U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL EUTROPHICATION SURVEY

WORKING PAPER SERIES

REPORT

ON

LAKE GEORGE

PUTNAM AND VOLUSIA COUNTIES

FLORIDA

EPA REGION IV

WORKING PAPER NO. 251

CORVALLIS ENVIRONMENTAL RESEARCH LABORATORY - CORVALLIS, OREGON

and

ENVIRONMENTAL MONITORING & SUPPORT LABORATORY - LAS VEGAS, NEVADA

☆G.P.O. 699-440

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WITH THE COOPERATION OF THE

FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

AND THE

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FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to freshwater lakes and reservoirs.

OBJECTIVES

The Survey was designed to develop, in conjunction with state environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and state management practices relating to point-source discharge reduction and non-point source pollution abatement in lake watersheds.

ANALYTIC APPROACH

The mathematical and statistical procedures selected for the Survey's eutrophication analysis are based on related concepts that:

a. A generalized representation or model relating sources, concentrations, and impacts can be constructed.

b. By applying measurements of relevant parameters associated with lake degradation, the generalized model can be transformed into an operational representation of a lake, its drainage basin, and related nutrients.

c. With such a transformation, an assessment of the potential for eutrophication control can be made.

LAKE ANALYSIS

In this report, the first stage of evaluation of lake and watershed data collected from the study lake and its drainage basin is documented. The report is formatted to provide state environmental agencies with specific information for basin planning [§303(e)], water quality criteria/standards review [§303(c)], clean lakes [§314(a,b)], and water quality monitoring [§106 and §305(b)] activities mandated by the Federal Water Pollution Control Act Amendments of 1972.

Beyond the single lake analysis, broader based correlations between nutrient concentrations (and loading) and trophic condition are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's fresh water lakes. Likewise, multivariate evaluations for the relationships between land use, nutrient export, and trophic condition, by lake class or use, are being developed to assist in the formulation of planning guidelines and policies by EPA and to augment plans implementation by the states.

ACKNOWLEDGMENT

The staff of the National Eutrophication Survey (Office of Research & Development, U. S. Environmental Protection Agency) expresses sincere appreciation to the Florida Department of Environmental Regulation for professional involvement and to the Florida National Guard for conducting the tributary sampling phase of the Survey.

Joseph W. Landers, Jr., Secretary of the Department of Environmental Regulation; John A Redmond, former Director of the Division of Planning, Technical Assistance, and Grants; and Dr. Tim S. Stuart, Chief of the Bureau of Water Quality, provided invaluable lake documentation and counsel during the survey, reviewed the preliminary reports, and provided critiques most useful in the preparation of this Working Paper series.

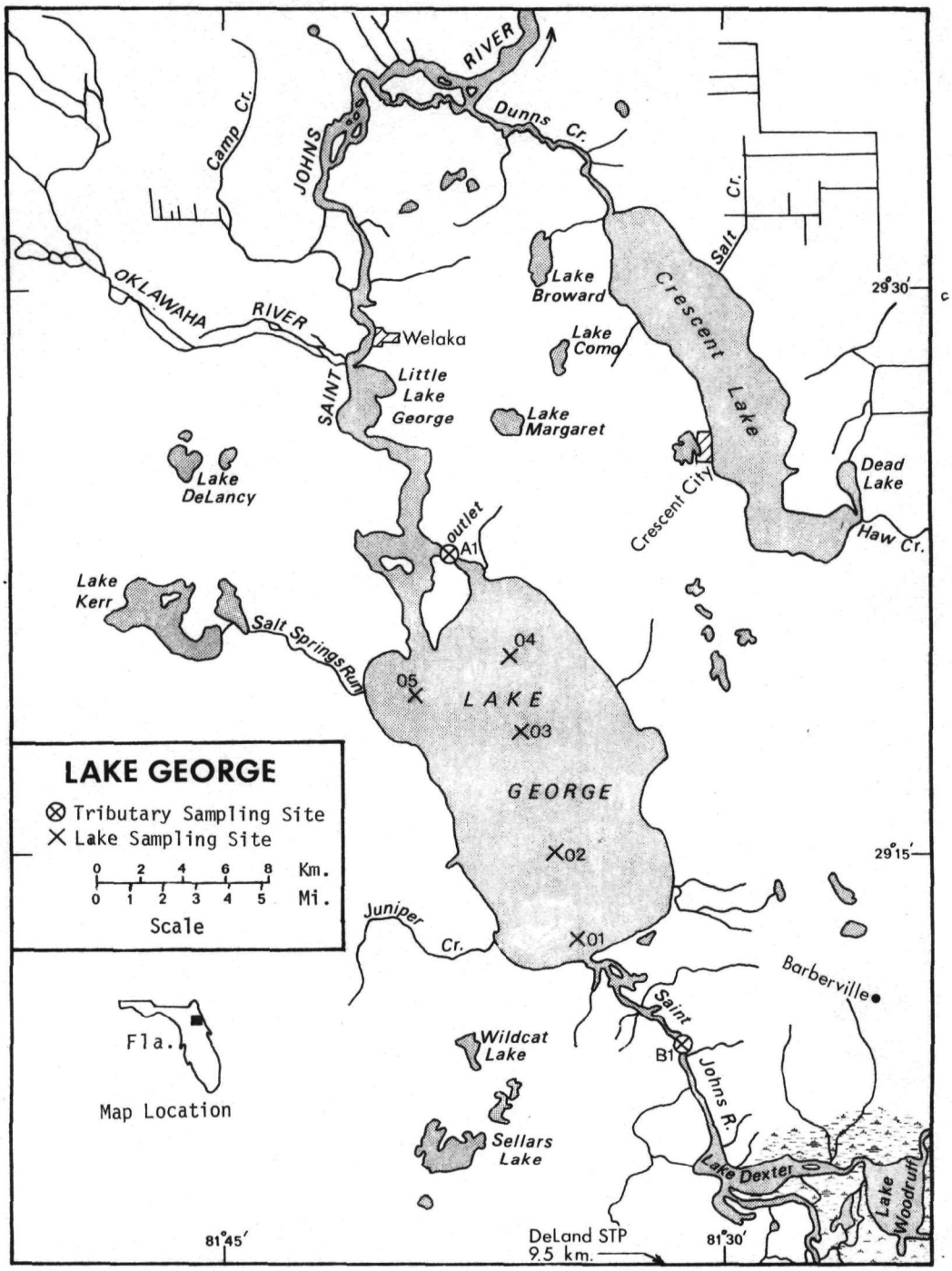
Major General Henry W. McMillan (Retired), then the Adjutant General of Florida, and Project Officer Colonel Hugo F. Windham, who directed the volunteer efforts of the Florida National Guard, are also gratefully acknowledged for their assistance to the Survey.

