

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

3. RECIPIENT'S ACCESSION NO.  
**PB288015**

1. REPORT NO.  
WP #476

2.

5. REPORT DATE  
Prepared Sept., 1978

4. TITLE AND SUBTITLE  
A Compendium of Lake and Reservoir Data Collected by the National Eutrophication Survey in the Central United States

6. PERFORMING ORGANIZATION CODE

7. AUTHOR(S)

8. PERFORMING ORGANIZATION REPORT NO.  
Working Paper #476

9. PERFORMING ORGANIZATION NAME AND ADDRESS  
National Eutrophication Survey  
U.S. Environmental Protection Agency  
200 S. W. 35th St.  
Corvallis, Oregon 97330

10. PROGRAM ELEMENT NO.

11. CONTRACT/GRANT NO.

12. SPONSORING AGENCY NAME AND ADDRESS  
Office of Research and Development  
U. S. Environmental Protection Agency  
401 M Street, S. W.  
Washington, DC 20460

13. TYPE OF REPORT AND PERIOD COVERED  
Final - 1974

14. SPONSORING AGENCY CODE

15. SUPPLEMENTARY NOTES  
Prepared in cooperation with the U.S. Environmental Protection Agency, National Environmental Research Center, Las Vegas, Nevada 89114

16. ABSTRACT  
Morphometric, limnological, and nutrient loading data are summarized for 153 lakes and reservoirs studied during 1974 by the U.S. Environmental Protection Agency's National Eutrophication Survey. The water bodies for which data are summarized are located in the states of Arkansas, Iowa, Kansas, Louisiana, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota, and Texas.

OK

**KEY WORDS AND DOCUMENT ANALYSIS**

17. DESCRIPTORS	D. IDENTIFIERS/OPEN ENDED TERMS	C. COSATI Field/Group
eutrophication lakes nutrients phosphorus nitrogen loading		48G
18. DISTRIBUTION STATEMENT	19. SECURITY CLASS (This Report)	21. NO. OF PAGES 202
	20. SECURITY CLASS (This page)	22. PRICE MF01 PC110

A COMPENDIUM OF LAKE AND RESERVOIR  
DATA COLLECTED BY THE NATIONAL  
EUTROPHICATION SURVEY IN THE  
CENTRAL UNITED STATES  
WORKING PAPER NO. 476

September, 1978

## INTRODUCTION

The National Eutrophication Survey (NES) was initiated in 1972 by the U.S. Environmental Protection Agency (EPA) to investigate the nationwide threat of accelerated eutrophication to freshwater lakes and reservoirs. In conjunction with State environmental agencies, the Survey developed information on nutrient sources, inputs, and impacts on selected freshwater lakes and reservoirs throughout the contiguous United States. In total, over 800 lakes and reservoirs, 4,200 tributaries and lake outlets, and 1,000 sewage treatment plants were included in the sampling programs which involved a joint field effort by EPA personnel, the National Guard of each State, operators of municipal and industrial waste treatment plants, and personnel of the respective State agency responsible for water pollution control activities. For details of the procedures and methods used in the geographical area encompassed in this report, refer to NES Working Paper No. 175, "National Eutrophication Survey Methods, 1973-1976".

One of the primary outputs of the NES program is the individual lake or reservoir report in which are summarized the trophic condition; the nutrient sources, loads, and controllability; and the limiting nutrient. Each report also includes all of the NES data pertaining to the water body, the drainage area, and the nutrient point sources. To make the NES data accessible to many users, data in each lake report have been summarized and compiled in this report which includes information on the water bodies sampled during the third year of the Survey

(1974). Geographically, this compendium includes data on lakes and reservoirs in Arkansas, Iowa, Kansas, Louisiana, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota, and Texas.

Compendia of data on water bodies in other areas of the U.S. have been prepared. Working Paper No. 474 includes data on water bodies sampled in 1972 (northeast and part of north-central U.S.); Working Paper No. 475 provides data on water bodies sampled in 1973 (east, north-central, and southeastern States); and Working Paper No. 477 includes the data obtained in 1975 (Rocky Mountain and far-western States).

#### COMPENDIUM COMPONENTS

In the compendium heading for each water body, the identifiers are given (NAME, STATE, principal COUNTY, STORET NO., WORKING PAPER NO., and NTIS ACCESSION NO.). Following the NAME, the trophic condition of the water body is shown in parentheses.

The trophic condition is based on an assessment of the data collected during the sampling year supplemented by results of past studies, if any, and communications with State personnel. Each water body was categorized as "OLIGOTROPHIC" (low nutrient levels and productivity), "MESOTROPHIC" (moderate nutrient levels and productivity), "EUTROPHIC" (high nutrient levels and productivity), or "HYPEREUTROPHIC" (very high nutrient levels and productivity). For large water bodies, two or more trophic categories maybe indicated; e.g., the major tributary embayments (nearest the nutrient sources) may be eutrophic while the main portion of the water body is mesotrophic.

Following the heading, the data are arranged in five categories:

- I. MORPHOMETRY
- II. PHYSICAL AND CHEMICAL CHARACTERISTICS
- III. BIOLOGICAL CHARACTERISTICS
- IV. NUTRIENT LOADING CHARACTERISTICS
- V. NON-POINT SOURCE NUTRIENT EXPORT

Each of these categories contains related information as discussed below. If data were not obtained, a series of asterisks is shown.

#### I. MORPHOMETRY

The morphometric data were compiled from the literature and/or from information provided by State and Federal personnel.

LAKE TYPE - either of NATURAL origin or resulting from stream IMPOUNDMENT.

DRAINAGE AREA (SQ KM) - the total drainage area (measured to the outlet) in square kilometers.

SURFACE AREA (SQ KM) - the area of the water surface in square kilometers.

MEAN DEPTH (METERS) - the volume of the water body, in cubic meters, divided by the surface area in square meters.

TOTAL INFLOW (CMS) - the mean of the inflows of all tributaries and the immediate drainage in cubic meters per second.

RETENTION TIME (YEARS or DAYS) - a mean value determined by dividing the lake volume, in cubic meters, by the mean annual outflow in cubic meters per unit of time. Note that the outflow maybe less than the total inflow because of evaporation; withdrawals for irrigation, public water supply, or other uses are included in the outflow.

#### II. PHYSICAL AND CHEMICAL CHARACTERISTICS

These data are based on the sampling of each water body in the spring, summer, and fall of 1974. Depending on size, from one to many

sites were sampled, and multiple depths usually were sampled at each site. For every parameter in this category, except Secchi disc depth, the median value is reported. The median represents the middle value of all sampling stations, times, and depths. The mean of the SECCHI DISC depths at all stations and all sampling times is given.

MEDIAN ALKALINITY (MG/L) - total alkalinity, as  $\text{CaCO}_3$ , in milligrams per liter.

MEDIAN CONDUCTIVITY (UMHOS) - specific conductance at  $25^\circ\text{C}$  in micromhos per centimeter.

MEAN SECCHI DISC (METERS) - the mean limit of visibility of a standard Secchi disc in meters.

MEDIAN TOTAL PHOSPHORUS (MG/L) - as P in milligrams per liter.

MEDIAN DISSOLVED PHOSPHORUS (MG/L) - as P in milligrams per liter.

MEDIAN INORGANIC NITROGEN (MG/L) - nitrate + nitrite + ammonia, as N, in milligrams per liter.

