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CHEMICAL AND BIOLOGICAL INVESTIGATIONS OF LAKE OKEECHOBEE JANUARY 1973 - JUNE 1974 INTERIM REPORT

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JANUARY 1973 - JUNE 1974

INTERIM REPORT

By

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and

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ADDENDUM

Since the original publication of this report, an error was discovered in the calculation procedure for primary productivity. Table 7 is reproduced in this revised report with the corrected values. The average gross primary productivity for 1973 was 1156 mg C/m^3/day rather than 1864 mg C/m^3/day as reported originally.

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SUMMARY

The results of the initial 18 months of the chemical and biological studies of Lake Okeechobee have provided some reliable baseline data on the Lake. The inferences made from this study are based on one year's data and may be amended when more data becomes available.

Comparison of average nitrogen and phosphorus levels in the Lake with previously reported levels does not show any significant increases during the last five years. There were, however, significant areal and seasonal variations in these nutrient parameters during this study. Generally, nutrient values were higher during the dry winter months and lower during the wet summer months. The areal distribution was related to both major inflows and bottom sediment characteristics. Based on yearly average values, phosphate levels were highest in the northern section of the Lake while the highest nitrogen concentrations appeared in the southern section.

The average gross primary productivity for Lake Okeechobee in 1973 was 1865 mg C/m^3/day; the average net primary productivity (1794 mg C/m^3/day) was essentially the same.

Peaks in primary productivity occurred in the spring (March and April), early summer (June), and fall (August - October). The highest productivities of the study period were observed in the fall. The magnitude and timing of the peaks varied from location to location. The data for the spring peak was incomplete but did indicate lower productivities than in the fall. The productivities for the early summer peak were lower still. The north and north-central areas of the Lake were the most productive; the southern and western portions were less so.

Small, flagellated, unicellular, green algae appeared to be responsible for much of the primary productivity occurring in the Lake.

Blue-green algae (Cyanophyta) dominated the phytoplankton of Lake Okeechobee. Also present, in order of decreasing abundance, were green algae (Chlorophyta), diatoms (Chrysophyta), and euglenoids (Euglenophyta).

Two pronounced maxima in phytoplankton densities were observed, one in the spring and one in the fall. The spring pulse (March - May) was composed initially of small, flagellated, unicellular green algae. They were succeeded by larger populations of filamentous blue-green algae and diatoms. The fall pulse had lower phytoplankton densities and was of longer duration than the spring pulse. The peak in phytoplankton densities during the fall was observed in September. This pulse was composed initially of filamentous blue-green algae, which were succeeded by large populations of colonial blue-green algae and small, flagellated, unicellular green algae.

Resident algal populations were shown to differ within the Lake. Peripheral areas near Fisheating Creek and the Kissimmee River-Nubbin Slough complex averaged more blue-green algae than did other areas in the Lake. Green algae were more abundant at the southern end of the Lake. The central areas of the Lake exhibited more temporal shifts in algal populations than did peripheral areas.

In terms of nutrient loadings, some of the less significant water inflows were highly significant sources of nitrogen and phosphorus. Nubbin Slough, which discharged less than 7% of the total inflow into the Lake from May 1973 to May 1974, accounted for 40% of the total phosphate loading. Similarly, the agricultural canals (Miami, North New River and Hillsboro Canals) contributed only 9% of the total water inflow but 32% of the total nitrogen loading.

The Kissimmee River and direct rainfall into the Lake were each responsible for approximately 35% of the total water input. However, chemistry data indicates

that these two major sources of water are not the major sources of nutrients. Rainfall supplied only limited amounts of nutrients due to the low concentration of nutrients in rain. Although the Kissimmee River supplied significant quantitites of nitrogen (30%) and phosphorus (21%) to Lake Okeechobee, the high loadings were primarily due to high discharge rather than high concentrations of nutrients. In fact, the average concentrations in the River were very similar to the average Lake concentrations.

The high phosphate loadings for Nubbin Slough and the high nitrogen loadings from agricultural canals to the south of the Lake may indicate a general relationship between land use and run-off water quality. The possible concentration of animal waste in the nubbin Slough drainage basin may be responsible for the high phosphate values while nitrification and subsequent leaching in the Everglades agricultural area could account for high nitrate nitrogen concentrations in the run-off water.

Chemistry data from Lake sampling stations near the major discharge points do not immediately reflect the high nutrient loadings during July, August and September, although yearly averages of nutrient concentrations at peripheral stations do show the influence of the loadings. Rapid biological uptake of incoming nutrients may account for the delay in impact on chemistry data. The nutrient budgets, the high primary productivity rates, and the response of phytoplankton populations to loadings suggest biological uptake of nutrient loadings.

The timing and magnitude of the fall phytoplankton and primary productivity peaks at the peripheral stations appeared to be related to the nutrient loadings of the proximal inflows. The data indicates probable relationships between orthophosphate loadings and blue-green algae in the northern end of the Lake and between nitrate loadings and green algae in the southern end.

Although biological processes may be responsible for the rapid assimilation of nutrient loadings during the periods of high discharges and subsequently for the low summer value of ambient materials, the results of regression analyses indicate that nutrient variations within the Lake are primarily dependent upon physical processes. Variations in both dissolved and total species of nitrogen and phosphorus were found to be related to wind stress and sediment characteristics at each station. Generally increased nutrient values were associated with increased wind stress (wave action) which occurred primarily during the winter months. There was also a tendency for nutrient values to be higher at stations where the sediments were predominantly mud or silt.

Regression analysis showed only occasional significant relationships between biological activity (primary productivity and phytoplankton densities) and chemical or physical processes.

The application of the chemical and biological data to several different methods of establishing trophic levels of lakes indicate that Lake Okeechobee would be classically defined as an early eutrophic lake. However, sufficient data are not available to determine whether or not this condition is a result of recent cultural eutrophication or the "natural" condition of the Lake.

Establishing the trophic state of Lake Okeechobee may be somewhat misleading since the concept of trophic state indicators and trophic levels have classically been applied to temperate region lakes and Lake Okeechobee lies within the semi-tropical climatic zone.

INTRODUCTION

Lake Okeechobee lies in the center of Florida approximately 200 miles north of the southern tip of the peninsula. As the major storage basin for surface water in southern Florida, the Lake is a highly significant part of the Central and Southern Florida Flood Control Project which was authorized by the 80th Congress in 1948 (Figure 1). The Lake and its tributaries and distributaries have been considerably altered by various attempts at water management in the northern Everglades. Presently all major inflows and outflows associated with the Lake except for Fisheating Creek have some type of flow control structure. At several points, notably the Lake termini of the Miami, North New River and Hillsboro Canals, water can be made to flow into or out of the Lake depending upon flood control and water supply criteria. The Lake itself is surrounded by the Hoover Dike which has been constructed at approximately the 15 foot m.s.l. contour. The 25 foot high dike was designed to prevent damaging storm surges, which may accompany tropical storms, from flooding developed land adjacent to the Lake.

The original condition of the Lake can only be inferred from journals and other writings of early visitors to the Lake. Brooks (1974) gives a summary of many of these reports which indicate that the original Lake had a variable but considerably greater depth than the present mean depth of 3 meters and a much less defined shoreline.

There have been only limited previous studies of the chemical and biological characteristics of Lake Okeechobee. In 1940 the United States Geological Survey (USGS) sampled Lake Okeechobee as part of their survey of surface water quality in the Southeast region of the United States (Parker, *et al.*, 1955). The results of chemical analysis on these samples indicated that the Lake contained signifi-

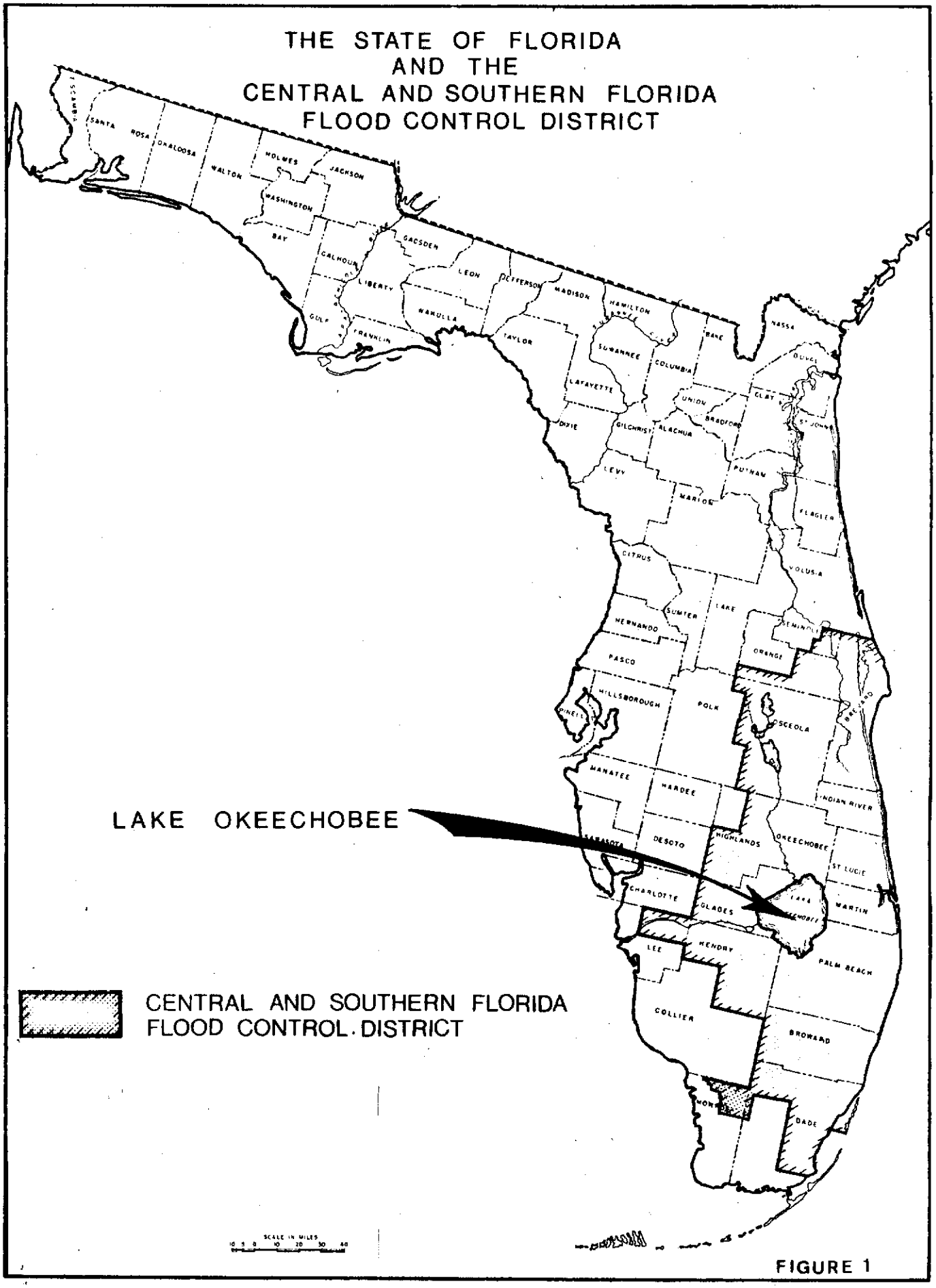

THE STATE OF FLORIDA
AND THE
CENTRAL AND SOUTHERN FLORIDA
FLOOD CONTROL DISTRICT
LAKE OKEECHOBEE
CENTRAL AND SOUTHERN FLORIDA
FLOOD CONTROL DISTRICT
SCALE IN MILES
SANTA ROSA
OKALOOSA
WALTON
HOLMES
JACKSON
WASHINGTON
BAY
GADSDEN
CALHOUN
LIBERTY
LEON
JEFFERSON
MADISON
HAMILTON
GULF
FRANKLIN
WAKULLA
TAYLOR
SUWANNEE
COLUMBIA
BAKER
NASSAU
DUVAL
LAFAYETTE
UNION
CLAY
DIXIE
GILCHRIST
ALACHUA
BRADFORD
ST. JOHNS
LEVY
PUTNAM
MARION
FLAGLER
CITRUS
VOLUSIA
SUMTER
LAKE
HERNANDO
SEMINOLE
ORANGE
PASCO
HILLSBOROUGH
POLK
OSCEOLA
MANATEE
HARDEE
INDIAN RIVER
DESOTO
HIGHLANDS
OKEECHOBEE
ST. LUCIE
CHARLOTTE
GLADES
MARTIN
HENDRY
LEE
PALM BEACH
COLLIER
BROWARD
DADE

FIGURE 1

cantly higher concentrations of major ions than could apparently be accounted for by the inflows to the Lake. The high dissolved solids of the lake water were attributed to dissolution of calcareous sediments in the Lake. During the years 1969 to 1972 the USGS undertook a much more intensive study of the Lake in cooperation with the Central and Southern Florida Flood Control District (FCD). The results of this study (Joyner, 1972) indicated that the Lake was receiving and storing considerable amounts of nutrients. Mass balance calculations for total dissolved solids indicated, as did the 1940 report, that unaccounted for sources of major ions must exist. This USGS report concluded that chemical and biological characteristics of the Lake were indicative of an early eutrophic condition.

Since Lake Okeechobee represents an important natural resource in terms of a wildlife habitat and major freshwater reservoir, the FCD decided to initiate its own environmental investigations of the Lake. This decision was made based on the realization that the Lake and its tributaries were being exposed to ever increasing environmental stresses and that the recent USGS report indicated that early eutrophic conditions already existed within the Lake. In order to fully evaluate current and future stresses on the Lake, a broad range of studies were developed. This report is limited to only a part of these studies. It concerns the results of chemical and biological investigations of the Lake's limnetic zone from January 1973 to July 1974.

Goals

The overall goal of this and other studies of Lake Okeechobee is to increase the knowledge of the various natural systems related to the Lake and the interactions between these systems. This information will be necessary to make a proper management decision if the Lake is to be maintained as a natural resource.

The specific objectives of the chemical and biological studies of Lake Okeechobee may be summarized as follows:

1. Provide continuity in base line water chemistry data by interfacing with the previous USGS study.
2. Calculations of loading rates and materials budgets of the Lake for both nutrients and major ions.
3. Determine systematic relationships among biological, chemical, and physical factors.
4. Assessment of the Lake's current trophic state using primary productivity, algal populations, benthic invertebrates and ambient water quality data.
5. Provide base line and/or input data to other studies concurrently being conducted within Lake Okeechobee.

Morphology

Lake Okeechobee is thought to be approximately 4,000 - 6,000 years old (Brooks, 1974). It is considered to have been formed as the result of the subsidence of Miocene clays. As the subsequent depression filled with fresh-water the natural outlets became blocked by vegetation. The Lake reached its modern size and shape in approximately 265 A.D., when all natural outlets of the Lake became filled by organic sills. From that time until the present drainage attempts, the only major loss of water from the Lake other than evaporation was a sheet flow to the south.

Lake Okeechobee, which is at approximately 27° N Latitude and 80° W Longitude, is one of only a few fresh water lakes occurring within the semitropics. Most other lakes within the latitudinal range of 30° N and 30° S latitude are either deep mountain lakes or temporary saline lakes.

The surface area of Lake Okeechobee, 1820 km^2 (450,000 acres) makes it one of the largest lakes in the United States. However, the mean depth of the Lake is usually less than 3 meters with the maximum depth of less than 5 meters. The lake surface is somewhat pie-shaped with the apex of the wedge on the western shore. The longest axis, is about 55 km (35 miles) and runs north to south. The east-west axis is about 49 km (30 miles). There are extensive littoral zones on the south, west, and northwest shores of the Lake. The Lake basin is saucer-shaped with the lowest contour just below mean sea level.

Hydroperiod

The level of water in Lake Okeechobee is currently regulated between 14.0' m.s.l. and 16.0' m.s.l. for flood control and water supply needs. The lower lake stages are maintained during the summer and early fall to provide maximum flood control benefits while the high stages are designed to meet water supply needs during the dry winter and spring months.

In reality it is very difficult to maintain the regulation stages and Lake levels may ordinarily vary from 10.5' to 16.5' m.s.l. The difficulty in maintaining lake stages stems from variable climatic conditions and short water residence times. The highly variable rainfall rates in South Florida, especially during the wet months from June through October, provide substantially different quantities of water to Lake Okeechobee from year to year. Since the residence time of water in the Lake is approximately one year, the volume and stage of the Lake vary considerably.

The study period from January 1973 to June 1974 was one in which the rainfall rates and Lake hydroperiod were close to the normal or average events for the past 40 years.

Figure 2 shows the monthly rainfall rates in the Okeechobee area during

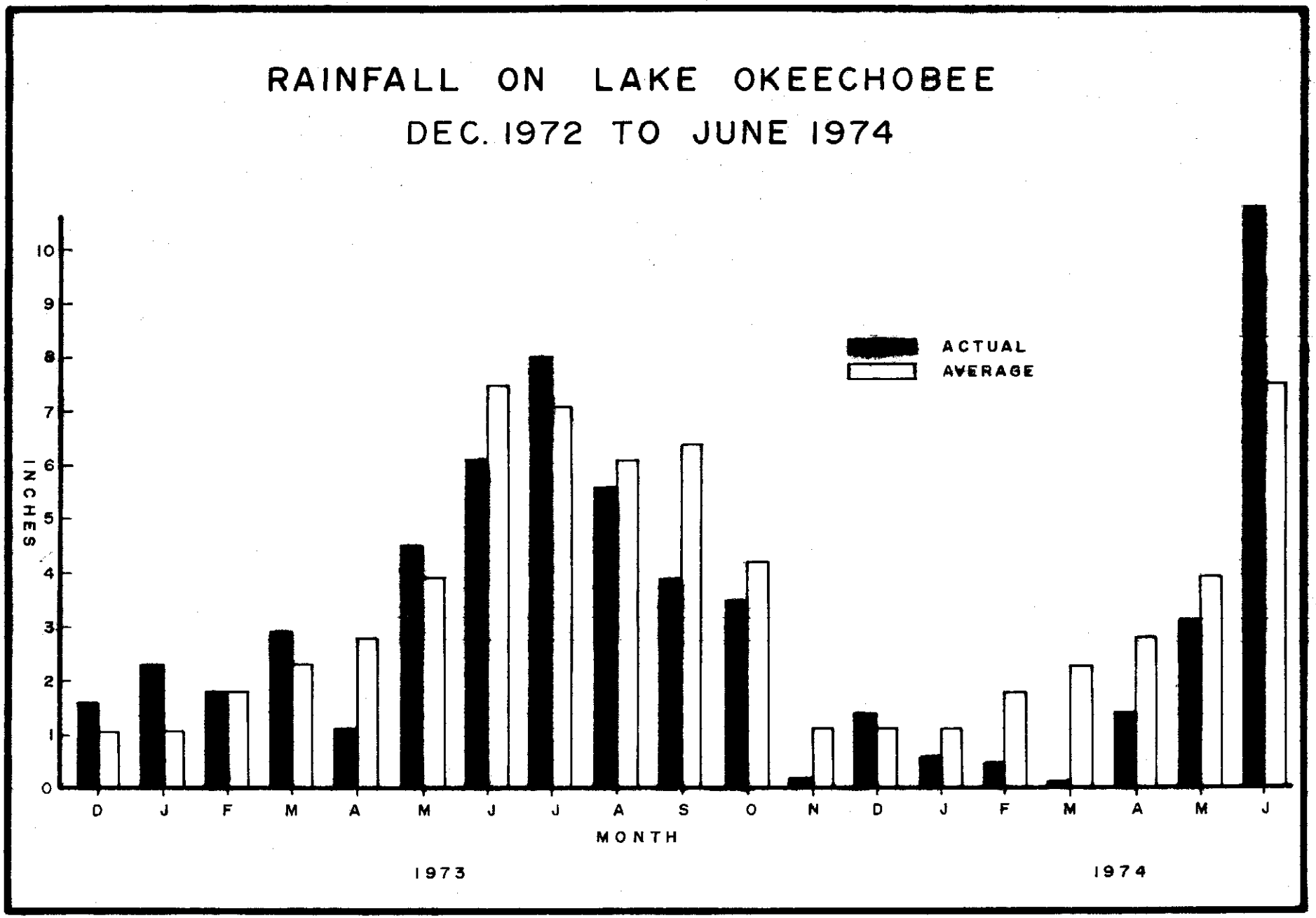

RAINFALL ON LAKE OKEECHOBEE
DEC. 1972 TO JUNE 1974
ACTUAL
AVERAGE
INCHES
0
1
2
3
4
5
6
7
8
9
10
D
J
F
M
A
M
J
J
A
S
O
N
D
J
F
M
A
M
J
MONTH
1973
1974

FIGURE 2

the period of the study. Figure 2 also shows the average rainfall for the area based on the 1930 to 1970 period of record. A total of 59 inches of rain fell during the initial 18 months of this study, which is only 6 inches less than the 65 inches which could normally be expected.

The mean monthly lake stages and average lake stage for the 1930 to 1970 period of record are shown in Figure 3. The stages were well below average during the first nine months of the study but rose to above average stage during the fall of 1973. The stage fell to below normal again during the first half of 1974. However, the above average rains in June 1974 continued throughout the summer causing lake stages to rise dramatically during this period to above average levels.

Drainage Basins

The major natural and man-made drainage basins to Lake Okeechobee are shown in Figure 4. The natural basins consist primarily of the Kissimmee River, Fisheating Creek and Taylor Creek. Nubbin Slough now includes most of Taylor Creek drainage basin due to flood control and water supply projects. The man-made drainage to the Lake includes the St. Lucie Canal, Hillsboro Canal, North New River Canal and the Miami Canal. These canals can convey water both into or out of the Lake depending upon flood control and water supply criteria. As mentioned earlier all inflows into the Lake except Fisheating Creek have flow control structures associated with them to maintain canal and groundwater levels in upland areas.

The total drainage basin of Lake Okeechobee including Lake Istokpoga drainage is approximately 4292 square miles. One half of this area is contained within the 2335 square mile Kissimmee River drainage basin. The next largest subdrainage basin is the 652 square mile Lake Istokpoga basin which can drain either into the

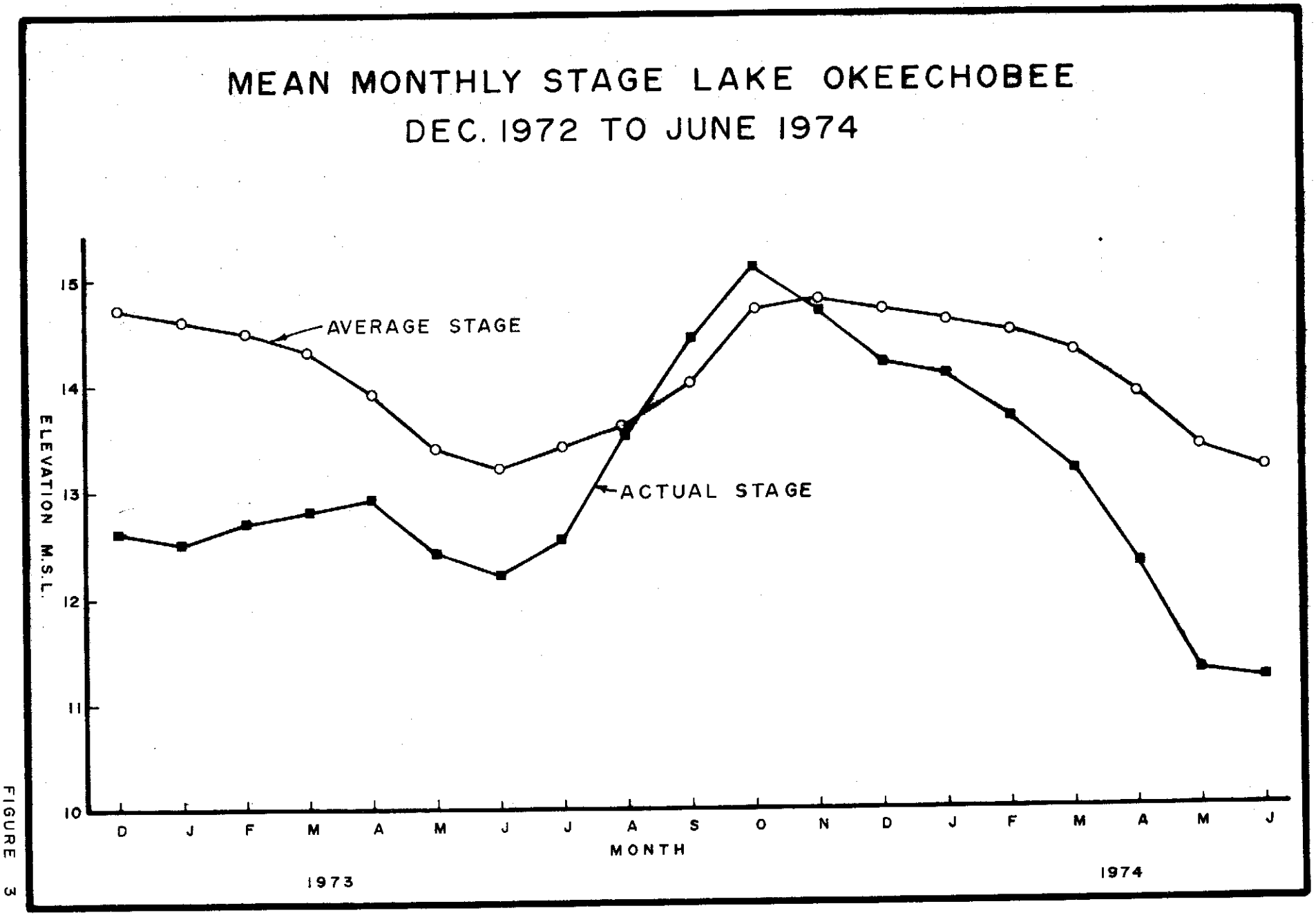
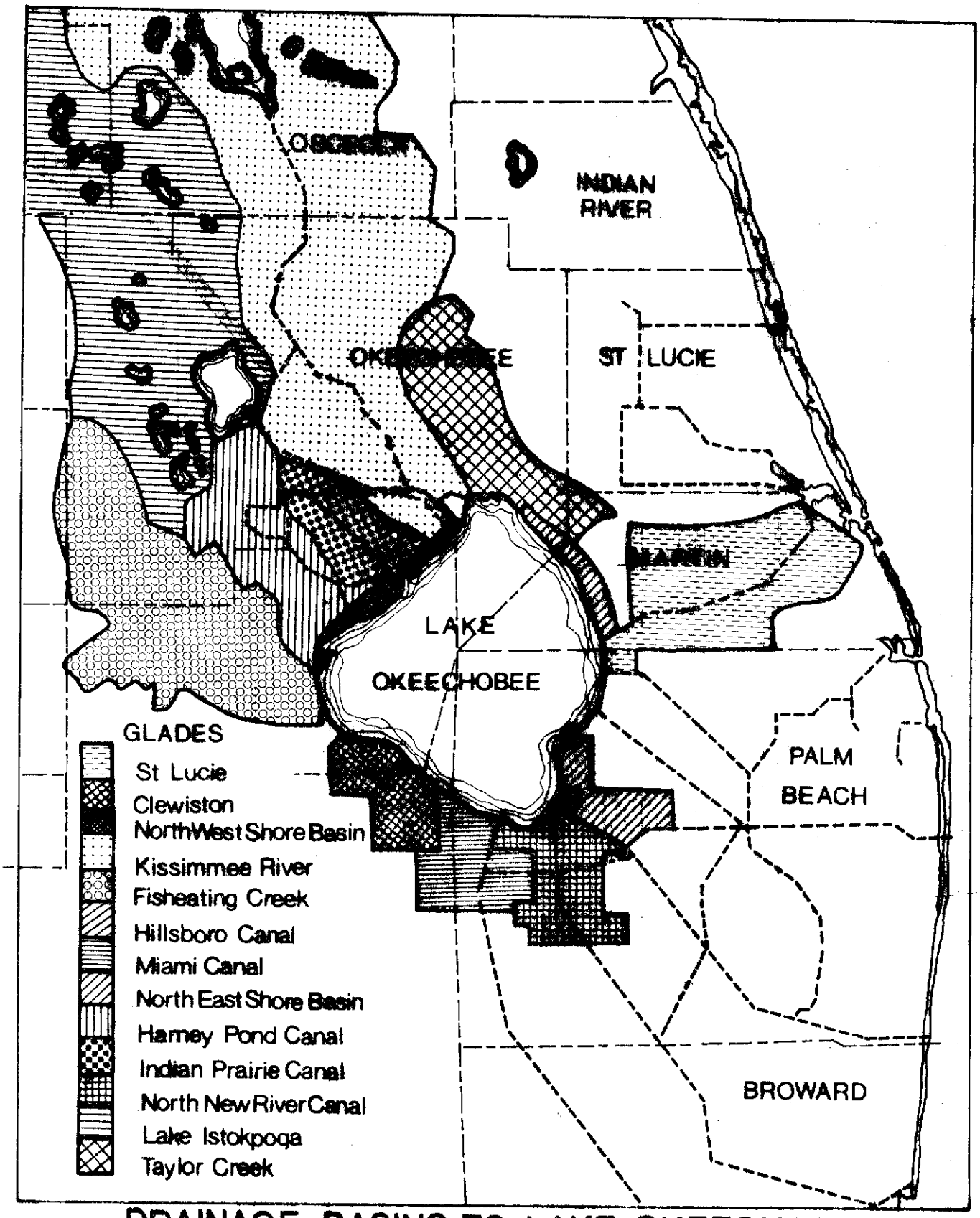

MEAN MONTHLY STAGE LAKE OKEECHOBEE
DEC. 1972 TO JUNE 1974
AVERAGE STAGE
ACTUAL STAGE
ELEVATION M.S.L.
15
14
13
12
11
10
D
J
F
M
A
M
J
J
A
S
O
N
D
J
F
M
A
M
J
MONTH
1973
1974

FIGURE 3

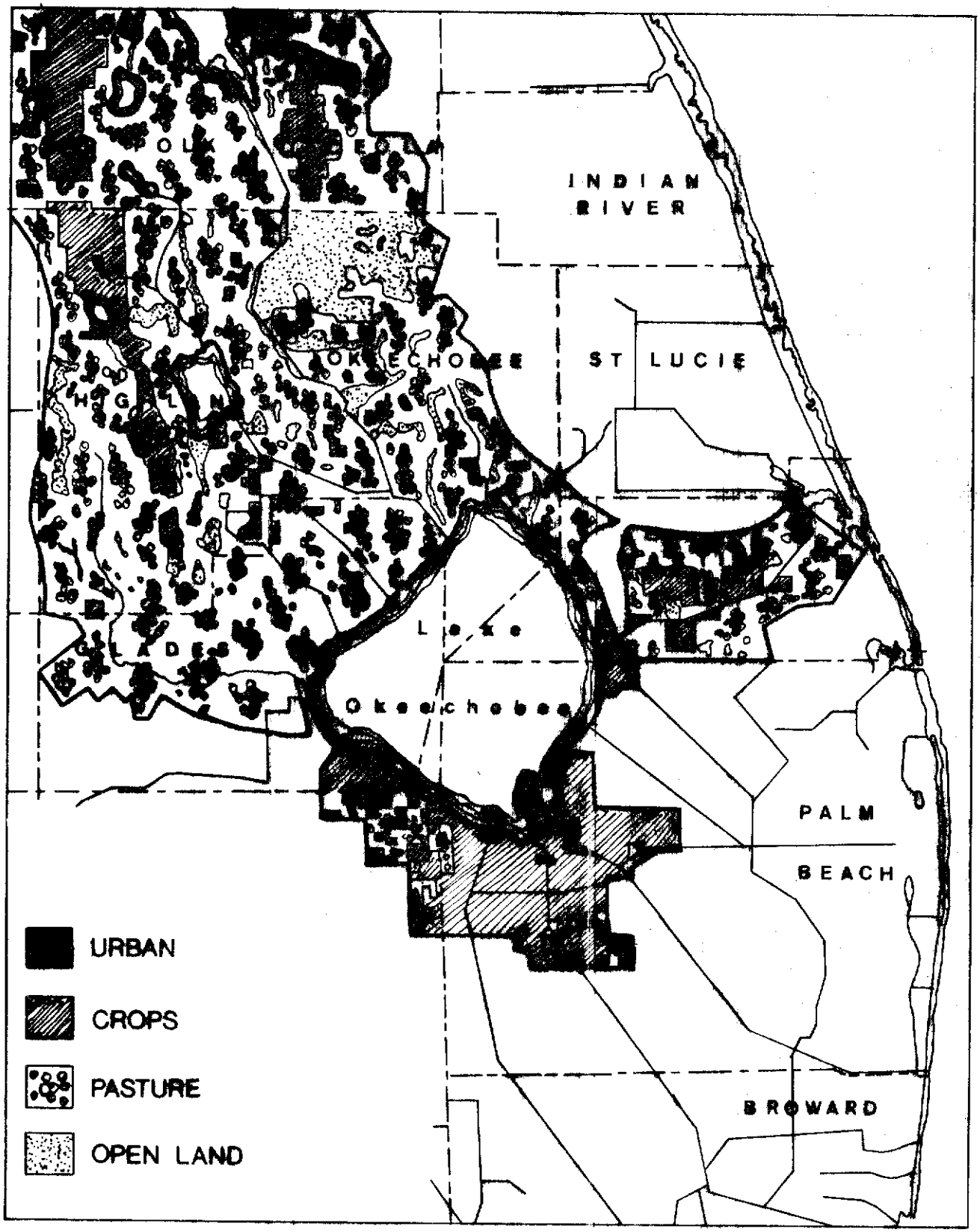


DRAINAGE BASINS TO LAKE OKEECHOBEE

FIGURE 4

Kissimmee River or directly into Lake Okeechobee via the Harney Pond Canal or Indian Prairie Canal. Besides conveying water from Lake Istokpoga to Lake Okeechobee these two canals have additional drainage areas of 286 squire miles. Fisheating Creek with a drainage area of 461 square miles has the third largest drainage area of all inflows to the Lake. The three agricultural canals - Miami, North New River and Hillsboro - have a combined drainage area of 311 square miles. Water which has drained into the north ends of these canals can be pumped into the Lake by FCD pump stations S-2 and S-3. Most of Taylor Creek and Nubbin Slough runoff now discharges into the Lake at a common point and the combined drainage area of this system is 184 square miles. It has been designated Taylor Creek Basin on Figure 4. The St. Lucie Canal periodically delivers water to Lake Okeechobee although in very minor amounts. It drains an area of approximately 250 square miles. The two areas on the map designated as the Northeast Shore and Northwest Shore Basins lie between the Lake levee and tieback levees for major inflows and are drained by several FCD pump stations.

The general land use patterns for the drainage basins to Lake Okeechobee are shown in Figure 5. The major land uses are either as pasture land or crop land. Pasture land use predominates in the Kissimmee River, Nubbin Slough, Indian Prairie Canal and Harney Pond Canal basins. The Nubbin Slough basin has particularly heavy dairy activity. The area to the south and east of the Lake which is drained by the Miami, North New River, Hillsboro and St. Lucie Canals is heavily devoted to both sugar cane and vegetable crops. There are only minor urban areas within any of the basins.



LAND USE MAP

FIGURE 5

MATERIALS AND METHODS

Sampling Locations and Frequencies

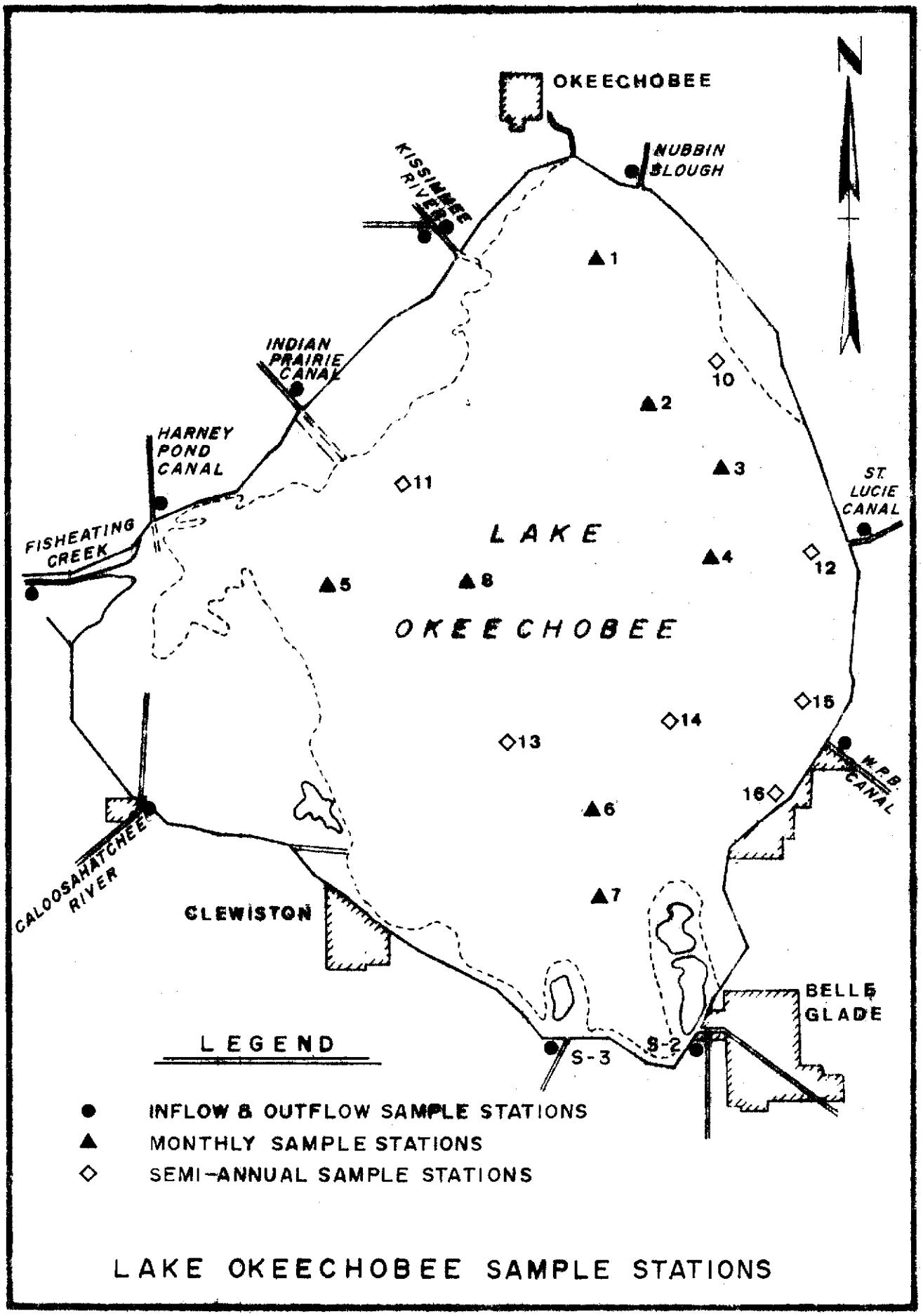
Figure 6 shows the location of all stations at which chemical and biological data were collected. The eight stations chosen for routine sampling were located to provide both representative lake data and to monitor the influence of major inputs into the Lake. Stations 1, 2 and 3 were located in the northern end of the Lake to provide data on the possible impact of discharges from the Kissimmee River and Nubbin Slough. Stations 6 and 7 were located in the south end of the Lake, to monitor the effects of backpumping from the North New River Canal (S-2) and the Miami Canal (S-3). Station 5 was located at the western edge of the Lake to measure the influence of Fisheating Creek and/or the extensive littoral area on the western and southwestern shores of the Lake. Stations 4 and 8 were designed to monitor the mid-lake conditions and were located as far from any major input as possible.

The semi-annual stations (10 through 16) provided data to evaluate areas of the Lake which were not routinely monitored and therefore test the effectiveness of the monitoring system.

Chemistry samples were collected monthly at Stations 1 through 8 from January 1973 through January 1974. Beginning in February 1974 chemistry samples were collected every two weeks at these stations. During the months of May and November, chemistry samples were collected at Stations 10 through 16 as well as 1 through 8.

Since January 1973, phytoplankton samples were collected at Stations 1 through 8 at monthly intervals to coincide with the chemistry sampling. Benthic invertebrate samples were also taken at these stations at quarterly intervals.

Primary productivity measurements were taken at monthly intervals at Stations 5 and 6 beginning in January 1973, and at Stations 1 and 4 beginning in March 1973.



LAKE OKEECHOBEE SAMPLE STATIONS

FIGURE 6

Figure 6 also shows the location of the sampling stations for the major inflows and outflows of Lake Okeechobee. During periods of high flows, May 1973 to November 1973, weekly chemistry samples were collected at the major inflows and outflows. Thereafter samples were collected at these stations every two weeks.

Chemistry Methods

Until June 1973, field data (dissolved oxygen, temperature, specific conductivity and pH) were recorded with a Yellow Springs Instrument Company model 54 D.O./Temp. probe, a Beckman Instruments Company model RB-3, Y147 conductivity meter and Beckman Instruments Company model 100901 field pH meter. After June 1973 all field data were collected with a Hydrolab® Surveyor II. Secchi disc readings were measured in centimeters using standard 8" disc.

Both surface and bottom water chemistry samples were collected for laboratory analysis at each Lake station with a 5 liter PVC Niskin sampler. The surface samples were collected from 0.5 meters below the surface. Bottom samples were taken at a depth of 0.5 meters above the bottom to prevent contamination of the sample with bottom sediments.

Dissolved nutrient and major anion samples were preserved by filtration through 0.45 micron membrane filters. Samples for major cation and trace metal analysis were also filtered and preserved with concentrated nitric acid (10 drops/100 ml). Unfiltered aliquots of samples were collected for total nutrient analysis. All samples were stored in polyethylene bottles on ice. The time between collection of samples and chemistry laboratory analysis varied between 1 and 2 weeks. In the laboratory samples were stored at $4^{o}C$ in the dark.

No field data were collected at the major inflows and outflows. Surface chemistry samples were collected and stored unfiltered on ice for 12 to 24 hours until they arrived at the laboratory. They were then filtered as described for the Lake samples above.

The routine chemical analyses on each sample usually included the following parameters:

1. Dissolved nutrients (nitrate, nitrite, ammonia and ortho-phosphate)
2. Total phosphorus and total nitrogen
3. Major cations and anions (sodium, potassium, calcium, magnesium, chloride silicate, alkalinity and sulfate)
4. Trace metals (semi-annually during June and January)

The analytical chemistry methods used in this study were either recommended or approved by the Environmental Protection Agency or the American Public Health Association. Most analyses were performed on either a Technicon Industrial Systems II AutoAnalyzer or a Perkin Elmer Model 306 Atomic Absorption Spectrophotometer. Specific methodologies are shown in Table 1.

Biology Methods

Primary productivity estimates were made by the light and dark bottle method (Strickland and Parsons, 1968). Oxygen concentrations were determined in the field by the Azide modification of the Winkler titration method (Standard Methods, 13th Ed.). Duplicate bottles, suspended from floats, were incubated *in situ* for six hours at a depth of 22 cm. This depth was the minimum depth at which bottles could be placed and not have them break the surface during periods of rough water. Incubation was initiated between 0900 and 1100 hours. Daily productivities were calculated by multiplication of the average productivity rate for the six hour incubation period by the day length.

Two 250 - 300 ml aliquots of raw water were taken at a depth of 0.5 meters for phytoplankton analysis. One aliquot was refrigerated to allow later examination of live samples and the other was preserved for enumeration. Initially 4% formaldehyde was used as the preservative but from August 1973 to the present, Lugol's solution has been used.

TABLE 1

ANALYTICAL METHODS

AUTOANALYZER

Determination	Method	Range	Sensitivity
Alkalinity	1. Methyl Orange; Technicon AutoAnalyzer II, method #111-71W	0-10 meq/l	0.10 meq/l 2% of full scale
	2. Potentiometric titration Ref. Standard Methods, 13th Edition, p. 52-56.	0-10 meq/l	0.3 meq/l
Ammonia	Berthelot reaction Technicon AA II, method #154-71W Ref: D. D. Van Slyke & A. J. Hillen, Bio Chem. 102, p. 499, 1933; S. Kallman, Presentation, April 1967, San Diego, Calif.; W. T. Bolleter, C. J. Bushman & P. N. Tidwell, Anal Chem. 33, p. 592, 1961; J. A. Tellow & A. L. Wilson, Analyst, 89, p. 453, 1964; A. Tarugi & F. Lenci, Boll Chim Farm, 50, p. 907, 1912; FWPCA Methods of Chem. Anal. of Water & Waste Water. Nov. 1969, p. 137.	0-0.50 ppm	0.010 ppm 2% of full scale
Chloride	Ferric Thiocyanate complex Technicon AA II, method #99-70W Ref: Automatic Analysis of Chlorides in Sewage, James E. O'Brien, Wastes Engineering, Dec. 1962; D. M. Zall, D. Fisher & M. D. Garner, Anal. Chem. 28, 1956, p. 1665	0-200 ppm	4.0 ppm 2% of full scale
Iron, Total Dissolved	Ferrous complex with TPTZ Technicon AA II method #109-71W Ref: Henricksen, Arne, Automatic Method for Determination of Iron, "Vattenhygien", 22, May 1967, p. 108	0-0.1 ppm	0.02 ppm 2% of full scale
Iron, Total	Digestion with HCl followed by determination as described for Total dissolved iron Ref: Standard Methods, 13th Edition, p. 190	0-0.1 ppm	0.02 ppm 2% of full scale

Table 1 (Continued)

AUTOANALYZER

Determination	Method	Range	Sensitivity
Nitrite	Diazotization method which couples with N-1-naphthylene-diamine dihydrochloride. Technicon AA II; method #120-70W, modified for linear sensitivity. Ref: Standard Methods, 12th edition, 1965, p. 205	0-0.200 ppm	.004 ppm 2% of full scale
Nitrate	Same as Nitrite with Cadmium Reduction column Technicon AA II, method #100-70W, modified for linear sensitivity.	0-0.200 ppm	.004 ppm 2% of full scale
Nitrogen, Total Kjeldahl	Digestion with H_2SO_4 and HgO catalyst followed by Ammonia determination as described above, modified diluent reagent to neutralize Kjeldahl digestion mixture. Technicon AA II, method #146-71A Ref. Standard Methods, 13th edition, p.244	0-3.0 ppm	0.06 2% of full scale
Ortho-Phosphate	Phosphomolybdenum blue complex with ascorbic acid reduction. Technicon AA II; method #155-71W Ref: J. Murphy & J. P. Riley, Anal. Chim. Acta, 27, p. 30, 1962.	0-0.100 ppm	.002 2% of full scale
Phosphate, Total	Same as Ortho-Phosphate with persulfate digestion. Modified Standard Methods procedure: 13th edition, p. 525, 1971. Technicon AA II; method #93-70W.	0-0.100 ppm	.002 2% of full scale
Silicate	Ascorbic acid reduction of silicomolybdate complex to "Molybdenum blue" Technicon AA II Method #105-71W.	0-20 ppm	0.4 ppm 2% of full scale
Sulfate	Sulfate precipitated with barium at pH 2.5 chelated with methylthymol blue Technicon AA II Method #118-71W Ref: Lazrus, A. L., Hill, K. C., and Lodge, J. P., "A New Colorimetric Microdetermination of Sulfate Ion", Automation in Analytical Chemistry, Technicon Symposia, 1965, Mediad, 1966, pp. 291-293.	0-250 ppm	5.0 ppm 2% of full scale

Table 1 (Continued)

ATOMIC ABSORPTION

PARAMETER	WAVELENGTH	FLAME	COMMENTS
Calcium	422.7 nm-vis (SLIT-4)	Nitrous oxide and acetylene	Dilutions with 500 ppm Na^+ were 1:10. The 2 inch burner turned 30° was used due to high calcium concentration. This provided better stability and precision. Sodium doping was used to repress ionization of Ca^{++} in flame.
Magnesium	285.2 nm-uv. (SLIT-4)	Nitrous oxide and acetylene	Sample treatment was the same as for calcium.
Sodium	589.0 nm-vis.	Air and acetylene	2" burner turned 90° to normal position. Dilutions made as needed with D.I. water.
Potassium	766.5 nm-vis. (SLIT-4)	Air and acetylene	Red filter used to eliminate radiation shorter than 650 nm. Standards doped with 50 ppm Na^+ to simulate as closely as possible sample matrix relative to sodium. Two inch burner used in normal position.

Table 1 (Concluded)

ATOMIC ABSORPTION - TRACE METALS

Parameter	Sample Preparation	Instrument Conditions	Comments
Cadmium	Element extracted into methyl isobutyl ketone (MIBK) with ammonium pyrrolidine dithiocarbamate (APDC) at 2.8 pH. Extraction ratio 10:1.	Wavelength 229 nm (U.V.) Air acetylene flame Standard burner head	Ref: "Methods for Collection and Analysis of Water Samples for Dissolved Minerals and Gases" Book 5, U.S.G.S. Publication Chapter A1 1970
Copper	Same as cadmium	Wavelength 325 nm (U.V.) Air acetylene flame Standard burner head	Ref: same as above
Lead	Same as cadmium	Wavelength 283 nm (U.V.) Air acetylene flame Standard burner head	Ref: same as above
Manganese	Same extraction as described for cadmium except pH adjusted to 6.0	Wavelength 279 nm (U.V.) Air acetylene flame Standard burner head	Ref: same as above
Strontium	Aqueous solution/No extraction	460.7 nm (Vis) Air acetylene flame Standard burner head	Ref: same as above
Zinc.	Aqueous solution/No extraction	214 nm (U.V.) Air acetylene flame Standard burner head	Ref: same as above

A Palmer counting chamber was used to enumerate the preserved algae. The samples were mechanically shaken for a minimum of ten minutes to provide a homogeneous sample. The phytoplankton within 20 fields at 400 X magnification were counted on each of two separate slides. In enumeration, a colony and a filament were each counted as a single unit. The taxonomic keys which were used to identify the phytoplankton are: Prescott (1970), Smith (1950), Tiffany and Britton (1971), and Whitford and Schumacker (1969).

Benthic invertebrates were sampled using a standard Ekman dredge (15.2 cm x 15.2 cm). A total of four grabs were taken at each station to yield the standing crop for approximately 0.1 square meters. In November 1973, samples were also collected using a standard Peterson dredge at Stations 2 and 6. Samples were washed through a U. S. Standard Sieve, Series No. 20, preserved in 10% formaldehyde and returned to the laboratory for identification. Samples were again washed through a No. 20 sieve and organisms were separated from sediments and detritus using sugar flotation. Organisms were identified to species when possible.

Hydrology Data

Unless otherwise noted, the hydrological data used in this report were taken from unpublished monthly summary sheets prepared by the Jacksonville office of the U. S. Army Corps of Engineers. These summaries list the daily stage, rainfall rates, evaporation rates, discharges into the Lake and discharges out of the lake.

Due to alterations in the drainage patterns of Taylor Creek and Nubbin Slough which were not immediately reflected in the Corps' summaries, the discharge for Nubbin Slough/Taylor Creek basins were obtained directly from FCD hydrologic records.

Radar analysis of rainfall rates directly over Lake Okeechobee by the Experimental Meteorological Laboratory, National Oceanic and Atmospheric Agency,

Miami, Florida have shown significantly lower rates for the Lake than for the surrounding land area (Riebsame, et al., 1974). Since rainfall data in the Corps' summaries were taken from land based gauges around the Lake, the gauge data were reduced. Although the radar data indicated the rainfall data rates were up to 45% less over the Lake than as measured by land gauges during the summer months, a 20% reduction was applied to the data since the radar study involved only 45 days during the summer of 1973 and different meteorological conditions prevailed during the other months.

For calculation purposes the total rainfall inputs and evaporation losses were calculated based on the surface area of the Lake at the time of input or loss. These surface areas were taken from the stage/area table for the Lake prepared by the Corps of Engineers.

Loading rates of nitrogen and phosphorus to Lake Okeechobee were calculated for each inflow including rainfall. The results of chemical analyses at each major inflow were averaged over monthly intervals and applied to the total monthly flows. During periods of high flow, the chemistry averages were based on four data points, while during periods of low flow they were based on 1 or 2 data points. Loading rates for rainfall input were calculated based on average water quality of rainfall reported by Joyner (1972).

Monthly water budgets for the Lake were calculated to coincide with the intervals between routine water sampling of the Lake. These budgets itemized all inflows including rainfall. The outflows were only divided into evaporation losses and total surface discharge from the Lake. The monthly budgets were then summed over six and twelve month intervals to provide the water budget base necessary to calculate material budgets.

The material budgets used the previously calculated loading rates to estimate inputs. Losses of materials were calculated monthly from average lake water quality data and total outflows during the monthly intervals. Lake

storage of materials was based on average Lake water values of materials in question and total volume of the lake at the beginning and end of each budget period. Lake volumes were estimated from the same tables mentioned for Lake surface area. Materials budgets were calculated for six month periods to coincide with the wet (June through October) and dry (November through May) periods. These six month budgets were then summed to provide yearly budgets.

Statistical Analysis

Standard statistical techniques were used to calculate mean and standard deviation statistics for various parameters. When necessary these means were tested for statistical differences using the assumption that the variances were equal and known.

Linear regression analyses between parameters used the method of least squares. The slope of the calculated regression lines were tested to determine if they were significantly different from zero using the one tailed Student's "t" test. Coefficients of determination, r^2, were calculated for the regression lines (where r is the estimated correlation coefficient).

Other Methods

Effective Wind Displacements, EDI, were calculated for each sampling date according to the method of Ayers, *et al.*, (1958). Wind speed and direction data necessary for these calculations were obtained from the Clewiston Field Offices of the U. S. Army Corps of Engineers. Five to seven days of record (prior to the sampling date) from three anemometers were used in the calculations. The anemometers were located near Okeechobee City, Port Mayaca and Belle Glade. The calculated EDI values for each anemometer were then averaged to give a single EDI value for the Lake.

RESULTS

Limnetic Chemistry

The results for selected chemical parameters measured at Stations 1 through 8 for Lake Okeechobee from January 1973 to May 1974 are summarized in Table 2. This table shows the monthly mean surface and mean bottom values for temperature, dissolved oxygen (D.O.), Secchi disc readings, total phosphate, ortho-phosphate, total Kjeldahl nitrogen, nitrate, sodium, calcium, and chloride. The standard deviation of the means and number of analyses have also been included. The results of all field and laboratory analyses of samples collected from the Lake are listed in Appendix A.