NATIONAL EUTROPHICATION SURVEY

STUDY LAKES

STATE OF FLORIDA

LAKE NAME	COUNTY
Alligator	Columbia
Apopka	Lake, Orange
Banana	Polk
Crescent	Flagler, Putnam
Doctors	Clay
Dora	Lake
East Tohopekaliga	Osceola
Effie	Polk
Eloise	Polk
George	Putnam, Volusia
Gibson	Polk
Glenada	Highlands
Griffin	Lake
Haines	Polk
Hancock	Polk
Horseshoe	Seminole
Howell	Orange, Seminole
Istokpoga	Highlands
Jessie	Polk
Jessup	Seminole
Kissimmee	Osceola
Lawne	Orange
Lulu	Polk
Marion	Polk
Minnehaha	Orange
Minneola	Lake
Monroe	Seminole, Volusia
Munson	Leon
Okeechobee	Glades, Hendry, Martin, Okeechobee, Palm Beach
Poinsett	Brevard, Orange, Osceola
Reedy	Polk
Seminole	Jackson, FL; Decatur, Seminole, GA
Seminole	Pinellas
South	Brevard
Talquin	Gadsden, Leon
Tarpon	Pinellas
Thonotosassa	Hillsborough
Tohopekaliga	Osceola
Trout	Lake
Weohyakapka	Polk
Yale	Lake


LAKE GEORGE
Tributary Sampling Site
Lake Sampling Site
0 2 4 6 8 Km.
0 1 2 3 4 5 Mi.
Scale
Fla.
Map Location
RIVER
JOHNS
Camp Cr.
Dunns Cr.
Salt Cr.
OKLAWAHA RIVER
Welaka
SAINT
Little Lake George
Lake Broward
Lake Como
Lake Margaret
Crescent Lake
Crescent City
Dead Lake
Haw Cr.
Lake DeLancy
outlet
A1
Lake Kerr
Salt Springs Run
04
05
03
02
01
LAKE GEORGE
Juniper Cr.
Barberville
Saint Johns R.
B1
Wildcat Lake
Sellars Lake
Lake Dexter
Lake Woodruff
29°30′
29°15′
81°45′
81°30′
DeLand STP
9.5 km.

LAKE GEORGE

STORET NO. 1210

I. CONCLUSIONS

A. Trophic Condition

Survey data indicate that Lake George is eutrophic. It ranked twenth-seventh in overall trophic quality when the 41 Florida lakes sampled in 1973 were compared using a combination of six water quality parameters*. Twenty-two of the lakes had less median total phosphorus, 23 had less median dissolved phosphorus, 18 had less and one had the same median inorganic nitrogen, 23 had less mean chlorophyll a, and 21 had greater mean Secchi disc transparency.

Survey limnologists reported abundant growths of hyacinths, particularly along the shoreline.

B. Rate-Limiting Nutrient:

The results of the algal assays indicate the primary productivity of Lake George was limited by nitrogen at the times the samples were collected (03/10 & 14/73). The lake data indicate nitrogen limitation at all sampling times.

C. Nutrient Controllability:

1. Point sources--At the time of the Survey, no known wastewater treatment plants discharged directly to Lake George. However, the lake is on the main channel of the St. Johns

* See Appendix A.

River which receives sewage effluents from several communities upstream from the lake. DeLand, about 23 kilometers upstream, is closest and accounted for a little over 2% of the total phosphorus load and less than 1% of the total nitrogen load to the lake during the sampling year. The nutrient contributions of the more-distant municipal point sources were not determined.

The sampling year phosphorus loading of 3.36 g/m^2 is four times that proposed by Vollenweider (Vollenweider and Dillon, 1974) as a eutrophic loading; and, although the critical level for Florida lakes may be somewhat higher than that suggested by Vollenweider (see page 14), the level of primary productivity and the abundance of macrophytes in the lake indicate the loading is excessive.

The persistent nitrogen limitation during Survey sampling, resulting from a combination of relatively low inorganic nitrogen concentrations (median = 0.165 mg/l) and rather high orthophosphorus levels (median = 0.063 mg/l), indicates nitrogen control might reduce the rate of eutrophication of the lake. However, emphasis during the Survey was on the controllability of phosphorus, and a more intensive study of the nitrogen budget of Lake George and an evaluation of the impact of the more-distant point sources are needed to determine the probable effects of point-source nitrogen control.

2. Non-point sources--It is estimated that non-point sources contributed nearly 98% of the total phosphorus and over 99% of

the total nitrogen inputs to Lake George during the sampling year.

The St. Johns River was the largest source of nutrients reaching the lake and accounted for about 89% of the total phosphorus and 91% of the total nitrogen inputs. Some of the nutrients in the river are contributed by wastewater treatment plants discharging upstream from Lake George, and there are non-point-source contributions resulting from the use of flood plains as pasturelands during the annual dry season.

II. LAKE AND DRAINAGE BASIN CHARACTERISTICS†

A. Morphometry††.

1. Surface area: 186.16 kilometers^2.
2. Mean depth: 3.0 meters.
3. Maximum depth: 4.5 meters.
4. Volume: 558.480 x 10^6 m^3.
5. Mean hydraulic retention time: 58 days.

B. Tributary and Outlet:
(See Appendix C for flow data)

1. Tributaries -

Name	Drainage area (km^2)*	Mean flow (m^3/sec)*
St. Johns River	8,831.9	102.20
Minor tributaries & immediate drainage -	720.3	8.41
Totals	9,552.2	110.61

2. Outlet -

St. Johns River	9,738.4**	110.61

C. Precipitation***:

1. Year of sampling: 128.7 centimeters.
2. Mean annual: 136.8 centimeters.

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† Table of metric conversions--Appendix B.
†† Morphometry from U.S. Coast and Geodetic Survey Navigational Map No. 687, "St. Johns River--Dunns Creek to Lake Dexter".
* For limits of accuracy, see Working Paper No. 175, "...Survey Methods 1973-1976".
** Includes area of lake.
*** See Working Paper No. 175.