MEDIAN TOTAL NITROGEN (MG/L) - Kjeldahl nitrogen + nitrate + nitrite, as N.

### III. BIOLOGICAL CHARACTERISTICS

MEAN CHLOROPHYLL A ( $\mu\text{G/L}$ ) - the mean concentration of all samples, in micrograms per liter.

ALGAL ASSAY CONTROL YIELDS (MG/L-DRY WT) - for many of the water bodies are based on values, in milligrams per liter dry weight, obtained from samples collected during the first (spring) and last (fall) samplings. The values shown represent the range of yields, and the number following in parentheses indicates the number of samples assayed. The test organism was Selenastrum capricornutum Printz.

LIMITING NUTRIENT (no units) - may be determined by two procedures which are (1) the growth response of Selenastrum capricornutum to the addition of various amounts of phosphorus or nitrogen or (2) the ratio of inorganic nitrogen to dissolved phosphorus determined from the sampling data. When the inorganic nitrogen

to dissolved phosphorus ratio is 14/1 or greater, the water body is considered phosphorus limited, whereas ratios of less than 14/1 are considered indicative of nitrogen limitation.

The LIMITING NUTRIENT at each sampling time is given. Except for the first and last sampling dates, the limiting nutrient is based on the N/P ratio. The limiting nutrient for the first and last sampling date generally is based on algal assay results. However, if no value is shown for the ALGAL ASSAY CONTROL YIELD, the limiting nutrient for those dates is determined by the N/P ratio. Where "ND" is shown, nutrient data were not obtained, and the limiting nutrient cannot be determined.

SUMMARY OF PHYTOPLANKTON DATA - the COUNT of individuals, filaments, or colonies per milliliter of sample for each of the five most numerous genera on the date shown. The sum of the units of other genera present in the sample, but not specified, is also included.

#### IV. NUTRIENT LOADING CHARACTERISTICS

Nutrient loads of significant tributaries and the water body outlet(s) were calculated using the results of analyses of from 12 to 14 samples collected from each stream by the State National Guard monthly for a one-year period and stream flow estimates as provided by the U.S. Geological Survey through an interagency agreement. The nutrient loads of the unsampled portion of the drainage areas were estimated from the measured nutrient loads in the sampled streams in the area. Nutrient loads of all streams and the unsampled drainage area were estimated on the basis of a year of average or "normal" stream flow to minimize the influence of extreme hydrological events that may have occurred during the sampling year.

Sewage treatment plant nutrient loads were determined from results of analyses of from 5 to 14 monthly effluent samples and corresponding flow data provided by plant operators or by State agency personnel. For sewage treatment plants which were not sampled and those from which fewer than five samples were received, nutrient discharges were estimated on the basis of the population served by the facility.

For details of sampling procedures and methods of calculation, refer to NES Working Paper No. 175.

A. INPUT - an estimate of all external inputs of nitrogen and phosphorus to the water body.

POINT SOURCE MUNICIPAL (KG/YR) - an estimate of annual nitrogen and phosphorus inputs from municipal sewage treatment plants in kilograms per year.

POINT SOURCE INDUSTRIAL (KG/YR) - an estimate of annual nitrogen and phosphorus inputs from industrial waste treatment plants in kilograms per year.

POINT SOURCE SEPTIC TANKS (KG/YR) - an estimate of annual nitrogen and phosphorus inputs from septic tanks within approximately 90 meters of the shoreline in kilograms per year. If a value is shown for nitrogen but not phosphorus, the estimated phosphorus input was less than 5 kg.

NON-POINT SOURCE (KG/YR) - an estimate of the annual nitrogen and phosphorus inputs from tributaries, immediate drainage, and precipitation in kilograms per year.

TOTAL LOADING (KG/YR) - the sum of all external nitrogen and phosphorus inputs.

LAKE SURFACE AREA LOADING RATE (G/SQ M/YR) - the total loading for the sampling year divided by the lake surface area  
 $(\frac{\text{kg/yr}}{\text{km}^2} \times 10^{-3})$  in grams per square meter of surface area per year.

B. OUTPUT - an estimate of the annual nitrogen and phosphorus discharged through the lake OUTLET(S) (KG/YR) in kilograms per year. Asterisks indicate little or no outlet flow (and output) during the sampling year.



PERCENT RETENTION - the percentage of incoming nitrogen or phosphorus retained in the lake annually:

$$\left( \frac{\text{Input load} - \text{output load}}{\text{input load}} \times 100\% \right).$$

V. NON-POINT SOURCE NUTRIENT EXPORT

STREAM NAME -

MEAN FLOW (CMS) - the mean stream flow in a year of average hydrology in cubic meters per second.

DRAINAGE AREA (SQ KM) - the drainage area of the stream in square kilometers.

MEAN TOTAL P (MG/L) - the mean concentration of total phosphorus in the stream at the sampling site during the year of sampling.

MEAN TOTAL N (MG/L) - the mean concentration of total nitrogen in the stream at the sampling site during the year of sampling.

TOTAL P EXPORT (KG/SQ KM/YR) - the total phosphorus load of the stream (after subtracting known point-source loads) divided by the drainage area, in kilograms per square kilometer per year. Asterisks indicate the phosphorus was less than 0.1 kg if a value is shown for nitrogen.

TOTAL N EXPORT (KG/SQ KM/YR) - the total nitrogen load of the stream (after subtracting known point-source loads) divided by the drainage area, in kilograms per square kilometer per year.

AVAILABILITY OF WORKING PAPERS

Compendium users desiring more detailed information may obtain a copy of the report on the water body of interest. Requests to the National Eutrophication Survey should include the NAME of the water body and the WORKING PAPER NO. as shown in the compendium heading.

Requests may be addressed to:

National Eutrophication Survey, EPA  
 Corvallis Environmental Research Laboratory  
 200 S.W. 35th Street  
 Corvallis, OR 97330

Only limited numbers of the Working Papers can be provided by NES. When these are exhausted, Working Papers can be obtained from:

National Technical Information Service  
Department of Commerce  
Springfield, VA 22161

The NTIS accession number is shown in the compendium heading. A blank or a series of zeros indicates numbers that were not available at the time of this printing; these accession numbers can be obtained from NES at the address shown on page 7.



COMPENDIUM OF NATIONAL EUTROPHICATION SURVEY LAKES IN OKLAHOMA  
(MESOTROPHIC)

WORKING PAPER NO. 5R2, NTIS ACCESSION NO. PB-268 295/AB

NAME - ARBUCKLE LAKE  
COUNTY - MURRAY  
STORET NO. - 4002

I. MORPHOMETRY

LAKE TYPE	DRAINAGE AREA (SQ KM)	SURFACE AREA (SQ KM)	MEAN DEPTH (METERS)	TOTAL INFLOW (CMS)	RETENTION TIME (YEARS)
IMPOUNDMENT	326.30	9.51	9.4	1.340	3.2

II. PHYSICAL AND CHEMICAL CHARACTERISTICS

MEDIAN	MEAN SECCHI DISC (METERS)	TOTAL P (MG/L)	MEDIAN TOTAL P (MG/L)	ORTHOPHOSPHATE P (MG/L)	MEDIAN INORGANIC N (MG/L)	MEDIAN TOTAL N (MG/L)
ALKALINITY (MG/L)	1.4	0.020	0.020	0.008	0.070	0.440
CONDUCTIVITY (UMHOS)	379.					