Although Table 2 shows mean values for both surface and bottom samples, the difference between these means for any month is usually not significant. Only temperature and D.O. showed statistically significant differences using the Student's "t" test at the 90% significance level. The significant differences in temperature and D.O. may be due to the fact that all samples were collected during daylight hours and, therefore, reflect the effects of surface warming and biological oxygen production. The fact that the remaining parameters showed no significant stratification indicates that the Lake was well mixed vertically at all times of the year.

The mean values for major ions (sodium, calcium, and chloride) in Lake Okeechobee showed moderate variations with time. For all three ions the lowest mean values were recorded in October 1973, which was also the month of highest Lake stage. The higher mean values tended to occur during periods of low Lake stage, such as May and June of 1973 and April 1974. During periods of rising Lake level the standard deviations of these means also increased indicating greater variability in the data for those months.

TABLE 2

SELECTED CHEMICAL PARAMETERS
LAKE OKEECHOBEE - MONTHLY MEANS

1973		Temp. °C.	D.O. mg/l	Secchi cm	T-PO_4 mg/l P	o-PO_4 mg/l P	TKN mg/l N	NO_3 mg/l N	Na mg/l	Ca mg/l	Cl mg/l
Jan. Surface	$\overline{X}$	14.3	9.8	37	0.088	0.004	1.60	0.080	57.6	49.9	89
	S	0.6	0.3	36	0.036	0.002	0.24	0.063	0.9	2.4	5
	N	7	7	7	7	7	7	6	7	7	7
Jan. Bottom	$\overline{X}$	13.9	9.6		0.096	0.004	1.72	0.096	58.6	49.3	99
	S	0.7	0.4		0.044	0.002	0.25	0.066	2.1	2.8	27
	N	7	6		7	7	7	7	6	6	7
Feb. Surface	$\overline{X}$	18.5	9.8	40	0.068	0.009	1.44	0.114	57.7	58.6	85
	S	1.1	0.7	29	0.027	0.007	0.12	0.097	1.5	2.2	2
	N	8	8	8	8	8	7	8	8	8	8
Feb. Bottom	$\overline{X}$	16.6	9.3		0.073	0.007	1.53	0.118	57.5	58.5	84
	S	0.6	0.3		0.034	0.005	0.29	0.096	3.1	2.3	4
	N	8	8		8	8	8	8	8	8	8
Mar. Surface	$\overline{X}$	22.8	9.8	60	0.046	0.003	1.34	0.147	54.2	51.1	88
	S	1.2	1.2	33	0.14	0.002	0.10	0.095	2.4	1.0	3
	N	8	8	7	8	8	8	7	8	8	8
Mar. Bottom	$\overline{X}$	20.2	8.5		0.049	0.002	1.28	0.129	53.4	50.9	88
	S	1.5	0.6		0.017	0.001	0.07	0.079	2.5	1.3	3
	N	8	7		8	8	8	8	8	8	8
Apr. Surface	$\overline{X}$	21.2	8.3	32	0.057	0.011	1.42	0.046	53.7	46.8	83
	S	0.4	0.4	19	0.026	0.008	0.75	0.081	9.4	7.5	13
	N	7	8	8	8	8	8	8	8	8	8
Apr. Bottom	$\overline{X}$	20.8	8.2		0.078	0.011	1.49	0.045	53.9	47.7	83
	S	0.4	0.4		0.034	0.013	0.73	0.108	10.2	7.1	14
	N	8	8		8	8	8	8	8	8	8
May Surface	$\overline{X}$	25.8	7.8	32	0.079	0.004	1.82	0.075	59.7	56.5	99
	S	0.8	0.2	27	0.036	0.003	0.28	0.051	1.8	1.1	3
	N	8	8	6	8	8	8	8	8	7	8

$\overline{X}$ = Mean value, S = Standard Deviation, N = Number of data points

TABLE 2 (CONTINUED)

1973		Temp. °C	D.O. mg/l	Secchi cm	T-PO_4 mg/l P	o-PO_4 mg/l P	TKN mg/l N	NO_3 mg/l N	Na mg/l	Ca mg/l	Cl mg/l
May Bottom	$\overline{X}$	25.3	7.8		0.082	0.005	1.56	0.078	60.1	55.6	99
	S	0.6	0.2		0.042	0.004	0.66	0.056	1.7	1.2	4
	N	8	8		8	8	8	8	8	7	8
June Surface	$\overline{X}$	28.7	7.0	34	0.076	0.005	1.62	0.027	59.1	52.4	88
	S	0.6	0.2	20	0.046	0.003	0.22	0.028	2.9	3.0	5
	N	8		7	7	8	8	8	8	8	8
June Bottom	$\overline{X}$	27.7	6.8		0.099	0.005	1.77	0.031	59.2	50.1	90
	S	1.2	0.4		0.027	0.004	0.28	0.034	2.8	3.1	6
	N	8	8		8	8	8	8	8		8
July Surface	$\overline{X}$	29.6	7.3	70	0.028	0.002	1.48	0.008	58.4	50.9	93
	S	0.8	0.6	34	0.013	-	0.18	-	2.4	4.0	6
	N	8	8	8	8	8	7	8	8	8	8
July Bottom	$\overline{X}$	28.7	6.7		0.026	0.002	1.46	0.008	59.2	49.8	95
	S	0.5	1.1		0.013	-	0.28	-	2.7	3.3	4
	N	8	8		8	8	7	8	8	8	8
Aug. Surface	$\overline{X}$	29.8	8.5	114	0.040	0.005	1.23	0.018	56.1	44.2	88.6
	S	0.7	0.2	38	0.018	0.005	0.14	0.015	5.8	5.7	7.1
	N	8	8	8	8	8	8	8	8	8	8
Aug. Bottom	$\overline{X}$	29.2	-		0.052	0.004	1.21	0.017	57.2	44.5	90
	S	0.3	-		0.023	0.004	0.44	0.014	5.2	6.1	5
	N	8	-		8	8	8	8	8	8	8
Sept. Surface	$\overline{X}$	29.2	7.9	69	0.043	0.005	1.39	0.017	56.0	40.8	86
	S	0.6	0.8	23	0.023	0.005	0.25	0.019	10	8.1	16
	N	8	8	8	8	8	8	8	8	8	8
Sept. Bottom	$\overline{X}$	28.2	7.1		0.042	0.005	1.43	0.021	56.2	41.5	86
	S	0.2	0.7		0.017	0.004	0.27	0.020	10	7.9	15
	N	8	8		8	8	8	8	8	8	8

$\overline{X}$ = mean value, S = standard deviation, N = number of data points

TABLE 2 (CONTINUED)

1973		Temp °C.	D.O. mg/l	Secchi cm.	T-PO_4 mg/l P	o-PO_4 mg/l P	TKN mg/l N	NO_3 mg/l N	Na mg/l	Ca mg/l	Cl mg/l
Oct. Surface	$\bar{X}$	27.5	7.4	82	0.037	0.002	1.44	0.008	51.5	38.0	74
	S	1.0	0.4	20	0.008	-	0.22	0.009	7.1	6.9	10
	N	8	8	8	8	8	8	8	8	8	8
Oct. Bottom	$\bar{X}$	27.4	7.0		0.049	0.002	1.50	0.010	47.5	36.3	73
	S	0.8	0.4		0.012	-	0.30	0.011	9.5	7.1	11
	N	8				8	8	8	8	8	8
Nov. Surface	$\bar{X}$	22.3	9.2	62	0.034	0.008	1.43	0.082	52.7	41.9	76
	S	1.2	0.4	23	0.008	0.005	0.31	0.072	6.0	5.4	9
	N	8	8	8	8	8	8	8	8	8	8
Nov. Bottom	$\bar{X}$	21.2	8.4		0.037	0.009	1.25	0.083	52.5	41.9	82
	S	0.2	0.9		0.008	0.005	0.34	0.076	5.7	4.3	15
	N	8	8		8	8	8	8	8	8	8
Dec. Surface	$\bar{X}$	15.3	9.1		0.040	0.006	1.64	0.129	52.2	48.0	83
	S	0.2	0.4		0.012	0.004	0.13	0.076	1.7	2.2	5
	N	8	8		8	8	8	8	8	8	8
Dec. Bottom	$\bar{X}$	15.0	9.2		0.037	0.005	1.54	0.134	52.0	47.6	82
	S		0.2		0.014	0.003	0.41	0.077	2.1	1.7	3
	N	7	8		8	8	8	8	8	8	8

$\bar{X}$ = mean value, S = standard deviation, N = number of data points

Table 2 (CONCLUDED)

1974		Temp. °C.	D.O. mg/l	Secchi cm	T-PO_4 mg/l P	o-PO_4 mg/l P	TKN mg/l N	NO_3 mg/l N	Na mg/l	Ca mg/l	Cl mg/l
Jan. Surface	$\bar{X}$	22.1	8.7	54	0.034	0.003	1.66	0.097	53.9	49.4	87
	S	0.5	0.5	17	0.009	0.001	0.14	0.070	1.3	2.6	2
	N	8									
Jan. Bottom	$\bar{X}$	21.4	8.0		0.030	0.003	1.78	0.088	54.1	49.5	87
	S	0.3	0.5		0.005	0.002	0.15	0.081	1.3	1.6	1
	N	8									
Feb. Surface	$\bar{X}$	19.4	8.4	45	0.054	0.006	1.93	0.102	52.9	43.8	85
	S	1.0	0.8	29	0.025	0.006	0.38	0.077	3.4	4.8	4
	N	16									
Feb. Bottom	$\bar{X}$	18.9	8.0		0.067	0.005	2.03	0.089	54.4	44.3	86
	S	1.3	0.8		0.033	0.005	0.44	0.078	1.5	3.6	4
	N	16									
Mar. Surface	$\bar{X}$	21.7	8.7	41	0.055	0.004	1.84	0.068	53.1	46.2	86
	S	2.0	1.8	16	0.019	0.004	0.38	0.057	2.4	3.4	2
	N	16									
Mar. Bottom	$\bar{X}$	20.8	7.8		0.072	0.005	2.03	0.141	52.9	45.7	86
	S	1.8	1.9		0.038	0.005	0.51	0.264	3.2	2.0	2
	N	16									
Apr. Surface	$\bar{X}$	25.1	6.9	31	0.063	0.007	2.23	0.152	60.7	49.3	98
	S	1.8	2.1	16	0.021	0.007	0.46	0.096	8.8	2.4	12
	N	16									
Apr. Bottom	$\bar{X}$	24.6	7.2		0.066	0.007	2.22	0.196	58.1	49.3	97
	S	1.8	1.8		0.024	0.006	0.48	0.165	4.5	2.3	14
	N	16									
May Surface	$\bar{X}$	25.2	7.9	47	0.027	0.004	1.23	0.133	58.4	56.9	95
	S	0.5	0.6	21	0.006	0.004	0.07	0.182	2.7	1.3	4
	N	8									
May Bottom	$\bar{X}$	24.5	7.2		0.028	0.004	1.20	0.087	56.5	57.5	93
	S	0.2	0.4		0.007	0.004	0.16	0.084	3.8	1.0	3
	N	8									

$\bar{X}$ = mean values S = standard deviation N = number of data points

Variations with time of the monthly mean values of several parameters in Table 2 and some additional parameters are illustrated graphically in Figures 7 and 8. The lines between successive values in the figures are not intended to represent the rate of change for each value but have only been included to facilitate reading the graphs.

A summary of the field data excluding pH values is shown as monthly means for all eight lake stations in Figure 7. The pH values measured for Lake Okeechobee varied only slightly between 8.2 and 8.4 and therefore were not included in Figure 7.

The mean Secchi disc readings in Figure 7 varied from less than 30 cm in April 1974 to more than 100 cm in August 1973. As a measure of water clarity the Secchi disc readings indicate clearer water in the summer months than in the winter months.

The average water temperature extremes measured during the study was 15°C. The highest average water temperature (29.5°C) was measured during August 1973. The lowest temperatures measured occurred in January of 1973 when the mean water temperature dropped to 14.1°C. The surface temperatures as shown in Figure 7 were higher than bottom values although the difference was usually less than 1°C. The greatest difference between surface and bottom temperatures, 2.5°C, occurred in March 1973.

Figure 7 also shows the mean dissolved oxygen (D.O.) concentration for surface and bottom samples. The D.O. generally tended to be at or near saturation with respect to temperature and varies inversely to temperature. The highest D.O. measured, 9.7 mg/l, occurred in January 1973 when the lowest temperature occurred. The lowest average D.O. measured was 6.9 mg/l in July 1973 one month before the highest temperature. Unfortunately, no oxygen values were available for August 1973. As with temperature, the D.O. curves show higher surface

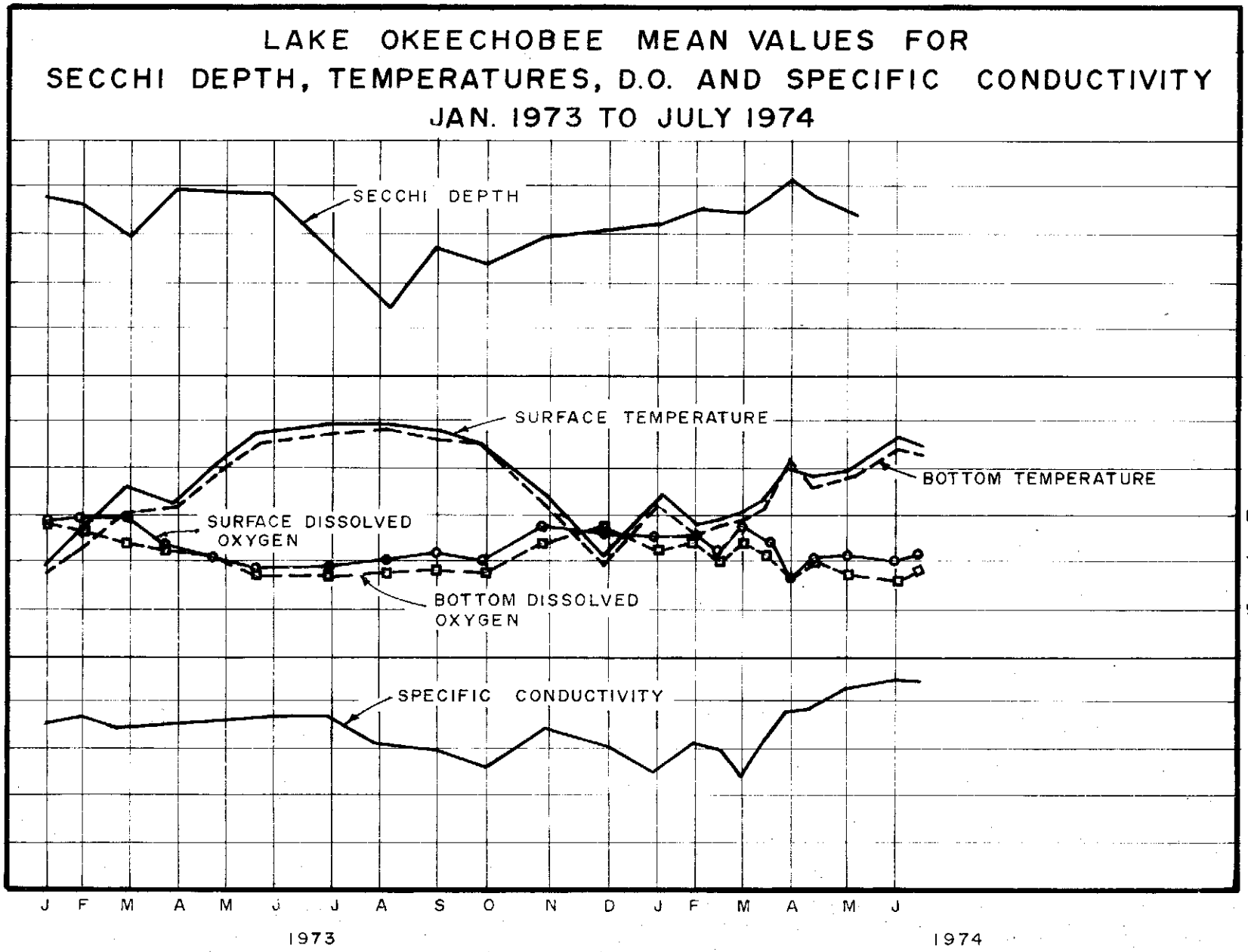

LAKE OKEECHOBEE MEAN VALUES FOR
SECCHI DEPTH, TEMPERATURES, D.O. AND SPECIFIC CONDUCTIVITY
JAN. 1973 TO JULY 1974
CENTIMETERS
0
30
60
90
120
SECCHI DEPTH
TEMP. °C
30
25
20
15
10
SURFACE TEMPERATURE
BOTTOM TEMPERATURE
SURFACE DISSOLVED OXYGEN
BOTTOM DISSOLVED OXYGEN
D.O. mg/ℓ
10.0
7.5
5.0
µMHO/cm
700
600
500
400
SPECIFIC CONDUCTIVITY
J F M A M J J A S O N D J F M A M J
1973
1974

FIGURE 7

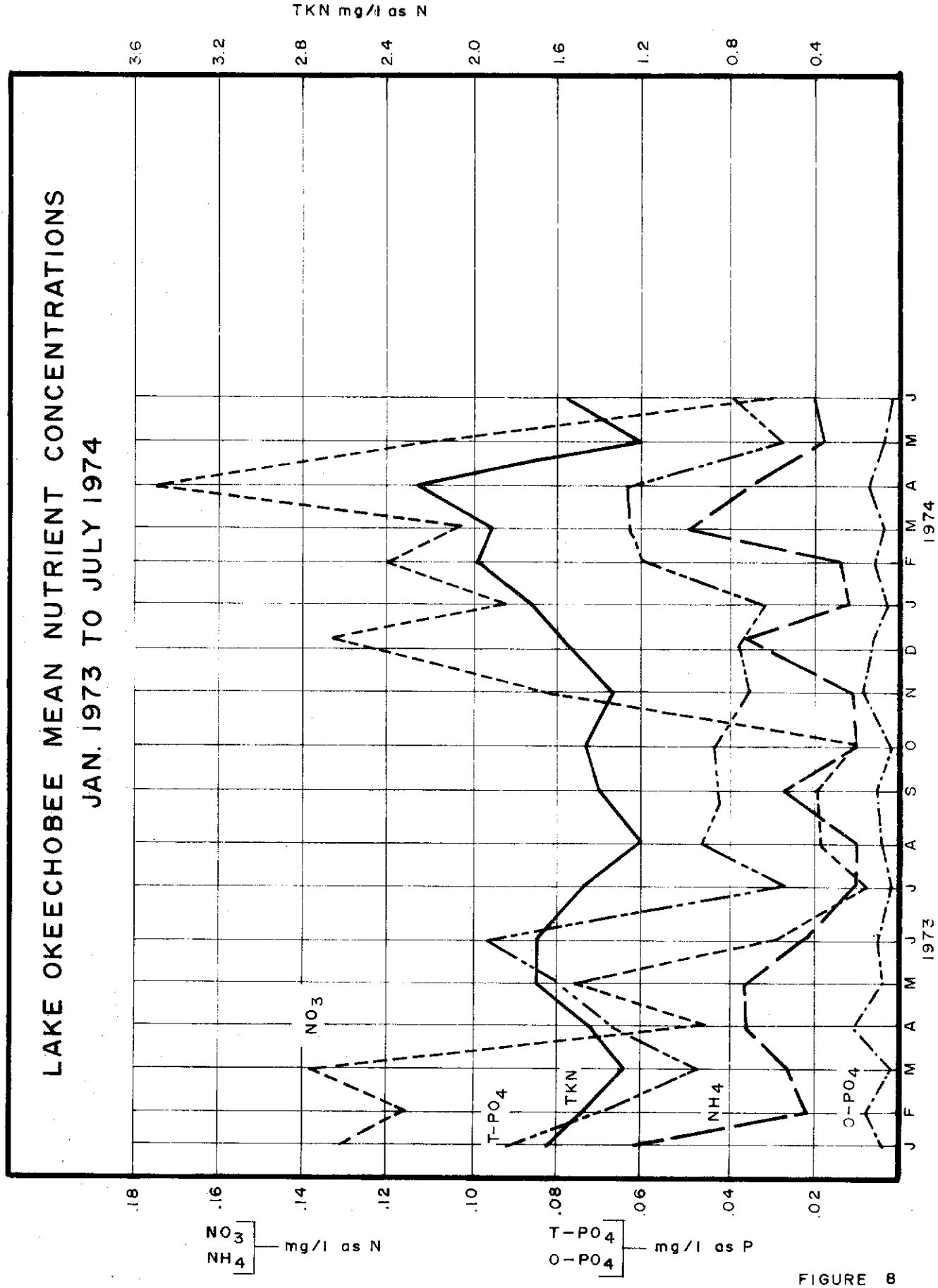

LAKE OKEECHOBEE MEAN NUTRIENT CONCENTRATIONS
JAN. 1973 TO JULY 1974
TKN mg/l as N
3.6
3.2
2.8
2.4
2.0
1.6
1.2
0.8
0.4
NO3
T-PO4
TKN
NH4
O-PO4
J F M A M J J A S O N D J F M A M J
1973
1974
.18
.16
.14
.12
.10
.08
.06
.04
.02
NO3
NH4
mg/l as N
T-PO4
O-PO4
mg/l as P

FIGURE 8

values than bottom values. There were two exceptions to this trend. In November 1973 the average surface dissolved oxygen was several tenths of a mg/l less than the average bottom value. There was a temperature inversion in March 1974 when surface temperatures were slightly lower than bottom temperatures.

The plot of average specific conductivity for each sampling date (Figure 7) indicates that the highest value, 740 μmhos/cm, occurred in June 1974 while the lowest value, 550 μmho/cm, occurred in March 1974. Specific conductivity of freshwater is a general measure of dissolved solids, although there are no fixed relationships between the two. Since this study included analysis of major ions, the discussion of dissolved solids will be based on the ionic analysis rather than specific conductivity.

The average concentration by month of the major nutrients, phosphorus and nitrogen, are shown in Figure 8. Both total phosphate ($T\text{-}PO_4$) and inorganic ortho-phosphate ($o\text{-}PO_4$) are reported as mg/l phosphorus, while total Kjeldahl nitrogen (TKN), nitrate (NO_3) and ammonium (NH_4) are reported as mg/l nitrogen. The total phosphate values include inorganic, dissolved organic, and particulate phosphorus fractions. TKN values include free ammonium as well as dissolved organic and particulate nitrogen but do not include nitrate or nitrite. Nitrite values are generally very low and have not been included. It should be noted that the concentration scale for TKN is 1/20 of the scale for the other species shown. The values shown in Figure 8 are mean values of results from both surface and bottom samples.

All parameters plotted in Figure 8 show minimum values during the late summer and fall of 1973. Nitrate concentrations had the greatest variation ranging from less than 0.01 mg/l to almost 0.20 mg/l. There was a constant

drop in average nitrate nitrogen in the Lake from March 1973 to July 1973. From July to October 1973 the average concentrations of nitrate nitrogen were less than 0.02 mg/l and many individual values were below the analytical limits of detection which was 0.004 mg/l. The values for nitrate increased almost an order of magnitude from October to November 1973. Relatively high levels of nitrate persisted in the Lake until May 1974. The data for 1974 is incomplete at this time but there appears to be evidence for another period of low nitrate values during the summer of 1974.

The other nitrogen species in Figure 8 show much less variation. TKN values were lowest in August 1973 and highest during April 1974. Since the TKN values seem to parallel the nitrate values, the large variations in nitrate nitrogen do not appear to be due to conversion of nitrogen from one species to another.

Ammonia values also seem to parallel TKN but much of the variation in the ammonia has been lost because many results for ammonia analysis were below the 0.01 mg/l limits of detection.

Total phosphate values in Figure 8 show maximum values during both the spring of 1973 and 1974. This pattern was similar to that of the TKN although the relative magnitude of the peaks was reversed. Total phosphate showed the higher peak values in the spring of 1973 while the higher TKN values occurred in the spring of 1974.

It is difficult to know what pattern the ortho-phosphate species followed because there is relatively little variation in the ortho-phosphate values. Many of the ortho-phosphate analyses were below the analytical limits of sensitivity which were normally 0.002 mg/l P. Since the true variation in ortho-phosphate values cannot be shown there is no way to assess the relationship between ortho-phospahte and total phosphate.

The seasonal means for selected chemical parameters at sampling Stations 1 through 8 are summarized in Tables 3 and 4. Mean values for the same parameters have also been calculated for the entire study period and are shown in Table 5. All the means except Secchi disc readings have been calculated using both surface and bottom values.

Comparison of Table 3 and Table 4 indicates that the concentrations of nitrogen in the Lake were lower during the wet season (May to November) than during the dry season (November to May). The average nitrate concentration showed the greatest difference between wet and dry seasons.

Among the individual stations, the greatest decreases in nitrate concentrations occurred at Stations 4, 6, 7, and 8. The remaining four stations also had decreased nitrate values during the summer months, but the differences were much less.

TKN values were consistently lower in the wet season than in the dry season but the difference between seasonal averages was not as great as for nitrate.

No significant variations occurred in the ortho-phosphate values. The total phosphate values in Tables 3 and 4 do not show consistent differences from wet to dry seasons. Stations 1, 2, 7, and 8 had higher average total phosphate concentrations during the wet months in comparison to the dry months. The remaining stations showed slightly reduced values for the wet period in comparison to the dry period.

Generally, the major ions show higher values during the May to November period than during the November to May period. Although the months from May to November are months of greatest rainfall and inflow into the Lake, the stages during this time are low with a tendency to increase until the dry season

TABLE 3

SELECTED CHEMICAL PARAMETERS

LAKE OKEECHOBEE - SEASONAL MEANS
May 1973 - November 1973

Location		Secchi cm	$T\text{-}PO_4$ mg/l P	$o\text{-}PO_4$ mg/l P	TKN mg/l P	NO_3 mg/l N	NO_2 mg/l N	Na mg/l	Ca mg/l	Cl mg/l	Alk meq/l
	$\bar{X}$	65	0.080	0.007	1.61	0.017	0.005	49.6	41.0	77	2.35
	S	32	0.030	0.006	0.37	0.016	0.002	10.2	11.2	18	0.67
Station 1	N	6	12	12	12	12	12	12	12	12	12
	$\bar{X}$	63	0.068	0.004	1.52	0.024	0.005	58.9	46.5	90	2.92
	S	40	0.050	0.003	0.48	0.033	0.002	4.0	7.7	8	0.43
Station 2	N	6	11	12	12	12	12	12	12	12	12
	$\bar{X}$	53	0.056	0.002	1.66	0.017	0.005	58.0	47.5	90	2.88
	S	33	0.034	-	0.41	0.018	0.002	4.1	8.6	9	0.40
Station 3	N	6	11	12	12	12	12	12	12	12	12
	$\bar{X}$	48	0.064	0.002	1.50	0.016	0.006	58.7	48.3	91	2.91
	S	17	0.034	0.001	0.30	0.014	0.003	2.9	5.6	9	0.27
Station 4	N	5	12	12	12	12	12	12	12	12	12
	$\bar{X}$	111	0.029	0.002	1.53	0.019	0.007	56.1	43.4	89	2.58
	S	38	0.015	0.001	0.17	0.020	0.005	10.2	9.4	17	0.54
Station 5	N	6	12	12	12	12	12	12	12	12	12
	$\bar{X}$	68	0.049	0.005	1.35	0.050	0.005	58.8	48.8	90	2.89
	S	24	0.20	0.004	0.25	0.055	0.002	1.7	5.4	6	0.20
Station 6	N	5	12	12	12	12	12	12	12	12	12
	$\bar{X}$	75	0.041	0.005	1.27	0.038	0.005	56.4	47.6	88	2.74
	S	51	0.023	0.004	0.39	0.031	0.002	2.0	2.9	4	0.15
Station 7	N	6	12	12	12	12	12	12	12	12	12
	$\bar{X}$	66	0.052	0.002	1.50	0.031	0.008	57.0	49.2	92	2.91
	S	23	0.023	0.001	0.32	0.056	0.007	8.2	8.8	5	0.24
Station 8	N	5	12	12	12	12	12	12	12	12	12
	$\bar{X}$	69	0.054	0.004	1.49	0.027	0.006	56.7	46.5	88	2.77
	S	39	-	0.004	0.37	0.036	0.004	7.0	8.4	11	0.44
Lake	N	45	94	96	94	96	96	96	94	96	96

$\bar{X}$ = mean value S = standard deviation N = number of data points

TABLE 4

SELECTED CHEMICAL PARAMETERS

LAKE OKEECHOBEE - SEASONAL MEANS
November 1973 - May 1974

		Secchi cm	T-PO_4 mg/l P	o-PO_4 mg/l P	TKN mg/l N	NO_3 mg/l N	NO_2 mg/l N	Na mg/l	Ca mg/l	Cl mg/l	Alk. meq/l
	$\bar{X}$	51	0.050	0.003	1.90	0.021	0.004	53.9	45.8	87	2.66
	S	23	0.017	0.002	0.51	0.022	-	3.0	6.7	8	0.31
Station 1	N	8	20	20	20	20	20	20	20	20	20
	$\bar{X}$	39	0.043	0.003	1.90	0.072	0.004	53.8	46.8	88	2.67
	S	9	0.018	0.003	0.55	0.066	-	3.4	4.1	8	0.32
Station 2	N	8	20	20	20	20	20	20	20	20	20
	$\bar{X}$	39	0.061	0.004	1.79	0.095	0.008	57.3	47.2	93	2.69
	S	18	0.026	0.004	0.54	0.039	0.011	8.4	4.3	16	0.33
Station 3	N	8	20	20	20	20	20	20	20	20	20
	$\bar{X}$	32	0.066	0.005	2.01	0.109	0.005	56.4	47.5	90	2.74
	S	13	0.031	0.004	0.57	0.048	0.005	5.7	4.2	8	0.36
Station 4	N	8	20	20	20	20	20	20	20	20	20
	$\bar{X}$	70	0.032	0.002	1.70	0.047	0.005	53.0	46.8	83	2.78
	S	13	0.014	-	0.34	0.070	0.003	6.0	6.0	9	0.46
Station 5	N	8	20	20	20	20	20	20	20	20	20
	$\bar{X}$	40	0.056	0.014	1.67	0.217	0.005	54.5	48.4	87	2.78
	S	19	0.022	0.005	0.47	0.107	0.003	1.9	4.2	4	0.34
Station 6	N	8	20	20	20	20	20	20	20	20	20
	$\bar{X}$	53	0.029	0.006	1.60	0.182	0.004	55.1	49.6	87	2.81
	S	29	0.014	0.005	0.33	0.124	0.001	2.9	4.1	5	0.36
Station 7	N	8	20	20	20	17	20	20	20	20	20
	$\bar{X}$	25	0.071	0.006	1.94	0.119	0.004	54.4	47.8	87	2.73
	S	6	0.032	0.005	0.49	0.080	0.002	4.2	5.6	10	0.52
Station 8	N	8	20	20	19	20	20	20	20	20	19
	$\bar{X}$	44	0.051	0.006	1.81	0.107	0.005	54.8	47.5	88	2.73
	S	22	0.027	0.005	0.50	0.131	0.005	5.0	5.1	10	0.39
Lake	N	64	160	160	159	159	160	160	160	160	159

$\bar{X}$ = mean value S = standard deviation N = number of data points

TABLE 5

SELECTED CHEMICAL PARAMETERS

LAKE OKEECHOBEE - STUDY MEANS
January 1973 - June 1974

		Secchi cm	T-PO_4 mg/l P	o-PO_4 mg/l P	TKN mg/l N	NO_3 mg/l N	NO_2 mg/l N	Na mg/l	Ca mg/l	Cl mg/l	Alk meq/l
	$\overline{X}$	53	0.061	0.004	1.73	0.022	0.004	50.9	44.2	81	2.52
	S	27	0.025	0.005	0.47	0.023	0.002	8.4	9.5	15	0.51
Station 1	N	17	38	38	38	38	38	38	38	38	38
	$\overline{X}$	45	0.054	0.004	1.71	0.059	0.004	55.9	48.0	80	2.81
	S	29	0.033	0.003	0.52	0.060	0.002	4.2	5.9	8	0.36
Station 2	N	17	39	40	40	40	40	40	40	40	40
	$\overline{X}$	42	0.064	0.003	1.74	0.071	0.006	57.3	48.4	93	2.80
	S	25	0.031	0.003	0.47	0.056	0.008	6.5	6.4	17	0.35
Station 3	N	18	39	40	39	40	40	39	39	40	40
	$\overline{X}$	34	0.071	0.005	1.82	0.083	0.005	57.2	49.0	90	2.85
	S	17	0.034	0.003	0.53	0.068	0.004	4	5.2	8	0.33
Station 4	N	17	40	40	40	39	40	40	39	40	40
	$\overline{X}$	80	0.034	0.002	1.57	0.033	0.005	54.6	46.5	86	2.72
	S	34	0.017	0.001	0.35	0.053	0.004	7.3	7.4	12	0.45
Station 5	N	18	40	40	40	40	40	40	40	40	40
	$\overline{X}$	48	0.054	0.011	1.52	0.151	0.004	56.4	49.4	88	2.85
	S	23	0.022	0.008	0.39	0.116	0.002	2.5	4.9	5	0.29
Station 6	N	17	40	40	40	40	40	40	40	40	40
	$\overline{X}$	71	0.034	0.006	1.36	0.123	0.004	56.4	49.2	88	2.79
	S	44	0.021	0.005	0.47	0.140	0.002	3.0	3.9	4	0.30
Station 7	N	18	40	40	40	38	40	40	39	40	38
	$\overline{X}$	37	0.072	0.006	1.76	0.105	0.005	55.6	49.3	89	2.86
	S	24	0.034	0.006	0.45	0.096	0.005	5.6	6.9	8	0.42
Station 8	N	17	40	40	37	40	40	40	40	40	39
	$\overline{X}$	51	0.054	0.005	1.64	0.079	0.005	56.1	48.2	89	-
	S	33	0.031	0.005	0.47	0.109	0.004	6.1	6.9	11	-
Lake	N	139	348	350	346	346	350	349	347	349	-

$\overline{X}$ = mean value S = standard deviation N = number of data points

(November to May) when they begin to fall again. Thus, the major ions tend to be most concentrated during the period of low and rising lake stages. The only exceptions to this are Stations 1 and 5 which show the opposite trend. These stations are the closest to major inflows into the Lake and are rapidly affected by the reduced ionic concentrations of these inflows.

The average water clarity (Secchi disc reading) at each station showed consistent seasonal differences. Every station recorded greater Secchi disc readings during the wet period as compared to the dry period.

The seasonal means for each station presented in Tables 3 and 4 indicate that the seasonal variation in water chemistry data based on Lake-wide averages as shown in Figures 7 and 8 are also evident at the individual stations.

The means of all sampling data for Stations 1 through 8 shown in Table 5 indicate that significant areal variations in water chemistry data exist within Lake Okeechobee.

Stations 5 and 7 had the best water clarity based on Secchi disc readings. The average Secchi disc reading at these two stations was almost double those at the other stations. These two stations also had the lowest average total phosphate concentrations. Stations 4 and 8 had the poorest water clarity and highest total phosphate concentrations. These two stations also had moderately high average nitrate levels. The highest nitrate values were recorded at Stations 6 and 7 with the lowest values at Stations 1 and 5. Stations 1 and 5 also had the lowest average major ion concentrations.

Trace Metals

The results of trace metal analysis on water samples collected from Lake Okeechobee in June 1974 are shown in Table 6. The analysis for trace metals on samples collected in January 1973 has been omitted due to incomplete data.

TABLE 6

TRACE METAL ANALYSIS
LAKE OKEECHOBEE

June 1974

All Results in µg/l

Station		Cadmium	Copper	Total Iron	Manganese	Strontium	Lead	Zinc
1.	Top	<1.8	5.0	320	<5.0	860.0	13.3	15.0
	Bottom	<1.8	6.0	340	<5.0	820.0	11.6	55.0
2.	Top	<1.8	5.0	350	<5.0	850.0	18.4	15.0
	Bottom	<1.8	7.0	410		790.0	11.6	
3.	Top	<1.8	4.0	360		870.0	<10.8	30.0
	Bottom	<1.8	4.2	470		890.0	<10.8	25.0
4.	Top	<1.8	7.0	430		895.0	<10.8	20.0
	Bottom	<1.8	7.4	380		800.0	<10.8	50.0
5.	Top	<1.8	5.4	280		715.0	<10.8	15.0
	Bottom	<1.8	5.0	250		790.0	<10.8	10.0
6.	Top	<1.8	3.4	240		455.0	15.0	65.0
	Bottom	<1.8	5.0	310		888.0	11.6	20.0
7.	Top	<1.8	3.8	210		695.0	<10.8	26.5
	Bottom	<1.8	3.4	260		840.0	<10.8	15.0
8.	Top	<1.8	4.2	380		800.0	<10.8	20.0
	Bottom	<1.8	5.8	420		800.0	<10.8	25.0

All results shown in Table 6, except for iron, are dissolved trace metals. The iron analyses were performed on unfiltered sample aliquots which had first been digested with hot hydrochloric acid.

The results indicate relatively low levels of heavy metals except for Strontium. The high Strontium concentrations are not unexpected due to the relatively high calcium and magnesium levels in the Lake. There does not appear to be any significant variation in trace metal concentrations from station to station. Total iron and to some extent copper were more concentrated in the bottom samples in comparison to surface samples. This may be due to increased particulate matter in the bottom samples.

Primary Productivity

Primary productivity is the rate at which carbon is fixed by the primary producers. In Lake Okeechobee this involves mainly phytoplankton. Elements which are generally measured are gross primary productivity, net primary productivity and respiration. Gross primary productivity is the total amount of carbon fixed during photosynthesis. Net primary productivity is the amount of carbon fixed after allowances have been made for losses due to respiration and other metabolic processes occurring in the plant cell during photosynthesis.

Monthly average primary productivities are shown in Figure 9. Monthly primary productivities by station are shown in Figure 10 and listed in Table 7. In Lake Okeechobee the net primary productivity was essentially the same as the gross primary productivity (Figures 9 and 10). The instances in which the net productivity was larger than the gross productivity may be accounted for by the insensitivity of the Winkler oxygen method. Respiration generally represented less than 15% of the gross primary productivity. In the discussion which follows "productivity" will be used to mean gross primary productivity, ergo, net primary productivity.

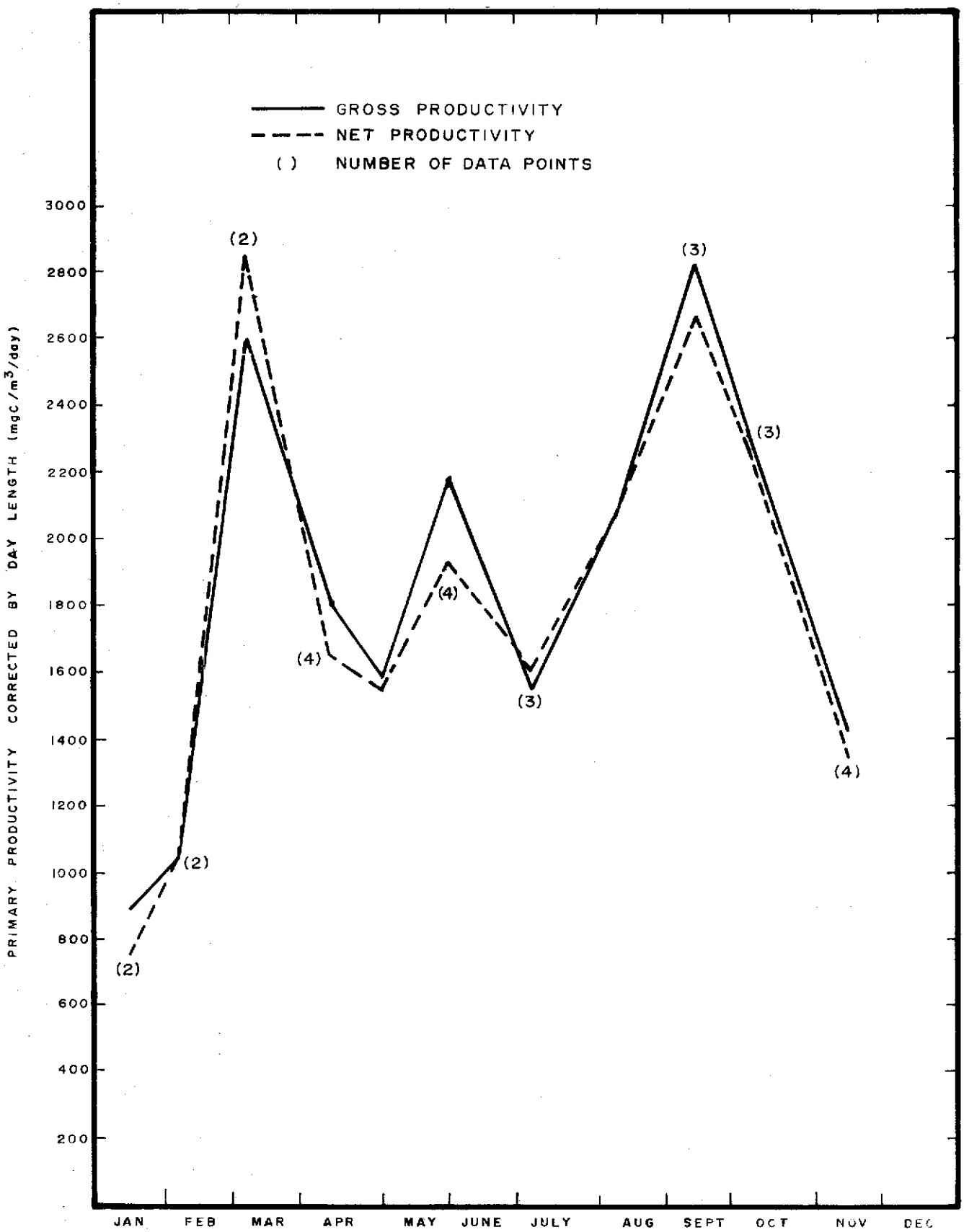


Figure 9 LAKE OKEECHOBEE 1973 MONTHLY AVERAGE PRIMARY PRODUCTIVITY

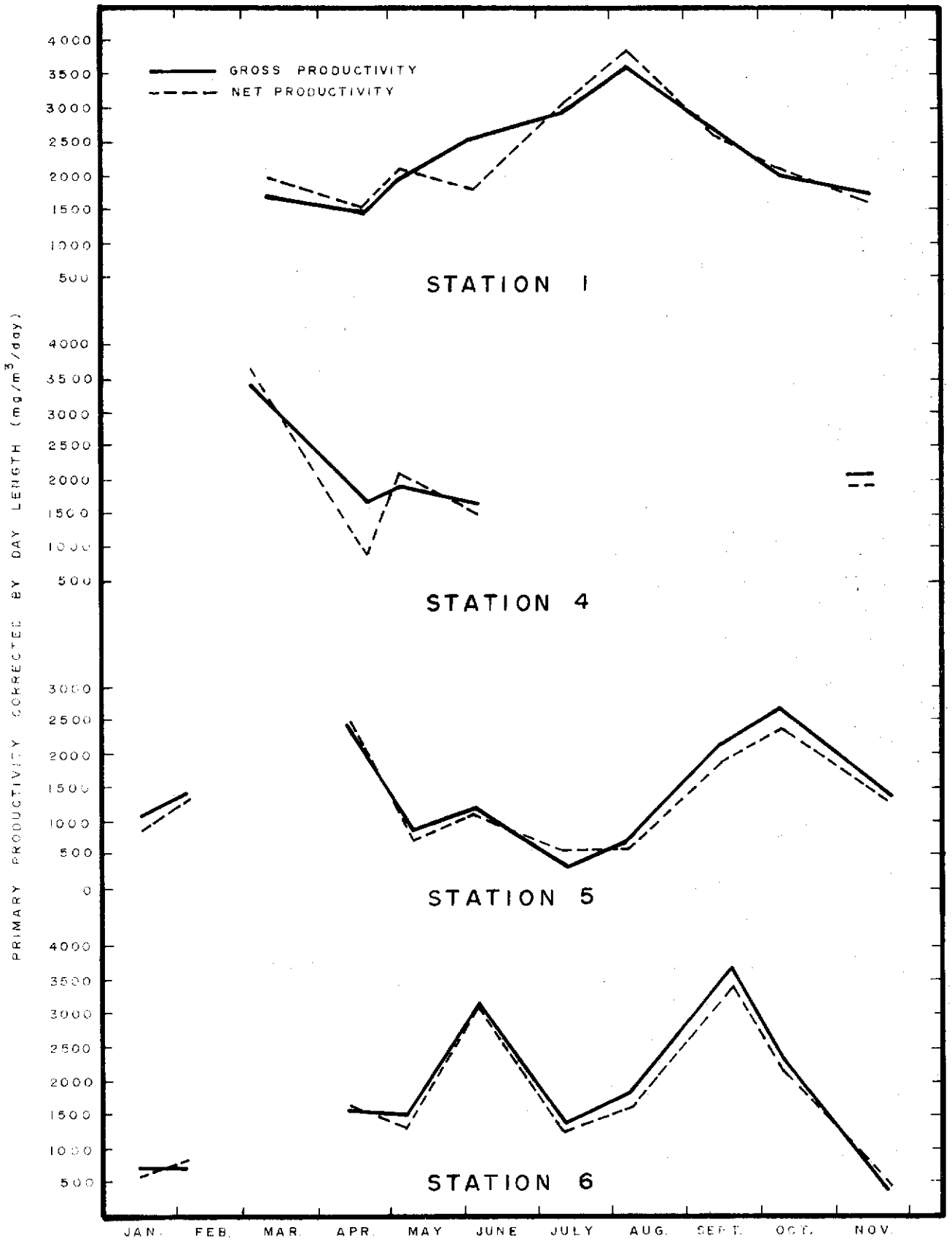


Figure 10 LAKE OKEECHOBEE 1973 PRIMARY PRODUCTIVITY CORRECTED BY DAY LENGTH BY MONTH

TABLE 7 LAKE OKEECHOBEE 1973

IN SITU PRIMARY PRODUCTIVITIES (LIGHT AND DARK BOTTLE OXYGEN METHOD)

		Primary Productivity ($mgC/m^3/day$) Corrected for day length		
Date	Station	Gross	Net	Respiration
1/16/73	5	682	496	186
1/16/73	6	434	434	0
2/6/73	5	868	806	62
2/6/73	6	434	496	0
3/5/73	1	1054	1240	0
3/5/73	4	2170	2294	0
4/19/73	1	930	930	0
4/19/73	4	1054	558	620
4/12/73	5	1488	1550	0
4/12/73	6	992	1054	0
5/3/73	1	1240	1302	0
5/2/73	4	1240	1302	0
5/9/73	5	496	434	62
5/9/73	6	930	806	124
6/4/73	1	1612	1116	558
6/4/73	4	1054	930	124
6/5/73	5	744	744	0
6/5/73	6	1984	1984	0
7/12/73	1	1860	1860	0
7/10/73	5	186	310	0
7/10/73	6	868	806	62
8/9/73	1	2294	2418	0
8/10/73	5	434	372	62
8/10/73	6	1116	1054	62
9/12/73	1	1674	1674	62
9/13/73	5	1302	1178	186
9/13/73	6	2294	2108	186
10/11/73	1	1240	1302	0
10/12/73	5	1674	1488	248
10/12/73	6	1426	1426	62
11/15/73	1	1054	992	124
11/15/73	4	1364	1240	186
11/20/73	5	868	806	62
11/20/73	6	248	310	0

Three peaks in average primary productivity were recorded in 1973: March 2600 mg C/m^3/day; June, 2200 mg C/m^3/day; and September, 2800 mg C/m^3/day. The fall peak (September) in primary productivity was highest, followed by the spring (March) and summer (June) peaks.

The productivity records of the individual stations (Figure 10) indicate significant areal variation. The data for the spring peak is incomplete so that the timing and magnitude of this peak is uncertain. Stations 1 and 4 had productivities of 1700 and 3500 mg C/m^3/day, respectively, in March. In April, Stations 5 and 6 had values of 2400 and 1600 mg C/m^3/day, respectively.

Smaller peaks in productivity were observed in June at Stations 5 and 6. The productivity at Station 6 was 3200 mg C/m^3/day and 1200 mg C/m^3/day at Station 5.

The highest productivities of 1973 were recorded in August, September and October. Maximum productivity occurred at different times in different parts of the Lake. Station 1 showed a gradual increase in productivity from April to a peak (3700 mg C/m^3/day) in August, then a gradual decrease through November. Station 6 showed an abrupt increase in productivity from July to a maximum (3700 mg C/m^3/day) in September, then an abrupt drop to a minimum in November. Station 5 showed a less abrupt increase from July to a peak productivity (2700 mg C/m^3/day) in October, then a drop in November. From the shape of the curve, it appears that the true peak at Station 5 may have occurred sometime late in September. Logistical problems prevented primary productivity measurements at Station 4 from July through October. However, productivity measurements were taken at Station 4 in November and this station had the highest productivity (2200 mg C/m^3/day) for that month. Logistical problems also prohibited measurements in Decmeber 1973 at all stations.

During 1973, the highest productivty, 3700 mg C/m^3/day, was recorded at Station 1 in August and Station 6 in September. The lowest productivity, 300 mg C/m^3/day, was recorded at Station 5 in July. The average primary productivity for the Lake, for all productivty stations in 1973, was 1864 mg C/m /day.

Certain stations were generally more productive than others. The average productivities for the stations for 1973 were as follows: Station 1, 2300 mg C/m^3/day; Station 4, 2200 mg C/m^3/day; Station 6, 1700 mg C/m^3/day; and Station 5, 1400 mg C/m^3/day. The north and north-central stations (1 and 4, respectively) were the most productive. The south-central station (6) was on an average slightly less productive than the north-central station. The westernmost station (5) was the least productive of all the sample stations.

Algal Populations

A listing of the algae observed in Lake Okeechobee is given in Table 8. The distribution of the signficant algal groups is shown in Figure 11.

The blue-green algae (Cyanophyta) were the dominant algae of Lake Okeechobee. The most frequently occurring blue-greens were *Oscillatoria sp.*, *Lyngbya contorta*, *Microcystis aeruginosa*, and *Microcystis incerta*. The filamentous *Oscillatoria sp.* and *L. contorta* were the dominant blue-green algae at most sites throughout the year. *M. aeruginosa*, the massive buoyant colonial blue-green, formed thick scums 2-5 mm thick, on the surface of the water in late fall.

Stations 1 and 5 had the highest average percentage of blue-green algae (Figure 11) and these stations also had a much more diverse blue-green algal flora than did the other lake stations.

The most common green algae (Chlorophyta) were the unicellular flagellated types, including *Chlamydomonas sp.*, *Carteria cordiformis*, *Chlorogonium sp.* and

TABLE 8

Lake Okeechobee Phytoplankton Observed in 1973

Cyanophyta (Bluegreen Algae)

Anabaena sp.
Anacystis sp (Gloeothece)
Chroococcus turgidus
Chroococcus sp.
Coelosphaerium sp.
Gomphosphaeria sp.
Lyngbya contorta
Merismopedia sp.
Microcystis aeruginosa
Microcystis incerta
Oscillatoria sp.
Spirulina sp.

Chlorophyta (Green Algae)

Ankistrodesmus falcatus
Carteria cordiformis
Chlamydomonas sp.
Chlorococcum sp
Chodatella (Lagerhemia) subsalsa
Closteridium lunula
Closterium gracile
Closterium kutzingii f. sigmoides
Closterium venus
Closterium sp.
Coelastrum sp.
Dictyosphaerium ehrenbergianum
Dictyosphaerium pulchellum
Golenkinia radiata
Lepocinclis sp.
Mougeotia sp.
Oocystis sp.
Pandorina morum
Pediastrum boryanum
Pediastrum duplex var. gracilimum
Pediastrum simplex
Pediastrum tetras
Phacotus lenticularis
Platydorina caudata
Polyedriopsis spinulosa

Pseudotetraedron neglectum
Pteromonas aculeata
Quadrigula closteroides
Scenedesmus abundans
Scenedesmus acuminatus
Scenedesmus arcuatus var. platydisca
Scenedesmus bijuga
Scenedesmus dimorphus
Scenedesmus quadricauda
Schroederia setigera
Staurastrum cuspidatum
Staurastrum sp.
Tetraedron gracile
Tetraedron muticum
Tetraedron trigonum
Tetrastrum staurogeniaeforme
Treubaria crassispina

Chrysophyta (Yellowgreen Algae)
Mallomonas sp.

Amphora sp.
Campylodiscus sp.
Cocconeis sp.
Coscinodiscus sp.
Cyclotella sp.
Cylindrotheca sp.
Cymbella sp.
Denticula sp.
Frustulia sp.
Gyrosigma sp.
Melosira sp.
Navicula sp.
Nitzchia sp.
Pinnularia sp.
Surirella sp.
Surirella sp.
Synedra sp.
Tabellaria sp.

Dinoflagellata
Ceratium hirundinella
Glenodinium gymnodinium

Euglenophyta
Euglena acus
Euglena gracilis
Euglena spiroides
Euglena viridus
Phacus torta
Phacus triqueter
Trachelomonas volvocina
Trachelomonas sp.