III. WATER QUALITY SUMMARY

Lake George was sampled three times during 1973 by means of a pontoon-equipped Huey helicopter. Each time, samples for physical and chemical parameters were collected from two or more depths at five stations on the lake in the spring and summer and from three stations in the fall (see map, page v). During each visit, a single depth-integrated (near bottom to surface) sample was composited from the stations for phytoplankton identification and enumeration; and during the first visits, two 18.9-liter depth-integrated samples were composited for algal assays from stations 1-3, and one sample was composited from stations 4-5. Also each time, a depth-integrated sample was collected from each of the stations for chlorophyll a analysis. The maximum depths sampled were 1.8 meters at station 1, 4.0 meters at station 2, 3.0 meters at station 3, 2.4 meters at station 4, and 2.1 meters at station 5.

The sampling results are presented in full in Appendix D and are summarized in the following table.

A. SUMMARY OF PHYSICAL AND CHEMICAL CHARACTERISTICS FOR LAKE GEORGE
STORET CODE 1210

PARAMETER	1ST SAMPLING (3/10/73) 5 SITES RANGE	MEAN	MEDIAN	2ND SAMPLING (9/ 1/73) 5 SITES RANGE	MEAN	MEDIAN	3RD SAMPLING (11/ 8/73) 3 SITES RANGE	MEAN	MEDIAN
TEMP (C)	20.3 - 21.9	21.0	20.9	27.6 - 28.1	27.9	27.9	21.2 - 21.8	21.4	21.3
DISS OXY (MG/L)	5.4 - 7.2	6.8	7.1	4.0 - 6.2	4.9	5.0	6.8 - 7.2	6.9	6.8
CNDCTVY (MCROMO)	1020. - 1200.	1121.	1115.	1196. - 1468.	1279.	1244.	108. - 977.	609.	743.
PH (STAND UNITS)	7.4 - 7.9	7.7	7.7	7.3 - 8.0	7.5	7.5	7.3 - 7.6	7.4	7.4
TOT ALK (MG/L)	46. - 64.	53.	53.	51. - 56.	54.	54.	47. - 52.	50.	50.
TOT P (MG/L)	0.070 - 0.158	0.106	0.095	0.086 - 0.179	0.136	0.136	0.142 - 0.206	0.184	0.190
ORTHO P (MG/L)	0.036 - 0.105	0.058	0.048	0.032 - 0.124	0.066	0.057	0.092 - 0.115	0.101	0.099
NO2+NO3 (MG/L)	0.040 - 0.070	0.055	0.055	0.080 - 0.110	0.094	0.095	0.030 - 0.170	0.088	0.060
AMMONIA (MG/L)	0.060 - 0.120	0.092	0.095	0.080 - 0.140	0.116	0.120	0.050 - 0.100	0.065	0.055
KJEL N (MG/L)	0.900 - 1.300	1.058	1.000	1.400 - 2.300	1.830	1.850	1.700 - 2.000	1.860	1.900
INORG N (MG/L)	0.100 - 0.180	0.147	0.150	0.160 - 0.250	0.210	0.215	0.080 - 0.270	0.153	0.110
TOTAL N (MG/L)	0.950 - 1.370	1.113	1.060	1.500 - 2.390	1.924	1.945	1.860 - 2.040	1.932	1.930
CHLRPYL A (UG/L)	10.9 - 19.6	15.2	16.1	22.4 - 92.7	56.6	51.7	19.8 - 40.6	32.0	35.6
SECCHI (METERS)	0.8 - 0.9	0.9	0.9	0.9 - 0.9	0.9	0.9	0.4 - 0.5	0.4	0.5

B. Biological characteristics:

1. Phytoplankton -

Sampling Date	Dominant Genera	Algal units per ml
03/10/73	1. *Coscinodiscus sp.*	648
	2. *Cyclotella sp.*	617
	3. *Melosira sp.*	555
	4. *Nitzschia sp.*	247
	5. *Lyngbya sp.*	170
	Other genera	1,081
	Total	3,318
09/01/73	1. *Cyclotella sp.*	8,408
	2. *Oscillatoria sp.*	5,205
	3. *Anabaenopsis sp.*	5,005
	4. *Dactylococcopsis sp.*	3,604
	5. *Lyngbya sp.*	3,403
	Other genera	13,614
	Total	39,239
11/08/73	1. *Oscillatoria sp.*	9,907
	2. Flagellates	8,006
	3. *Raphidiopsis sp.*	3,235
	4. *Cyclotella sp.*	1,415
	5. *Melosira sp.*	1,415
	Other genera	12,007
	Total	35,985

2. Chlorophyll *a* -

Sampling Date	Station Number	Chlorophyll *a* (μg/l)
03/10/73	1	19.6
	2	16.7
	3	16.1
	4	12.6
	5	10.9

Sampling Date	Station Number	Chlorophyll a (μg/l)
09/01/73	1	22.4
	2	92.7
	3	66.8
	4	51.7
	5	49.5
11/08/73	1	-
	2	19.8
	3	-
	4	40.6
	5	35.6

C. Limiting Nutrient Study:

1. Stations 1, 2, and 3* -

a. Autoclaved, filtered, and nutrient spiked -

(1) Sample 1 -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum yield (mg/l-dry wt.)
Control	0.082	0.148	4.2
0.050 P	0.132	0.148	3.8
0.050 P + 1.0 N	0.132	1.148	19.9
1.0 N	0.082	1.148	18.1

(2) Sample 2 -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum yield (mg/l-dry wt.)
Control	0.168	0.206	4.8
0.050 P	0.218	0.206	5.1
0.050 P + 1.0 N	0.218	1.206	21.6
1.0 N	0.168	1.206	20.1

* Sample #1 collected March 10, 1973; sample #2 collected on March 14, 1973.

