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BY

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SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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Limnological Investigations of Seven Lakes in the Istokpoga Drainage Basin

by

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January 1978

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INTRODUCTION

Limnological investigations were undertaken in seven lakes to secure a data base of the physical, chemical and biological characteristics of the surface water resources in the Lake Istokpoga drainage basin. This report assesses the present condition of the area, and will assist in the evaluation of future changes in water uses and management techniques.

The Lake Istokpoga drainage basin includes about 1700 km^2 (650 mi^2) of land in Highlands and southern Polk Counties (Figure 1). This basin originates on the Highlands Ridge in the vicinity of Lake Clinch to the north and Lake Annie to the south. More than forty lakes are located within the basin. Many of these are connected by natural streams and creeks, or improved channels and canals. Other lakes are karst in formation (Kohout and Meyer, 1959) and isolated. A list of all lakes over 20 ha (50 acres) in surface area in the Istokpoga Basin is presented in Table 1.

The primary land use in the basin is agricultural. Citrus groves are abundant on the sandy Highlands Ridge while the lower flatland region is dominated by improved pasture. Winter truck crops and ornamental plant production are also important to the area. Four major population centers are the towns of Sebring, Avon Park, Lake Placid and Frostproof. Water based recreation in the lakes of the area is important to the local economies.

Besides recreational uses, surface water in the basin is used for some domestic water supply, and irrigation of citrus groves, pastures and truck crops. Surface water from Lake Istokpoga flows to Lake Okeechobee. A small portion flows first to the Kissimmee River via the Istokpoga Canal. Major regulatory releases from Lake Istokpoga are controlled by S-68 and flow to Lake Okeechobee via C-41A, Indian Prairie and Harney Pond Canals. This

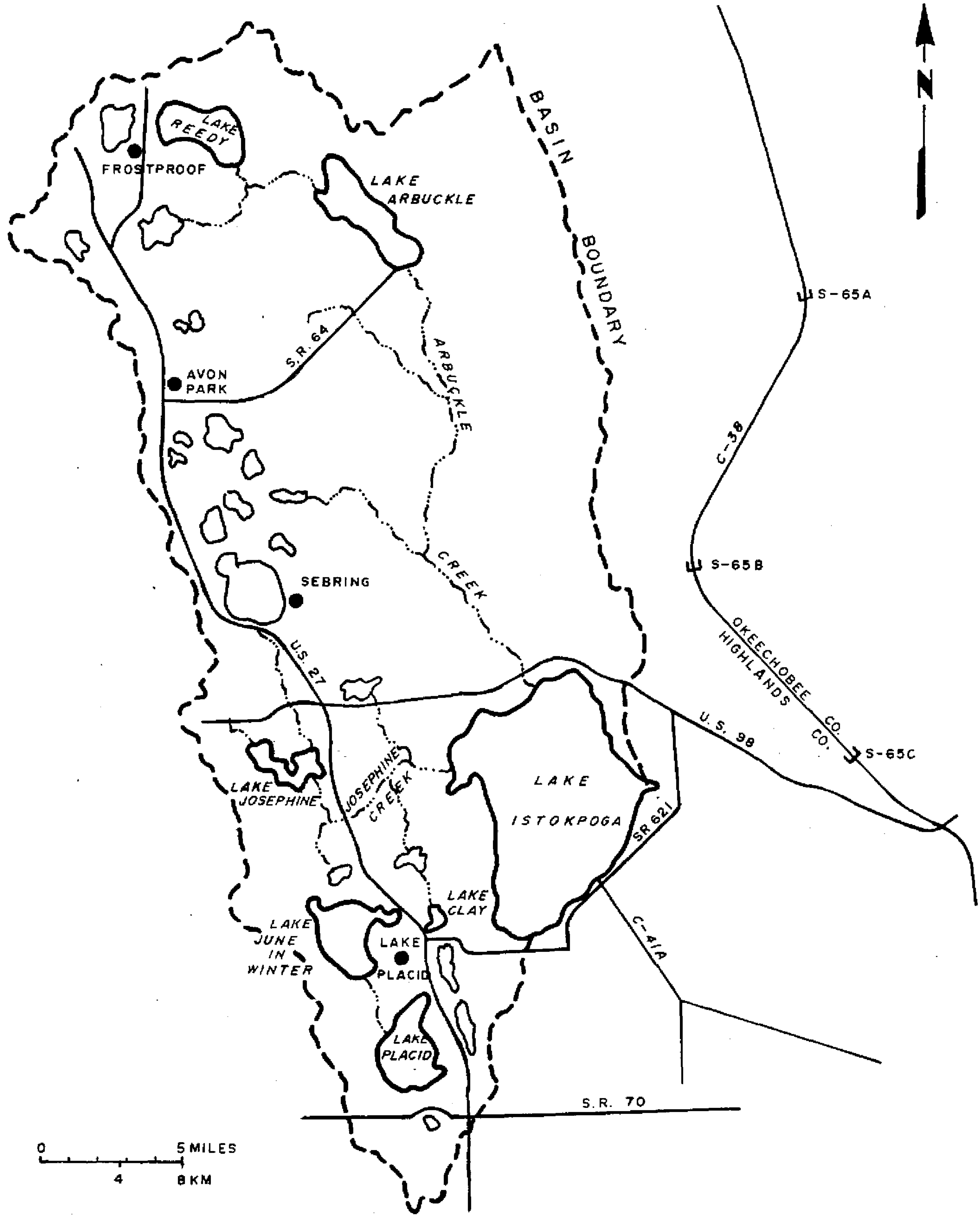


Figure I LAKE ISTOKPOGA DRAINAGE BASIN AND STUDY LAKES

TABLE 1. ISTOKPOGA BASIN LAKES OVER 20 HECTARES (50 ACRES) SURFACE AREA.

Name	Surface Area ha	(acres)	Elevation Ft msl	1=isolated 2=surface water connection
HIGHLANDS COUNTY				
Annie	35	(86)	111	2
Apthorpe	89	(219)	69	2
Bonnet	105	(260)	91	2
Bonney Bloom Pond	36	(88)	58	2
Carrie	26	(65)	76	2
Charlotte	83	(204)	91	2
Clay	149	(367)	78	2
Damon	114	(282)	102	1
Dinner	153	(379)	101	1
Francis	218	(539)	70	2
Glenada	72	(177)	115	1
Grassy	209	(517)	90	1
Henry	26	(64)	74	1
Huckleberry	48	(119)	105	2
Huntley	275	(680)	83	2
Isis	21	(53)	115	1
Istokpoga	11207	(27,692)	38	2
Jackson	1381	(3,412)	102	2
Josephine	500	(1,236)	71	2
June-in-Winter	1418	(3,504)	73	2
Lelia	67	(165)	112	1
Letta	193	(478)	99	2
Little Red Water	133	(329)	104	2
Lotela	325	(802)	106	2
Mirrow	39	(97)	92	2
Placid	1344	(3,320)	92	2
Pythias	129	(318)	101	2
Red Beach	136	(335)	76	2
Ruth	34	(83)	91	1
Sebring	189	(468)	107	2
Sirena	62	(153)	86	2
Viola	30	(73)	112	1
Wolf	49	(122)	92	2
POLK COUNTY				
Arbuckle	1549	(3,828)	53	2
Clinch	488	(1,207)	103	1
Hickory	40	(100)	98	1
Ida	34	(83)	79	2
Isabell	38	(95)	93	2
Livingston	487	(1,203)	87	2
Reedy	1411	(3,486)	78	2
Silver	53	(130)	102	1
Streety	130	(321)	105	2
Trout	58	(143)	102	1

system supplies substantial water for irrigation in the Indian Prairie area (Storch, 1974). The Lake Istokpoga Basin constitutes about 15% of the total drainage area to Lake Okeechobee. Discharge from S-68 accounts for 11.5% of the surface water inflow into Lake Okeechobee (Davis and Marshall, 1975).

DESCRIPTION OF THE STUDY LAKES

Seven lakes were selected for detailed study to represent the range of conditions occurring within lakes of the basin. Descriptions are from personal observations and Florida Lakes (1969), United States Geological Survey (USGS) (1975), Kenner (1964), and South Florida Water Management District (SFWMD) files.

1. Lake Istokpoga is the largest lake in the basin with a surface area of 112 km^2 (43.27 mi^2). Lake Istokpoga is the third largest lake in the SFWMD and the fifth largest in the state. Water levels, controlled by SFWMD Structure 68 (S-68), are regulated between 37.5 and 39.5 ft msl. The lake is relatively shallow; its deepest contour is about 29 ft msl and average bottom elevation is about 33.5 ft msl. Josephine Creek flows into Lake Istokpoga from the west, draining the Highlands Ridge area from Sebring to Lake Placid. Arbuckle Creek drains primarily improved pasture from the north.

2. Lake Arbuckle lies at the head of Arbuckle Creek, about 24 km (17 mi) north of Lake Istokpoga. At an average stage of 53 ft msl, the lake surface area is 15.5 km^2 (5.98 mi^2). Lake Arbuckle is also shallow, with average bottom elevation about 48 ft msl and the deepest portion about 44 ft msl. Reedy Creek flows from Reedy Lake into the northwest corner of Lake Arbuckle. The Blue Jordan Swamp flows into the north and northeast

portion of Lake Arbuckle. The surrounding land is undeveloped swamp and pineland except for a few trailers and cottages associated with an Air Force Base at the south end of the lake. Water levels in Lake Arbuckle are unregulated and are dependent on inflows and the capacity of Arbuckle Creek to drain off excess water.

3. Reedy Lake lies upstream of Lake Arbuckle and is located east of the town of Frostproof. At an average stage of 78 ft msl, Reedy Lake has a surface area of 14.1 km^2 (5.45 mi^2). The average depth is about 4 m (13 ft) with a maximum depth of about 5 m (16 ft). Reedy Lake is surrounded primarily by citrus groves and lakeshore residences. The Ben Hill Griffith citrus processing plant and the Frostproof municipal waste water treatment plant on the west shoreline collectively discharge about 19,000 m^3/day (15.5 ac-ft/day) of treated effluent into the lake (Federico, 1975). Water level in the lake is controlled by a sandbar or removable boards in a concrete structure near the head of Reedy Creek (USGS, 1975).

4. Lake Placid (formerly Lake Childs) is situated on the Highlands Ridge near the southern boundary of the Istokpoga drainage basin. Lake Placid has an average water surface elevation of 92 ft msl and a surface area of 13.4 km^2 (5.19 mi^2). Lake Placid is the deepest of the seven lakes studied, with an average depth of about 8 m (27 ft), and a maximum depth of about 17 m (57 ft). Water flows into Lake Placid from Lake Annie to the south and a small creek from the southwest. The major outflow is to Lake June-in-Winter via Catfish Creek on the west. High lake stages are controlled by 3 culverts set at 93 ft msl (invert) in Catfish Creek. Land use around Lake Placid consists of about equal portions of citrus, residential and undeveloped native land.

5. Lake June-in-Winter (formerly Lake Stearns) is located atop the Highlands Ridge, immediately downstream of Lake Placid, and about 5.5 km (3.5 mi) west of Lake Istokpoga. The surface area of Lake June-in-Winter is 14.2 km^2 (5.48 mi^2) at elevation 73 ft msl. Lake June-in-Winter is another deep lake in the basin, with an average depth of about 6 m (20 ft) and a maximum depth of 12 m (38 ft). Water flows into Lake June-in-Winter from Lake Placid and out through Stearns Creek to the north. Lake level is controlled by a vertical lift gate structure, G-90, in Stearns Creek. The regulation schedule attempts to maintain lake levels between 73.5 and 74.5 ft msl. Land use along the northern and southern shores is residential; citrus occupies the eastern shoreline; and the west shore is dominated by native pine and palmetto.

6. Lake Clay is situated about 1 km (0.6 mi) east of Lake June-in-Winter and has an area of 148 ha (367 acres) at surface elevation of 78 ft msl. Lake Clay is in the "lower chain of lakes" (Kohout and Meyer, 1959) in Highlands County which drain northward into Josephine Creek and then to Lake Istokpoga. The average depth in Lake Clay is about 4 m (14 ft), and there are two areas where depths exceed 8 m (25 ft). Lake Clay is almost completely surrounded by residential development.

7. Lake Josephine is located on the Highlands Ridge about 7 km (4.5 mi) north of Lake June-in-Winter and west of Lake Istokpoga. At an average stage of 71 ft msl, Lake Josephine has a surface area of 5 km^2 (1.93 mi^2). The lake is relatively shallow with a uniform bottom elevation of about 65 ft msl. Wolf Creek flows into Lake Josephine from the west, and Jackson Creek from the east. The lake stage is controlled by a fixed crest weir in Josephine Creek just downstream from the lake. Residential development

borders most of the south side of Lake Josephine while the area to the north is improved pasture and native pineland.

MATERIALS AND METHODS

Sampling and data collection were initiated in August 1973 and continued through September 1976. The original emphasis was water quality sampling of Lake Istokpoga. The program was expanded until a total of seven lakes were included in a routine sampling schedule. Field sampling included measurements of the physical and chemical constituents of the water, and biological measurements in the benthic, littoral and limnetic habitats. Hydrological data has been summarized from available sources. Lake maps and bottom contour drawings were adapted from U.S. Army Corps of Engineers (undated), Kenner (1964) and personal observations.

Sampling Locations and Frequencies

Sampling stations were selected on each lake to represent average conditions and special circumstances such as major inflows and outflows. Sample stations were located in the field by reference to conspicuous landmarks and shoreline configurations. The locations of sample stations are shown in Figures 2 to 8. Stations 006, 011 and 015 on Lake Istokpoga were deleted after the first year.

Physical parameters, water quality and primary productivity were monitored on each lake at three month intervals. Investigations of the benthic and littoral habitats were conducted when time permitted.

Water Chemistry

Dissolved oxygen, temperature, pH and specific conductivity profiles were obtained with a Hydrolab^R Surveyor Model 6D at selected stations on

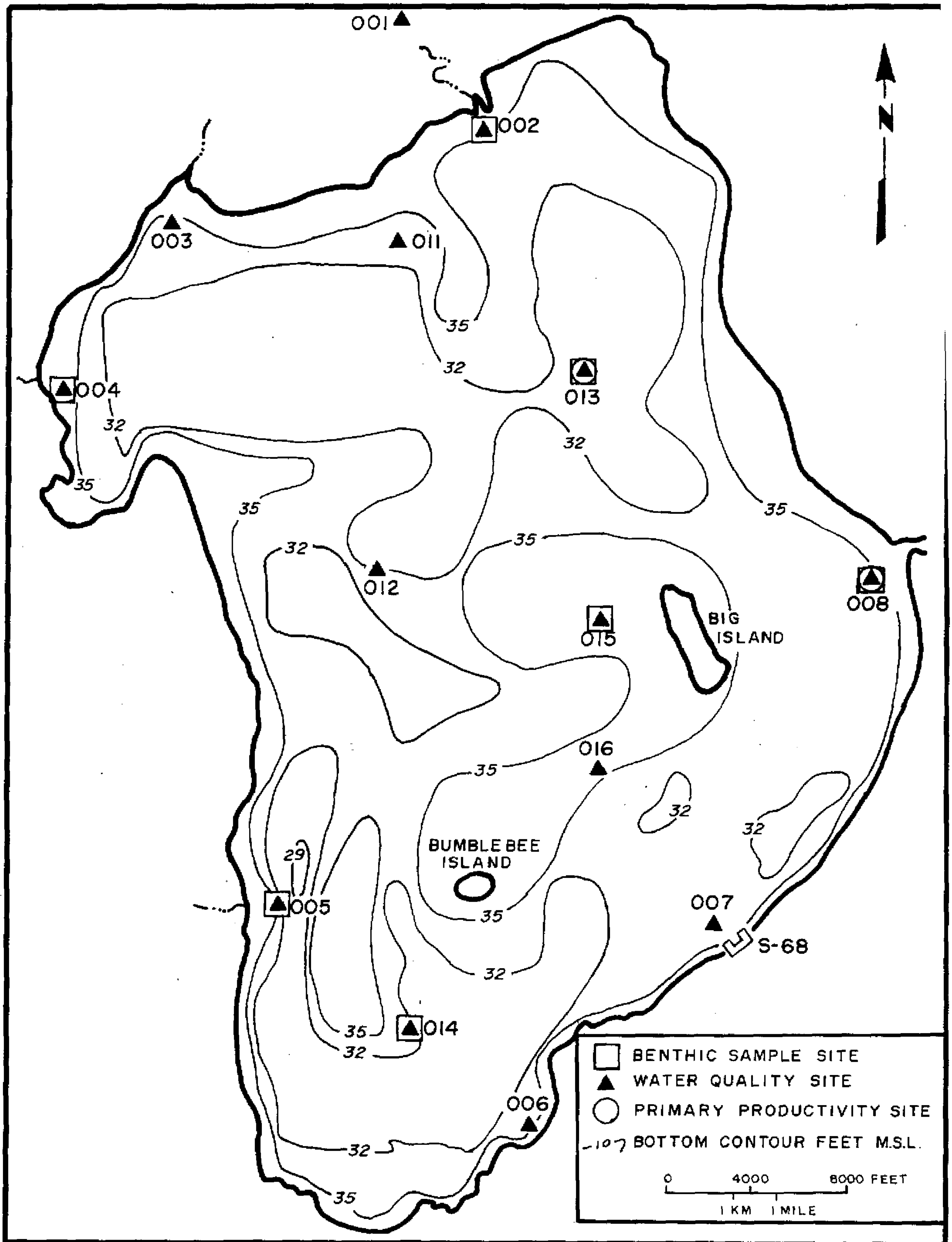


Figure 2 LAKE ISTOKPOGA SAMPLE LOCATIONS AND BOTTOM CONTOURS

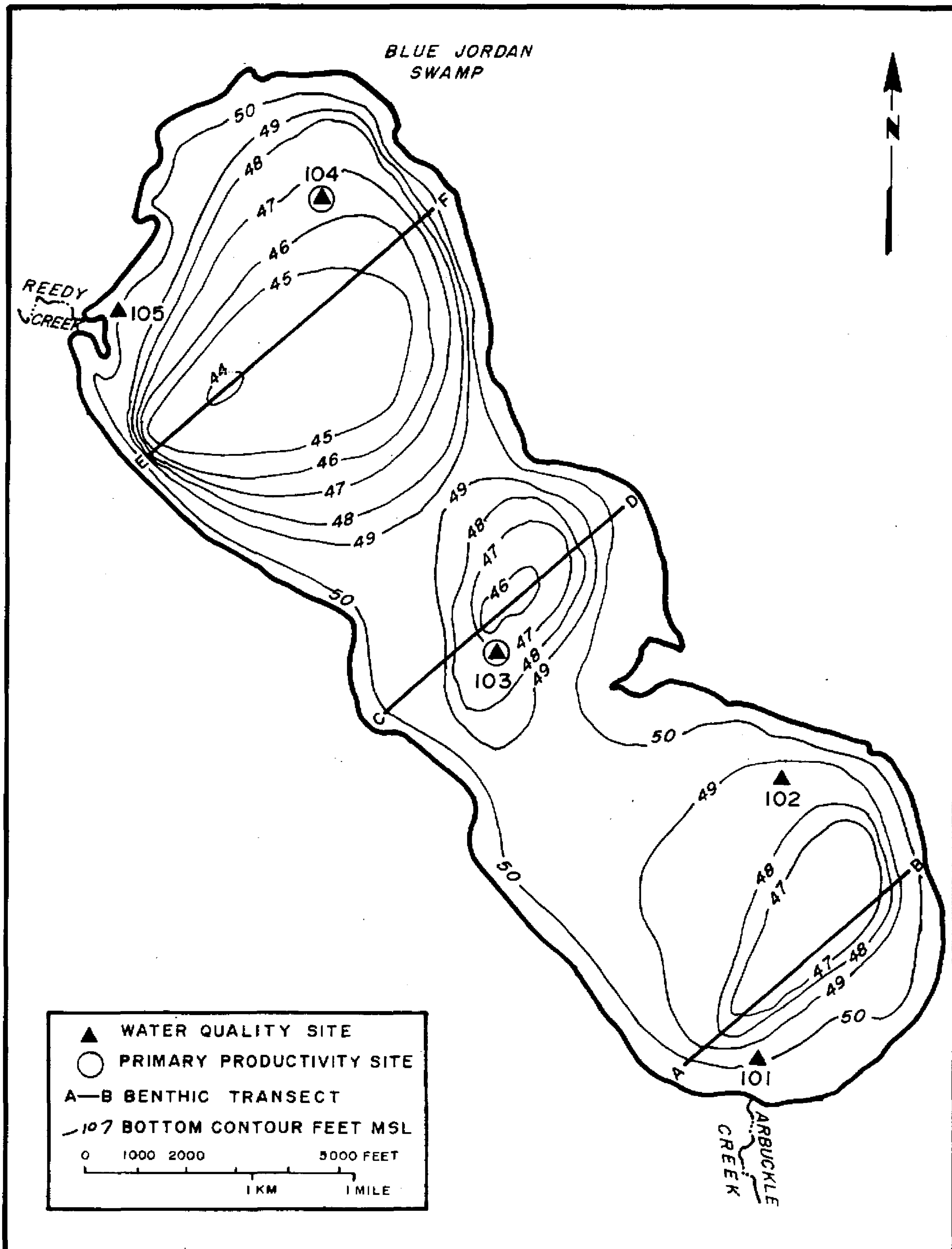
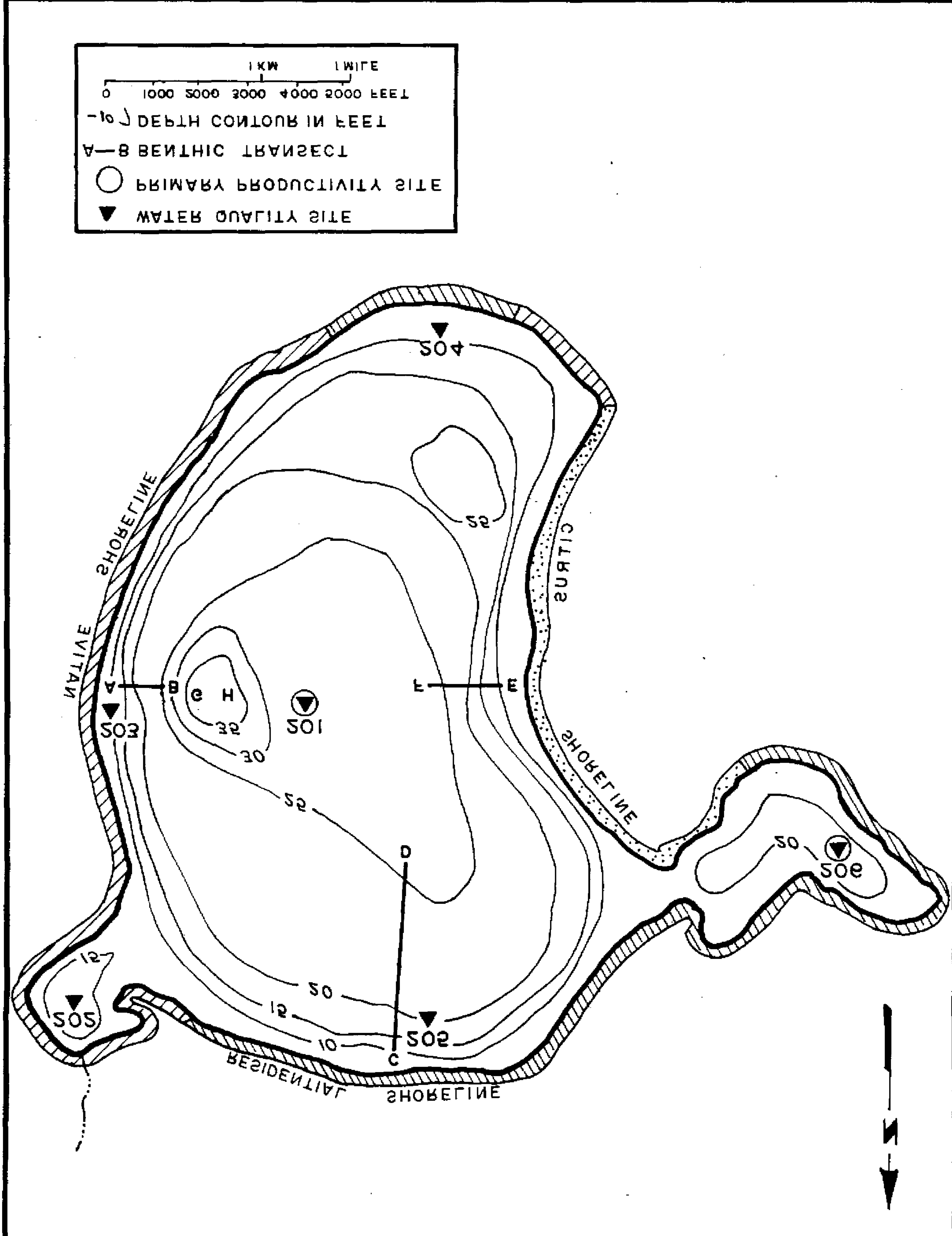