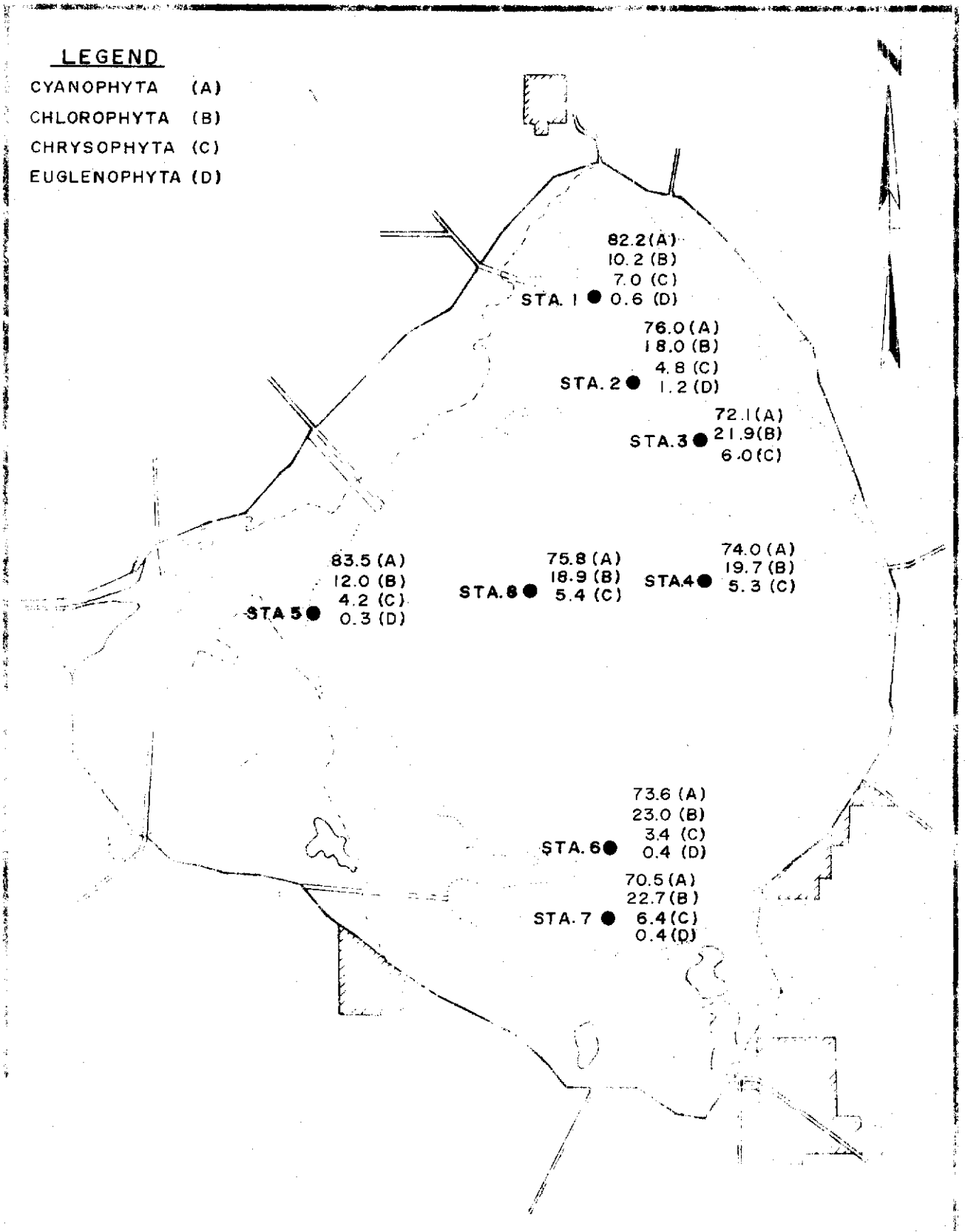


Figure 11 LAKE OKEECHOBEE 1973
AVERAGE PHYTOPLANKTON COMPOSITION BY STATION

several, as yet unidentified, species. These algae dominated the spring pulse which was first observed at Stations 3 and 4. The flagellated unicellular types of green algae were more numerous and generally more common than desmid types throughout the Lake.

Desmids accounted for a relatively smaller proportion of the green algae population. Observed most frequently were several species of Closterium, Pediastrum, Scenedesmus, and Staurastrum. They were found most frequently in samples taken at Stations 1 and 5.

Green algae made up a larger portion of the algal populations at Stations 3, 6, and 7 than at the other Lake Stations (Figure 11).

Diatoms (Chrysophyta) were present in relatively small numbers throughout the year. The most common representatives, Coscinodiscus sp., Melosira sp., Tabellaria sp., Gyrosigma sp., Navicula sp., Amphora sp., and Synedra sp., were most important in the winter and spring and were absent in the summer. The diatom flora was generally more numerous and diverse at Stations 1, 5, and 7 near the periphery of the Lake.

Only two Dinoflagellate species, Ceratium hirundinella and Glenodinium gymnodinium, were observed in Lake Okeechobee. C. hirundinella was observed mainly at Station 5. G. gymnodinium was observed once in live samples collected during non-routine sampling in the north and north-central part of the Lake.

The euglenoids (Euglenophyta) made up a very small part of the Lake phytoplankton, but may be of particular significance. The following euglenoids were observed: Euglena acus, E. gracilis, E. spiroides, E. viridis, Phacus torta, P. triqueter and Trachelomonas volvocina. These organisms were present at Stations 1 and 5 in June, Station 1 in September, Station 7 in October, and Stations 2 and 6 in November. Euglenoids were generally found during periods of

peak discharge into the Lake and their presence may be linked to high nutrient inputs.

Seasonal Phytoplankton Variation

The seasonal variation in average phytoplankton densities and compositions are shown in Figure 12. Table 9 lists the phytoplankton densities by month. Appendix C shows the phytoplankton density and composition by station for each sampling date.

Two pronounced maxima in phytoplankton densities were observed, one in the spring and one in the fall. Changes in phytoplankton populations from January to June 1973 were abrupt and dramatic. Phytoplankton densities nearly doubled between February and March. The peak in phytoplankton densities in March, April and May constituted the spring pulse. Succession of algal groups was apparent during this period. The increase in phytoplankton in March was due primarily to the increase in the number of small, flagellated, unicellular, green aglae (Chlorophyta). Green algae were succeeded in April by diatoms (Chrysophyta) and large populations of filamentous blue-green algae (Cyanophyta). Decreases in blue-green algae and diatom populations accounted for the overall decline in phytoplankton populations in May. An increase in green algae in May made the decline less acute. In June, the number of phytoplankton dropped dramatically to values of less than 1/3 of the maximum values observed in April.

The spring pulse began abruptly in March and ended abruptly in June, whereas the fall pulse was marked by a gradual increase in numbers beginning in July, a peak in September, and a gradual decline through December. The increase in phytoplankton densities during the fall pulse was not as great as during the spring and was due mainly to increases in the population of blue-green algae. Initially, most of the blue-green aglae were filamentous, but later a colonial blue-green

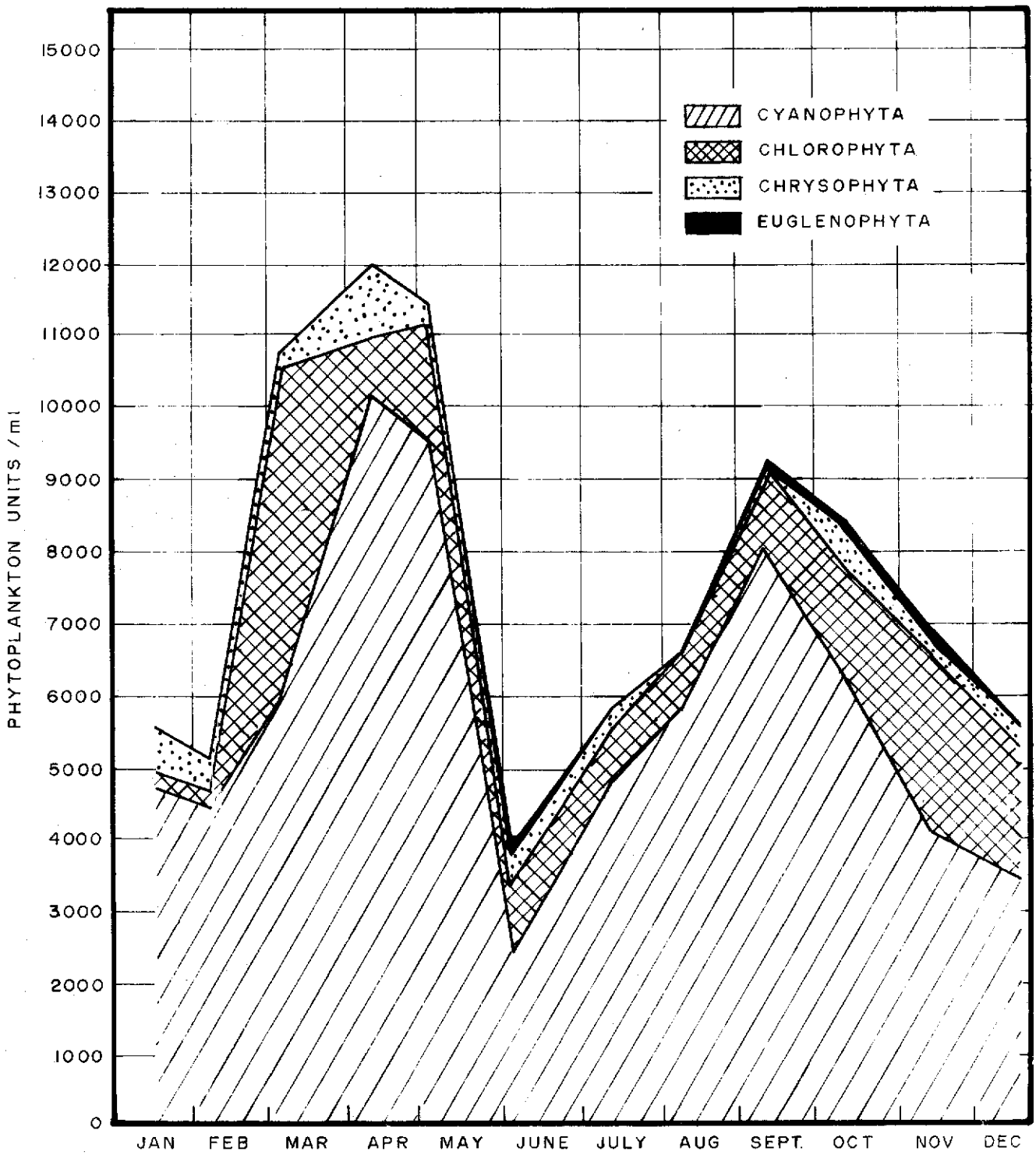


Figure 12 LAKE OKEECHOBEE 1973 AVERAGE PHYTOPLANKTON DENSITIES AND COMPOSITION BY MONTH

TABLE 9 LAKE OKEECHOBEE 1973 PHYTOPLANKTON DENSITIES(PHYTOPLANKTON UNITS / ML)

Station	J	F	M	A	M	J	J	A	S	O	N	D	Ave.
1	**	2632	7038	9108	10350	6210	14697	9310	6270	7790	5130	9310	8907
2	5175	6580	6417	8901	12006	4140	8901	6840	12160	6080	7980	7790	7629
3	7520	3572	23598	11799	14076	3105	4968	6460	19285	6460	5890	3800	8741
4	4550	8084	18216	11799	14904	4968	6417	12540	9690	9500	8170	4940	9086
5	11592	8272	4554	7659	3519	6003	3933	6550	12160	17480	13110	6270	8820
6	3933	3384	7659	12420	13869	3726	414	3990	7600	4560	3800	3040	5436
7	2070	1128	3312	13455	7038	**	621	0	2850	4560	4370	3420	3810
8	3948	7332	13041	18216	13455	1656	5175	7030	4180	10830	6840	6270	9017
Monthly Averages	5542	5123	10764	11928	11437	3985	5796	6626	9274	8431	6911	5605	

*Palmer Counting Chamber used - 20 fields at 400X on two slides. A colony and a filament were each counted as a single unit.

**Sample lost

algae became dominant. This shift to a colonial blue-green population caused some sampling difficulties. The buoyant colonial blue-greens formed a surface scum which persisted in much of the Lake from September through December, and in November, covered all Stations except 1 and 5. Because samples were taken at 0.5 m, the reported phytoplankton numbers and per cent composition may not be representative of the conditions which existed in the surface waters. Beneath the surface scum was a population of small green flagellates, which comprised a large percentage of green algae reported in the fall of 1973. The observed increase in green algae from September through November may indeed represent a true shift in algal populations. The blue-green algae, although more obvious, may not have comprised a significant proportion of the overall algal population.

Figure 13 indicates significant areal variation in phytoplankton densities by month at Stations 1, 4, 5, and 6. Station 1 had relatively constant phytoplankton densities, with a major peak in algal numbers occurring in July and minor peaks occurring in May and October. The peaks in May and July were due mainly to increases in blue-green algae, whereas the peak in October was due to green algae.

Peaks in algal numbers at Station 4 occurred in March, May and August. The major peaks, March and May, were dominated by small flagellated green algae, and filamentous blue-green algae, respectively. The peak in August was due completely to increases in blue-green algae.

At Station 5, minor peaks were recorded in April and June, with a major peak occurring in October. The increase in phytoplankton numbers from July to a peak in October was due to an increase in the number of blue-green algae. The number of green algae during this period was relatively large and constant.

Major and minor peaks in algal numbers at Station 6 occurred in May and September, respectively. Both were due to increases in blue-green algae

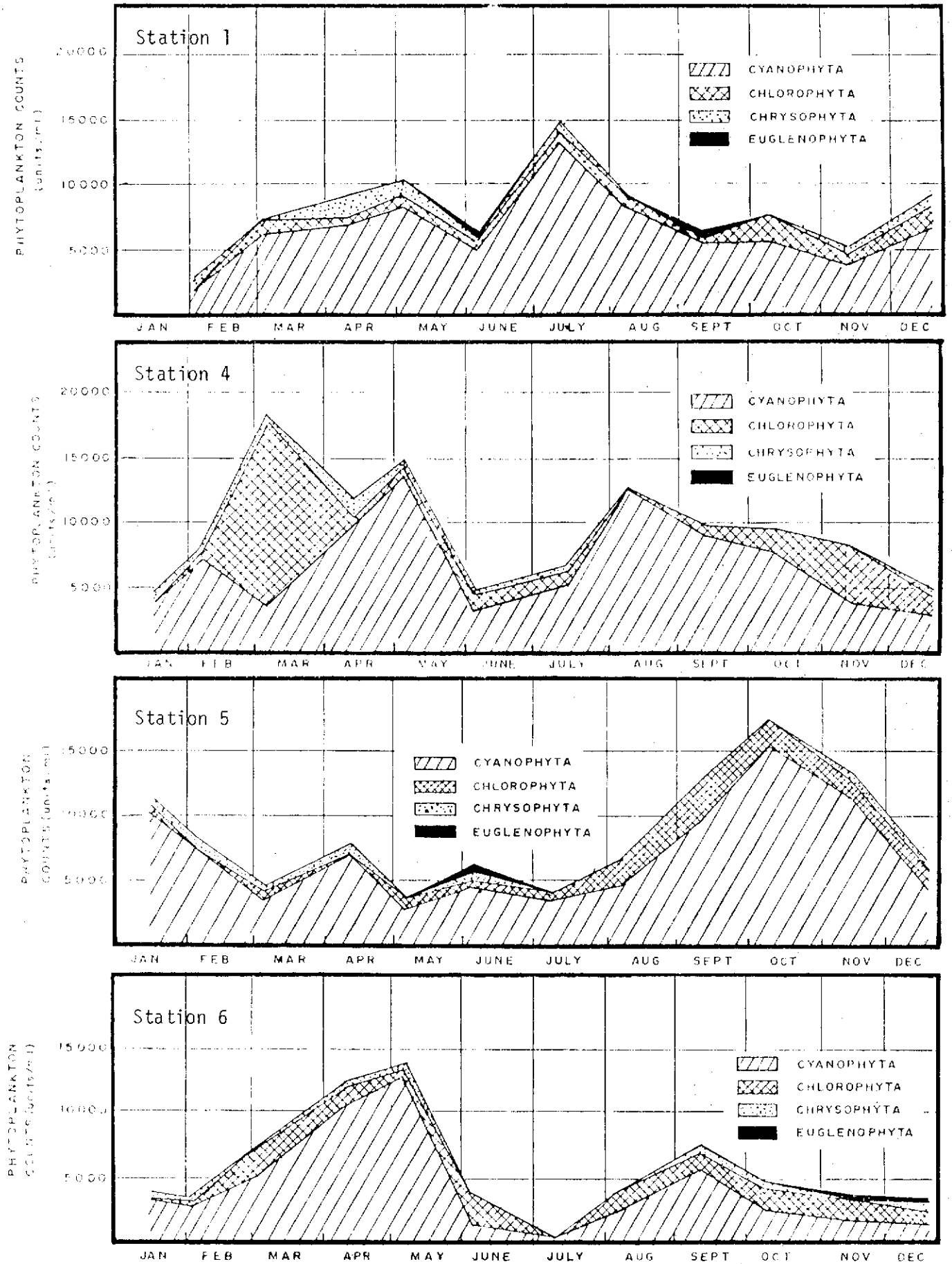


FIGURE 13 LAKE OKEECHOBEE 1973 PHYTOPLANKTON
Densities at Stations 1, 4, 5 and 6 by Month

populations. This station had the highest average green algae population of any productivity station.

The range in Lake average phytoplankton densities was 4000 to 12000 phytoplankton units/ml in July and April, respectively. Using individual station data, the range was from zero at Station 7 in August, to 24000 phytoplankton units/ml at Station 3 in March.

Benthic Invertebrates

A description of the bottom sediments collected during the benthic sampling at each station is presented below.

Station	Bottom Types
1	Sand, some mud
2	Sand, mud, shell, some marl
3	Mud, some shell, some detritus
4	Mud, some shell
5	Sand, some shell, some detritus
6	Marl, pockets of mud
7	Peat, shell, rock, some marl
8	Sand, mud, some detritus

The results of benthic sampling appear in Table 10. The most common benthic invertebrates were oligochaetes, the amphipod *Gammarus fasciatus*, and the chironomid *Pentaneurini sp*. The highest number of organisms, $2562/m^2$, was collected in July at Station 7. The lowest was $50/m^2$ at Station 2 in February.

Diversity Indices (Shannon and Weaver, 1963) were calculated for each station. Stations were ranked in order of descending average diversity indices as follows: 3, 4, 1, 2, 7, 8, 5, and 6. Mud bottoms were most productive, followed by sand, peat, and marl.

It is interesting to note that the amphipod, *Apelisa tenuicornis* and the isopod, *Sphaeroma terebrans* (organisms also found in brackish water [Pennak, 1953]),

Table 10

BENTHIC INVERTEBRATE FAUNA COLLECTED FROM LAKE OKEECHOBEE IN 1973

Number of Organisms/0.1m²

*P = Peterson Dredge
E = Ekman Dredge

Date	7/15	7/22	11/9	2/7	7/15	11/9	11/9	2/7	7/15	11/9	2/7	7/15	11/8	2/6	7/10	11/8	2/6	7/10	11/9	11/9	2/6	7/10	11/9	2/5	7/10	11/8
Station	1	1	1	2	2	2	2	3	3	3	4	4	4	5	5	5	6	6	6	6	7	7	7	8	8	8
Method*	E	E	E	E	E	E	P	E	E	E	E	E	E	E	E	E	E	E	E	P	E	E	E	E	E	E
Depth	3.0	3.0	3.5	3.0	2.5	3.5	3.5	3.0	2.5	4.0	3.0	2.5	4.0	2.0	2.0	3.0	2.5	2.5	3.5	3.5	2.0	2.0	3.0	3.0	2.5	4.0
ANNELIDA																										
Oligochaeta	10	63	43		6	8	4	9	32	44	11	22	46	7	101	45	1	50				3	4	27	49	104
CHIRIPEDA																										
Pyatellidae																										
[illegible]																			29	6						
[illegible]	2	3	1	1		1	2	10	4	5	6	2	2			1			2	1	2	131	7		1	[illegible]
[illegible]																										
Ceratoliidae																										
[illegible]						1		1	10	6							1	1	1	2	37	106	45			
[illegible]																					2		1			
GASTROPODA																										
Viviparidae																										
[illegible]			3						5	1														2		
Pleuroceridae																										
[illegible]																			64					2		
NIPTERA																										
Chironomidae																										
[illegible]		2	1					39			2	9				1							1			1
[illegible]	27	7	15	3	2	3	6	18	27	42	36	18	31	63	5	5	10	4	1		2	1		20	7	16
[illegible]															3											
[illegible]																					3					
Culicidae																										
[illegible]	1										1				3				1					1		
ISOPODA																										
Antharidae																										
[illegible]	14	3	1	1				1						27	10	12	1			3		15	33	5		
[illegible]																				26						
[illegible]																										
[illegible]		2	4			2	1		5	3		2	2				1	1							1	2
Total	54	80	75	5	8	17	13	118	81	101	56	53	80	97	122	64	14	56	98	38	46	256	91	57	58	128
Diversity Index	1.738	1.073	1.708	1.370	0.811	1.969	1.738	1.502	2.135	1.721	1.491	1.846	1.201	1.191	0.973	1.284	1.434	0.625	1.238	1.446	1.099	1.367	1.658	1.790	0.775	0.878

were found at Station 6. Also of interest is the larger concentration of *Corbicula leana* at the southernmost station. This clam is common in the agricultural canals south of Lake Okeechobee (Marshall, 1972, unpublished data).

Loading Calculations

The total discharge, average water quality and material loadings of major inflows to Lake Okeechobee are given in Table 11. The percentage figures for both discharge and loading data are the percentages of total water or material attributed to each inflow. The average concentration of nitrogen, phosphorus, chloride and calcium for each inflow was calculated by dividing the total element input by the total water input. The chemistry data for all major inflows and outflows of the Lake can be found in Appendix B.

Rainfall and the Kissimmee River were the largest contributors of water to Lake Okeechobee during the year from May 1973 to May 1974. The rainfall rates were lower than those reported in the past since they represent corrected gauge data as described previously. The Kissimmee River discharge was somewhat less than the previous 10 year average of 1,177,000 AF/year. Pumpage rates at S-2 and S-3 were also below the six year (1963-1969) average rates of 218,000 AF/year and 101,000 AF/year, respectively. Since 1973 was the first year that Nubbin Slough had discharged the combined Taylor Creek/Nubbin Slough drainage basin, it is impossible to determine if it was above or below normal.

Table 11 shows that the agricultural canals had the highest concentration of total nitrogen of all inflows to the Lake. Their nitrogen loadings represented 32% of the total of all inflows despite the fact that they contributed only 9% of the water. Harney Pond Canal and Indian Prairie Canal also had high nitrogen concentrations but their flows were too low for them to cause high loadings to the Lake. All other inflows had total nitrogen concentrations below the average

TABLE 11

WATER QUALITY OF MAJOR INFLOWS TO LAKE OKEECHOBEE MAY 1973 - MAY 1974

Inflow	Discharge Acre-Ft. x 10^{-3}	%	Total N Av. Conc. mg/l N	Total N Tons	%	Total P Av. Conc. mg/l P	Total P Tons	%	Chloride Av. Conc. mg/l Cl	Chloride Tons	%	Calcium Av. Conc. mg/l Ca	Calcium Tons	%
Rainfall	1013.8	34	0.73	1006.5	16	0.038	53.8	10	0.4	551	<1	0.53	730	<1
Kissimmee River	1017.3	34	1.39	1922.8	30	0.084	117.2	21	10.92	25,061	25	18.1	15,112	23
Nubbin Slough	203.8	7	1.89	523.2	8	0.766	212.4	39	55.3	15,326	15	21.2	5,873	9
N.N.R. & Hills. Canal (S-2)	178.1	6	5.92	1435.2	22	0.168	39.5	7	140.8	34,101	34	104.0	25,186	38
Miami Canal (S-3)	76.7	3	5.95	621.0	10	0.133	14.1	2	119.0	12,415	12	106.2	11,086	17
Harney Pond	149.6	5	2.30	481.3	7	0.324	69.7	13	17.7	3,599	4	17.1	3,485	5
Indian Prairie	42.6	1	2.61	151.4	2	0.298	17.3	3	23.0	1,332	1	37.6	2,177	3
Fisheating Creek	144.8	5	1.55	304.7	5	0.123	24.2	4	33.5	6,593	7	8.5	1,667	2
Total	3008.3	95		6446.0			548.2			98,978			65,316	
Lake Average			1.71			0.053			88.6			56.0		

Lake concentrations. Both rainfall and the Kissimmee River contributed a high percentage of the total nitrogen loading to the Lake because of large water volume input rather than high concentrations of total nitrogen.

The average total phosphate concentration in Nubbin Slough was more than 10 times that of the Lake average. Thus, even though this inflow contributed only 7% of the water to the Lake during 1973-1974, it was responsible for 39% of the total phosphate. Harney Pond Canal and Indian Prairie Canal also had high average total phosphate levels. The discharge rate for Harney Pond Canal was high enough in this case to produce 13% of the total phosphate input. Although the agricultural canals had moderately high phosphate levels, their contribution to the total loadings was relatively minor. As in the case with nitrogen, the largest water inputs (Kissimmee River and rainfall) also were significant sources of total phosphate because of high inflow rates, rather than high concentration levels.

Except for the agricultural canals, all inflows to the Lake had lower major ion concentrations, as measured by the chloride and calcium values in Table 11, than existed within the Lake. The major contributors of dissolved salts to the Lake were the agricultural canals with well over 50% of the total input. Again, due to the high percentage of water input, the Kissimmee River was the second largest contributor of dissolved salts even though its concentration values were well below those of the Lake.

The monthly loading rates of nitrogen and phosphorus to Lake Okeechobee by the Kissimmee River, Nubbin Slough, agricultural canals, and rainfall are shown in Figures 14 through 17, respectively. These inflows represent over 80% of the total nitrogen and total phosphorus discharged into the Lake from May 1973

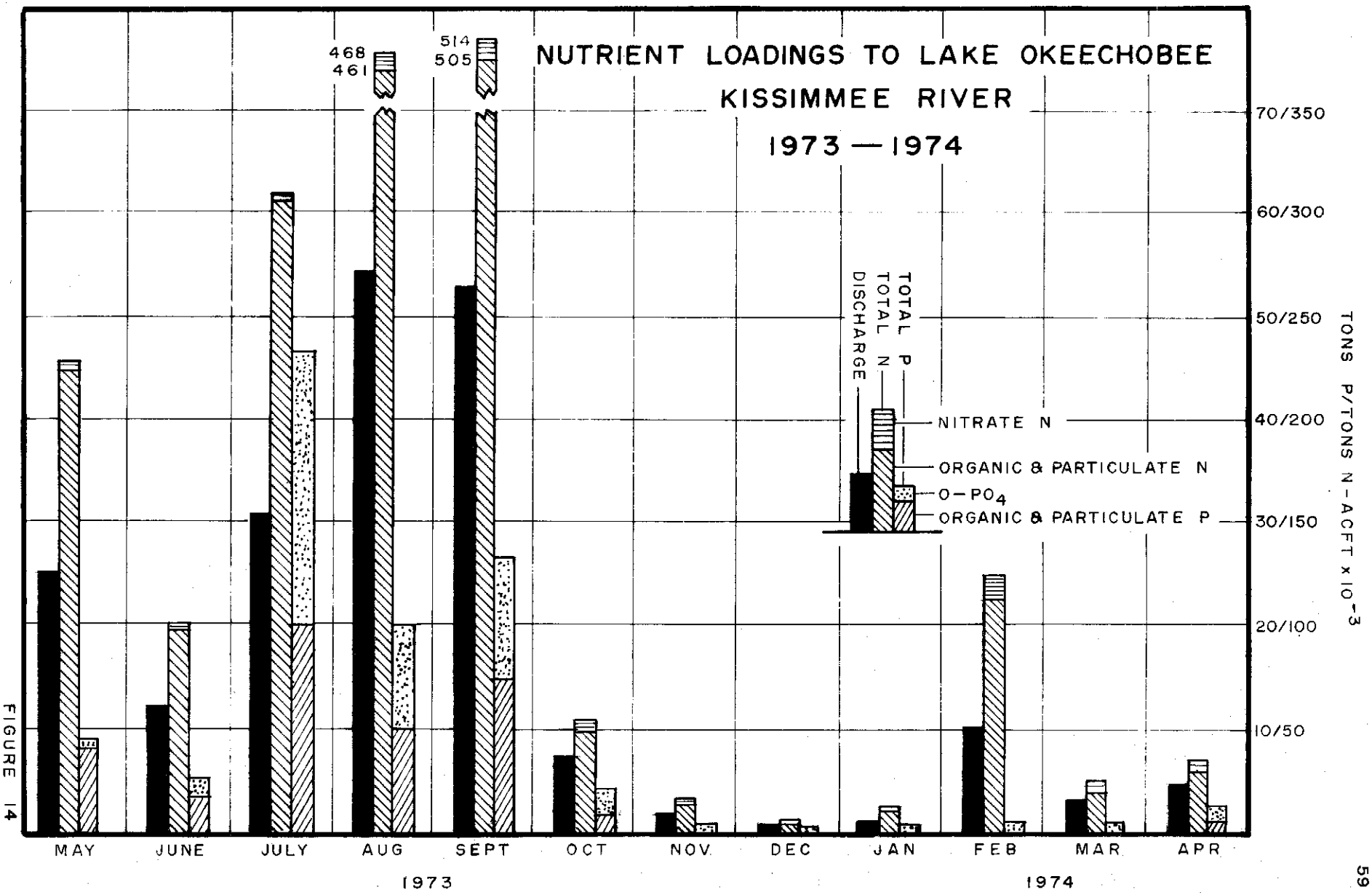

NUTRIENT LOADINGS TO LAKE OKEECHOBEE
KISSIMMEE RIVER
1973 — 1974
468
461
514
505
DISCHARGE
TOTAL N
TOTAL P
NITRATE N
ORGANIC & PARTICULATE N
O-PO4
ORGANIC & PARTICULATE P
70/350
60/300
50/250
40/200
30/150
20/100
10/50
TONS P/TONS N-ACFT x 10-3
MAY
JUNE
JULY
AUG
SEPT
OCT
NOV.
DEC
JAN
FEB
MAR.
APR
1973
1974

FIGURE 14

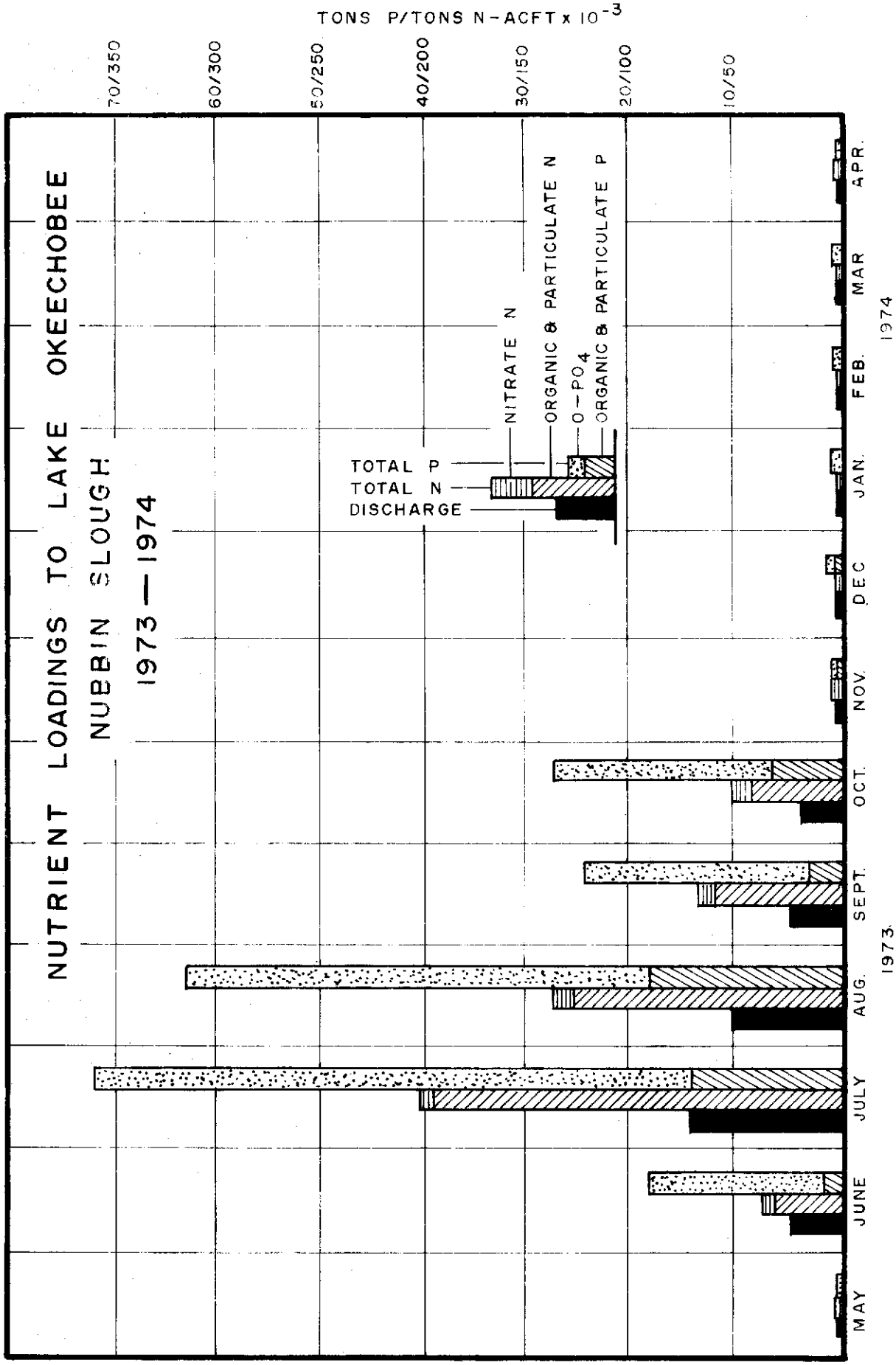

NUTRIENT LOADINGS TO LAKE OKEECHOBEE
NUBBIN SLOUGH
1973 — 1974
TONS P/TONS N-ACFT x 10^-3
70/350
60/300
50/250
40/200
30/150
20/100
10/50
TOTAL P
TOTAL N
DISCHARGE
NITRATE N
ORGANIC & PARTICULATE N
O-PO4
ORGANIC & PARTICULATE P
MAY
JUNE
JULY
AUG.
SEPT.
OCT.
NOV.
DEC
JAN.
FEB.
MAR
APR.
1973
1974

FIGURE 15

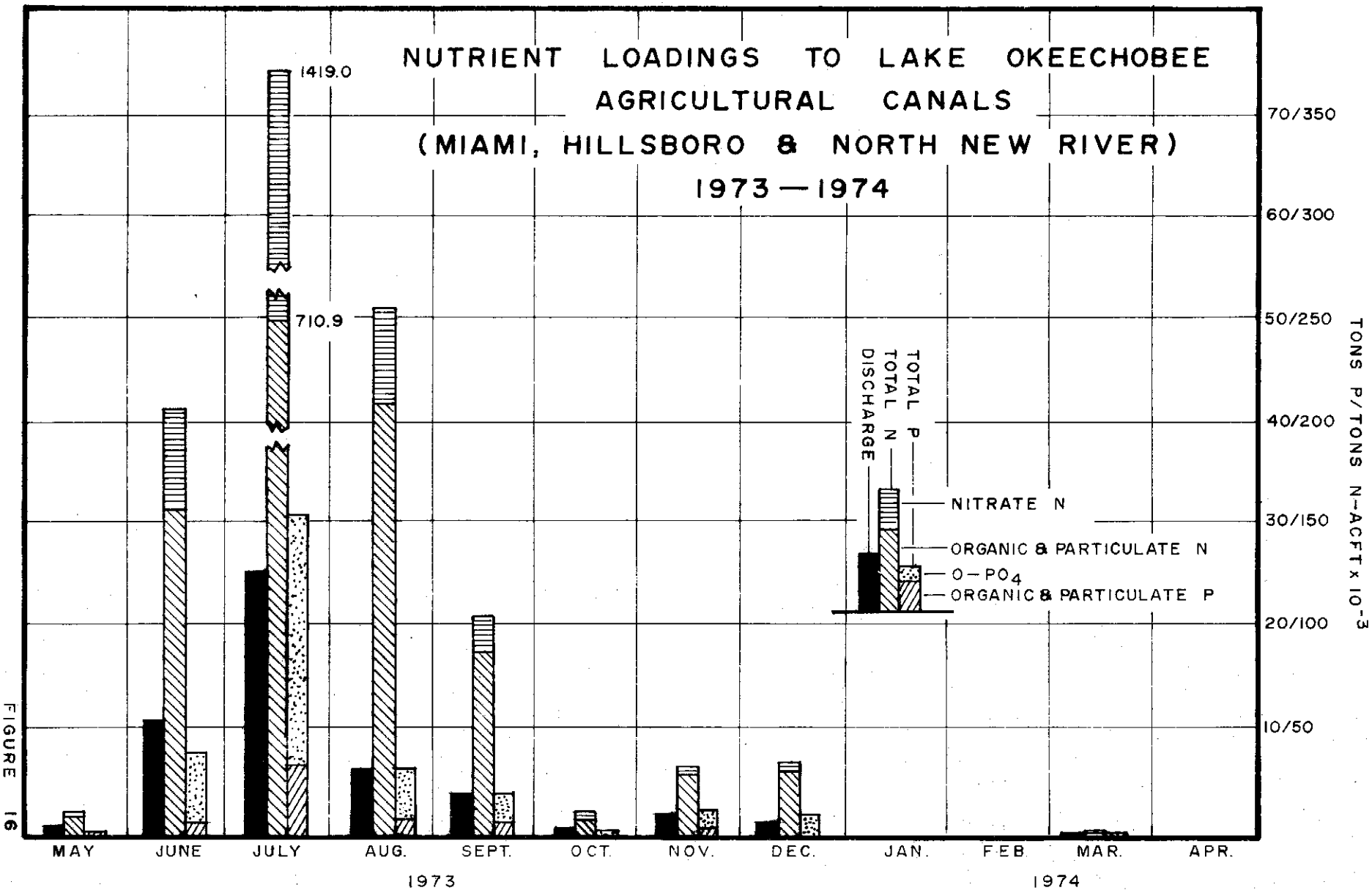

NUTRIENT LOADINGS TO LAKE OKEECHOBEE
AGRICULTURAL CANALS
(MIAMI, HILLSBORO & NORTH NEW RIVER)
1973 — 1974
1419.0
710.9
DISCHARGE
TOTAL N
TOTAL P
NITRATE N
ORGANIC & PARTICULATE N
O-PO4
ORGANIC & PARTICULATE P
70/350
60/300
50/250
40/200
30/150
20/100
10/50
TONS P/TONS N-ACFT x 10-3
MAY
JUNE
JULY
AUG.
SEPT.
OCT.
NOV.
DEC.
JAN.
FEB.
MAR.
APR.
1973
1974

FIGURE 16

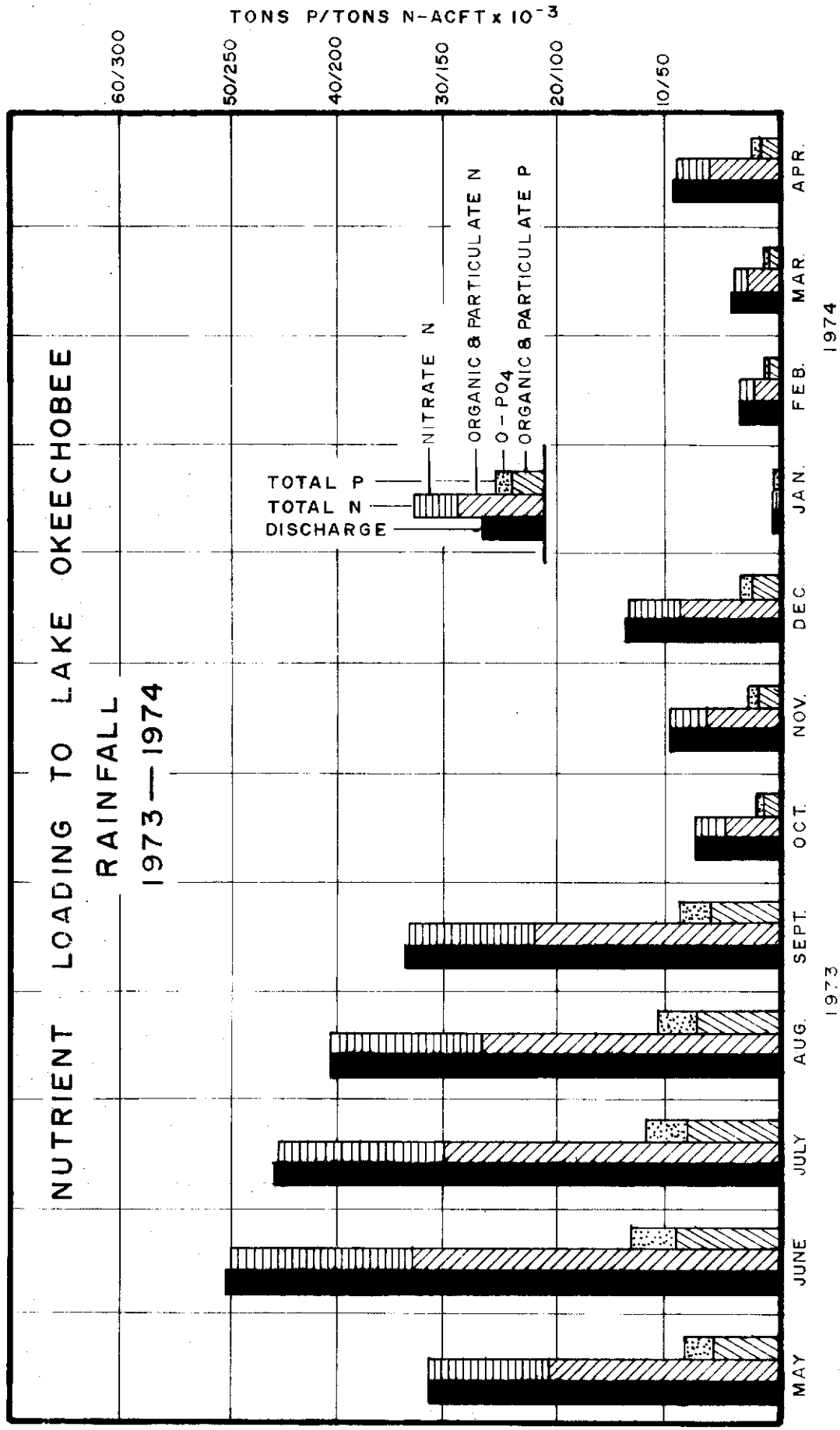

NUTRIENT LOADING TO LAKE OKEECHOBEE
RAINFALL
1973—1974
TONS P/TONS N-ACFT x 10^-3
60/300
50/250
40/200
30/150
20/100
10/50
TOTAL P
TOTAL N
DISCHARGE
NITRATE N
ORGANIC & PARTICULATE N
O-PO4
ORGANIC & PARTICULATE P
MAY
JUNE
JULY
AUG.
SEPT.
OCT.
NOV.
DEC.
JAN.
FEB.
MAR.
APR.
1973
1974

FIGURE 17

to May 1974. The split scales for the Figures have phosphorus tonnage to the left and both nitrogen tonnage and acre-feet of discharge to the right.

The Kissimmee River discharged the majority of its nutrient load to Lake Okeechobee during the period from May to September (Figure 14). The major portion of its nitrogen load was organic or particulate nitrogen with only a small percentage entering the Lake as inorganic nitrogen. The phosphorus load was almost equally divided between ortho-phosphate and particulate or organic phosphrous. As can be seen from the ratio of discharge to element loadings, the concentration of phosphate seems to have peaked in the early part of the high discharge period (July) whereas nitrogen concentrations steadily increased from July to September.

Nubbin Slough was the single largest source of phosphate for Lake Okeechobee during the study period. Figure 15 shows that the majority of this phosphate entered the Lake as inorganic ortho-phosphate. As with the Kissimmee River it also appears that the highest concentration of phosphate occurred during the early part of the peak discharge although the highest discharges occurred earlier in Nubbin Slough than in the Kissimmee River. The relative amounts of phosphorus discharged into the Lake at Nubbin Slough are impressive. In July alone, Nubbin Slough dumped 57 tons of ortho-phosphate into Lake Okeechobee which is enough to more than double the entire Lake's average concentration.

The extremely large quantities of nitrogen supplied to Lake Okeechobee by the agricultural canals occurred predominately during the month of July 1973 (Figure 16). A much larger percentage of inorganic nitrogen was discharged into the Lake by these canals compared to other inflows. The predominate phosphate form was as ortho-phosphate rather than organic and particulate phosphate, as was the case for the Kissimmee River. The 700 tons of nitrate nitrogen discharged

into the Lake by these canals during the month of July is equivalent to over 0.150 mg/l nitrogen for the entire Lake or almost twice the average Lake concentrations.

The rainfall loading data (Figure 17) show no variation in concentrations because yearly average concentrations of nitrogen and phosphorus were used in the calculation. Comparison of rainfall loadings to the previous three loadings does show that rainfall inputs of nutrients are significant over a longer period of time than the surface inflows. Rainfall was responsible for the majority of nutrient inputs to the Lake for the entire dry season from November to May.

Budget Calculations

The water budget for Lake Okeechobee from May 1973 to May 1974 is shown in Table 12. The time period was chosen to include one complete cycle of wet and dry months. The total measured inflow of water during the budget year was 3,008,300 AF. Since the itemized inflow is similar to those used in the loading calculations, the percentage figures for each inflow are the same as shown in Table 11.

The total measured outflow from the Lake was 3,032,500 AF. Of this total 2,152,200 AF or 70% was lost by evaporation. The remaining 30% of the water losses were primarily due to water supply releases to the Glades agricultural area, Caloosahatchee River, St. Lucie Canal and West Palm Beach Canal.

The net volume change claculated from the itemized budget is -24,200 AF or -0.1 foot of stage. The stage record is, however, considerably different. The initial lake stage in May 1973 was 12.40 m.s.l. and the final lake stage in May 1974 was 11.46 m.s.l. This is a net stage differential of -0.96 feet or -346,000 AF net volume differential. The discrepancy between stage records and itemized water budgets is currently under investigation by the FCD but may be

TABLE 12

LAKE OKEECHOBEE WATER BUDGET

May 7, 1973 to May 10, 1974

Item	CFS	Acre-Feet X 10^{-3}
Initial Stage (12.40 msl)	-	2,876.0
Inflows:		
S-65E	1,147	830.6
Istokpoga Canal (C-41A)	257	+ 187.2
Total Kissimmee River	1,405	1,017.3
Nubbin Slough	282	203.8
N.N.R. & Hillsboro Canal (S-2)	246	178.1
Miami Canal	106	76.7
Harney Pond Canal (S-41)	205	149.6
Indian Prairie Canal (C-40)	58	42.6
Fisheating Creek	200	144.8
Other Surface Inflows	252	181.6
*Rainfall (30.1 Inches)	-	1,013.8
Total Inflows	-	3,008.3
Outflows:		
Total Surface Outflows	1,408	880.3
Evaporation	-	2,152.2
Total Outflows	-	3,032.5
Ending Stage (11.46 msl)	-	2,530.0
Δ Volume (Ending - Initial Stage)	-	- 346.0
Computed Δ Volume (Total Inflows-Total Outflows)	-	- 24.2
Error in Computed Δ Volume	-	321.8

*Rain gauge value reduced 20% based on radar rainfall data (Riebsame et al., 1974)

due simply to the sensitivity of the methods employed in collection of hydrological data.

Material budgets for Lake Okeechobee are shown in Tables 13, 14, and 15, and are, of course, based on the water budget in Table 12. The initial and ending storage values represent the amount of material in solution at the beginning and end of the budget period. Computed storage is the initial storage plus the total inflows minus the total outflows. The "other sinks" represent the difference between computed storage and ending storage.

The budget for the major ions (Figure 13) indicates that more sodium, calcium and chloride entered the Lake during the year than can be accounted for by outflows or ambient Lake concentrations. Approximately 50% of all incoming material must be accounted for in other sinks. The possible other sinks for the comparatively unreactive elements such as sodium and chloride are very limited in natural systems. Calcium may be precipitated out of solution as calcium carbonate, which is a distinct possibility in Lake Okeechobee. However, the large discrepancy in the water budget may be the principle reason for the large and unaccounted for major ion sinks.

The validity of the two nutrient budgets in Tables 14 and 15 are also affected by the poor balance in the water budget. Both the six (Figure 14) and 12 month (Figure 15) budgets show considerable loss of nutrients to other sinks. For nutrients, the possible sinks other than outflow are numerous. For inorganic nutrients, other sinks can imply conversion to particulate and organic forms by primary producers. Additional nutrient sinks include ingestion by primary consumers, losses to littoral zones, sedimentation of detrital material, atmospheric losses (denitrification), and, for phosphate, precipitation and adsorption.

Comparison of the six month budget to the full year budget shows that the majority of the nutrient inputs took place during the wet season, but that most

TABLE 13

Major Ion Budget May 1973 - May 1974

	AF $X10^{-3}$	Ca Tons	Na Tons	Cl Tons
Initial Storage	2,876	210,433	225,296	371,974
Inflows				
Rainfall	1,013.8	731	596	552
Kissimmee R.	1,017.3	15,112	16,451	25,061
Nubbin Slough	203.8	5,873	8,335	15,326
Harney Pond C.	149.6	3,485	2,097	3,599
Indian Prairie C.	42.6	2,177	842	1,332
N.N.R. & Hills C (S-2)	178.1	25,186	25,216	34,101
Miami C. (S-3)	76.7	11,086	8,904	12,415
Fisheating C.	144.8	1,667	3,653	6,593
Total Inflows	2,826.7	65,317	66,094	98,979
Initial Storage + Total Inflows		275,750	291,390	470,953
Total Outflows	880.3	56,948	66,702	78.403
Computed Storage		218,802	224,688	392,550
Ending Storage	2,530	192,340	184,711	325,844
Other Sinks		26,462	39,977	66,706

TABLE 14

LAKE OKEECHOBEE

Nutrient Budget May 1973 to Nov. 1973

	AF $X10^{-3}$	$T\text{-}PO_4$ Tons P	$O\text{-}PO_4$ Tons P	Total N Tons N	NO_3 Tons N
Initial Storage	2876	312.9	15.6	6907.6	297.3
Inflows					
Rainfall	846.8	44.9	13.8	817.7	278.7
Kissimmee R.	910.9	110.2	53.4	1701.9	48.9
Nubbin Slough	195.7	206.9	161.4	505.0	35.9
Harney Pond C.	146.5	69.4	54.6	475.8	43.3
Indian Prairie C.	42.4	17.2	13.1	151.1	2.8
N.N.R. & Hills. C. (S-2)	164.4	37.3	30.5	1376.9	484.0
Miami C (S-3)	72.6	12.5	7.3	609.2	311.6
Fisheating C.	142.9	23.8	15.8	301.0	3.1
Total Inflows	2522.1	522.7	349.9	5938.6	1208.3
Initial Storage + Total Inflows		835.6	365.5	12846.2	1505.6
Total Outflows	296.4	24.2	1.0	637.7	18.6
Computed Storage		811.4	364.5	12208.5	1487.0
Ending Storage	3840	188.0	41.8	7431.5	433.5
Other Sinks		623.4	322.7	4777.0	1053.5

TABLE 15

LAKE OKEECHOBEE

Nutrient Budget May 1973 to May 1974

	AF $X10^{-3}$	$T\text{-}PO_4$ Tons P	$O\text{-}PO_4$ Tons P	Total N Tons N	NO_3 Tons N
Initial Storage	2876	312.9	15.6	6907.6	297.3
Inflows					
Rainfall	1013.8	53.8	16.7	1006.5	333.7
Kissimmee R.	1017.3	117.2	57.2	1922.8	69.5
Nubbin Slough	203.8	212.4	165.7	523.2	40.6
Harney Pond C.	149.6	69.7	54.7	481.3	43.9
Indian Prairie C.	42.6	17.3	13.1	151.4	2.8
N.N.R. & Hills. C. (S-2)	178.1	39.5	33.0	1435.2	488.8
Miami C. (S-3)	76.7	14.1	8.5	621.0	312.9
Fisheating C.	144.8	24.2	16.2	304.7	3.2
Total Inflows	2826.7	538.2	365.3	6414.5	1296.3
Initial Storage + Total Inflows	-	851.1	380.9	13322.1	1593.6
Total Outflows	880.3	63.9	5.8	2152.3	118.4
Computed Storage		787.2	375.1	11169.8	1475.2
Ending Storage	2530	96.3	13.8	4555.6	378.5
Other Sinks		690.9	361.3	6614.2	1096.7

of these nutrients were apparently removed from the Lake water within six months by means other than outflow. That is, the majority of the incoming nutrients are accounted for in other sinks rather than ending storage.

The losses to other sinks for both organic and total forms of nitrogen and phosphorus for both the six and twelve month budgets are at least 80% of the total inputs. In the case of total phosphates, losses to other sinks were actually greater than inputs, implying a reduction in ambient concentrations. For the budget year, 85% of the total phosphate and 50% of the total nitrogen available to the Lake were retained in other sinks.

Regression Analysis

The results of regression analyses for selected parameter pairs are shown in Table 16. The assumed dependent variable in Table 16 is listed to the left of its corresponding independent variable. The symbol "*" indicates that the slope was significantly different from zero for a 95% one-tailed test; while "**" denotes significance for a 99% one-tailed test. The coefficients of determination for each significant regression are also shown in the table as "r^2" values.

The nutrient parameters (total phosphate, ortho-phosphate, TKN and nitrate) were assumed to be dependent on several physical and biological parameters including turbidity (Secchi disc readings), wind stress, primary productivity (PPR) and phytoplankton densities (CCT). Wind stress is reported as Effective Displacement Index (EDI). The biological parameters were in turn assumed to be dependent upon physical factors.

Since several relationships were suspected to be reciprocal, the inverse of the physical and biological parameters were correlated with the nutrient data.