b. Filtered and nutrient spiked -

(1) Sample 1 -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum yield (mg/l-dry wt.)
Control	0.077	0.104	3.1
0.050 P	0.127	0.104	3.2
0.050 P + 1.0 N	0.127	1.104	19.7
1.0 N	0.077	1.104	18.5

(2) Sample 2 -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum yield (mg/l-dry wt.)
Control	0.140	0.160	3.8
0.050 P	0.190	0.160	3.8
0.050 P + 1.0 N	0.190	1.160	19.2
1.0 N	0.140	1.160	21.0

2. Stations 4 & 5* -

a. Autoclaved, filtered, and nutrient spiked -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum yield (mg/l-dry wt.)
Control	0.063	0.165	2.3
0.050 P	0.113	0.165	2.7
0.050 P + 1.0 N	0.113	1.165	13.1
1.0 N	0.063	1.165	11.4

b. Filtered and nutrient spiked -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum yield (mg/l-dry wt.)
Control	0.063	0.151	1.9
0.050 P	0.113	0.151	2.3
0.050 P + 0.5 N	0.113	1.151	11.7
1.0 N	0.063	1.151	11.6

* Sample collected March 10, 1973.

3. Discussion -

The control yields of the assay alga, Selenastrum capricornutum, indicate that the potential primary productivity of Lake George was moderately high at the time the assay samples were collected (March, 1973). Also, the lack of significant change in yields with increased levels of orthophosphorus and the increases in yield with increased levels of nitrogen indicate that nitrogen was the limiting nutrient at that time. The results for both samples, composite #1 (stations 1-3) and composite #2 (stations 4 and 5), were similar, as were the series in which the samples were both autoclaved and filtered before nutrient spiking and the series in which the samples were only filtered before nutrient spiking.

The lake data also indicate nitrogen limitation; i.e., the mean inorganic nitrogen/orthophosphorus ratios were 6/1 or less at all stations and sampling times, and nitrogen limitation would be expected.

IV. NUTRIENT LOADINGS
(See Appendix E for data)

For the determination of nutrient loadings, the Florida National Guard collected monthly near-surface grap samples from each of the tributary sites indicated on the map (page v). Sampling was begun in March, 1973, and was completed in February, 1974.

Through an interagency agreement, stream flow estimates for the year of sampling and a "normalized" or average year were provided by the Florida District Office of the U.S. Geological Survey for the tributary sites nearest the lake.

In this report, nutrient loads for sampled tributaries were determined by using a modification of a U.S. Geological Survey computer program for calculating stream loadings*. Nutrient loads shown are those measured minus point-source loads, if any.

Nutrient loads for unsampled "minor tributaries and immediate drainage" ("ZZ" of U.S.G.S.) were estimated using the nutrient loads, in $kg/km^2/year$, at station B-1 and multiplying by the ZZ area in km^2.

The operator of the DeLand wastewater treatment plant provided monthly effluent samples and corresponding flow data.

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* See Working Paper No. 175.

A. Waste Sources:

1. Known municipal -

Name	Pop. Served	Treatment	Mean Flow (m^3/d)	Receiving Water
DeLand*	12,000	tr. filter	4,603.6	St. Johns River

2. Known industrial - None

B. Annual Total Phosphorus Loading - Average Year:

1. Inputs -

Source	kg P/ yr	% of total
a. Tributaries (non-point load) -		
St. Johns River	557,155	89.1
b. Minor tributaries & immediate drainage (non-point load) -	45,380	7.3
c. Known municipal STP's -		
DeLand	14,100	2.3
d. Septic tanks** -	45	< 0.1
e. Known industrial - None	-	-
f. Direct precipitation*** -	8,190	1.3
Total	624,870	100.0

2. Outputs -

Lake outlet - St. Johns River 561,005

3. Net annual P accumulation - 63,865 kg.

* Treatment plant questionnaire.
** Estimate based on 156 lakeshore dwellings; see Working Paper No. 175.
*** Brezonik and Shannon, 1971.

C. Annual Total Nitrogen Loading - Average Year:

1. Inputs -

Source	kg N/ yr	% of total
a. Tributaries (non-point load) -		
St. Johns River	11,585,910	91.4
b. Minor tributaries & immediate drainage (non-point load) -	945,035	7.5
c. Known municipal STP's -		
DeLand	35,200	0.3
d. Septic tanks* -	1,665	< 0.1
e. Known industrial - None	-	-
f. Direct precipitation** -	107,975	0.8
Total	12,675,785	100.0

2. Outputs -

Lake outlet - St. Johns River 6,865,460

3. Net annual N accumulation - 5,810,325 kg.

D. Non-point Nutrient Export by Subdrainage Area:

Tributary	kg P/km^2/yr	kg N/km^2/yr
St. Johns River	63	1,312

* Estimate based on 156 lakeshore dwellings; see Working Paper No. 175.
** Brezonik and Shannon, 1971.

E. Yearly Loads:

In the following table, the existing phosphorus loadings are compared to those proposed by Vollenweider (Vollenweider and Dillon, 1974). Note, however, that Florida lakes may be able to assimilate phosphorus at a somewhat higher level than that suggested by Vollenweider (Shannon and Brezonik, 1972).

Essentially, Vollenweider's "dangerous" loading is one at which the receiving water would become eutrophic or remain eutrophic; his "permissible" loading is that which would result in the receiving water remaining oligotrophic or becoming oligotrophic of morphometry permitted. A mesotrophic loading would be considered one between "dangerous" and "permissible".

Vollenweider's model may not be applicable to water bodies with shore hydraulic retention times.

	Total Phosphorus		Total Nitrogen	
	Total	Accumulated	Total	Accumulated
grams/m^2/yr	3.36	0.34	68.1	31.2

Vollenweider phosphorus loading ($g/m^2/yr$) based on mean depth and mean hydraulic retention time of Lake George:	
"Dangerous" (eutrophic loading)	0.84
"Permissible" (oligotrophic loading)	0.42

V. LITERATURE REVIEWED

Brezonik, Patrick L., and Earl E. Shannon, 1971. Trophic state of lakes in north central Florida. Publ. No. 13, Water Resources Res. Center, U. of FL, Gainesville.