Figure 3 LAKE ARBUCKLE SAMPLE LOCATIONS AND BOTTOM CONTOURS

Figure 4 LAKE JUNE-IN-WINTER SAMPLE LOCATIONS AND APPROXIMATE DEPTH CONTOURS



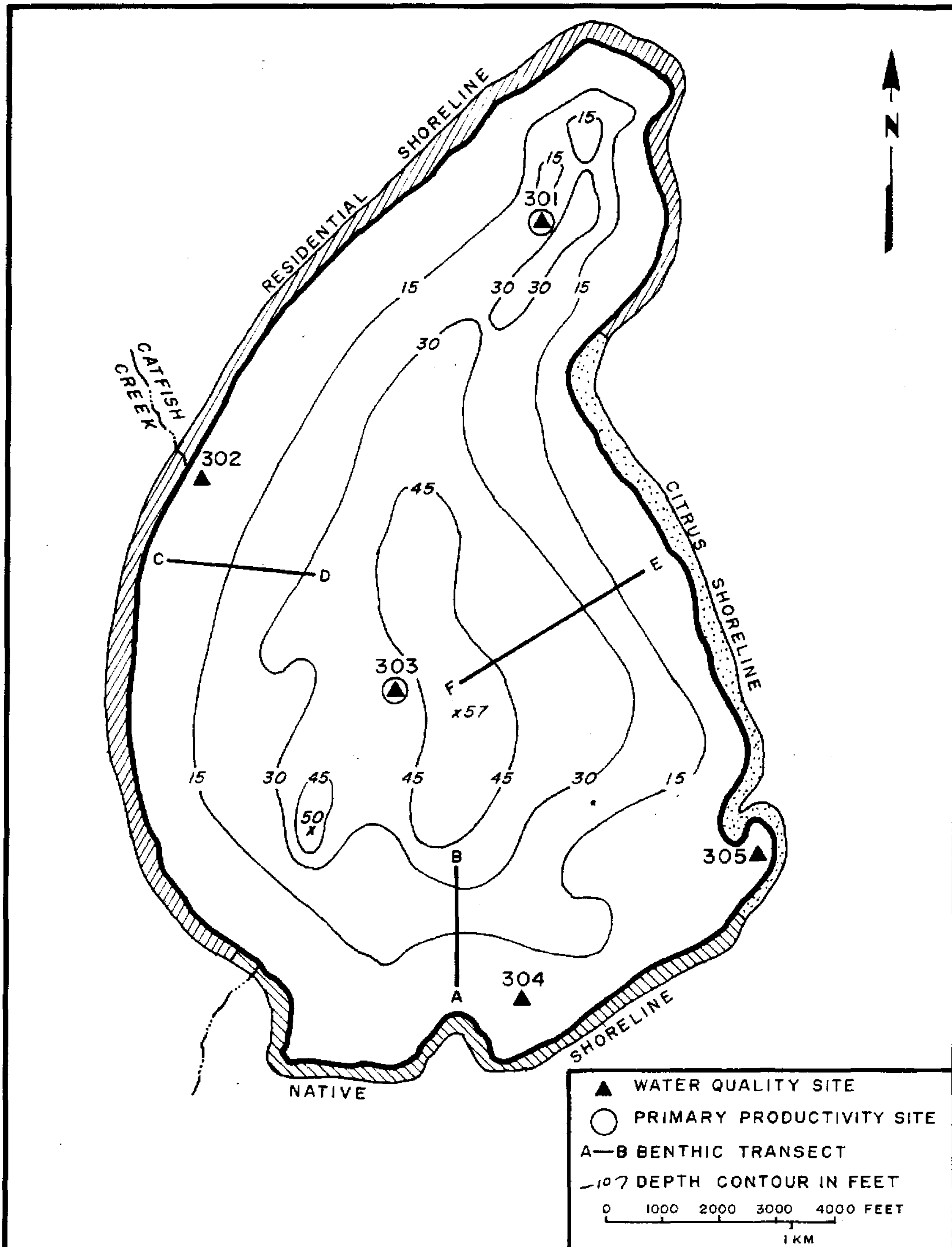


Figure 5 LAKE PLACID SAMPLE LOCATIONS AND APPROXIMATE DEPTH CONTOURS

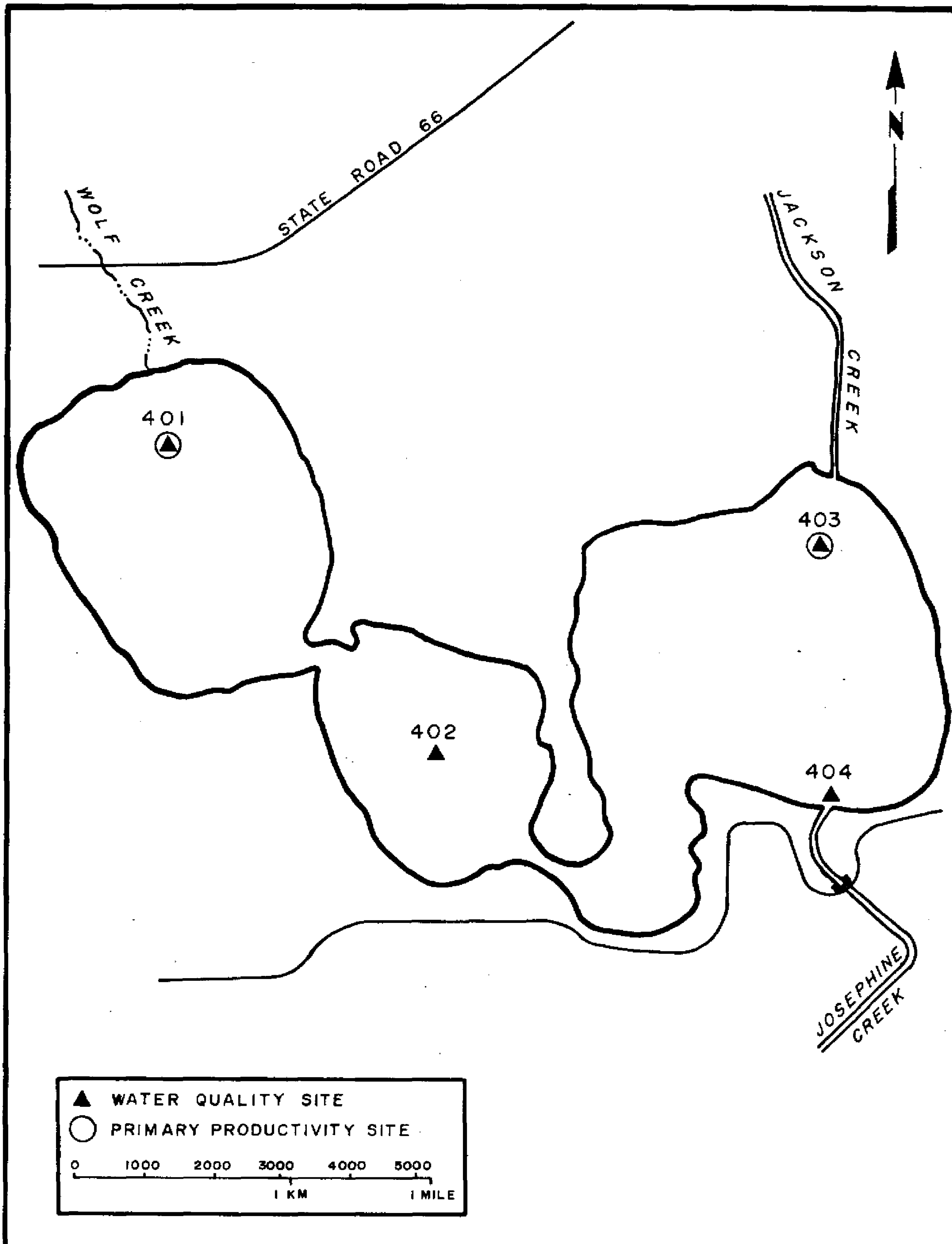


Figure 6 LAKE JOSEPHINE WATER QUALITY AND PRIMARY PRODUCTIVITY SAMPLE LOCATIONS

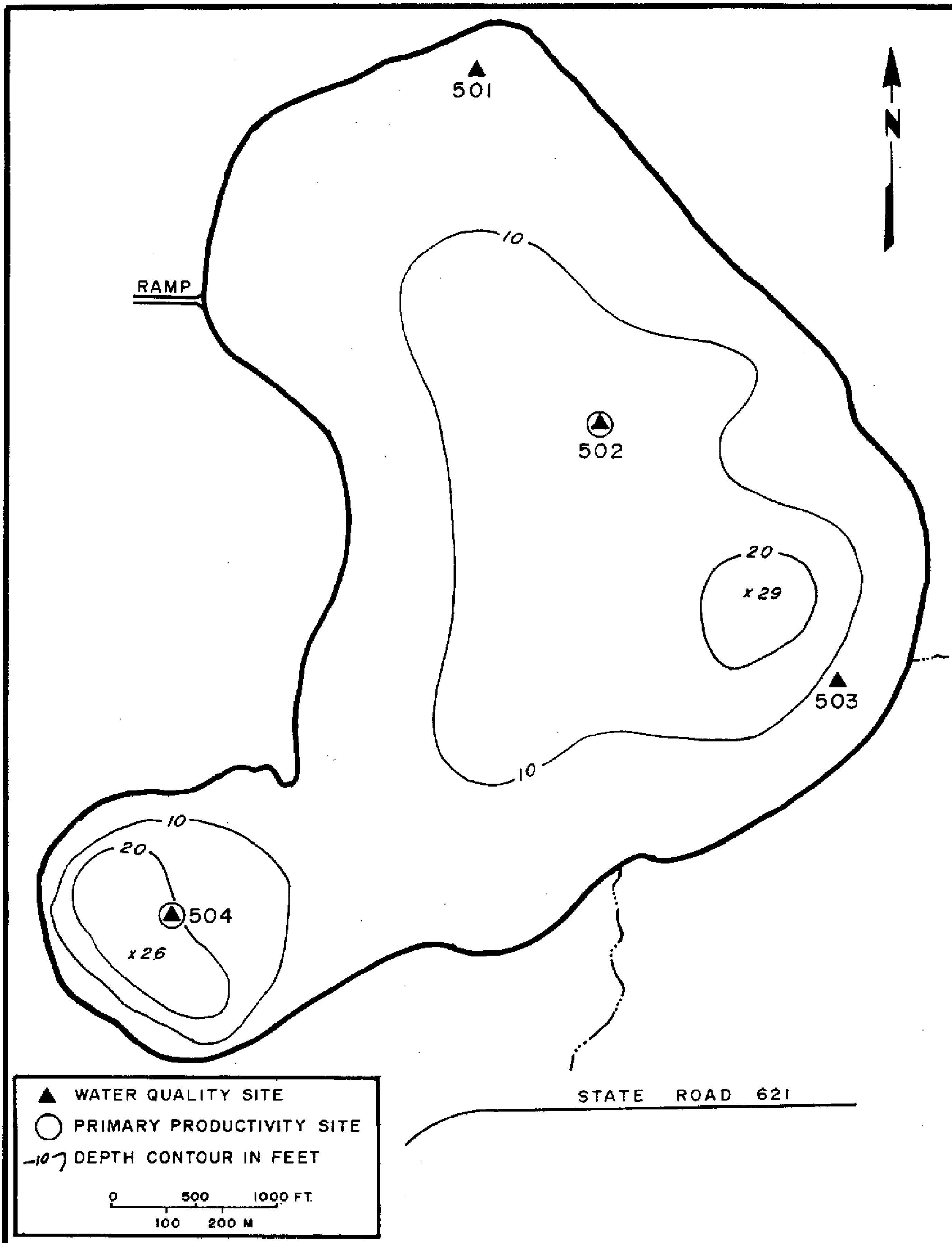


Figure 7 LAKE CLAY SAMPLE LOCATIONS AND APPROXIMATE DEPTH CONTOURS

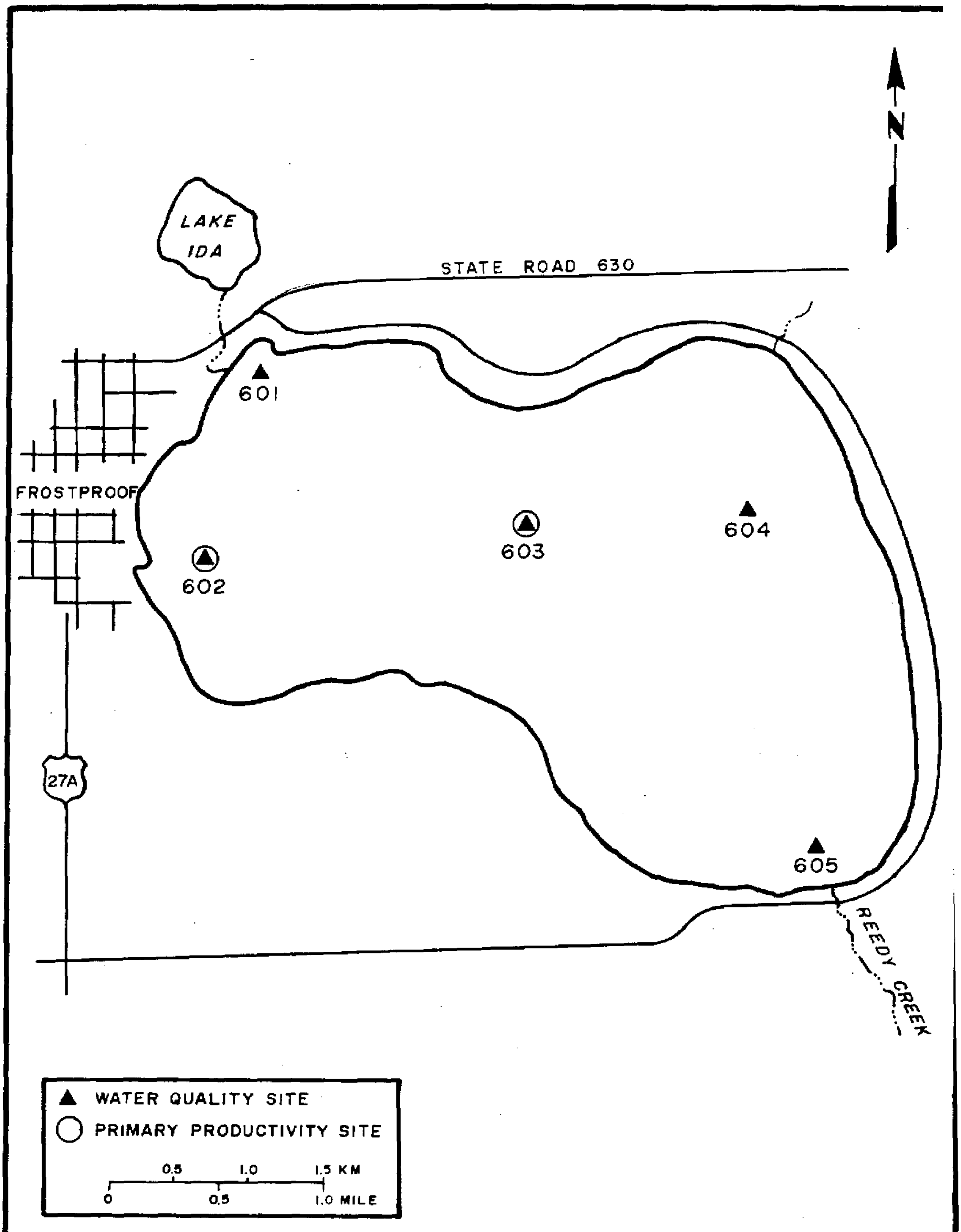


Figure 8 REEDY LAKE WATER QUALITY AND PRIMARY PRODUCTIVITY SAMPLE LOCATIONS

each lake. Transparency was measured to the nearest cm with a 20 cm diameter Secchi disc (Wildlife Supply Company, Saginaw, Michigan). Color was measured by visual comparison of a centrifuged water sample with known concentrations of platinum (American Public Health Association, 1971) until March 1976 and then by photometric comparison of filtered samples with platinum-cobalt standards at 465 μm. Turbidity was measured on unfiltered samples with a Hach Model 1860A turbidimeter.

Water samples for chemical analysis were collected directly from the surface and with a 5 liter PVC Niskin type sampler at selected depths. Samples for analysis of total Kjeldahl nitrogen and total phosphorus were unfiltered. Samples for analysis of dissolved nutrients and major cations and anions were filtered through 0.45 micron pore membrane filters. All samples were stored in polyethylene bottles, kept on ice in the field, and refrigerated in the laboratory. Analysis were initiated the first Monday after samples were returned to the laboratory.

Routine chemical analysis included determinations of NO_2, NO_3, NH_4, Total Kjeldahl Nitrogen, o-PO_4, Total dissolved PO_4, Total PO_4, Cl, SiO_2, Ca, Mg, Na, K and Alkalinity. Results were reported in mg/l of the major element except alkalinity which was reported as meq/l.

Laboratory analyses were performed on either a Technicon Industrial System II AutoAnalyzer or a Perkin Elmer Model 306 Atomic Absorption Spectrophotometer using the techniques described in Appendix A.

Lake average values in this report are represented by the arithmetic mean of all surface and profile samples (except when a station was obviously influenced by inflowing surface water).

Biological Parameters

The benthic invertebrate fauna were sampled from Lakes Istokpoga, Arbuckle, Placid, and June-in-Winter. Benthic samples were taken quarterly at stations 002, 004, 005, 008, 013, 014, and 015 on Lake Istokpoga from September 1973 until January 1975. Three transect lines were established perpendicular to the long axis of Lake Arbuckle with samples taken at about 300 m intervals along each line. On Lakes Placid and June-in-Winter three transect lines were established perpendicular to the shoreline. Each transect originated along a different character shoreline, dominated by residential development, citrus groves, or native vegetation. Sample stations were selected at depths of 5, 8, 12, 20 and 25 or 30 feet along each line. Two deep-water benthic samples were also taken near the center of each lake. Sampling of Lakes Arbuckle, Placid and June-in-Winter was completed between October 30, 1974 and January 22, 1975.

Benthic samples were taken with a 225 cm^2 (0.25 ft^2) Ekman dredge, washed in a U.S. Standard sieve #20, stored in glass jars and preserved with 10% formalin. Two or four Ekman grabs were combined into a single sample from each station in Lake Arbuckle, and duplicate 4 grab samples were secured at each station in Lakes Placid and June-in-Winter. Water depth and description of the sediment were recorded with each sample. In the laboratory each sample was washed, and floated in fresh water. All organisms were separated from the sample, identified by Edward Terczak (invertebrate taxonomist, SFWMD), counted and recorded. Results were expressed as number of each species per square foot. Diversity index was calculated for each sample using the formula (Wilhm, 1970):

$$\bar{d} = -\sum_{i=1}^{s} (n_i/n) \log_2 (n_i/n)$$

s = number of taxa

n = number of individuals

n_i = number of individuals per taxa

The littoral zones of Lakes Istokpoga, Placid, and June-in-Winter were described. Major plant communities were located and described. The area of each lake occupied by emergent littoral vegetation was measured from aerial photography (State of Florida, Dept. of Revenue, 1974) and compared to field measurements for consistency.

Primary productivity and concentrations of chlorophyll $\bar{a}$ were measured in each lake. Gross primary productivity and respiration estimates were made using the light and dark bottle method (APHA, 1971) and employing a photosynthetic quotient of 1.2 and respiratory quotient of 1.0 (Strickland and Parsons, 1972). Dissolved oxygen concentrations were determined with the Azide modification of the Winkler method (APHA, 1971). At two stations on each lake 300-ml BOD glass bottles were mounted horizontally in racks, suspended at several depths in the water column, and incubated for 5 to 6 hours. Daily primary production at each point was calculated by multiplying the experimental rate per hour by the total number of daylight hours. Gross primary production per square meter surface area was calculated by graphic integration of values through the water column (APHA, 1971). Average respiration was assumed to be consistent through the water column, and multiplied by average lake depth for comparison with gross primary production.

Samples for algal pigment analysis were collected directly from the lake surface, and from the same depths in profile used for primary productivity measurements. Samples were placed into 500 or 1000-ml polyethylene bottles, and stored on ice for no more than 52 hours. Immediately upon return to the laboratory the samples were filtered through Gelman glass fiber filters (0.45 micron pore size) neutralized with $CaCO_3$, and frozen for not more than three weeks before analysis. The filters with the pigment samples were ground for one to two minutes with a plastic pestle, extracted with 90% acetone for about 18 hours, and analyzed with a Coleman double beam spectrophotometer (Strickland and Parsons, 1972).

Hydrological Data

Historic and current lake stage data in feet above mean sea level (ft msl) were obtained from yearly published records of the USGS, and unpublished daily records from the SFWMD. Basin rainfall was obtained from reporting stations in Avon Park, DeSoto City, Archbold Biological Station and Lake Placid as published in Climatological Data, and converted to cm. Basin rainfall was reported as the average of reporting stations for monthly intervals from 1973 and annually since 1936.

RESULTS

Lake Stages

Attempts to control water levels in Istokpoga Basin lakes began as early as 1926 when engineers were commissioned to prepare a plan to permanently lower Lake Placid 4 ft and expose a sandy beach, and to lower water levels in Lake Grassy to eliminate mosquito breeding areas (Youngberg, 1927). The attractiveness of lakeshore residential development and the necessity of water control for protection and irrigation of agricultural areas have resulted in some form of water level management on most lakes in the basin. Of the seven lakes studied, only Lake Arbuckle remains uncontrolled. High stages in Istokpoga Basin lakes have generally been reduced by providing improved lake outflow capability. Lower lake stages have reduced the amount of littoral vegetation and consequently the habitat for primary and secondary production, fishes and waterfowl.

Appendix B shows annual high and low lake stages for the period of record for each lake, and compares average annual fluctuation for certain periods before and after water control measures were employed.

Rainfall

Average monthly rainfall in the Istokpoga Basin since 1973 is presented in Table 2. Table 3 shows average annual rainfall in the basin since 1936. Highest average annual rainfall was 196.6 cm (77.40 in) in 1953, and the lowest was 89.7 cm (35.33 in) in 1967. Average for the period was 132.6 cm (52.21 in) of rainfall.

Littoral Zone Characterization

Lake Istokpoga

The littoral area of Lake Istokpoga can be divided into "shoreline" and "midlake" zones. Shoreline littoral zone consists of the aquatic vegetation adjacent to the perimeter of the lake. Midlake aquatic vegetation grows adjacent to Bumblebee and Big Island in the middle of Lake Istokpoga, and at other locations considerably distant from the lake shoreline. Figure 9 illustrates the general distribution of littoral vegetation in Lake Istokpoga. Table 4 lists the most common species of aquatic vegetation in the littoral zone.