Five sets of data were used in the regression procedure. One set included

TABLE 16 LAKE OKEECHOBEE 1973

Regression Analysis for Lake Okeechobee Data

*Significant $t_{.05}$ **Significant $t_{.01}$ t (r^2)

	Jan. - Dec.	Jan. - May	June - Oct.	Stations 2,3,4,6,8	Stations 1, 5, 7
$T\text{-}PO_4$ vs SDD	** (.37)	** (.55)	** (.14)	** (.59)	** (.18)
$T\text{-}PO_4$ vs EDI	** (.10)		* (.13)	** (.24)	
$T\text{-}PO_4$ vs PPR					
$T\text{-}PO_4$ vs CCT	* (.04)				
$T\text{-}PO_4$ vs 1/SDD	** (.07)	** (.69)	* (.10)		** (.17)
$T\text{-}PO_4$ vs 1/PPR					
$T\text{-}PO_4$ vs 1/CCT		* (.10)			* (.11)
$O\text{-}PO_4$ vs SDD	* (.05)	* (.08)		* (.08)	
$O\text{-}PO_4$ vs EDI	** (.14)	** (.15)		** (.28)	
$O\text{-}PO_4$ vs PPR			* (.25)		** (.32)
$O\text{-}PO_4$ vs CCT					
$O\text{-}PO_4$ vs 1/SDD	* (.05)			* (.06)	
$O\text{-}PO_4$ vs 1/PPR					
$O\text{-}PO_4$ vs 1/CCT					
TKN vs SDD	** (.21)	** (.26)	** (.18)	** (.42)	
TKN vs EDI	* (.05)		* (.12)	** (.19)	
TKN vs PPR					
TKN vs CCT					
TKN vs 1/SDD	** (.32)	** (.35)	** (.31)	** (.46)	* (.11)
TKN vs 1/PPR					
TKN vs 1/CCT					
NO_3 vs SDD	* (.06)			** (.14)	
NO_3 vs EDI	** (.08)			** (.20)	
NO_3 vs PPR					
NO_3 vs CCT					
NO_3 vs 1/SDD	** (.10)			** (.13)	
NO_3 vs 1/PPR				* (.28)	
NO_3 vs 1/CCT					
SDD vs EDI	** (.26)	* (.10)	** (.18)	** (.40)	** (.22)
SDD vs PPR			** (.42)		
SDD vs CCT	* (.05)	** (.17)			
SDD vs 1/EDI	** (.30)	* (.13)	** (.23)	** (.42)	** (.32)
SDD vs 1/PPR	* (.09)		** (.58)		** (.27)
SDD vs 1/CCT		** (.41)	* (.10)		
PPR vs SDD			** (.42)		
PPR vs EDI	* (.10)			* (.23)	
PPR vs CCT	** (.15)	** (.56)			* (.17)
PPR vs 1/SDD			* (.21)		
PPR vs 1/EDI		* (.29)			
PPR vs 1/CCT	** (.14)	** (.40)			* (.23)

all data for parameter pairs for all stations. The other sets of data were limited to: 1)winter values only (January 1973 through May 1973); 2) summer values only (June 1973 to October 1973); 3) data from stations with soft sediments (Stations 2, 3, 4, 6 and 8); and 4) data from stations with hard sediments (Stations 1, 5, and 7).

Although the correlation analysis showed that many relationships were statistically significant, the coefficients of determination, r^2 values, indicate that in most cases less than 50% of the variability in the dependent variable can be "explained" by a linear relationship with the independent variable.

Table 16 indicates that the variations in the nutrient parameters were generally dependent on water clarity as measured by Secchi disc readings and occasionally dependent on biological activity as measured by gross primary productivity and/or phytoplankton densities. The statistically significant relationship between nutrient parameters and turbidity is not unusual since turbidity is a function of both inorganic suspended matter and cellular material. Either of these forms of particulate matter could be expected to contain significant quantities of nitrogen and phosphorus and affect the levels of both the particulate and dissolved forms of nutrients. Further analysis of Table 16 indicates that this turbidity (Secchi disc reading) is dependent upon wind stress. This dependency suggests that the turbidity in the Lake is due primarily to resuspension of sediment material rather than phytoplankton concentrations.

The regression analyses did not indicate any strong relationships between biological parameters and either chemical or physical parameters. Primary productivity and phytoplankton densities undoubtedly affect the nutrient concentrations and are effected by physical forces. However, the magnitude of the effects are apparently not sufficient to be statistically significant.

Scatter diagrams of all parameter pairs for which any set of data showed statistically significant relationships are shown in Appendix D.

DISCUSSION

General Chemistry

The results of chemical analyses on samples collected from Lake Okeechobee during the initial 18 month period of this study indicate only minor changes in water quality parameters from previous studies. Table 17 summarizes the yearly mean values of selected parameters from the previous USGS study (Joyner, 1972) and this study for the year 1973. The USGS yearly means are based on data generated by much less frequent sampling (2 to 4 times each year), at different sites, and analyzed using different techniques than those represented in the FCD study. Despite this nonconformity in the data, the table does show only minor variations in nutrient concentrations for the five years. There does not appear to be any trend toward increased ambient nutrient concentrations. The apparent decreases in average concentrations for the dissolved nutrients (nitrate and ortho-phosphate) for 1973 are probably due to the fact that the USGS analyses for these parameters were performed on unfiltered samples.

As mentioned earlier, there is very little Lake Okeechobee data previous to the 1969-1972 USGS study. Odum (1954) reported 3 total phosphate values for the periphery of Lake Okeechobee in 1952. These values were 0.003 mg/l P near Belle Glade, 0.007 mg/l P at Clewiston and 0.030 mg/l P near the mouth of Taylor Creek. Although these values are lower than the values in Table 17, the scarcity of the data prohibits any significant conclusions. In 1940 the USGS sampled Lake Okeechobee and reported nitrate values ranging from 0.04 mg/l N to 0.23 mg/l N (Parker, et al., 1955). These results are in very good agreement with Table 17. Again, however, it would be misleading to place any significance on comparisons of these limited data.

TABLE 17

AVERAGE WATER QUALITY PARAMETERS
LAKE OKEECHOBEE
1969 to 1973

Parameter	Year				
	1969 (1)	1970 (1)	1971 (1)	1972 (1)	1973 (2)
Lake stage m.s.l.	14.91	14.55	12.40	13.32	13.34
Ortho-phosphate mg/1 P	0.016	0.054	0.036	0.029	0.005
Total phosphate mg/1 P	0.024	0.070	0.051	0.038	0.071
Nitrate mg/1 N	0.164	0.170	0.181	0.124	0.067
Total Nitrogen mg/1 N	1.38	1.48	1.64	2.21	1.48
Ammonia mg/1 N	0.040	0.039	0.081	0.040	0.026
Sodium mg/1	41.7	31.3	40.0	50.9	55.7
Chloride mg/1	62.9	47.7	60.8	74.3	86.6
Calcium mg/1	44.3	41.1	49.1	55.2	48.0

(1) U.S.G.S. Data (Joyner, 1973)

(2) F.C.D. Data

The record of major ions in the Lake for the five year period as shown in Table 17 may indicate an increase in sodium and chloride levels, but calcium concentrations seem to be fairly stable. Sodium and chloride results from the 1940 USGS sampling in Lake Okeechobee were in the range of less than 20 mg/l for sodium and 30 to 40 mg/l chloride. However, calcium concentrations measured in that study were 35 mg/l to 40 mg/l. Changes in major ion concentrations may be due to increases in the sodium and chloride content of inflowing water or due to the fact that calcium is saturated with respect to carbonates in the Lake.

Most previous studies have questioned the relatively high and apparently increasing total dissolved solids (TDS) in Lake Okeechobee. Since the concentrations of major ions in the inflows do not account for the ambient Lake concentrations, several hypotheses for the high concentrations have been advanced. These include dissolution of the bottom (Parker, et al., 1955), dissolution and groundwater inputs (Joyner, 1972) and concentration due to evaporation and groundwater inputs (Brooks, 1974). The study reported here attempted to approach the TDS problem on the basis of individual ions rather than estimates based on specific conductance. It was hoped that the calculation of individual major ion budgets would identify the reasons and sources for high TDS in the Lake. Unfortunately the poor results of the budgets prevent further analysis of the data. The magnitude of excess major ions as calculated from the budget is virtually impossible to explain.

The apparent increases in sodium and chloride but not calcium over the last 30 years indicate that groundwater seepage or concentration due to evaporation would be the most reasonable causes for high TDS in the Lake. Dissolution of bottom sediments would most likely cause increases in calcium rather than sodium and chloride . Concentration effects from evaporation would tend to increase all

ions equally unless there were precipitation effects concurrent with the evaporation. The high pH alkalinity in Lake Okeechobee may cause calcium to precipitate as calcium carbonate although there is no direct evidence for precipitation.

The results of monthly sampling at eight locations within Lake Okeechobee indicated significant seasonal and areal variations in water chemistry. The major ions generally reflected the effects of inputs of low TDS by major inflows. However, linear regression of Lake stage and rainfall with major ion concentration did not indicate a statistically significant relationship. The possible inputs of highly mineralized groundwater may have had significant effects on major ion concentrations.

Nutrient parameters showed much greater variation, both seasonally and areally, than did major ions. The variations are somewhat more complex since many factors can be involved. Although the yearly means of nutrient parameters at each sample station showed that stations near major inflows were apparently affected by high discharges of nutrients, the monthly and seasonal means of these parameters indicated that several months lapsed between the time of peak discharge and the time when elevated nutrient concentrations were measured in the Lake. It is possible that the station locations were too far from points of inflow to show the nutrient input effects before biological uptake or other mechanisms reduced the effects.

Both nutrient levels and biological activity as measured by primary productivity and phytoplankton density, appeared to show the same seasonal patterns of spring and fall maximums, and summer minimums, but statistical analyses did not indicate any significant relationships between them.

Loadings and Budgets

The loadings of nitrogen and phosphorus material to Lake Okeechobee during the year May 1973 to May 1974 were less than those reported by Joyner (1972) for the year 1969-70. The USGS study showed 2,000 more tons of nitrogen and 200 more tons of phosphorus entering the Lake. However, the volume of water entering the Lake during 1969-70 (6,361,000 AF) was far greater than during 1973-74 (3,008,000 AF), which accounts for the higher loadings. The majority of the discharge loading increases were due to the Kissimmee River while the remaining inflows showed comparable values for both discharge and loadings during both studies.

Comparison of discharge water quality (Table 11) and land use indicates two basic relationships. Water quality in the agricultural canals which drain crop lands is characterized by high nitrate values. In contrast, the runoff water from areas devoted primarily to pasture has high phosphorus concentrations. Since little nitrogen fertilizer is used in the Miami, Hillsboro and North New River Canal basins the high nitrate values in these canals are probably due to leaching of nitrate from the organic soils. Neller (1944) reported rapid nitrification in Everglades peat and suspected that these nitrates would be leached out of the soil by rainfall. The high phosphate in Nubbin Slough, Harney Pond Canal and Indian River Canal may be due to animal waste, which would be particularly concentrated in the Nubbin Slough basin due to heavy dairy activity. The second possible source of the phosphorus is the natural phosphate deposits in these basins. Odum (1955) shows some natural phosphate

deposits in the Nubbin Slough drainage basin and indicated that elevated phosphate levels in natural waters may be due to leaching of such deposits.

The imbalance of the water budget used in this study limits the significance of the materials budgets. The high loss rate of nutrients is, however, in agreement with evidence for biological response to the high nutrient loadings. Also, the elemental ratio of nitrogen to phosphorus lost to other sinks was 20:1, which compares favorably to the average elemental ratio of 16:1 (nitrogen: phosphorus) in cellular material. Thus, although the absolute amount of nutrients retained by the Lake according to the budgets may be in error, the relative amounts lost to other sinks suggest that they were fixed into cellular material.

Regression Analysis

The classical patterns of decreasing inorganic nutrients with increasing phytoplankton densities, productivity, or total nutrients were not evident from the chemistry data. Occasional instances of inverse relationships between inorganic nutrients and biological parameters were indicated by the regression analyses data, but no consistent pattern developed.

Linear regression did suggest that nutrient parameters were dependent upon Secchi disc readings which were in turn dependent upon wind stress as measured by EDI. The relationships showed that as wind stress increased Secchi disc readings decreased and nutrient parameters increased. These relationships may mean that wind stress was creating enough wave action to suspend sediment material and subsequently release previously bound inorganic nutrients. The resuspension of bottom material would in itself tend to increase the total nutrient levels. The budget calculations of both this study and the previous USGS study (Joyner, 1972) indicated that considerable amounts of nitrogen and phosphorus may be retained in the Lake as sediment material. The results of

Ekman sampling indicate that unconsolidated sediments (primarily a fine black mud) are found generally in the central and northeastern portions of the Lake. Linear regression analyses of nutrient parameters at mud bottom stations with Secchi disc readings and EDI indicated a strong dependency of nutrients on the wind stress.

Joyner (1972) estimated that the average wind speed on Lake Okeechobee was 9 mph and that this wind speed would effectively mix the water column to a depth of 8.4 feet (2.6 m). The EDI for a 9 mph wind blowing constantly for 5 days would be 0.35 $g/cm/sec^2$. Measured EDI's for this study were never above 0.35 $g/cm/sec^2$ but mean surface and bottom chemistry values indicated that the Lake was well-mixed. The large fetch and shallow depth of Lake Okeechobee apparently produced effective mixing and possible resuspension of bottom sediments with even relatively minor wind stresses. Although there are only limited data on both the physical and chemical characteristics of sediments in Lake Okeechobee, the results of this study indicate that physical forces acting on the sediments may be instrumental in determining the areal and seasonal distribution of major nutrients within the Lake and ultimately the biota of the Lake.

Primary Productivity

Based on data collected for other Florida lakes by Brezonik, et al. (1969), Lake Okeechobee primary productivity values were high, 1864 mg C/m^3/day or 161 mg C/m^3/hour. A listing of the gross primary productivities for Lake Okeechobee and various Florida lakes is presented in Appendix E.

Factors which affect primary productivity include physical parameters such as temperature, light intensity, water transparency, and turbulence, and chemical parameters such as major and minor nutrients, pH, and alkalinity.

These factors undoubtedly help to determine the composition and condition of the lacustrine biota.

Although consistent relationships among primary productivity, nutrient, and physical parameters were not observed (Table 16), certain trends were indicated. Aside from biological considerations, physical-water clarity (Secchi disc readings) and EDI (wind stress)--rather than nutrients--total phosphate, ortho-phosphate, total Kjeldahl nitrogen and nitrate--parameters were more often related to primary productivity.

Green algae, especially the small, flagellated, unicellular types, appeared to be responsible for much of the primary productivity in Lake Okeechobee. Primary productivity at Station 4 in the spring (Figure 10) was higher when the phytoplankton population was dominated by these green algae (Figure 13) than when it was dominated by blue-green algae. This trend was observed at other productivity stations but was much less conspicuous.

Phytoplankton Populations

Information on the phytoplankton of Lake Okeechobee, and subtropical lakes in general, is very limited. The USGS report by Joyner (1972) is the only known source of information on Lake Okeechobee phytoplankton. The phytoplankton observed in this study differ significantly from those reported by the USGS. None of the dominant phytoplankton observed by the USGS were dominant during the FCD study. The USGS report listed 24 species of phytoplankton common to Lake Okeechobee. To date, the FCD study has revealed 83 species. The USGS did not report the presence of any euglenoids or small

green flagellates. The FCD study indicated that the small green flagellates dominated the green algae. Although a time lag exists between USGS data and the data from this study, a drastic change in phytoplankton probably did not occur. Differences in sampling technique, sampling frequency, counting procedures, and taxonomic references may account for the differences.

The algal populations of several other Florida lakes have recently been studied. Lake Tohopekaliga was studied from June 1970 to January 1972 (Holcomb and Wegener, 1972). The species list for this lake was quite similar to the list compiled by the FCD for Lake Okeechobee. However, the dense blooms of Aphanizomenon and Anabaena characteristic of Lake Tohopekaliga were not found in Lake Okeechobee.

In 1966 and 1967, Lackey (1967) found that Lakes Apopka, Dora, Carlton, Beauclaire, and Griffin were dominated by blue-greens. These lakes contained the same algae which were present in Lake Okeechobee. Persistent blue-green blooms were observed in Lakes Apopka and Dora throughout the year. Although blue-green algae dominated the phytoplankton of Lake Okeechobee, the blooms did not persist and blue-green algae did not dominate to the exclusion of all other algae.

The dominance of a lake by blue-green algae may be closely related to water chemistry. Several authors have observed the dominance of blue-green algae in alkaline conditions and their relative absence in acid conditions (King, 1970; Shapiro, 1973; Fogg, 1956; Prescott, 1970; Brock, 1973; Brezonik, et al., 1969).

The relationship between pH and algal population was observed in several other Florida lakes (Marshall, 1974, unpublished data). Lakes Tohopekaliga and Kissimmee with a pH range of 8.1 - 8.8 were dominated by blue-green algae. Lakes Cypress and Hatchineha with pH values ranging from 6.2 - 7.2 were dominated by green algae and diatoms, respectively. East Lake Tohopekaliga had a pH range of 6.7 - 7.1 and was dominated by diatoms and dinoflagellates.

Alkaline pH in Lake Okeechobee, 8.2 to 8.4, may be a contributing factor to the dominance by blue-green algae.

Blue-green algae often give the impression of being favored by warm and nutrient-rich conditions (Fogg, et al., 1973). However, Pearsall (1932) and Hutchinson (1967) observed that blue-green algae tended to grow most rapidly when concentrations of inorganic nutrients such as nitrate and phosphate were lowest. The abundance of blue-green algae during periods when nutrients are reduced may be explained by the adaptive physiology of these organisms. Blue-green algae are able to store large quantities of nitrogen (Stewart, 1972) and phosphorus (Stewart and Alexander, 1971) and utilize them during periods of nutrient deprivation. It is paradoxical that although they tend to develop at times of nutrient deficiency, planktonic blue-green algae are nevertheless characteristic of waters receiving high nutrient inputs (Fogg, et al., 1973). Vollenweider (1968) from surveying the available literature, concluded that massive growth of blue-green algae is likely if nutrient concentrations exceed 0.01 mg/l P and 0.2 - 0.3 mg/l N in the spring and/or if the loading per unit area per year of the lake reaches 0.2 - 0.5 mg/l P and 5 - 10 mg/l N. The average nutrient concentration and loading rates of phosphorus for Lake Okeechobee found in this study are within the above ranges quoted by Vollenweider.

Blue-green algae blooms have been shown to be triggered by phosphate (Schindler, 1974). Examination of phytoplankton and loading data for Lake Okeechobee tends to support this observation. The large influx of ortho-phosphate in July, particularly from Nubbin Slough (Figure 15), may have triggered the pulse of blue-green algae observed during that month at Station 1 (Figure 13). Similarly, at Station 5 loadings of ortho-phosphate from Fisheating Creek reached a maximum sometime between the middle of August and middle of October, as did peaks in blue-green algae populations (Figure 13).

Fall increases in blue-green algae concentrations were not as great as Stations 4 and 6, as they were at Stations 1 and 5 (Figure 13). This may indicate that most of the fall ortho-phosphate loading was removed at the peripheral stations (1 and 5) and did not reach the more distant stations (4 and 6).

The increase in blue-green algae concentrations during the spring pulse was greater at the centrally located stations (4 and 6) than at the peripheral stations (1 and 5). Stations 4 and 6 had mud bottoms whereas Stations 1 and 5 had sand bottoms. The greater response of blue-green algae (increases in densities at Stations 4 and 6 may be explained by a release of ortho-phosphate from the mud bottoms.

The abundance of green algae in Lake Okeechobee, especially the small, flagellated, unicellular types appear to be related to nitrate loadings. Large amounts of nitrate were pumped into the Lake by S-2 and S-3 during July (Figure 16). The high loading of nitrates and relatively low loading of ortho-phosphate may account for the comparatively high percentages of green algae and low percentages of blue-green algae at Stations 6 and 7 (Figure 11). In contrast, the low ambient nitrate concentrations may account for the low percentages of green algae at Stations 1 and 5.

Trophic State

There are many methods of estimating the trophic level of lakes and several systems of classifying such levels. The chemical and biological data collected during the initial 18 months of this study are adaptable to several of these methods. It should be noted that Lake Okeechobee lies within the semi-tropical climatic zone and that many of the principles defining trophic state classification were developed from data collected on temperate zone lakes. A summary of several trophic state classification systems and Lake Okeechobee trophic level according to each system is presented below:

Reference	Classification Base	Lake Okeechobee Trophic Level
Brezonik, et al. (1969)	Primary Productivity	Eutrophic
Sakamota (1966) and Vollenwieder (1968)	Total Phosphate/ Nitrate Nitrogen	Eutrophic/Oligotrophic
Vollenwieder (1968) and Shannon & Brezonik (1972)	Loading rates - depth relationship	Mesotrophic

Primary productivity is probably the best trophic state indicator since it is a result of the many factors effecting the rate and level of eutrophication. Comparison of the primary productivity of Lake Okeechobee (161 mg C/m^3/hr) to those of other Florida lakes studied by Brezonik, et al. (1969) indicates that Lake Okeechobee would be classified as eutrophic.

One of the simplest methods of determining a lake's trophic level is based on ambient nutrient concentrations within the lake at the winter overturn. Ranges of total phosphate and inorganic nitrogen for the classical trophic types have been compiled by Sakamota (1966) and Vollenweider (1968). Since Lake Okeechobee has no winter overturn, the yearly average total phosphate, 0.071 mg/l P, and nitrate nitrogen, 0.067 mg/l N, for the Lake were compared to the trophic level ranges of these parameters. The total average phosphate for the Lake falls into the range category of eutrophic lakes (0.30-0.10 mg/l P)

according to both systems referenced above. For inorganic nitrogens of less than 0.1 mg/l N both classification systems would consider Lake Okeechobee as oligotrophic. If the maximum monthly means of each parameter are compared to the ranges for each trophic state, there would be no change in the Lake's classification according to these systems.

A second classification system suggested by Vollenweider (1968) is based on the relationship between nitrogen and phosphorus loading rates and mean depths. Shannon and Brezonik (1972) have adjusted these loading rate/lake depth relationships for semitropical lakes based on their analysis of 55 northern Florida lakes. The loading rates of nitrogen and phosphorus to Lake Okeechobee as calculated from the 1973-1974 data were 3.4 $g/m^2/yr$ and 0.33 $g/m^2/yr$, respectively. These rates applied to a lake with a mean depth of 3 meters place Lake Okeechobee within the mesotrophic level according to Shannon and Brezonik's adjusted relationships and in the eutrophic level according to Vollenweider's relationships.

CONCLUSIONS

The conclusions concerning the chemical and biological characteristics of Lake Okeechobee are summarized below. The conclusions are based on the initial 18 months of an on-going study and may be subject to revision based on additional data.

1. Yearly averages of major nutrients for the period 1969 to 1973 show no significant change.
2. Nutrient parameters (nitrogen and phosphorus) showed seasonal variation with maximum concentrations during the spring and fall and minimum concentrations during the summer.
3. Morphological characteristics of Lake Okeechobee (large surface area and shallow depth), combined with sediment characteristics were critical to the levels and distribution of major nutrients within the Lake.
4. The high nutrient loadings to Lake Okeechobee by major inflows had little direct effect on the ambient water chemistry but may have stimulated biological activity causing rapid uptake of these nutrients.
5. Phytoplankton and primary productivity showed seasonal variations with similar patterns to nutrients i.e. maximum spring and fall values and minimum summer values.
6. Areal variation in primary productivity and phytoplankton populations was probably related to nutrient loadings.
7. Blue-green algae (Cyanophyta) dominated the phytoplankton and appeared to be related to ortho-phosphate. Green algae (Chlorophyta) were less abundant than blue-green algae and appeared to be related to nitrate nitrogen. Green algae also appeared to be responsible for much of the primary productivity in the Lake.

8. Chemical and biological characteristics of Lake Okeechobee indicate that it is in the early eutrophic state but the rate of eutrophication is unknown.

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APPENDIX A

LAKE OKEECHOBEE WATER CHEMISTRY DATA

LAKE STATIONS 1 - 8 AND 10 - 16

All results in mg/l except when noted and specific conductivity (Cond Field) which is µmhos/cm

0 indicates data missing

\- indicates results less than quoted limit of sensitivity

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 1 SURFACE

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
********	********	********	********	********	********	********	********
2/ 5/73	.091	.007	.030	1.430	.019	.078	0
3/ 5/73	0	-0.004	.016	1.280	.002	.045	6.300
4/10/73	.004	-0.002	.050	1.780	.003	.042	3.400
5/ 8/73	.007	-0.002	.060	2.100	-0.002	.125	7.500
6/ 4/73	-0.008	-0.004	.030	1.690	.004	.140	4.700
7/ 9/73	-0.008	-0.008	0	1.460	-0.002	.050	3.500
8/ 9/73	.036	-0.008	-0.010	1.400	.017	.081	5.730
9/11/73	.045	.006	.050	1.580	.016	.079	2.910
10/10/73	-0.004	-0.004	-0.010	1.200	-0.002	.054	1.660
11/15/73	-0.004	-0.004	-0.010	1.200	.007	.045	1.340
12/20/73	-0.004	-0.004	-0.010	1.910	.002	.046	1.900
1/16/74	.054	-0.004	-0.010	1.640	.003	.036	4.700
2/ 6/74	-0.004	-0.004	.020	2.510	-0.002	.050	4.800
2/21/74	.046	-0.004	-0.010	1.770	-0.002	.024	5.250
3/ 6/74	.019	-0.004	-0.010	1.810	-0.002	.073	5.020
3/20/74	.070	-0.004	.110	1.830	-0.002	.060	4.890
4/ 3/74	.015	.004	.030	2.480	.003	.047	5.590
4/19/74	-0.004	-0.004	.050	2.130	-0.002	.060	4.090
5/ 8/74	-0.004	-0.004	-0.010	1.350	.002	.031	5.190
6/ 4/74	-0.004	.004	-0.010	1.460	-0.002	.049	4.320
6/18/74	-0.004	-0.004	-0.010	2.020	-0.002	.041	4.280

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 1 SURFACE

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
********	********	********	********	********	********	********	********
2/ 5/73	19.700	11.000	119.565	8.600	2.800	670.000	33.000
3/ 5/73	24.700	11.000	130.952	8.300	2.700	670.000	43.000
4/10/73	20.800	7.900	87.778	8.350	1.700	0	29.000
5/ 8/73	24.800	7.400	88.095	8.250	3.280	0	20.000
6/ 4/73	29.000	6.700	85.897	8.300	2.800	620.000	29.000
7/ 9/73	28.700	6.700	85.897	8.750	2.820	669.000	67.000
8/ 9/73	29.300	0	0	8.090	1.600	460.000	109.000
9/11/73	28.500	7.300	93.590	7.800	1.400	310.000	91.000
10/10/73	26.000	8.300	101.220	8.300	2.160	530.000	75.000
11/15/73	21.500	9.400	106.818	8.500	2.140	585.000	97.000
12/20/73	15.500	9.700	97.980	8.500	2.500	560.000	0
1/16/74	21.300	9.000	100.000	8.500	2.430	658.000	82.000
2/ 6/74	19.500	8.200	89.130	8.200	2.570	450.000	38.000
2/21/74	19.300	7.800	83.871	8.500	2.600	655.000	0
3/ 6/74	20.000	9.700	105.435	8.300	2.720	330.000	48.000
3/20/74	20.700	8.400	93.333	8.500	2.670	663.000	35.000
4/ 3/74	25.700	7.200	87.805	8.600	3.410	680.000	26.000
4/19/74	23.500	8.000	94.118	8.600	2.690	680.000	43.500
5/ 8/74	25.000	9.000	107.143	8.500	2.790	715.000	40.000
6/ 4/74	27.400	7.500	92.593	8.600	3.360	755.000	0
6/18/74	27.200	8.200	101.235	8.300	3.230	745.000	0

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 1 SURFACE

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
2/ 5/73	55.200	4.000	58.000	17.000	81.000	0	0
3/ 5/73	51.000	4.000	50.000	17.000	83.000	0	0
4/10/73	29.100	2.420	27.800	10.200	48.000	0	0
5/ 8/73	60.000	4.190	56.000	19.700	100.000	0	0
6/ 4/73	53.500	4.820	45.900	16.700	82.000	0	0
7/ 9/73	59.000	4.470	51.000	18.500	95.600	0	0
8/ 9/73	46.000	3.140	32.400	12.400	69.830	0	0
9/11/73	30.800	2.280	21.100	19.000	44.200	0	.420
10/10/73	47.000	3.400	38.000	14.000	66.100	0	.140
11/15/73	49.900	3.750	36.500	13.800	68.900	0	.132
12/20/73	51.000	4.000	47.000	16.000	79.000	0	0
1/16/74	56.100	4.500	49.400	17.300	89.700	43.800	0
2/ 6/74	55.000	4.300	31.000	10.400	83.300	48.000	0
2/21/74	54.000	4.100	39.000	15.500	87.800	53.700	0
3/ 6/74	54.000	4.400	44.600	17.600	85.200	52.800	0
3/20/74	54.000	3.800	58.000	16.000	84.400	38.300	0
4/ 3/74	54.000	3.800	44.000	15.800	89.600	57.100	0
4/19/74	57.000	4.200	47.400	18.400	97.700	54.000	0
5/ 8/74	60.000	4.800	56.600	20.000	93.200	59.300	.240
6/ 4/74	66.000	5.200	53.600	19.400	101.500	68.600	.320
6/18/74	58.000	4.400	45.200	15.800	99.600	0	-0.020

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 1 BOTTOM

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
********	********	********	********	********	********	********	********
2/ 5/73	15.500	9.700	97.980	8.500	2.800	590.000	0
3/ 5/73	19.900	8.900	96.739	8.100	2.700	590.000	0
4/10/73	20.800	7.800	86.667	8.350	1.600	0	0
5/ 8/73	24.500	7.500	89.286	8.400	3.280	0	0
6/ 4/73	29.000	6.700	85.897	8.500	2.640	620.000	0
7/ 9/73	28.000	6.000	75.949	8.800	2.840	680.000	0
8/ 9/73	29.100	0	0	8.110	1.680	475.000	0
9/11/73	28.000	7.200	91.139	8.000	1.410	315.000	0
10/10/73	26.300	7.400	90.244	8.300	2.240	530.000	0
11/15/73	21.000	9.100	101.111	8.450	2.160	585.000	0
11/15/73	21.100	9.200	102.222	8.450	0	585.000	0
11/15/73	21.200	9.300	103.333	8.500	0	585.000	0
12/20/73	15.000	8.800	86.275	8.500	2.500	570.000	0
1/16/74	21.400	8.800	97.778	8.400	2.730	658.000	0
2/ 6/74	20.000	8.200	89.130	8.200	2.590	545.000	0
2/21/74	19.300	6.700	72.043	8.450	2.420	655.000	0
3/ 6/74	20.000	9.600	104.348	8.420	2.720	370.000	0
3/20/74	20.500	8.500	94.444	8.500	2.690	672.000	0
4/ 3/74	24.400	7.100	83.529	8.600	3.440	680.000	0
4/19/74	23.500	8.000	94.118	8.600	2.530	680.000	0
5/ 8/74	24.200	7.200	84.706	8.700	2.840	721.000	0
6/ 4/74	27.400	6.800	83.951	8.700	3.280	759.000	0
6/18/74	26.000	7.300	90.123	8.100	3.260	745.000	0

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 1 BOTTOM

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
********	********	********	********	********	********	********	********
2/ 5/73	.067	.003	.030	1.450	.004	.080	0
3/ 5/73	.031	-0.004	.026	1.170	-0.002	.076	6.400
4/10/73	-0.004	-0.002	.030	1.330	.004	.059	3.300
5/ 8/73	.002	-0.002	.030	2.400	.002	.075	7.300
6/ 4/73	-0.008	-0.004	.020	2.080	.004	.110	4.600
7/ 9/73	-0.008	-0.008	-0.010	1.370	-0.002	.047	3.500
8/ 9/73	.028	-0.008	-0.010	1.280	.014	.085	5.770
9/11/73	.043	.007	.060	1.340	.014	.052	3.120
10/10/73	-0.004	-0.004	-0.010	1.370	-0.002	.057	2.140
11/15/73	-0.004	-0.004	-0.010	1.380	.008	.046	1.300
11/15/73	0	0	0	0	0	0	0
11/15/73	0	0	0	0	0	0	0
12/20/73	-0.004	-0.004	.010	2.360	-0.002	.032	1.900
1/16/74	.046	-0.004	-0.010	1.740	-0.002	.027	4.660
2/ 6/74	-0.004	-0.004	-0.010	2.270	-0.002	.074	4.220
2/21/74	.030	-0.004	-0.010	2.570	-0.002	.075	5.390
3/ 6/74	.015	-0.004	-0.010	2.270	-0.002	.078	4.820
3/20/74	.063	-0.004	.140	1.590	.002	.063	5.150
4/ 3/74	.014	-0.004	-0.010	1.080	.002	.045	5.850
4/19/74	-0.004	-0.004	.060	2.900	.003	.057	4.060
5/ 8/74	.005	-0.004	-0.010	1.140	-0.002	.027	5.750
6/ 4/74	-0.004	-0.004	-0.010	1.770	-0.002	.068	4.180
6/18/74	-0.004	-0.004	-0.010	1.850	-0.002	.030	6.280

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 1 BOTTOM

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FF MG/L
********	********	********	********	********	********	********	********
2/ 5/73	49.800	3.600	55.000	16.000	73.000	0	0
3/ 5/73	50.000	3.900	49.000	17.000	82.000	0	0
4/10/73	27.000	2.350	29.600	10.300	45.000	0	0
5/ 8/73	60.000	4.150	55.800	19.700	100.000	0	0
6/ 4/73	54.500	3.740	45.600	17.300	78.000	0	0
7/ 9/73	61.900	4.610	49.600	18.400	95.800	0	0
8/ 9/73	44.000	3.130	33.600	12.900	78.700	0	0
9/11/73	31.000	2.450	23.300	19.600	48.000	0	.520
10/10/73	47.000	3.500	39.700	14.500	66.500	0	.090
11/15/73	49.000	3.710	40.000	15.300	69.900	0	.180
11/15/73	0	0	0	0	0	0	0
11/15/73	0	0	0	0	0	0	0
12/20/73	51.000	4.000	49.000	17.000	83.000	0	0
1/16/74	56.800	4.000	49.400	17.400	89.300	45.700	0
2/ 6/74	54.000	4.200	45.000	15.800	83.300	46.700	0
2/21/74	56.000	3.900	38.200	15.400	93.800	63.300	0
3/ 6/74	48.000	4.000	44.600	17.600	86.200	20.600	0
3/20/74	53.000	4.100	44.000	16.000	85.700	45.800	0
4/ 3/74	53.000	3.800	45.800	16.400	88.600	61.800	0
4/19/74	58.000	4.300	50.800	18.200	102.800	55.600	0
5/ 8/74	55.000	4.500	56.600	19.600	93.800	61.100	.340
6/ 4/74	66.000	5.400	55.400	20.200	101.300	68.900	.340
6/18/74	65.000	4.500	52.200	18.600	100.300	69.200	.420

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 2 SURFACE

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
********	********	********	********	********	********	********	********
1/15/73	15.000	9.900	97.059	8.200	3.100	645.000	20.000
2/ 5/73	20.200	10.800	117.391	8.600	2.800	675.000	35.000
3/ 5/73	24.000	9.800	115.294	8.300	2.800	610.000	0
4/11/73	20.800	8.200	91.111	8.400	3.100	0	24.000
5/ 8/73	25.000	7.600	90.476	8.400	3.400	0	17.000
6/ 4/73	28.500	7.300	93.590	9.100	3.480	690.000	18.000
7/ 9/73	29.300	6.500	83.333	8.300	3.000	675.000	63.000
8/ 9/73	31.000	0	0	8.550	2.590	610.000	100.000
9/11/73	28.500	8.200	105.128	7.900	2.670	585.000	52.000
10/10/73	26.800	7.300	90.123	8.300	2.300	580.000	128.000
11/15/73	24.500	9.500	113.095	8.200	2.290	635.000	50.000
12/20/73	15.000	9.500	93.137	8.200	2.400	580.000	0
1/16/74	23.000	9.500	109.195	8.400	2.390	640.000	43.000
2/ 6/74	20.500	8.300	92.222	8.200	2.790	605.000	35.000
2/21/74	19.000	7.600	81.720	8.300	2.420	405.000	0
3/ 6/74	20.000	9.900	107.609	8.150	2.740	585.000	47.000
3/20/74	21.200	8.400	93.333	8.500	2.750	518.000	42.000
4/ 3/74	25.200	7.200	85.714	8.400	3.470	680.000	20.000
4/19/74	23.500	7.600	89.412	8.400	2.540	695.000	31.500
5/ 8/74	25.800	7.800	95.122	8.300	2.820	730.000	43.000
6/ 4/74	27.600	7.100	89.873	8.200	3.390	755.000	0
6/18/74	27.200	7.800	96.296	8.100	3.290	745.000	0

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 2 SURFACE

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
1/15/73	.123	-0.002	.060	1.550	-0.002	.088	8.180
2/ 5/73	.037	.002	.010	1.450	-0.002	.061	0
3/ 5/73	.117	-0.004	.029	1.300	.008	.046	7.800
4/11/73	.097	.003	.040	2.000	.015	.027	7.100
5/ 8/73	.116	-0.002	.030	2.200	.003	.128	8.700
6/ 4/73	-0.008	-0.004	.020	1.950	.003		6.000
7/ 9/73	-0.008	-0.008	-0.010	1.450	-0.002	.035	6.000
8/ 9/73	-0.008	-0.008	-0.010	1.260	.005	.025	3.260
9/11/73	-0.004	-0.004	.090	1.820	.007	.073	5.390
10/10/73	-0.004	-0.004	-0.010	1.210	-0.002	.030	1.280
11/15/73	.137	-0.004	-0.010	1.130	.010	.029	4.020
12/20/73	-0.004	-0.004	.021	1.590	-0.002	.024	2.400
1/16/74	.095	-0.004	-0.010	1.830	-0.002	.027	4.880
2/ 6/74	.004	-0.004	.010	2.470	-0.002	.037	5.100
2/21/74	.153	-0.004	-0.010	1.650	-0.002	.041	5.980
3/ 6/74	.043	.005	-0.010	2.580	-0.002	.044	5.080
3/20/74	-0.004	-0.004	-0.010	2.770	.002	.057	5.190
4/ 3/74	.158	.006	.050	2.960	.003	.049	6.760
4/19/74	.122	-0.004	.060	1.790	-0.002	.084	6.020
5/ 8/74	.010	-0.004	.020	1.160	.002	.021	5.530
6/ 4/74	-0.004	-0.004	-0.010	1.150	-0.002	.051	6.150
6/18/74	.015	-0.004	.025	1.530	-0.002	.023	8.130

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 2 SURFACE

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
1/15/73	57.000	4.100	51.500	18.000	84.000	0	0
2/ 5/73	55.900	4.000	58.000	18.000	83.000	0	0
3/ 5/73	53.000	4.200	51.000	18.000	87.000	0	0
4/11/73	57.300	4.130	52.700	19.700	90.000	0	0
5/ 8/73	59.000	4.060	57.700	19.400	99.000	0	0
6/ 4/73	59.900	4.530	52.700	19.000	93.000	0	0
7/ 9/73	61.000	4.630	52.200	18.800	96.200	0	0
8/ 9/73	63.000	3.800	45.300	17.300	89.790	0	0
9/11/73	61.900	4.450	43.500	40.000	92.600	0	.550
10/10/73	51.000	3.700	35.200	13.000	72.000	0	.045
11/15/73	53.000	3.900	43.300	17.200	74.900	0	.357
12/20/73	50.000	3.800	47.000	16.000	78.000	0	0
1/16/74	54.800	4.000	47.000	16.700	88.400	46.000	0
2/ 6/74	56.000	4.300	49.600	16.800	84.300	54.400	0
2/21/74	53.000	3.800	42.400	17.200	91.800	67.200	0
3/ 6/74	50.000	3.900	45.400	17.200	84.600	55.300	0
3/20/74	53.000	3.800	45.000	17.000	86.100	43.100	0
4/ 3/74	57.000	4.000	49.400	16.800	94.500	61.500	0
4/19/74	60.000	4.700	50.000	18.200	106.800	56.700	0
5/ 8/74	56.000	4.500	55.600	19.400	95.400	59.800	.400
6/ 4/74	64.000	5.200	53.600	18.600	97.700	66.900	.350
6/18/74	56.000	3.800	52.200	18.600	98.200	68.100	-0.020

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 2 BOTTOM

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
********	********	********	********	********	********	********	********
1/15/73	13.000	9.500	89.623	8.200	3.200	650.000	0
2/ 5/73	16.700	9.200	94.845	8.400	2.900	655.000	0
3/ 5/73	19.300	8.600	92.473	8.100	2.800	555.000	0
4/11/73	20.700	8.100	90.000	8.500	3.200	0	0
5/ 8/73	24.500	7.600	90.476	8.450	3.440	0	0
6/ 4/73	28.300	7.300	92.405	9.100	3.560	690.000	0
7/ 9/73	29.000	6.300	80.769	8.100	2.920	680.000	0
8/ 9/73	30.000	0	0	8.540	2.620	610.000	0
9/11/73	28.500	8.100	103.846	8.000	2.690	585.000	0
10/10/73	26.800	7.100	87.654	8.200	2.340	580.000	0
11/15/73	21.500	7.000	79.545	8.000	2.300	630.000	0
11/15/73	21.500	7.300	82.955	8.000	0	630.000	0
11/15/73	21.600	7.700	87.500	8.050	0	630.000	0
12/20/73	15.000	8.900	87.255	8.200	2.400	580.000	0
1/16/74	21.200	7.600	84.444	8.200	2.380	640.000	0
2/ 6/74	20.000	8.300	90.217	8.200	2.770	645.000	0
2/21/74	19.000	7.400	79.570	8.350	2.480	495.000	0
3/ 6/74	18.500	8.600	92.473	8.320	2.720	610.000	0
3/20/74	20.700	8.100	90.000	8.500	2.700	553.000	0
4/ 3/74	25.200	7.200	85.714	8.400	3.450	680.000	0
4/19/74	23.500	7.700	90.588	8.400	2.670	700.000	0
5/ 8/74	24.600	6.600	78.571	8.600	2.850	732.000	0
6/ 4/74	27.400	6.300	77.778	8.500	3.360	755.000	0
6/18/74	27.000	7.200	88.889	7.800	3.270	745.000	0

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 2 BOTTOM

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
1/15/73	.143	-0.002	.050	1.710	-0.002	.107	8.400
2/ 5/73	.013	.003	.030	1.470	.002	.065	0
3/ 5/73	.104	-0.004	.020	1.340	.002	.056	7.000
4/11/73	-0.004	-0.002	.030	1.350	-0.002	.044	7.300
5/ 8/73	.076	-0.002	.030	.400	.007	.172	8.500
6/ 4/73	.021	-0.004	.020	2.030	.003	.130	6.000
7/ 9/73	-0.008	-0.008	-0.010	1.840	-0.002	.010	6.400
8/ 9/73	-0.008	-0.008	-0.010	1.220	-0.002	.068	3.150
9/11/73	.011	-0.004	.010	1.710	.010	.050	5.410
10/10/73	.020	-0.004	-0.010	1.160	-0.002	.033	1.240
11/15/73	.188	-0.004	-0.010	1.610	.011	.038	4.820
11/15/73	0	0	0	0	0	0	0
11/15/73	0	0	0	0	0	0	0
12/20/73	.022	-0.004	.034	1.180	.002	.025	2.400
1/16/74	.009	-0.004	-0.010	1.900	-0.002	.025	4.780
2/ 6/74	-0.004	-0.004	-0.010	2.220	-0.002	.053	4.790
2/21/74	.151	-0.004	-0.010	1.610	-0.002	.031	5.980
3/ 6/74	.045	-0.004	.010	1.800	.003	.057	5.140
3/20/74	.013	-0.004	.020	2.130	-0.002	.063	6.100
4/ 3/74	.139	-0.004	.070	2.590	.005	.054	6.650
4/19/74	.130	-0.004	.040	2.060	-0.002	.080	6.020
5/ 8/74	.009	-0.004	.010	1.000	.002	.023	5.330
6/ 4/74	.005	-0.004	-0.010	1.490	-0.002	.082	5.850
6/18/74	-0.004	-0.004	.177	2.050	.002	.047	7.170

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 2 BOTTOM

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
1/15/73	62.500	4.300	51.500	0	89.000	0	0
2/ 5/73	57.100	4.000	60.000	18.000	87.000	0	0
3/ 5/73	51.000	4.000	50.000	17.000	85.000	0	0
4/11/73	57.300	4.150	50.400	19.100	89.000	0	0
5/ 8/73	59.900	4.020	54.700	19.200	97.000	0	0
6/ 4/73	60.600	4.120	52.700	18.600	92.000	0	0
7/ 9/73	61.100	4.680	48.500	18.000	96.400	0	0
8/ 9/73	58.000	3.840	45.800	18.100	90.790	0	0
9/11/73	61.900	4.410	34.600	44.200	93.300	0	.910
10/10/73	50.000	3.700	35.000	12.900	73.000	0	.074
11/15/73	52.000	3.780	38.600	15.100	74.900	0	.653
11/15/73	0	0	0	0	0	0	0
11/15/73	0	0	0	0	0	0	0
12/20/73	48.000	3.800	45.000	16.000	77.000	0	0
1/16/74	55.200	3.600	47.000	16.500	88.200	44.400	0
2/ 6/74	56.000	4.400	49.600	17.200	86.200	45.500	0
2/21/74	51.000	3.900	42.400	16.900	90.000	70.100	0
3/ 6/74	54.000	3.900	45.400	17.200	84.200	57.200	0
3/20/74	47.000	3.400	43.000	16.000	83.600	50.400	0
4/ 3/74	54.000	3.900	47.600	16.000	90.700	62.100	0
4/19/74	59.000	4.700	48.200	17.800	102.700	57.900	0
5/ 8/74	57.000	4.500	55.600	19.800	96.000	60.100	.490
6/ 4/74	63.000	5.100	58.200	19.800	97.100	64.300	.410
6/18/74	68.000	4.800	39.200	14.000	98.400	68.400	.180

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 3 SURFACE

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
********	********	********	********	********	********	********	********
1/15/73	13.000	9.400	88.679	8.000	3.100	700.000	20.000
2/ 5/73	19.000	9.200	98.925	8.400	3.000	660.000	24.000
3/ 5/73	24.000	11.700	137.647	8.400	2.800	660.000	43.000
4/11/73	21.000	7.800	86.667	8.400	3.100	0	34.000
5/ 8/73	25.100	7.800	92.857	8.450	3.480	0	13.000
6/ 4/73	28.500	6.900	88.462	8.400	3.280	645.000	20.000
7/ 9/73	31.500	7.200	97.297	8.200	3.000	695.000	69.000
8/ 9/73	30.500	0	0	8.470	2.600	610.000	108.000
9/12/73	28.500	7.600	97.436	8.000	2.620	570.000	36.000
10/11/73	26.300	7.200	87.805	8.300	2.350	570.000	70.000
11/15/73	24.200	9.000	105.882	8.200	2.430	650.000	80.000
12/20/73	15.000	9.300	91.176	8.000	2.300	610.000	0
1/15/74	21.900	8.200	93.182	8.200	2.390	435.000	50.000
2/ 6/74	20.500	8.000	88.889	8.100	2.680	655.000	28.000
2/21/74	19.000	7.600	81.720	8.350	2.580	480.000	0
3/ 6/74	20.500	10.000	111.111	8.050	2.800	560.000	45.000
3/20/74	21.200	8.200	91.111	8.400	2.740	657.000	24.000
4/ 3/74	25.200	7.000	83.333	8.300	3.450	685.000	18.000
4/19/74	30.500	2.700	36.000	6.800	2.690	450.000	30.000
5/ 8/74	26.200	8.300	101.220	8.200	2.860	720.000	38.000
6/ 4/74	28.000	7.600	96.203	8.100	3.300	755.000	0
6/18/74	27.400	8.300	102.469	8.100	3.260	755.000	0

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 3 SURFACE

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
********	********	********	********	********	********	********	********
1/15/73	.086	-0.002	.060	2.040	.002	.125	7.820
2/ 5/73	.069	.002	.020	0	.002	.073	0
3/ 5/73	.215	-0.004	.034	1.460	.004	.064	8.400
4/11/73	-0.004	-0.002	.020	2.200	.002	.064	6.900
5/ 8/73	.046	-0.002	.030	2.200	-0.002	.083	8.500
6/ 4/73	-0.008	-0.004	.020	1.810	.002	0	7.600
7/ 9/73	-0.008	-0.008	0	1.140	-0.002	.025	5.600
8/ 9/73	-0.008	-0.008	-0.010	1.210	-0.002	.022	3.220
9/12/73	.053	-0.004	-0.010	1.610	-0.002	.050	3.840
10/11/73	-0.004	-0.004	-0.010	1.300	-0.002	.027	2.000
11/15/73	.092	-0.004	-0.010	1.060	.011	.032	3.820
12/20/73	.112	-0.004	.078	1.560	.014	.049	3.300
1/16/74	.142	-0.004	-0.010	1.640	.003	.037	5.370
2/ 6/74	.039	-0.004	-0.010	1.890	-0.002	.079	6.450
2/21/74	.058	-0.004	-0.010	1.610	-0.002	.076	5.010
3/ 6/74	.081	.008	.030	1.880	-0.002	.056	5.950
3/20/74	.058	.012	.130	1.690	-0.002	.075	5.900
4/ 3/74	.200	.004	.070	1.060	.003	.064	6.150
4/19/74	.087	-0.004	.020	1.910	-0.002	.068	4.720
5/ 8/74	.086	-0.004	.020	1.230	.002	.024	5.940
6/ 4/74	.204	-0.004	.023	1.710	.002	.060	5.390
6/18/74	.019	-0.004	.016	1.820	-0.002	.039	5.600

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 3 SURFACE

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FF MG/L
1/15/73	56.900	4.200	51.000	18.000	100.000	0	0
2/ 5/73	57.500	4.100	60.000	18.000	83.000	0	0
3/ 5/73	54.000	4.100	52.000	18.000	87.000	0	0
4/11/73	56.000	3.960	49.100	18.400	86.000	0	0
5/ 8/73	59.300	4.000	54.600	19.300	99.000	0	0
6/ 4/73	61.100	4.380	54.500	19.100	88.000	0	0
7/ 9/73	59.900	4.670	58.300	19.500	96.800	0	0
8/ 9/73	57.000	3.930	46.400	17.300	91.080	0	0
9/12/73	59.800	4.240	38.000	40.000	95.400	0	.370
10/11/73	50.000	3.800	31.900	11.500	70.800	0	.043
11/15/73	55.000	4.040	44.200	17.300	78.400	0	.122
12/20/73	52.000	4.000	46.000	17.000	92.000	0	0
1/16/74	55.000	3.400	44.800	16.100	86.600	46.700	0
2/ 6/74	56.000	4.300	48.200	16.600	89.400	44.800	0
2/21/74	51.000	3.800	41.600	16.700	88.800	70.300	0
3/ 6/74	52.000	4.200	45.400	17.500	81.200	57.900	0
3/20/74	52.000	3.800	42.000	15.000	83.800	47.300	0
4/ 3/74	89.000	5.200	50.200	21.200	129.000	67.700	0
4/19/74	61.000	5.400	52.600	19.200	99.900	57.900	0
5/ 8/74	57.000	4.500	55.600	19.400	93.400	58.200	.400
6/ 4/74	64.000	5.100	56.400	19.600	99.300	67.400	.360
6/18/74	58.000	4.100	34.400	8.400	99.400	69.200	.040

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 2 BOTTOM

DATE	TEMP DEG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
********	********	********	********	********	********	********	********
1/15/73	15.000	9.200	90.196	8.100	3.000	670.000	0
2/ 5/73	16.500	9.100	93.814	8.300	2.800	650.000	0
3/ 5/73	18.100	7.700	81.053	8.000	2.800	645.000	0
4/11/73	21.000	7.800	86.667	8.400	3.100	0	0
5/ 8/73	25.500	7.500	91.463	8.400	3.440	0	0
6/ 4/73	26.800	6.900	85.185	8.400	3.320	665.000	0
7/ 9/73	28.300	5.400	68.354	7.900	2.960	695.000	0
8/ 9/73	29.200	0	0	8.480	2.560	610.000	0
9/12/73	28.200	6.200	78.481	8.000	2.620	570.000	0
10/11/73	26.300	7.200	87.805	8.300	2.340	575.000	0
11/15/73	21.200	7.400	82.222	8.150	2.450	650.000	0
11/15/73	21.200	7.800	86.667	8.100	0	650.000	0
11/15/73	21.200	8.600	95.556	8.200	0	650.000	0
12/20/73	15.000	8.300	91.176	8.000	2.200	610.000	0
1/16/74	21.100	7.800	86.667	8.100	2.370	478.000	0
2/ 6/74	20.000	8.000	86.957	8.100	2.740	655.000	0
2/21/74	18.900	7.400	79.570	8.350	2.370	550.000	0
3/ 6/74	18.500	7.720	83.011	8.150	2.800	600.000	0
3/20/74	20.800	7.900	87.778	8.300	2.720	657.000	0
4/ 3/74	25.000	6.900	82.143	8.300	3.530	680.000	0
4/19/74	23.500	7.900	92.941	8.400	2.800	690.000	0
5/ 8/74	24.500	6.900	82.143	8.500	2.900	722.000	0
6/ 4/74	27.300	6.200	76.543	8.200	3.350	755.000	0
6/18/74	27.300	6.800	83.951	7.800	3.310	755.000	0

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 2 BOTTOM

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
********	********	********	********	********	********	********	********
1/15/73	.087	-0.002	.090	2.170	.005	.140	8.300
2/ 5/73	.074	.003	.030	1.640	.002	.072	0
3/ 5/73	.190	-0.004	.024	1.360	.005	.063	8.500
4/11/73	-0.004	-0.002	.040	1.500	.002	.073	6.900
5/ 8/73	.047	-0.002	.060	2.400	-0.002	.101	8.500
6/ 4/73	-0.008	-0.004	.020	2.190	.002	.130	7.500
7/ 9/73	-0.008	-0.008	-0.010	1.430	-0.002	.038	6.000
8/ 9/73	-0.008	-0.008	-0.010	1.280	-0.002	.034	3.150
9/12/73	-0.004	-0.004	.020	1.810	-0.002	.064	3.540
10/11/73	.005	-0.004	-0.010	1.570	-0.002	.039	2.230
11/15/73	.064	-0.004	-0.010	.960	.014	.034	3.690
11/15/73	0	0	0	0	0	0	0
11/15/73	0	0	0	0	0	0	0
12/20/73	.101	-0.004	.045	1.960	.008	.038	3.100
1/16/74	.142	-0.004	-0.010	1.450	.003	.038	5.170
2/ 6/74	.057	-0.004	.030	2.950	-0.002	.095	5.580
2/21/74	.060	-0.004	-0.010	1.910	-0.002	.098	5.070
3/ 6/74	.112	.006	.100	2.810	-0.002	.124	5.470
3/20/74	.063	.055	.050	1.910	-0.002	.082	6.400
4/ 3/74	.152	.015	.060	2.830	.003	.062	6.110
4/19/74	.099	-0.004	.020	2.140	-0.002	.067	4.810
5/ 8/74	.089	-0.004	-0.010	1.280	-0.002	.030	5.940
6/ 4/74	.018	.004	-0.010	1.550	-0.002	.074	5.470
6/19/74	.005	-0.004	-0.010	1.630	-0.002	.014	6.320