III. BIOLOGICAL CHARACTERISTICS (LAKE)

MEAN CHLOROPHYLL A (UG/L)	ALGAL ASSAY CONTROL YIELD (MG/L--DRY WT)	LIMITING NUTRIENT AT SAMPLING TIME
7.0	0.2 - 0.3 ( 2)	( 3/30/74) N ( 6/12/74) P (10/23/74) N

SUMMARY OF PHYTOPLANKTON DATA

GENERA	COUNT	GENERA	COUNT
MELOSIRA	11759	MELOSIRA	10/23/74
CHROOMONAS	450	MELOSIRA	196
CYCLOTHELLA	450	OOCYSTIS	164
CRYPTOMONAS	250	SCENEDESMUS	146
SCENEDESMUS	200	ANABAENA	98
OTHER	451	CHROOMONAS	98
		OTHER	558
TOTAL	13560	TOTAL	1260

IV. NUTRIENT LOADING CHARACTERISTICS (LAKE)

A. INPUT	POINT SOURCE MUNICIPAL (KG/YR)	POINT SOURCE INDUSTRIAL (KG/YR)	POINT SOURCE SEPTIC TANKS (KG/YR)	NON-POINT SOURCE (KG/YR)	TOTAL LOADING (KG/YR)
PHOSPHORUS	885.	77.	0.40	3810.	3810.
NITROGEN	28905.	53.	6.4	61220.	61220.

V. NON-POINT-SOURCE NUTRIENT EXPORT

STREAM NAME	MEAN FLOW (CMS)	DRAINAGE AREA (SQ KM)	MEAN TOTAL P (MG/L)	MEAN TOTAL N (MG/L)	TOTAL P EXPORT (KG/SQ KM/YR)	TOTAL N EXPORT (KG/SQ KM/YR)
ROCK CREEK	0.420	101.8	0.095	0.944	11.	123.
GUY SANDY CREEK	0.360	89.1	0.095	1.501	12.	179.

VI. MEAN NUTRIENT CONCENTRATIONS IN UNGAGED STREAMS

STREAM NAME	MEAN TOTAL P (MG/L)	MEAN TOTAL N (MG/L)
HUCKHORN CREEK	0.106	1.403

COMPENDIUM OF NATIONAL EUTROPHICATION SURVEY LAKES IN OKLAHOMA  
(FUTROPHIC)

NAME - LAKE ELSWORTH  
COUNTY - CADDO, COMANCHE  
STONET NO. - 4003

WORKING PAPER NO. 583, NTIS ACCESSION NO. PB-268 381/AB

I. MORPHOMETRY

LAKE TYPE DRAINAGE AREA SURFACE AREA MEAN DEPTH TOTAL INFLOW RETENTION TIME  
(SQ KM) (SQ KM) (METERS) (CMS) (YEARS)  
IMPOUNDMENT 642.30 22.64 5.1 4.260 1.4

II. PHYSICAL AND CHEMICAL CHARACTERISTICS

MEDIAN MEAN SECCHI DISC MEDIAN MEDIAN MEDIAN  
ALKALINITY(MG/L) CONDUCTIVITY(UMHOS) (METERS) TOTAL P(MG/L) ORTHO P(MG/L) INORG N(MG/L) TOTAL N(MG/L)  
150. 367. 1.0 0.037 0.009 0.070 0.620

III. BIOLOGICAL CHARACTERISTICS (LAKE)

MEAN CHLOROPHYLL A ALGAL ASSAY CONTROL YIELD LIMITING NUTRIENT AT SAMPLING TIME  
(UG/L) (MG/L--DRY WT) ( 4/ 1/74) N ( 6/10/74) P (110/24/74) N  
8.4 0.1

SUMMARY OF PHYTOPLANKTON DATA

4/ 1/74	6/10/74	10/24/74	COUNT	GENERA	COUNT
CHROOONAS	2532	CARTERIA	1805	CARTERIA	1352
CRYPTOMONAS	1090	CHLAMYDOMONAS	790	MELOSIRA	230
ANKISTRODESUS	675	CRYPTOMONAS	564	STEPHANODISCUS	201
SYNEDRA	405	STEPHANODISCUS	489	CHROOONAS	115
MELOSIRA	334	ANKISTRODESUS	188	OOCYSTIS	86
OTHER	101	OTHER	977	OTHER	144
TOTAL	5131	TOTAL	4813	TOTAL	2128

IV. NUTRIENT LOADING CHARACTERISTICS(LAKE)

A. INPUT  
POINT SOURCE MUNICIPAL (KG/YR) 1480.  
INDUSTRIAL (KG/YR) \*\*\*\*\*  
4480. PERCENT 15.  
\*\*\*\*\* 45.  
OUTLET(S) (KG/YR) 4665.  
NITROGEN 89633.  
NON-POINT SOURCE (KG/YR) 158970.  
TOTAL LOADING (KG/YR) 5495.  
163610.

V. NON-POINT-SOURCE NUTRIENT EXPORT

STREAM NAME MEAN FLOW (CMS) DRAINAGE AREA (SQ KM) MEAN TOTAL P (MG/L) MEAN TOTAL N (MG/L) TOTAL P EXPORT (KG/SQ KM/YR) TOTAL N EXPORT (KG/SQ KM/YR)  
EAST CACHE CREEK 1.020 164.2 0.044 0.967 8. 210.  
CHANDLER CREEK 0.150 24.4 0.039 1.020 3. 183.  
MISSION CREEK 0.230 40.9 0.035 1.627 6. 255.

VI. MEAN NUTRIENT CONCENTRATIONS IN UNGAUGED STREAMS

STREAM NAME MEAN TOTAL P (MG/L) MEAN TOTAL N (MG/L)  
TAMUE CREEK 0.196 3.505



COMPENDIUM OF NATIONAL EUTROPHICATION SURVEY LAKES IN OKLAHOMA  
 (EUTROPHIC)

NAME - FORT CUHR RESERVOIR  
 COUNTY - CAUDO  
 STONET NO. - 4005

WORKING PAPER NO. 545, NTIS ACCESSION NO. PB-269 564/AB  
 I. MORPHOMETRY

LAKE TYPE	DRAINAGE AREA (SQ KM)	SURFACE AREA (SQ KM)	MEAN DEPTH (METERS)	TOTAL INFLOW (CMS)	RETENTION TIME (YEARS)
IMPOUNDMENT	787.40	16.47	6.4	1.230	7.6
II. PHYSICAL AND CHEMICAL CHARACTERISTICS					
MEDIAN ALKALINITY (MG/L)	CONDUCTIVITY (UMHOS)	MEAN SECCHI DISC (METERS)	MEDIAN TOTAL P (MG/L)	MEDIAN INORG N (MG/L)	MEDIAN TOTAL N (MG/L)
157.	450.	1.1	0.038	0.110	0.760

III. BIOLOGICAL CHARACTERISTICS (LAKE)  
 MEAN CHLOROPHYLL A (UG/L) 0.1 - 3.2 ( 2 ) ( 4 / 1/74 ) N ( 6 / 11/74 ) N ( 10 / 24 / 74 ) N

SUMMARY OF PHYTOPLANKTON DATA

GENERA	COUNT	GENERA	COUNT
CENTRIC DIATOM	2443	CARTERIA	6/11/74
CHROOMONAS	1800	CHROOMONAS	1138
CRYPTOMONAS	193	CRYPTOMONAS	793
DIMORPHYON	161	STEPHANODISCUS	552
ANKISTRODESMUS	129	MELOSTIRA	344
OTHER	353	OTHER	1448
TOTAL	5079	TOTAL	5033

IV. NUTRIENT LOADING CHARACTERISTICS (LAKE)  
 A. INPUT

PHOSPHORUS	POINT SOURCE MUNICIPAL (KG/YR)	POINT SOURCE INDUSTRIAL (KG/YR)	POINT SOURCE SEPTIC TANKS (KG/YR)	NON-POINT SOURCE (KG/YR)	TOTAL LOADING (KG/YR)
NITROGEN	260.	775.	5.	9105.	9370.
H. OUTPUT	775.	16100.	115.	105525.	106415.