Shoreline Littoral Zone

The circumference of Lake Istokpoga is about 50.7 km (31.47 mi) and

TABLE 2. AVERAGE RAINFALL IN CENTIMETERS FOR ISTOKPOGA DRAINAGE BASIN*, JANUARY 1973 - SEPTEMBER 1976

	1973	1974	1975	1976
January	13.34	1.17	.94	.76
February	4.90	3.84	3.23	2.62
March	6.76	.41	3.51	5.33
April	11.33	2.36	3.35	3.94
May	8.10	15.29	19.10	14.48
June	13.41	40.77	20.85	24.08
July	19.71	30.40	17.88	22.56
August	23.06	17.93	18.92	19.53
September	19.66	11.91	20.37	20.29
October	7.57	1.02	9.45	6.05
November	2.44	1.14	.94	5.49
December	5.00	6.43	1.12	3.86
Total	135.28	132.67	119.66	128.99

*Average of data from:

1. Avon Park
2. DeSoto City
3. Archbold Biological Station

TABLE 3. AVERAGE ANNUAL RAINFALL IN THE ISTOKPOGA DRAINAGE BASIN, 1936-1976.

Year	Avg. Rainfall (cm)	Stations Reporting
1936	167.06	1
1937	------	-
1938	94.82	1,3
1939	169.72	1,3
1940	145.47	1
1941	141.05	1
1942	136.32	1
1943	136.83	1,3
1944	107.14	1,3
1945	133.76	1,3
1946	108.31	1,3
1947	186.84	1,3
1948	166.12	1,2,3
1949	120.68	1
1950	90.32	1,2
1951	138.96	3
1952	133.63	1,3
1953	196.60	1,3
1954	136.30	1,3
1955	93.93	1,3
1956	107.59	1,3,4
1957	161.19	1,3,4
1958	129.77	1,3,4
1959	177.60	1,3,4
1960	168.55	1,3,4
1961	97.97	1,3,4
1962	123.57	1,3,4
1963	122.58	1,3,4
1964	117.75	1,3,4
1965	127.10	1,3,4
1966	130.45	1,3,4
1967	89.74	1,3,4
1968	120.85	1,3,4
1969	152.10	1,4,5
1970	118.69	1,4,5
1971	111.20	1,4,5
1972	123.49	1,4,5
1973	135.28	1,4,5
1974	132.67	1,4,5
1975	119.66	1,4,5
1976	128.99	1,4,5

Station Code:
1. Avon Park
2. Avon Park, 1 mile NW
3. Lake Placid, 2 mile SW
4. DeSoto City
5. Archbold Biological Station

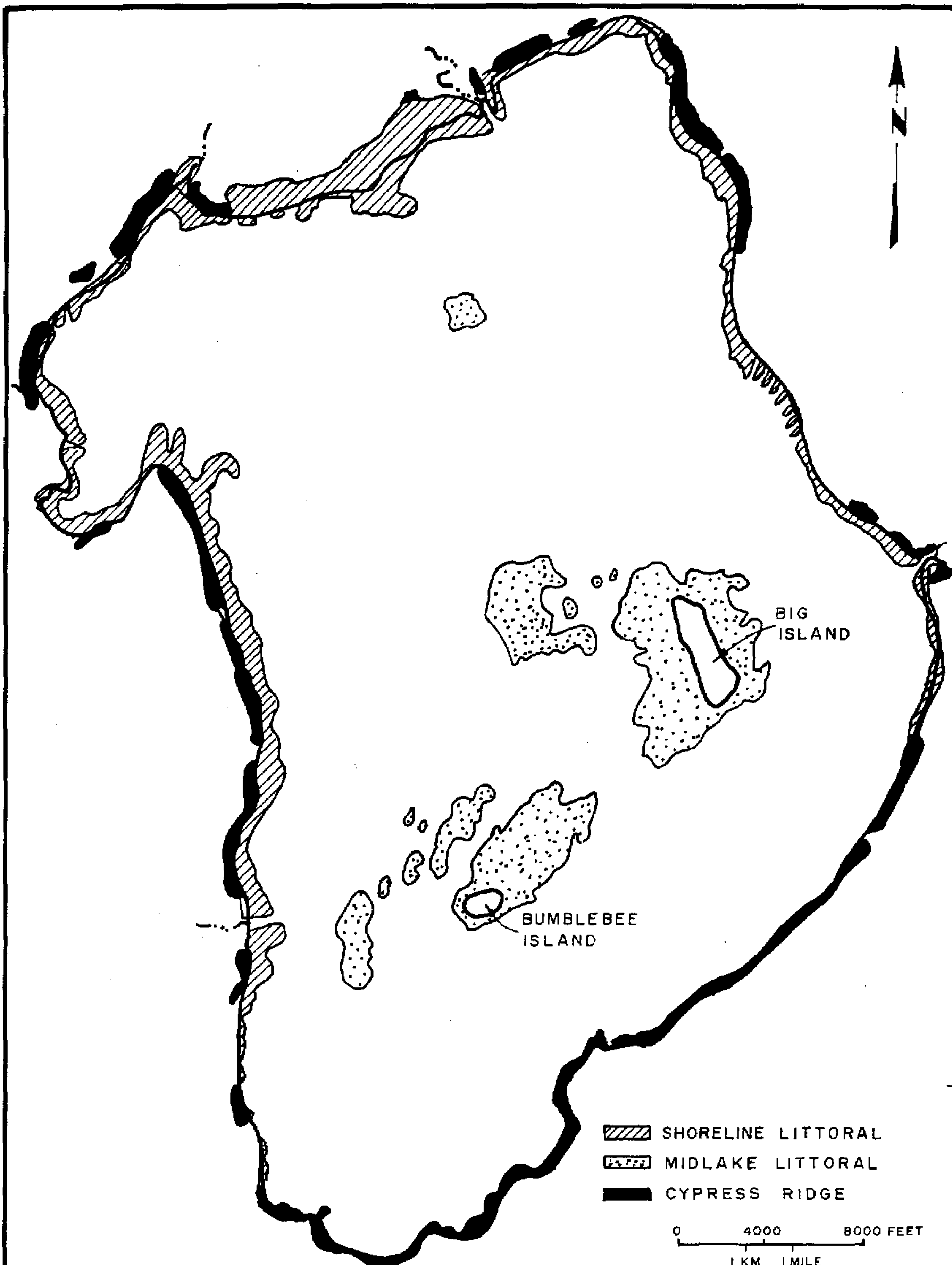


Figure 9 LAKE ISTOKPOGA LITTORAL AREA DISTRIBUTION

TABLE 4. COMMON PLANT SPECIES IN LAKE ISTOKPOGA LITTORAL AREA

Scirpus californicus	giant bulrush	A
Scirpus americanus	three square bulrush	P
Typha latifolia	common cattail	A
Panicum hemitomon	maidencane	A
Panicum paludivagum	panic grass	C
Panicum repens	torpedo grass	P
Nuphar advena	spatter dock	A
Fuirena scirpoidea	umbrella grass	C
Xyris sp.	yellow eyed grass	P
Pontederia lanceolata	pickerelweed	C
Sagittaria lancifolia	arrowhead	P
Taxodium distichum	bald cypress	A
Salix caroliniana	willow	P
Eichhornia crassipes	water hyacinth	A
Hydrocotyle umbellata	pennywort	P
Utricularia sp.	bladderwort	P
Salvinia rotundifolia	water fern	P
Polygonum sp.	smartweed	P
Najas guadalupensis	southern naiad	P
Eleocharis cellulosa	spike-rush	P
Spartina bakeri	switchgrass	P
Jussiaea peruviana	primrose willow	P
Hydrochloa caroliniensis	water grass	C

A = Abundant C = Common P = Present

has an adjacent littoral zone of about 723 ha (1785 acres). The character of the littoral community and the land use of the adjacent uplands varies around the lake. The north, northeast and southwest shorelines of Lake Istokpoga are dominated by residential development. Improved pasture and truck farming occupies much of the upland area adjacent to the lake along the east and south shore, and the western shore of Lake Istokpoga is primarily native and undeveloped. The littoral community along the northeast shore has been substantially altered by canals and access channels for private residential development. Levees which were built for the protection of agricultural land have limited the littoral zone along the southeast shore.

Bulrush, Scirpus californicus, and cattail, Typha latifolia, were the most common plants in the littoral zone along the west, north and northeast shorelines of the lake. Emergent vegetation that spreads lakeward of the shoreline band consists of small patches of bulrush and cattail, usually less than 0.2 ha (0.5 acre). The east, southeast and south shoreline littoral areas are less wide than other littoral areas and are dominated by bald cypress, Taxodium distichum, and spatterdock, Nuphar advena.

The lakeward extent of the littoral zone varied with location and plant species. Bulrush extended into the lake to bottom elevation of about 35.5 ft msl, and cattail to a bottom elevation of 35.7 ft msl. Shoreward of the bulrush and cattail is a wet prairie type habitat dominated by Panicum repens and Pontederia lanceolata. Along the south and southeast shore the average lakeward extent of the littoral zone was to the 34.7 ft msl contour, and cypress grew as deep as 32.9 ft msl.

Midlake Littoral Zone

An extensive emergent littoral zone was present in the shallow water surrounding Big Island and Bumblebee Island. Vegetation in the midlake area consists primarily of bulrush, cattail, pickerelweed (Pontederia lanceolata), maidencane (Panicum hemitomon) and torpedo grass (Panicum repens). This vegetation was dense close to the islands, and sparse further away. Emergent vegetation generally occupied the lake bottom above 36.0 ft msl, but some plants were growing as deep as 35.2 ft msl.

Littoral vegetation occupied 573 ha (1415 acres) around the two islands, of which 296 ha (732 acres) was classified as dense, and 277 ha (683 acres) as sparse. The total littoral area of Lake Istokpoga was 1295 ha (3200 acres; 5.0 mi^2) or 11.6% of the total lake surface area.

Lake June-in-Winter

The shoreline of Lake June-in-Winter measured 22.4 km (13.9 mi) and the zone of emergent littoral vegetation averaged 26.6 m (87 ft) wide. The littoral zone was divided into three categories based on the character of the adjacent upland. The native shoreline was characterized by Pinus elliottii and Serenoa repens upland. The citrus zone bordered upland areas that were planted in citrus groves. Residential shoreline was bordered by residential, commercial and landscaped areas. Table 5 lists the characteristics and extent of the littoral zone in Lake June-in-Winter. Clearing the shoreline for private beaches and boat docks has probably reduced the amount of littoral vegetation by about 30% along the residential shoreline. Emergent littoral vegetation occupied 3.7% of the lake surface area.

The dominant plant species, Panicum hemitomon, generally grew in monospecific stands and comprised 90-95% of the littoral vegetation on

TABLE 5. LAKE JUNE-IN-WINTER LITTORAL ZONE

Characteristic		Land Use of Adjacent Uplands			
		Native	Citrus	Residential	Total
Shoreline length	(m)	8545	4902	8951	22,399
Average width	(m)	24.4	32.3	25.6	26.6
Total area	(ha)	20.86	15.80	22.93	59.60
Adjusted*				16.05	52.72

*Area of littoral zone occupied by emergent vegetation in the residential area is reduced by approximately 30% due to clearing for beaches and boat docks.

TABLE 6. LAKE PLACID LITTORAL ZONE

Characteristic		Land Use of Adjacent Uplands			
		Native	Citrus	Residential	Total
Shoreline length	(m)	3939	5165	8751	17,855
Average width	(m)	43.3	32.8	7.9	22.9
Total area	(ha)	17.1	16.9	6.9	40.9

the lake. Other common species included Fuirena scirpoidea, Hydrocotyle umbellata, Panicum repens, and Nuphar advena. The high water line on Lake June-in-Winter was marked by a sharp rise in the ground elevation, and was characterized by Spartina bakerii.

The portion of the littoral zone that flooded during high stages was dominated by Lachnanthes caroliniana, Andropogon sp., Xyris sp., Erianthus giganteus and Cephalanthus occidentalis.

The littoral zone extended to an average contour of 68.8 ft msl, and the lowest recorded elevation with emergent vegetation was 65.2 ft msl.

At the 60 to 61 ft msl contour (12-13 ft depth) a band of submergent vegetation was located at three different places in the lake. Najas guadalupensis and Vallisneria neotropicalis were common in this zone.

Lake Placid

The shoreline of Lake Placid was 17.8 km (11.1 mi) long and the zone of emergent vegetation averaged 22.9 m (75 ft) in width. Total littoral zone coverage measured 40.9 ha (101 acres), 3.1% of the lake surface (Table 6). The littoral zone was divided into three categories based on the character of the adjacent upland. The southern shoreline of the lake was bordered by native pine and palmetto. The average width of this littoral area from the high water line to the lakeward edge of the zone was about 43 m (142 ft). The western and northern shorelines were dominated by residential areas and the littoral vegetation has been substantially reduced by clearing for beaches and boat access. The band of vegetation along the eastern shoreline adjacent to citrus groves averaged 33 m (107 ft) wide.

Panicum hemitomon was the most common emergent species in Lake Placid. Other species frequently encountered were Hydrocotyle umbellata and Fuirena scirpoidea. The littoral zone upland of the maidencane was characterized by Lachnanthes caroliniana, Andropogan sp., Panicum repens and Erianthus giganteus. Spartina bakerii and Myrica cerifera marked the high water line of the lake. In some areas along the south and southeast shore a zone of submergent vegetation extended lakeward of the maidencane. The substrate in the littoral zone was firm, clean sand with little organic buildup.

Benthic Invertebrate Sampling

The results of benthic invertebrate sampling from Lakes Istokpoga, Arbuckle, June-in-Winter and Placid are presented in Tables 7 to 10. These tables show the numbers of each species collected at each site and summarize the total number and percent composition of each species. The bottom substrate at each sample site is designated as type I, II, III, or IV. Type I bottom sediments consisted of clean, firm sand, often with many Gastropod or Pelecypod shells present. In Type II sediments sand was the major component, but small quantities of mud, silt, or detritus were also present. Type III bottom sediments were dominated by mud, silt, or detritus. A zone of submerged vegetation in Lake June-in-Winter was designated as Type IV.

A total of 30 species of benthic organisms were recovered in the 40 samples taken from Lake Istokpoga between September 1973 and January 1975. The average density of benthic organisms in Lake Istokpoga was 71/ft^2 (769/m^2) of lake bottom. Corbicula leana, Oligochaeta sp. I., Glyptotendipes paripes and Hexagenia munda orlando were the most abundant benthic organisms in Lake Istokpoga.

In Lake Arbuckle 25 species were recovered from the benthic samples obtained during January 1975. Average density of benthic organisms was 176/ft^2 (1889/m^2) of lake bottom. Glyptotendipes paripes was the most common organism and comprised 47.5% of the population by number. Densities

TABLE 7. BENTHIC INVERTEBRATE ORGANISMS RECOVERED FROM LAKE ISTOKPOGA, SEPTEMBER 1973 TO JANUARY 1975

	Date	September 5, 1973						December 4, 1973							March 14, 1974						
	Station	2	4	5	8	13	15	2	4	5	8	13	14	15	2	4	5	8	13	14	15
	Bottom Type	I	I	III	II	II	II	I	I	I	I	III	III	II	I	I	I	II	III	III	II
ANNELIDA	Hirudinea			6			2			2		6	4			2			2	4	
	Oligochaeta sp. I	30	24	2	8	6	22	22	6	16	34	36	8	8	6	20	4	28	6	42	16
	Oligochaeta sp. II																				
AMPHIPODA	Hyalellidae																				
	Amphitoe aztecus		8	4			20		2			2						2		4	6
GASTROPODA	Physidae																				
	Physa pomilia																				
	Viviparidae																				
	Viviparus georgianus			2		4	2					2	2							2	
PELECYPODA	Corbiculidae																				
	Corbicula leana	62	50	2	14	18	22	78	106		12	6		2	70	36		10			
	Sphaeridae																				
	Eupera cubensis								2	2			2								
	Unionidae																				
	Elliptio buckleyi	2		4			2		2	2	4							6		2	
DIPTERA	Ceratopogonidae																				
	Bezzia sp.						2														
	Culicoides sp.										2					2		2			
	Chironomidae																				
	Tanytarsus sp.																				
	Glyptotendipes paripes	20	14	6	4	2	158				2		2	2	10	10		24	2	24	
	Cryptochironomus fulvus				4	4	18		2		2							2			
	Ablabesmyia cinctipes				4	2	8				6	8	4		2				2		
	Procladius sp.						10														
	Polypedilum sp.																				2
	Culicidae																				
	Chaoborus punctipennis		2	6		2													2		
EPHEMEROPTERA	Baetidae																				
	Callibaetis floridanus															4					
	Caenidae																				
	Caenis diminuta				2		6														
	Ephemeridae																				
	Hexagenia munda orlando			20			6	2		48		34	26	2				8	12	8	2
ODONATA	Libellulidae																				
	Pachydiplax longipennis																				
	Perithemis seminole										2										
	Gomphidae																				
	Aphylla williamsoni	2													2						
	Progomphus alachuensis	2	2						2	2				2							
TRICOPTERA	Psychomyiidae																				
	Polycentropus sp.									8											
	Hydroptilidae																				
	Oxyethira sp.																				
COLEOPTERA	Haliplidae																				
	Haliplus sp.																				
	Hydrophilidae																				
	Berosus sp.																				
HEMIPTERA	Corixidae																				
	Trichocorixa sp.																				
	Total # Individuals	118	100	52	36	38	278	102	122	80	64	94	48	16	90	74	4	82	26	86	26
	Total # Species	6	6	9	6	7	13	3	7	7	8	7	7	5	5	6	1	8	6	7	4
	Diversity Index	1.72	1.91	2.72	2.30	2.29	2.33	.88	.88	1.77	2.13	2.11	2.08	2.00	1.14	1.92	0	2.41	2.14	2.00	1.49

	Date	June 12, 1974						September 5, 1974							January 8, 1975							Total	%
	Station	2	4	5	8	13	14	2	4	5	8	13	14	15	2	4	5	8	13	14	15		
	Bottom Type	I	I	III	II	III	I	I	I	III	I	III	III	II	I	I	III	II	III	III	II	#	Comp
ANNELIDA	Hirudinea	3			1	1	2	5	2	3		7	1		2	3	3	2	11	3	1	78	2.7
	Oligochaeta sp. I	11	9	6	29		19	49	8	12	21	2	10	10	3	4	13	15	5	15	2	587	20.5
	Oligochaeta sp. II																			1	1	2	0.1
AMPHIPODA	Hyalellidae																						
	Amphitoe aztecus	9	2	5		3		10		3			6		5	8	3	2	4		1	111	3.9
GASTROPODA	Physidae																						
	Physa pomilia							1														1	*
	Viviparidae																						
	Viviparus georgianus			2		2				1	1	1	1				1			2		25	0.9
PELECYPODA	Corbiculidae																						
	Corbicula leana	98	5		43		26	53	62	2	32		14	27	36	71	4	37			7	1005	3[illegible].2
	Sphaeridae																						
	Eupera cubensis									1			1							2		10	.3
	Unionidae																						
	Elliptio buckleyi			1	3		2				6									2		38	1.[illegible]
DIPTERA	Ceratopogonidae																						
	Bezzia sp.																					2	0.1
	Culicoides sp.	3			1						1			2					1			14	0.5
	Chironomidae																						
	Tanytarsus sp.														1						1	2	0.1
	Glyptotendipes paripes	119	5	5	19		1		6		4	9	8	2	1	1		5	1	5		471	16.5
	Cryptochironomus fulvus				4		1	4						2	1							44	1.5
	Ablabesmyia cinctipes	1				2				3		1	1	7						1		52	1.8
	Procladius sp.	1												1								12	0.4
	Polypedilum sp.														1			5				8	0.3
	Culicidae																						
	Chaoborus punctipennis					1				1			1					1	2			18	0.6
EPHEMEROPTERA	Baetidae																						
	Callibaetis floridanus																					4	0.1
	Caenidae																						
	Caenis diminuta	4	1		1						2			3	2							21	0.7
	Ephemeridae																						
	Hexagenia munda orlando			24	1	5				14		3	28	13			24	10	12	10	2	314	11.0
ODONATA	Libellulidae																						
	Pachydiplax longipennis																			1		1	*
	Perithemis seminole																					2	0.1
	Gomphidae																						
	Aphylla williamsoni										1			1								6	0.2
	Progomphus alachuensis															1						11	0.4
TRICOPTERA	Psychomyiidae																						
	Polycentropus sp.							1					1		1		1	1		3		16	0.6
	Hydroptilidae																						
	Oxyethira sp.																	1				1	*
COLEOPTERA	Haliplidae																						
	Haliplus sp.	1						1														2	0.1
	Hydrophilidae																						
	Berosus sp.							2														2	0.1
HEMIPTERA	Corixidae																						
	Trichocorixa sp.													1								1	*
	Total # Individuals	250	22	43	102	14	51	126	78	40	68	23	72	69	53	88	49	79	36	45	15	2859	99.9
	Total # Species	10	5	6	9	6	6	9	4	9	8	6	11	11	10	6	7	10	7	11	7		
	Diversity Index	1.75	2.02	1.92	2.09	2.35	1.61	1.95	1.02	2.51	2.00	2.13	2.55	2.63	1.83	1.08	2.03	2.36	2.32	2.85	2.33		

*less than 0.1%

TABLE 8. BENTHIC INVERTEBRATE ORGANISMS RECOVERED FROM LAKE ARBUCKLE, JANUARY 7-22, 1975

		Transect AB							Transect CD							Transect EF								Total	
	Station	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8		
	Depth in Feet	4.0	5.6	6.0	6.0	6.0	5.7	3.8	3.6	6.6	7.3	6.9	5.5	4.0	4.9	4.8	7.2	8.0	8.4	8.8	9.0	8.5	8.2	#	%
	Sediment Type	II	III	III	III	III	II	I	II	II	III	II	I	I	II	II	II	III	III	III	III	III	III		
ANNELIDA	Hirudinea	8	7		1		25	8	11	8	18	43	18	17	3	10	18	1	1	1	4	4	2	208	5.4
	Oligochaeta sp. I	21	19	27	20	18	3	8	79	41	27	31	1	20	33	12	15	21	6	9	16	26	46	499	12.9
	Oligochaeta sp. II	3						1						1										5	0.1
AMPHIPODA	Hyalellidae																								
	Amphitoe aztecus	34					91	24	9	3	37	38	21	8	29	44	28							366	9.5
GASTROPODA	Viviparidae																								
	Viviparus georgianus		2							1	1		2						1		1	1		9	0.2
PELECYPODA	Corbiculidae																								
	Corbicula leana	32					9		96	8	2	18	3	10	10	6	5							199	5.2
	Unionidae																								
	Elliptio buckleyi	2						7	2			1	4	1	1	1	2							21	0.5
ODONATA	Libellulidae																								
	Perithemis tenera		1																					1	*
	Coenagrionidae																								
	Ischnura posita											1												1	*
	Macromiidae																								
	Macromia taenialata											1												1	*
TRICHADIDA	Planariidae																								
	Dugesia tigrina												1	1										2	0.1
DIPTERA	Ceratopogonidae																								
	Culicoides sp.	9					9	2		2		2				4	2							30	0.8
	Chironomidae																								
	Cryptochironomus fulvus	8					4	1	3			1				2								19	0.5
	Glyptotendipes paripes	254	1				642	231	75	109	98	121	29	17	41	68	148							1834	47.5
	Microspecta sp.	125		1			14	1	9	4	2	3		12	13	9	8						1	202	5.2
	Ablabesmyia cinctipes	2	25	25	24	22	21	4	4	9	19	8	3		30	3	13	11	13	17	12	7	20	292	7.6
	Procladius sp.				1						1													2	0.1
	Polypedilum sp.								2	8	11		15											36	0.9
	Tanytarsus sp.	8					3	3				7					7							28	0.7
	Culicidae																								
	Chaoborus punctipennis				7	4			5			2			1	4			1		1	8	5	38	1.0
EPHEMEROPTERA	Caenidae																								
	Caenis diminuta	4					7	2	4						1		7							25	0.6
	Ephemeridae																								
	Hexagenia munda orlando	2	1		4		1	5		5		1	4		6			1		1	2		6	39	1.0
TRICOPTERA	Psychomyiidae																								
	Polycentropus sp.	1																						1	*
	Leptoceridae																								
	Oecetis sp.																2							2	0.1
HEMIPTERA	Corixidae																								
	Trichocorixa sp.																1							1	*
	Total # Individuals	513	56	53	57	44	829	247	299	198	216	278	101	87	168	163	256	34	22	28	36	46	80	3861	99.9
	Total # Species	15	7	3	6	3	12	13	12	11	10	15	11	9	11	11	13	4	5	4	6	5	6		
	Diversity Index	2.29	1.91	1.12	1.90	1.34	1.33	1.41	2.44	2.15	2.35	2.54	2.75	2.70	2.77	2.46	2.28	1.25	1.57	1.31	1.92	1.74	1.70		