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 2 BOTTOM

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
1/15/73	0	0	0	0	165.000	0	0
2/ 5/73	57.700	4.100	60.000	18.000	83.000	0	0
3/ 5/73	52.000	4.200	51.000	18.000	89.000	0	0
4/11/73	57.500	4.030	48.900	18.300	86.000	0	0
5/ 8/73	59.700	4.050	55.600	19.700	99.000	0	0
6/ 4/73	62.000	4.230	53.700	19.400	94.000	0	0
7/ 9/73	61.400	4.670	52.800	19.400	96.600	0	0
8/ 9/73	57.000	3.890	47.000	18.600	91.000	0	0
9/12/73	59.900	4.250	43.900	39.000	91.200	0	.510
10/11/73	49.000	3.800	33.400	12.000	70.400	0	.048
11/15/73	55.000	4.060	43.600	17.400	78.800	0	.372
11/15/73	0	0	0	0	0	0	0
11/15/73	0	0	0	0	0	0	0
12/20/73	53.000	3.800	47.000	16.000	84.000	0	0
1/16/74	54.500	3.600	48.200	16.800	87.200	54.000	0
2/ 6/74	56.000	4.400	49.000	17.000	87.800	45.500	0
2/21/74	54.000	4.100	40.800	16.900	94.200	74.500	0
3/ 6/74	52.000	3.800	45.400	16.900	83.200	55.600	0
3/20/74	54.000	3.900	46.000	16.000	84.200	52.800	0
4/ 3/74	70.000	4.100	47.600	19.800	146.800	68.600	0
4/19/74	61.000	4.800	49.000	18.200	93.400	57.100	0
5/ 8/74	57.000	4.600	57.800	19.600	93.600	58.900	.390
6/ 4/74	65.000	5.200	55.400	19.600	100.100	68.200	.470
6/18/74	68.000	4.900	53.000	18.600	100.700	69.600	-0.020

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 4 SURFACE

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
********	********	********	********	********	********	********	********
1/15/73	14.200	9.700	93.269	8.200	3.200	680.000	18.000
2/ 5/73	17.900	9.300	97.895	8.200	3.000	700.000	15.000
3/ 5/73	20.800	9.900	110.000	8.000	2.800	690.000	45.000
4/11/73	21.600	8.100	92.045	8.350	3.200	0	14.000
5/ 8/73	25.500	8.000	97.561	8.400	3.280	0	16.000
6/ 4/73	27.700	7.200	91.139	8.300	3.120	650.000	0
7/ 9/73	30.000	7.400	96.104	8.400	3.060	710.000	50.000
8/ 9/73	29.800	0	0	8.570	2.760	640.000	66.000
9/12/73	28.900	6.300	80.769	8.000	2.840	585.000	46.000
10/10/73	27.200	7.500	92.593	8.300	2.480	590.000	61.000
11/15/73	22.000	9.200	104.545	8.200	2.560	680.000	59.000
12/20/73	15.500	8.800	88.889	8.000	2.200	630.000	0
1/16/74	21.500	8.700	98.864	8.200	2.330	620.000	36.000
2/ 6/74	20.000	8.100	88.043	8.100	2.670	650.000	22.000
2/21/74	19.800	7.600	81.720	8.300	2.500	655.000	0
3/ 6/74	19.000	9.800	105.376	8.080	2.820	660.000	40.000
3/20/74	24.000	9.800	115.294	8.500	2.690	518.000	26.000
4/ 3/74	27.300	.600	7.407	7.000	3.630	330.000	16.000
4/19/74	23.200	7.400	85.057	8.400	2.800	690.000	32.200
5/ 8/74	24.600	7.700	91.667	8.300	2.900	725.000	22.000
6/ 4/74	27.700	8.000	101.266	8.100	3.300	750.000	0
6/18/74	27.600	8.000	101.266	7.900	3.170	755.000	0

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION A SURFACE

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
********	********	********	********	********	********	********	********
1/15/73		-0.002	.070	1.720	.005	.118	9.120
2/ 5/73	.205	-0.002	.020	1.570	.011	.094	0
3/ 5/73	.194	-0.004	.033	1.420	.006	.055	7.700
4/11/73	-0.004	-0.002	.100	2.020	.007	.093	9.100
5/ 8/73	.037	-0.002	.020	1.600	.002	.087	8.500
6/ 4/73	.037	-0.004	.020	1.730	.003	.110	6.900
7/ 9/73	-0.008	-0.008	0	1.760	-0.002	.027	6.400
8/ 9/73	-0.008	-0.008	-0.010	1.120	.005	.043	2.020
9/12/73	-0.004	.005	-0.010	1.330	-0.002	.048	.290
10/10/73	-0.004	-0.004	-0.010	1.680	-0.002	.043	.950
11/15/73	.089	-0.004	-0.010	1.530	.011	.035	4.100
12/20/73	.197	-0.004	.032	1.510	.009	.050	4.500
1/16/74	.083	-0.004	-0.010	1.910	.002	.052	4.720
2/ 6/74	.039	-0.004	-0.010	2.340	-0.002	.092	5.580
2/21/74	.165	-0.004	-0.010	2.240	-0.002	.056	5.960
3/ 6/74	.072	.011	.020	1.960	-0.002	.062	5.420
3/20/74	.026	-0.004	.060	1.790	-0.002	.065	6.020
4/ 3/74	.166	.026	-0.010	2.730	.011	.066	8.460
4/19/74	.117	-0.004	.040	2.260	-0.002	.084	5.380
5/ 8/74	.132	-0.004	.120	1.210	.002	.029	6.140
6/ 4/74	.010	.004	-0.010	1.490	.005	.068	5.350
6/18/74	-0.004	-0.004	-0.010	2.260	-0.002	.026	6.080

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 4 SURFACE

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
********	********	********	********	********	********	********	********
1/15/73	56.900	4.000	52.000	18.000	85.000	0	0
2/ 5/73	57.500	4.100	60.000	18.000	86.000	0	0
3/ 5/73	58.000	4.200	52.000	19.000	92.000	0	0
4/11/73	56.300	4.020	49.100	18.500	88.000	0	0
5/ 8/73	60.200	4.080	56.200	19.800	100.000	0	0
6/ 4/73	57.800	4.800	52.500	18.700	83.000	0	0
7/ 9/73	61.100	4.700	54.500	19.700	97.500	0	0
8/ 9/73	59.000	4.080	46.600	17.900	92.670	0	0
9/12/73	61.600	4.450	46.300	42.000	93.500	0	.170
10/10/73	53.000	4.000	39.700	14.100	74.600	0	.096
11/15/73	59.000	4.160	46.600	18.700	83.000	0	.391
12/20/73	54.000	4.000	48.000	16.000	85.000	0	0
1/16/74	53.300	4.100	48.200	16.800	86.600	50.800	0
2/ 6/74	55.000	4.300	49.000	17.400	87.400	11.300	0
2/21/74	56.000	4.100	42.400	16.900	87.300	71.700	0
3/ 6/74	58.000	4.000	45.400	17.100	83.200	60.400	0
3/20/74	48.000	3.600	44.000	16.000	86.700	48.300	0
4/ 3/74	74.000	4.600	47.600	19.200	116.000	66.100	0
4/19/74	64.000	5.800	49.000	18.400	96.300	57.800	0
5/ 8/74	64.000	4.800	56.600	20.200	103.900	60.400	.640
6/ 4/74	65.000	5.500	52.500	19.000	97.600	64.000	.430
6/18/74	65.000	4.800	40.800	15.200	100.300	70.100	.090

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 4 BOTTOM

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
********	********	********	********	********	********	********	********
1/15/73	13.500	9.300	89.423	8.200	3.200	670.000	0
2/ 5/73	16.000	9.100	91.919	8.300	3.000	680.000	0
3/ 5/73	18.000	0	0	8.000	2.800	660.000	0
4/11/73	21.100	8.200	91.111	8.350	3.300	0	0
5/ 8/73	24.800	8.100	96.429	8.400	3.360	0	0
6/ 4/73	27.700	7.100	89.873	8.100	2.860	660.000	0
7/ 9/73	28.400	5.600	70.886	8.200	3.080	710.000	0
8/ 9/73	29.000	0	0	8.480	2.740	635.000	0
9/12/73	28.200	7.400	93.671	8.000	2.840	585.000	0
10/10/73	27.200	7.200	88.889	8.300	2.480	595.000	0
11/15/73	21.200	8.400	93.333	8.200	2.540	680.000	0
11/15/73	21.200	8.500	94.444	8.200	0	680.000	0
11/15/73	21.200	8.500	94.444	8.200	0	680.000	0
11/15/73	21.500	8.900	101.136	8.200	0	680.000	0
12/20/73	0	0	0	0	2.600	0	0
1/16/74	21.100	8.200	91.111	8.200	2.230	620.000	0
2/ 6/74	20.000	7.900	85.870	8.000	2.730	645.000	0
2/21/74	18.500	7.300	78.495	8.250	2.520	655.000	0
3/ 6/74	18.700	9.200	98.925	8.320	2.950	670.000	0
3/20/74	21.200	7.400	82.222	8.400	2.690	569.000	0
4/ 3/74	30.600	.400	5.333	5.800	3.630	100.000	0
4/19/74	23.200	7.500	86.207	8.400	2.860	690.000	0
5/ 8/74	24.500	7.500	89.286	8.300	2.950	728.000	0
6/ 4/74	27.200	6.700	82.716	8.300	3.330	762.000	0
6/18/74	27.000	6.900	85.185	7.600	3.200	756.000	0

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 4 BOTTOM

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
1/15/73	.179	-0.002	.060	1.770	.006	.126	9.980
2/ 5/73	.206	.002	.020	2.190	.009	.128	0
3/ 5/73	.112	-0.004	.019	1.250	-0.002	.042	9.100
4/11/73	-0.004	-0.002	.030	2.750	.009	.101	8.700
5/ 8/73	.041	-0.002	.040	.800	.002	.110	8.600
6/ 4/73	.024	.015	.030	1.810	.002	.120	6.900
7/ 9/73	-0.008	-0.008	0	1.890	-0.002	.012	7.000
8/ 9/73	-0.008	-0.008	-0.010	1.350	-0.002	.070	2.120
9/12/73	-0.004	.007	.020	1.460	.002	.058	.420
10/10/73	-0.004	-0.004	-0.010	1.520	-0.002	.038	.910
11/15/73	.088	-0.004	-0.010	.760	.011	.035	4.000
11/15/73	0	0	0	0	0	0	0
11/15/73	0	0	0	0	0	0	0
11/15/73	0	0	0	0	0	0	0
12/20/73	.185	-0.004	.023	1.410	.009	.035	4.800
1/16/74	.084	-0.004	-0.010	1.510	-0.002	.035	4.350
2/ 6/74	.047	-0.004	-0.010	2.680	.007	.087	5.680
2/21/74	.166	-0.004	-0.010	2.420	.007	.160	6.020
3/ 6/74	.082	-0.004	.020	2.710	-0.002	.080	5.810
3/20/74	.081	-0.004	.020	2.580	.005	.096	6.080
4/ 3/74	.162	.004	.020	2.730	.008	.074	8.100
4/19/74	.132	-0.004	.040	2.420	.005	.092	5.230
5/ 8/74	.081	-0.004	-0.010	1.420	.002	.031	6.280
6/ 4/74	.004	.004	-0.010	2.240	-0.002	.065	5.490
6/18/74	-0.004	-0.004	.013	1.480	-0.002	.024	6.220

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 4 BOTTOM

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
1/15/73	57.100	4.000	51.000	18.000	90.000	0	0
2/ 5/73	57.700	4.000	60.000	18.000	87.000	0	0
3/ 5/73	56.000	4.200	52.000	19.000	90.000	0	0
4/11/73	57.500	4.050	53.300	19.100	88.000	0	0
5/ 8/73	60.400	4.040	0	20.200	101.000	0	0
6/ 4/73	57.300	4.340	49.400	18.000	87.000	0	0
7/ 9/73	61.000	4.740	54.400	20.000	101.500	0	0
8/ 9/73	59.000	4.050	49.500	19.600	92.220	0	0
9/12/73	61.300	4.410	43.200	37.200	93.900	0	.590
10/10/73	53.000	4.000	39.200	14.200	75.600	0	.047
11/15/73	57.000	4.100	45.700	18.200	82.800	0	.494
11/15/73	0	0	0	0	0	0	0
11/15/73	0	0	0	0	0	0	0
11/15/73	0	0	0	0	0	0	0
12/20/73	54.000	4.100	46.000	17.000	84.000	0	0
1/16/74	53.700	3.800	48.200	16.900	86.600	47.300	0
2/ 6/74	55.000	4.400	49.000	17.000	84.300	43.500	0
2/21/74	56.000	4.100	41.600	16.300	88.300	74.200	0
3/ 6/74	54.000	4.000	45.400	17.400	86.800	60.700	0
3/20/74	51.000	3.700	41.000	16.000	85.200	40.100	0
4/ 3/74	52.000	3.700	46.800	16.600	105.100	63.800	0
4/19/74	60.000	4.700	50.000	18.400	90.200	58.000	0
5/ 8/74	49.000	4.000	58.800	20.200	86.400	60.400	.870
6/ 4/74	66.000	5.400	52.800	18.800	100.300	67.700	.380
6/18/74	51.000	3.600	52.200	19.400	101.700	69.900	-0.020

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION % SURFACE

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
********	********	********	********	********	********	********	********
1/16/73	14.300	10.100	97.115	8.200	3.000	640.000	30.000
2/ 6/73	17.500	9.600	101.053	8.200	2.800	650.000	38.000
3/ 6/73	23.000	8.100	93.103	8.000	2.600	640.000	64.000
4/11/73	21.600	8.900	101.136	8.800	2.700	0	80.000
5/ 8/73	25.700	7.800	95.122	8.400	3.160	0	90.000
6/ 5/73	28.200	7.000	88.608	8.500	2.760	690.000	81.000
7/ 9/73	29.000	7.500	96.154	8.400	3.000	640.000	144.000
8/10/73	29.000	0	0	8.660	2.000	590.000	180.000
9/12/73	30.000	8.900	115.594	5.000	2.850	700.000	97.000
10/10/73	28.000	7.800	98.734	8.600	1.720	320.000	76.000
11/14/73	21.500	9.400	106.818	8.500	1.810	480.000	91.000
12/20/73	15.000	8.600	84.314	8.200	2.500	540.000	0
1/17/74	22.000	9.200	104.545	8.800	2.450	410.000	70.000
2/13/74	16.900	10.200	105.155	8.500	2.800	643.000	75.000
2/21/74	20.600	8.700	96.667	8.450	2.740	655.000	0
3/ 7/74	22.200	8.800	100.000	8.250	2.980	465.000	56.000
3/20/74	28.000	2.100	26.582	6.400	2.870	280.000	62.000
4/ 4/74	25.400	8.000	95.238	8.600	3.730	600.000	50.000
4/19/74	23.500	8.100	95.294	8.600	2.920	705.000	79.000
5/ 9/74	25.200	8.100	96.429	8.400	2.970	730.000	78.000
6/ 4/74	29.200	7.600	97.436	8.600	3.280	725.000	0
6/18/74	29.500	7.900	102.597	7.900	2.310	670.000	0

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 5 SURFACE

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
1/16/73	.008	-0.002	.060	1.650	.002	.074	8.080
2/ 6/73	.018	-0.002	.010	1.420	.001	.048	0
3/ 6/73	.047	-0.004	.018	1.280	-0.002	.035	4.300
4/11/73	-0.004	-0.002	.030	.290	.002	.016	2.700
5/ 8/73	.050	-0.002	.020	1.700	-0.002	.018	8.200
6/ 5/73	-0.008	-0.004	.020	1.280	.002	.040	5.900
7/ 9/73	-0.008	-0.008	0	1.510	-0.002	.010	5.000
8/10/73	-0.008	-0.008	-0.010	1.420	-0.002	.052	9.260
9/12/73	.018	-0.004	.030	1.450	-0.002	.011	5.260
10/10/73	-0.004	-0.004	-0.010	1.890	-0.002	.042	4.790
11/14/73	-0.004	-0.004	-0.010	1.630	.002	.028	2.530
12/20/73	.172	-0.004	.018	1.750	.004	.054	4.600
1/17/74	-0.004	-0.004	-0.010	1.420	-0.002	.021	4.200
2/13/74	-0.004	-0.004	-0.010	1.840	.002	.033	5.310
2/21/74	.035	-0.004	-0.010	1.440	-0.002	.026	5.710
3/ 7/74	-0.004	-0.004	.020	1.860	-0.002	.052	4.030
3/20/74	.006	-0.004	.030	1.420	-0.002	.030	5.490
4/ 4/74	.053	-0.004	.030	2.470	-0.002	.024	4.650
4/19/74	.128	-0.004	.020	2.170	-0.002	.022	3.640
5/ 9/74	-0.004	-0.004	-0.010	1.150	-0.002	.018	5.190
6/ 4/74	.013	-0.004	-0.010	1.170	-0.002	.023	4.060
6/18/74	-0.004	-0.004	.114	1.900	-0.002	.005	2.410

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 5 SURFACE

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
********	********	********	********	********	********	********	********
1/16/73	57.900	4.300	50.000	18.000	86.000	0	0
2/ 6/73	58.200	4.100	58.000	18.000	86.000	0	0
3/ 6/73	51.000	4.300	49.000	17.000	86.000	0	0
4/11/73	57.300	4.150	45.600	18.400	89.000	0	0
5/ 8/73	62.400	4.260	56.300	20.100	104.000	0	0
6/ 5/73	63.100	4.630	50.000	20.000	97.000	0	0
7/ 9/73	58.200	4.380	44.900	18.300	93.100	0	0
8/10/73	47.000	3.990	37.200	18.100	91.800	0	0
9/12/73	61.300	4.500	45.100	38.600	93.300	0	.070
10/10/73	36.000	2.800	24.900	8.600	52.200	0	.103
11/14/73	39.000	3.030	31.800	11.000	56.100	0	.162
12/20/73	51.000	4.000	45.000	15.000	83.000	0	0
1/17/74	53.100	4.100	53.000	17.700	87.600	44.100	0
2/13/74	56.000	4.400	48.200	17.600	83.300	45.500	0
2/21/74	44.000	3.300	42.400	16.200	81.700	44.100	0
3/ 7/74	54.000	4.000	45.000	17.100	85.000	52.400	0
3/20/74	52.000	3.900	46.000	17.000	87.700	58.000	0
4/ 4/74	55.000	4.500	47.600	17.000	89.300	65.400	0
4/19/74	61.000	4.600	50.800	19.600	93.900	62.300	0
5/ 9/74	60.000	4.800	55.600	19.600	87.200	61.900	.080
6/ 4/74	63.000	5.100	52.800	18.800	96.500	64.200	.280
6/18/74	57.000	4.100	36.600	18.200	97.600	66.000	-0.020

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 5 BOTTOM

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
********	********	********	********	********	********	********	********
1/16/73	13.300	0	0	8.200	3.000	640.000	0
2/ 6/73	17.000	9.500	97.938	8.300	2.800	640.000	0
3/ 6/73	22.300	8.200	93.182	8.100	2.600	610.000	0
4/11/73	21.000	9.000	100.000	8.700	2.700	0	0
5/ 8/73	25.700	7.700	93.902	8.450	3.080	0	0
6/ 5/73	28.000	6.900	87.342	8.600	2.760	690.000	0
7/ 9/73	28.800	7.600	97.436	8.200	3.040	635.000	0
8/10/73	28.900	0	0	8.540	2.000	600.000	0
9/12/73	28.200	8.000	101.266	4.800	2.940	715.000	0
10/10/73	27.800	7.200	91.139	8.400	1.680	345.000	0
11/14/73	21.000	8.700	96.667	8.400	1.780	480.000	0
11/14/73	21.100	9.300	103.333	8.450	0	480.000	0
11/14/73	21.500	9.500	107.955	8.500	0	480.000	0
12/20/73	15.000	9.500	93.137	8.200	2.500	600.000	0
1/17/74	22.000	8.700	98.864	8.700	2.500	470.000	0
2/13/74	16.600	9.900	102.062	8.600	2.820	648.000	0
2/21/74	20.300	8.200	89.130	8.450	2.760	655.000	0
3/ 7/74	22.200	8.350	94.886	8.470	2.980	495.000	0
3/20/74	21.400	8.700	96.667	8.700	2.970	0	0
4/ 4/74	25.500	8.000	97.561	8.600	3.690	600.000	0
4/19/74	23.500	8.100	95.294	8.600	2.970	710.000	0
5/ 9/74	24.500	7.800	92.857	8.600	2.970	731.000	0
6/ 4/74	29.000	7.800	100.000	8.600	3.270	730.000	0
6/18/74	29.000	8.200	105.128	7.900	2.310	675.000	0

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 5 BOTTOM

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
1/16/73	.006	-0.002	.040	1.650	-0.002	.077	5.900
2/ 6/73	.007	.006	.020	1.450	.010	.048	0
3/ 6/73	.038	-0.004	.011	1.290	.002	.036	4.200
4/11/73	-0.004	-0.002	.030	1.230	.005	.017	2.600
5/ 8/73	.051	-0.022	.020	1.600	.002	.032	8.100
6/ 5/73	-0.008	-0.004	.030	1.540	.005	.050	5.400
7/ 9/73	-0.008	-0.008	-0.010	1.300	-0.002	.022	5.000
8/10/73	-0.008	-0.008	-0.010	1.480	-0.002	.014	9.380
9/12/73	.057	-0.004	.010	1.700	-0.002	.018	5.320
10/10/73	-0.004	-0.004	-0.010	1.480	-0.002	.042	2.690
11/14/73	-0.004	-0.004	-0.010	1.640	.002	.025	2.550
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
12/20/73	.160	-0.004	-0.010	1.310	-0.002	.064	4.400
1/17/74	-0.004	-0.004	-0.010	1.830	-0.002	.026	4.350
2/13/74	-0.004	-0.004	-0.010	2.170	-0.002	.025	5.190
2/21/74	.038	-0.004	-0.010	1.610	-0.002	.052	5.690
3/ 7/74	-0.004	-0.004	.020	1.720	-0.002	.053	4.430
3/20/74	-0.004	.010	.020	1.720	-0.002	.026	6.200
4/ 4/74	.343	-0.004	.070	1.970	-0.002	.024	4.890
4/19/74	.248	-0.004	.020	1.870	-0.002	.017	4.300
5/ 9/74	.014	-0.004	-0.010	1.100	.002	.018	5.840
6/ 4/74	.005	-0.004	.020	1.060	-0.002	.028	4.280
6/18/74	-0.004	-0.004	.075	1.460	-0.002	.007	2.390

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 5 BOTTOM

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
1/16/73	57.700	4.300	49.500	18.000	95.000	0	0
2/ 6/73	58.400	4.200	59.000	18.000	86.000	0	0
3/ 6/73	51.000	4.300	49.000	17.000	87.000	0	0
4/11/73	58.700	4.160	46.000	18.600	89.000	0	0
5/ 8/73	62.900	4.240	56.100	20.500	103.000	0	0
6/ 5/73	63.900	4.430	48.400	20.100	98.000	0	0
7/ 9/73	58.400	4.140	45.200	18.400	92.500	0	0
8/10/73	62.000	4.050	34.900	19.200	96.750	0	0
9/12/73	63.200	4.590	48.200	44.800	95.200	0	.070
10/10/73	35.000	2.800	29.800	10.700	50.100	0	.101
11/14/73	40.000	3.100	34.000	11.900	58.000	0	.285
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
12/20/73	50.000	4.000	47.000	16.000	80.000	0	0
1/17/74	53.400	4.300	49.400	16.400	87.600	39.300	0
2/13/74	55.000	4.400	48.200	17.400	83.300	45.100	0
2/21/74	53.000	4.200	41.600	16.800	81.700	44.100	0
3/ 7/74	52.000	4.000	48.200	17.600	82.200	55.900	0
3/20/74	59.000	4.300	48.000	17.000	88.500	62.500	0
4/ 4/74	55.000	4.200	46.800	17.200	90.000	64.600	0
4/19/74	61.000	4.600	49.000	19.000	93.600	62.600	0
5/ 9/74	57.000	4.600	57.800	20.200	87.400	62.600	.140
6/ 4/74	66.000	5.300	53.600	19.000	97.600	67.400	.250
6/18/74	62.000	4.200	28.600	13.200	98.200	67.100	-0.020

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 6 SURFACE

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
********	********	********	********	********	********	********	********
1/16/73	14.300	9.900	95.192	8.300	3.000	595.000	30.000
2/ 6/73	16.900	9.800	105.376	8.200	2.800	700.000	45.000
3/ 7/73	22.000	9.900	112.500	8.600	0	0	50.000
4/12/73	21.600	8.600	97.727	8.400	3.100	0	26.000
5/ 8/73	27.000	8.000	98.765	8.800	3.280	0	0
6/ 5/73	29.500	7.300	94.805	8.400	3.080	685.000	26.000
7/10/73	29.400	6.900	88.462	7.900	2.800	630.000	92.000
8/10/73	29.000	0	0	8.430	2.780	640.000	86.000
9/12/73	29.500	7.900	102.597	7.600	2.790	670.000	55.000
10/10/73	28.800	6.800	87.179	8.200	2.720	565.000	79.000
11/14/73	21.500	8.600	97.727	8.100	2.420	680.000	33.000
12/20/73	15.500	8.900	89.899	8.200	2.700	575.000	0
1/17/74	22.600	8.200	94.253	8.400	2.370	595.000	55.000
2/13/74	18.000	9.100	95.799	8.000	2.730	545.000	32.000
2/21/74	19.800	7.800	84.783	8.150	2.680	545.000	0
3/ 7/74	21.700	9.580	108.864	8.050	2.610	497.000	82.000
3/20/74	21.300	9.400	106.818	8.400	2.820	690.000	39.000
4/ 4/74	25.700	7.700	93.902	8.300	3.660	680.000	16.000
4/19/74	23.200	7.400	85.057	8.200	2.870	690.000	22.200
5/ 9/74	24.800	6.900	82.143	8.000	2.910	732.000	42.000
6/ 4/74	29.600	8.800	114.286	8.100	3.300	740.000	0
6/18/74	29.300	8.700	124.359	7.700	3.110	728.000	0

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION - SURFACE

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
********	********	********	********	********	********	********	********
1/16/73	.099	-0.002	.050	1.430	.004	.067	5.960
2/ 6/73	.210	.002	.020	1.250	.014	.049	0
3/ 7/73	.099	-0.004	.022	1.380	-0.001	.046	7.500
4/12/73	-0.004	-0.002	.030	1.340	.022	.068	8.500
5/ 8/73	.075	-0.002	.040	1.500	.009	.089	9.300
6/ 5/73	.085	-0.004	.020	1.570	.011	.070	6.600
7/10/73	-0.008	-0.008	-0.010	1.400	-0.002	.025	2.500
8/10/73	.019	-0.008	-0.010	.960	.007	.035	1.890
9/12/73	-0.004	-0.004	-0.010	1.070	.003	.038	.230
10/10/73	.032	-0.004	-0.010	1.430	-0.002	.033	1.810
11/14/73	.236	-0.004	.012	1.550	.019	.044	5.620
12/20/73	.176	-0.004	.048	1.540	.006	.040	4.400
1/17/74	.168	-0.004	-0.010	1.620	.005	.031	6.070
2/13/74	.152	-0.004	.020	1.720	.018	.055	6.590
2/21/74	.212	-0.006	-0.010	1.440	.012	.076	6.870
3/ 7/74	.196	-0.004	-0.010	1.270	.015	.044	6.800
3/20/74	.185	.016	.030	1.460	.016	.064	7.520
4/ 4/74	.132	-0.004	.070	2.870	.015	.071	6.530
4/19/74	.384	-0.004	.020	2.080	.022	.104	6.680
5/ 9/74	.193	-0.004	-0.010	1.170	.013	.036	4.780
6/ 4/74	.008	-0.004	-0.010	1.320	-0.002	.049	4.180
6/18/74	-0.004	-0.004	-0.010	1.560	-0.002	.015	3.720

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION A SURFACE

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
********	********	********	********	********	********	********	********
1/16/73	57.700	4.300	49.500	19.000	86.000	0	0
2/ 6/73	58.400	4.100	59.000	19.000	87.000	0	0
3/ 7/73	57.000	4.200	52.000	19.000	90.000	0	0
4/12/73	57.100	4.110	50.900	19.000	88.000	0	0
5/ 8/73	59.700	4.020	56.400	19.900	99.000	0	0
6/ 5/73	60.600	4.930	55.200	19.200	91.000	0	0
7/10/73	55.200	4.240	48.500	17.700	77.900	0	0
8/10/73	61.000	4.100	49.800	19.200	91.800	0	0
9/12/73	59.400	4.350	39.600	36.800	91.200	0	.190
10/10/73	58.000	4.300	40.500	14.800	84.700	0	.085
11/14/73	57.000	3.160	45.900	18.500	86.700	0	.617
12/20/73	54.000	4.300	51.000	18.000	85.000	0	0
1/17/74	53.400	3.900	49.400	16.800	87.200	41.900	0
2/13/74	54.000	4.400	48.200	17.000	82.300	43.500	0
2/21/74	50.000	3.800	42.400	16.600	81.700	48.300	0
3/ 7/74	55.000	4.400	47.200	16.900	83.800	62.000	0
3/20/74	55.000	3.900	46.000	16.000	87.300	61.300	0
4/ 4/74	54.000	4.100	47.600	16.600	88.400	63.000	0
4/19/74	56.000	4.300	50.000	18.400	90.600	58.700	0
5/ 9/74	57.000	4.400	58.800	18.800	94.800	61.400	.420
6/ 4/74	63.000	5.100	55.400	20.000	95.900	64.300	.240
6/18/74	60.000	4.200	70.400	16.800	96.200	68.400	-0.020

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 6 BOTTOM

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
********	********	********	********	********	********	********	********
1/16/73	13.900	9.800	94.231	8.200	3.200	590.000	0
2/ 6/73	17.200	9.400	96.907	8.200	2.800	680.000	0
3/ 7/73	20.800	9.000	100.000	8.500	0	0	0
4/12/73	20.200	8.200	89.130	8.350	3.200	0	0
5/ 8/73	26.000	7.900	96.341	8.600	3.240	0	0
6/ 5/73	25.000	6.000	71.429	8.600	3.040	680.000	0
7/10/73	28.800	6.300	80.769	7.500	2.800	630.000	0
8/10/73	28.900	0	0	8.350	2.700	640.000	0
9/12/73	28.200	6.600	83.544	7.200	2.820	670.000	0
10/10/73	28.500	6.300	80.769	8.200	2.640	610.000	0
11/14/73	21.500	8.500	96.591	8.100	2.570	680.000	0
11/14/73	21.500	8.300	94.318	8.100	0	680.000	0
11/14/73	21.500	8.200	93.182	8.100	0	680.000	0
12/20/73	15.000	9.300	91.176	8.200	2.700	650.000	0
1/17/74	21.100	7.300	81.111	8.200	2.370	615.000	0
2/13/74	16.500	9.000	92.784	8.200	2.730	590.000	0
2/21/74	19.500	7.600	82.609	8.150	2.680	580.000	0
3/ 7/74	20.700	8.700	96.667	8.460	2.640	529.000	0
3/20/74	21.100	7.500	83.333	8.300	2.790	688.000	0
4/ 4/74	25.500	7.700	93.902	8.200	3.730	680.000	0
4/19/74	23.200	7.500	86.207	8.200	2.690	690.000	0
5/ 9/74	24.800	6.900	82.143	8.400	2.920	732.000	0
6/ 4/74	27.500	6.100	77.215	8.300	3.280	740.000	0
6/18/74	26.500	6.600	81.481	7.400	3.080	730.000	0

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 6 BOTTOM

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
1/16/73	.095	-0.002	.080	1.680	.004	.050	5.840
2/ 6/73	.178	.003	.020	1.210	.005	.042	0
3/ 7/73	.097	-0.004	.041	1.260	.001	.037	7.700
4/12/73	.332	.004	.030	1.620	.044	.109	9.500
5/ 8/73	.196	-0.002	.040	1.900	.009	.053	9.700
6/ 5/73	.105	-0.004	.030	1.550	.011	.080	6.700
7/10/73	-0.008	-0.008	-0.010	1.340	-0.002	.027	3.700
8/10/73	.022	-0.008	-0.010	1.260	-0.002	.040	.720
9/12/73	-0.008	-0.004	-0.010	1.090	.003	.049	.480
10/10/73	.035	-0.004	-0.010	1.180	-0.002	.049	1.700
11/14/73	.224	-0.004	-0.010	.970	.018	.043	5.660
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
12/20/73	.205	-0.004	.024	1.070	.006	.027	4.500
1/17/74	.185	-0.004	-0.010	2.030	.007	.031	6.200
2/13/74	.084	-0.004	.020	1.700	.017	.046	6.340
2/21/74	.220	-0.004	-0.010	1.910	.014	.070	6.950
3/ 7/74	.164	-0.004	.050	1.690	.017	.054	6.650
3/20/74	.276	-0.004	.040	1.580	.016	.070	7.420
4/ 4/74	.140	-0.004	-0.010	2.270	.016	.076	6.760
4/19/74	.604	-0.004	.060	2.330	.021	.104	6.660
5/ 9/74	.104	-0.004	.010	1.080	.014	.037	6.660
6/ 4/74	.075	-0.004	-0.010	1.200	.003	.082	4.670
6/18/74	.035	-0.004	.017	1.660	.002	.018	3.520

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 6 BOTTOM

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
1/16/73	56.800	4.300	49.000	18.000	88.000	0	0
2/ 6/73	58.900	4.200	60.000	19.000	84.000	0	0
3/ 7/73	56.000	4.200	52.000	19.000	89.000	0	0
4/12/73	56.600	4.080	50.300	18.500	88.000	0	0
5/ 8/73	59.800	4.000	55.300	19.200	99.000	0	0
6/ 5/73	59.000	4.540	54.000	18.800	90.000	0	0
7/10/73	56.000	4.710	46.300	17.200	89.100	0	0
8/10/73	59.000	4.140	46.400	18.000	91.080	0	0
9/12/73	60.200	4.320	47.500	39.600	91.800	0	.420
10/10/73	58.000	4.200	45.800	16.800	83.900	0	.048
11/14/73	58.000	4.140	44.800	18.100	83.800	0	.614
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
12/20/73	54.000	4.300	48.000	17.000	86.000	0	0
1/17/74	53.500	4.200	51.800	16.900	86.800	45.700	0
2/13/74	54.000	4.200	48.200	17.000	82.900	15.400	0
2/21/74	52.000	3.900	40.800	17.000	93.700	48.500	0
3/ 7/74	52.000	4.200	45.400	16.900	85.200	72.500	0
3/20/74	57.000	4.000	45.000	16.000	87.400	62.500	0
4/ 4/74	56.000	4.300	49.400	17.400	88.600	64.600	0
4/19/74	55.000	4.300	52.600	18.800	98.300	56.400	0
5/ 9/74	54.000	4.200	56.600	18.200	94.800	60.800	.400
6/ 4/74	64.000	5.000	55.400	19.200	95.900	61.600	.310
6/18/74	61.000	4.300	50.400	16.200	96.200	68.400	-0.020

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 7 SURFACE

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
1/16/73	14.300	10.200	98.077	8.400	2.700	650.000	124.000
2/ 6/73	17.900	9.700	102.105	8.400	2.600	670.000	111.000
3/ 7/73	22.100	7.800	88.636	8.300	.0	0	138.000
4/12/73	21.000	8.900	98.899	8.550	3.200	0	25.000
5/ 8/73	27.200	8.000	98.765	8.450	3.040	0	39.000
6/ 5/73	29.500	7.200	93.506	8.400	2.800	640.000	41.000
7/10/73	29.900	7.500	97.403	8.000	2.600	610.000	16.000
8/10/73	30.200	0	0	8.420	2.660	625.000	170.000
9/12/73	29.500	8.000	103.896	6.900	2.600	620.000	92.000
10/10/73	28.500	7.200	92.308	8.000	2.750	615.000	94.000
11/14/73	21.000	10.100	112.222	8.300	2.760	690.000	50.000
12/20/73	15.500	9.000	90.909	8.400	2.700	625.000	0
1/17/74	22.300	8.600	97.727	8.400	2.390	330.000	64.000
2/13/74	18.000	9.800	103.158	8.200	2.720	604.000	109.000
2/21/74	20.000	7.900	85.870	8.450	2.690	555.000	0
3/ 7/74	21.000	9.420	104.667	8.000	2.680	540.000	24.000
3/20/74	21.800	8.000	90.909	8.400	2.880	675.000	23.000
4/ 4/74	25.500	7.800	95.122	8.300	3.760	680.000	38.000
4/19/74	23.500	7.400	87.059	8.200	2.870	690.000	32.200
5/ 9/74	24.700	7.100	84.524	8.100	2.780	730.000	85.000
6/ 4/74	28.700	7.500	96.154	8.100	3.320	730.000	0
6/18/74	27.600	7.300	92.405	7.600	3.170	745.000	0

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION / SURFACE

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
********	********	********	********	********	********	********	********
1/16/73	.002	-0.002	.060	1.180	.004	.020	3.160
2/ 6/73	.003	.002	.020	1.330	.002	.025	1.900
3/ 7/73	.322	-0.004	.035	1.140	.002	.018	6.800
4/12/73	-0.004	-0.002	.030	.090	.009	.055	8.900
5/ 8/73	.087	-0.002	.040	1.500	.009	.043	8.100
6/ 5/73	.056	-0.004	.020	1.310	.010	.080	5.300
7/10/73	-0.008	-0.008	-0.010	1.640	-0.002	.010	4.900
8/10/73	.050	-0.008	-0.010	1.250	.003	.023	1.360
9/12/73	.007	-0.004	.020	1.170	.003	.022	.060
10/10/73	-0.004	-0.004	-0.010	1.370	-0.002	.032	2.730
11/14/73	.050	-0.004	-0.010	2.060	.002	.021	6.010
12/20/73	.192	-0.004	.078	1.550	-0.002	.020	3.600
1/17/74	.216	-0.004	-0.010	1.540	.005	.030	6.040
2/13/74	.162	-0.004	.020	1.370	.008	.022	5.970
2/21/74	.191	-0.004	.020	2.180	-0.002	.027	5.880
3/ 7/74	.108	.005	-0.010	1.560	.002	.016	4.820
3/20/74	.103	-0.004	.140	1.640	.003	.024	5.010
4/ 4/74	.238	-0.004	-0.010	2.040	.013	.048	7.200
4/19/74	.302	-0.004	.020	2.030	.019	.054	5.550
5/ 9/74	.584	-0.004	.020	1.310	.009	.024	6.760
6/ 4/74	.009	-0.004	.013	1.290	-0.002	.022	4.690
6/18/74	.007	-0.004	-0.010	1.510	-0.002	.011	4.060

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 7 SURFACE

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
1/16/73	59.700	0	44.500	20.000	92.000	0	0
2/ 6/73	60.600	4.200	54.000	20.000	89.000	0	0
3/ 7/73	56.000	4.200	52.000	19.000	90.000	0	0
4/12/73	60.400	4.170	51.300	19.100	90.000	0	0
5/ 8/73	56.000	3.900	0	19.200	92.000	0	0
6/ 5/73	56.400	3.880	53.100	18.700	85.000	0	0
7/10/73	53.900	4.090	46.700	17.300	88.300	0	0
8/10/73	58.000	4.030	47.100	17.700	91.800	0	0
9/12/73	54.400	4.060	45.400	34.600	83.800	0	.120
10/10/73	58.000	4.200	47.400	17.000	83.100	0	.042
11/14/73	58.000	4.430	48.700	19.500	85.800	0	.210
12/20/73	55.000	4.300	52.000	19.000	86.000	0	0
1/17/74	53.600	4.200	51.800	17.200	85.200	41.200	0
2/13/74	54.000	4.300	49.000	16.600	81.500	44.200	0
2/21/74	51.000	3.700	40.800	17.000	80.300	49.500	0
3/ 7/74	52.000	3.700	48.200	18.100	85.200	60.400	0
3/20/74	54.000	3.900	48.000	17.000	90.900	56.400	0
4/ 4/74	56.000	4.600	47.600	17.000	88.600	65.500	0
4/19/74	58.000	4.600	53.400	20.000	89.800	56.500	0
5/ 9/74	58.000	4.500	58.800	18.800	93.400	58.900	.220
6/ 4/74	63.000	5.600	56.400	19.600	96.500	65.600	.210
6/18/74	67.000	4.600	43.400	15.000	101.100	71.500	-0.020

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 7 BOTTOM

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
********	********	********	********	********	********	********	********
1/16/73	14.300	10.500	100.962	8.400	2.700	645.000	0
2/ 6/73	17.400	9.700	100.000	8.400	2.600	655.000	0
3/ 7/73	21.900	7.700	87.500	8.300	0	0	0
4/12/73	20.200	8.400	91.304	8.500	3.300	0	0
5/ 8/73	25.700	7.800	95.122	8.400	3.000	0	0
6/ 5/73	28.500	7.200	92.308	8.600	2.840	640.000	0
7/10/73	29.700	8.100	105.195	7.600	2.560	610.000	0
8/10/73	29.500	0	0	8.320	2.670	625.000	0
9/12/73	28.100	6.400	81.013	7.800	2.590	625.000	0
10/10/73	28.300	6.700	84.810	8.100	2.720	630.000	0
11/14/73	20.800	10.100	112.222	8.300	2.380	690.000	0
12/20/73	15.000	9.500	93.137	8.400	2.700	635.000	0
1/17/74	21.500	7.800	88.636	8.400	2.390	410.000	0
2/13/74	17.000	9.000	92.784	8.300	2.670	620.000	0
2/21/74	20.000	7.600	82.609	8.450	2.600	585.000	0
3/ 7/74	20.600	8.720	96.889	8.240	2.700	565.000	0
3/20/74	21.000	7.800	86.667	8.400	2.900	681.000	0
4/ 4/74	25.500	7.800	95.122	8.300	3.810	680.000	0
4/19/74	23.500	7.500	88.235	8.200	2.860	690.000	0
5/ 9/74	24.700	7.100	84.524	8.400	2.890	730.000	0
6/ 4/74	27.700	7.500	94.937	8.300	3.320	725.000	0
6/18/74	26.500	8.100	100.000	7.600	2.980	756.000	0

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 7 BOTTOM

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
1/16/73	.001	-0.002	.060	1.240	-0.002	.023	3.120
2/ 6/73	0	.002	.020	1.250	.002	.026	1.600
3/ 7/73	.182	-0.004	.031	1.170	-0.002	.020	6.900
4/12/73	-0.004	-0.002	.030	.030	.006	.098	8.300
5/ 8/73	.085	-0.002	.050	1.700	.012	.055	7.100
6/ 5/73	.069	-0.004	.020	1.410	.013	.080	5.400
7/10/73	-0.008	-0.008	-0.010	1.060	-0.002	.017	5.000
8/10/73	.049	-0.008	.046	.121	.004	.033	1.230
9/12/73	.034	-0.004	.050	1.190	-0.002	.026	-0.040
10/10/73	-0.004	-0.004	-0.010	1.530	-0.002	.067	2.670
11/14/73	.051	-0.004	.014	1.020	.002	.026	5.970
12/20/73	.206	-0.004	.065	1.300	.002	.020	3.600
1/17/74	.223	-0.004	-0.010	1.740	.005	.023	6.060
2/13/74	.141	-0.004	.040	1.220	.005	.020	5.350
2/21/74	.011	-0.004	-0.010	1.530	.002	.043	5.730
3/ 7/74	.082	-0.004	-0.010	1.970	-0.002	.013	4.720
3/20/74		.010	.180	1.300	.006	.015	4.870
4/ 4/74	.265	.004	-0.010	1.650	.014	.045	7.200
4/19/74	.564	-0.004	.030	1.820	.017	.067	5.600
5/ 9/74	.248	-0.004	.020	1.090	.009	.023	7.030
6/ 4/74	.007	-0.004	.018	1.060	-0.002	.036	4.990
6/18/74	.011	-0.004	.043	2.070	-0.002	.011	4.750

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 7 BOTTOM

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE UG/L
********	********	********	********	********	********	********	********
1/16/73	60.100	4.400	43.500	19.000	89.000	0	0
2/ 6/73	60.800	4.200	54.000	20.000	86.000	0	0
3/ 7/73	57.000	4.200	52.000	19.000	92.000	0	0
4/12/73	60.000	4.240	51.600	19.400	91.000	0	0
5/ 8/73	56.600	3.980	53.600	18.400	91.000	0	0
6/ 5/73	56.800	4.530	45.900	16.400	85.000	0	0
7/10/73	53.800	4.210	47.300	17.900	92.100	0	0
8/10/73	61.000	4.000	47.900	17.900	91.080	0	0
9/12/73	54.400	4.080	45.100	34.400	86.100	0	.210
10/10/73	58.000	4.300	44.200	16.000	81.700	0	.057
11/14/73	58.000	4.430	48.400	19.300	101.200	0	.314
12/20/73	54.000	4.400	51.000	19.000	83.000	0	0
1/17/74	53.800	4.200	51.800	17.700	85.200	44.100	0
2/13/74	53.000	4.200	46.800	16.000	81.700	48.000	0
2/21/74	56.000	4.300	43.400	17.000	85.700	45.700	0
3/ 7/74	48.000	3.800	47.200	17.800	84.600	54.700	0
3/20/74	55.000	3.900	46.000	16.000	87.500	61.000	0
4/ 4/74	55.000	4.200	50.200	17.600	88.600	66.100	0
4/19/74	59.000	4.500	51.800	19.000	89.600	57.100	0
5/ 9/74	61.000	4.600	57.800	18.800	94.000	60.400	.230
6/ 4/74	49.000	5.300	54.600	18.800	96.500	66.600	.260
6/18/74	57.000	3.900	46.000	16.200	102.100	71.800	-0.020

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 8 SURFACE

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
********	********	********	********	********	********	********	********
1/16/73	15.000	9.500	93.137	8.100	3.200	660.000	14.000
2/ 5/73	16.900	9.100	93.814	8.100	3.100	665.000	17.000
3/ 6/73	22.000	10.500	119.318	8.400	2.900	640.000	38.000
4/11/73	0	8.300	90.217	8.300	3.100	0	20.000
5/ 8/73	26.000	7.900	95.122	8.500	3.400	0	0
6/ 5/73	28.400	6.800	86.076	8.800	3.000	690.000	25.000
7/10/73	28.900	8.400	107.692	8.400	3.000	675.000	61.000
8/10/73	29.500	0	0	8.630	2.520	625.000	90.000
9/12/73	30.100	9.000	116.883	0	2.830	625.000	84.000
10/10/73	28.200	7.200	91.139	8.300	2.690	645.000	70.000
11/14/73	22.000	8.800	100.000	8.200	2.310	600.000	33.000
12/20/73	15.500	8.700	87.879	8.100	0	570.000	0
1/17/74	21.900	8.100	92.045	8.500	2.370	418.000	29.000
2/13/74	19.000	9.500	102.151	8.100	2.610	625.000	21.000
2/21/74	20.500	8.400	93.333	8.350	2.660	645.000	0
3/ 7/74	21.000	8.110	90.111	9.200	2.670	480.000	30.000
3/20/74	23.100	8.800	101.149	8.500	2.840	525.000	30.000
4/ 4/74	25.500	7.800	95.122	8.300	3.820	680.000	12.000
4/19/74	25.000	8.700	103.571	8.400	2.670	700.000	22.000
5/ 9/74	25.100	8.400	100.000	8.200	3.000	730.000	27.000
6/ 4/74	30.400	9.200	106.494	8.400	3.420	750.000	0
6/18/74	30.000	9.000	116.883	8.000	3.290	740.000	0

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION P SURFACE

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
1/16/73	.157	-0.002	.080	1.640	.009	.124	9.000
2/ 5/73	.282	-0.002	.030	1.630	.018	.115	9.300
3/ 6/73	.038	-0.004	.023	1.440	-0.002	.061	8.000
4/11/73	.245	.002	.040	1.600	.025	.092	9.100
5/ 8/73	.181	-0.002	.040	1.800	-0.002	.057	8.600
6/ 5/73	-0.008	-0.004	.020	1.590	.003	.090	7.000
7/10/73	-0.008	-0.008	0	0	-0.002	.040	3.100
8/10/73	-0.008	.023	-0.010	1.250	-0.002	.039	.640
9/12/73	-0.004	-0.004	-0.010	1.100	-0.002	.022	.230
10/10/73	-0.004	-0.004	-0.010	1.440	-0.002	.035	2.310
11/14/73	.046	-0.004	.018	1.290	.004	.040	1.240
12/20/73	.189	-0.004	.042	1.680	.010	.034	4.500
1/17/74	.012	.004	.040	1.690	-0.002	.037	6.460
2/13/74	.132	-0.004	.020	1.890	.017	.086	6.740
2/21/74	.228	-0.004	-0.010	2.480	.016	.091	7.030
3/ 7/74	.034	.012	-0.010	1.690	-0.002	.077	5.750
3/20/74	.083	-0.004	.160	2.150	.006	.081	6.160
4/ 4/74	.193	-0.004	-0.010	2.760	.014	.082	8.280
4/19/74	.129	-0.004	.030	1.980	-0.002	.083	6.000
5/ 9/74	.050	-0.004	-0.010	1.250	-0.002	.032	6.400
6/ 4/74	.012	-0.004	.018	1.080	-0.002	.067	7.160
6/18/74	.006	-0.004	-0.010	1.610	-0.002	.017	7.060

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 8 SURFACE

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
********	********	********	********	********	********	********	********
1/16/73	57.000	4.200	51.000	18.000	90.000	0	0
2/ 5/73	58.100	4.400	62.000	19.000	86.000	0	0
3/ 6/73	54.000	4.200	51.000	18.000	86.000	0	0
4/11/73	56.000	3.940	47.500	18.000	84.000	0	0
5/ 8/73	61.300	4.160	58.200	20.300	102.000	0	0
6/ 5/73	60.600	5.050	55.400	19.500	88.000	0	0
7/10/73	58.800	4.570	51.200	18.800	95.600	0	0
8/10/73	58.000	3.960	48.700	19.700	89.790	0	0
9/12/73	59.200	4.360	47.800	38.000	90.500	0	.150
10/10/73	59.000	4.300	46.000	17.700	85.700	0	.076
11/14/73	51.000	3.710	38.500	15.200	74.900	0	.604
12/20/73	51.000	4.000	48.000	17.000	74.000	0	0
1/17/74	51.600	4.000	51.800	16.700	82.200	42.500	0
2/13/74	54.000	4.100	46.200	15.800	81.400	47.400	0
2/21/74	47.000	3.400	40.800	16.000	80.700	50.500	0
3/ 7/74	50.000	3.900	44.600	17.200	85.200	57.300	0
3/20/74	56.000	4.000	45.000	16.000	88.500	51.300	0
4/ 4/74	54.000	4.200	47.600	17.000	89.300	61.500	0
4/19/74	61.000	5.200	53.400	20.000	114.100	57.900	0
5/ 9/74	55.000	4.100	57.800	18.600	95.200	60.400	.500
6/ 4/74	60.000	4.000	53.600	18.800	97.500	65.600	.380
6/18/74	59.000	4.000	51.400	18.200	97.600	68.500	.200

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 3 BOTTOM

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
********	********	********	********	********	********	********	********
1/16/73	14.500	9.400	92.157	8.100	3.200	645.000	0
2/ 5/73	16.400	8.900	89.899	8.100	3.100	660.000	0
3/ 6/73	21.300	9.100	101.111	8.300	2.900	650.000	0
4/11/73	21.100	8.200	91.111	8.350	3.300	0	0
5/ 8/73	25.600	7.900	96.341	8.550	3.280	0	0
6/ 5/73	28.200	6.500	82.278	8.900	2.960	690.000	0
7/10/73	28.500	8.300	106.410	8.300	3.000	675.000	0
8/10/73	29.100	0	0	8.430	2.690	610.000	0
9/12/73	28.500	6.800	87.179	0	2.770	665.000	0
10/10/73	27.800	6.500	82.278	8.200	2.730	660.000	0
11/14/73	21.000	8.200	91.111	8.150	1.310	590.000	0
11/14/73	21.500	8.700	98.864	8.200	0	600.000	0
11/14/73	21.700	8.800	100.000	8.200	0	600.000	0
12/20/73	15.000	9.300	91.176	8.100	2.700	620.000	0
1/17/74	21.500	7.900	89.773	8.500	2.370	460.000	0
2/13/74	17.000	8.200	91.753	8.200	2.600	636.000	0
2/21/74	19.300	7.500	90.645	8.200	2.660	645.000	0
3/ 7/74	20.500	8.030	89.222	8.450	2.660	515.000	0
3/20/74	26.500	.700	8.642	6.300	2.920	322.000	0
4/ 4/74	25.500	7.800	95.122	8.300	3.850	680.000	0
4/19/74	23.200	7.300	83.908	8.400	2.910	700.000	0
5/ 9/74	24.000	7.200	84.706	8.400	3.010	732.000	0
6/ 4/74	27.600	5.800	73.413	8.600	3.420	749.000	0
6/18/74	27.000	6.100	75.303	7.800	3.320	740.000	0

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 3 BOTTOM

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
1/16/73	.160	.002	.050	1.830	.006	.148	8.980
2/ 5/73	.279	.002	.030	1.610	.018	.121	9.400
3/ 6/73	.282	-0.004	.033	1.360	-0.002	.059	8.300
4/11/73	-0.004	-0.002	.030	2.100	.015	.126	9.200
5/ 8/73	.126	-0.002	.020	1.300	.004	.056	8.500
6/ 5/73	-0.008	-0.004	.020	1.520	.003	.090	7.000
7/10/73	-0.008	-0.008	0	0	-0.002	.037	3.400
8/10/73	-0.002	.023	-0.010	1.680	-0.002	.071	.490
9/12/73	-0.004	-0.004	.020	1.110	-0.002	.022	.270
10/10/73	-0.004	-0.004	-0.010	2.180	-0.002	.065	2.000
11/14/73	.042	-0.004	.010	1.650	.004	.045	3.110
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
12/20/73	.187	-0.004	.039	1.840	.010	.051	4.800
1/17/74	.009	-0.004	-0.010	1.850	.002	.036	5.500
2/13/74	.166	-0.004	.030	1.990	.017	.068	6.590
2/21/74	.248	-0.004	-0.010	1.850	-0.002	.077	7.350
3/ 7/74	.039	-0.004	-0.010	1.570	.004	.156	6.130
3/20/74	.084	-0.004	.030	3.130	.003	.120	7.520
4/ 4/74	.191	-0.004	.010	2.650	.007	.082	9.540
4/19/74	.252	-0.004	.060	0	-0.002	.103	6.090
5/ 9/74	.058	-0.004	-0.010	1.470	-0.002	.038	6.420
6/ 4/74	.019	-0.004	.061	1.230	-0.002	.078	7.240
6/18/74	-0.004	-0.004	-0.010	1.610	-0.002	.018	6.920