Shannon, Earl E., and Patrick L. Brezonik, 1972. Relationships between lake trophic state and nitrogen and phosphorus loading rates. Env. Sci. & Techn. 6 (8): 719-725.

Vollenweider, R. A., and P. J. Dillon, 1974. The application of the phosphorus loading concept to eutrophication research. Natl. Res. Council of Canada Publ. No. 13690, Canada Centre for Inland Waters, Burlington, Ontario.

VI. APPENDICES

APPENDIX A

LAKE RANKINGS

LAKE DATA TO BE USED IN RANKINGS

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500- MEAN SEC	MEAN CHLORA	15- MIN DO	MEDIAN DISS ORTHO P
1201	ALLIGATOR LAKE	0.620	0.260	474.000	87.733	13.100	0.386
1202	LAKE APOPKA	0.102	0.230	484.176	46.611	8.200	0.019
1203	LAKE BANANA	0.660	0.260	482.667	208.600	3.600	0.293
1206	LAKE CRESCENT	0.065	0.130	473.889	10.211	10.200	0.033
1207	DOCTORS LAKE	0.084	0.120	465.555	27.100	10.600	0.028
1208	LAKE DORA	0.102	0.240	482.889	59.978	7.400	0.022
1209	LAKE EFFIE	1.480	0.410	489.000	261.433	15.000	0.950
1210	LAKE GEORGE	0.129	0.165	469.308	35.000	11.000	0.063
1211	LAKE GIBSON	0.167	0.115	470.000	19.675	10.200	0.069
1212	GLENADA LAKE	0.134	0.165	454.167	27.667	14.700	0.072
1214	LAKE GRIFFIN	0.119	0.260	481.333	66.855	6.600	0.038
1215	LAKE HAINES	0.063	0.115	462.667	26.567	10.600	0.014
1217	LAKE HANCOCK	0.772	0.195	483.500	97.900	5.600	0.158
1219	LAKE HORSESHOE	0.034	0.130	459.000	12.067	11.500	0.023
1220	LAKE HOWELL	1.260	0.285	464.000	54.117	9.000	1.175
1221	LAKE ISTOKPOGA	0.039	0.120	464.222	6.594	8.600	0.010
1223	LAKE JESSUP	0.492	0.290	487.000	76.550	7.600	0.288
1224	LAKE KISSIMMEE	0.034	0.145	463.667	24.142	8.800	0.007
1227	LAKE LULU	1.490	1.065	483.000	276.566	14.300	1.030
1228	LAKE MARION	0.044	0.260	468.833	29.967	7.600	0.016
1229	LAKE MINNEHAHA	0.038	0.080	435.000	8.733	7.700	0.012
1230	LAKE MINNEOLA	0.018	0.070	406.333	3.333	7.400	0.009
1231	LAKE MONROE	0.188	0.300	474.555	14.225	10.800	0.128
1232	LAKE OKEECHOBEE	0.063	0.185	472.366	14.524	9.800	0.010
1234	LAKE POINSETT	0.085	0.150	469.000	6.500	10.600	0.051
1236	LAKE PEEDY	0.033	0.330	468.500	34.837	10.600	0.008
1238	LAKE SOUTH	0.074	0.130	464.000	23.167	9.000	0.028
1239	LAKE TALQUIN	0.085	0.290	462.167	9.483	14.400	0.031

LAKE DATA TO BE USED IN RANKINGS

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS ORTHO P
1240	LAKE THONOTOSASSA	0.695	0.095	466.167	37.700	10.200	0.565
1241	LAKE TOHOPEKALIGA	0.246	0.200	472.917	30.633	10.500	0.152
1242	TROUT LAKE	1.110	0.650	472.000	76.967	12.900	0.970
1243	LAKE WEOHYAKAPKA	0.047	0.080	458.667	7.767	8.200	0.011
1246	LAKE YALE	0.027	0.160	441.000	25.367	7.600	0.014
1247	LAKE MUNSON	1.475	0.925	486.667	140.317	12.200	0.852
1248	LAKE SEMINOLE	0.234	0.175	473.833	102.000	8.600	0.026
1249	LAKE LAWNE	2.560	1.350	494.667	84.900	10.400	0.117
1250	LAKE TARPON	0.041	0.070	400.889	6.867	9.000	0.027
1252	LAKE ELOISE	0.486	0.170	465.333	70.233	12.200	0.339
1258	LAKE JESSIE	0.051	0.090	452.667	26.300	10.800	0.011
1261	EAST LAKE TOHOPEKALIGA	0.042	0.070	440.833	5.167	9.400	0.007
1264	PAYNE'S PRAIRIE LAKE (NO	1.260	0.140	476.000	88.200	7.400	1.210

PERCENT OF LAKES WITH HIGHER VALUES (NUMBER OF LAKES WITH HIGHER VALUES)