V. NON-POINT-SOURCE NUTRIENT EXPORT  
 STREAM NAME

MEAN FLOW (CMS)	DRAINAGE AREA (SQ KM)	MEAN TOTAL P (MG/L)	MEAN TOTAL N (MG/L)	TOTAL P EXPORT (KG/SQ KM/YR)	TOTAL N EXPORT (KG/SQ KM/YR)
COBH CREEK	0.570	341.9	2.448	12.	126.
SPRING CREEK	0.210	134.7	1.983	10.	103.
WILLOW CREEK	0.070	42.7	2.114	14.	110.

COMPENDIUM OF NATIONAL EUTROPHICATION SURVEY LAKES IN OKLAHOMA

NAME - FOMT SUPPLY RESERVOIR (EUTROPHIC)  
 COUNTY - WOODWARD  
 STORET NO. - 4006

WORKING PAPER NO. 586, NTIS ACCESSION NO. PB-268 378/AB

I. MORPHOMETRY

LAKE TYPE DRAINAGE AREA SURFACE AREA MEAN DEPTH TOTAL INFLOW RETENTION TIME  
 (SQ KM) (SQ KM) (METERS) (CMS) (YEARS)  
 IMPOUNDMENT 3869.50 7.61 11.9 2.310 1.6

II. PHYSICAL AND CHEMICAL CHARACTERISTICS

MEDIAN MEAN SECCHI DISC MEDIAN MEDIAN MEDIAN  
 ALKALINITY(MG/L) CONDUCTIVITY(UMHOS) (METERS) TOTAL P(MG/L) ORTHO P(MG/L) INORG N(MG/L) TOTAL N(MG/L)  
 184. 797. 0.4 0.070 0.014 0.135 0.690

III. BIOLOGICAL CHARACTERISTICS (LAKE)

MEAN CHLOROPHYLL A ALGAL ASSAY CONTROL YIELD LIMITING NUTRIENT AT SAMPLING TIME  
 (UG/L) (MG/L--DRY WT) ( 3/29/74) N ( 6/10/74) N (10/24/74) N  
 9.7 \*\*\*\*\*

SUMMARY OF PHYTOPLANKTON DATA

GENERA	COUNT	GENERA	COUNT	GENERA	COUNT
KIRCHNERIELLA	3098	OOCYSTIS	682	STEPHANODISCUS	557
ANACYSTIS(MICROCYSTIS)	634	CHLAMYDOMONAS	243	ANACYSTIS(MICROCYSTIS)	381
OOCYSTIS	493	CHROOMONAS	195	CHLAMYDOMONAS	352
OSCILLATORIA	422	STEPHANODISCUS	146	OOCYSTIS	352
CHROOMONAS	352	ANKISTRODESMUS	243	CHROOMONAS	264
OTHER	1197	OTHER	243	OTHER	588
TOTAL	6196	TOTAL	1704	TOTAL	2494

IV. NUTRIENT LOADING CHARACTERISTICS(LAKE)

A. INPUT  
 POINT SOURCE MUNICIPAL (KG/YR) 980.  
 POINT SOURCE INDUSTRIAL (KG/YR) \*\*\*\*\*  
 POINT SOURCE SEPTIC TANKS (KG/YR) 5.  
 POINT SOURCE NON-POINT SOURCE (KG/YR) 2335.  
 R. OUTPUT TOTAL (KG/YR) 2930. TOTAL 49440.  
 PHOSPHORUS OUTLET(S) (KG/YR) 2670.  
 NITROGEN PERCENT RETENTION 20.  
 NITROGEN LOSS 60715.

V. NON-POINT-SOURCE NUTRIENT EXPORT

STREAM NAME MEAN FLOW (CMS) DRAINAGE AREA (SQ KM) MEAN TOTAL P (MG/L) MEAN TOTAL N (MG/L) TOTAL P EXPORT (KG/50 KM/YR) TOTAL N EXPORT (KG/50 KM/YR)  
 WOLF CREEK 2.120 3589.7 0.038 0.837 0.5 9.  
 BOGGY CREEK 0.090 138.6 0.063 1.583 2.0 32.0  
 UNNAMED CREEK 0.020 23.6 0.060 1.704 1.0 36.  
 EIGHTMILE CREEK 0.020 33.9 0.082 1.473 1.0 29.

VI. MEAN NUTRIENT CONCENTRATIONS IN UNGAGED STREAMS

STREAM NAME MEAN TOTAL P (MG/L) MEAN TOTAL N (MG/L)  
 TURKEY CREEK 0.077 1.736  
 TWENTYMILE CREEK 0.092 1.071

\* ESTIMATED



COMPENDIUM OF NATIONAL EUTROPHICATION SURVEY LAKES IN OKLAHOMA

(EUTROPHIC)

NAME - FOSS RESERVOIR  
 COUNTY - CUSTER  
 STOMET NO. - 4007

WORKING PAPER NO. 587, NTIS ACCESSION NO. PB-269 479/AB

I. MORPHOMETRY

LAKE TYPE	DRAINAGE AREA (SQ KM)	SURFACE AREA (SQ KM)	MEAN DEPTH (METERS)	TOTAL INFLOW (CMS)	RETENTION TIME (YEARS)
IMPOUNDMENT	3859.10	35.61	8.9	2.890	43.7

II. PHYSICAL AND CHEMICAL CHARACTERISTICS

MEDIAN ALKALINITY (MG/L)	CONDUCTIVITY (UMHOS)	MEAN SECCHI DISC (METERS)	TOTAL P (MG/L)	MEDIAN INORG N (MG/L)	TOTAL N (MG/L)
151.	1879.	0.9	0.027	0.090	0.700

III. BIOLOGICAL CHARACTERISTICS (LAKE)

MEAN CHLOROPHYLL A (UG/L)	ALGAL ASSAY CONTROL YIELD (MG/L--DRY WT)	LIMITING NUTRIENT AT SAMPLING TIME
4.9	0.1 - 0.2 ( 2)	( 3/29/74) N ( 6/10/74) P (10/24/74) N

SUMMARY OF PHYTOPLANKTON DATA

GENERA	COUNT	GENERA	COUNT	GENERA	COUNT
DACTYLOCOCCOPSIS	1029	OSCILLATORIA	555	OSCILLATORIA	2864
SYNEDRA	476	ANKISTRODESMUS	149	UOCYSTIS	52
OSCILLATORIA	412	MERTISMOPIEDIA	85	RAPHIDIOPSIS	69
ANKISTRODESMUS	235	CHROOMONAS	64	TETRAEORON	69
NAVICULA	147	MOUGEOTIA	64	ANKISTRODESMUS	23
OTHER	295	OTHER	321	OTHER	116
TOTAL	2794	TOTAL	1238	TOTAL	3233

IV. NUTRIENT LOADING CHARACTERISTICS (LAKE)

A. INPUT	POINT SOURCE MUNICIPAL (KG/YR)	POINT SOURCE INDUSTRIAL (KG/YR)	POINT SOURCE SEPTIC TANKS (KG/YR)	NON-POINT SOURCE (KG/YR)	TOTAL LOADING (KG/YR)
PHOSPHORUS	370.	*****	5.	9300.	9675.
NITROGEN	1105.	*****	160.	193865.	195130.