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 0 BOTTOM

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
********	********	********	********	********	********	********	********
1/16/73	57.300	4.300	51.500	19.000	87.000	0	0
2/ 5/73	59.400	4.400	60.000	19.000	96.000	0	0
3/ 6/73	54.000	4.100	52.000	18.000	87.000	0	0
4/11/73	57.000	4.010	51.400	18.200	85.000	0	0
5/ 8/73	61.500	4.160	58.000	20.200	102.000	0	0
6/ 5/73	59.600	5.170	51.400	18.700	94.000	0	0
7/10/73	60.100	4.610	53.900	19.100	97.300	0	0
8/10/73	58.000	3.970	50.600	19.100	89.990	0	0
9/12/73	57.900	4.230	46.300	35.800	88.200	0	.250
10/10/73	30.000	2.500	23.100	8.400	86.100	0	.176
11/14/73	51.000	3.770	40.300	15.700	105.600	0	.476
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
12/20/73	52.000	4.000	48.000	16.000	76.000	0	0
1/17/74	52.000	4.200	50.600	16.400	85.000	42.500	0
2/13/74	54.000	4.200	42.000	14.400	81.400	46.700	0
2/21/74	55.000	3.900	41.600	16.600	80.300	48.900	0
3/ 7/74	54.000	4.000	49.000	17.200	84.200	55.600	0
3/20/74	57.000	4.100	48.000	16.000	91.500	59.800	0
4/ 4/74	56.000	4.200	48.600	17.000	89.300	65.400	0
4/19/74	65.000	5.700	55.200	20.000	92.800	60.000	0
5/ 9/74	62.000	4.700	58.800	19.000	95.200	61.000	.640
6/ 4/74	65.000	4.800	55.400	19.400	97.100	65.900	.420
6/18/74	55.000	3.900	50.400	17.600	97.400	69.300	-0.020

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 10 SURFACE

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
5/ 7/73	25.300	7.800	92.857	8.400	2.440	0	0
11/15/73	22.500	8.800	101.149	8.400	2.560	650.000	175.000
5/ 8/74	25.700	7.500	91.463	8.200	2.890	725.000	52.000

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
5/ 7/73	.004	-0.002	.120	.200	.002	.115	3.400
11/15/73	-0.004	-0.004	-0.010	.850	.016	.027	1.180
5/ 8/74	.007	-0.004	-0.010	1.270	.003	.032	3.980

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
5/ 7/73	45.700	3.240	43.800	14.800	73.000	0	0
11/15/73	55.000	3.930	42.900	16.800	80.800	0	.072
5/ 8/74	61.000	4.800	55.600	18.400	95.400	50.400	.370

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 10 BOTTOM

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
5/ 7/73	25.200	8.000	95.238	8.300	2.440	0	0
11/15/73	21.200	8.400	93.333	8.400	2.560	650.000	0
11/15/73	22.200	8.600	97.727	8.400	0	650.000	0
5/ 8/74	25.300	6.100	72.619	8.300	2.890	728.000	0

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
5/ 7/73	.007	-0.002	.020	1.600	.002	.046	3.800
11/15/73	-0.004	-0.004	-0.010	.860	.011	.030	.640
11/15/73	0	0	0	0	0	0	0
5/ 8/74	.033	-0.004	.050	1.350	.006	.028	4.060

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
5/ 7/73	46.600	3.300	43.400	14.900	72.000	0	0
11/15/73	55.000	4.080	41.200	16.000	79.800	0	.070
11/15/73	0	0	0	0	0	0	0
5/ 8/74	60.000	4.900	55.600	18.400	96.400	59.000	.470

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 11 SURFACE

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
5/ 7/73	25.000	7.400	88.095	8.350	2.800	0	34.000
11/14/73	22.500	10.000	114.943	8.600	1.530	470.000	83.000
5/ 8/74	26.900	8.400	103.704	8.300	2.930	719.000	36.000

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
5/ 7/73	-0.004	-0.002	.100	.700	.002	.066	6.000
11/14/73	-0.004	-0.004	-0.010	1.120	.004	.026	2.050
5/ 8/74	.012	-0.004	.010	1.380	.002	.025	4.970

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
5/ 7/73	56.500	3.950	52.300	18.900	99.000	0	0
11/14/73	39.000	3.050	30.300	10.700	69.300	0	.164
5/ 8/74	57.000	4.500	56.600	18.400	93.800	59.600	.480

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 11 BOTTOM

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
5/ 7/73	24.800	7.100	84.524	8.500	3.000	0	0
11/14/73	21.500	9.900	112.500	8.600	1.370	470.000	0
11/14/73	22.500	12.000	137.931	8.700	0	470.000	0
5/ 8/74	24.700	6.500	77.381	8.700	2.940	728.000	0

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
5/ 7/73	.004	-0.002	.040	1.900	-0.002	.073	5.900
11/14/73	-0.004	-0.004	.089	1.120	.002	.030	2.250
11/14/73	0	0	0	0	0	0	0
5/ 8/74	-0.004	-0.004	-0.010	1.440	.002	.024	4.460

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
5/ 7/73	57.200	3.970	53.600	19.100	96.000	0	0
11/14/73	39.000	3.090	33.400	11.800	77.000	0	.326
11/14/73	0	0	0	0	0	0	0
5/ 8/74	59.000	4.300	55.600	18.400	94.600	60.100	.400

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 12 SURFACE

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
5/ 7/73	25.600	7.400	90.244	8.350	2.720	0	57.000
11/15/73	22.000	7.900	89.773	8.000	2.840	710.000	90.000
5/ 8/74	27.200	8.900	109.877	8.300	3.000	727.000	28.000

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
5/ 7/73	.213	-0.002	.030	1.400	.003	.044	4.600
11/15/73	.228	-0.004	-0.010	1.060	.024	.043	7.410
5/ 8/74	.048	-0.004	.020	1.520	.002	.026	6.360

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
5/ 7/73	51.500	3.660	47.200	16.600	86.000	0	0
11/15/73	60.000	4.350	48.100	19.200	87.100	0	.114
5/ 8/74	60.000	5.600	52.200	18.400	94.400	59.800	.490

LAKE OKEECHOBEE - P11

LAKE STATION 12 BOTTOM

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
5/ 7/73	25.500	7.400	90.244	8.300	2.680	0	0
11/15/73	21.500	7.200	81.818	8.000	2.810	700.000	0
11/15/73	21.500	7.300	82.955	8.000	0	700.000	0
11/15/73	21.500	7.300	82.955	8.000	0	710.000	0
5/ 8/74	24.400	6.600	77.647	8.600	3.020	730.000	0

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
5/ 7/73	.019	-0.002	.040	1.100	.008	.045	4.600
11/15/73	.188	-0.004	-0.010	.740	.023	.039	7.410
11/15/73	0	0	0	0	0	0	0
11/15/73	0	0	0	0	0	0	0
5/ 8/74	.087	-0.004	.030	1.640	.003	.050	6.850

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
5/ 7/73	52.300	3.700	49.000	17.000	86.000	0	0
11/15/73	58.000	4.260	47.500	18.600	86.700	0	.214
11/15/73	0	0	0	0	0	0	0
11/15/73	0	0	0	0	0	0	0
5/ 8/74	59.000	4.500	56.600	19.400	94.400	59.600	.830

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 13 SURFACE

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
5/ 7/73	24.900	7.600	90.476	8.400	3.480	0	19.000
11/14/73	21.500	8.600	97.727	8.100	1.520	590.000	22.000
5/ 9/74	24.800	7.500	89.286	8.100	3.000	732.000	25.000

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
5/ 7/73	.231	-0.002	.020	1.800	.012	.115	9.500
11/14/73	.083	-0.004	.051	1.030	.006	.040	3.880
5/ 9/74	.108	-0.004	.010	1.560	.003	.054	6.700

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
5/ 7/73	60.600	4.150	52.500	18.100	100.000	0	0
11/14/73	54.000	3.860	37.600	14.300	111.100	0	.953
5/ 9/74	56.000	4.400	51.200	17.800	95.400	61.300	.580

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 13 BOTTOM

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
5/ 7/73	24.400	7.700	90.588	8.400	3.440	0	0
11/14/73	21.500	8.400	95.455	8.100	1.830	620.000	0
11/14/73	21.500	8.600	97.727	8.100	0	620.000	0
11/14/73	21.500	8.600	97.727	8.100	0	620.000	0
11/14/73	21.500	8.600	97.727	8.100	0	610.000	0
5/ 9/74	24.600	7.200	85.714	8.300	2.990	730.000	0

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
5/ 7/73	.228	-0.002	.020	1.800	.016	.082	8.600
11/14/73	.080	-0.004	-0.010	1.020	.005	.052	3.740
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
5/ 9/74	.125	-0.004	-0.010	1.280	.002	.032	6.850

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
5/ 7/73	60.100	4.180	58.900	19.700	101.000	0	0
11/14/73	52.000	3.760	39.400	15.100	97.600	0	.936
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
5/ 9/74	58.000	4.700	55.600	18.800	95.400	61.100	.600

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 14 SURFACE

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
5/ 7/73	25.000	8.000	95.238	8.450	3.080	0	19.000
11/14/73	22.000	8.300	94.318	8.000	2.600	640.000	38.000
5/ 9/74	24.900	8.600	102.381	8.400	2.970	731.000	54.000

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
5/ 7/73	.013	-0.002	.130	1.800	.005	.112	7.300
11/14/73	.167	-0.004	.448	.770	.010	.039	4.980
5/ 9/74	-0.004	-0.004	-0.010	1.330	.003	.019	3.870

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
5/ 7/73	55.500	3.900	53.500	18.300	90.000	0	0
11/14/73	55.000	4.040	44.600	17.900	79.000	0	.585
5/ 9/74	37.000	2.900	51.200	18.600	98.600	63.100	.300

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 14 BOTTOM

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
5/ 7/73	24.200	7.600	89.412	8.350	3.200	0	0
11/14/73	21.700	8.200	93.182	8.100	2.600	650.000	0
11/14/73	21.700	8.300	94.318	8.100	0	650.000	0
11/14/73	22.000	8.300	94.318	8.100	0	650.000	0
11/14/73	22.000	8.300	94.318	8.100	0	650.000	0
5/ 9/74	24.300	7.200	84.706	8.500	3.020	736.000	0

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
5/ 7/73	.023	-0.002	.010	2.000	.003	.096	7.300
11/14/73	.167	-0.004	-0.010	1.280	.010	.038	5.060
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
5/ 9/74	-0.004	-0.004	-0.010	1.550	.002	.021	3.960

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
5/ 7/73	56.500	3.920	55.500	19.700	91.000	0	0
11/14/73	55.000	3.950	43.200	16.900	79.800	0	.476
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
5/ 9/74	59.000	4.500	56.600	20.600	99.600	62.200	.540

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 15 SURFACE

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
5/ 7/73	25.300	8.200	97.619	8.450	3.000	0	37.000
11/14/73	21.700	8.000	90.909	8.100	2.700	680.000	37.000
5/10/74	25.600	8.600	104.878	8.400	2.940	711.000	38.000

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
5/ 7/73	.033	-0.002	.020	1.900	.003	.036	6.600
11/14/73	.180	-0.004	-0.010	1.370	.014	.049	5.620
5/10/74	.039	-0.004	-0.010	1.640	-0.002	.034	6.420

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
5/ 7/73	55.700	3.940	53.400	18.600	91.000	0	0
11/14/73	59.000	4.190	43.100	17.300	83.800	0	.606
5/10/74	57.000	4.600	53.400	18.600	92.600	62.000	.420

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 15 BOTTOM

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
5/ 7/73	24.900	8.000	95.238	8.400	3.000	0	0
11/14/73	21.500	8.000	90.909	8.100	2.700	680.000	0
11/14/73	21.700	8.200	93.182	8.100	0	680.000	0
11/14/73	21.700	8.100	92.045	8.100	0	680.000	0
11/14/73	21.700	7.900	89.773	8.100	0	680.000	0
5/10/74	25.600	8.300	101.220	8.700	2.960	710.000	0

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
5/ 7/73	.044	-0.002	.010	.260	.002	.049	6.700
11/14/73	.165	-0.004	.028	1.260	.016	.046	5.360
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
5/10/74	.040	-0.004	.010	1.400	.003	.037	6.440

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
5/ 7/73	55.800	3.920	51.400	18.500	92.000	0	0
11/14/73	58.000	4.150	44.300	17.900	83.800	0	.818
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
5/10/74	57.000	4.500	54.400	18.400	92.600	58.900	.630

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 16 SURFACE

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
11/14/73	21.900	8.300	94.318	8.100	2.670	670.000	41.000
5/10/74	28.500	11.000	141.026	8.600	3.000	720.000	40.000

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
11/14/73	.181	-0.004	-0.010	1.110	.013	.041	5.260
5/10/74	.038	-0.004	-0.010	1.710	-0.002	.028	6.000

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
11/14/73	58.000	4.180	42.000	16.900	83.400	0	.407
5/10/74	59.000	4.700	54.400	18.600	93.600	60.500	.330

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* LAKE OKEECHOBEE - P11 *
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LAKE STATION 16 BOTTOM

DATE	TEMP DG-C	D.O. MG/L	D.O. %SAT	PH FIELD	ALK MEQ/L	COND FIELD	SECCHI CM
11/14/73	21.500	8.300	94.318	8.100	2.650	670.000	0
11/14/73	21.500	8.200	93.182	8.100	0	670.000	0
11/14/73	21.800	8.300	94.318	8.100	0	670.000	0
11/14/73	21.800	8.400	95.455	8.100	0	670.000	0
5/10/74	25.200	6.800	80.952	8.700	3.000	720.000	0

DATE	NO3-N MG/L	NO2-N MG/L	NH3-N MG/L	TKN MG/L	OR-P MG/L	T-P MG/L	SIO2 MG/L
11/14/73	.181	-0.004	-0.010	.740	.014	.044	5.000
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
5/10/74	.089	-0.004	-0.010	1.360	.002	.036	6.400

DATE	NA A.A.	K MG/L	CA A.A.	MG A.A.	CL MG/L	SO4 MG/L	T-FE MG/L
11/14/73	58.000	4.180	44.800	18.000	84.800	0	.816
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
11/14/73	0	0	0	0	0	0	0
5/10/74	58.000	4.600	54.400	18.300	93.600	61.300	.360

APPENDIX B

LAKE OKEECHOBEE WATER CHEMISTRY DATA

INFLOW AND OUTFLOW STATIONS

All results in mg/l except where noted

0 indicates data missing

\- indicates results less than quoted limits of sensitivity

PUMP STATION 2 HILLSBORO AND N.N.R. CANAL

DATE	T-P MG/L	OR-P MG/L	TKN MG/L	NH3-N MG/L	NO3-N MG/L	NO2-N MG/L	SIO2 MG/L
********	********	********	********	********	********	********	********
5/ 7/73	.023	-0.002	1.500	.040	0	-0.002	6.200
5/14/73	.030	-0.002	1.160	.050	.036	-0.002	6.360
5/21/73	.030	.009	1.470	.080	.047	-0.002	7.400
5/29/73	.110	.013	1.730	.050	.121	.014	8.700
6/ 4/73	.090	.004	2.080	.280	.569	.047	10.400
6/11/73	.080	.012	2.010	.220	.353	.024	13.700
6/18/73	.130	.080	4.560	0	.200	.200	17.970
6/25/73	.130	.100	4.140	0	.260	.140	23.000
7/ 2/73	.180	.124	2.100	.460	2.150	.179	22.500
7/ 9/73	.280	.212	3.200	.960	.604	-0.008	19.800
7/16/73	.260	.168	2.850	.650	1.515	.155	19.700
7/23/73	.230	0	5.960	0	10.600	.260	0
7/30/73	.170	.114	0	1.130	2.159	.031	22.880
8/ 6/73	.120	.066	5.056	.859	1.357	.081	22.880
8/13/73	.291	.300	7.430	1.392	.271	-0.008	27.480
8/20/73	.146	.108	4.280	.620	1.413	.099	25.988
8/27/73	.122	.098	3.800	1.092	.311	.053	26.800
9/ 4/73	.116	.096	4.760	.770	.312	.064	23.920
9/10/73	.115	.081	4.840	.220	.426	.190	19.120
9/17/73	.138	.103	3.070	.370	.218	.127	17.200
9/24/73	.138	.097	6.800	.520	.331	.058	21.200
10/ 1/73	.500	.396	8.320	1.260	.555	.149	28.120
10/ 8/73	.082	.022	2.020	.264	.363	.108	21.440
10/15/73	.064	.060	2.230	.335	.118	.034	19.760
10/23/73	.130	.024	6.560	.416	.020	-0.004	25.200
10/29/73	.054	-0.002	1.580	.049	.034	-0.004	10.670
11/14/73	8.070	.040	1.560	.120	.050	-0.010	8.000
11/26/73	.058	.026	2.950	.030	.268	-0.004	7.900
12/12/73	.080	.010	1.670	.070	.150	-0.010	6.000
12/17/73	.046	0	2.070	.180	.289	.006	8.900
1/ 2/74	.208	.317	4.340	1.040	.348	.107	12.600
1/30/74	.110	.070	1.620	.100	.200	.010	10.000
2/28/74	.070	.010	1.060	.020	-0.010	-0.010	5.800
3/21/74	.060	.030	1.340	.040	.040	-0.010	6.500
5/13/74	.045	.013	1.150	.129	.131	.006	7.280
5/28/74	.049	-0.002	1.350	.096	.009	-0.004	6.800

PUMP STATION 2 HILLSBORO AND N.N.R. CANAL

DATE	K MG/L	NA A.A.	CA A.A.	MG A.A.	CL MG/L	ALK MEQ/L	PH LAB
********	********	********	********	********	********	********	********
5/ 7/73	4.460	60.000	49.300	21.100	102.000	2.520	0
5/14/73	4.020	56.500	49.100	17.200	85.900	2.440	0
5/21/73	4.030	60.600	53.500	19.100	92.500	2.320	0
5/29/73	6.460	66.800	56.600	20.500	106.000	2.080	0
6/ 4/73	5.060	72.800	55.200	23.300	110.000	2.880	0
6/11/73	4.840	77.300	45.200	25.000	108.000	2.720	0
6/18/73	6.030	86.400	118.000	38.800	127.000	2.200	0
6/25/73	5.900	106.000	130.000	44.800	139.000	6.800	0
7/ 2/73	9.350	128.000	104.800	42.000	171.200	6.440	0
7/ 9/73	9.880	135.000	116.400	43.300	171.700	7.720	0
7/16/73	6.200	123.000	93.000	36.900	153.400	5.710	0
7/23/73	7.240	98.000	114.400	39.600	120.100	7.520	0
7/30/73	7.500	96.000	144.800	50.200	141.700	8.100	0
8/ 6/73	5.810	96.500	128.600	46.600	130.800	8.060	0
8/13/73	8.920	152.000	102.200	49.700	206.190	8.720	0
8/20/73	6.980	112.000	110.400	43.400	150.401	6.670	0
8/27/73	6.550	101.000	135.000	49.500	149.900	8.870	0
9/ 4/73	7.480	130.000	86.600	47.300	170.160	7.080	0
9/10/73	6.990	110.000	100.200	45.500	155.300	7.580	0
9/17/73	6.900	92.000	69.800	61.800	160.000	5.590	0
9/24/73	0	95.000	75.500	31.300	147.900	6.410	0
10/ 1/73	0	173.000	104.000	41.500	0	7.800	7.820
10/ 8/73	7.000	123.000	98.000	40.500	158.600	6.500	7.920
10/15/73	0	130.000	72.000	29.000	167.400	5.200	8.020
10/23/73	0	119.000	77.500	31.100	165.100	4.990	8.090
10/29/73	4.600	65.000	50.200	20.100	99.000	3.480	8.130
11/14/73	8.900	65.000	53.000	20.000	101.000	3.280	0
11/26/73	4.310	58.900	44.200	18.600	87.300	2.670	7.300
12/12/73	7.200	62.000	52.000	22.000	103.000	.240	0
12/17/73	4.600	60.000	53.500	19.500	97.000	2.700	0
1/ 2/74	7.500	101.000	82.000	29.000	147.600	4.500	8.000
1/30/74	8.800	75.000	56.000	21.000	112.000	3.760	0
2/28/74	6.200	61.000	55.000	19.000	99.000	1.200	0
3/21/74	4.900	65.000	52.000	19.000	103.000	3.020	0
5/13/74	0	64.000	50.000	19.000	99.900	3.330	8.300
5/28/74	0	64.000	66.400	19.000	102.100	3.190	8.400

PUMP STATION 3 MIAMI CANAL

DATE	T-P MG/L	OR-P MG/L	TKN MG/L	NH3-N MG/L	NO3-N MG/L	NO2-N MG/L	SIO2 MG/L
********	********	********	********	********	********	********	********
5/ 7/73	.014	-0.001	1.500	.050	.002	-0.002	6.700
5/14/73	.020	-0.002	1.950	-0.010	.018	-0.002	4.500
5/21/73	.010	.002	1.410	.040	.014	-0.002	5.680
5/29/73	.030	.004	1.440	.050	-0.008	-0.004	6.500
6/ 4/73	.030	.002	1.580	.030	.007	-0.004	8.400
6/11/73	.030	.006	1.490	.020	.135	.005	6.300
6/18/73	.030	-0.002	2.020	.110	.360	.040	11.600
6/25/73	.100	.070	3.980	.750	.400	-0.004	23.000
7/ 2/73	.095	.048	2.920	.330	1.803	.387	22.100
7/ 9/73	.142	.308	3.000	.820	1.318	.010	24.900
7/16/73	.120	.090	3.200	.370	3.558	.172	17.500
7/23/73	.130	.071	2.850	0	6.962	.138	14.200
7/30/73	.270	.117	-3.000	.800	5.605	.195	23.920
8/ 6/73	.092	.055	4.096	.655	1.483	.142	16.280
8/13/73	.095	.089	2.870	.131	1.660	-0.008	19.000
8/20/73	.057	.037	2.180	.291	1.022	.050	20.924
8/27/73	.057	.038	2.800	.544	2.289	.141	15.900
9/ 4/73	.070	.073	2.630	.130	1.470	.149	15.630
9/10/73	.096	.076	2.790	.150	.546	.050	14.590
9/17/73	.089	.058	1.830	.380	.251	.058	21.600
9/24/73	.505	.033	5.800	.520	.608	.064	18.000
10/ 1/73	.094	.011	4.280	.231	.285	.071	16.600
10/ 8/73	.042	-0.002	1.860	.092	.218	.041	16.500
10/15/73	.030	0	1.840	.037	.028	.007	12.330
10/23/73	.037	-0.002	2.740	.273	.104	.020	14.380
10/29/73	.042	-0.002	1.710	.021	.010	-0.004	10.530
11/14/73	.090	.030	1.570	.090	.060	-0.010	6.500
11/26/73	.035	-0.002	2.450	-0.010	.036	-0.004	8.610
12/12/73	1.120	.880	1.360	.120	.630	-0.010	6.700
12/17/73	.026	.019	2.440	.100	.252	.021	10.200
1/30/74	.040	.010	1.460	.040	.020	-0.010	6.000
2/28/74	.050	.010	1.160	.080	.010	-0.010	5.500
3/21/74	.060	.030	1.340	.040	.020	-0.010	6.000
5/13/74	.021	-0.002	1.270	.107	.009	-0.004	5.110
5/28/74	.024	.017	1.490	.085	.004	-0.004	7.020

PUMP STATION 3 MIAMI CANAL

DATE	K MG/L	NA A.A.	CA A.A.	MG A.A.	CL MG/L	ALK MEQ/L	PH LAB
********	********	********	********	********	********	********	********
5/ 7/73	4.450	62.700	48.200	20.600	104.000	2.540	0
5/14/73	4.420	62.200	40.500	18.600	94.600	2.020	0
5/21/73	4.000	59.400	39.500	18.800	92.700	1.770	0
5/29/73	5.810	59.300	53.200	17.000	96.000	1.410	0
6/ 4/73	4.270	62.900	32.100	17.800	97.000	1.700	0
6/11/73	4.300	62.400	36.000	19.300	92.000	2.000	0
6/18/73	4.600	77.500	58.100	23.600	115.000	3.140	0
6/25/73	5.370	116.000	129.000	43.900	151.000	6.260	0
7/ 2/73	6.720	115.000	113.000	46.400	152.000	6.630	0
7/ 9/73	7.340	130.000	122.800	47.500	165.600	7.410	0
7/16/73	5.610	101.000	111.000	40.500	124.800	6.410	0
7/23/73	5.120	74.500	126.000	35.600	102.500	5.640	0
7/30/73	7.800	100.000	130.000	43.800	145.400	6.970	0
8/ 6/73	5.020	75.700	133.400	37.800	110.720	6.560	0
8/13/73	5.860	81.000	129.200	31.400	121.470	5.460	0
8/20/73	5.900	90.000	88.200	35.000	111.200	5.070	0
8/27/73	5.850	90.000	132.500	34.500	118.200	6.850	0
9/ 4/73	5.400	75.500	84.500	27.300	114.570	5.040	0
9/10/73	5.920	64.600	66.900	26.200	93.600	4.520	0
9/17/73	6.300	94.000	78.200	55.600	133.000	5.470	0
9/24/73	0	71.000	77.000	28.100	113.600	5.180	0
10/ 1/73	0	67.000	57.100	19.100	115.300	4.440	8.020
10/ 8/73	5.700	82.000	79.800	28.300	118.500	4.610	8.200
10/15/73	0	69.000	59.800	22.200	98.700	3.440	8.150
10/23/73	0	76.900	66.500	23.900	109.800	3.590	8.180
10/29/73	4.400	62.000	51.300	12.600	98.000	3.360	8.220
11/14/73	8.000	60.000	52.000	19.000	98.000	3.120	0
11/26/73	4.670	60.700	46.200	18.900	91.800	3.640	8.200
12/12/73	8.400	36.000	27.000	8.100	70.000	.400	0
12/17/73	5.300	71.000	58.000	21.000	106.100	3.000	0
1/30/74	7.200	60.000	51.000	18.000	92.000	3.400	0
2/28/74	6.200	61.000	55.000	19.000	99.000	3.040	0
3/21/74	6.000	62.000	50.000	18.000	101.000	2.840	0
5/13/74	0	64.000	39.000	22.400	97.100	2.410	8.300
5/28/74	0	67.000	32.800	18.600	105.600	1.990	8.400

S-77 CALOOSAHATCHEE RIVER

DATE	T-P MG/L	OR-P MG/L	TKN MG/L	NH3-N MG/L	NO3-N MG/L	NO2-N MG/L	SIO2 MG/L
********	********	********	********	********	********	********	********
5/ 7/73	.035	.002	1.300	.070	.024	-0.002	.600
5/14/73	.040	0	1.370	0	0	0	0
5/21/73	.030	.005	1.340	-0.010	.002	-0.002	5.240
5/29/73	.060	.004	1.640	.020	-0.008	-0.004	1.000
6/ 4/73	.050	.003	2.140	.020	.299	-0.004	.900
6/11/73	.030	.003	1.330	.020	-0.008	-0.004	3.000
6/18/73	.020	-0.002	1.640	.020	-0.008	-0.004	2.700
6/25/73	.050	-0.002	1.470	-0.020	-0.008	-0.004	3.400
7/ 2/73	.047	-0.002	1.650	.030	.034	-0.008	5.100
7/ 9/73	.055	.022	2.540	.130	.012	-0.008	4.900
7/16/73	.080	.009	1.750	.060	.029	-0.004	3.900
7/23/73	.060	.021	0	.170	.016	.025	5.300
7/30/73	.150	.050	1.770	-0.010	.064	.060	7.320
8/ 6/73	.165	.101	2.043	.160	.053	.045	8.310
8/13/73	.104	.090	1.850	.194	.104	.071	8.960
8/20/73	.134	.115	1.880	.218	.069	.025	8.917
8/27/73	.163	.125	1.770	.141	.179	.035	9.200
9/ 4/73	.105	.095	1.490	.060	.183	.016	7.550
9/10/73	.114	.090	1.790	.070	.183	.049	9.040
9/17/73	.120	.083	1.300	.020	.259	.028	8.500
9/24/73	.144	.118	2.080	.210	.169	.036	10.300
10/ 1/73	.175	.137	2.060	.140	.166	.026	8.170
10/ 8/73	.175	.096	1.160	.061	.283	.057	7.800
10/15/73	.084	.072	1.230	.117	.137	.047	4.470
10/23/73	.115	.079	2.820	.133	.146	.018	7.690
10/29/73	.104	.067	1.430	-0.010	.089	.055	9.140
11/13/73	.060	.040	1.640	.120	.060	-0.010	8.500
11/26/73	.101	.018	1.820	.060	.026	-0.004	3.080
12/11/73	.150	.030	1.560	.140	.160	-0.010	7.200
12/17/73	.020	.002	1.800	.020	.080	.006	6.700
1/29/74	.080	.010	1.460	.040	.010	-0.010	2.000
2/27/74	.040	0	.860	-0.010	.070	-0.010	4.000
3/21/74	.050	.010	1.680	.020	.050	-0.010	4.300
5/13/74	.620	0	2.370	0	.006	-0.004	1.110
5/28/74	.030	.005	1.530	-0.010	-0.004	-0.004	1.740
6/10/74	.039	.003	1.590	-0.010	-0.004	-0.004	3.590
6/24/74	.130	.091	2.320	.047	-0.004	-0.004	4.530

S-77 CALOOSAHATCHEE RIVER

DATE	K MG/L	NA A.A.	CA A.A.	MG A.A.	CL MG/L	ALK MEQ/L	PH LAB
********	********	********	********	********	********	********	********
5/ 7/73	2.890	41.600	36.600	13.200	69.000	1.790	0
5/14/73	0	0	0	0	0	1.930	0
5/21/73	4.450	60.300	52.700	19.100	95.300	2.140	0
5/29/73	7.770	51.300	45.100	16.000	83.000	1.520	0
6/ 4/73	3.940	54.800	42.100	16.000	87.000	2.150	0
6/11/73	3.910	57.900	41.600	18.400	88.000	2.200	0
6/18/73	3.920	58.200	43.700	18.000	89.000	2.310	0
6/25/73	3.840	59.000	46.100	17.000	85.000	0	0
7/ 2/73	4.830	55.000	61.500	16.000	75.200	3.190	0
7/ 9/73	4.680	54.600	61.200	15.800	88.300	3.190	0
7/16/73	3.760	50.900	56.500	14.300	74.900	2.920	0
7/23/73	3.430	46.500	52.600	12.000	58.800	2.670	0
7/30/73	3.310	38.000	45.800	10.300	52.900	2.430	0
8/ 6/73	2.470	26.900	41.400	7.700	34.140	2.350	0
8/13/73	2.710	32.600	43.800	8.300	53.290	2.180	0
8/20/73	2.300	28.400	35.300	7.200	52.400	1.710	0
8/27/73	2.650	29.000	40.500	8.000	48.200	2.070	0
9/ 4/73	2.130	24.700	35.600	6.000	43.740	1.740	0
9/10/73	2.960	31.400	39.800	9.100	52.200	2.640	0
9/17/73	2.510	30.000	36.200	16.800	48.400	2.200	0
9/24/73	0	30.000	49.900	8.600	67.100	2.950	0
10/ 1/73	0	24.000	36.800	6.200	43.500	2.080	7.380
10/ 8/73	2.700	24.000	42.000	7.100	40.700	1.980	7.480
10/15/73	0	18.000	31.400	5.600	26.500	1.340	7.420
10/23/73	0	21.100	31.400	6.200	33.600	1.370	7.710
10/29/73	3.500	35.000	44.800	11.700	56.600	2.390	8.010
11/13/73	8.200	56.000	53.000	18.000	91.000	3.440	0
11/26/73	1.960	25.500	22.200	7.100	40.100	1.290	7.400
12/11/73	6.900	55.000	53.000	20.000	98.000	3.200	0
12/17/73	5.000	59.000	58.000	2.000	89.000	3.100	0
1/29/74	5.500	47.000	41.000	14.000	73.000	2.400	0
2/27/74	5.300	55.000	57.000	17.000	94.000	3.040	0
3/21/74	5.100	61.000	49.000	17.000	97.000	2.400	0
5/13/74	4.700	62.000	40.000	20.000	108.700	2.890	7.960
5/28/74	4.500	66.000	43.200	18.400	106.900	2.830	0
6/10/74	7.400	72.000	40.000	19.200	107.200	2.630	0
6/24/74	4.900	50.000	28.000	8.800	91.300	2.900	7.800

S-78 FISHEATING CREEK

DATE	T-P MG/L	OR-P MG/L	TKN MG/L	NH3-N MG/L	NO3-N MG/L	NO2-N MG/L	SIO2 MG/L
5/ 7/73	.029	.011	1.400	0	-0.002	.005	.900
5/14/73	.060	.007	1.870	-0.010	-0.004	-0.002	2.450
5/21/73	.040	.018	1.230	.070	.019	-0.002	2.650
5/29/73	.060	.021	1.540	.080	.012	.007	1.600
6/ 4/73	.060	.005	1.620	.030	.015	.005	.500
6/11/73	.050	.005	1.680	.030	-0.004	.005	.300
6/18/73	.040	-0.002	1.900	.030	-0.008	-0.004	.300
6/25/73	.060	.010	1.530	.030	-0.008	-0.004	1.600
7/ 2/73	.072	.024	.920	.030	.009	-0.008	5.500
7/ 9/73	.077	.021	1.780	-0.010	.062	.013	6.600
7/16/73	.060	.028	1.560	.080	-0.008	.006	7.200
7/23/73	.100	.054	0	.070	.024	.004	7.100
7/30/73	.120	.032	1.540	-0.010	-0.008	-0.008	7.200
8/ 6/73	.123	.057	1.876	-0.010	-0.008	-0.008	7.330
8/13/73	.130	.105	1.620	-0.010	-0.008	-0.008	7.380
8/20/73	.154	.112	1.760	.030	-0.008	.010	6.839
8/27/73	.148	.102	1.490	.022	-0.008	-0.008	5.300
9/ 4/73	.137	.108	1.890	.190	-0.004	-0.008	4.290
9/10/73	.135	.099	1.320	-0.010	-0.004	.006	4.070
9/17/73	.139	.092	1.220	.020	-0.004	-0.004	0
9/24/73	.132	.107	1.490	.040	-0.004	.006	4.200
10/ 1/73	.139	.121	1.810	.047	-0.004	-0.004	3.510
10/ 8/73	.128	.099	1.050	.029	.018	.007	3.540
10/15/73	.078	.052	1.050	-0.010	-0.004	.006	1.110
10/23/73	.128	.071	1.540	.020	.006	.005	2.120
10/29/73	.092	.062	1.090	-0.010	-0.004	-0.004	2.580
11/13/73	.120	.080	1.370	.130	.010	-0.010	-0.100
11/26/73	.103	.071	2.090	.020	.028	-0.004	3.100
12/11/73	.090	.090	1.300	.140	.050	-0.010	3.000
12/17/73	.085	.066	1.560	.060	.018	.007	3.100
1/29/74	.250	.210	1.320	.030	.100	-0.010	2.000
2/27/74	.080	.040	1.120	.040	.010	-0.010	.800
3/21/74	.070	.040	1.420	.020	.020	-0.010	.200
5/13/74	.047	.008	2.280	-0.010	.017	.005	.440
5/28/74	.053	.017	1.580	.033	.033	.005	.530
6/10/74	.046	.009	1.860	.025	.070	.006	-0.400
6/24/74	.035	.011	1.640	.047	.010	-0.004	7.310

S-78 FISHEATING CREEK

DATE	K MG/L	NA A.A.	CA A.A.	MG A.A.	CL MG/L	ALK MEQ/L	PH LAB
5/ 7/73	.450	32.600	10.800	6.400	70.000	.320	0
5/14/73	.890	28.000	15.500	5.000	55.000	.580	0
5/21/73	.530	31.400	17.900	6.800	62.900	.690	0
5/29/73	2.160	31.400	17.000	6.800	67.000	.510	0
6/ 4/73	1.730	39.100	20.100	8.400	75.000	0	0
6/11/73	2.170	42.900	24.500	10.500	77.000	0	0
6/18/73	2.380	44.300	25.200	11.000	85.000	1.190	0
6/25/73	1.440	35.000	16.300	7.500	68.000	.740	0
7/ 2/73	.910	24.500	13.500	5.900	48.700	.280	0
7/ 9/73	.650	25.100	12.500	5.400	48.400	.350	0
7/16/73	1.280	25.900	12.400	5.500	46.200	.380	0
7/23/73	1.400	43.500	13.000	6.200	55.800	.400	0
7/30/73	1.660	25.500	11.400	5.100	42.700	.380	0
8/ 6/73	1.390	23.600	10.300	4.900	46.700	.350	0
8/13/73	1.520	18.700	10.800	4.200	35.140	.320	0
8/20/73	1.110	16.500	8.100	3.800	29.400	.330	0
8/27/73	1.050	15.100	7.400	3.500	32.700	.310	0
9/ 4/73	.950	14.800	8.200	3.500	39.610	.220	0
9/10/73	.830	13.200	4.500	3.300	26.100	.700	0
9/17/73	.700	12.000	5.000	6.200	0	.300	0
9/24/73	0	11.000	6.600	2.500	21.500	.310	0
10/ 1/73	0	9.900	4.100	2.700	18.600	.270	6.590
10/ 8/73	.800	11.000	6.700	3.200	20.100	.280	6.560
10/15/73	0	12.000	6.400	3.200	21.700	.290	6.580
10/23/73	0	11.800	6.300	3.000	29.500	.290	6.720
10/29/73	.900	12.000	6.500	3.100	25.000	.380	6.770
11/13/73	1.100	17.000	9.000	4.000	32.000	.440	0
11/26/73	.660	16.200	7.100	3.900	32.600	.230	6.900
12/11/73	1.600	19.000	10.000	5.000	40.000	.400	0
12/17/73	3.000	20.000	11.000	6.000	39.000	.300	0
1/29/74	9.000	26.000	13.000	5.600	52.000	.560	0
2/27/74	3.600	36.000	26.000	9.400	65.000	.840	0
3/21/74	2.800	49.000	35.000	12.000	81.000	1.400	0
5/13/74	2.800	64.000	40.000	17.200	104.100	2.560	7.580
5/28/74	3.000	70.000	41.000	17.200	115.900	2.710	0
6/10/74	3.000	42.000	35.400	17.200	120.000	2.340	0
6/24/74	0	20.000	37.400	7.200	102.200	2.820	7.800

S-71 HARNEY POND CANAL

DATE	T-P MG/L	OR-P MG/L	TKN MG/L	NH3-N MG/L	NO3-N MG/L	NO2-N MG/L	SIO2 MG/L
********	********	********	********	********	********	********	********
5/ 7/73	.099	.071	.900	.500	.058	-0.002	2.300
5/14/73	.100	.062	1.390	.040	.029	-0.002	1.650
5/21/73	.110	.082	.890	.080	.038	-0.002	2.410
5/29/73	.180	.122	1.070	.090	.038	.004	1.900
6/ 4/73	.150	.090	.900	.070	.097	.004	2.300
6/11/73	.150	.075	1.200	.030	.006	-0.004	2.300
6/18/73	.140	.100	1.070	.070	.146	-0.004	2.800
6/25/73	.500	.300	2.050	.050	.126	-0.004	5.100
7/ 2/73	.405	.388	1.560	.220	-0.008	-0.008	6.800
7/ 9/73	.468	.036	1.840	.210	.105	-0.008	7.200
7/16/73	.480	.416	1.320	.170	.118	.011	6.500
7/23/73	.580	0	0	.220	.122	.011	8.000
7/30/73	.490	.245	1.820	.110	.057	-0.008	7.540
8/ 6/73	.276	.229	2.172	.297	.144	.010	8.590
8/13/73	.184	.157	1.930	.269	.309	.019	9.980
8/20/73	.253	.219	2.070	.172	.119	.013	8.856
8/27/73	.204	.167	1.770	.200	.337	.015	10.400
9/ 4/73	.100	.176	.910	.470	.387	.037	11.070
9/10/73	.168	.146	1.760	.170	.265	.011	8.300
9/17/73	.704	.586	2.720	.540	.386	.018	9.100
9/24/73	.396	.490	4.000	.450	.173	.015	9.500
10/ 1/73	.489	.384	4.560	.788	.267	.015	10.450
10/ 8/73	.195	.099	1.310	.298	.317	.011	3.090
10/15/73	.103	.073	1.020	.072	.154	.006	0
10/23/73	.125	.083	1.520	.170	.388	.008	6.260
10/29/73	.093	.080	1.400	.124	.244	.016	8.100
11/13/73	.120	.090	1.170	.090	.030	-0.010	.500
11/26/73	.095	.073	1.350	.050	.092	-0.004	5.940
12/11/73	.090	.070	1.200	.120	.140	-0.010	4.300
12/17/73	.079	.057	.950	.100	.237	.027	5.500
1/29/74	.070	.040	.980	.020	.100	-0.010	3.000
2/27/74	.080	.030	1.040	.040	.110	-0.010	1.800
3/21/74	.080	.030	.740	-0.010	.010	-0.010	1.000
5/13/74	.097	.047	.970	-0.010	.441	.009	2.580
5/28/74	.126	.011	.820	.125	.081	.004	2.590
6/10/74	.142	.083	.980	.018	.040	-0.004	3.400
6/24/74	.202	.150	1.120	0	.121	.019	3.750

S-71 HARNEY POND CANAL

DATE	K MG/L	NA A.A.	CA A.A.	MG A.A.	CL MG/L	ALK MEQ/L	PH LAB
********	********	********	********	********	********	********	********
5/ 7/73	2.340	10.900	11.800	4.900	18.000	.270	0
5/14/73	1.870	10.300	10.400	5.200	17.800	.220	0
5/21/73	2.200	15.800	17.100	5.900	25.000	.430	0
5/29/73	3.180	10.400	11.900	4.800	18.000	.200	0
6/ 4/73	2.030	12.100	12.500	4.900	20.000	.360	0
6/11/73	2.330	22.700	23.100	7.500	36.000	.820	0
6/18/73	2.160	13.400	14.500	5.700	23.000	.400	0
6/25/73	2.900	8.000	7.800	3.400	13.000	.160	0
7/ 2/73	3.670	9.500	13.200	4.900	14.400	.210	0
7/ 9/73	3.160	9.100	13.500	4.900	16.300	.190	0
7/16/73	3.110	10.300	13.000	4.100	15.100	.250	0
7/23/73	3.820	12.000	19.000	5.000	17.600	.430	0
7/30/73	2.750	12.800	18.000	5.300	15.400	.380	0
8/ 6/73	2.550	9.700	20.600	5.700	21.830	.490	0
8/13/73	2.200	11.800	21.600	5.900	18.630	.360	0
8/20/73	1.870	11.200	15.500	4.100	21.113	.380	0
8/27/73	2.500	10.100	21.500	6.500	20.500	.390	0
9/ 4/73	3.380	11.400	28.800	8.200	18.900	.340	0
9/10/73	2.390	10.100	15.300	5.500	16.200	.330	0
9/17/73	3.510	7.000	16.800	8.200	16.500	.240	0
9/24/73	0	7.000	14.600	4.200	14.700	.210	0
10/ 1/73	0	11.000	21.600	5.900	15.800	.290	6.410
10/ 8/73	1.600	9.000	16.500	5.200	14.000	.190	6.480
10/15/73	0	9.000	11.000	3.600	15.400	.180	6.490
10/23/73	0	8.900	10.000	3.300	21.000	.230	6.800
10/29/73	1.800	10.000	16.600	4.800	20.400	.340	6.810
11/13/73	2.000	16.000	17.000	5.200	27.000	.920	0
11/26/73	2.230	8.400	12.000	4.200	15.400	.160	6.700
12/11/73	2.900	26.000	28.000	8.100	43.000	1.280	0
12/17/73	2.000	10.000	18.000	5.000	17.000	.300	0
1/29/74	3.900	30.000	30.000	9.600	45.000	1.760	0
2/27/74	4.100	39.000	39.000	12.000	67.000	1.680	0
3/21/74	3.500	49.000	45.000	13.000	78.000	1.880	0
5/13/74	1.900	10.000	9.600	5.000	19.500	.180	6.850
5/28/74	0	12.000	10.000	4.400	17.000	.250	6.600
6/10/74	3.300	17.000	16.800	5.800	27.900	1.080	0
6/24/74	3.600	12.000	11.800	4.600	29.900	.340	6.680

S-72 INDIAN PRAIRIE CANAL

DATE	T-P MG/L	OR-P MG/L	TKN MG/L	NH3-N MG/L	NO3-N MG/L	NO2-N MG/L	SIO2 MG/L
5/ 7/73	.087	.028	1.200	.070	.004	-0.002	1.900
5/14/73	.120	.038	1.880	-0.010	-0.004	-0.002	2.190
5/21/73	.110	.070	1.030	-0.010	-0.004	-0.002	22.300
5/29/73	.031	.089	1.030	.060	-0.008	.004	2.600
6/ 4/73	.160	.092	.920	.140	.042	.005	1.700
6/11/73	.160	.100	.870	.060	.041	.004	3.200
6/18/73	.150	.080	1.000	.020	-0.008	-0.004	3.010
6/25/73	.310	.180	1.410	.010	-0.008	-0.004	3.500
7/ 2/73	.568	.308	.640	.010	-0.008	-0.008	5.800
7/ 9/73	.528	.224	2.160	-0.010	-0.008	.011	7.200
7/16/73	.360	.232	1.340	.070	-0.008	.006	5.600
7/23/73	.410	.304	0	.130	-0.008	-0.004	8.000
7/30/73	0	.580	3.310	.410	-0.008	.010	10.400
8/ 6/73	.688	.446	3.424	.461	-0.008	.008	12.970
8/13/73	.192	.175	2.040	.281	.249	.020	10.020
8/20/73	.184	.156	2.370	.309	-0.008	.008	10.652
8/27/73	.281	.218	2.330	.374	-0.008	-0.008	11.600
9/ 4/73	.299	.220	2.000	.240	.008	.008	11.320
9/10/73	.293	.286	2.290	.410	.044	.042	12.650
9/17/73	.246	.144	3.030	.840	.058	.023	10.800
9/24/73	.200	.114	3.040	.570	.010	.014	11.300
10/ 1/73	.327	.075	6.200	1.020	.004	.005	9.240
10/ 8/73	.135	.053	2.000	.782	.051	.014	9.150
10/15/73	.056	.073	1.200	.073	.154	.006	2.120
10/23/73	.104	.047	1.900	.213	.330	.014	7.550
10/29/73	.103	.064	1.330	.054	.256	.008	8.220
11/13/73	.130	.070	1.410	.110	.320	-0.010	2.000
11/26/73	.098	.065	2.110	.100	.204	-0.004	8.810
12/11/73	.140	.110	1.400	.120	.320	.020	7.200
12/17/73	.089	.057	.890	.130	.157	.008	6.100
1/29/74	.090	.050	1.000	.040	.100	-0.010	5.000
2/27/74	.070	.020	.800	.020	.030	-0.010	4.000
3/21/74	.070	.040	1.060	.060	.040	-0.010	3.300
5/13/74	.069	.013	1.450	.040	-0.004	.004	2.160
5/28/74	.140	.047	.990	.038	.208	.220	4.750
6/10/74	.277	.212	1.380	.052	-0.004	-0.004	5.350
6/24/74	.410	.250	2.030	0	.013	.005	8.110

S-72 INDIAN PRAIRIE CANAL

DATE	K MG/L	NA A.A.	CA A.A.	MG A.A.	CL MG/L	ALK MEQ/L	PH LAB
********	********	********	********	********	********	********	********
5/ 7/73	1.910	11.800	13.300	5.200	19.000	.330	0
5/14/73	1.800	13.100	14.500	4.300	22.300	.350	0
5/21/73	1.820	12.700	11.600	5.300	30.000	.350	0
5/29/73	2.980	12.300	17.200	5.600	20.000	.340	0
6/ 4/73	2.160	9.600	7.800	4.400	16.000	.160	0
6/11/73	1.600	12.800	17.800	5.800	19.000	.460	0
6/18/73	1.760	14.100	16.800	5.900	21.000	.480	0
6/25/73	2.050	11.000	13.400	4.900	1.800	0	0
7/ 2/73	2.740	13.400	18.400	4.900	17.100	.640	0
7/ 9/73	2.730	16.600	25.200	4.900	24.100	.930	0
7/16/73	2.010	13.000	16.100	4.100	18.500	.480	0
7/23/73	4.420	23.000	222.000	6.200	30.600	.900	0
7/30/73	4.170	14.100	25.700	6.100	17.300	.640	0
8/ 6/73	3.970	13.500	27.200	6.600	24.480	.900	0
8/13/73	2.190	11.500	21.700	5.900	18.240	.440	0
8/20/73	2.010	12.200	23.400	5.800	22.077	.720	0
8/27/73	2.750	15.000	26.500	6.500	25.400	1.010	0
9/ 4/73	2.460	15.000	29.700	6.600	23.230	1.120	0
9/10/73	2.390	17.300	32.200	7.000	25.500	1.320	0
9/17/73	3.600	13.000	31.600	16.800	27.400	.710	0
9/24/73	0	19.000	32.500	7.700	32.800	1.050	0
10/ 1/73	0	11.000	23.600	5.900	16.700	.390	6.230
10/ 8/73	2.000	12.000	26.400	6.500	18.100	.480	6.660
10/15/73	0	9.000	10.900	3.600	15.000	.180	6.310
10/23/73	0	13.800	19.200	5.000	19.600	.470	6.910
10/29/73	2.100	22.000	33.500	7.400	39.500	1.070	7.170
11/13/73	3.100	18.000	30.000	7.300	27.000	.880	0
11/26/73	1.790	15.400	25.700	6.200	25.600	.920	7.000
12/11/73	2.600	21.000	36.000	8.100	33.000	1.200	0
12/17/73	2.000	12.000	24.000	5.000	19.000	.600	0
1/29/74	2.700	25.000	34.000	8.000	35.000	1.360	0
2/27/74	2.000	19.000	29.000	6.400	30.000	1.240	0
3/21/74	2.300	27.000	32.000	8.000	42.000	1.440	0
5/13/74	2.400	13.000	9.600	5.000	17.500	.170	6.760
5/28/74	0	16.000	28.200	6.000	26.400	1.210	7.200
6/10/74	3.600	21.000	17.600	7.200	32.100	1.060	0
6/24/74	5.000	26.000	23.600	6.800	43.900	1.340	7.350

S-65E KISSIMMEE RIVER

DATE	T-P MG/L	OR-P MG/L	TKN MG/L	NH3-N MG/L	NO3-N MG/L	NO2-N MG/L	SIO2 MG/L
********	********	********	********	********	********	********	********
5/ 7/73	.047	.005	1.500	.140	.014	.009	2.700
5/14/73	.040	.006	1.400	.010	.022	-0.002	2.490
5/21/73	.040	.005	1.200	-0.010	-0.004	-0.002	2.590
5/29/73	.080	.004	1.400	.050	-0.008	-0.004	26.000
6/ 4/73	.060	.009	1.190	.070	-0.008	-0.004	2.600
6/11/73	.080	.032	1.110	.110	.016	.005	2.800
6/18/73	.030	-0.002	1.050	.020	-0.008	-0.004	2.800
6/25/73	.050	.017	1.110	.030	.030	.010	3.100
7/ 2/73	.063	.028	1.240	.110	.012	-0.008	3.400
7/ 9/73	.096	.055	1.590	.120	.029	.014	4.500
7/16/73	.130	.096	1.260	.280	.007	.009	5.000
7/23/73	.180	.116	0	.260	.131	.005	5.000
7/30/73	.490	.267	1.820	.260	.012	.008	6.260
8/ 6/73	.224	.123	1.546	.171	.017	-0.008	5.040
8/13/73	.035	.018	1.120	-0.010	-0.008	-0.008	2.410
8/20/73	.039	.027	1.420	.146	-0.008	-0.008	4.781
8/27/73	.046	.010	1.100	.066	.046	-0.008	2.900
9/ 4/73	.081	.056	1.110	.160	.005	-0.008	4.190
9/10/73	.090	.047	1.470	.170	.025	-0.004	4.380
9/17/73	.102	.050	1.770	.120	.007	.008	4.800
9/24/73	.074	.047	1.410	.150	.010	.004	4.500
10/ 1/73	.077	.026	1.650	.212	.040	-0.004	4.770
10/ 8/73	.057	.014	.920	.091	.007	-0.004	4.020
10/15/73	.095	.067	1.280	.147	.024	.012	2.980
10/23/73	.097	.060	1.410	.222	.057	.030	4.500
10/29/73	.091	.064	.800	-0.010	.146	.130	5.190
11/13/73	.110	.080	1.070	.110	.300	-0.010	2.500
11/26/73	.082	.054	1.430	.040	.252	-0.004	6.300
12/ 3/73	.039	.048	1.600	-0.010	.164	-0.004	2.800
12/11/73	.090	.070	1.170	.070	.240	-0.010	3.200
12/17/73	.061	.044	1.140	.100	.261	-0.004	4.400

S-65E KISSIMMEE RIVER

DATE	T-P MG/L	OR-P MG/L	TKN MG/L	NH3-N MG/L	NO3-N MG/L	NO2-N MG/L	SIO2 MG/L
1/ 2/74	.034	.004	1.340	.100	.192	-0.004	4.700
1/14/74	.037	.009	1.350	.110	.191	.019	5.300
1/28/74	.032	.005	1.500	.070	.188	.008	5.570
2/11/74	.033	.012	1.760	.060	.140	-0.004	5.580
2/25/74	.030	.028	1.570	.090	.198	-0.004	5.760
3/11/74	.030	.010	1.600	.010	.004	-0.004	2.020
3/25/74	.031	.014	.570	.030	.018	-0.004	0
4/ 8/74	.092	.070	1.050	.120	.082	.009	2.290
4/22/74	.069	.030	.960	.300	.181	.005	4.450
5/24/74	.121	.094	.680	0	.030	.004	4.930