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS ORTHO P	INDEX NO
1201	ALLIGATOR LAKE	25 (10)	29 (10)	30 (12)	18 (7)	10 (4)	18 (7)	130
1202	LAKE APOPKA	50 (20)	38 (15)	10 (4)	38 (15)	74 (29)	70 (28)	280
1203	LAKE BANANA	23 (9)	29 (10)	20 (8)	5 (2)	100 (40)	23 (9)	200
1206	LAKE CRESCENT	65 (26)	70 (27)	33 (13)	80 (32)	48 (18)	50 (20)	346
1207	DOCTORS LAKE	60 (24)	76 (30)	60 (24)	55 (22)	34 (12)	56 (22)	341
1208	LAKE DORA	53 (21)	35 (14)	18 (7)	33 (13)	90 (35)	68 (27)	297
1209	LAKE EFFIE	5 (2)	10 (4)	3 (1)	3 (1)	0 (0)	10 (4)	31
1210	LAKE GEORGE	45 (18)	54 (21)	48 (19)	43 (17)	23 (9)	43 (17)	256
1211	LAKE GIBSON	40 (16)	81 (32)	45 (18)	70 (28)	48 (18)	40 (16)	324
1212	GLENADA LAKE	43 (17)	54 (21)	85 (34)	53 (21)	3 (1)	38 (15)	276
1214	LAKE GRIFFIN	48 (19)	29 (10)	23 (9)	30 (12)	95 (38)	48 (19)	273
1215	LAKE HAINES	70 (28)	81 (32)	75 (30)	58 (23)	34 (12)	78 (31)	396
1217	LAKE HANCOCK	18 (7)	43 (17)	13 (5)	13 (5)	98 (39)	28 (11)	213
1219	LAKE HORSESHOE	93 (37)	70 (27)	80 (32)	78 (31)	20 (8)	65 (26)	406
1220	LAKE HOWELL	11 (4)	23 (9)	69 (27)	35 (14)	60 (23)	3 (1)	201
1221	LAKE ISTOKPOGA	85 (34)	76 (30)	65 (26)	93 (37)	69 (27)	89 (35)	477
1223	LAKE JESSUP	28 (11)	18 (7)	5 (2)	25 (10)	83 (32)	25 (10)	184
1224	LAKE KISSIMMEE	90 (36)	63 (25)	73 (29)	65 (26)	65 (26)	99 (39)	455
1227	LAKE LULU	3 (1)	3 (1)	15 (6)	0 (0)	8 (3)	5 (2)	34
1228	LAKE MARION	78 (31)	29 (10)	53 (21)	50 (20)	83 (32)	73 (29)	366
1229	LAKE MINNEHAHA	88 (35)	91 (36)	95 (38)	85 (34)	78 (31)	80 (32)	517
1230	LAKE MINNEOLA	100 (40)	98 (38)	98 (39)	100 (40)	90 (35)	93 (37)	579
1231	LAKE MONROE	38 (15)	15 (6)	28 (11)	75 (30)	26 (10)	33 (13)	215
1232	LAKE OKEECHOBEE	68 (27)	45 (18)	40 (16)	73 (29)	53 (21)	89 (35)	368
1234	LAKE POINSETT	58 (23)	60 (24)	50 (20)	95 (38)	34 (12)	45 (18)	342
1236	LAKE REEDY	95 (38)	13 (5)	55 (22)	45 (18)	34 (12)	95 (38)	337
1238	LAKE SOUTH	63 (25)	70 (27)	69 (27)	68 (27)	60 (23)	56 (22)	386
1239	LAKE TALQUIN	55 (22)	20 (8)	78 (31)	83 (33)	5 (2)	53 (21)	294

PERCENT OF LAKES WITH HIGHER VALUES (NUMBER OF LAKES WITH HIGHER VALUES)

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500- MEAN SEC	MEAN CHLORA	15- MIN DO	MEDIAN DISS ORTHO P	INDEX NO
1240	LAKE THONOTOSASSA	20 (8)	85 (34)	58 (23)	40 (16)	48 (18)	15 (6)	266
1241	LAKE TOHOPEKALIGA	33 (13)	40 (16)	38 (15)	48 (19)	40 (16)	30 (12)	229
1242	TROUT LAKE	15 (6)	8 (3)	43 (17)	23 (9)	13 (5)	8 (3)	110
1243	LAKE WEOHYAKAPKA	75 (30)	91 (36)	83 (33)	88 (35)	74 (29)	84 (33)	495
1246	LAKE YALE	98 (39)	58 (23)	90 (36)	63 (25)	83 (32)	75 (30)	467
1247	LAKE MUNSON	8 (3)	5 (2)	8 (3)	8 (3)	16 (6)	13 (5)	58
1248	LAKE SEMINOLE	35 (14)	48 (19)	35 (14)	10 (4)	69 (27)	63 (25)	260
1249	LAKE LAWNE	0 (0)	0 (0)	0 (0)	20 (8)	43 (17)	35 (14)	98
1250	LAKE TARPON	83 (33)	98 (38)	100 (40)	90 (36)	60 (23)	60 (24)	491
1252	LAKE ELOISE	30 (12)	50 (20)	63 (25)	28 (11)	16 (6)	20 (8)	207
1258	LAKE JESSIE	73 (29)	88 (35)	88 (35)	60 (24)	26 (10)	84 (33)	419
1261	EAST LAKE TOHOPEKALIGA	80 (32)	98 (38)	93 (37)	98 (39)	55 (22)	99 (39)	523
1264	PAYNE'S PRAIRIE LAKE (NO	11 (4)	65 (26)	25 (10)	15 (6)	90 (35)	0 (0)	206

LAKES RANKED BY INDEX NOS.

RANK	LAKE CODE	LAKE NAME	INDEX NO
1	1230	LAKE MINNEOLA	579
2	1261	EAST LAKE TOHOPEKALIGA	523
3	1229	LAKE MINNEHAHA	517
4	1243	LAKE WEOHYAKAPKA	495
5	1250	LAKE TARPON	491
6	1221	LAKE ISTOKPOGA	477
7	1246	LAKE YALE	467
8	1224	LAKE KISSIMMEE	455
9	1258	LAKE JESSIE	419
10	1219	LAKE HORSESHOE	406
11	1215	LAKE HAINES	396
12	1238	LAKE SOUTH	386
13	1232	LAKE OKEECHOBEE	368
14	1228	LAKE MARION	366
15	1206	LAKE CRESCENT	346
16	1234	LAKE POINSETT	342
17	1207	DOCTORS LAKE	341
18	1236	LAKE REEDY	337
19	1211	LAKE GIBSON	324
20	1208	LAKE DORA	297
21	1239	LAKE TALQUIN	294
22	1202	LAKE APOPKA	280
23	1212	GLENADA LAKE	276
24	1214	LAKE GRIFFIN	273
25	1240	LAKE THONOTOSASSA	266
26	1248	LAKE SEMINOLE	260
27	1210	LAKE GEORGE	256
28	1241	LAKE TOHOPEKALIGA	229

LAKES RANKED BY INDEX NOS.

RANK	LAKE CODE	LAKE NAME	INDEX NO
29	1231	LAKE MONROE	215
30	1217	LAKE HANCOCK	213
31	1252	LAKE ELOISE	207
32	1264	PAYNE'S PRAIRIE LAKE (NO	206
33	1220	LAKE HOWELL	201
34	1203	LAKE BANANA	200
35	1223	LAKE JESSUP	184
36	1201	ALLIGATOR LAKE	130
37	1242	TROUT LAKE	110
38	1249	LAKE LAWNE	98
39	1247	LAKE MUNSON	58
40	1227	LAKE LULU	34
41	1209	LAKE EFFIE	31

APPENDIX B

CONVERSION FACTORS

CONVERSION FACTORS

Hectares x 2.471 = acres

Kilometers x 0.6214 = miles.