H. OUTPUT	OUTLET(S) (KG/YR)	PERCENT RETENTION	LAKE SURFACE AREA LOADING RATE (G/SQ M/YR)
PHOSPHORUS	*****	*****	0.27
NITROGEN	*****	*****	5.5

V. NON-POINT-SOURCE NUTRIENT EXPORT

STREAM NAME	MEAN FLOW (CMS)	DRAINAGE AREA (SQ KM)	MEAN TOTAL P (MG/L)	MEAN TOTAL N (MG/L)	TOTAL P EXPORT (KG/SQ KM/YR)	TOTAL N EXPORT (KG/SQ KM/YR)
WASHITA RIVER	2.190	3120.9	0.109	1.653	2.	38.
QUANTENMASTER CREEK	0.430	455.6	0.084	1.675	4.	53.

VI. MEAN NUTRIENT CONCENTRATIONS IN UNGAGED STREAMS

STREAM NAME	MEAN TOTAL P (MG/L)	MEAN TOTAL N (MG/L)
PANTHER CREEK	0.230	1.830
WILD HORSE CREEK	0.075	2.849

COMPENDIUM OF NATIONAL EUTROPHICATION SURVEY LAKES IN OKLAHOMA (EUTROPHIC)

NAME - LAKE FRANCES  
 COUNTY - ADAIR  
 STORET NO. - 400R

WORKING PAPER NO. 58R, NTIS ACCESSION NO. PB-268 267/AB

I. MORPHOMETRY

LAKE TYPE DRAINAGE AREA SURFACE AREA MEAN DEPTH TOTAL INFLOW RETENTION TIME  
 (SQ KM) (SQ KM) (METERS) (CMS) (DAYS)  
 IMPOUNDMENT 1644.60 2.31 1.8 16.470 3.0

II. PHYSICAL AND CHEMICAL CHARACTERISTICS

ALKALINITY (MG/L) CONDUCTIVITY (UMHOS) MEAN SECCHI DISC  
 99. 189. 0.4

III. BIOLOGICAL CHARACTERISTICS (LAKE)

MEAN CHLOROPHYLL A ALGAL ASSAY CONTROL YIELD LIMITING NUTRIENT AT SAMPLING TIME  
 (UG/L) (MG/L--DRY WT) ( 4/ 3/74 ) N ( 6/14/74 ) P  
 8.0 22.1 - 31.5 ( 2 )

SUMMARY OF PHYTOPLANKTON DATA

GENERA	COUNT	GENERA	COUNT	GENERA	COUNT
SYNEDRA	476	MELOSIRA	103	CYCLUSITELLA	1745
CENTRIC DIATOM	449	CRYPTOMONAS	62	SKELETONEMA	1325
CHROONONAS	264	ANARAENA	41	CRYPTOMONAS	517
ASTERIONELLA	211	APHANIZOMFNON	21	MELOSIRA	420
MELOSIRA	185	ASTERIONELLA	21	NITZSCHIA	259
OTHER	424	OTHER	0	OTHER	420
TOTAL	2009	TOTAL	248	TOTAL	4686

IV. NUTRIENT LOADING CHARACTERISTICS (LAKE)

A. INPUT  
 PHOSPHORUS MUNICIPAL (KG/YR) POINT SOURCE INDUSTRIAL (KG/YR) SEPTIC TANKS (KG/YR) NON-POINT SOURCE (KG/YR) TOTAL LOADING (KG/YR)  
 595. 1785. 0.000000 0.000000 84185. 1326215.  
 1069760. 36.70 574.9

V. NON-POINT-SOURCE NUTRIENT EXPORT

STREAM NAME MEAN FLOW (CMS) DRAINAGE AREA (SQ KM) MEAN TOTAL P (MG/L) MEAN TOTAL N (MG/L) TOTAL P EXPORT (KG/SQ KM/YR) TOTAL N EXPORT (KG/SQ KM/YR)  
 ILLINOIS RIVER 13.540 1352.0 0.179 2.603 56. 831.

VI. MEAN NUTRIENT CONCENTRATIONS IN UNGAGED STREAMS

STREAM NAME MEAN TOTAL P (MG/L) MEAN TOTAL N (MG/L)  
 BALLAND CREEK 0.092 2.164

COMPENDIUM OF NATIONAL EUTROPHICATION SURVEY LAKES IN OKLAHOMA

NAME - GRAND LK OF THE CHEHOKEES (EUTROPHIC)  
 COUNTY - HAYES, DELAWARE, CRAIG, OTTAWA  
 STATE NO. - 4009 WORKING PAPER NO. 589, NTIS AC: F5510N NO. PB-268 266/AB

I. MORPHOMETRY

LAKE TYPE DRAINAGE AREA SURFACE AREA MEAN DEPTH TOTAL INFLOW RETENTION TIME  
 (SQ KM) (SQ KM) (METERS) (CMS) (DAYS)  
 IMPOUNDMENT 26671.50 188.18 10.9 194.680 129.0

II. PHYSICAL AND CHEMICAL CHARACTERISTICS

MEDIAN MEAN SECCHI DISC MEDIAN MEDIAN MEDIAN  
 ALKALINITY (MG/L) CONDUCTIVITY (UMHOS) (METERS) (MG/L) ORTHO P (MG/L) INORG N (MG/L) TOTAL N (MG/L)  
 97. 253. 0.8 0.087 0.038 0.740 1.130

III. BIOLOGICAL CHARACTERISTICS (LAKE)

MEAN CHLOROPHYLL A ALGAL ASSAY CONTROL YIELD LIMITING NUTRIENT AT SAMPLING TIME  
 (UG/L) (MG/L--DRY WT) (MG/L--DRY WT) ( 4/ 2/74 ) P ( 6/17/74 ) P ( 8/29/74 ) P ( 10/21/74 ) P  
 6.8 2.0 - 6.2 ( 3 ) 6.14/74

SUMMARY OF PHYTOPLANKTON DATA

4/ 2/74	6/14/74	8/29/74	10/21/74	COUNT
GENERA	GENERA	GENERA	GENERA	GENERA
CHROOMONAS	306	1387	1430	413
CENTRIC DIATOM	279	MELOSIRA	MELOSIRA	275
MELOSIRA	223	CHROOMONAS	CHROOMONAS	184
SCENEDESIMUS	112	NITZSCHIA	FLAGELLATES	46
MICRACETINIUM	111	CHROOMONAS	ANKISTRODESIMUS	46
OTHER	139	OTHER	CRYPTOMONAS	344
TOTAL	1170	TOTAL	TOTAL	1308