*less than 0.1%

TABLE 9. BENTHIC INVERTEBRATE ORGANISMS RECOVERED FROM LAKE JUNE-IN-WINTER, OCTOBER 30-31, 1974

	Transect	Transect AB										Trasect CD										Transect EF										Center				Total	
	Depth in Feet	5		8		12		20		25		5		8		12		20		25		5		8		12		21		27		30		38		#	%
	Subsample	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b		
	Sediment Type	I		I		IV		II		I		I		II		IV		II		II		I		I		IV		II		I		I		III			
ANNELIDA	Hirudinea	1	1	2		10	8	1				3	2	7		3	5	1	1	2	2	2	1	2	4	2	2	1			2					65	1.3
	Oligochaeta sp. I	17	8	21	21	6	4		6	5	8	10	7	17	37	3	1		6	17	18	16	4	26	15	3			3	3	5	7	3	1		298	5.9
	Oligochaeta sp. II	11	14	15	15	2	1	2				6	4	14	19	1	1	1	4			9	11	19	20				1				6		2	178	3.5
AMPHIPODA	Gammaridae																																				
	Gammarus fasciatus					2																														2	*
	Hyalellidae																																				
	Amphitoe aztecus	6	6	20	26	25	31	2	2		3	21	14	19	12	139	108	2		2	1	8	11	40	21		5	2		1			2			529	10.5
DECAPODA	Astacidae																																				
	Procambarus fallax						1																			2	4									7	0.1
	Palaemonidae																																				
	Palaemonetes paludosus					4	2																			1	1									8	0.2
GASTROPODA	Planorbidae																																				
	Helisoma sp.			12	6	111	64						3	1	2	10	11	1	1					3	2	11	1									239	4.7
	Vivparidae																																				
	Viviparus georgianus				2	22	13	8	6	1	2			1	1	7	4		4					1	2	33	21		2							127	2.5
PELECYPODA	Sphaeridae																																				
	Eupera cubensis																								2											2	*
	Sphaerium sp.					73	75	2	2	4	5			29		8	1	1	1	4	2			2.				42	66	6	9		1			333	6.6
	Unionidae																																				
	Elliptio buckleyi																1									1							1			3	0.1
ODONATA	Macromiidae																																				
	Macromia taeniolata															1																				1	*
	Libellulidae																																				
	Pachydiplax longipennis					5	1																													6	0.1
	Perithemis seminole																											1								1	*
	Lestidae																																				
	Lestes vigilax						1										1																			2	*
	Gomphidae																																				
	Amphylla williamsoni							1																												1	*
TRICHADIDA	Planariidae																																				
	Dugesia tigrina			2	3								3		4		7	1							5											25	0.5
COLEOPTERA	Elmidae																																				
	Stenelmis sp.				1	1																														2	*
	Haliplidae																																				
	Halipus sp.						1																													1	*
DIPTERA	Ceratopogonidae																																				
	Culicoides sp.				2	2						1		1		2		2		4	2						1					1	3			21	0.4
	Chironomidae																																				
	Glyptotendipes paripes	6	3	7	8	75	7	5	6	8	12	33	17	19	12	10	9	191	147	1012	873	23	5	9	8	29	49	56	5	38	126	40	27			2875	57.1
	Cryptochironomus fulvus	1			2	9	1					1	1					34	12	11	12	1			2	6	8	4								105	2.1
	Ablabesmyia cinctipes			1		3	1	1			1				1	1	2	6	17	14	17					6	9	16					1			97	1.9
	Tanytarsus sp.															1										2	2									5	0.1
	Culicidae																																				
	Chaoborus punctipennis																		2	3	1					1						1				8	0.2
EPHEMEROPTERA	Caenidae																																				
	Caenis diminuta					2																				2	3	1	1							9	0.2
	Ephemeridae																																				
	Hexagenia munda orlando							2	3	1						13	14		3		1					1		11	22			2	2			75	1.5
LEPIDOPTERA	Pyralididae																																				
	Nymphula sp	1	1			1						1		1		1										1										7	0.1
TRICOPTERA	Leptoceridae																																				
	Oecetis sp.					1				1	1										1										1					5	0.1
	Total # Individuals	43	33	80	86	354	211	21	25	20	32	76	51	109	88	200	168	200	198	1069	930	59	32	102	81	101	106	134	100	48	143	51	46	1	2	5037	99.8
	Total # Species	7	6	8	10	18	15	9	6	6	7	8	8	10	8	13	13	10	11	9	10	6	5	8	10	15	12	9	7	4	5	5	9	1	1		
	Diversity Index	2.20	2.09	2.52	2.67	2.83	2.48	2.91	2.43	2.14	2.33	2.14	2.50	2.69	1.99	1.85	1.97	1.07	1.52	0.44	0.48	2.11	2.01	2.23	2.77	2.80	2.50	2.11	1.49	1.01	0.72	1.07	2.10	0	0		

* less than 0.1%

TABLE 10 BENTHIC INVERTEBRATE ORGANISMS RECOVERED FROM LAKE PLACID, NOVEMBER 20, 1974 - JANUARY 9, 1975

Transect AB

	Depth in Feet	5		8		12		20		30	
	Subsample	a	b	a	b	a	b	a	b	a	b
	Substrate	I		I		I		II		II	
ANNELIDA	Hirudinea	1	3	1							
	Oligochaeta sp. I	21	19	15	29	21	26	12	13	17	21
	Oligochaeta sp. II		2		1						
AMPHIPODA	Hyalellidae										
	Amphitoe aztecus		13	11	24	6	2	1	2	1	
PELECYPODA	Sphaeridae										
	Sphaerium sp.					6	4		3	2	
	Unionidae										
	Elliptio buckleyi										
COLEOPTERA	Elmidae										
	Stenelmis sp.										
DIPTERA	Ceratopogonidae										
	Culicoides sp.	2	1								
	Chironomidae										
	Cryptochironomus fulvus	1		2	2	2					
	Glyptotendipes paripes	14	15	53	63	10	2	2	15	7	4
	Ablabesmyia cinctipes									3	2
	Procladius sp.										
	Stictochironomus devinctus	1	6	8	11	6	5			1	
	Tanytarsus sp.					1					1
	Culicidae										
	Chaoborus punctipennis									4	1
EPHEMEROPTERA	Caenidae										
	Caenis diminuta		1								
	Ephemeridae										
	Hexagenia munda orlando									4	4
LEPIDOPTERA	Pyralididae										
	Nymphula sp.										
ODONATA	Lestidae										
	Lestes vigilax										
	Libellulidae										
	Pachydiplax longipennis										
TRICOPTERA	Leptoceridae										
	Oecetis sp.			1							
	Psychomyiidae										
	Polycentropus sp.										
	Total # Individuals	40	60	91	130	52	39	15	33	39	33
	Total # Species	6	8	7	6	7	5	3	4	8	6
	Diversity Index	1.63	2.41	1.82	1.89	2.35	1.55	0.91	1.61	2.42	1.70

Transect CD

	Depth in Feet	5		8		12		20		30	
	Subsample	a	b	a	b	a	b	a	b	a	b
	Substrate	I		I		II		II		II	
ANNELIDA	Hirudinea		3		1					4	
	Oligochaeta sp. I	30	12	37	33	22	26	42	29	5	12
	Oligochaeta sp. II	1	2							2	2
AMPHIPODA	Hyalellidae										
	Amphitoe aztecus	56	72	23		7				4	
PELECYPODA	Sphaeridae										
	Sphaerium sp.		1			1		1		65	66
	Unionidae										
	Elliptio buckleyi					1					
COLEOPTERA	Elmidae										
	Stenelmis sp.				1						
DIPTERA	Ceratopogonidae										
	Culicoides sp.		2		3	2	1			2	4
	Chironomidae										
	Cryptochironomus fulvus	8	6	2	1	7	2	3		14	6
	Glyptotendipes paripes	33	57	20	8	82	25	46	53	1501	1854
	Ablabesmyia cinctipes			1						5	8
	Procladius sp.										
	Stictochironomus devinctus	8	9	5	9	11	16		7	21	14
	Tanytarsus sp.		5	1	1			1		1	
	Culicidae										
	Chaoborus punctipennis										
EPHEMEROPTERA	Caenidae										
	Caenis diminuta		5	1		2					
	Ephemeridae										
	Hexagenia munda orlando									4	1
LEPIDOPTERA	Pyralididae										
	Nymphula sp.										
ODONATA	Lestidae										
	Lestes vigilax					1					
	Libellulidae										
	Pachydiplax longipennis		1								
TRICOPTERA	Leptoceridae										
	Oecetis sp.			1							
	Psychomyiidae										
	Polycentropus sp.										
	Total # Individuals	136	175	91	57	136	70	93	89	1628	1967
	Total # Species	6	12	9	8	10	5	5	3	12	9
	Diversity Index	2.04	2.33	2.15	1.91	1.93	1.78	1.32	1.26	0.58	0.43

Transect EF and Total

	Depth in Feet	5		8		12		20		30		40		53		Total #	Total %
	Subsample	a	b	a	b	a	b	a	b	a	b	a	b	a	b		
	Substrate	I		I		II		II		II		III		III			
ANNELIDA	Hirudinea				1		1					1				16	0.3
	Oligochaeta sp. I	37	62	24	37	22	17	28	27	18	19	19	14	1		767	12.3
	Oligochaeta sp. II			4	2											16	0.3
AMPHIPODA	Hyalellidae																
	Amphitoe aztecus	9	2	8	11	7	2									261	4.2
PELECYPODA	Sphaeridae																
	Sphaerium sp.						1	9	5							164	2.6
	Unionidae																
	Elliptio buckleyi															1	*
COLEOPTERA	Elmidae																
	Stenelmis sp.			1												2	*
DIPTERA	Ceratopogonidae																
	Culicoides sp.			1								6	2	2	9	37	0.6
	Chironomidae																
	Cryptochironomus fulvus	3	2	4	10		1	1	3	2	1	4				87	1.4
	Glyptotendipes paripes	19	39	14	24	18	32	8	9	5	4	47	50		1	4134	66.5
	Ablabesmyia cinctipes					1		4	4	9	2	5	10	19	21	94	1.5
	Procladius sp.											1	1	2	1	5	0.1
	Stictochironomus devinctus	14	9	25	38	51	20	8	10	8	9					330	5.3
	Tanytarsus sp.	1	1				1			2						16	0.3
	Culicidae																
	Chaoborus punctipennis							1	1	1	2	3		45	34	92	1.5
EPHEMEROPTERA	Caenidae																
	Caenis diminuta															9	0.1
	Ephemeridae																
	Hexagenia munda orlando						3	20		22	18	11	5	43	40	175	2.8
LEPIDOPTERA	Pyralididae																
	Nymphula sp.				1											1	*
ODONATA	Lestidae																
	Lestes vigilax															1	*
	Libellulidae																
	Pachydiplax longipennis															1	*
TRICOPTERA	Leptoceridae																
	Oecetis sp.		1			1	1					1				6	0.1
	Psychomyiidae																
	Polycentropus sp.			1												1	*
	Total # Individuals	83	116	82	124	100	79	79	59	67	55	98	82	112	106	6216	100.0
	Total # Species	6	7	9	8	6	10	8	7	8	7	10	6	6	6		
	Diversity Index	2.04	1.62	2.46	2.31	1.82	2.22	2.44	2.25	2.46	2.21	2.33	1.69	1.76	1.95		

*less than 0.1 percent

of G. paripes ranged as high as $642/ft^2$ ($6921/m^2$) at one station. Other abundant benthic organisms in Lake Arbuckle were Oligochaeta sp. I, Amphitoe aztecus and Ablabesmyia cinctipes.

The average density of benthic organisms collected from Lake June-in-Winter during October 1974 was $148/ft^2$ ($1595/m^2$), which was comprised of 30 different species. Glyptotendipes paripes was the most abundant organism collected, and accounted for 57% of the total by number. Although G. paripes was present in almost every sample taken, nearly two-thirds of these individuals were sampled from a depth of 25 ft (7.6 m) along transect CD. The other common species in Lake June-in-Winter were Amphitoe aztecus, Sphaerium sp., and Oligochaeta sp. I.

Benthic sampling in Lake Placid between November 1974 and January 1975 produced a total of 22 species of benthic invertebrates, and an average density of 183 organisms/ft^2 ($1966/m^2$). Lake Placid samples also had an extremely high population of Glyptotendipes paripes, which accounted for nearly two-thirds of all individuals collected. Eighty-one percent of the G. paripes were recovered from a depth of 30 ft (9.2 m) along transect CD. Other abundant species in Lake Placid were Oligochaeta sp. I, Stictochironomus devinctus and Amphitoe aztecus.

Comparison of the species composition from each of the four lakes indicated that a total of 49 species were recovered from the basin lakes, and 13 of these were present in each of the lakes. These species included Hirudinea, Oligochaeta sp. I and II, Amphitoe aztecus, Elliptio buckleyi, Culicoides sp., Crytochironomus fulvus, Glyptotendipes paripes, Ablabesmyia cinctipes, Tanytarsus sp., Chaoborus punctipennis, Caenis diminuta and Hexagenia munda orlando.

The distribution of bottom sediments in the lakes studied appeared to be related to water depth. Clean sandy sediments generally occupied the shallow portions of the lakes, and the amount of organic material present in the sediments increased with depth. The average elevations at which samples containing different type sediments were recovered from Lake Istokpoga were 34.2 ft msl (Type I), 35.3 ft msl (Type II) and 31.5 ft msl (Type III). In Lake Arbuckle the average depth of Type I samples was 4.4 ft; Type II samples was 5.5 ft; and Type III samples was 7.4 ft. Very little organic material was found in the bottom sediments of Lake June-in-Winter or Lake Placid. Type III sediments in these two lakes occurred only at depths of 38 ft (11.6 m) or more. In both lakes sandy (Type I) bottom was common at depths up to 30 ft. Submerged vegetation (Type IV) occurred in Lake June-in-Winter at a water depth of 12 ft.

Distribution of benthic species in relation to sediment type was investigated for each lake (Table 11). This table expresses the occurrence of at least one individual of a species in samples of each sediment type. These figures do not imply abundance or density, but express distribution and habitat preference for each benthic species. For example, in Lake Istokpoga, Viviparus georgianus occurred in all type sediments, but was more frequently found in mud and detritus bottoms. At least one V. georgianus was recovered from 85% of the samples with Type III sediments, 20% of the samples with Type II substrate, and only 6% of the samples with Type I substrate. Conversely, the Asiatic clam, Corbicula leana, in Lake Istokpoga occurred more frequently in Type I (88%) and Type II (90%) sediments than in Type III (38%). In Lakes June-in-Winter and Placid, Sphaerium sp. also exhibited a preference for Type I and II sediments as compared to Type III. The submerged vegetation in Lake June-in-Winter (Type IV)

TABLE 11 DISTRIBUTION OF BENTHIC ORGANISMS BY PERCENT OCCURRENCE IN BOTTOM SEDIMENT TYPES - ISTOKPOGA BASIN LAKES

		Bottom Sediment Type												
Species		I				II				III				IV
		I	A	J	P	I	A	J	P	I	A	J	P	J
ANNELIDA	Hirudinea	47	100	63	43	40	88	70	13	92	73	0	25	100
	Oligochaeta sp I	100	100	100	100	100	100	70	100	92	100	50	75	83
	Oligochaeta sp II	0	67	71	43	10	13	60	13	10	0	60	0	67
AMPHIPODA	Gammaridae													
	Gammarus fasciatus			0				0				0		17
	Hyalellidae													
	Amphitoe aztecus	41	100	81	86	60	100	80	77	62	9	0	0	83
DECAPODA	Astacidae													
	Procambarus fallax			0				0				0		50
	Palaemonidae													
	Palaemonetes paludosus			0				0				0		67
GASTROPODA	Physidae													
	Physa pomila	6				0				0				
	Planorbidae													
	Helisoma sp.			31				40				0		0
	Viviparidae													
	Viviparis georgianus	6	33	25		20	9	60		85	45	0		0
PELECYPODA	Corbiculidae													
	Corbicula leana	88	67			90	100			38	9			
	Sphaeridae													
	Eupera cubensis	12		6		0		0		31		0		0
	Sphaerium sp.			38	21			90	56			0	0	67
	Unionidae													
	Elliptio buckleyi	35	100	16	0	30	75	0	6	31	0	0	0	33
TRICLADIDA	Planariidae													
	Dugesia tigrina		67	25			0	20			0	0		17
COLEOPTERA	Elmidae													
	Stenelmis sp.			6	14			0	0			0	0	17
	Haliplidae													
	Halipus sp.	6		0		0		0		0		0		17
	Hydrophilidae													
	Berosus sp.	6				0				0				
DIPTERA	Ceratopagonidae													
	Bezzia sp.	0				10				0				
	Culicoides sp.	24	33	19	36	30	75	40	25	8	0	0	100	50
	Chironomidae													
	Cryptochironomus fulvus	29	33	31	86	60	63	50	63	0	0	0	25	67
	Glyptotendipes paripes	71	100	100	100	80	100	100	100	69	18	0	75	100
	Microspectra sp.		67				100				27			
	Ablabesmyia cinctipes	18	67	19	7	40	100	70	56	62	100	0	100	
	Polypedilum sp.	6	33			20	25			0	9			
	Procladius sp.	6	0		0	20	0		0	0	18		100	100
	Stictochironomus devinctus				100				75				0	
	Tanytarsus sp.	6	33	0	43	10	50	0	31	0	0	0	0	50
	Chironomus (Chironomus) sp.													
	Culicidae													
	Chaoborus punctipennis	6	0	6	0	30	50	30	38	38	55	0	75	17
EPHEMEROPTERA	Baetodae													
	Callibaetis floridanus	6				0				0				
	Caenidae													
	Caenis diminuta	24	33	0	21	40	63	20	6	0	0	0	0	17
	Ephemeridae													
	Hexagenia munda orlando	12	67	19	0	80	63	60	50	100	55	0	100	50
HEMIPTERA	Corixidae													
	Trichocorixa sp.	0	0			10	12			0	0			
LEPIDOPTERA	Pyralididae													
	Nymphula sp.			19	7			10	0			0	0	50
ODONATA	Gomphidae													
	Progomphus alachuensis	35				10				0				50
	Aphylla williansoni	18		0		10		10		0		0		0
	Macromiidae													
	Macromia taeniolata		0	0			13	0			0	0		25
	Libellulidae													
	Pachydiplax longipennis	0		0	7	0		0	0	8		0	0	33
	Perithemis tenera	6	0	0		0	0	10		0	9	0		0
	Coenarionidae													
	Ischnura posita		0				13				0			
	Lestidae													
	Lestes vigilax			0	0			0	6			0	0	33
TRICOPTERA	Psychomyiidae													
	Polycentropus sp.	18	0		7	10	14		0	23	0		0	
	Hydroptilidae													
	Oxyethira sp.	0				10				0				
	Leptoceridae													
	Oecetis sp.		0	19	21		14	10	13		0	0	25	25

* I= Lake Istokpoga; A = Lake Arbuckle; J = Lake June-in-Winter; P = Lake Placid

contained eight species that were found only in this habitat. These species included *Procambarus fallax*, *Palaemonetes paludosus*, *Gammarus fasciatus*, *Halipus sp.*, *Tanytarsus sp.*, *Macromia taeniolata*, *Pachydiplax longipennis* and *Lestes vigilax*.

Table 12 presents a comparison of species diversity, benthic organism density and diversity index for each sediment type in the four lakes. In Lake Istokpoga the average number of species per sample was greater in Type II and III sediments than Type I, but average density decreased from Type I to III. The diversity index was higher in Types II and III than Type I. The low diversity index in Type I sediments for Lake Istokpoga was probably attributed to the consistently high concentrations of *Corbicula leana* at Station 2 and 4. Lake Arbuckle showed a more consistent difference between sediment types. In all instances samples from sediments Type I and II had higher average number of species per sample, density, and diversity index than samples from Type III sediments.

The fauna in Type IV substrate in Lake June-in-Winter was more diverse in number of species and diversity index than other bottom types. Type III sediments were practically void of benthic fauna. Characteristics from Types I and II were similar, although the high concentrations of *G. paripes* at one station considerably increased the average density and decreased the diversity index for Type II sediments. The characteristics of the benthic fauna were also similar for each bottom type in Lake Placid, with the exception of the high concentrations of *G. paripes* which increased average density and decreased diversity index in Type II sediments.

In Lakes June-in-Winter and Placid the benthic transects were established perpendicular to shorelines with different upland characteristics. The characteristics of the benthic fauna along transect AB (adjacent

TABLE 12. CHARACTERISTICS OF THE BENTHIC FAUNA FROM ISTOKPOGA BASIN LAKES

Characteristics	Sediment Type			
Number species per sample	I	II	III	IV
Lake Istokpoga	1-10* 6.4**	4-13 8.0	6-11 7.6	
Lake Arbuckle	9-13 11.0	11-15 12.5	3.10 5.4	
Lake June-in-Winter	4-10 7.0	6-11 8.9	1 1	12-18 14.3
Lake Placid	5.12 7.5	3.12 6.9	6-10 7.0	
Number individuals per ft^2				
Lake Istokpoga	4-250 87.7	15-278 74.1	14-94 48.3	
Lake Arbuckle	87-247 145.0	163-829 338.0	22-216 61.1	
Lake June-in-Winter	20-143 61.4	21-1069 292.0	1-2 1.5	101-354 189.5
Lake Placid	39-175 92.1	15-1967 283.9	82-112 99.5	
Diversity Index				
Lake Istokpoga	0-2.13 1.51	1.49-2.63 2.22	1.92-2.85 2.29	
Lake Arbuckle	1.41-2.75 2.29	1.33-2.77 2.28	1.12-2.35 1.64	
Lake June-in-Winter	0.72-2.77 2.04	0.44-2.91 1.71	0 0	1.85-2.83 2.41
Lake Placid	1.55-2.46 2.04	0.43-2.46 1.71	1.69-2.33 1.93	

* range
**mean

to native upland) and EF (adjacent to citrus upland) in both lakes were similar with respect to species number, organism density and diversity index (Table 9 and 10). However, on both lakes the transect perpendicular to the residential area had one station with very high concentrations of *Glyptotendipes paripes* which considerably increased the average density of organisms and decreased the diversity index.

Water Chemistry

The results of physical and chemical water quality measurements from the seven study lakes are presented in this section. Samples for analysis of chemical composition which were taken in vertical profiles generally indicated that concentrations of those constituents were consistent through the water column, and that lake waters were well-mixed. Vertical gradients were often observed for measurements of dissolved oxygen, water temperature and pH. These parameters will be considered subsequently.

