBELLA	CEL						X			
DACTYLOCOCCOPSIS	CEL								4.5%	74
DICTYOSPHAERIUM PULCHELLUM	COL						X			
DINOBRYON SOCIALE	CEL			X						
EUASTRUM	CEL						X			
EUGLENA	CEL						X			
KIRCHNERIELLA	CEL		1.7%	115						
MELOSIRA DISTANS	CEL	13%	2.3%	153			X	83%	24.4%	406
MELOSIRA GRANULATA	CEL	11%	85.5%	5622			X	11%	20.0%	332
MERISMOPEDIA MINIMA	COL						X		13.3%	221
MICROCYSTIS AERUGINOSA	COL						X			X
MICROCYSTIS INCERTA	COL						X		6.7%	111
NAVICULA	CEL									X
NITZSCHIA	CEL			X						
OOCYSTIS	CEL						X			
OSCILLATORIA	FIL							12%	2.2%	37
PEDIASTRUM SIMPLEX	COL									X
PHACUS	CEL						X			
PHACUS CAUDATUS										
V. MINOR	CEL						X			
RHOICOSPHENIA CURVATA	CEL						X			
SCENEDESMUS BIJUGA	COL									X
SCHROEDERIA SETIGERA	CEL						X			
STEPHANODISCUS	CEL		0.6%	38						
TETRAEDRON VICTORIAE	CEL						X			
TRACHELOMONAS INTERMEDIA	CEL				13%	6.8%	132			X
TOTAL				6577			1938			1661

LAKE NAME: WISTER RES.
STORET NUMBER: 4015

NYGAARD TROPHIC STATE INDICES

DATE	03 28 74	06 07 74	08 26 74	10 21 74
MYXOPHYCEAN	2.00 E	0.75 E	2.50 E	4.00 E
CHLOROPHYCEAN	14.0 E	03.0 E	2.00 E	4.00 E
EUGLENOPHYTE	0.25 E	1.20 E	0.44 E	0.62 E
DIATOM	1.25 E	1.33 E	0.70 E	0.83 E
COMPOUND	25.0 E	19.0 E	8.50 E	18.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 28 74	06 07 74	08 26 74	10 21 74
GENUS	04	04	01	09
SPECIES	03	00	00	04

SPECIES DIVERSITY AND ABUNDANCE INDICES

		DATE	03 28 74	06 07 74	08 26 74	10 21 74
AVERAGE DIVERSITY	H		3.46	1.23	2.92	2.84
NUMBER OF TAXA	S		41.00	21.00	20.00	29.00
NUMBER OF SAMPLES COMPOSITED	M		2.00	2.00	2.00	2.00
MAXIMUM DIVERSITY	MAXH		5.36	4.39	4.32	4.86
MINIMUM DIVERSITY	MINH		0.29	0.07	0.31	0.10
TOTAL DIVERSITY	D		5864.75	4677.69	1459.68	10567.64
TOTAL NUMBER OF INDIVIDUALS/ML	N		1695.00	3803.00	654.00	3721.00
EVENESS COMPONENT	J		0.65	0.28	0.68	0.58
RELATIVE EVENESS	RJ		0.63	0.27	0.66	0.58
MEAN NUMBER OF INDIVIDUALS/TAXA	L		41.34	181.10	32.70	128.31
NUMBER/ML OF MOST ABUNDANT TAXON	K		325.00	2684.00	251.00	1515.00