IV. NUTRIENT LOADING CHARACTERISTICS (LAKE)

A. INPUT  
 POINT SOURCE INDUSTRIAL (KG/YR) 12585.  
 MUNICIPAL (KG/YR) 34600.  
 NITROGEN 45125.  
 B. OUTPUT  
 OUTLET(S) (KG/YR) 684480.  
 PHOSPHORUS 10157185.  
 NITROGEN 47.  
 PERCENT RETENTION 25.  
 LAKE SURFACE AREA LOADING RATE (G/SO M/YR) 6.90  
 72.2

V. NON-POINT-SOURCE NUTRIENT EXPORT

MEAN FLOW (CMS) 100.550  
 DRAINAGE AREA (SQ KM) 15218.8  
 MEAN TOTAL P (MG/L) 0.249  
 MEAN TOTAL N (MG/L) 1.975  
 TOTAL P EXPORT (KG/SO KM/YR) 53.  
 TOTAL N EXPORT (KG/SO KM/YR) 437.  
 MELOSHO RIVER 0.460 64.5 0.455 2.577 77.  
 HORSE CREEK 0.550 88.4 1.516 5.484 170.  
 TAH CREEK 51.810 6642.2 0.244 2.955 55.  
 SPRING RIVER 1.650 233.4 0.092 1.658 10.  
 LUST CREEK 1.900 250.5 0.027 1.334 6.  
 BUFFALO CREEK 21.360 2258.5 0.039 1.374 12.  
 ELK RIVER 0.880 124.1 0.050 1.634 11.  
 MONEY CREEK

VI. MEAN NUTRIENT CONCENTRATIONS IN UNGAGED STREAMS

MEAN TOTAL P (MG/L) 0.117  
 MEAN TOTAL N (MG/L) 1.181  
 UGEECHEE CREEK

SYCAMORE CREEK

0.038

2.248

• ESTIMATED



COMPENDIUM OF NATIONAL EUTROPHICATION SURVEY LAKES IN OKLAHOMA

NAME - KEYSTONE RESERVOIR (EUTROPHIC)  
 COUNTY - TULSA, OSAGE, CHEEK, PAWNEE  
 STORET NO. - 4011 WORKING PAPER NO. 591, NTIS ACCESSION NO. PB-269 478/AB  
 I. MORPHOMETRY

LAKE TYPE DRAINAGE AREA SURFACE AREA MEAN DEPTH TOTAL INFLOW RETENTION TIME  
 (SQ KM) (SQ KM) (METERS) (CMS) (DAYS)  
 IMPOUNDMENT 162673.40 106.43 7.7 179.730 55.0

II. PHYSICAL AND CHEMICAL CHARACTERISTICS  
 MEDIAN MEAN SECCHI DISC MEDIAN MEDIAN MEDIAN  
 ALKALINITY(MG/L) CONDUCTIVITY(UMHOS) (METERS) TOTAL P(MG/L) ORTHO P(MG/L) INORG N(MG/L) TOTAL N(MG/L)  
 114. 1293. 0.4 0.136 0.096 0.690 1.200

III. BIOLOGICAL CHARACTERISTICS (LAKE)  
 MEAN CHLOROPHYLL a ALGAL ASSAY CONTROL YIELD LIMITING NUTRIENT AT SAMPLING TIME  
 (UG/L) (MG/L--DRY WT) ( 4/ 2/74 ) N ( 6/12/74 ) N ( 8/29/74 ) N (10/23/74) N  
 21.4 4.9 - 17.9 ( 4 )

SUMMARY OF PHYTOPLANKTON DATA  
 4/ 2/74 6/12/74 8/29/74 10/23/74  
 GENERA COUNT GENERA COUNT GENERA COUNT GENERA COUNT  
 CENTRIC DIATOM 2146 CHROOMONAS 344 CENTRIC DIATOM 1086 SKELETONEMA 4551  
 CHROOMONAS 503 CRYPTOMONAS 238 CHRYSOPHYTAN CELLS 126 CHRYSOPHYTAN CELLS 3519  
 CHRYSOPHYTAN CELLS 450 CYCLOTELLA 106 NAVICULA 51 CYCLOTELLA 2874  
 ANKISTRODFSMUS 265 CHLAMYDOMONAS 53 CHLAMYDOMONAS 25 ANKISTRODESMUS 461  
 NITZSCHIA 264 SKELETUNEMA 53 CHROOMONAS 0 OTHER 303 CHRYSOPHYTAN CELLS 295  
 OTHER 797 OTHER 0 OTHER 794 TOTAL 1642 TOTAL 1234

IV. NUTRIENT LOADING CHARACTERISTICS(LAKE)  
 A. INPUT  
 POINT SOURCE MUNICIPAL (KG/YP) INDUSTRIAL (KG/YR) SEPTIC TANKS (KG/YR) POINT SOURCE NON-POINT SOURCE TOTAL LOADING  
 22765. \*\*\*\*\* 10. 1731070. 1753845.  
 63960. \*\*\*\*\* 395. 14225225. 14289580.

PHOSPHORUS OUTLET(S) PERCENT LAKE SURFACE AREA LOADING RATE  
 NITROGEN 785740. RETENTION 55. 16.48  
 8746810. 39. 134.3

V. NON-POINT-SOURCE NUTRIENT EXPORT  
 STREAM NAME MEAN FLOW (CMS) DRAINAGE AREA (SQ KM) MEAN TOTAL P (MG/L) MEAN TOTAL N (MG/L)  
 ARKANSAS RIVER 130.400 123524.8 0.356 2.759  
 HELLROARING CREEK 0.080 27.7 0.042 1.250  
 CIMARON RIVER 34.370 34900.2 0.365 2.077  
 LAGOON CREEK 0.450 123.3 0.075 1.312

VI. MEAN NUTRIENT CONCENTRATIONS IN UNGAGED STREAMS  
 STREAM NAME MEAN TOTAL P (MG/L) MEAN TOTAL N (MG/L)  
 HANCH CREEK 0.049 1.345  
 SALT CREEK 0.080 1.068  
 COUNCIL CREEK 0.071 1.182  
 TIGER CREEK 0.397 1.672  
 EUCHEE CREEK 0.160 1.253

SKULL CHECK •

0.162

8.059

• HFLOW POINT SOURCE.