S-65E KISSIMMEE RIVER

DATE	K MG/L	NA A.A.	CA A.A.	MG A.A.	CL MG/L	ALK MEQ/L	PH LAB
5/ 7/73	1.410	12.600	13.900	3.700	20.000	.630	0
5/14/73	1.430	13.500	13.800	4.700	21.700	.460	0
5/21/73	1.300	11.600	8.100	3.500	19.500	.390	0
5/29/73	6.590	12.200	13.500	4.000	18.000	.330	0
6/ 4/73	1.350	13.200	12.900	3.800	21.000	.560	0
6/11/73	2.000	16.900	15.800	4.800	29.000	.530	0
6/18/73	1.370	15.000	14.000	4.500	27.000	.490	0
6/25/73	1.360	14.000	13.000	4.500	23.000	.540	0
7/ 2/73	1.810	14.700	15.400	0	22.300	.570	0
7/ 9/73	1.650	13.500	16.300	4.000	20.400	.650	0
7/16/73	1.440	13.700	15.300	3.900	19.400	.610	0
7/23/73	1.350	12.500	15.000	3.000	16.900	.620	0
7/30/73	1.850	11.900	14.500	3.400	15.000	.580	0
8/ 6/73	1.070	44.900	12.200	2.400	15.770	.260	0
8/13/73	1.630	10.700	9.100	4.200	14.940	.150	0
8/20/73	1.020	11.200	10.200	2.900	21.499	.450	0
8/27/73	1.600	10.000	7.500	5.000	19.200	.180	0
9/ 4/73	.900	9.000	9.700	2.500	13.180	.460	0
9/10/73	1.050	8.700	7.300	2.400	12.400	.410	0
9/17/73	1.140	7.000	5.600	4.400	16.100	.420	0
9/24/73	3.680	9.000	8.700	2.600	16.600	.480	0
10/ 1/73	0	8.000	9.400	3.500	14.100	.110	6.240
10/ 8/73	1.000	10.000	9.600	2.900	17.900	.430	7.080
10/15/73	0	11.000	10.100	2.800	16.800	.450	7.320
10/23/73	0	11.500	11.200	2.900	16.300	.460	7.310
10/29/73	1.400	11.000	11.800	3.000	19.600	.500	7.120
11/13/73	3.200	22.000	20.000	6.500	38.000	1.000	0
11/26/73	1.750	16.900	16.800	4.400	28.600	.580	7.100
12/ 3/73	1.900	17.000	22.000	5.000	28.000	.200	0
12/11/73	4.100	35.000	31.000	12.000	67.000	1.800	0
12/17/73	2.000	17.000	23.000	5.000	27.000	1.600	0

S-65E KISSIMMEE RIVER

DATE	K MG/L	NA A.A.	CA A.A.	MG A.A.	CL MG/L	ALK MEQ/L	PH LAB
********	********	********	********	********	********	********	********
1/ 2/74	1.000	11.000	14.000	5.000	12.000	.200	0
1/14/74	1.600	11.000	13.000	4.800	16.400	.120	6.900
1/28/74	0	12.000	17.300	5.100	18.800	0	7.200
2/11/74	1.500	12.000	15.800	5.000	17.000	.300	6.500
2/25/74	1.700	13.000	13.000	5.200	18.500	.420	7.300
3/11/74	2.200	14.000	108.000	3.400	20.000	1.010	0
3/25/74	0	17.000	15.000	4.400	27.100	.700	6.890
4/ 8/74	2.200	20.000	16.200	9.800	35.500	1.170	6.810
4/22/74	2.000	13.000	19.000	5.200	26.800	.320	7.200
6/24/74	2.000	13.000	16.400	5.200	28.300	.720	7.530

S-84 LAKE ISTOKPOGA

DATE	T-P MG/L	OR-P MG/L	TKN MG/L	NH3-N MG/L	NO3-N MG/L	NO2-N MG/L	SIO2 MG/L
********	********	********	********	********	********	********	********
5/ 7/73	.025	-0.002	1.000	0	.006	-0.002	1.100
5/14/73	.030	-0.002	.820	-0.010	-0.004	-0.002	.990
5/21/73	.020	.004	.800	-0.010	-0.004	-0.002	.630
5/29/73	.060	.003	1.170	.050	.013	-0.004	2.000
6/ 4/73	.040	.005	.160	.100	.018	-0.004	.700
6/11/73	.090	.018	1.120	.030	.013	-0.004	2.900
6/25/73	.060	.010	1.020	.030	.116	-0.004	1.800
7/ 2/73	.050	.002	1.000	.040	-0.008	-0.008	2.100
7/ 9/73	.050	.011	1.270	.060	.043	-0.008	3.400
7/16/73	.110	.053	1.390	.210	.057	.009	3.700
7/23/73	.080	.041	0	.140	-0.032	-0.004	4.600
7/30/73	.280	.166	1.340	.020	-0.008	-0.008	3.380
8/ 6/73	.117	.041	1.341	-0.010	-0.008	-0.008	2.320
8/13/73	.038	.026	.981	.034	-0.008	-0.008	2.410
8/20/73	.026	.006	.710	.054	-0.008	-0.008	2.663
8/27/73	.052	.010	1.580	.075	.093	-0.008	2.900
9/ 4/73	.046	.007	1.830	.010	-0.004	-0.008	2.080
9/10/73	.027	-0.002	1.100	.030	.008	-0.004	2.850
9/17/73	.085	.025	1.360	.100	.055	-0.004	3.700
9/24/73	.049	0	1.280	.100	.028	.005	4.100
10/ 1/73	.058	.026	1.390	.209	.042	-0.004	4.530
10/ 8/73	.054	.021	1.020	.111	.057	-0.004	4.080
10/15/73	.063	.016	.970	.054	.034	.005	1.130
10/23/73	.057	.010	1.350	.105	.039	.004	3.470
10/29/73	.052	.025	1.060	.105	.069	.127	4.330
11/26/73	.040	.013	2.730	.070	.142	-0.004	3.020
12/ 3/73	.020	.010	1.430	.010	.158	.005	.400
12/17/73	.056	.032	1.240	.130	.214	.004	4.900

S-84 LAKE ISTOKPOGA

DATE	T-P MG/L	OP-P MG/L	TKN MG/L	NH3-N MG/L	NO3-N MG/L	NO2-N MG/L	SIO2 MG/L
1/ 2/74	.031	.005	1.610	.040	.174	.007	4.800
1/14/74	.030	.012	1.500	.080	.164	.020	0
1/28/74	.111	0	1.300	.030	.198	.006	5.550
2/11/74	.037	.015	2.540	.100	.138	.005	5.580
2/25/74	.032	.006	1.390	.080	.159	-0.004	5.580
3/11/74	.027	.012	1.070	-0.010	.324	-0.004	5.210
3/25/74	.029	.012	.670	.050	.155	.005	0
4/ 8/74	.033	.012	1.150	.140	.155	.004	5.270
4/22/74	.065	.028	1.080	.330	.184	.006	4.470
5/13/74	.028	.003	1.360	.080	.177	.006	4.660
5/28/74	.027	.100	.850	.121	.146	-0.004	4.990
6/10/74	.048	.027	1.460	.066	.086	-0.004	7.630
6/24/74	.119	.097	.900	0	.045	.004	4.970

S-84 LAKE ISTOKPOGA

DATE	K MG/L	NA A.A.	CA A.A.	MG A.A.	CL MG/L	ALK MEQ/L	PH LAB
********	********	********	********	********	********	********	********
5/ 7/73	1.830	10.300	10.100	4.700	15.000	.170	0
5/14/73	1.920	11.100	9.100	4.100	19.200	.140	0
5/21/73	1.880	10.000	4.700	4.500	18.300	.130	0
5/29/73	3.580	11.500	12.900	4.300	19.000	.300	0
6/ 4/73	1.750	10.600	8.000	4.600	18.000	.190	0
6/11/73	1.500	14.800	17.000	4.800	25.000	.560	0
6/25/73	1.770	14.000	11.200	5.100	22.000	.310	0
7/ 2/73	2.090	13.900	11.500	5.300	20.800	.240	0
7/ 9/73	2.080	14.400	15.600	5.900	22.200	.410	0
7/16/73	1.980	15.400	16.100	5.600	20.700	.460	0
7/23/73	2.010	15.000	18.600	6.000	17.400	.440	0
7/30/73	2.060	10.900	10.300	4.400	13.300	.250	0
8/ 6/73	1.650	11.200	9.300	4.300	21.830	.220	0
8/13/73	1.670	10.700	9.000	4.200	21.160	.220	0
8/20/73	1.530	10.200	8.500	4.100	12.000	.220	0
8/27/73	1.700	10.000	7.500	4.000	20.100	.180	0
9/ 4/73	1.660	9.400	5.700	3.600	28.170	.140	0
9/10/73	1.260	8.800	4.500	3.400	15.600	.150	0
9/17/73	1.320	7.000	4.600	6.200	15.900	.140	0
9/24/73	0	7.000	7.600	3.200	13.400	.130	0
10/ 1/73	0	8.100	9.000	3.500	13.600	.110	6.210
10/ 8/73	1.200	8.000	11.300	3.800	14.000	.110	6.390
10/15/73	0	7.200	5.900	2.700	12.500	.110	6.390
10/23/73	0	8.400	7.200	3.100	13.300	.130	6.550
10/29/73	1.400	8.000	7.400	3.200	17.300	.120	6.430
11/26/73	1.290	9.900	9.100	4.000	18.500	.080	6.700
12/ 3/73	1.400	10.000	11.000	4.000	17.000	-0.100	0
12/17/73	2.000	16.000	21.000	5.000	27.000	.300	0

S-84 LAKE ISTOKPOGA

DATE	K MG/L	NA A.A.	CA A.A.	MG A.A.	CL MG/L	ALK MEQ/L	PH LAB
1/ 2/74	2.000	11.000	13.000	4.000	12.000	.200	0
1/14/74	1.500	12.000	15.400	5.000	0	.100	6.900
1/28/74	0	12.000	16.700	4.900	20.200	0	7.100
2/11/74	1.800	12.000	15.800	5.000	17.000	.290	6.700
2/25/74	1.600	11.000	12.600	5.200	18.500	.380	7.200
3/11/74	1.700	12.000	24.000	5.200	19.000	.780	0
3/25/74	0	11.000	14.200	4.600	19.300	.390	7.100
4/ 8/74	1.900	13.000	18.000	10.600	19.300	.260	7.250
4/22/74	1.900	13.000	19.000	5.600	24.400	.400	7.200
5/13/74	1.800	12.000	15.200	5.200	20.300	.400	6.890
5/28/74	0	14.000	21.800	6.200	21.600	.600	7.200
6/10/74	2.500	16.000	18.600	6.400	20.600	.280	0
6/24/74	2.400	15.000	16.400	5.400	27.900	.720	7.510

S-133 TAYLOR CREEK

DATE	T-P MG/L	OR-P MG/L	TKN MG/L	NH3-N MG/L	NO3-N MG/L	NO2-N MG/L	SIO2 MG/L
********	********	********	********	********	********	********	********
5/ 7/73	.141	.082	1.800	.020	.020	-0.002	2.600
5/14/73	.160	.107	1.250	.050	.027	-0.002	2.550
5/21/73	.130	.093	1.320	.030	.010	-0.002	2.770
5/29/73	.140	.057	.990	.060	-0.008	-0.004	1.900
6/ 4/73	.240	.126	1.340	.080	.011	.006	3.000
6/11/73	.140	.082	1.090	.040	.009	-0.004	2.400
6/18/73	.170	.110	1.510	.100	-0.008	-0.004	3.600
6/25/73	.750	.780	1.870	.190	.050	.010	6.700
7/ 2/73	.800	.650	1.780	.260	-0.008	-0.008	6.800
7/ 9/73	.508	.440	1.880	.350	-0.008	.279	5.500
7/16/73	.880	.390	1.470	.330	.077	.042	6.900
7/23/73	.330	.256	1.520	.230	.079	.011	8.200
7/30/73	.330	.253	1.470	.120	.288	.009	7.800
8/ 6/73	.348	.249	1.608	.086	-0.008	-0.008	7.710
8/13/73	.296	.021	1.580	.150	-0.008	-0.008	8.430
8/20/73	.381	.363	1.560	.180	.032	.014	7.787
8/27/73	.368	.306	1.810	.152	.031	-0.008	7.500
9/ 4/73	.363	.240	1.470	.310	.136	.018	6.850
9/10/73	.477	.432	1.840	.140	.104	.016	6.340
9/17/73	.488	.412	1.550	.200	.062	.021	6.300
9/24/73	.066	.464	1.870	.250	.024	.013	18.400
10/ 1/73	.358	.307	1.730	.235	.023	.010	7.050
10/ 8/73	.353	.200	1.060	.239	.046	.022	7.700
10/15/73	.118	.140	.970	.265	.186	.050	7.030
10/23/73	.340	.012	1.930	.191	.237	.075	8.570
10/29/73	.267	.092	1.100	.045	.151	.017	9.080
11/13/73	.470	.380	1.380	.220	.140	-0.010	6.500
11/26/73	.220	.188	1.720	.120	.078	-0.004	6.440
12/11/73	.380	.340	1.480	.120	.050	-0.010	5.600
12/17/73	.130	.060	1.660	.030	.076	.007	4.600
1/29/74	.240	.170	1.610	.110	.020	-0.010	1.500
3/19/74	.080	.020	1.480	.060	.030	-0.010	3.500

S-133 TAYLOR CREEK

DATE	K MG/L	NA A.A.	CA A.A.	MG A.A.	CL MG/L	ALK MEQ/L	PH LAB
********	********	********	********	********	********	********	********
5/ 7/73	2.960	38.800	35.600	11.500	65.000	1.760	0
5/14/73	3.760	56.400	42.600	14.000	85.700	1.830	0
5/21/73	3.420	50.300	45.400	14.100	88.200	1.630	0
5/29/73	3.830	33.300	32.000	10.000	57.000	.970	0
6/ 4/73	3.130	48.500	37.800	12.300	83.000	1.710	0
6/11/73	2.970	50.000	39.900	13.600	81.000	1.850	0
6/18/73	3.920	62.800	47.700	16.800	109.000	2.220	0
6/25/73	4.120	34.000	24.000	7.900	61.000	.980	0
7/ 2/73	5.290	40.800	35.200	10.900	73.300	1.500	0
7/ 9/73	4.620	42.000	35.800	11.400	75.400	1.640	0
7/16/73	4.240	40.800	35.500	10.400	67.900	1.650	0
7/23/73	4.080	52.500	45.200	10.000	80.000	1.990	0
7/30/73	3.170	34.300	31.600	7.100	51.700	1.630	0
8/ 6/73	2.870	0	34.100	6.700	57.740	1.600	0
8/13/73	3.340	36.300	33.400	6.500	58.740	1.720	0
8/20/73	3.270	29.500	31.000	6.800	53.200	1.490	0
8/27/73	3.900	20.800	28.500	7.000	42.700	1.580	0
9/ 4/73	3.210	27.100	28.800	6.100	48.090	1.330	0
9/10/73	3.290	22.400	23.200	5.800	36.100	1.210	0
9/17/73	3.100	23.000	20.400	9.600	42.000	1.140	0
9/24/73	0	24.000	24.500	5.600	49.500	1.510	0
10/ 1/73	0	25.000	24.900	5.700	46.000	1.410	7.740
10/ 8/73	3.200	31.000	32.800	7.300	49.200	1.650	7.460
10/15/73	0	34.000	36.000	7.200	55.800	1.670	7.610
10/23/73	0	38.700	40.400	7.900	66.300	1.770	7.610
10/29/73	3.700	42.000	36.700	7.700	76.800	2.200	7.570
11/13/73	7.200	46.000	51.000	12.000	84.000	2.600	0
11/26/73	4.150	50.600	41.100	10.000	82.000	2.500	7.400
12/11/73	6.600	49.000	55.000	14.000	93.000	2.880	0
12/17/73	4.600	51.000	17.600	14.000	87.500	2.700	0
1/29/74	7.100	54.000	47.000	15.000	86.000	2.740	0
3/19/74	4.900	36.000	46.000	15.000	92.000	2.280	0

S-191 NUBBIN SLOUGH

DATE	T-P MG/L	OR-P MG/L	TKN MG/L	NH3-N MG/L	NO3-N MG/L	NO2-N MG/L	SIO2 MG/L
5/ 7/73	1.160	1.080	1.300	.040	.874	.011	4.300
5/14/73	1.100	-0.500	1.670	.060	.760	-0.002	3.090
5/21/73	1.050	-0.500	1.220	.150	.583	.065	3.810
5/29/73	1.200	.981	1.280	.060	.377	.026	3.600
6/ 4/73	1.200	.966	1.330	.020	.352	.052	3.800
6/11/73	.930	.920	1.240	.300	.308	.046	0
6/18/73	.880	.700	1.300	.030	.280	.060	4.200
6/25/73	.840	.700	1.320	.020	.250	.070	4.400
7/ 2/73	.720	.580	.700	.020	.236	.067	48.000
7/ 9/73	.092	.080	2.230	.540	.010	.007	7.800
7/16/73	.600	.540	1.970	.190	.046	.014	7.700
7/23/73	.810	.550	1.920	.420	.031	.016	7.200
7/30/73	-0.500	.500	1.930	.310	.071	.017	7.200
8/ 6/73	1.012	.744	2.273	.337	.049	.022	8.080
8/13/73	.830	.500	2.040	.277	.183	.029	9.490
8/20/73	1.380	.960	2.000	.297	.099	.018	7.484
8/27/73	.712	.684	1.760	.172	.112	.017	6.400
9/ 4/73	.400	-0.400	1.110	.590	.014	.024	7.070
9/10/73	1.008	.528	2.050	.310	.125	.036	7.430
9/17/73	.434	.332	1.240	.110	.034	.010	4.400
9/24/73	.876	.824	2.050	.370	.121	.047	8.000
10/ 1/73	.988	.828	2.520	.323	.216	.112	8.470
10/ 8/73	.588	.550	1.390	.378	.453	.123	8.340
10/15/73	.920	.570	1.520	.198	.205	.039	4.490
10/23/73	1.060	.640	2.400	.159	.264	.068	1.010
10/29/73	.924	.810	1.260	.147	.265	.175	7.340
11/12/73	1.200	1.040	1.410	.110	.480	-0.010	3.000
12/11/73	.100	.080	1.300	.060	.320	-0.010	6.000
12/17/73	.501	.188	1.420	.100	.700	.006	7.400
1/29/74	.760	.700	.960	.040	.640	-0.010	6.000
2/28/74	.760	.700	.660	.100	.390	-0.010	.500
3/19/74	.600	.560	1.150	.150	.060	-0.010	.500
5/13/74	.320	.270	1.710	-0.010	-0.004	-0.004	1.620
5/28/74	.330	.330	1.280	.327	-0.004	-0.004	1.890
6/10/74	.418	.363	1.320	.049	.035	-0.004	1.040
6/24/74	.403	.370	1.230	0	.004	-0.004	1.300

S-191 NUBBIN SLOUGH

DATE	K MG/L	NA A.A.	CA A.A.	MG A.A.	CL MG/L	ALK MEQ/L	PH LAB
********	********	********	********	********	********	********	********
5/ 7/73	7.340	78.400	43.700	15.300	150.000	1.580	0
5/14/73	7.460	73.200	37.700	13.300	142.400	1.300	0
5/21/73	6.990	72.500	42.600	13.400	142.600	1.210	0
5/29/73	12.500	67.400	41.400	13.600	143.000	1.020	0
6/ 4/73	7.450	77.400	37.400	13.400	145.000	1.400	0
6/11/73	7.050	77.600	38.100	14.600	0	1.300	0
6/18/73	6.660	71.200	35.200	13.100	135.000	1.280	0
6/25/73	6.430	78.000	33.200	12.800	138.000	1.300	0
7/ 2/73	7.000	62.900	34.100	11.900	121.600	1.310	0
7/ 9/73	5.740	32.000	22.800	7.000	53.900	.850	0
7/16/73	3.630	24.000	17.700	5.200	49.800	.560	0
7/23/73	3.600	19.000	15.400	3.800	28.800	.620	0
7/30/73	3.900	16.400	14.800	3.800	15.600	.590	0
8/ 6/73	3.860	22.900	19.700	4.600	46.560	.830	0
8/13/73	4.620	25.000	23.500	5.000	47.040	.960	0
8/20/73	3.990	15.900	17.400	4.700	25.000	.740	0
8/27/73	3.700	19.500	15.800	4.000	41.200	.650	0
9/ 4/73	6.310	24.800	19.600	4.700	42.650	.830	0
9/10/73	4.000	29.300	19.900	5.700	57.700	.950	0
9/17/73	2.170	14.000	7.000	5.600	31.800	.340	0
9/24/73	0	20.000	15.200	4.000	40.900	.820	0
10/ 1/73	0	30.000	23.000	5.900	58.900	1.020	7.190
10/ 8/73	5.200	34.000	27.100	8.600	58.000	1.110	7.150
10/15/73	0	21.000	16.200	5.000	40.600	.700	7.060
10/23/73	0	26.100	18.900	4.900	49.000	.790	7.030
10/29/73	6.100	32.000	18.100	5.200	64.700	1.230	7.840
11/12/73	9.400	38.000	29.000	7.600	74.000	1.280	0
12/11/73	6.900	52.000	51.000	20.000	98.000	1.400	0
12/17/73	7.000	36.000	31.000	8.000	66.000	1.200	0
1/29/74	13.000	80.000	45.000	15.000	156.000	1.800	0
2/28/74	11.000	86.000	53.000	16.000	176.000	2.040	0
3/19/74	9.400	98.000	52.000	17.000	198.000	2.120	0
5/13/74	7.900	124.000	64.800	25.000	287.200	2.080	5.980
5/28/74	0	124.000	64.600	23.400	265.200	2.260	7.800
6/10/74	9.300	12.700	48.400	19.600	244.000	1.890	0
6/24/74	7.200	100.000	28.200	10.800	200.400	2.090	7.740

S-153 ST. LUCIE CANAL

DATE	T-P MG/L	OR-P MG/L	TKN MG/L	NH3-N MG/L	NO3-N MG/L	NO2-N MG/L	SIO2 MG/L
5/ 7/73	.047	.005	1.500	.140	-0.002	-0.002	.400
5/14/73	.050	-0.002	1.860	.080	-0.004	-0.002	5.820
5/21/73	.030	.010	1.140	.090	.047	-0.002	4.240
5/29/73	.070	.009	1.570	.020	.472	.005	4.100
6/ 4/73	.060	.030	1.280	.160	.077	.008	6.100
6/11/73	.060	.043	1.030	.090	.039	.004	7.700
6/18/73	.020	-0.002	1.110	.060	.356	-0.004	3.600
6/25/73	.110	.070	.990	.080	.140	.010	10.000
7/ 2/73	.260	.196	1.060	.100	.156	.023	10.500
7/ 9/73	.055	.009	1.840	-0.010	.013	-0.008	7.800
7/16/73	.100	.079	1.160	.130	.020	.006	6.500
7/23/73	.200	.140	0	.130	.102	.007	8.200
7/30/73	.150	.115	1.390	.070	.020	-0.008	7.120
8/ 6/73	.159	.104	1.615	.023	.019	-0.008	6.860
8/13/73	.173	.174	1.730	.103	.124	.020	7.120
8/20/73	.200	.179	1.890	.071	-0.008	.008	6.698
8/27/73	0	.071	1.370	.028	-0.008	-0.008	4.900
9/ 4/73	.234	.160	1.070	.390	.022	-0.008	4.290
9/10/73	.139	.122	1.630	.060	.017	-0.004	4.960
9/17/73	.081	.055	1.190	.040	.008	.008	4.100
9/24/73	.267	.235	1.690	.100	.016	.006	5.100
10/ 1/73	.277	.172	2.020	.112	.012	-0.004	5.010
10/ 8/73	.133	.099	.940	.099	.018	-0.004	4.900
10/15/73	.064	.068	1.120	.039	.009	.005	2.680
10/23/73	.107	.076	1.390	.053	.009	-0.004	3.800
10/29/73	.109	.148	1.140	.067	.021	-0.004	4.570
11/14/73	.110	.060	1.290	.090	.340	-0.010	6.500
12/12/73	.300	.230	3.030	.100	.350	-0.010	20.000

S-153 ST. LUCIE CANAL

DATE	K MG/L	NA A.A.	CA A.A.	MG A.A.	CL MG/L	ALK MEQ/L	PH LAB
5/ 7/73	2.840	54.200	59.900	9.000	101.000	2.760	0
5/14/73	3.870	53.700	50.400	15.300	82.300	2.230	0
5/21/73	3.590	47.900	49.500	15.600	75.500	1.990	0
5/29/73	5.290	49.700	51.400	16.300	81.000	1.770	0
6/ 4/73	3.650	50.500	49.500	14.800	78.000	2.540	0
6/11/73	3.350	58.200	59.800	14.600	88.000	3.000	0
6/18/73	2.600	60.000	57.500	10.300	109.000	2.690	0
6/25/73	4.130	61.000	71.000	12.200	84.000	0	0
7/ 2/73	6.430	43.000	57.500	10.400	69.800	3.110	0
7/ 9/73	3.350	59.700	58.800	11.400	102.100	2.810	0
7/16/73	2.430	42.500	33.200	7.300	69.400	1.510	0
7/23/73	3.240	45.500	53.000	8.600	62.800	2.540	0
7/30/73	2.580	44.500	32.800	7.700	71.600	1.590	0
8/ 6/73	2.330	60.400	35.700	7.700	80.680	1.650	0
8/13/73	3.180	32.300	38.100	6.500	51.680	1.730	0
8/20/73	1.890	33.300	28.800	5.800	62.600	1.360	0
8/27/73	1.650	30.400	28.500	6.500	58.300	1.490	0
9/ 4/73	2.100	30.900	24.800	5.100	53.960	1.400	0
9/10/73	1.830	35.400	25.700	5.300	60.900	1.560	0
9/17/73	1.290	20.000	13.800	7.600	41.800	1.000	0
9/24/73	0	17.000	21.000	4.500	37.700	1.080	0
10/ 1/73	0	24.000	16.900	3.800	39.600	1.060	7.180
10/ 8/73	2.100	28.000	25.000	5.200	48.200	1.290	7.460
10/15/73	0	24.000	21.300	4.200	40.200	1.020	7.540
10/23/73	0	27.200	24.800	4.600	44.200	1.140	7.370
10/29/73	2.300	27.000	21.100	4.300	49.000	1.330	8.010
11/14/73	8.000	62.000	52.000	19.000	100.000	3.000	0
12/12/73	7.400	51.000	64.000	25.000	102.000	3.000	0

HGS 5 AND W.P.B. CANAL

DATE	T-P MG/L	OR-P MG/L	TKN MG/L	NH3-N MG/L	NO3-N MG/L	NO2-N MG/L	SIO2 MG/L
********	********	********	********	********	********	********	********
5/ 7/73	.093	.009	1.200	.130	.053	-0.002	6.800
5/14/73	.050	.002	1.800	.020	.011	-0.002	4.760
5/21/73	.070	.023	1.860	.040	.017	-0.002	5.700
5/29/73	.070	.008	1.580	.070	.030	.003	5.400
6/ 4/73	.080	.025	1.530	.200	.132	.008	5.400
6/11/73	.060	.029	1.160	.130	.186	.008	5.100
6/18/73	.090	-0.002	1.750	.030	.040	-0.004	5.900
6/25/73	0	0	0	0	0	0	0
7/ 2/73	.071	.013	2.500	.150	.045	-0.008	4.400
7/ 9/73	.107	.042	2.160	.510	.012	-0.008	11.300
7/16/73	.007	.003	1.380	.190	.056	-0.004	2.400
7/23/73	.100	.044	2.690	.550	.341	.029	0
7/30/73	0	0	0	0	0	0	9.480
8/ 6/73	.174	.082	3.111	.598	.077	-0.008	10.600
8/13/73	.046	.041	1.690	.191	.215	.012	0
8/20/73	.068	.046	1.910	.223	.190	.018	7.216
8/27/73	.100	.040	1.930	.211	.230	.025	5.200
9/ 4/73	.083	.033	1.260	.070	.178	.012	3.240
9/10/73	.136	.073	1.850	.150	.203	.017	5.100
9/17/73	.092	.077	2.690	.400	.470	.062	12.100
10/ 1/73	.089	.051	1.570	.140	.219	.018	5.720
10/ 8/73	.065	.042	1.290	.246	.246	.056	9.630
10/15/73	.064	.043	1.420	.143	.174	.010	11.220
10/23/73	.097	.052	3.090	.462	.176	.038	18.720
10/29/73	.091	.019	1.640	.037	.192	-0.004	7.270
11/14/73	.060	.040	1.390	.090	.190	-0.010	7.000
11/26/73	.039	.002	2.720	.090	.167	-0.004	7.370
12/12/73	.080	.060	1.910	.150	.600	.040	13.000
12/17/73	.052	.052	2.010	.240	.232	.011	8.000
1/30/74	.080	.050	1.260	.040	.250	-0.010	6.000
2/27/74	.170	.080	1.750	.010	.330	-0.010	7.700
3/20/74	.110	.060	1.500	.020	.020	-0.010	7.300
5/28/74	.250	-0.002	1.970	.046	.181	-0.004	4.360

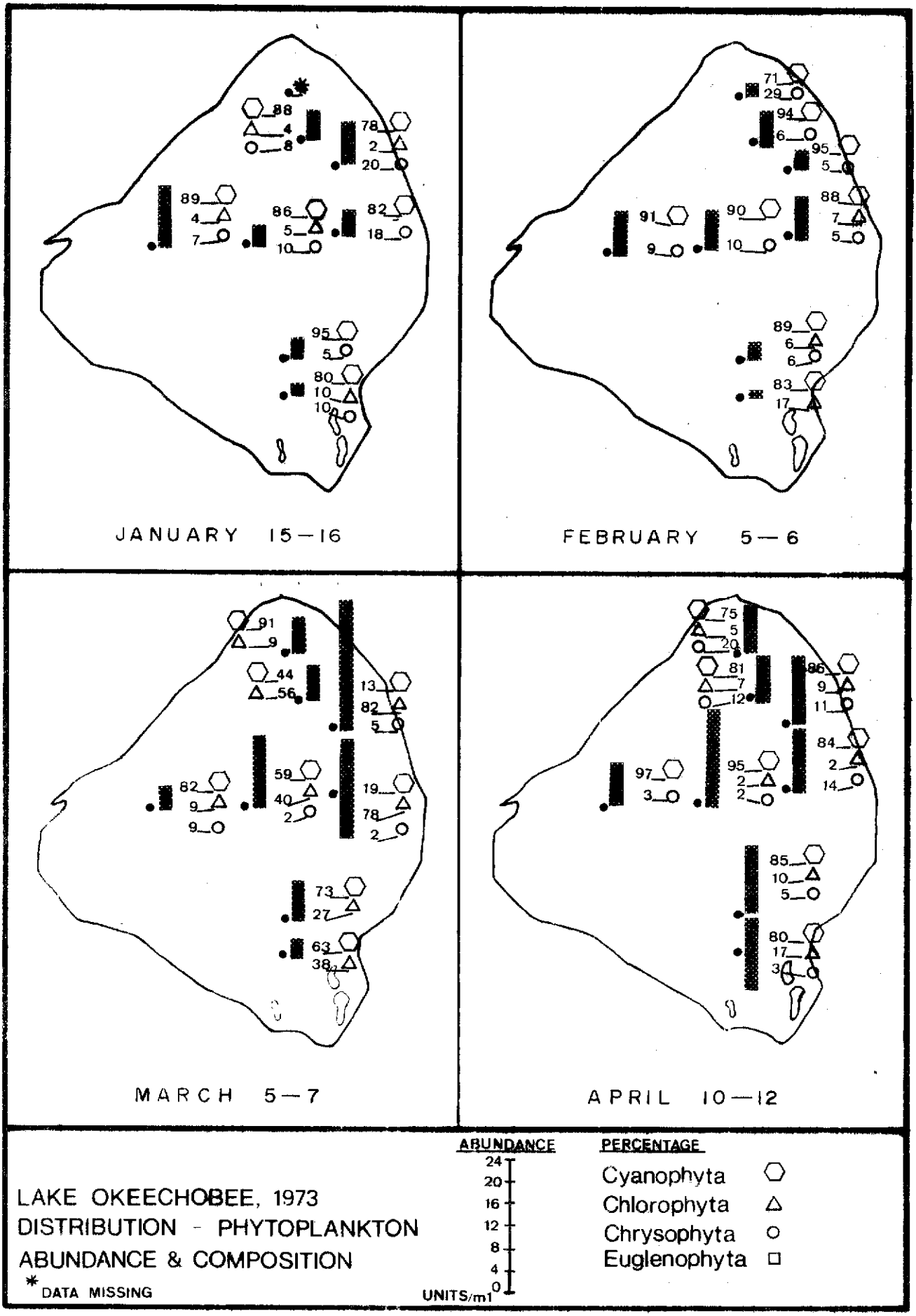
HGS 5 AND W.P.B. CANAL

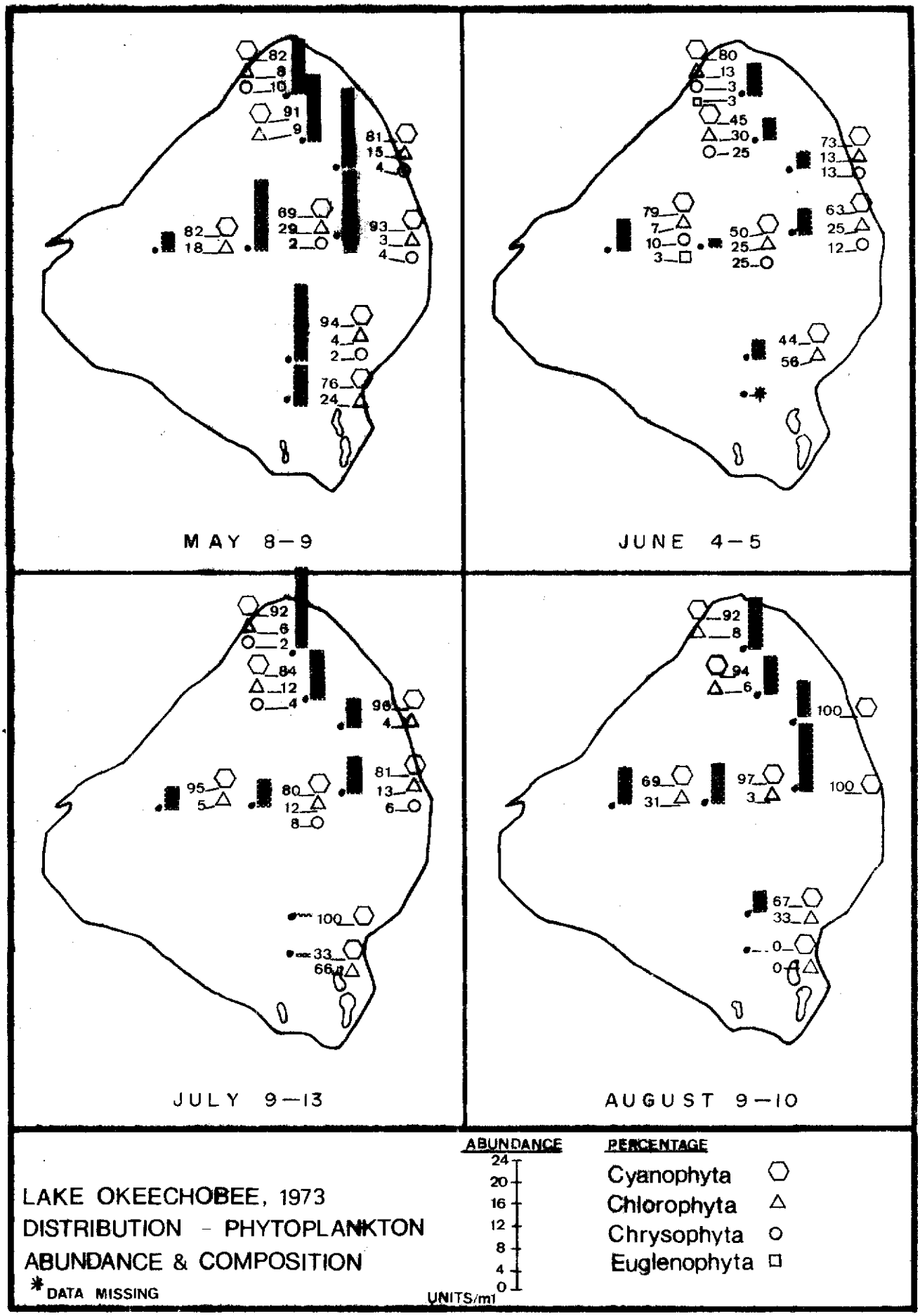
DATE	K MG/L	NA A.A.	CA A.A.	MG A.A.	CL MG/L	ALK MEQ/L	PH LAB
********	********	********	********	********	********	********	********
5/ 7/73	3.970	56.400	51.200	18.400	93.000	2.690	0
5/14/73	3.850	52.100	45.600	16.100	79.700	2.250	0
5/21/73	3.770	50.400	49.100	16.800	81.800	2.280	0
5/29/73	8.400	53.600	52.900	17.100	86.000	1.870	0
6/ 4/73	4.090	57.200	48.400	17.300	89.000	2.530	0
6/11/73	4.020	57.700	47.400	18.800	86.000	2.590	0
6/18/73	4.740	38.400	60.000	11.200	86.600	2.440	0
6/25/73	0	0	0	0	0	0	0
7/ 2/73	4.790	64.000	52.300	20.000	98.100	2.870	0
7/ 9/73	6.940	118.000	57.200	24.300	140.300	4.030	0
7/16/73	4.690	70.400	52.100	19.500	99.300	2.990	0
7/23/73	0	0	0	0	0	0	0
7/30/73	6.010	95.500	58.600	25.000	139.400	3.660	0
8/ 6/73	5.770	100.200	56.100	23.800	130.590	3.590	0
8/13/73	0	0	0	0	0	2.370	0
8/20/73	4.910	78.000	49.200	19.000	40.000	3.070	0
8/27/73	5.100	75.000	43.500	16.500	96.600	2.850	0
9/ 4/73	4.300	59.200	46.600	17.700	89.610	2.830	0
9/10/73	3.690	41.400	32.800	11.400	61.500	2.320	0
9/17/73	4.850	67.000	35.600	34.400	103.700	2.880	0
10/ 1/73	0	45.000	36.400	12.900	72.100	2.370	7.990
10/ 8/73	4.600	66.000	50.400	19.300	89.300	3.090	8.020
10/15/73	0	67.000	48.400	19.000	95.200	3.200	8.120
10/23/73	0	126.000	65.400	28.600	157.800	3.850	8.070
10/29/73	4.000	58.000	48.600	19.300	90.700	3.160	8.050
11/14/73	8.600	62.000	53.000	20.000	102.000	3.240	0
11/26/73	4.480	59.800	42.000	17.500	89.300	2.890	7.900
12/12/73	12.000	118.000	73.000	32.000	188.000	3.360	0
12/17/73	5.100	65.000	60.000	21.000	101.600	3.000	0
1/30/74	6.300	55.000	45.000	17.000	83.000	2.800	0
2/27/74	5.700	56.000	62.000	20.000	90.000	3.000	0
3/20/74	4.900	59.000	49.000	17.000	93.000	2.680	0
5/28/74	0	55.000	49.000	18.400	94.700	3.220	8.300

APPENDIX C

DISTRIBUTION OF PHYTOPLANKTON ABUNDANCES AND COMPOSITIONS

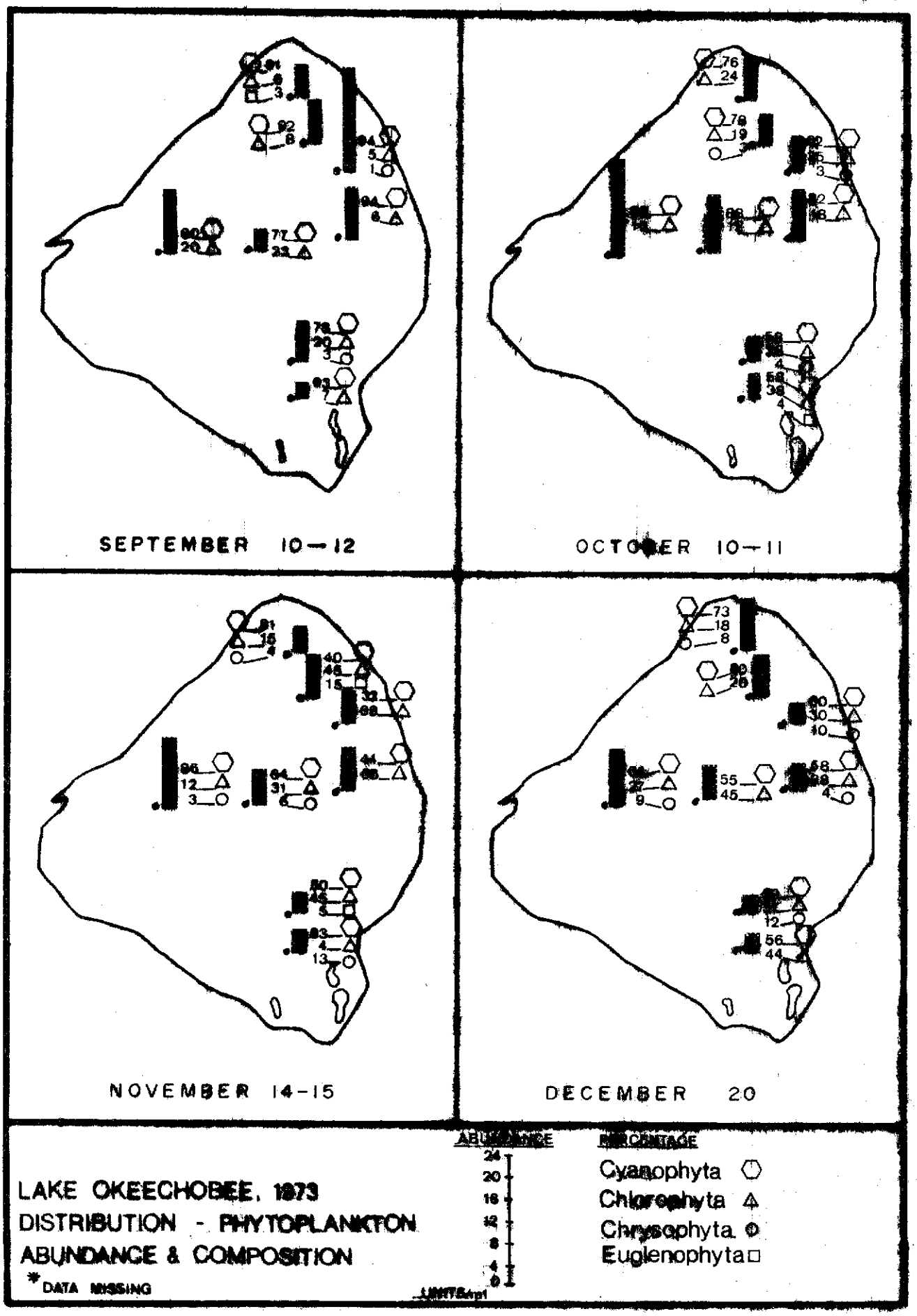
LAKE OKEECHOBEE - 1973


JANUARY 15–16
FEBRUARY 5–6
MARCH 5–7
APRIL 10–12
ABUNDANCE
24
20
16
12
8
4
0
UNITS/ml
PERCENTAGE
Cyanophyta
Chlorophyta
Chrysophyta
Euglenophyta
LAKE OKEECHOBEE, 1973
DISTRIBUTION - PHYTOPLANKTON
ABUNDANCE & COMPOSITION
* DATA MISSING



LAKE OKEECHOBEE, 1973
DISTRIBUTION - PHYTOPLANKTON
ABUNDANCE & COMPOSITION

* DATA MISSING



LAKE OKEECHOBEE, 1973
DISTRIBUTION - PHYTOPLANKTON
ABUNDANCE & COMPOSITION

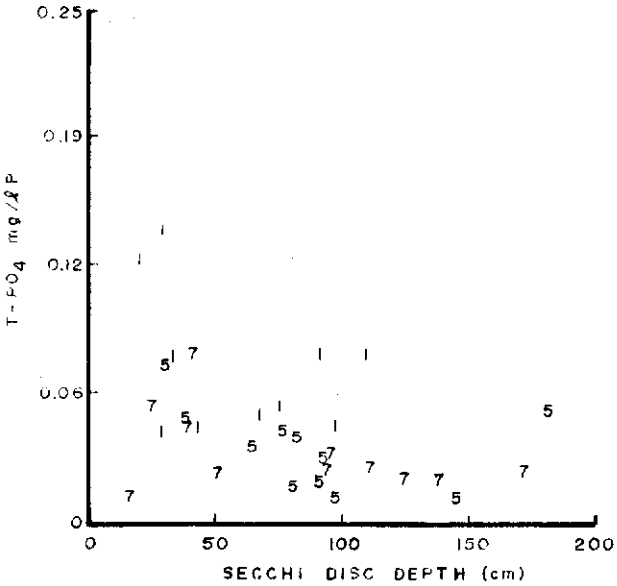
*DATA MISSING

APPENDIX D

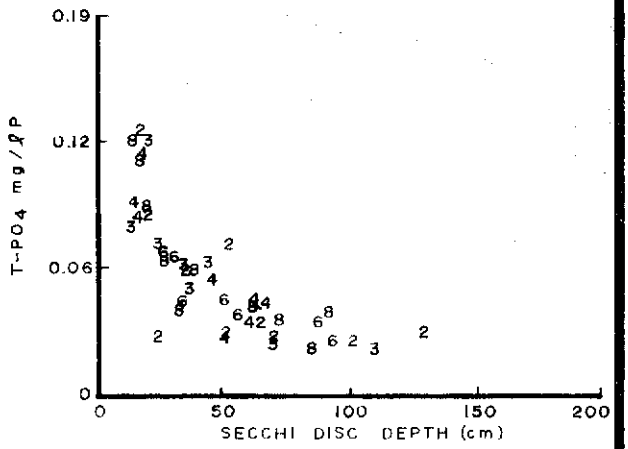
SCATTER DIAGRAMS FOR SIGNIFICANT PARAMETER PAIRS

LAKE OKEECHOBEE 1973

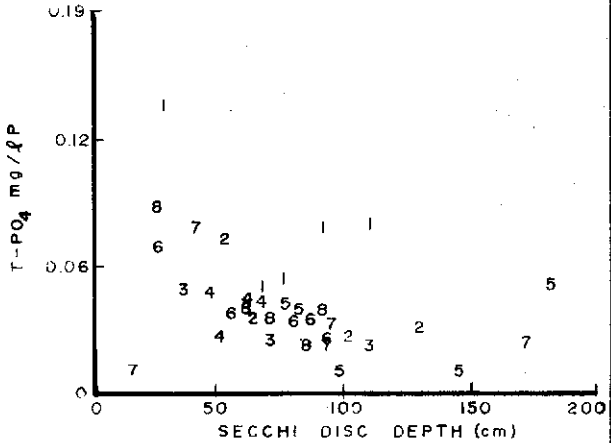
Number for data points correspond to sample station numbers.