The complete set of water chemistry data is presented in Appendix C.

Lake Placid

The summary of water quality in Lake Placid from September 1974 to September 1976 is presented in Table 13.

Secchi disc transparency ranged from 210 cm in March 1976 to 342 cm in December 1974 and averaged 256 cm. Water color in Lake Placid was low and ranged from 7.5 to 15.0 mg Pt/l (averaged 11.6 mg Pt/l). Surface turbidity ranged from 1.5 to 4.6 JTU and averaged 2.7 JTU from December 1974 to September 1976. The highest turbidities (4.0 and 4.6 JTU) recorded in June 1975 and June 1976, were still extremely low.

Nitrite nitrogen concentrations were low, usually below the analytical limit of detection, 0.004 mg/l. Nitrate nitrogen concentrations were

TABLE 13 AVERAGE WATER QUALITY CHARACTERISTICS, Lake Placid

Date	Sp Cond µmho/cm	Secchi cm	Color mg Pt/l	Turb. JTU	NO_2 mg/l N	NO_3 mg/l N	NH_4 mg/l N	TKN mg/l N	o-PO_4 mg/l P	T-PO_4 mg/l P	Td-PO_4 mg/l P	CA mg/l	Mg mg/l	Na mg/l	K mg/l	Cl mg/l	SiO_2 mg/l	Alk meq/l
9-12-74	58	256	----	----	.007	.035	.01	.46	.002	.009	.004	1.5	1.4	5.3	---	7.8	0.7	---
12-12-74	54	342	12.0	1.5	.004	.048	.02	.33	.002	.016	.006	2.3	1.4	5.4	0.9	9.7	0.6	---
3-6-75	49	285	15.0	2.2	<.004	.064	.02	.29	<.002	.009	.004	2.2	1.4	5.6	1.0	9.4	<0.4	---
4-9-75	57	333	----	----	<.004	<.004	.01	.29	<.002	.009	.005	0.9	1.2	6.7	0.8	11.9	<0.4	---
6-24-75	45	258	14.5	3.0	<.004	.006	.01	.38	.004	.013	.005	1.9	1.4	4.5	0.7	11.9	0.8	---
9-9-75	51	312	7.8	2.0	<.004	<.004	.01	.25	<.002	.016	.003	1.7	1.2	3.8	0.7	5.6	0.6	.13
12-2-75	55	324	11.7	2.6	.004	.010	.03	.18	.002	.015	.006	2.0	1.1	3.9	0.7	10.6	0.4	<.10
3-2-76	51	210	14.0	2.6	<.004	.043	.03	.55	<.002	.016	.005	2.4	2.1	4.0	1.1	---	0.5	.29
6-9-76	55	226	10.0	4.6	<.004	.125	.16	.46	.005	.010	.006	2.1	1.7	5.3	1.0	11.3	0.5	.11
9-1-76	79	270	7.5	1.7	<.004	.014	.01	.40	.002	.006	.005	2.8	1.5	4.7	0.7	9.2	0.4	<.10
Avg.	50	256	11.6	2.5	.004	.035	.03	.36	.002	.012	.005	2.0	1.4	4.9	0.8	9.7	0.5	.15

considerably more variable, both spatially and seasonally. Low nitrate concentrations, less than 0.010 mg/l, occurred in April, June, September and December 1975. The maximum nitrate value (0.125 mg/l) occurred in June 1976. Nitrate concentration generally paralleled concentrations of ammonia in the lake. Lowest ammonia concentrations were reported in September 1974, April, June and September 1975 and September 1976. The highest ammonia concentration of 0.16 mg/l corresponded with high nitrate values in June 1976. Total Kjeldahl nitrogen (TKN) values were low. TKN ranged from 0.18 mg/l in December 1975 to 0.55 mg/l in March 1976 and averaged 0.36 mg/l for the study.

Total phosphate concentrations averaged 0.012 mg/l and ranged from 0.006 mg/l in September 1976 to 0.016 mg/l in December 1974, September 1975 and March 1976. Ortho-phosphate concentrations were at or below the limit of analytical detection of 0.002 mg/l during all sampling periods except June 1975 and 1976, when ortho-phosphate concentrations were 0.004 and 0.005 mg/l respectively.

Concentrations of dissolved calcium, magnesium, sodium, potassium, and silica were relatively low, and exhibited very little seasonal variation during the study period. Likewise, little variation was evident in field measurements of specific conductance. Chloride concentrations were more variable than other ions, ranging from a low of 5.6 mg/l in September 1975, to a high of 11.9 mg/l in April and June 1975.

Alkalinity in Lake Placid averaged 0.15 meq/l (7.5 mg $CaCO_3$/l) with a low value of less than 0.10 meq/l (5.0 mg/l $CaCO_3$) in December 1975 and a high value of 0.29 meq/l (14.5 mg/l $CaCO_3$) in March 1976.

Lake June-in-Winter

Table 14 summarizes the average water quality parameters measured in Lake June-in-Winter for each sampling period between August 1974 and September 1976.

Secchi disc transparency ranged from 206 cm in September 1976 to 318 cm in December 1974 and averaged 258 cm. Transparencies of this magnitude indicate relatively low water color and turbidity. Water color in Lake June-in-Winter averaged 13.2 mg Pt/l with a minimum of 9.5 mg Pt/l in September 1975 and a maximum of 22.0 mg Pt/l in September 1976. Surface turbidity averaged 3.4 JTU from December 1974 to September 1976, with a minimum of 2.4 JTU in September 1976 and a maximum of 4.6 JTU in March 1976.

Average nitrite nitrogen concentrations were always at or below 0.004 mg/l. Nitrate nitrogen concentrations were considerably higher and were much more variable. Low nitrate values generally occurred in warmer months, and high nitrate values occurred in December 1974 and March 1974 and 1975. Average nitrate concentrations in Lake June-in-Winter ranged from 0.009 mg/l in August 1974 to 0.149 mg/l in March 1975 and averaged 0.056 mg/l. Ammonia concentrations remained consistently low through the study, ranging from 0.01 to 0.03 mg/l. Total Kjeldahl nitrogen concentrations ranged from 0.41 mg/l in May 1976 to 0.61 mg/l in March 1976, and averaged 0.49 mg/l.

Phosphate concentrations in Lake June-in-Winter were consistently low through two years of study. Total phosphate ranged from 0.011 mg/l in May 1975 and 0.017 mg/l in September 1975, and averaged 0.014 mg/l.

TABLE 14 AVERAGE WATER QUALITY CHARACTERISTICS, Lake June-in-Winter

Date	Sp Cond µmho/cm	Secchi cm	Color mg Pt/l	Turb. JTU	NO_2 mg/l N	NO_3 mg/l N	NH_4 mg/l N	TKN mg/l N	o-PO_4 mg/l P	T-PO_4 mg/l P	Td-PO_4 mg/l P	CA mg/l	Mg mg/l	Na mg/l	K mg/l	Cl mg/l	SiO_2 mg/l	Alk meq/l
8-21-74	---	---	---	---	<.004	.009	.02	.52	<.002	.012	.006	5.1	3.4	6.9	2.3	12.6	0.5	----
9-6-74	112	222	---	---	<.004	.011	.03	.58	.004	.012	.006	3.5	3.5	8.4	2.1	12.1	0.4	----
12-12-74	122	318	16.0	2.7	<.004	.083	.03	.52	<.002	.013	.006	5.6	3.7	8.4	2.4	15.3	0.7	----
3-5-75	112	241	10.0	2.8	<.004	.149	.03	.47	.002	.015	.007	7.2	4.0	8.5	2.7	13.9	0.9	----
5-7-75	135	299	5.0	4.5	<.004	.022	.01	.48	<.002	.011	.004	6.4	4.2	8.6	1.5	15.0	0.5	----
7-15-75	119	223	16.5	3.5	.004	.010	.03	.45	.002	.013	.004	5.1	3.8	7.5	1.9	14.7	<0.4	----
9-10-75	120	262	9.5	2.7	<.004	.017	.02	.43	<.002	.017	.003	4.8	3.8	7.7	2.7	12.5	0.6	.17
12-3-75	120	242	10.0	4.0	.004	.024	.03	.47	.002	.015	.007	5.7	3.9	6.9	2.2	13.3	0.4	.23
3-3-76	124	263	10.5	4.6	<.004	.130	.02	.61	.002	.015	.005	6.6	4.4	7.8	3.3	----	0.4	.38
5-27-76	140	305	19.5	2.4	<.004	.036	.03	.41	<.002	.016	.006	4.6	3.5	7.2	2.9	----	----	----
9-8-76	135	206	22.0	2.4	<.004	.131	.03	.47	.003	.012	.006	7.4	3.8	8.0	2.3	14.6	0.4	.16
Avg. 8/74 to 9/76	124	258	13.2	3.3	.004	.056	.03	.49	.002	.014	.005	5.6	3.8	7.8	2.4	13.8	0.5	.24

Ortho-phosphate was always near or below detectable limits and averaged 0.002 mg/l. Total dissolved phosphate averaged 0.005 mg/l, and was always less than one half of the total phosphate values.

Concentrations of each of the major ions remained fairly constant throughout the sampling period and specific conductance was fairly stable through the study. High conductivity values in 1975 and 1976 occurred during May, and average specific conductance was 124 μmhos/cm. Silica ranged from less than 0.4 mg/l in August 1975 to 0.9 mg/l in March 1975 and averaged 0.5 mg/l. Alkalinity ranged from 0.17 meq/l (8.5 mg $CaCO_3$/l) to 0.38 meq/l (19 mg $CaCO_3$/l) and averaged 0.24 meq/l (12.5 mg $CaCO_3$/l).

Lake Clay

Average values of water quality parameters from Lake Clay are presented in Table 15.

Secchi disc transparency ranged from 115 cm in September 1975 to 485 cm in March 1976. The maximum transparency recorded for an individual station was 640 cm at station 504 in March 1976. Transparencies of this magnitude correspond to low water color and low turbidity. Color ranged from 10.5 mg Pt/l to 15.0 mg Pt/l except in September 1976 when color averaged 72.0 mg Pt/l. Turbidity was consistently low and ranged from 2.0 to 5.5 JTU.

Nitrite nitrogen concentrations averaged 0.005 mg/l and ranged from <0.004 mg/l to 0.007 mg/l. Nitrate nitrogen concentrations were higher, and exhibited seasonal variation. In the warmer months of June and September, nitrate concentrations were 0.016 mg/l or less whereas during March and December concentrations ranged from 0.023 to 0.258 mg/l. The average nitrate concentration was 0.058 mg/l. Ammonia concentrations

TABLE 15 AVERAGE WATER QUALITY CHARACTERISTICS, Lake Clay

Date	Sp Cond µmho/cm	Secchi cm	Color mg Pt/l	Turb. JTU	NO_2 mg/l N	NO_3 mg/l N	NH_4 mg/l N	TKN mg/l N	o-PO_4 mg/l P	T-PO_4 mg/l P	Td-PO_4 mg/l P	CA mg/l	Mg mg/l	Na mg/l	K mg/l	Cl mg/l	SiO_2 mg/l	Alk meq/l
3-12-75	145	233	12.0	3.0	<.004	.033	.04	.68	.003	.012	.006	5.1	4.6	8.8	4.7	14.2	<.4	---
6-26-75	112	119	----	---	<.004	.016	<.01	.59	.004	.023	.008	7.3	4.1	8.1	4.4	16.3	0.6	1.01
9-11-75	141	115	15.0	3.9	<.004	.006	.05	.97	<.002	.019	.004	5.5	3.6	9.2	3.8	14.6	1.4	.20
12-4-75	136	202	11.0	4.5	.005	.023	.04	.70	<.002	.015	.005	7.5	3.9	7.7	3.7	15.5	1.3	.25
3-4-76	151	485	13.0	2.0	.005	.258	.04	.60	.002	.010	.006	7.6	4.3	8.3	5.3	----	<.4	.41
6-10-76	141	299	10.5	4.1	<.004	----	---	.52	.003	.011	.006	8.6	4.6	8.7	4.7	17.4	0.5	.16
9-15-76	136	208	71.5	2.2	.007	.014	.01	.44	.002	.009	.005	7.5	3.2	7.6	3.5	15.0	0.7	.10
Avg.	137	237	22.2	3.28	.005	.058	.03	.64	.003	.014	.006	7.0	4.0	8.3	4.3	15.5	0.8	.36

ranged from <0.01 mg/l in June 1975 to 0.05 mg/l in September 1975 and averaged 0.03 mg/l. Total Kjeldahl nitrogen averaged 0.64 mg/l and ranged from 0.44 mg/l in September 1976 to 0.97 mg/l in September 1975.

Total phosphate concentrations averaged 0.014 mg/l and ranged from 0.009 mg/l in September 1976 to 0.023 mg/l in June 1975. Ortho-phosphate concentrations were low, averaging 0.003 mg/l. Total dissolved phosphate was also low, and was usually about twice the ortho-phosphate concentrations.

Concentrations of each of the major ions were variable, and exhibited no distinct seasonal trends. Specific conductance ranged from 151 µmhos/cm in March 1976 to 112 µmhos/cm in June 1975. Silica concentrations were low, but variable, and ranged from less than 0.004 mg/l in March 1975 and 1976 to 1.4 mg/l in September 1975. Alkalinity averaged 0.36 meq/l (18 mg $CaCO_3$/l) and ranged from 0.10 meq/l in September 1976 to 1.01 meq/l in June 1975.

Reedy Lake

A summary of average water quality conditions for each sampling period from September 1975 to September 1976 for Reedy Lake is presented in Table 16.

Secchi transparency averaged 78 cm in Reedy Lake and ranged from 51 cm to 111 cm. Since water color in the lake was relatively low (7.0 to 24.0 mg Pt/l, average 18.1 mg Pt/l) turbidity from suspended particulate matter and phytoplankton was responsible for reduced transparency. Average surface turbidity ranged from 5.1 JTU to 12.2 JTU and averaged 8.2 JTU.

Nitrite nitrogen was at or below the analytical limit of detection (0.004 mg/l) except in March 1976 (0.010 mg/l). Nitrate nitrogen concentrations were considerably higher, with a maximum of 0.269 mg/l in March 1976 and an average of 0.083 mg/l. Nitrate values were considerably higher in

TABLE 16 AVERAGE WATER QUALITY CHARACTERISTICS, Reedy Lake

Date	Sp Cond µmho/cm	Secchi cm	Color mg Pt/l	Turb. JTU	NO_2 mg/l N	NO_3 mg/l N	NH_4 mg/l N	TKN mg/l N	o-PO_4 mg/l P	T-PO_4 mg/l P	Td-PO_4 mg/l P	CA mg/l	Mg mg/l	Na mg/l	K mg/l	Cl mg/l	SiO_2 mg/l	Alk meq/l
9-30-75	195	70	22.5	7.7	<.004	.012	.07	1.20	.003	.021	.003	13.6	6.4	10.9	3.4	13.8	6.5	.87
1-7-76	210	66	24.0	7.8	.004	.121	.08	1.43	.002	.024	.003	13.3	7.0	9.2	3.9	13.1	6.8	.89
3-16-76	230	111	---	---	.010	.269	1.05	1.85	.003	.023	.011	15.7	6.5	11.2	3.9	19.6	6.3	1.09
6-3-76	233	93	19.0	5.1	<.004	.004	.10	.79	.005	.011	.003	17.4	8.2	14.7	4.9	16.7	4.9	.71
9-9-76	218	51	7.0	12.2	<.004	.009	.01	1.21	.002	.028	.005	17.0	7.1	12.0	3.6	17.1	5.7	.56
Avg.	217	78	18.1	8.2	.005	.083	.26	1.30	.003	.021	.005	15.4	7.0	11.6	3.9	16.1	6.0	.82

winter than in summer. Ammonia nitrogen concentrations, like nitrate, were highest in March 1976. The average concentration of ammonia in Lake Reedy on this date was 1.05 mg/l, and this concentration was uniform throughout the lake. Ammonia levels of this magnitude may be lethal to freshwater fish (U.S.E.P.A., 1975).

Total Kjeldahl nitrogen ranged from 0.79 mg/l in June 1976 to 1.85 mg/l in March 1976, and averaged 1.30 mg/l overall. TKN was generally lower in summer than in the winter months.

Phosphorus concentrations exhibited little variation in Reedy Lake during the sampling period. Total phosphate averaged 0.021 mg/l and ortho-phosphate concentrations averaged 0.003 mg/l. Except in March 1976, total dissolved phosphate concentrations were very near the ortho-phosphate levels, indicating that most of the phosphorus was particulate.

Concentrations of major ions, calcium, magnesium, sodium and potassium were variable through the sampling period, and exhibited maximum concentrations in June 1976, followed by a slight decline in September. Maximum chloride concentrations occurred in March 1976. Specific conductance increased from September 1975 to June 1976, then dropped slightly in September 1976. Alkalinity in Reedy Lake averaged 0.82 meq/l (43.5 mg $CaCO_3$/l and ranged from 0.56 meq/l in September 1976 to 1.09 meq/l in March 1976.

Lake Istokpoga

Table 17 summarizes the average water quality parameters measured in Lake Istokpoga between September 1973 and August 1976.

Secchi disc transparency in Lake Istokpoga was usually low and ranged from 44 cm in March 1976 to 93 cm in June 1975. High Secchi transparency

TABLE 17 AVERAGE WATER QUALITY CHARACTERISTICS, Lake Istokpoga

Date	Sp Cond µmho/cm	Secchi cm	Color mg Pt/l	Turb. JTU	NO_2 mg/l N	NO_3 mg/l N	NH_4 mg/l N	TKN mg/l N	o-PO_4 mg/l P	T-PO_4 mg/l P	Td-PO_4 mg/l P	CA mg/l	Mg mg/l	Na mg/l	K mg/l	Cl mg/l	SiO_2 mg/l	Alk meq/l
9-5-73	91	--	---	---	< .008	.011	.06	---	.006	.039	.019	4.1	3.1	8.0	1.3	----	----	----
12-4-73	74	68	---	---	.005	.054	.03	.89	.004	.035	.023	3.4	2.9	7.4	1.4	13.0	1.6	----
3-14-74	100	66	---	---	.005	.031	.05	1.28	.005	.043	.026	5.1	3.1	9.0	1.7	13.7	----	----
6-12-74	143	58	---	8.9	< .004	< .004	.01	1.09	.003	.043	.015	7.2	3.9	10.3	1.8	16.4	1.8	----
9-4-74	85	87	---	---	.004	.009	.03	.83	.027	.055	.059*	3.5	2.4	6.5	1.1	10.1	3.2	----
12-11-74	88	--	176.0	8.5	.005	.051	.04	1.05	.013	.052	.044	6.4	3.0	8.3	1.4	13.4	1.9	----
3-11-75	112	77	123.5	6.4	.006	.046	.04	1.15	.007	.047	.033	4.8	3.5	7.3	1.4	13.8	2.8	----
4-24-75	---	62	115.0	15.7	< .004	< .004	.03	.93	.003	.043	.025	7.5	4.0	10.6	1.6	27.5	1.9	----
6-25-75	99	93	70.0	6.0	< .004	.026	.01	1.10	.003	.045	.017	6.7	3.9	9.2	1.8	18.1	2.2	.81
9-17-75	100	91	296.0	3.4	.008	.013	.03	.66	.016	.060	.041	6.1	4.4	12.6	2.6	15.0	6.4	.10
12-11-75	92	54	265.0	8.0	.004	.029	.03	1.04	.008	.049	.032	5.7	3.6	5.1	1.7	14.3	4.1	< .10
3-10-76	133	44	122.5	8.4	.005	.032	.04	1.03	.015	.072	.046	10.8	3.8	9.0	2.4	----	1.0	< .10
5-26-76	142	59	93.5	8.6	< .004	.004	.04	.97	.003	.056	.025	6.0	3.6	8.6	2.0	----	----	----
8-31-76	123	69	137.0	6.5	.008	.009	.02	1.04	.005	.039	.031	4.5	3.3	7.2	1.1	14.3	4.6	< .10
Avg.	106	69	155.4	8.0	.005	.023	.03	1.00	.008	.048	.031	5.8	3.5	8.5	1.7	15.4	2.9	.24

*suspected analytical error

measurements occurred during the wet seasons, in September 1974, June and September 1975, and August 1976. The average Secchi transparency was 69 cm. Water in Lake Istokpoga was darkly stained and color averaged 155.4 mg Pt/l. The highest color occurred in September 1975 (296.0 mg Pt/l) and the lowest color occurred three months earlier in June 1975 (70.0 mg Pt/l). Color levels were highest in the summers of 1975 and 1976. Turbidity averaged 8.0 JTU and ranged from 3.4 JTU in September 1975 to 15.7 JTU in April 1975.

Nitrite nitrogen concentrations were very low through three years sampling with minimum of 0.008 mg/l and an average of 0.005 mg/l. Nitrate nitrogen concentrations were often considerably higher than nitrite and exhibited a distinct seasonal trend. Nitrate averaged 0.023 mg/l and ranged from <0.004 mg/l in June 1974 and April 1975 to 0.054 mg/l in December 1973. Nitrate concentrations were generally low in the summer months, then increased to a winter maximum in December or March (Figure 10). Nitrate concentrations were usually uniform throughout the lake. However, in September 1973 and March 1974 the south end of the lake had higher concentrations of nitrate than the north end. In September 1975, the north end of the lake had higher values than the south end. On several occasions station 004, in the northwest portion of the lake, had higher nitrate levels than the rest of the lake.

Ammonia concentrations averaged 0.03 mg/l and ranged from 0.01 mg/l in June 1974 and 1975 to 0.06 mg/l in September 1973. Total Kjeldahl nitrogen ranged from 0.66 mg/l in September 1975 to 1.28 mg/l in March 1974 and averaged 1.00 mg/l.