COMPENDIUM OF NATIONAL EUTROPHICATION SURVEY LAKES IN OKLAHOMA  
 NAME - OOLOGAH RESERVOIR (EUTROPHIC)  
 COUNTY - NOWATA, HOWERS  
 STORET NO. - 4012  
 WORKING PAPER NO. 592, NTIS ACCESSION NO. PB-268 375/AB  
 I. MORPHOMETRY

LAKE TYPE DRAINAGE AREA SURFACE AREA MEAN DEPTH TOTAL INFLOW RETENTION TIME  
 (SQ KM) (SQ KM) (METERS) (CMS) (DAYS)  
 IMPOUNDMENT 11237.70 119.22 5.7 71.740 109.0  
 MEDIAN MEDIAN MEDIAN MEDIAN MEDIAN  
 ALKALINITY(MG/L) CONDUCTIVITY(UMHOS) MEAN SECCHI DISC TOTAL P(MG/L) ORTHO P(MG/L) INORG N(MG/L) TOTAL N(MG/L)  
 109. 301. 0.4 0.059 0.031 0.580 0.940

II. PHYSICAL AND CHEMICAL CHARACTERISTICS  
 MEDIAN  
 ALKALINITY(MG/L) CONDUCTIVITY(UMHOS) MEAN SECCHI DISC TOTAL P(MG/L) ORTHO P(MG/L) INORG N(MG/L) TOTAL N(MG/L)  
 109. 301. 0.4 0.059 0.031 0.580 0.940

III. BIOLOGICAL CHARACTERISTICS (LAKE)  
 MEAN CHLOROPHYLL A ALGAL ASSAY CONTROL YIELD LIMITING NUTRIENT AT SAMPLING TIME  
 (UG/L) (MG/L--DRY WT) ( 4/ 2/74 ) P ( 6/13/74 ) P ( 8/29/74 ) P ( 10/21/74 ) P  
 5.1 1.8 - 13.4 ( 3 )

SUMMARY OF PHYTOPLANKTON DATA  
 4/ 2/74 6/13/74 8/28/74 10/21/74  
 GENERA COUNT GENERA COUNT GENERA COUNT GENERA COUNT  
 CHROOONAS 494 MELOSIRA 86 MELOSIRA 177 CHROOONAS 3783  
 CRYPTOONAS 380 NITZSCHIA 86 CRYPTOONAS 177 CYCLOTELLA 408  
 MELOSIRA 228 SCENEDESMUS 29 STEPHANODISCUS 142 CRYPTOONAS 190  
 DACTYLOCOCCOPSIS 74 SKELETONEMA 71 SKELETONEMA 163  
 SKELETONEMA 74 OTHER 0 OTHER 142 SKELETONEMA 163  
 OTHER 39 OTHER 0 OTHER 142 OTHER 327  
 TOTAL 1293 TOTAL 201 TOTAL 1170 TOTAL 5034

IV. NUTRIENT LOADING CHARACTERISTICS(LAKE)  
 A. INPUT

PHOSPHORUS POINT SOURCE MUNICIPAL (KG/YR) 8330. POINT SOURCE INDUSTRIAL (KG/YR) \*\*\*\*\*  
 NITROGEN POINT SOURCE MUNICIPAL (KG/YR) 19495. POINT SOURCE INDUSTRIAL (KG/YR) \*\*\*\*\*  
 B. OUTPUT  
 PHOSPHORUS OUTLET(S) (KG/YR) 159885. PERCENT RETENTION 61.  
 NITROGEN OUTLET(S) (KG/YR) 3743220. PERCENT RETENTION 12.

V. NON-POINT-SOURCE NUTRIENT EXPORT  
 STREAM NAME MEAN FLOW (CMS) DRAINAGE AREA (SQ KM) MEAN TOTAL P (MG/L) MEAN TOTAL N (MG/L)

VENDIGRIS RIVER 2.500 9585.6 0.200 0.200  
 WOLF CREEK 1.330 238.0 0.044 0.044  
 VI. MEAN NUTRIENT CONCENTRATIONS IN UNGAGED STREAMS  
 STREAM NAME MEAN TOTAL P (MG/L) MEAN TOTAL N (MG/L)  
 PANTHER CREEK 0.056 1.324  
 HOWSH CREEK 0.044 1.296  
 BIG CREEK 0.043 1.416  
 EAST FORK BIG CREEK 0.040 1.303  
 MURMAN CREEK 0.048 1.396

POINT SOURCE SEPTIC TANKS (KG/YR) 15.  
 NON-POINT SOURCE (KG/YR) 403115.  
 TOTAL LOADING (KG/YR) 4217805.  
 TOTAL P EXPORT (KG/SQ KM/YR) 41.  
 TOTAL N EXPORT (KG/SQ KM/YR) 8.  
 396.  
 194.

LAKE SURFACE AREA LOADING RATE (G/SO M/YR) 3.45  
 35.5

MEAN TOTAL P (MG/L) 0.200  
 MEAN TOTAL N (MG/L) 1.960  
 MEAN TOTAL P (MG/L) 1.165  
 MEAN TOTAL N (MG/L) 1.165



COMPENDIUM OF NATIONAL EUTROPHICATION SURVEY LAKES IN OKLAHOMA  
 NAME - TENKILLER FERRY RES. (EUTROPHIC)  
 COUNTY - CHEROKEE, SEQUOYAH  
 STORET NO. - 4013  
 WORKING PAPER NO. 593, NTIS ACCESSION NO. PB-268 380/AB  
 I. MORPHOMETRY

LAKE TYPE	DRAINAGE AREA (SQ KM)	SURFACE AREA (SQ KM)	MEAN DEPTH (METERS)	TOTAL INFLOW (CMS)	RETENTION TIME (DAYS)
IMPOUNDMENT	4169.90	51.19	15.5	41.170	240.0

II. PHYSICAL AND CHEMICAL CHARACTERISTICS

MEDIAN ALKALINITY (MG/L)	CONDUCTIVITY (UMHOS)	MEAN SECCHI DISC (METERS)	TOTAL P (MG/L)	ORTHO P (MG/L)	INORG N (MG/L)	MEDIAN TOTAL N (MG/L)
75	147	1.6	0.039	0.016	0.550	0.900

III. BIOLOGICAL CHARACTERISTICS (LAKE)

MEAN CHLOROPHYLL A (UG/L)	ALGAL ASSAY CONTROL YIELD (MG/L--DRY WT)	LIMITING NUTRIENT AT SAMPLING TIME
6.6	5.2	P

IV. NUTRIENT LOADING CHARACTERISTICS (LAKE)

GENERA	COUNT	GENERA	COUNT	GENERA	COUNT	GENERA	COUNT
STEPHANODISCUS	1685	CYCLOTELLA	369	ACHNANTHES	873	MELOSIRA	1707
MELOSIRA	481	MELOSIRA	276	RAPHIDIOPSIS	457	CYCLOTELLA	443
CHROOMONAS	284	CRYPTOMONAS	184	SYNEDRA	416	CHROOMONAS	316
CYCLOTELLA	94	CHLAMYDOMONAS	46	STEPHANODISCUS	374	AMKISTRODES MUS	253
CRYPTOMONAS	48	OTHER	0	NITZSCHIA	333	TETRAEDROM	190
OTHER	145	TOTAL	875	OTHER	666	OTHER	695
TOTAL	2744	TOTAL	875	TOTAL	3119	TOTAL	3604

V. NUTRIENT LOADING CHARACTERISTICS (LAKE)

POINT SOURCE	INDUSTRIAL (KG/YR)	POINT SOURCE SEPTIC TANKS (KG/YR)	NON-POINT SOURCE (KG/YR)	TOTAL LOADING (KG/YR)
MUNICIPAL	14970	20	92060	109050
H. OUTPUT	34410	705	2561835	2596950

VI. MEAN NUTRIENT CONCENTRATIONS IN UNGAGED STREAMS

STREAM NAME	MEAN TOTAL P (MG/L)	MEAN TOTAL N (MG/L)	TOTAL P EXPORT (KG/50 KM/YR)	TOTAL N EXPORT (KG/50 KM/YR)
ILLINOIS RIVER	23.640	2.230	28	705
BARREN FORK	8.450	1.627	11	547
PINE BRANCH CREEK	0.048	1.127		