Meters x 3.281 = feet

Cubic meters x 8.107×10^{-4} = acre/feet

Square kilometers x 0.3861 = square miles

Cubic meters/sec x 35.315 - cubic feet/sec

Centimeters x 0.3937 = inches

Kilograms x 2.205 = pounds

Kilograms/square kilometer x 5.711 = lbs/square mile

APPENDIX C

TRIBUTARY FLOW DATA

TRIBUTARY FLOW INFORMATION FOR FLORIDA 8/25/75

LAKE CODE 1210 LAKE GEORGE

TOTAL DRAINAGE AREA OF LAKE(SQ KM) 9738.4

TRIBUTARY	SUB-DRAINAGE AREA(SQ KM)	NORMALIZED FLOWS(CMS) JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
1210A1	9738.4	95.74	76.03	93.45	88.32	50.26	59.24	100.27	98.00	136.91	201.70	194.85	130.37	110.61
1210A2	8831.9	85.72	76.43	84.02	79.97	50.94	53.26	91.49	112.42	136.32	183.46	158.09	112.42	102.20
1210ZZ	725.2	7.05	6.29	6.91	6.57	4.19	4.39	7.50	9.23	11.19	15.06	13.00	9.23	8.40

SUMMARY

TOTAL DRAINAGE AREA OF LAKE = 9738.4 TOTAL FLOW IN = 1325.14
SUM OF SUB-DRAINAGE AREAS = 9557.1 TOTAL FLOW OUT = 1325.14

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
1210A1	3	73	98.94	18	136.29				
	4	73	91.44	14	100.47	13	99.00		
	5	73	43.07	0	0.0				
	6	73	32.45	16	-0.79	15	69.43		
	7	73	62.58	16	148.72	15	155.88		
	8	73	109.78	18	74.70	19	97.18		
	9	73	145.61	14	239.16	18	50.46		
	10	73	148.52	13	136.40	16	211.10		
	11	73	151.07	17	189.89	15	225.52		
	12	73	121.59	20	57.82				
	1	74	64.48	21	79.03				
	2	74	22.37	15	129.92	3	50.04		
1210A2	3	73	88.21	18	92.43				
	4	73	67.96	13	99.17	14	102.37		
	5	73	42.28	18	40.75				
	6	73	35.68	15	39.42	16	28.77		
	7	73	64.05	15	68.61	16	78.69		
	8	73	107.92	19	94.44	18	98.94		
	9	73	136.32	18	141.78	14	151.33		
	10	73	132.10	16	141.27	13	143.11		
	11	73	129.63	15	118.56	17	126.46		
	12	73	94.44	20	83.19				
	1	74	59.95	21	52.95				
	2	74	30.58	3	39.73	15	52.70		
1210ZZ	3	73	7.25	18	7.59				
	4	73	5.58	14	8.41	13	8.16		
	5	73	3.48	18	3.37				
	6	73	2.94	16	2.38	15	3.26		
	7	73	5.27	16	6.46	15	5.64		
	8	73	8.86	18	8.13	19	7.76		
	9	73	11.19	14	12.40	18	11.64		
	10	73	10.85	13	11.75	16	11.61		
	11	73	10.65	17	10.39	15	9.74		
	12	73	7.76	20	6.82				
	1	74	4.93	21	4.36				
	2	74	2.52	15	4.33	3	3.26		

APPENDIX D

PHYSICAL and CHEMICAL DATA

STORET RETRIEVAL DATE 75/08/25

121001
29 12 55.0 081 34 50.0
LAKE GEORGE
12127 FLORIDA

11EPALES 2111202
3 0008 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/03/10	09 50	0000	21.8		36	1150	7.50	46	0.080	1.000	0.050	0.105
	09 50	0004	21.7	5.4		1150	7.40	46	0.100	1.300	0.070	0.102
73/09/01	11 15	0000	28.1	4.2	35	1196	7.30	54	0.130	1.500	0.100	0.124
	11 15	0006	28.0	4.0		1197	7.30	54	0.120	1.400	0.100	0.111

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/03/10	09 50	0000	0.158	19.6
	09 50	0004	0.153	
73/09/01	11 15	0000	0.179	22.4
	11 15	0006	0.168	

STORET RETRIEVAL DATE 75/08/25

121002
29 15 00.0 081 35 00.0
LAKE GEORGE
12127 FLORIDA

11EPALES 2111202
3 0011 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/03/10	10 35	0000	20.9		36	1115	7.60	50	0.060	1.000	0.040	0.062
	10 35	0004	20.9	7.0		1115	7.60	50	0.080	1.000	0.050	0.067
	10 35	0007	20.9	7.1		1200	7.60	51	0.070	0.900	0.050	0.064
73/09/01	11 00	0000	27.6	6.2	34	1221	8.00	51	0.090	2.100	0.090	0.064
	11 00	0013	27.6	6.0		1222	7.80	56	0.080	2.100	0.080	0.058
73/11/08	08 30	0000	21.4		15	742	7.40	50	0.100	1.700	0.170	0.108
	08 30	0006	21.3	7.2		743	7.30	47	0.080		0.170	0.100

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/03/10	10 35	0000	0.113	16.7
	10 35	0004	0.124	
	10 35	0007	0.096	
73/09/01	11 00	0000	0.167	92.7
	11 00	0013	0.161	
73/11/08	08 30	0000	0.142	19.8

STORET RETRIEVAL DATE 75/08/25

121003
29 24 30.0 081 36 10.0
LAKE GEORGE
12127 FLORIDA

11EPALES 2111202
3 0013 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/03/10	11 00	0000	20.3		30	1100	7.80	64	0.100	1.200	0.050	0.036
	11 00	0005	20.4	7.2		1090	7.80	52	0.110	1.200	0.060	0.036
	11 00	0009	20.3	7.1		1100	7.70	53	0.120	1.000	0.060	0.040
73/09/01	10 40	0000	28.0	4.8	34	1264	7.50	52	0.110	2.300	0.090	0.056
	10 40	0010	27.9	4.0		1263	7.40	54	0.140	1.600	0.100	0.054