Total phosphate concentrations averaged 0.048 mg/l with a range from 0.035 mg/l in December 1973 to 0.072 mg/l in March 1976. Total phosphate

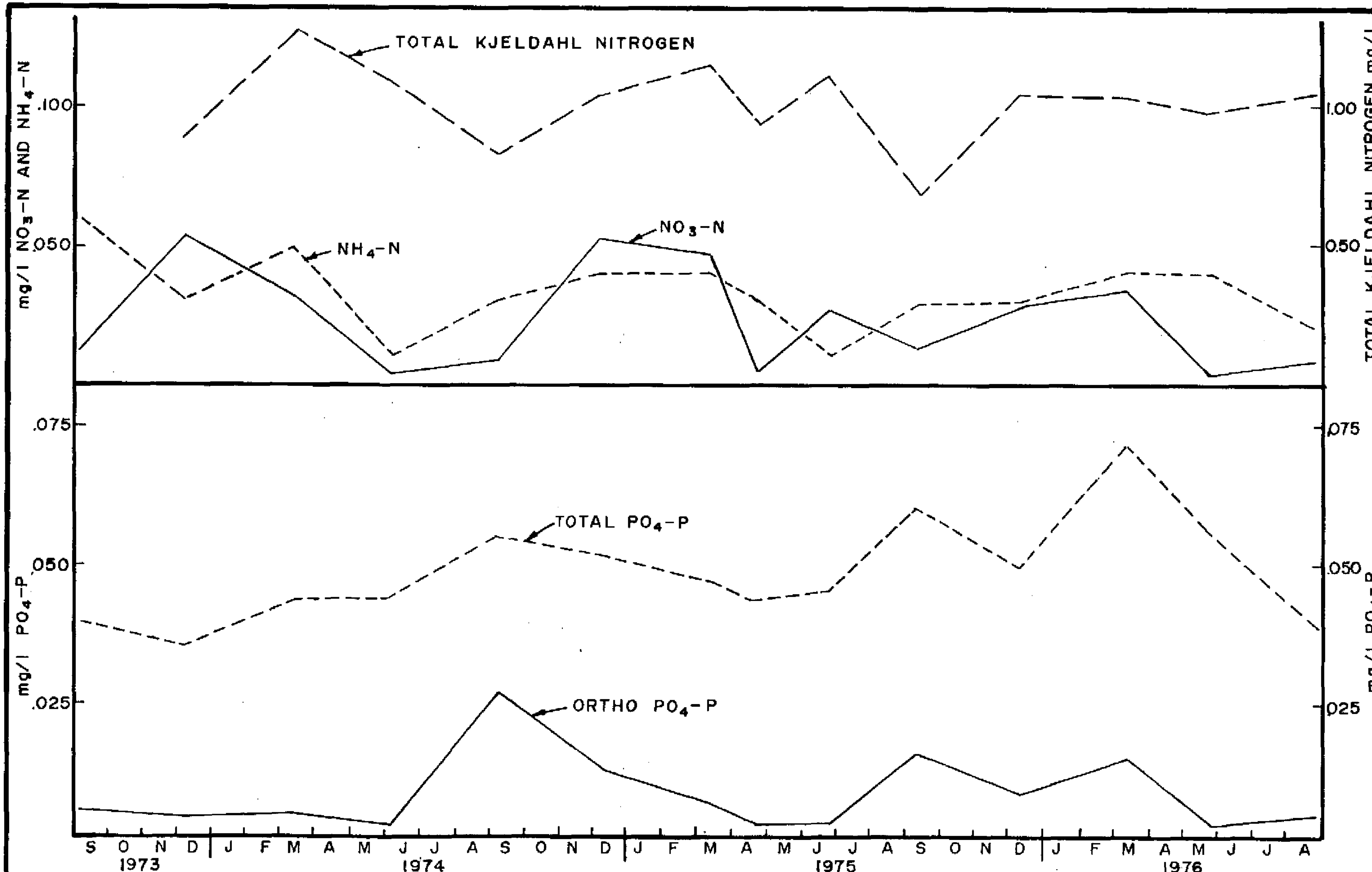


Figure 10 NITROGEN AND PHOSPHORUS CONCENTRATIONS IN LAKE ISTOKPOGA, SEPTEMBER 1973 — AUGUST 1976

was usually distributed uniformly through the lake. Concentrations exceeding twice the lake average occurred at station 013 in September 1975. Annual phosphate maximum concentrations occurred in September 1974, September 1975, and March 1976.

Ortho-phosphate concentrations paralleled total phosphate throughout the study period (Figure 10). Ortho-phosphate averaged 0.008 mg/l and ranged from 0.003 mg/l (June 1974, April and June 1975, May 1976) to 0.027 mg/l in September 1974. Total dissolved phosphate averaged 0.031 mg/l. Only in September 1973, June 1974 and 1975, and May 1976 was dissolved phosphorus less than 50% of the total phosphorus.

Concentrations of the major ions, calcium, magnesium, sodium, potassium, and chloride were generally parallel through the sampling period (Figure 11). Maximum levels for most ions occurred towards the end of the dry season (June 1974, April 1975, and March 1976). An anomalous peak for sodium (12.6 mg/l), magnesium (4.4 mg/l) and potassium (2.6 mg/l) occurred in September 1975. Average concentrations for major ions were: calcium (5.8 mg/l), magnesium (3.5 mg/l), sodium (8.5 mg/l), potassium (1.7 mg/l), and chloride (15.4 mg/l). Specific conductance ranged from 74 to 143 μmhos/cm and averaged 106 μmhos/cm. A plot of specific conductance with time generally paralleled the trend of major ions (Figure 11).

Silica ranged from 1.0 mg/l in March 1976 to 6.4 mg/l in September 1975 and averaged 2.9 mg/l. Alkalinity averaged 0.25 meq/l (12.5 mg/l $CaCO_3$) and ranged from <0.10 meq/l to 0.81 meq/l.

Lake Arbuckle

Average values for water quality parameters measured during each sampling period between September 1974 and September 1976 in Lake Arbuckle are presented in Table 18.

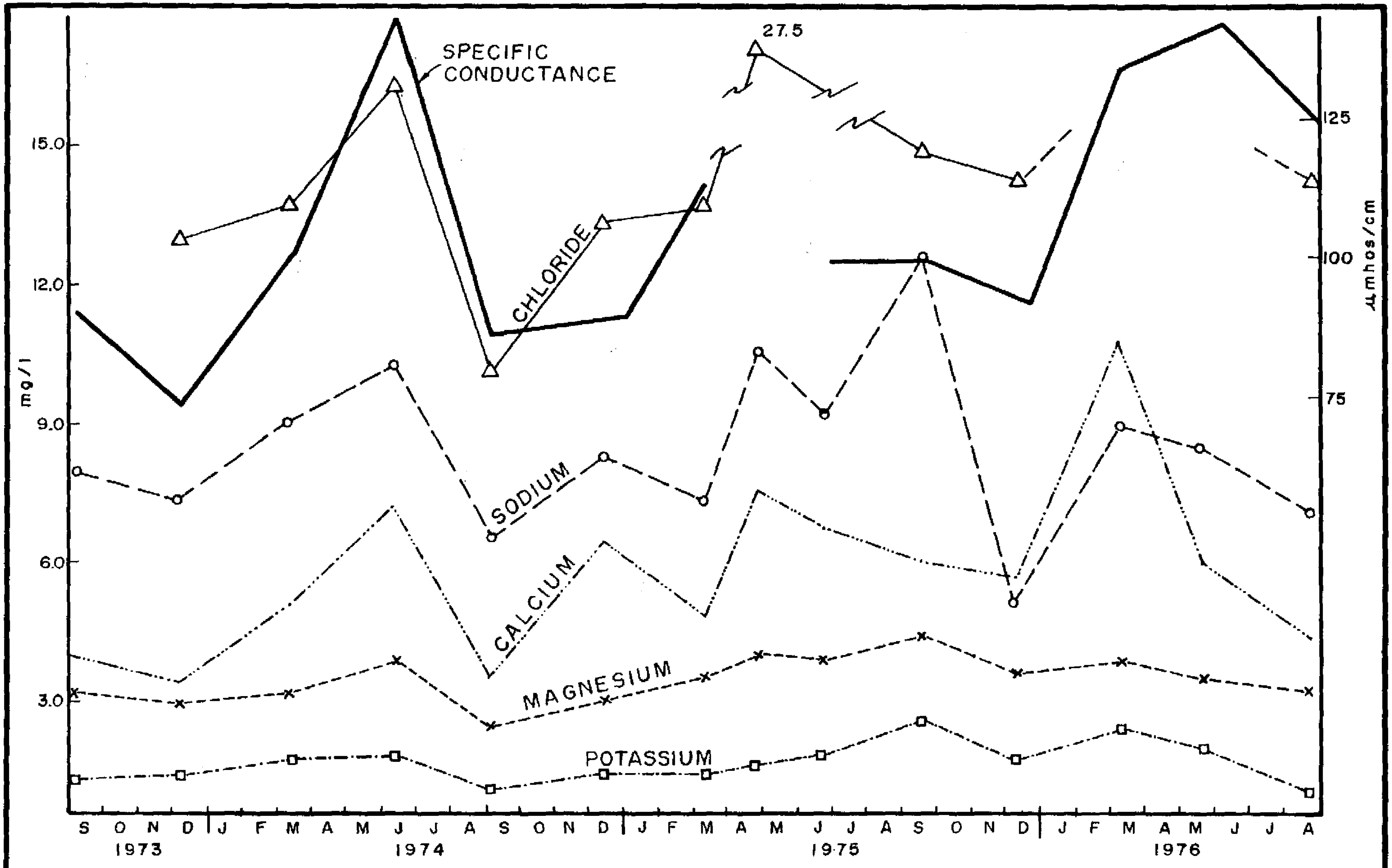


Figure 11 CONCENTRATIONS OF MAJOR IONS AND SPECIFIC CONDUCTANCE IN LAKE ISTOKPOGA, SEPTEMBER 1973 — AUGUST 1976

TABLE 18 AVERAGE WATER QUALITY CHARACTERISTICS, Lake Arbuckle

Date	Sp Cond µmho/cm	Secchi cm	Color mg Pt/l	Turb. JTU	NO_2 mg/l N	NO_3 mg/l N	NH_4 mg/l N	TKN mg/l N	o-PO_4 mg/l P	T-PO_4 mg/l P	Td-PO_4 mg/l P	CA mg/l	Mg mg/l	Na mg/l	K mg/l	Cl mg/l	SiO_2 mg/l	Alk meq/l
9-11-74	81	94	----	----	.009	.042	.10	1.19	.044	.078	.066	4.2	2.3	5.6	----	9.3	1.8	---
1-23-75	--	--	----	----	.017	.078	-.06	.66	<.002	.040	.019	6.8	4.1	8.3	2.1	11.4	1.1	---
3-4-75	118	98	90.0	2.2	<.004	.005	.02	.73	.003	.037	.018	8.1	4.6	8.7	2.2	12.6	1.1	---
7-16-75	137	117	44.5	5.4	.005	<.004	.01	.95	.007	.050	.015	8.0	5.4	8.2	1.9	14.1	0.6	---
9-18-75	94	79	355.0	2.4	.008	.034	.04	.71	<.002	.046	.016	6.6	4.2	11.9	2.3	11.6	4.4	.21
1-6-76	98	81	265.0	3.8	.006	.078	.02	1.09	.003	.047	.024	4.6	3.7	4.1	1.7	9.3	1.8	.10
3-19-76	132	93	----	----	.004	----	---	.86	.004	.053	.024	8.4	3.8	7.7	1.7	17.7	1.7	.24
6-2-76	145	99	63.5	4.9	<.004	.004	.05	.58	.003	.028	.010	9.1	5.3	8.8	2.5	12.4	1.2	.32
9-2-76	108	97	147.0	2.3	.008	.041	.04	.86	<.002	.031	.018	6.5	3.3	5.9	0.9	10.0	3.0	.26
Avg.	114	95	160.8	3.5	.007	.036	.04	.85	.008	.046	.023	6.9	4.1	7.7	1.9	12.0	1.8	.23

Secchi disc transparency ranged from 79 cm in September 1975 to 117 cm in July 1975, and averaged 95 cm. Lake Arbuckle water was darkly stained and color averaged 160.8 mg Pt/l. Color was generally lower at the end of the dry season, and high at the end of the wet season. Color and Secchi transparency were inversely related for the six dates when both parameters were measured. Turbidity averaged 3.5 JTU and ranged from 2.2 to 5.4 JTU.

Nitrite nitrogen concentrations averaged 0.007 mg/l for the study period and ranged from <0.004 mg/l in March 1975 and June 1976 to 0.017 mg/l in January 1975. Nitrate nitrogen values were more variable and ranged from <0.004 mg/l in July 1975 to 0.078 mg/l in January 1975 and 1976. Generally nitrate was low in early summer and increased during the autumn and winter. Nitrate concentrations were not always consistent through the lake on the same date. Highest concentrations of nitrate occurred in the north end of the lake in January 1976, the center of the lake in September 1975 and the south end of the lake in September 1974 and 1976, and January 1975. Ammonia concentrations averaged 0.04 mg/l and ranged from 0.01 mg/l in July 1975 to 0.10 mg/l in September 1974. Total Kjeldahl nitrogen concentrations varied from 0.58 mg/l in June 1976 to 1.10 mg/l in September 1974 and averaged 0.85 mg/l.

Total phosphate generally paralleled TKN. The highest levels of total phosphate (0.078 mg/l) occurred in September 1974, and the lowest levels (0.029 mg/l) occurred in June 1976. Average total phosphate concentration was 0.046 mg/l. Ortho-phosphate was usually low, with concentrations below detectable limits in January and September 1975 and in September 1976. In September 1974, ortho-phosphate concentration was at its maximum of 0.044 mg/l. Total dissolved phosphate averaged 0.023 mg/l and was generally between 30 and 50% of the total phosphate values.

Sodium, calcium, magnesium, and chloride ion concentrations were low in September 1974, January 1976, and September 1976, and high in March or June 1975 and June 1976. Sodium concentrations were also high in September 1975, and chloride was high in March 1976.

Specific conductance ranged from 81 μmhos/cm in September 1974 to 145 μmhos/cm in June 1976 and averaged 114 μmhos/cm.

Silica concentration ranged from 0.6 mg/l in July 1975 to 4.4 mg/l in September 1975 and averaged 1.8 mg/l. Alkalinity averaged 0.23 meq/l (12.5 mg $CaCO_3$/l) and increased from 0.10 meq/l in January 1976 to 0.38 meq/l in September 1976.

Lake Josephine

A summary of average water quality in Lake Josephine for sampling periods from September 1974 to September 1976 is presented in Table 19.

Secchi transparency was low in Lake Josephine, averaging 73 cm and ranging from 57 cm in December 1975 to 82 cm in March 1975 and September 1976. Water in Lake Josephine was darkly stained, and color averaged 119.2 mg Pt/l. Color measurements ranged from 75.0 mg Pt/l in June 1976 to 161.0 mg Pt/l in September 1976. Generally, the highest color occurred in September or December, and the lowest readings occurred in the early summer. Turbidity was variable, and ranged from 3.2 JTU in March 1975 to 9.0 JTU in June 1976, and averaged 5.7 JTU.

Nitrite nitrogen concentrations in Lake Josephine were 0.005 mg/l or less except in September 1976 when the average nitrite concentration was 0.012 mg/l.

TABLE 19 AVERAGE WATER QUALITY CHARACTERISTICS, Lake Josephine

Date	Sp Cond µmho/cm	Secchi cm	Color mg Pt/l	Turb. JTU	NO_2 mg/l N	NO_3 mg/l N	NH_4 mg/l N	TKN mg/l N	o-PO_4 mg/l P	T-PO_4 mg/l P	Td-PO_4 mg/l P	CA mg/l	Mg mg/l	Na mg/l	K mg/l	Cl mg/l	SiO_2 mg/l	Alk meq/l
9-5-74	89	76	----	----	.005	.008	.04	1.55	.018	.056	.036	3.4	2.7	4.8	0.6	9.5	0.6	----
12-19-74	74	64	----	----	<.004	.042	.11	.69	.011	.020	.010	5.3	2.6	6.2	1.1	10.1	2.1	----
3-12-75	78	82	108.0	3.2	<.004	.008	.02	.79	.009	.036	.025	4.1	2.2	5.8	1.2	10.2	1.0	----
7-17-75	63	81	79.0	5.1	<.004	.006	.02	.63	.006	.045	.018	4.5	1.8	4.7	1.2	12.1	0.9	----
9-29-75	61	73	154.0	4.0	.004	.004	.03	.83	.008	.060	.024	3.3	1.9	4.4	1.1	11.4	2.9	<.10
12-10-75	56	57	145.0	7.0	<.004	.012	.04	.97	.007	.040	.028	3.6	2.9	3.2	1.5	9.7	2.0	<.10
3-9-76	83	58	112.5	7.3	<.004	.020	.03	.83	.006	.053	.023	6.2	3.0	6.2	1.6	----	1.9	<.10
6-8-76	88	80	75.0	9.0	<.004	.033	.08	.82	.007	.036	.021	6.1	3.1	6.7	1.5	13.4	1.5	.13
9-14-76	80	82	161.0	4.0	.012	.070	.03	.95	.033	.060	.045	5.1	1.6	4.0	1.6	10.9	2.2	<.10
Avg.	75	73	119.2	5.7	.005	.023	.04	.90	.012	.045	.026	4.6	2.4	5.1	1.3	10.9	1.7	.11

Nitrate nitrogen ranged from 0.004 mg/l in September 1975 to 0.070 mg/l in September 1976 with an average of 0.023 mg/l. Average nitrate concentrations showed no seasonal trends, but varied considerably within the lake on a given date. Ammonia concentrations were also variable in Lake Josephine. Ammonia ranged from 0.02 mg/l in March and July 1975 to 0.11 mg/l in December 1974 and averaged 0.04 mg/l. Total Kjeldahl nitrogen concentrations were less than 1.00 mg/l except in September 1974 (1.55 mg/l). The minimum TKN of 0.63 mg/l occurred in July 1975 and the average for the study was 0.90 mg/l.

Total phosphorus concentrations in Lake Josephine averaged 0.045 mg/l with a high of 0.060 mg/l in September 1975 and 1976, and a low of 0.020 mg/l in December 1974. Generally, total phosphorus was higher in the summer months than in the winter months. Station 401, in the western portion of Lake Josephine, consistently had higher concentrations of phosphorus than the rest of the lake. Ortho-phosphorus concentrations ranged from 0.006 mg/l in July 1975 and March 1976 to 0.033 mg/l in September 1976 and averaged 0.012 mg/l. Concentrations of ortho-phosphate were also consistently higher at station 401 than in the rest of the lake. Total dissolved phosphorus was usually 50% or more of total phosphorus values.

Maximum concentrations of sodium, magnesium, calcium, and potassium were evidenced from December to March 1974-5, and from March to June 1976. A high chloride concentration occurred in July 1975 and June 1976. Specific conductivity averaged 75 µmhos/cm and ranged from 56 to 81 µmhos/cm.

Silica concentration ranged from 0.6 mg/l in September 1974 to 2.9 mg/l in September 1975 and averaged 1.7 mg/l. Alkalinity remained fairly low and averaged 0.11 meq/l (5.5 mg $CaCO_3$/l).

Dissolved Oxygen, Temperature and pH

Measurements of dissolved oxygen, temperature, pH and specific conductance were taken in profile from at least two stations per lake at each sampling interval. The first three, dissolved oxygen, temperature and pH, are influenced to some degree by daily climatic conditions and biological activity. Since reporting an average value for these parameters would be misleading, they are treated separately from other water quality characteristics. Complete data for these parameters are presented in Appendix C.

Water temperature exhibited obvious seasonal variation in relation to air temperature. Dissolved oxygen content varies according to changes in water temperature, phytoplankton photosynthesis and respiration, water mixing, and oxygen demand from decomposition of organic materials. The pH in a lake also varies in response to phytoplankton activities.

Vertical profiles of temperature, dissolved oxygen and pH exhibit considerable seasonal variation. Figures 12 and 13 show typical examples for a deep lake (Lake June-in-Winter) and a shallow lake (Lake Istokpoga). During the cooler, winter months the water column is well mixed and measurements of these parameters were generally uniform. A gradual decrease in values of temperature, dissolved oxygen and pH from surface to bottom became evident through the spring and summer months. Only rarely did conditions exist which would approach the classical definition of a thermocline (1^{o} C temperature change with 1 meter of depth). This condition occurred only in the upper meter of the water column in the afternoon during summer months. Cooling in the evening and/or wind action readily mixed the water and conditions were relatively uniform by the following morning.

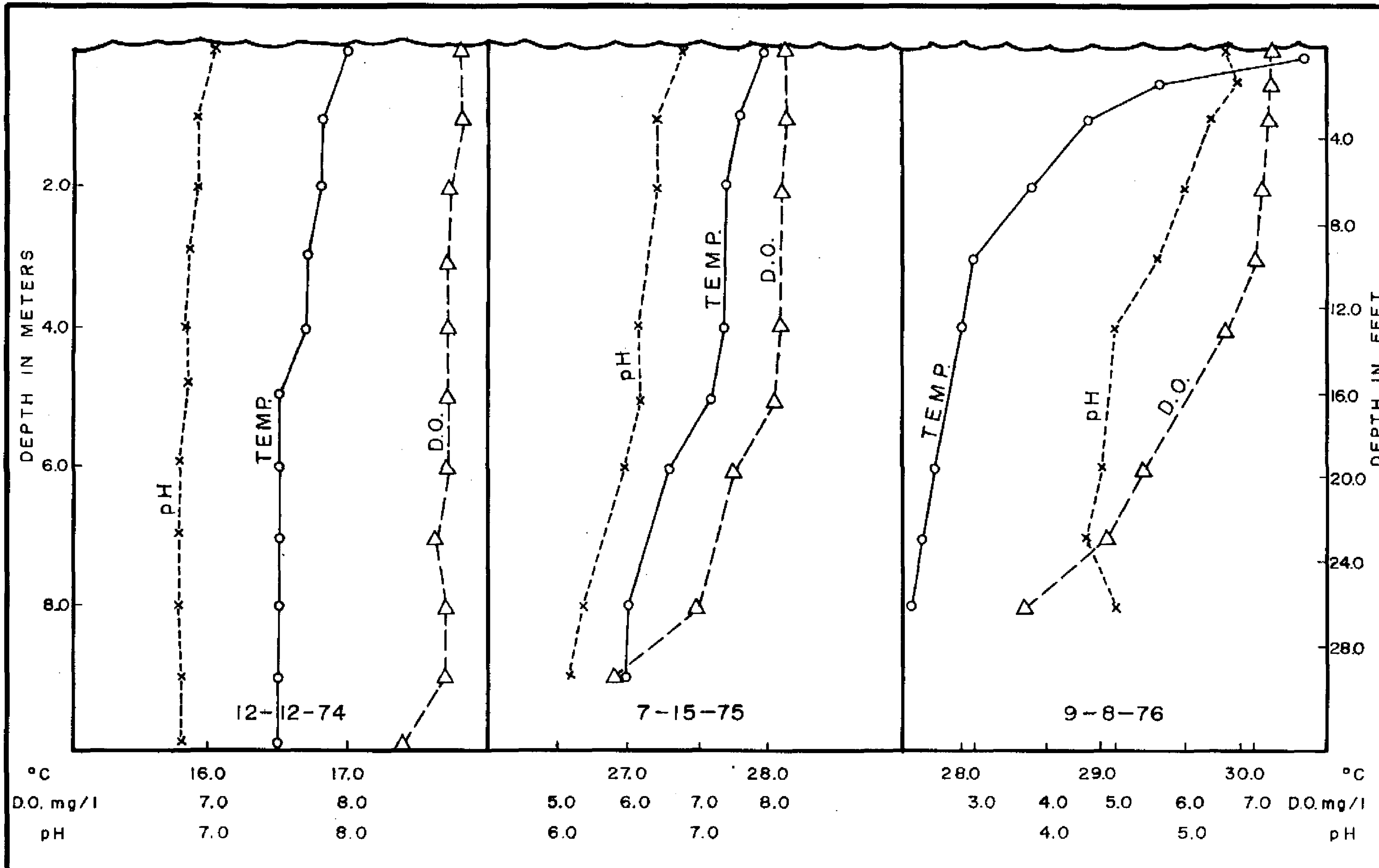


Figure 12 SELECTED VERTICAL PROFILES OF TEMPERATURE, DISSOLVED OXYGEN AND pH, LAKE JUNE-IN-WINTER

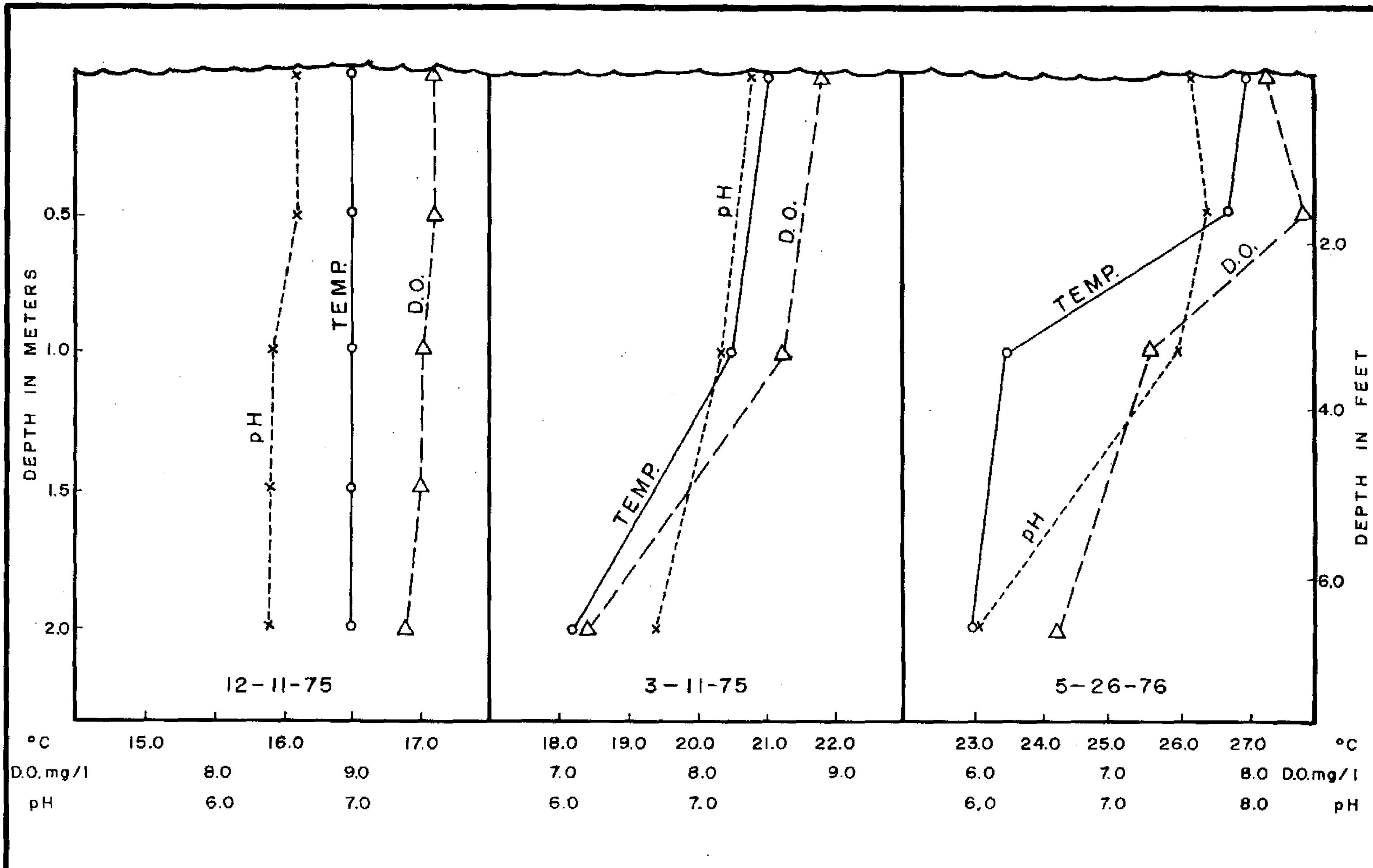


Figure 13 SELECTED VERTICAL PROFILES OF TEMPERATURE, DISSOLVED OXYGEN AND pH, LAKE ISTOKPOGA

A third example shown is Reedy Lake (Figure 14) where oxygen and pH reduction near the bottom of the water column was usually encountered.