LAKE NAME: WISTER RES.
STORET NUMBER: 4015

CONTINUED

TAXA	FORM	05 28 74 IS	05 28 74 %C	05 28 74 ALGAL UNITS PER ML	06 07 74 IS	06 07 74 %C	06 07 74 ALGAL UNITS PER ML	08 26 74 IS	08 26 74 %C	08 26 74 ALGAL UNITS PER ML	10 21 74 IS	10 21 74 %C	10 21 74 ALGAL UNITS PER ML
ANABAENA #1	FIL							14	4.7	31			
ANABAENA #2	FIL									X			
ANABAENA #3	FIL			X			X						
ANKISTRODESMUS FALCATUS	CEL	15	19.2	325									
ANKISTRODESMUS FALCATUS V. MIRABILIS	CEL								4.7	31			
APHANOTHECE	COL									X			
ASTERIONELLA FORMOSA	CEL			X									
ATTHEYA ZACHARIASI	CEL									X			
CARTERIA	CEL			X									
CENTRIC DIATOM	CEL			X									
CERASTERIAS IRREGULARE	CEL						X						
CHLAMYDOMONAS	CEL	3	1.4	33									
CHROOCOCCUS DISPERSUS	COL						X						
CHROOMONAS ACUTA	CEL	12	17.3	293							1	0.8	28
CLOSTERIUM	CEL							1	4.7	31			
CLOSTERIUM ACICULARE	CEL			X									
COELASTRUM CAMBRICUM	COL						X						
COELASTRUM MICROPORUM	COL			X	15	0.8	32						
COSMARIUM	CEL									X	1	0.8	28
CRUCIGENIA APICULATA	COL												X
CRUCIGENIA TETRAPEDIA	COL			X									
CRYPTEMONAS	CEL							1	4.7	31			
CRYPTOMONAS EROSA	CEL			X							14	2.2	83
CRYPTOMONAS REFLEXA	CEL			X									
CRYPTOMONAS SPP.	CEL	13	9.6	163									
CYANOPHYTAN FILAMENT	FIL										1	1.5	55
CYCLOTELLA	CEL												X
DACTYLOCOCCOPSIS	CEL										13	8.1	303
DIATOMA VULGARE	CEL												X
DINOBRYON BAVARICUM	CEL						X						
DINOBRYON SERTULARIA	CEL			X									
EUGLENA	CEL			X			X	1	4.7	31			X
FUNOTIA PECTINALIS	CEL												X
FLAGELLATE	CEL	3	3.8	65									
FLAGELLATES	CEL				13	6.7	254						
GLENODINIUM LOCULATUM	CEL	1	1.9	33									
GYMNODINIUM	CEL			X									
GYMNODINIUM ALBULUM	CEL			X							1	2.2	83
HANTZSCHIA	CEL												X
KIRCHNERIELLA	CEL	1	1.9	33							1	3.7	138
LEPOCINCLIS FUSIFORMIS ?	CEL			X									
LYNGBYA	FIL							1	9.5	62			
MELOSIRA DISTANS	CEL	11	15.3	260	14	1.7	63	11	38.2	250	12	40.7	1515
MELOSIRA GRANULATA	CEL	3	3.8	65	11	75.4	2884	12	14.4	94	11	23.0	854
MELOSIRA GRANULATA V. ANGUSTISSIMA	CEL	14	9.6	163	12	12.5	475			X	1	3.0	110
MELOSIRA GRANULATA V. ANGUSTISSIMA F. SPIRALIS	CEL						X						
MEPISMOPEDIA TENUISSIMA	COL							1	4.7	31			X
MICRACTINIUM PUSILLUM	COL	3	3.8	65									
MICROCYSTIS INCERTA	COL										1	1.5	55
NAVICULA	CEL						X						
NITZSCHIA	CEL												X
NITZSCHIA #2	CEL					2.5	95				5	5.9	220
OOCYSTIS	CEL			X									
OSCILLATORIA	FIL	1	1.4	33									
PANDORINA MORUM	COL						X						
PEDIASTRUM DUPLEX V. RETICULATUM	COL			X									
PEDIASTRUM TETRAS V. TETRAODON	COL									X			
PENNATE DIATOM	CEL			X									
PHACUS	CEL			X									
PHACUS SUECICUS	CEL										1	0.8	28
SCENEDESMUS ABUNDANS	COL			X									
SCENEDESMUS ACUMINATUS	COL			X									
SCENEDESMUS INTERMEDIUS V. BICAUDATUS	COL									X			
SCENEDESMUS QUADRICAUDA	COL	1	1.9	33							1	1.5	55
SKELETONEMA POTAMOS	CEL			X									
SPHAEROCYSTIS SCHROETERI	COL	1	1.9	33									
STEPHANODISCUS	CEL										1	0.8	28
SURIRELLA	CEL			X									
SYNEDRA	CEL	1	1.9	33									
SYNEDRA ACUS	CEL												X
SYNURA ?	CEL										1	1.5	55
TABELLARIA FENESTRATA	CEL						X						
TETRAEDRON GRACILE	CEL									X			
TETRAEDRON MINIMUM	CEL			X									
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL												X

LAKE NAME: SISTER RES.
STORET NUMBER: 4015

CONTINUED

TAXA	FORM	03 28 74 IS	03 28 74 %C	03 28 74 ALGAL UNITS PER ML	06 07 74 IS	06 07 74 %C	06 07 74 ALGAL UNITS PER ML	08 26 74 IS	08 26 74 %C	08 26 74 ALGAL UNITS PER ML	10 21 74 IS	10 21 74 %C	10 21 74 ALGAL UNITS PER ML
TETRAEDRON TRIGONUM	CEL			X									
TETRASTRUM STAUROGENIAEFORME	COL			X									
TRACHELOMONAS	CEL											0.8	28
TRACHELOMONAS #1	CEL						X			X			
TRACHELOMONAS #2	CEL						X						
TRACHELOMONAS #3	CEL						X						
TRACHELOMONAS FLUVIATILIS	CEL												X
TRACHELOMONAS INTERMEDIA	CEL		3.8	65			X	13	4.7	31			
TRACHELOMONAS VOLVOCINA	CEL							1	4.7	31	15	1.5	55
TRACHELOMONAS VOLVOCINA V. COMPESSA	CEL						X						
TOTAL				1695			3803			654			3721

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

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EPA-600/3-79-068		

4. TITLE AND SUBTITLE	5. REPORT DATE
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7. AUTHOR(S) S.C. Hern, V.W. Lambou, F.A. Morris, M.K. Morris, W.D. Taylor, L.R. Williams	8. PERFORMING ORGANIZATION REPORT NO.
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15. SUPPLEMENTARY NOTES

16. ABSTRACT

This is a data report presenting the species and abundance of phytoplankton in the 15 lakes sampled by the National Eutrophication Survey in the State of Oklahoma. Results from the calculation of several water quality indices are also included (Nygaard's Trophic State Index, Palmer's Organic Pollution Index, and species diversity and abundance indices).

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS OPEN ENDED TERMS	c. COSATI Field/Group
*aquatic microbiology lakes *phytoplankton water quality	Oklahoma lake eutrophication Nygaard's trophic indices Palmer's organic pollution indices Species diversity and abundance indices	06 C, M 08 H 13 B

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