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/03/10	11 00	0000	0.092	16.1
	11 00	0005	0.091	
	11 00	0009	0.095	
73/09/01	10 40	0000	0.131	66.8
	10 40	0010	0.141	

STORET RETRIEVAL DATE 75/08/25

121004
29 20 00.0 081 36 20.0
LAKE GEORGE
12127 FLORIDA

11EPALES 2111202
3 0009 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/03/10	13 25	0000	20.6		34	1020	7.90	57	0.100	1.100	0.060	0.043
	13 25	0005	20.5	7.1		1020	7.90	59	0.100	1.000	0.060	0.040
73/09/01	10 25	0000	28.1	5.1	36	1467	7.50	52	0.090	2.000	0.080	0.032
	10 25	0008	28.1	5.0		1468	7.50	53	0.120	1.600	0.090	0.036
73/11/08	09 00	0000	21.3		19	977	7.50	50	0.050	1.900	0.030	0.092
	09 00	0006	21.2	6.8		976	7.60	52	0.060	2.000	0.040	0.095

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/03/10	13 25	0000	0.095	12.6
	13 25	0005	0.070	
73/09/01	10 25	0000	0.086	51.7
	10 25	0008	0.097	
73/11/08	09 00	0000	0.183	40.6
	09 00	0006	0.200	

STORET RETRIEVAL DATE 75/08/25

121005
29 19 15.0 081 39 10.0
LAKE GEORGE
12127 FLORIDA

11EPALES 2111202
3 0010 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/03/10	14 00	0000	21.9		36	1190	7.80	55	0.090	1.000	0.050	0.046
	14 00	0006	21.8	6.8		1200	7.80	55	0.090	1.000	0.060	0.051
73/09/01	09 55	0000	27.8	5.0	36	1242	7.70	56	0.140	2.000	0.100	0.079
	09 55	0007	27.9	5.0		1245	7.40	54	0.140	1.700	0.110	0.049
73/11/08	08 45	0000	21.8		18	108	7.40	49	0.050	1.900	0.060	0.115
	08 45	0006	21.7	6.8		108	7.30	49	0.050	1.800	0.060	0.099

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/03/10	14 00	0000	0.087	10.9
	14 00	0006	0.099	
73/09/01	09 55	0000	0.129	49.5
	09 55	0007	0.098	
73/11/08	08 45	0000	0.206	35.6
	08 45	0006	0.190	

APPENDIX E

TRIBUTARY AND WASTEWATER TREATMENT PLANT DATA

STORET RETRIEVAL DATE 75/08/25

1210A1
29 23 00.0 081 38 30.0
ST JOHNS RIVER
12105 PUTNAM CO HWY MA
O/LAKE GEORGE
AT FERRY LANDING IN GEORGETOWN
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/18	16 30		0.120	3.700	0.130	0.093	0.165
73/04/14	15 00		0.018	1.300	0.064	0.079	0.135
73/06/16	13 30		0.010K	3.600	0.054	0.035	0.280
73/07/16	11 15		0.026	1.400	0.032	0.044	0.115
73/08/18	11 30		0.010K	1.000	0.035	0.046	0.100
73/09/14	11 15		0.010K	1.900	0.098	0.082	0.160
73/10/13	10 45		0.063	1.700	0.110	0.175	0.190
73/11/17	11 30		0.076	1.650	0.040	0.104	0.175
74/01/21	15 30		0.120	1.400	0.095	0.064	0.145
74/02/15			0.004	1.400	0.015	0.055	0.130

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/08/25

1210A2
29 10 00.0 081 31 30.0
ST JOHNS RIVER
12 VOLUSIA CO HWY M
I/LAKE GEORGE
ST HWY 40 BRDG IN VOLUSIA
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/18	14 15		0.084	1.600	0.057	0.110	0.150
73/04/13	10 45		0.013	3.000	0.830	0.087	0.135
73/05/18	16 10		0.014	2.650	0.120	0.110	0.165
73/06/15	12 00		0.100	5.100	0.126	0.075	0.165
73/07/15	07 07		0.011	2.200	0.066	0.147	0.220
73/08/19	07 25		0.010K	1.050	0.027	0.160	0.210
73/09/18	12 00		0.176	7.350	0.380	0.180	0.220
73/10/16	11 15		0.147	4.600	0.273	0.131	0.175
73/11/15	12 50		0.124	4.000	0.168	0.096	0.145

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/08/25

1210AA TF1210AA P012000
29 00 00.0 081 05 00.0
DELAND
12105 VOLUSIA CO HWY M
T/LAKE GEORGE
ST JOHNS RIVER
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/04/17	08 00								
CP(T)-			0.240	27.000	12.200	8.400	10.000	1.200	1.200
73/04/17	24 00								
73/05/30	08 00								
CP(T)-			0.891	23.100	7.350	7.530	9.300	1.200	1.200
73/05/30	22 00								
73/07/10	00 00								
CP(T)-			0.600	22.000	5.700	8.300	10.000	1.200	1.200
73/07/10	16 00								
73/08/30	08 00								
CP(T)-			0.022	27.000			10.500	1.200	1.200
73/08/30	12 00								
73/12/05	10 00		3.200	19.300	4.500	7.000	8.225	1.200	1.200
74/01/31	14 00		1.480	26.000	10.300	6.700	8.700	1.200	1.200
74/04/01	09 00		1.000	9.200	7.000	7.600	8.800	1.120	1.210
74/07/09	10 00		0.080	16.000	0.160	2.800	3.700	1.200	1.200
74/08/13	08 00								
CP(T)-			0.160	20.000	3.400	7.000	8.500	1.100	1.200
74/08/13	22 00								
74/09/09	14 00		1.600	7.500	8.800	6.500	7.500	1.200	1.200
74/10/04	09 00		0.200	20.000	5.750	6.000	7.500	1.200	1.200
74/11/01	12 00		0.400	30.000	14.000	5.800	7.600	1.300	1.300
74/12/10	09 15		0.240	14.000	8.400	5.900	8.800	1.300	1.300