COMPENIUM OF NATIONAL EUTROPHICATION SURVEY LAKES IN OKLAHOMA  
(EUTROPHIC)

NAME - LAKE THUNDERBARD  
COUNTY - CLEVELAND  
STNET NO. - 4014

WORKING PAPER NO. 594. NITS ACCESSION NO. PB-260 355/AB

I. MORPHOMETRY

LAKE TYPE DRAINAGE AREA SURFACE AREA MEAN DEPTH TOTAL INFLOW RETENTION TIME  
(SQ KM) (SQ KM) (METERS) (CMS) (YEARS)  
IMPOUNDMENT 662.30 24.56 6.0 1.840 14.6

II. PHYSICAL AND CHEMICAL CHARACTERISTICS

MEDIAN MEAN SECCHI DISC MEDIAN MEDIAN MEDIAN  
ALKALINITY(MG/L) CONDUCTIVITY(UMHOS) (METERS) TOTAL P(MG/L) ORTHO P(MG/L) INORG N(MG/L) TOTAL N(MG/L)  
180. 365. 0.9 0.027 0.009 0.150 0.675

III. BIOLOGICAL CHARACTERISTICS (LAKE)

MEAN CHLOROPHYLL A ALGAL ASSAY CONTROL YIELD LIMITING NUTRIENT AT SAMPLING TIME  
(UG/L) (MG/L--DRY WT) ( 3/30/74 ) P ( 6/11/74 ) P (10/23/74) N  
8.4 0.1 - 0.2 ( 2)

SUMMARY OF PHYTOPLANKTON DATA

DATE	COUNT	GENERA	COUNT	GENERA	COUNT
3/30/74	5775	CHROOMONAS	1366	MELOSIRA	738
	344	CRYPTOMONAS	352	MERTISOMEDIA	221
	115	TRACHELONONAS	132	CHROOMONAS	184
	115	ANARAENA	44	CHLAHYDOMONAS	111
	76	CLOSTERIUM	44	ANACYSTIS(MICROCYSTIS)	111
	153	OTHER	0	OTHER	295
TOTAL	6578	TOTAL	1938	TOTAL	1660

IV. NUTRIENT LOADING CHARACTERISTICS(LAKE)

A. INPUT

POINT SOURCE MUNICIPAL (KG/YR) POINT SOURCE INDUSTRIAL (KG/YR) POINT SOURCE SEPTIC TANKS (KG/YR) NON-POINT SOURCE (KG/YR) TOTAL LOADING (KG/YR)

H. OUTPUT

OUTLET(S) (KG/YR) PERCENT RETENTION LAKE SURFACE AREA (G/SQ M/YR) LOADING RATE (KG/SQ KM/YR)

PHOSPHORUS NITROGEN

440. 94. 0.32 5. 7875. 7880. 105475. 105740.

V. NON-POINT-SOURCE NUTRIENT EXPORT

STREAM NAME MEAN FLOW (CMS) DRAINAGE AREA (SQ KM) MEAN TOTAL P (MG/L) MEAN TOTAL N (MG/L) TOTAL P EXPORT (KG/SQ KM/YR) TOTAL N EXPORT (KG/SQ KM/YR)

LITTLE RIVER 0.670 230.5 0.225 1.616 20. 167.

HOG CREEK 0.300 107.2 0.101 1.342 8. 98.

HOCK CREEK 0.070 29.8 0.114 1.430 7. 113.

DAVE BLUE CREEK 0.070 28.0 0.077 1.180 5. 88.

VI. MEAN NUTRIENT CONCENTRATIONS IN UNGAUGE STREAMS

STREAM NAME MEAN TOTAL P (MG/L) MEAN TOTAL N (MG/L)

PIG CREEK 0.091 0.939

UNNAMED STREAM F1 0.047 0.858

COMPENDIUM OF NATIONAL EUTROPHICATION SURVEY LAKES IN OKLAHOMA  
(EUTROPHIC)

NAME - WISTER MESEHYOIM  
COUNTY - LEFLORE  
STONET NO. - 4015

WORKING PAPER NO. 595, NTIS ACCESSION NO. PB-268 294/AB

I. MORPHOMETRY

LAKE TYPE IMPOUNDMENT  
DRAINAGE AREA (SQ KM) 2570.70  
SURFACE AREA (SQ KM) 16.19  
MEAN DEPTH (METERS) 2.3  
TOTAL INFLOW (CMS) 28.180  
RETENTION TIME (DAYS) 16.0

II. PHYSICAL AND CHEMICAL CHARACTERISTICS

ALKALINITY(MR/L) 16.  
MEDIAN CONDUCTIVITY(MUMHOS) 47.  
MEAN SECCHI DISC (METERS) 0.5  
TOTAL P(MG/L) 0.080  
MEDIAN ONTHO P(MG/L) 0.016  
MEDIAN INOMG N(MG/L) 0.230  
MEDIAN TOTAL N(MG/L) 0.645

III. BIOLOGICAL CHARACTERISTICS (LAKF)

MEAN CHLOROPHYLL A (UG/L) 4.8  
ALGAL ASSAY CONTROL YIELD (MG/L--DRY WT) 0.9 - 2.5 ( 2 )  
LIMITING NUTRIENT AT SAMPLING TIME ( 3/28/74 ) N ( 6/ 7/74 ) P ( 8/26/74 ) N ( 10/21/74 ) P

SUMMARY OF PHYTOPLANKTON DATA

GENERA	COUNT	GENERA	COUNT	GENERA	COUNT	GENERA	COUNT
MELOSIRA	488	MELOSIRA	3422	MELOSIRA	344	MELOSIRA	344
ANKISTRODESMUS	325	FLAGELLATES	254	ANABAENA	31	DACTYLOCOCCOPSIS	31
CRYPTOMONAS	243	NITZSCHIA	95	ANKISTRODESMUS	31	NITZSCHIA	31
FLAGELLATES	163	COELASTRUM	32	CLOSTERIUM	31	KIRCHMERIELLA	31
OTHER	158	OTHER	0	CRYPTOMONAS	187	CRYPTOMONAS	83
TOTAL	1692	TOTAL	3803	TOTAL	655	TOTAL	3717

IV. NUTRIENT LOADINGS CHARACTERISTICS(LAKF)

POINT SOURCE MUNICIPAL (KG/YR) 2435.  
NON-POINT SOURCE (KG/YR) 43885.  
TOTAL LOADING (KG/YR) 664290.  
POINT SOURCE SEPTIC TANKS (KG/YR) 5.  
NON-POINT SOURCE (KG/YR) 655650.

V. NON-POINT-SOURCE NUTRIENT EXPORT

STREAM NAME	MEAN FLOW (CMS)	DRAINAGE AREA (SQ KM)	MEAN TOTAL P (MG/L)	MEAN TOTAL N (MG/L)	TOTAL P EXPORT (KG/SQ KM/YR)	TOTAL N EXPORT (KG/SQ KM/YR)
POTEAU RIVER	14.910	1370.9	0.047	0.728	16.	273.
OIL BRANCH	0.040	4.5	0.028	0.793	6.	181.
MILSTON CREEK	1.520	149.7	0.025	0.453	7.	145.
FLOUICHE MAIN CREEK	7.340	685.3	0.087	0.743	28.	278.