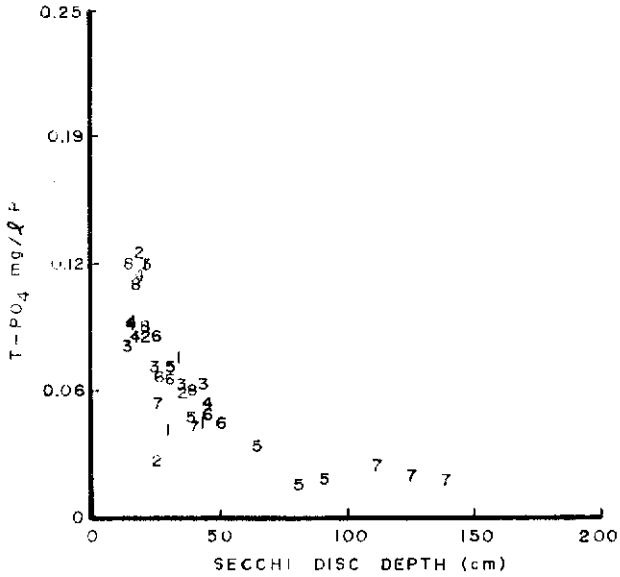
LAKE STATIONS
WITH HARD BOTTOMS



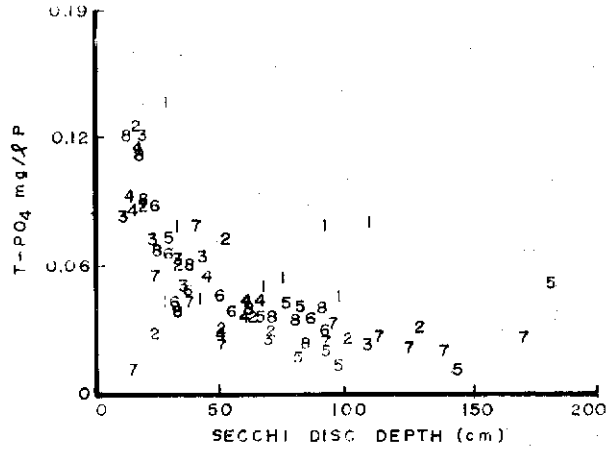
LAKE STATIONS
WITH SOFT BOTTOMS



SUMMER (JUNE-OCT.) DATA

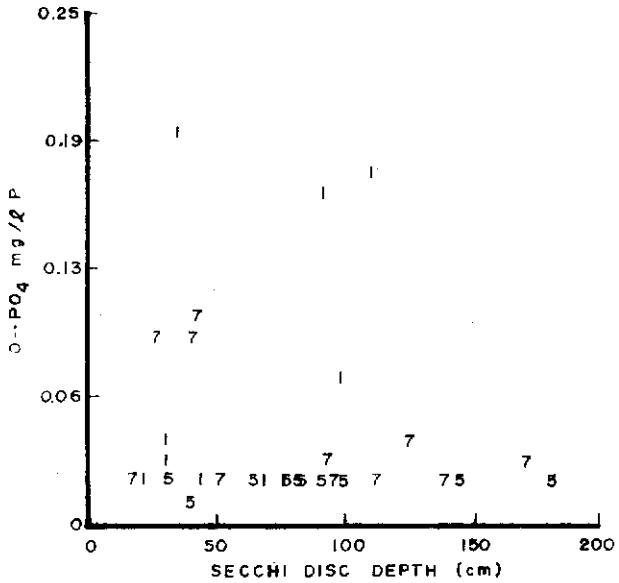


WINTER (JAN.-MAY) DATA

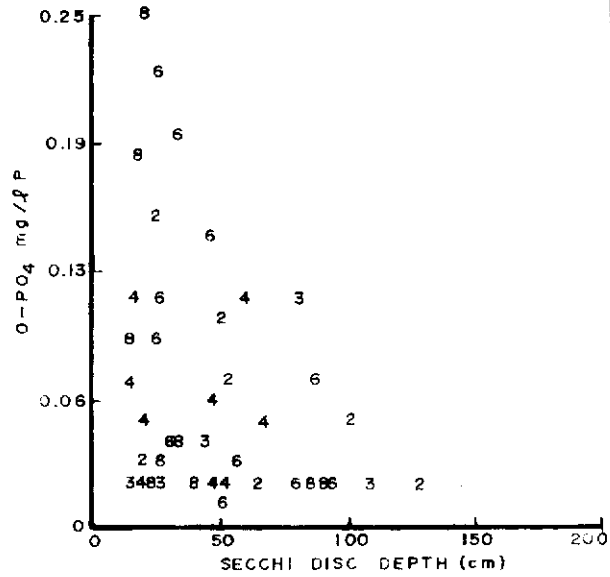


ALL 1973 DATA

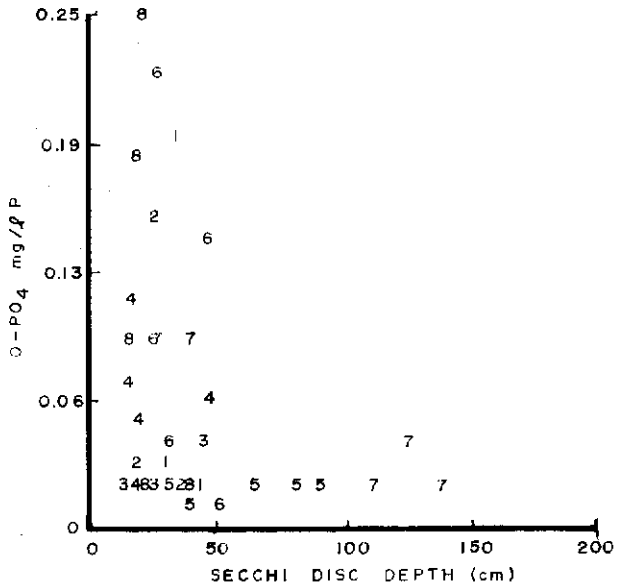
LAKE OKEECHOBEE 1973
TOTAL PHOSPHATE vs SECCHI DISC DEPTH



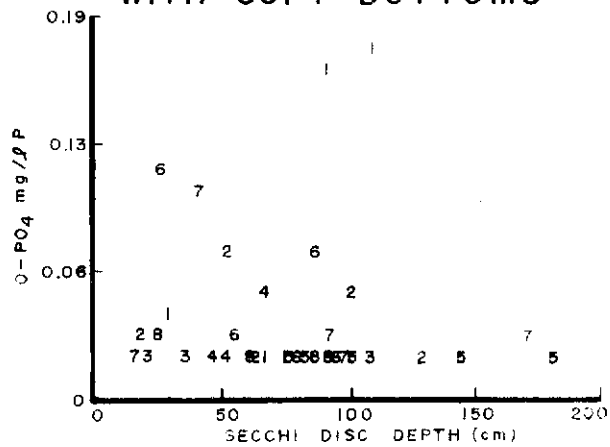
LAKE STATIONS WITH HARD BOTTOMS



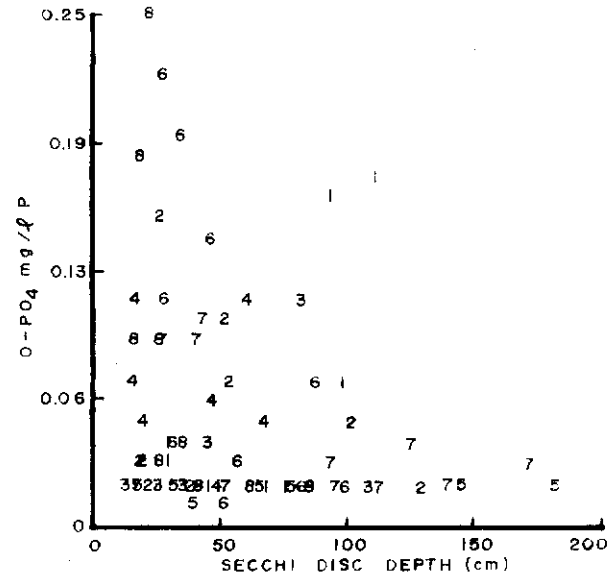
LAKE STATIONS WITH SOFT BOTTOMS



WINTER (JAN.-MAY) DATA

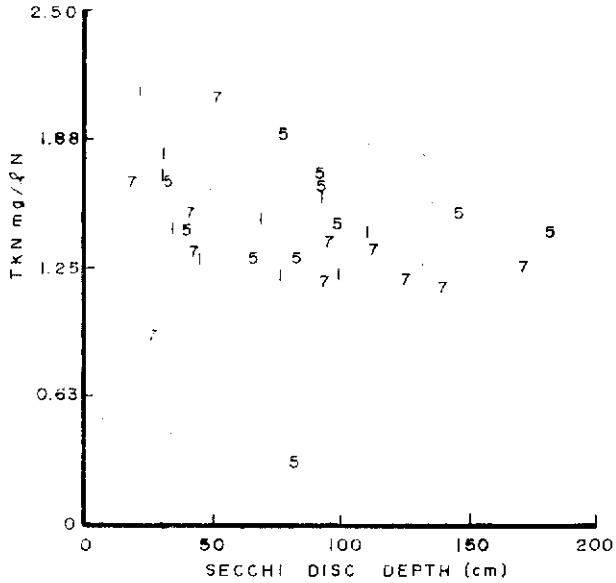


SUMMER (JUNE-OCT.) DATA

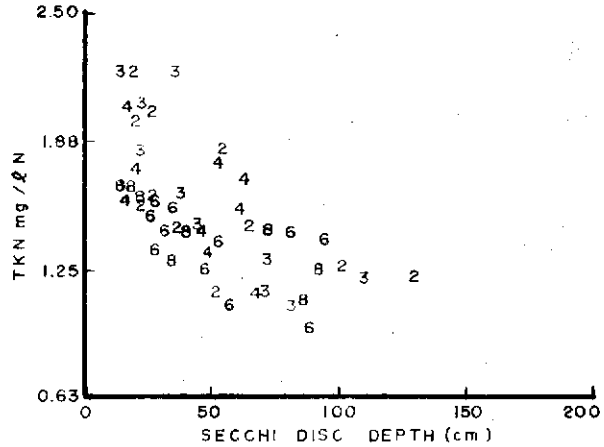


ALL 1973 DATA

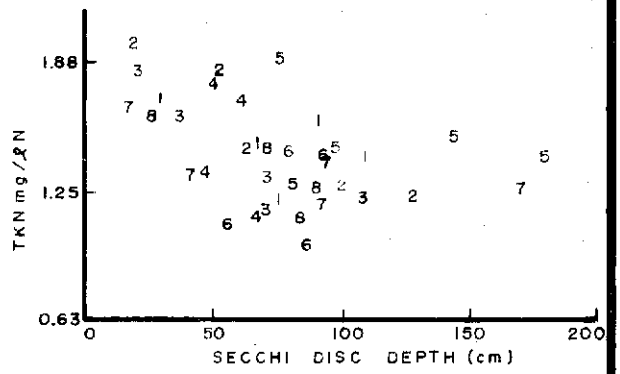
LAKE OKEECHOBEE 1973
ORTHO-PHOSPHATE vs SECCHI DISC DEPTH



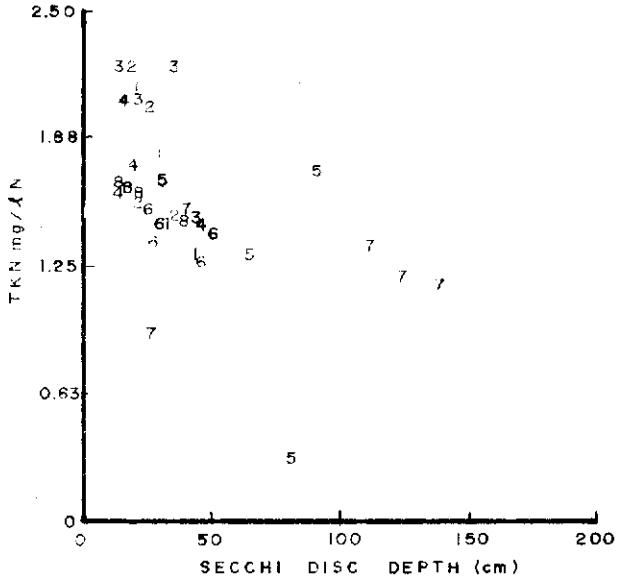
LAKE STATIONS WITH HARD BOTTOMS



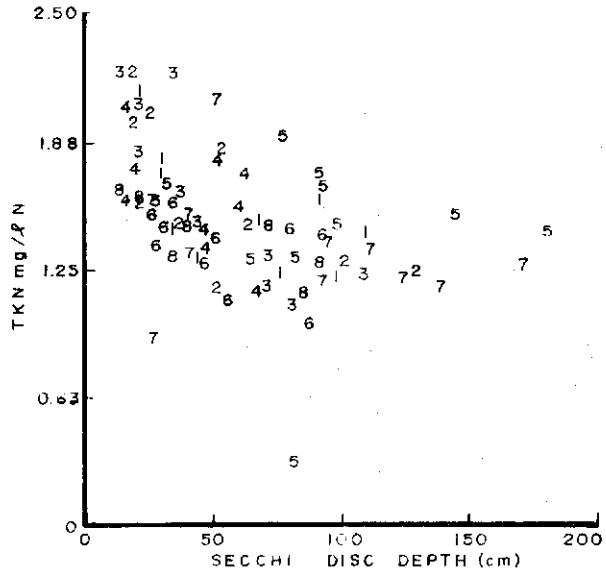
LAKE STATIONS WITH SOFT BOTTOMS



SUMMER (JUNE-OCT.) DATA



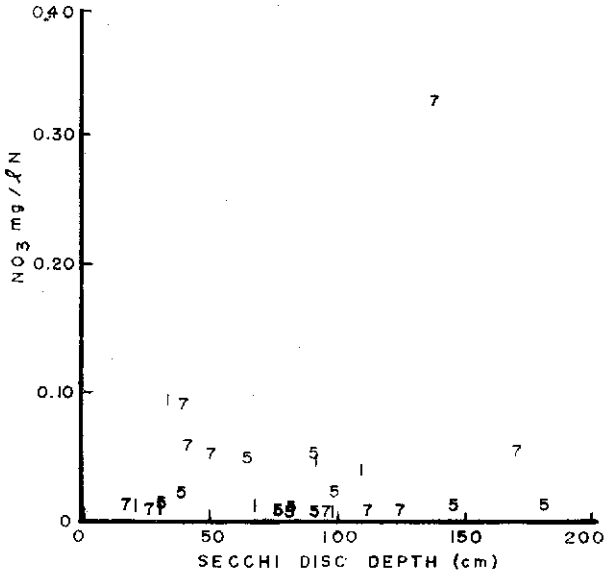
WINTER (JAN.-MAY) DATA



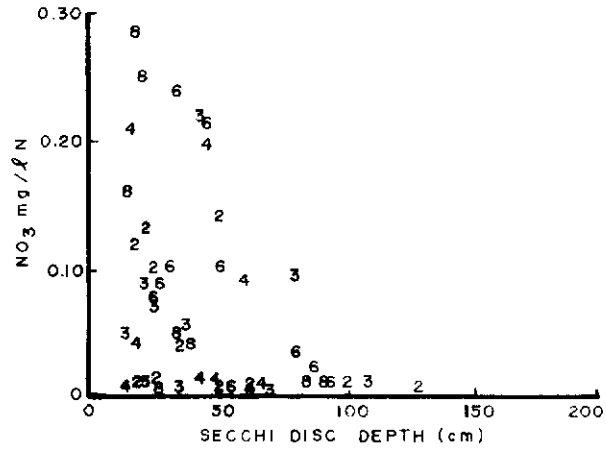
ALL 1973 DATA

LAKE OKEECHOBEE 1973

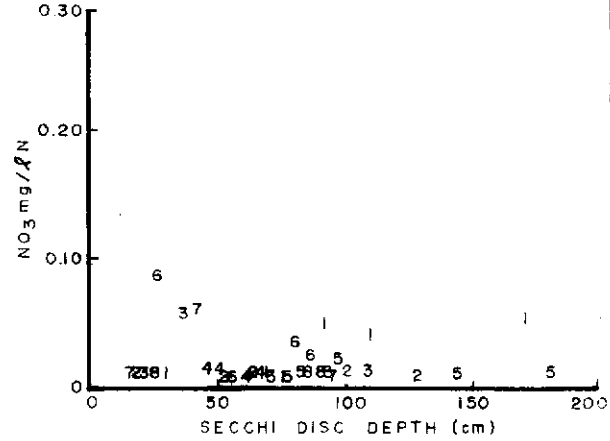
TOTAL KJELDAHL NITROGEN vs SECCHI DISC DEPTH



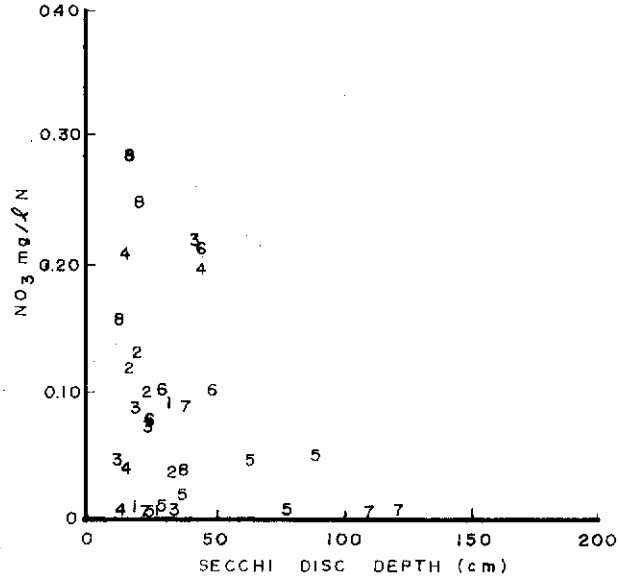
LAKE STATIONS WITH HARD BOTTOMS



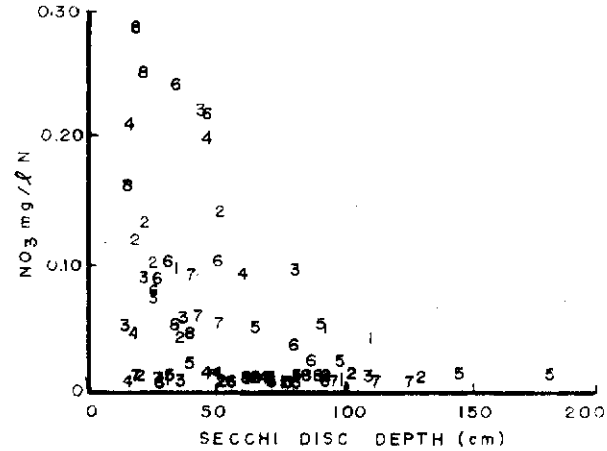
LAKE STATIONS WITH SOFT BOTTOMS



SUMMER (JUNE-OCT.) DATA

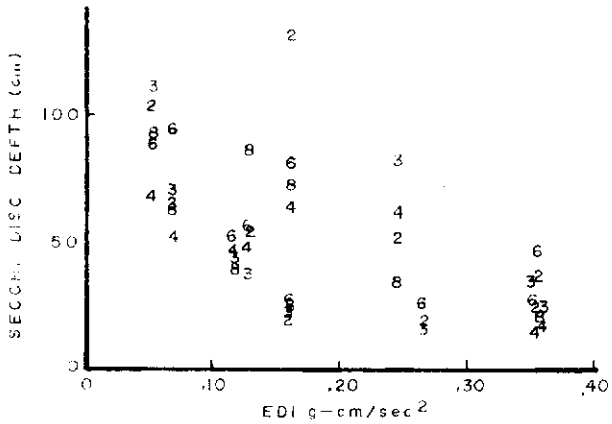


WINTER (JAN.-MAY) DATA

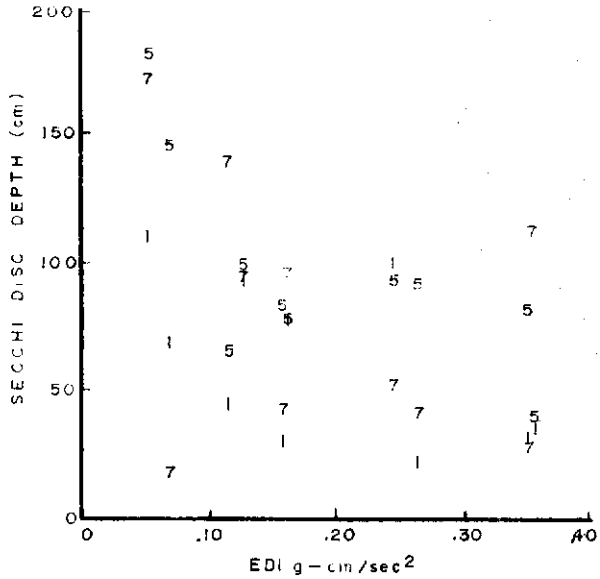


ALL 1973 DATA

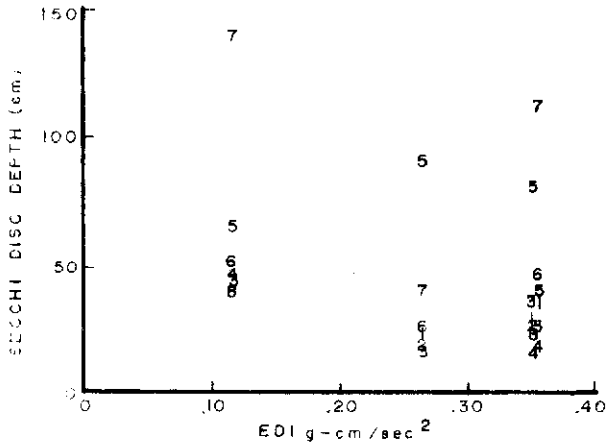
LAKE OKEECHOBEE 1973
NITRATE vs SECCHI DISC DEPTH



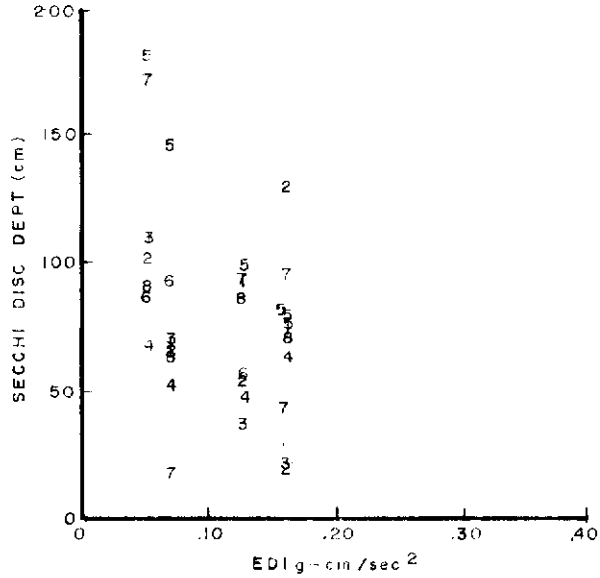
LAKE STATIONS WITH HARD BOTTOMS



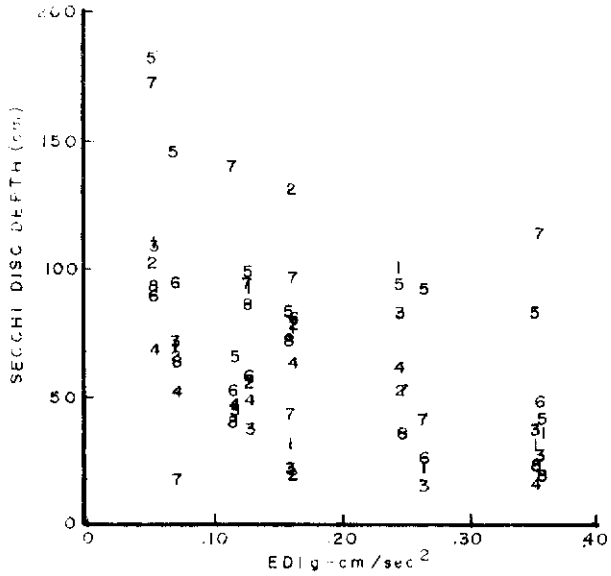
LAKE STATIONS WITH SOFT BOTTOMS



WINTER (JAN-MAY) DATA



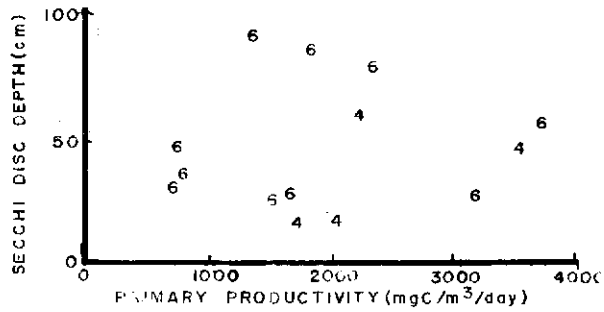
SUMMER (JUNE-OCT) DATA



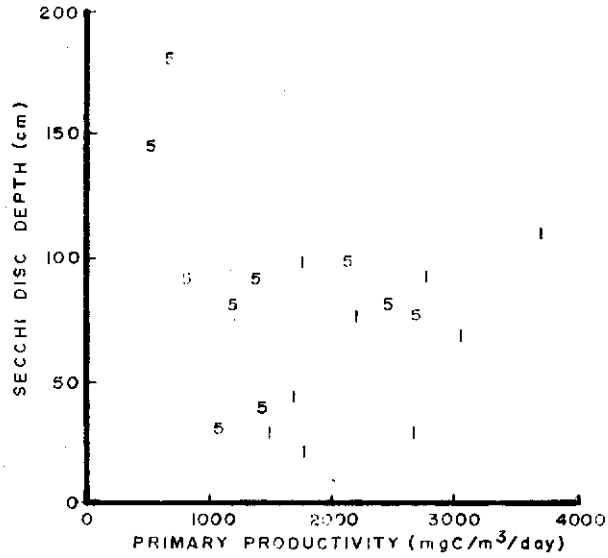
ALL 1973 DATA

LAKE OKEECHOBEE 1973

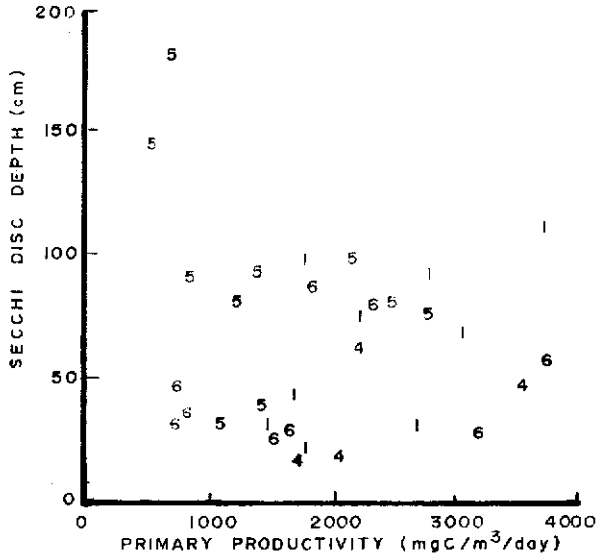
SECCHI DISC DEPTH vs EFFECTIVE DISPLACEMENT INDEX



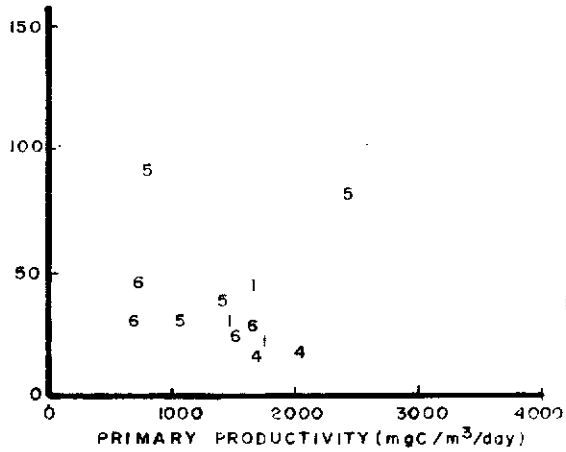
LAKE STATIONS
WITH SOFT BOTTOMS



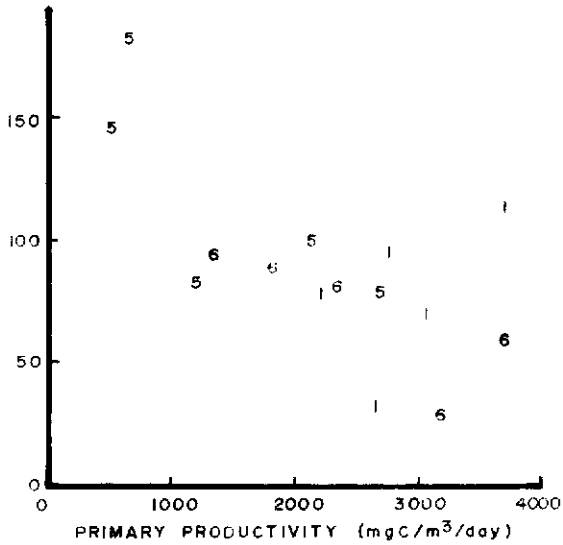
LAKE STATIONS
WITH HARD BOTTOMS



ALL 1973 DATA

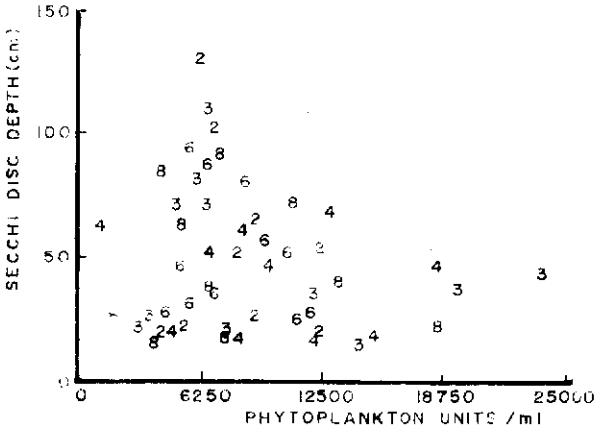


WINTER (JAN-MAY) DATA

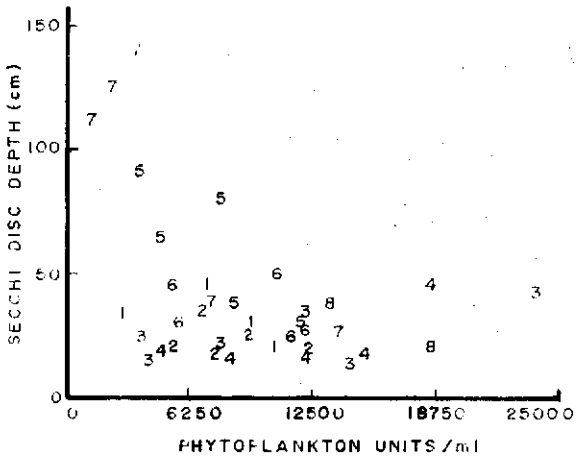


SUMMER (JUNE-OCT) DATA

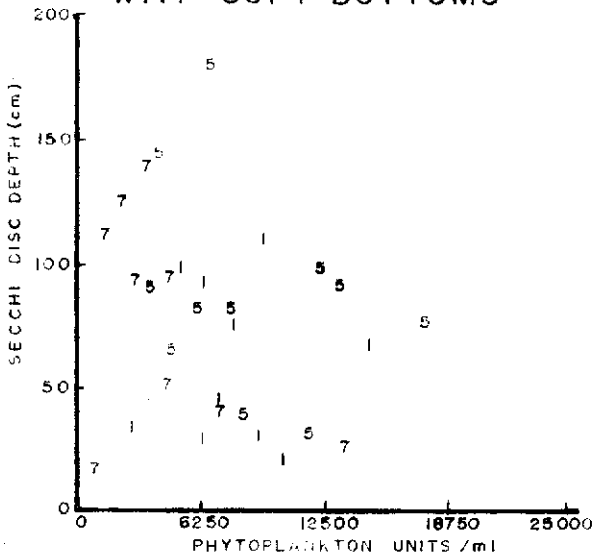
LAKE OKEECHOBEE 1973
SECCHI DISC DEPTH vs PRIMARY PRODUCTIVITY



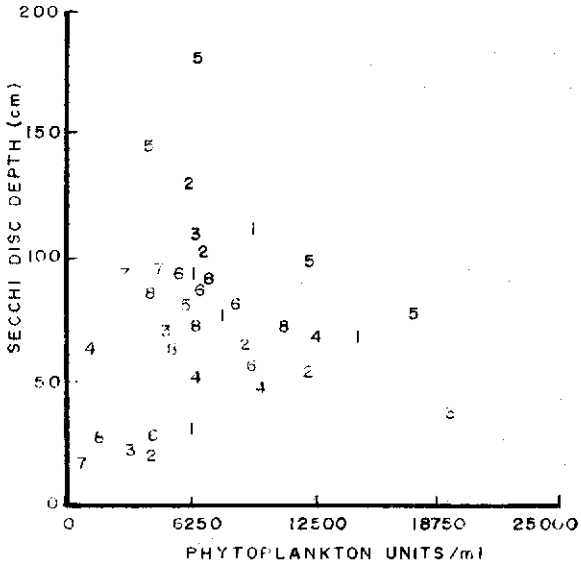
LAKE STATIONS
WITH SOFT BOTTOMS



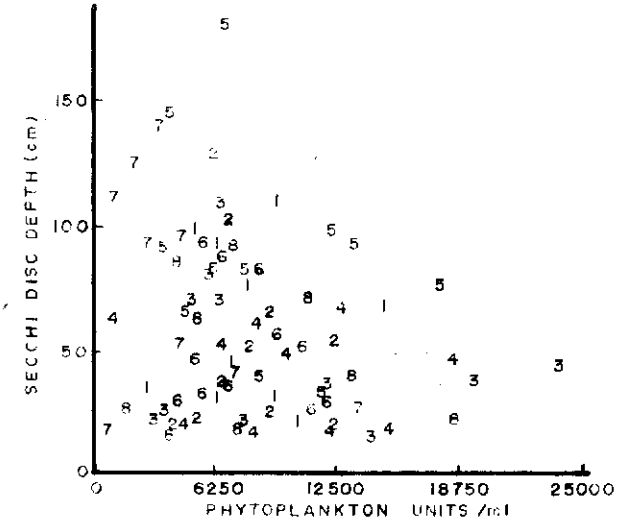
WINTER (JAN -- MAY) DATA



LAKE STATIONS
WITH HARD BOTTOMS

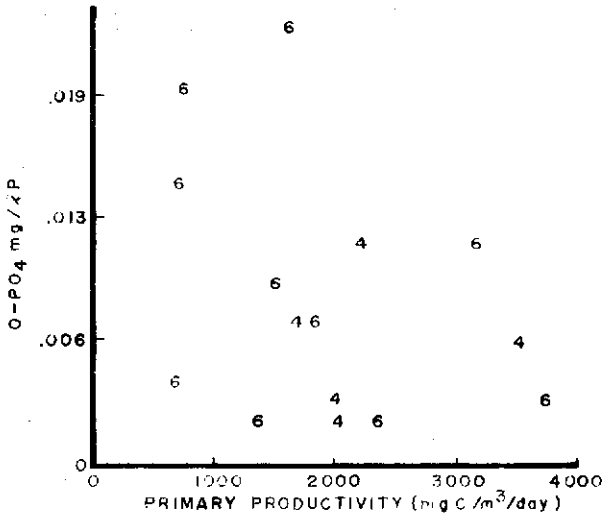


SUMMER (JUNE-OCT) DATA

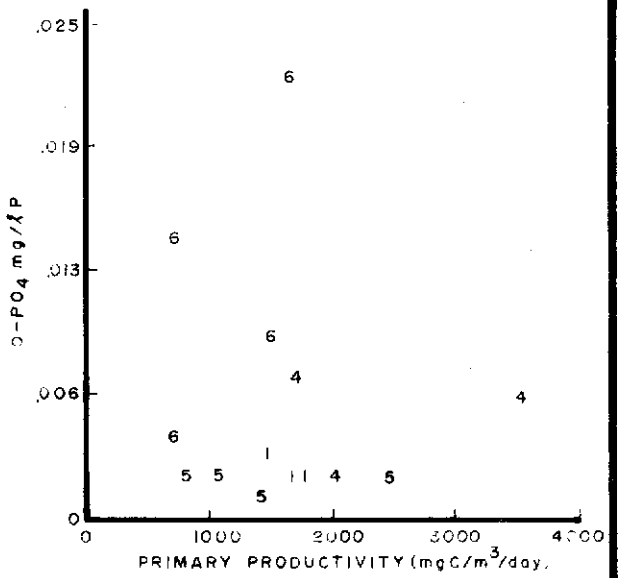


ALL 1973 DATA

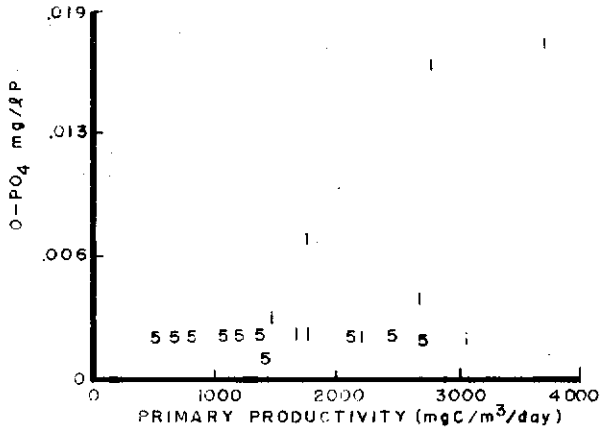
LAKE OKEECHOBEE 1973
SECCHI DISC DEPTH vs PHYTOPLANKTON COUNTS



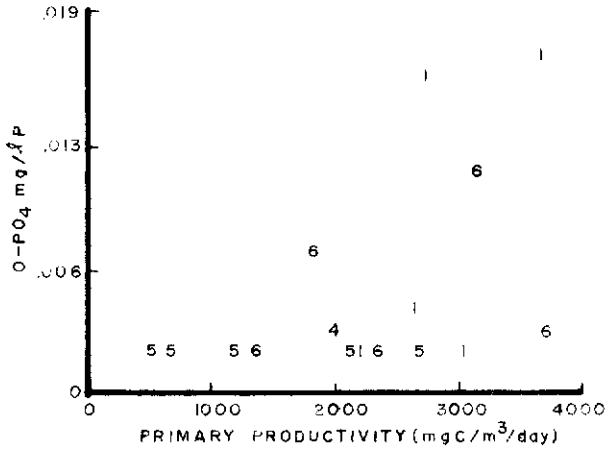
LAKE STATIONS
WITH SOFT BOTTOMS



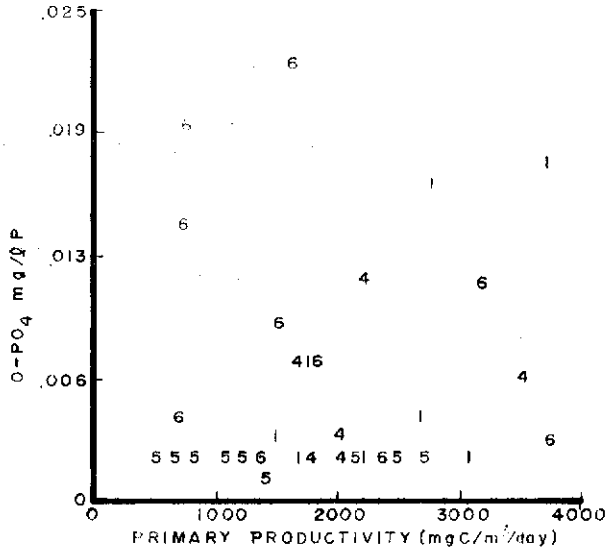
WINTER (JAN—MAY) DATA



LAKE STATIONS
WITH HARD BOTTOMS

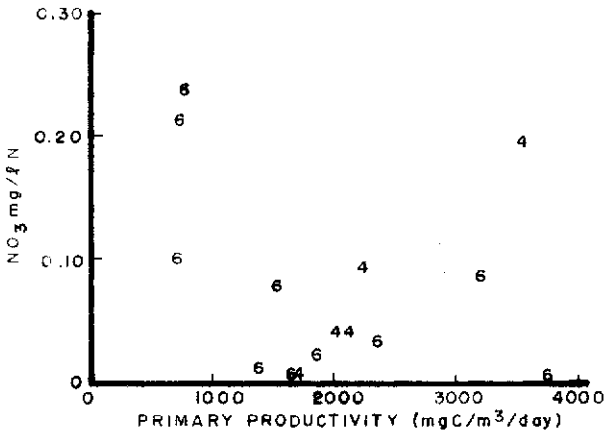


SUMMER (JUNE—OCT) DATA

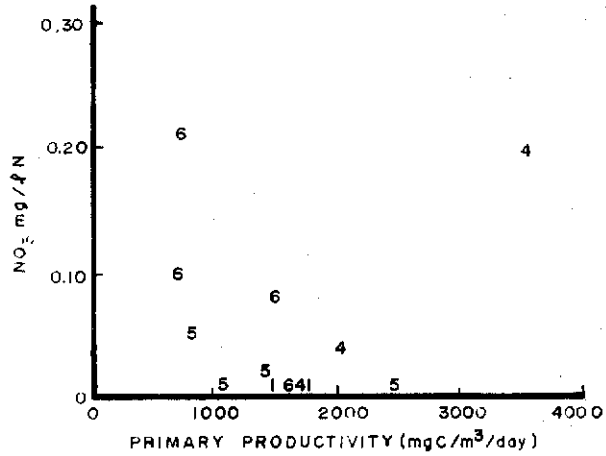


ALL 1973 DATA

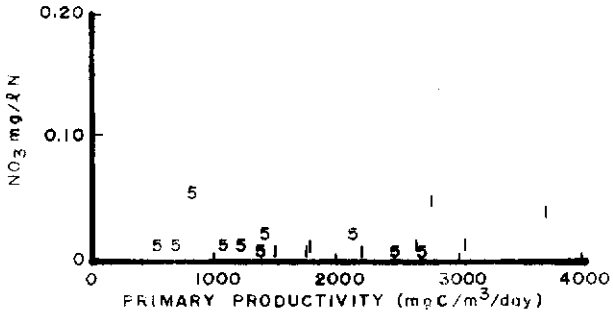
LAKE OKEECHOBEE 1973
ORTHO-PHOSPHATE vs PRIMARY PRODUCTIVITY



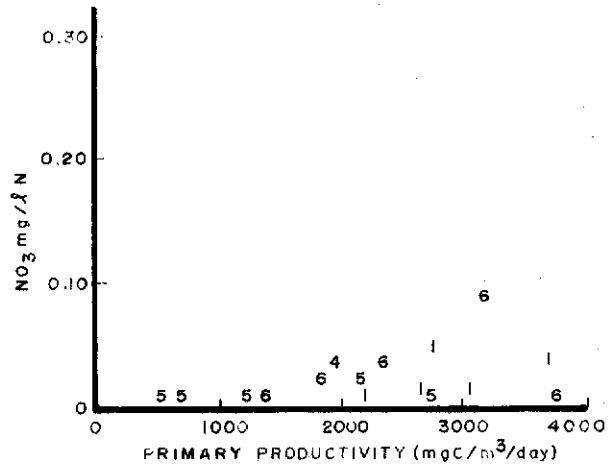
LAKE STATIONS
WITH SOFT BOTTOMS



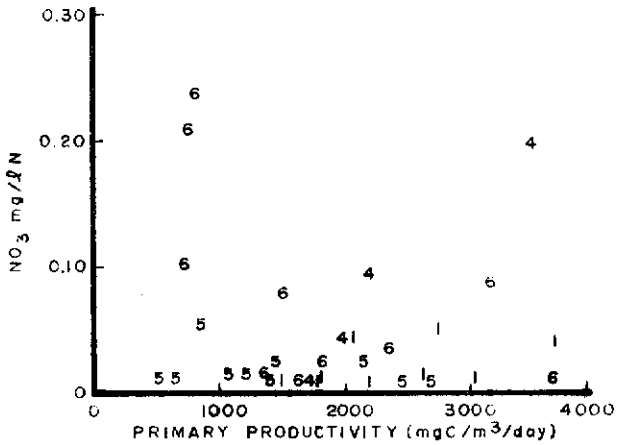
WINTER (JAN-MAY) DATA



LAKE STATIONS
WITH HARD BOTTOMS

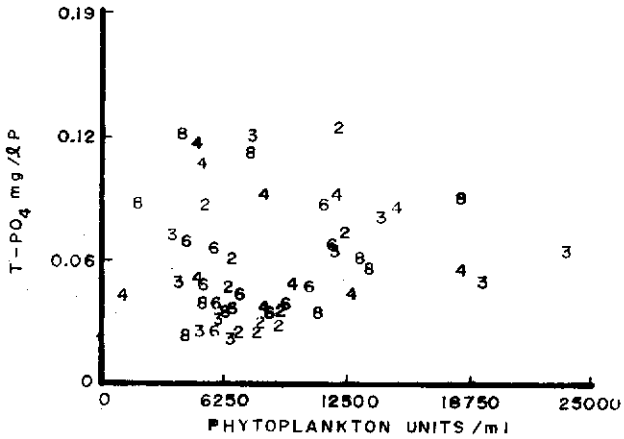


SUMMER (JUNE-OCT) DATA

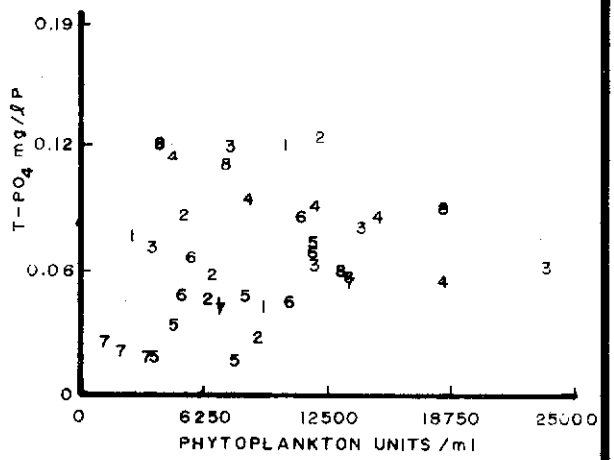


ALL 1973 DATA

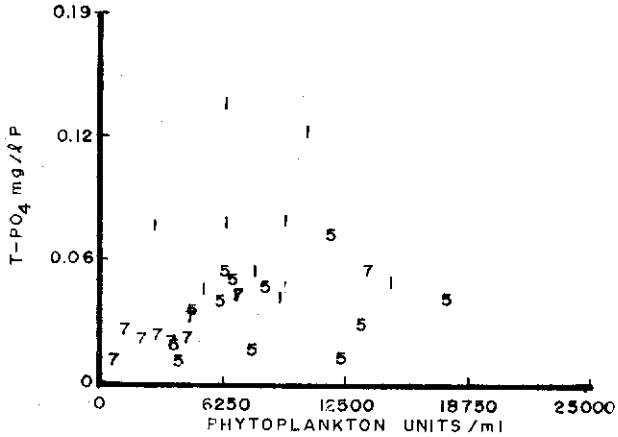
LAKE OKEECHOBEE 1973
NITRATE vs PRIMARY PRODUCTIVITY



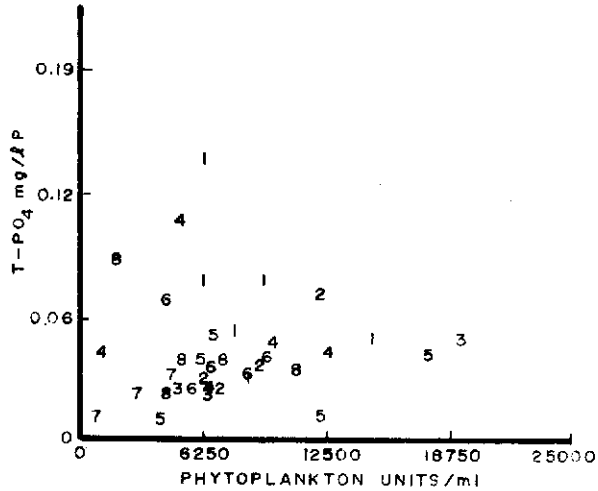
LAKE STATIONS
WITH SOFT BOTTOMS



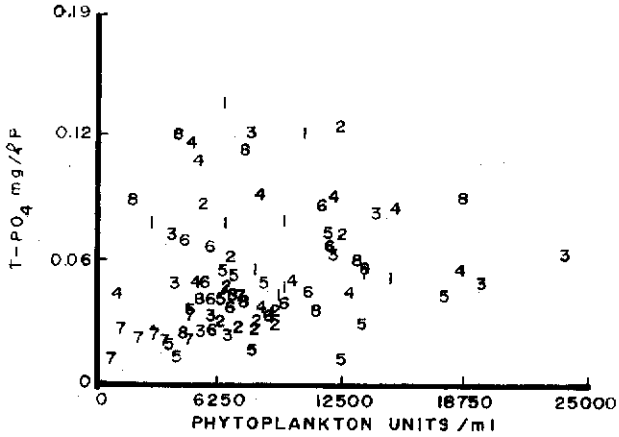
WINTER (JAN-MAY) DATA



LAKE STATIONS
WITH HARD BOTTOMS

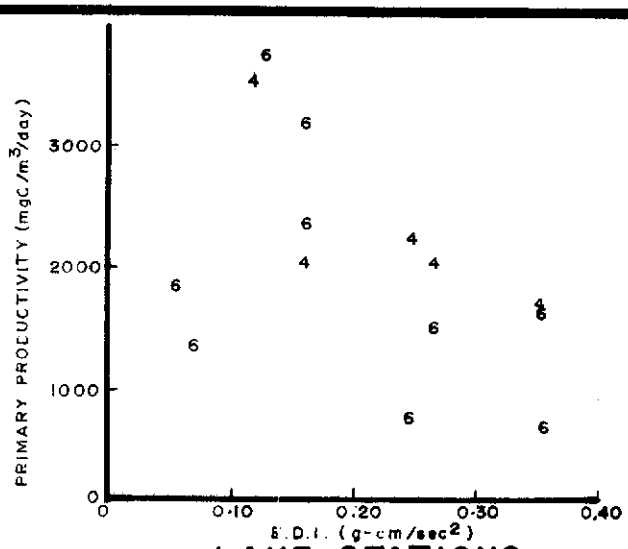


SUMMER (JUNE-OCT) DATA

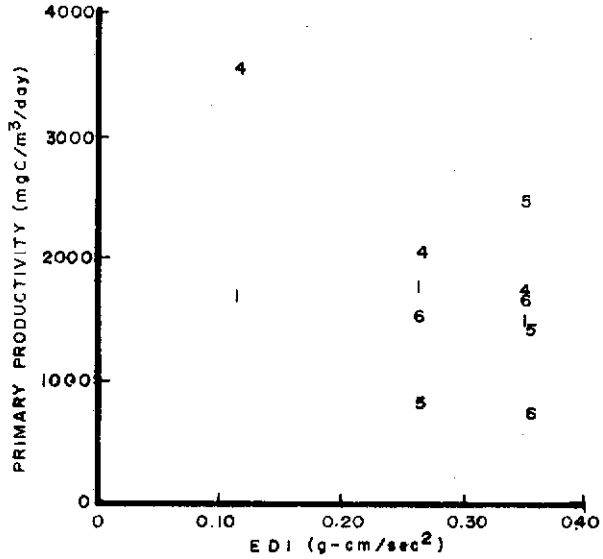


ALL 1973 DATA

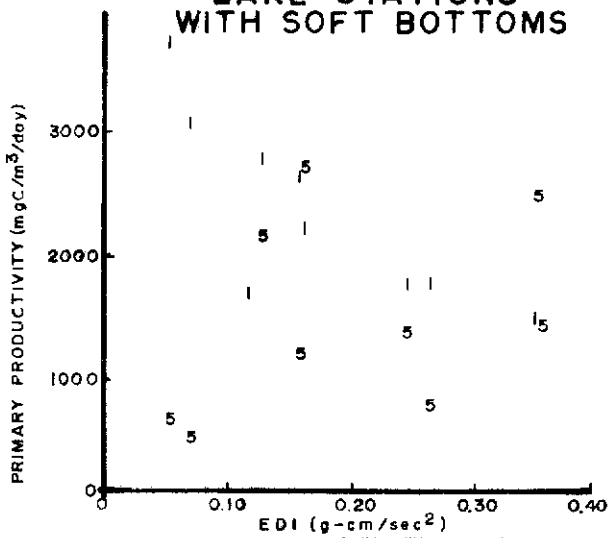
LAKE OKEECHOBEE 1973
TOTAL PHOSPHATE vs PHYTOPLANKTON COUNTS



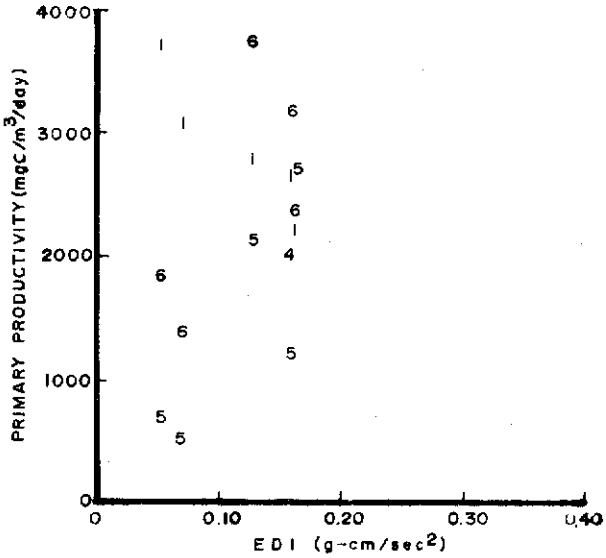
LAKE STATIONS
WITH SOFT BOTTOMS



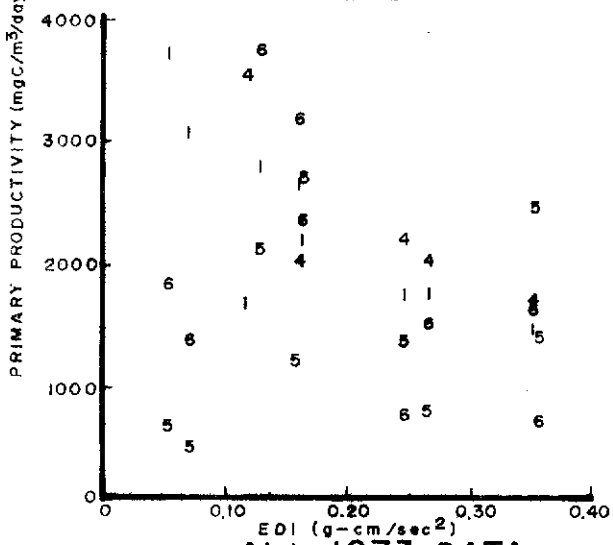
WINTER (JAN–MAY) DATA



LAKE STATIONS
WITH HARD BOTTOMS



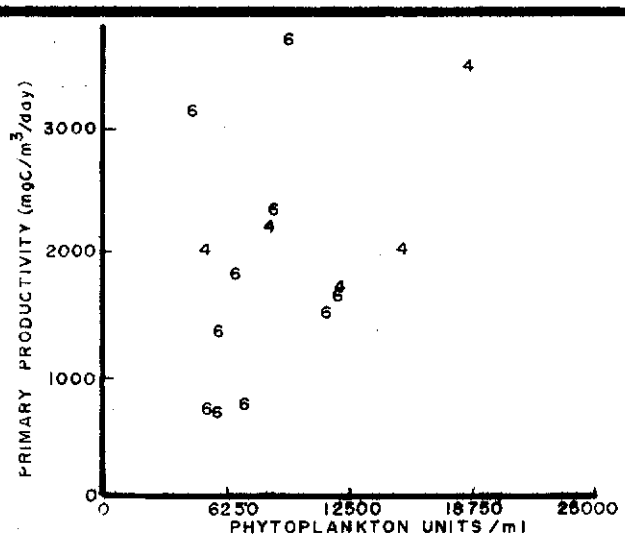
SUMMER (JUNE–OCT) DATA



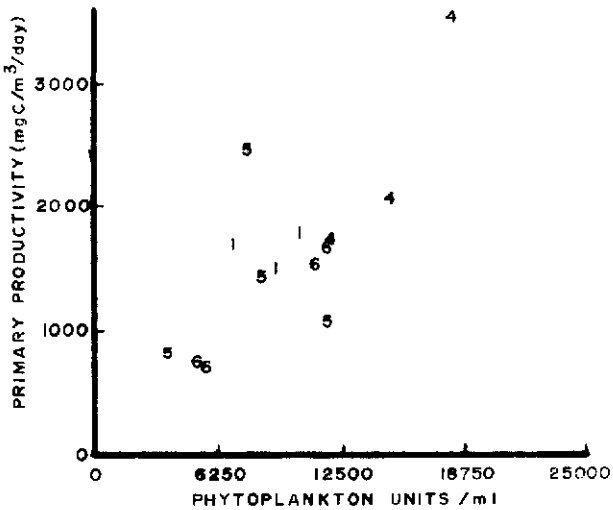
ALL 1973 DATA

LAKE OKEECHOBEE 1973

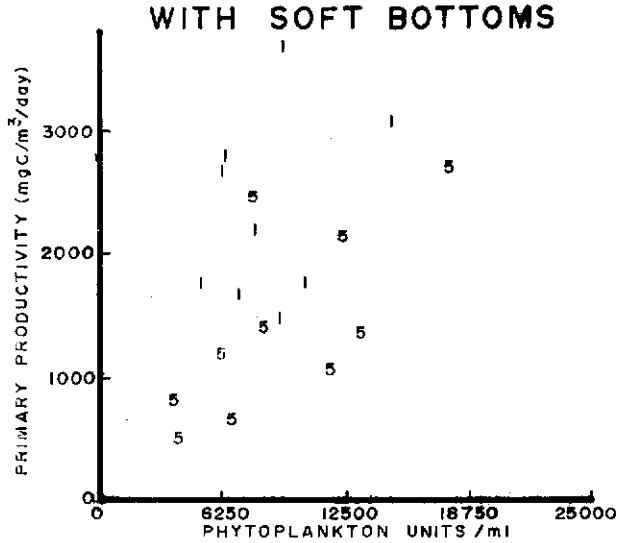
PRIMARY PRODUCTIVITY vs EFFECTIVE DISPLACEMENT INDEX



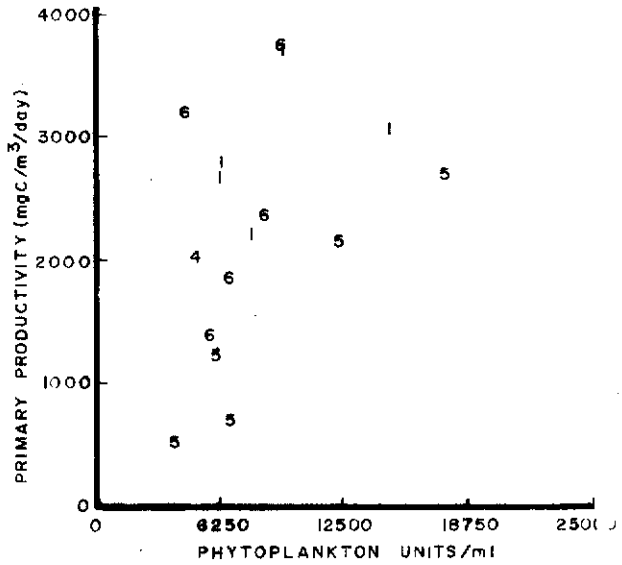
LAKE STATIONS
WITH SOFT BOTTOMS



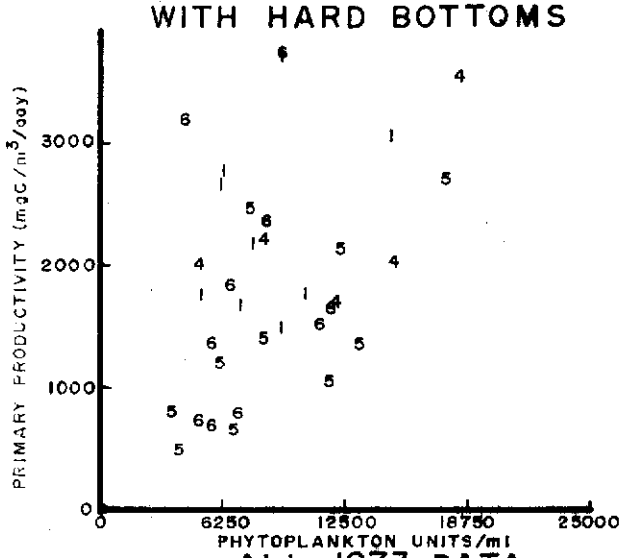
WINTER (JAN-MAY) DATA



LAKE STATIONS
WITH HARD BOTTOMS



SUMMER (JUNE-OCT) DATA



ALL 1973 DATA

LAKE OKEECHOBEE 1973
PRIMARY PRODUCTIVITY vs PHYTOPLANKTON COUNTS