Throughout the Istokpoga Basin lakes, pH was slightly acidic to near neutral except for Reedy Lake. The range of pH values in Reedy Lake was 7.4 to 8.6. Lakes Placid, June-in-Winter and Clay had fairly consistent pH values, ranging from only 6.0 to 7.2. A wider range of pH values occurred in the other three lakes. In Lake Istokpoga pH ranged from 6.0 to 8.6; in Lake Arbuckle 5.9 to 8.4; and in Lake Josephine 5.4 to 7.2. Maximum pH values in all lakes occurred in the months of March or June.

Primary Productivity

Lake Placid

Gross primary productivity rates and chlorophyll $\bar{a}$ concentrations as a function of water depth for each sampling period are plotted in Figure 15. This figure also summarizes the daily average gross primary production, water temperature, day length, and Secchi depth. Maximum gross productivity recorded was 1927 mg C/m^2/day in June 1976 and the minimum was 688 mg C/m^2/day in September 1976. The average gross primary production in Lake Placid was 1135 mg C/m^2/day. Production per unit volume of water in the euphotic zone was relatively low, and averaged less than 250 mg C/m^3/day. The maximum productivity per unit volume was 507 mg C/m^3/day at 1.5 m depth (Station 301) in September 1976. Photosynthesis often occurred at depths exceeding 6 m so that production per square meter of lake surface was relatively high.

Most productivity profiles indicate that photosynthetic inhibition occurred at the lake surface. Maximum productivity generally occurred between 0.5 and 2 m deep, and as deep as 4 m in December 1975.

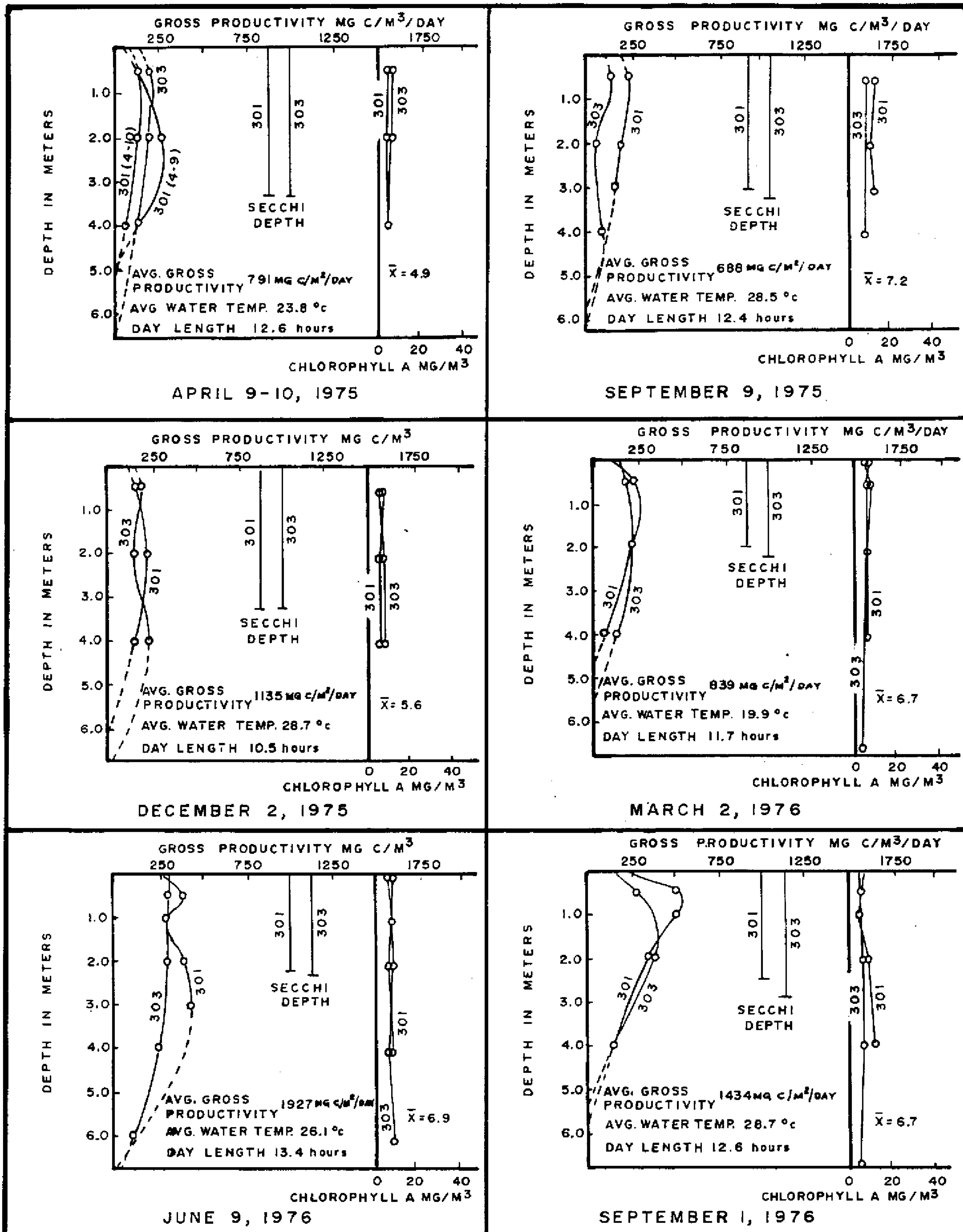


Figure 15 LAKE PLACID GROSS PRIMARY PRODUCTIVITY AND CHLOROPHYLL A PROFILES APRIL 1975 TO SEPTEMBER 1976

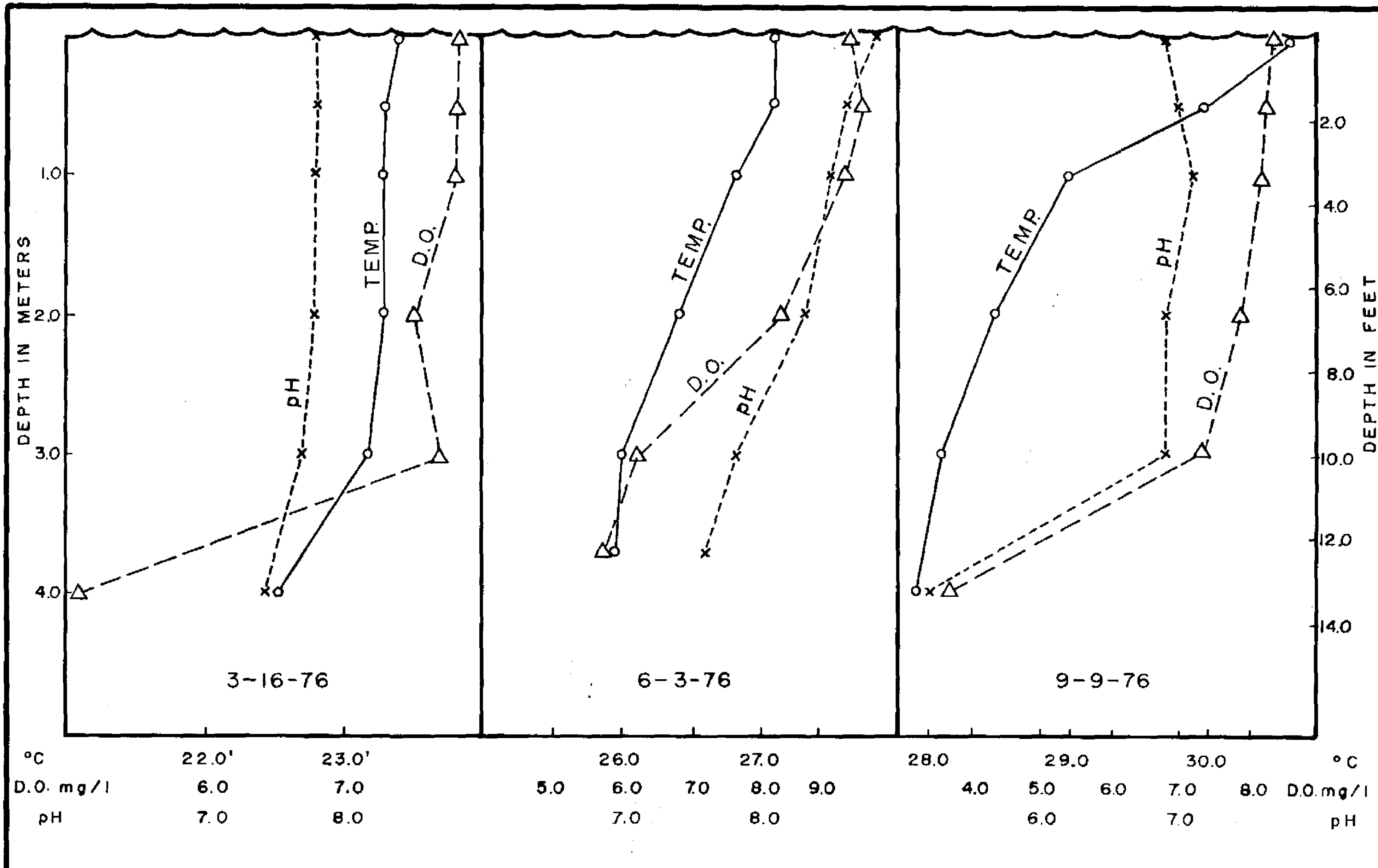


Figure 14 SELECTED VERTICAL PROFILES OF TEMPERATURE, DISSOLVED OXYGEN AND pH, REEDY LAKE

The average respiration in Lake Placid was 60 mg C/m^3/day (480 mg C/m^2/day) or about 40% of the gross primary productivity. The highest respiration was measured in June 1976 (176 mg C/m^3/day), while respiration in March 1976 was below detection limits.

Chlorophyll $\bar{a}$ concentrations were generally low throughout the study and exhibited little seasonal variation. The average chlorophyll $\bar{a}$ concentration was 6.2 mg/m^3. Vertical profiles indicated a relatively uniform phytoplankton population through the water column.

Lake June-in-Winter

Figure 16 displays gross primary production vs depth curves and chlorophyll $\bar{a}$ concentration profiles in the water column for Lake June-in-Winter.

Average gross primary productivity for Lake June-in-Winter was 1736 mg C/m^2/day. Highest productivities were recorded in September 1975 (2662 mg C/m^2/day) and September 1976 (2085 mg C/m^2/day). All other productivity measurements were relatively constant, and ranged from 1315 to 1470 mg C/m^2/day. Production per unit volume of water in the euphotic zone was less than 450 mg C/m^3/day except for September measurements. The maximum productivity was 906 mg C/m^3/day at a depth of 1.0 m (Station 206) in September 1976. All productivity profiles indicated photosynthetic inhibition at the surface.

The average respiration in Lake June-in-Winter was 56 mg C/m^3/day, (347 mg C/m^2/day) or about 20% of the gross primary production. Respiration measurements ranged from 142 mg C/m^3/day in May 1975 to below detection in September and December 1975.

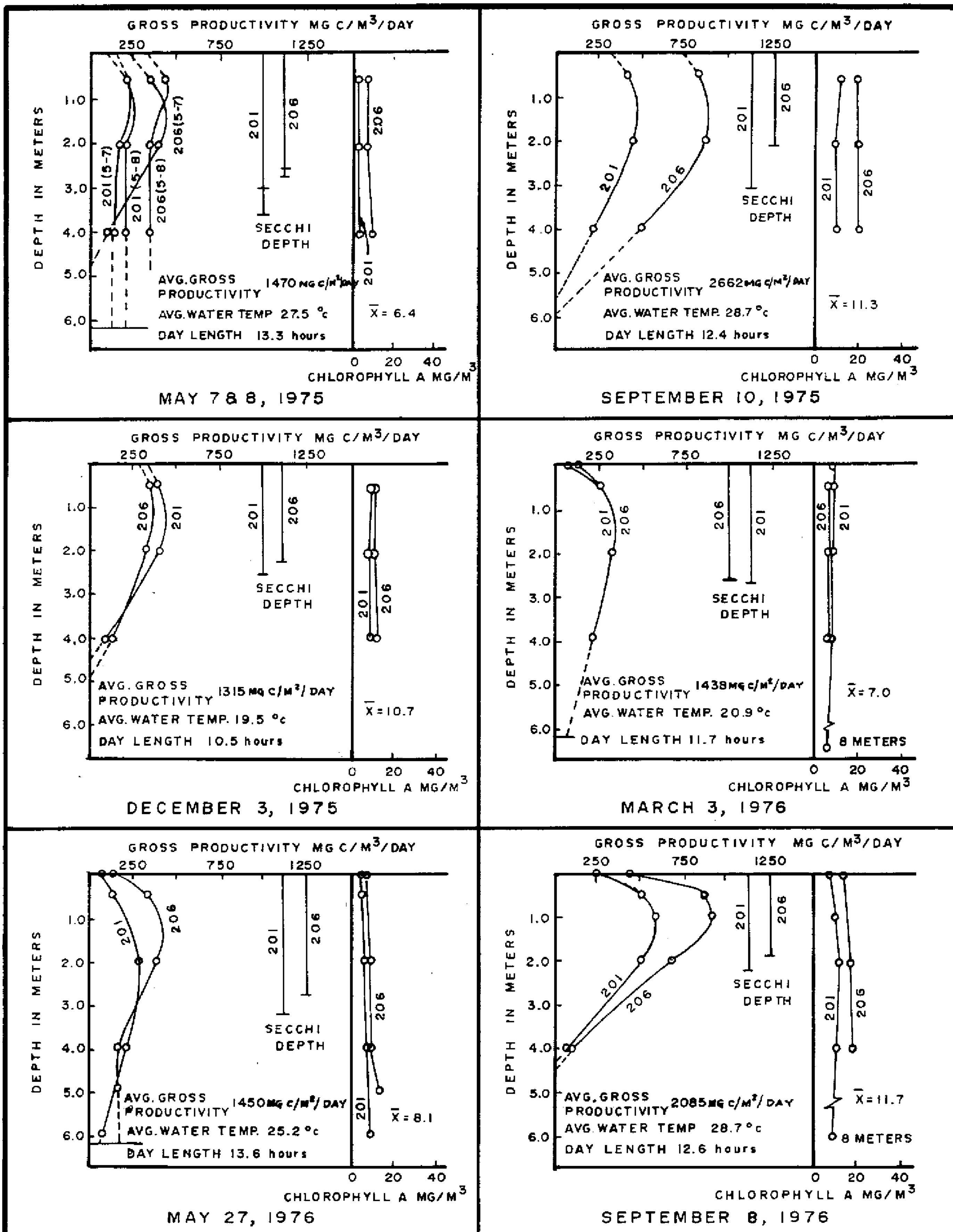


Figure 16 LAKE JUNE-IN-WINTER GROSS PRIMARY PRODUCTIVITY AND CHLOROPHYLL A PROFILES MAY 1975 TO SEPTEMBER 1976

The highest chlorophyll $\bar{a}$ concentrations coincide with the highest primary productivities. The average chlorophyll $\bar{a}$ concentration was 9.3 mg/m^3, with a low of 4.9 mg/m^3 in May 1975 and a high of 13.3 mg/m^3 in September 1975. Graphs of chlorophyll $\bar{a}$ vs depth show uniform concentrations through the water column.

Lake Clay

Gross primary productivity vs depth and chlorophyll $\bar{a}$ concentrations vs depth profiles for five sampling periods in Lake Clay are depicted in Figure 17. Also included on these graphs is average gross primary production, water temperature, day length and Secchi depth.

The average gross primary productivity for Lake Clay was 1544 mg $C/m^2/day$. Maximum productivities each year were 3114 mg $C/m^2/day$ and 1985 $C/m^2/day$ in September 1975 and 1976, respectively. The minimum productivity measured was 544 mg $C/m^2/day$ in March 1976.

Productivity curves from December, March and June showed little variation in production vs depth, and maximum production was less than 435 mg $C/m^3/day$ at any depth. The September 1975 and 1976 productivity measurements exhibited more variability with depth. Maximum gross primary production of 1453 mg $C/m^3/day$ (0.5 m) and 775 mg $C/m^3/day$ (1.0 m) was measured in September 1975 and 1976, respectively. Inhibition of photosynthesis at the lake surface was evident in most profiles.

Respiration averaged 150 mg $C/m^3/day$ (645 mg $C/m^2/day$) in Lake Clay, or about 40% of the gross primary productivity. Average respiration was highest in September 1975 (267 mg $C/m^3/day$) and lowest in March 1976 (77 mg $C/m^3/day$).

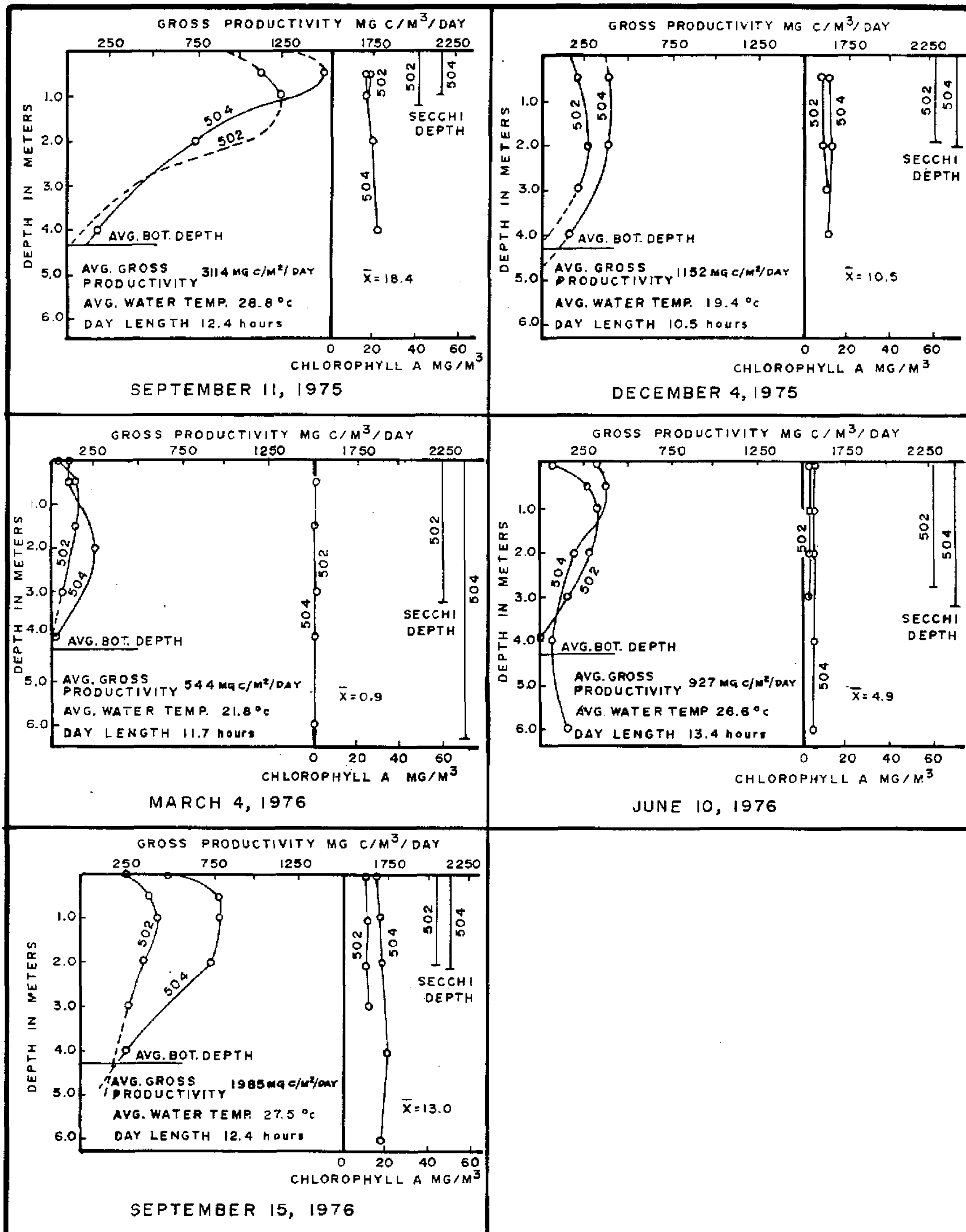


Figure 17 LAKE CLAY GROSS PRIMARY PRODUCTIVITY AND CHLOROPHYLL A PROFILES, SEPTEMBER 1975 TO SEPTEMBER 1976

Figure 17 shows that chlorophyll $\bar{a}$ was uniformly distributed through the water column, although average concentrations fluctuated considerably with season. Average chlorophyll $\bar{a}$ concentrations ranged from 0.9 mg/m^3 in March 1976 to 18.4 mg/m^3 in September 1975, with an average of 9.6 mg/m^3. Gross primary productivity and chlorophyll $\bar{a}$ concentrations exhibited a linear relationship through the study.

Reedy Lake

Gross primary productivity rates and chlorophyll $\bar{a}$ concentrations vs depth for each sampling period are plotted in Figure 18. This figure also includes daily average gross primary production, water temperature, day length and Secchi depth.

Maximum gross productivity was 4502 mg C/m^2/day in June 1976 and the minimum was 1260 mg C/m^2/day in January 1976. The average gross primary productivity was 2903 mg C/m^2/day. Productivity values showed considerable variation through the water column. The maximum production per unit volume exceeded 2200 mg C/m^3/day at 1.0 m depth in June 1976 and at 0.5 m in September 1976. Peak productivity in all cases occurred between 0.5 and 1.0 m water depth, and inhibition of photosynthesis occurred at the surface.

Respiration averaged 175 mg C/m^3/day in Reedy Lake, or about 25% of the average gross primary productivity. The maximum respiration of 309 mg C/m^3/day occurred in September 1976, and the minimum (73 mg C/m^3/day) in June 1976.

Average chlorophyll $\bar{a}$ concentrations were high and ranged from 59.6 mg/m^3 in September to 18.9 mg/m^3 in March. The average of all four samples was 42.5 mg chlorophyll $\bar{a}/m^3$. Concentrations were relatively uniform through the water column, with the exception of a surface bloom at Station 603 in January 1976 (80.3 mg chlorophyll $\bar{a}/m^3$).

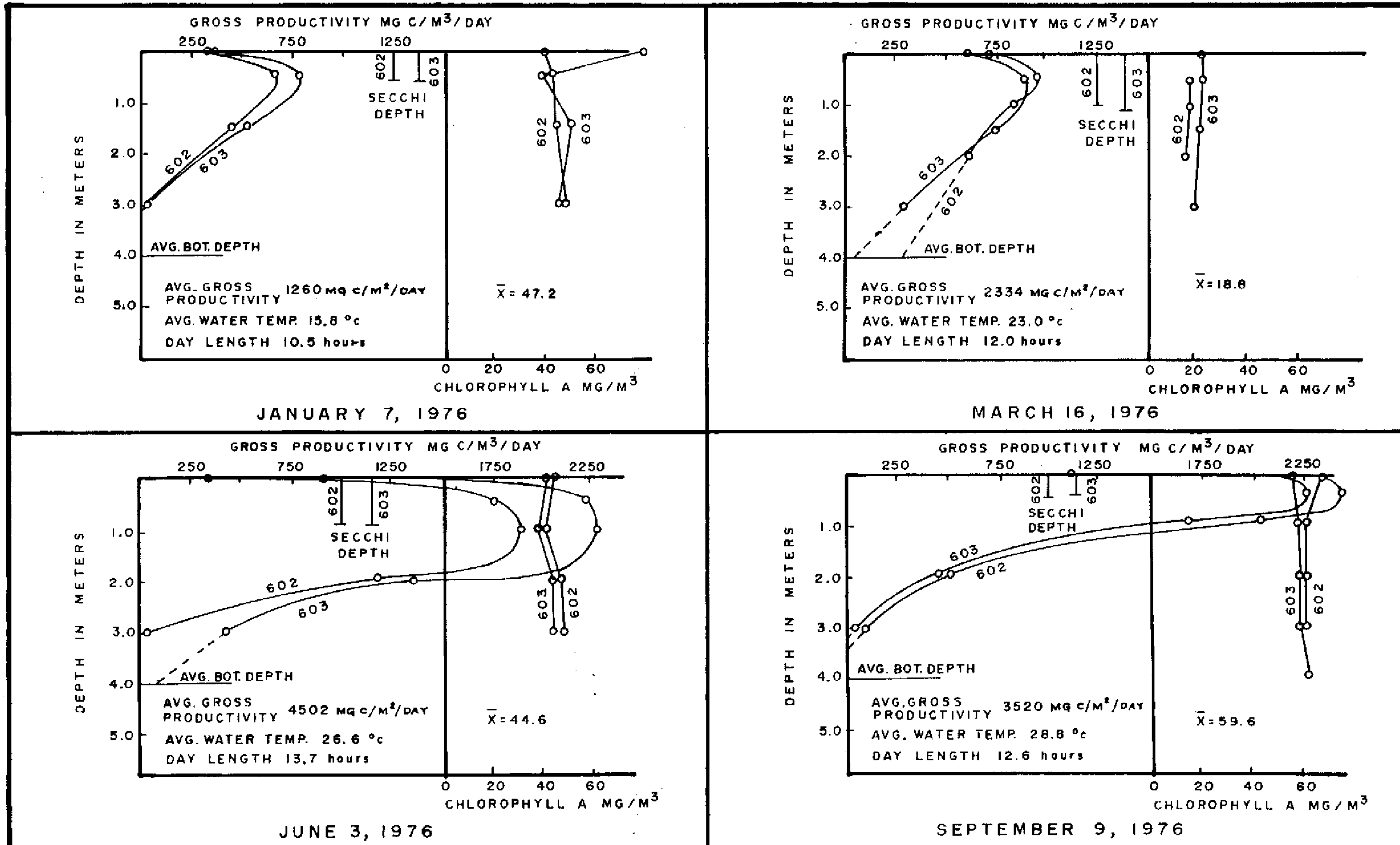


Figure 18 REEDY LAKE GROSS PRIMARY PRODUCTIVITY AND CHLOROPHYLL A PROFILES, JANUARY 1976 TO SEPTEMBER 1976

Lake Istokpoga

The results of primary productivity measurements and sampling for chlorophyll ā concentration in Lake Istokpoga are depicted in Figure 19. Other pertinent data such as water temperature, day length, and Secchi depth are also included.

The average gross primary productivity in Lake Istokpoga from April 1975 to August 1976 was 644 mg C/m^2/day. Annual productivity peaks occurred in June 1975 (1259 mg C/m^2/day) and May 1976 (1124 mg C/m^2/day). The minimum productivity recorded was 254 mg C/m^2/day in March 1976.

Most of the primary production was confined to the upper meter of the water column. Maximum production usually occurred at the lake surface, and then declined rapidly with depth. The greatest production per unit volume of water (1141 mg C/m^3/day) however, occurred in May 1976 at a depth of 0.5 m.

Respiration in Lake Istokpoga averaged 69 mg C/m^3/day, slightly less than 20% of the average gross primary productivity. Respiration measurements varied from 6 mg C/m^3/day in March 1976 to 171 mg C/m^3/day in June 1975, but exhibited no apparent seasonal trend.

Chlorophyll ā concentrations were relatively constant through the study, ranging from 14.2 mg/m^3 in June 1975 to 21.6 mg/m^3 in August 1976. The average chlorophyll ā concentration for the study was 17.0 mg/m^3. Vertical profiles of chlorophyll ā through the water column were generally uniform. Increases in chlorophyll ā from surface to bottom were evident in June 1975, March 1976 and May 1976.

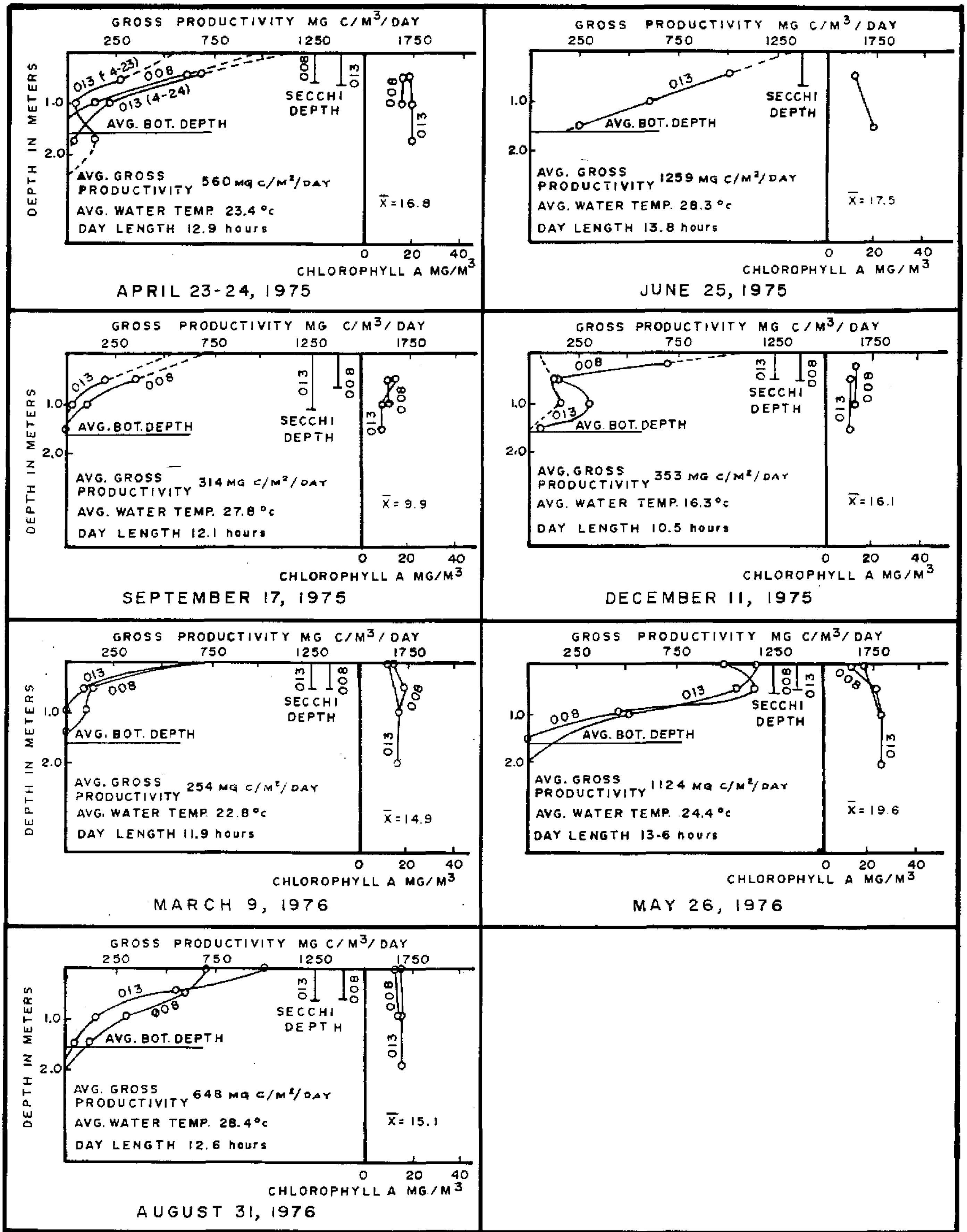


Figure 19 LAKE ISTOKPOGA GROSS PRIMARY PRODUCTIVITY AND CHLOROPHYLL A PROFILES APRIL 1975 TO AUGUST 1976

Lake Arbuckle

Gross primary productivity rates and chlorophyll $\bar{a}$ concentrations as a function of water depth are plotted in Figure 20 for Lake Arbuckle. This figure also summarizes daily average gross primary production, water temperature, day length and Secchi depth.

Average gross primary productivity in Lake Arbuckle was 1383 mg C/m^2/day. Productivity peaks occurred in July 1975 (2247 mg C/m^2/day) and June 1976 (1931 mg C/m^2/day). Minimum values were recorded in January and March 1976 of 646 and 626 mg C/m^2/day respectively.

Maximum production in the water column usually occurred at the surface, and decreased with depth. However, photosynthetic inhibition occurred at the surface at Station 104 in July 1975, at Station 103 in March 1976 and at both stations in June 1976. The maximum production per unit volume of water was 1723 mg C/m^3/day at the surface in September 1976.

Respiration averaged 137 mg C/m^3/day (274 mg C/m^2/day) or about 20% of the average gross primary productivity, and ranged from 15 mg C/m^3/day in January 1976 to 357 mg C/m^3/day in June 1976.

Average chlorophyll $\bar{a}$ concentrations in Lake Arbuckle were variable and ranged from 14.8 mg/m^3 in March 1976 to 50.4 mg/m^3 in January 1976. The values measured in January 1976 reflected an algal bloom which was concentrated at the surface. Station 103 had 188.4 mg chlorophyll $\bar{a}$/m^3 at the surface, but much lower concentrations deeper in the water column. The average chlorophyll $\bar{a}$ value for the study in Lake Arbuckle was 25.6 mg/m^3. There appeared to be little relationship between primary production and chlorophyll $\bar{a}$ for the dates sampled, but a closer relation between primary production and water temperature and secchi depth was apparent.

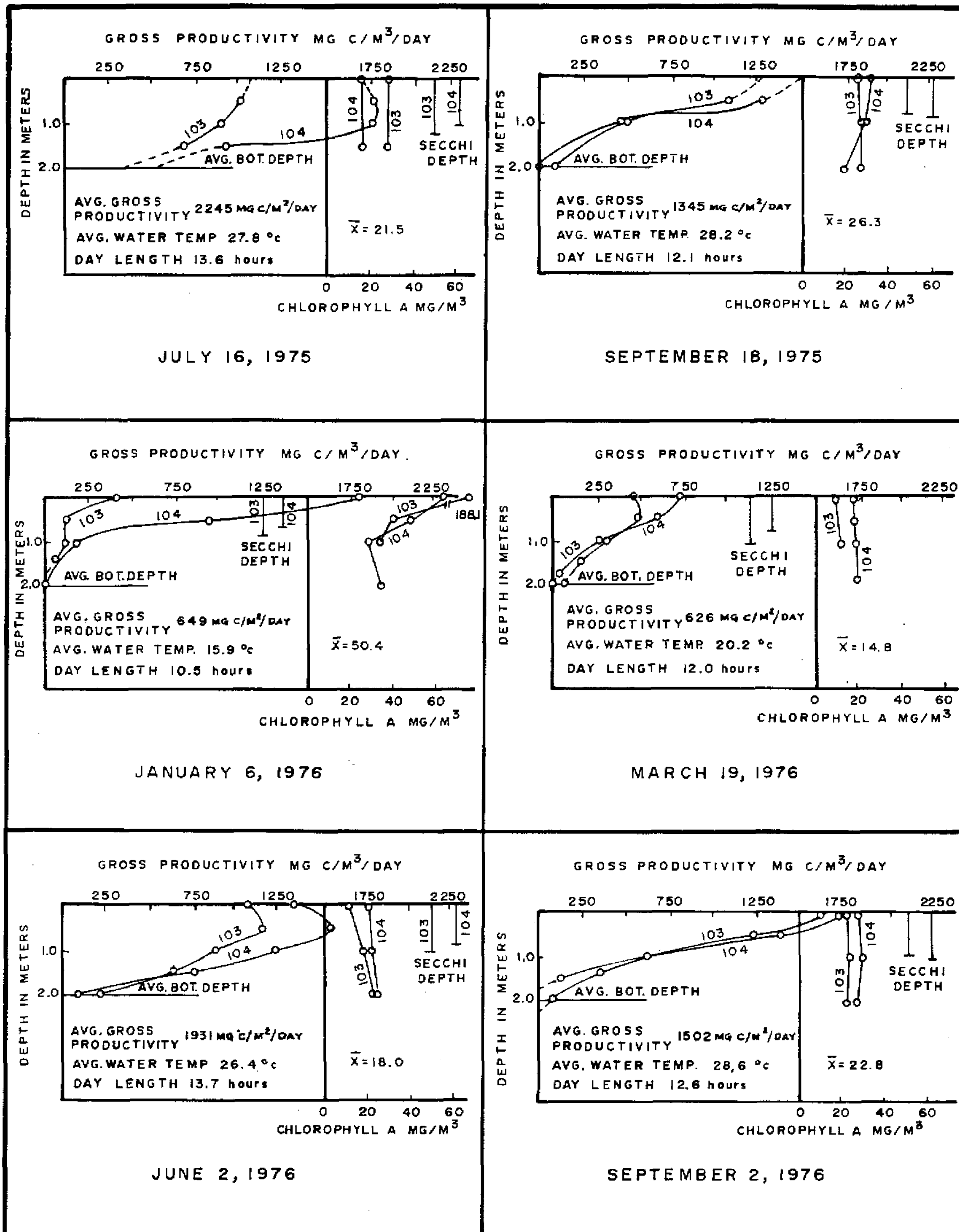


Figure 20 LAKE ARBUCKLE GROSS PRIMARY PRODUCTIVITY AND CHLOROPHYLL A PROFILES JULY 1975 TO SEPTEMBER 1976

Lake Josephine

Figure 21 shows profiles of gross primary productivity and chlorophyll $\bar{a}$ concentration vs water depth. Also summarized in this figure is average gross productivity, water temperature, day length, and Secchi depth.

The average gross primary production in Lake Josephine from September 1975 to September 1976 was 651 mg C/m^2/day. Productivities were considerably higher in the summer months than in the winter. The maximum gross primary productivity was 1003 mg C/m^2/day in June 1976 and the minimum was 213 mg C/m^2/day in March 1976.

Maximum production occurred at the lake surface on all dates except June 1976. On this date photosynthetic inhibition was evident at the surface and maximum productivity occurred at 0.5 m depth. The maximum production per unit volume was 1832 mg C/m^3/day at the surface (Station 401) in September 1976.

Respiration averaged 139 mg C/m^3/day (278 mg C/m^2/day) or about 43% of average gross primary production. Respiration values were variable and ranged from 278 mg C/m^3/day in September 1976 to zero in March 1976.

Chlorophyll $\bar{a}$ concentrations ranged from 15.8 mg/m^3 in December 1975 to 30.6 mg/m^3 in September 1976 and averaged 20.6 mg/m^3 for the study. High concentrations of chlorophyll $\bar{a}$ occurred in September of each year. Chlorophyll $\bar{a}$ concentrations were generally uniform through the water column at each station sampled, but were not always uniformly distributed within the lake. Chlorophyll $\bar{a}$ concentrations averaged about 10 mg/m^3 higher at Station 403 than in the remainder of the lake from September 1975 to March 1976.

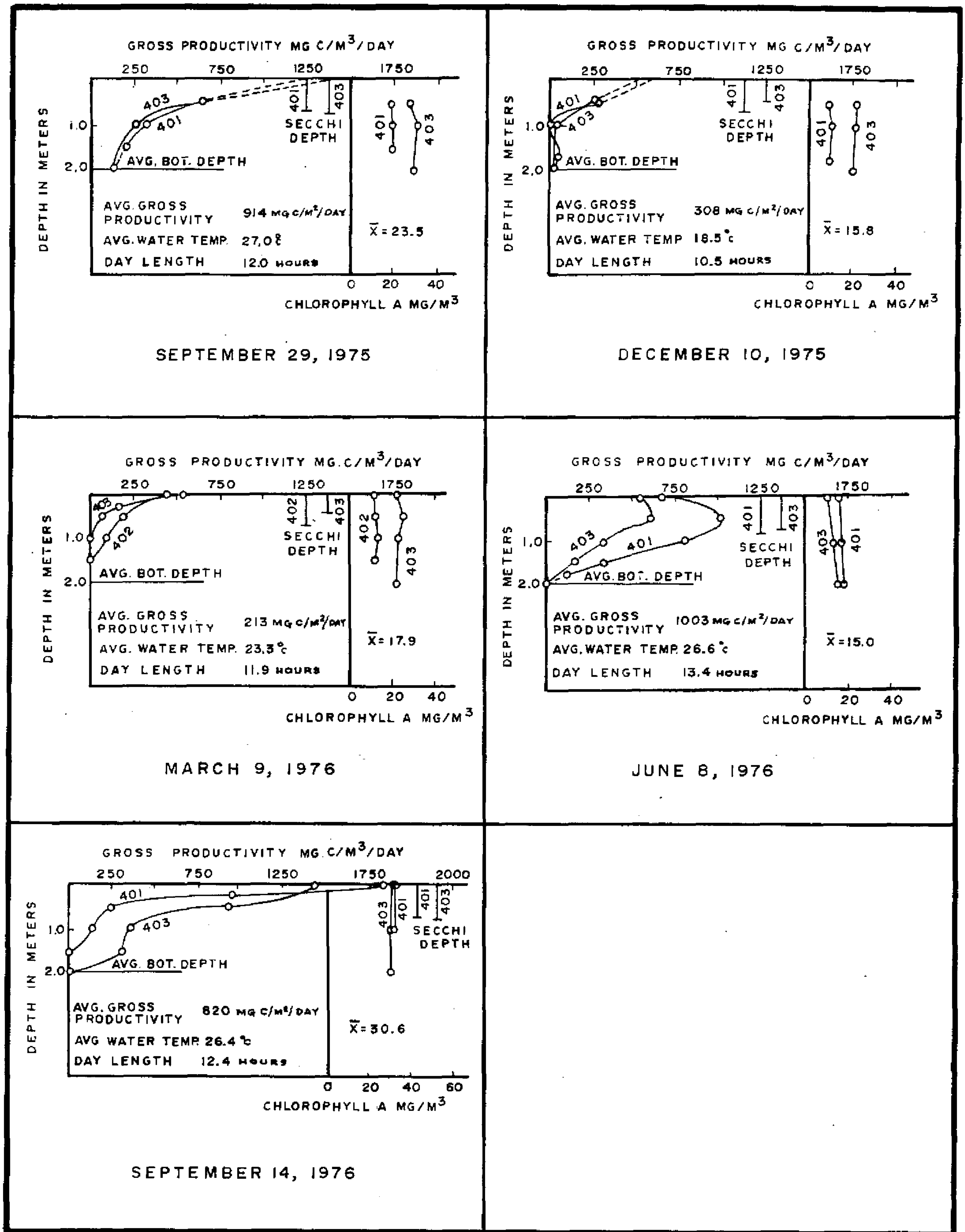


Figure 21 LAKE JOSEPHINE GROSS PRIMARY PRODUCTIVITY AND CHLOROPHYLL A PROFILES SEPT. 1975 TO SEPT. 1976

Istokpoga Basin Tributaries

Water quality results from the Josephine Creek drainage system and the Arbuckle Creek drainage system are provided in Appendix D.

DISCUSSION

Littoral Zone

The distribution of aquatic macrophytes within the littoral region of a lake is dependent on several factors including the shape of the lake basin and its slope in the vicinity of the shore, substrate characteristics, exposure to and characteristics of waves, light penetration (Hutchinson, 1975) and water level fluctuations.

Emergent aquatic vegetation in Lakes Placid and June-in-Winter consisted of a fairly uniform band of maidencane. The rather steep sloping sides of these two deep lakes probably limit the area available for emergent plant growth. Submergent vegetation in the lower infra littoral zone (Wetzel, 1975) was reported in both lakes, as deep as 12 ft (3.7 m) in Lake June-in-Winter. This depth is closely related to the transparency of the water (Hutchinson, 1975).

Past and present efforts at water level control on Lake Placid and Lake June-in-Winter have reduced the amount of annual water level fluctuation, and hence have reduced the area available for aquatic or semi-aquatic plant growth. Littoral vegetation (exclusive of the submergent zone) inhabited 3.7% of the surface area of Lake June-in-Winter and 3.1% of Lake Placid. Personal observations indicate that the other two deep lakes, Clay and Reedy, have similar proportions of littoral coverage.

Lake Istokpoga is considerably more shallow than the clear lakes on the Highlands Ridge. Consequently, a larger portion of the lake bottom is at a depth that is conducive to aquatic macrophyte growth. Measurements based on recent aerial photography showed that 11.6% of the lake was inhabited by emergent littoral vegetation. Aerial photography of Lake Istokpoga since 1944 shows a substantial increase in the littoral vegetation around Big and Bumblebee Islands. This increase in the midlake area was probably related to changes in the lake fluctuations due to water control efforts. High lake stages have been reduced by the Istokpoga Canal since 1949, and have been reduced further by S-68 since 1962. Undoubtedly there has also been a decrease in the littoral habitat above the regulated high lake stages.

Other large, shallow lakes have as much, or considerably more, littoral vegetation than Lake Istokpoga. Pesnell (1976) calculated that 21% (95,482 acres) of 448,000 acre Lake Okeechobee was occupied by littoral vegetation. After an experimental drawdown, Wegener (1974) reported that 10,500 acres of 22,7000 acre Lake Tohopekaliga had "desirable littoral vegetation."

Based on personal observation, the proportion of emergent littoral zone relative to lake surface area in Lakes Arbuckle and Josephine was probably of similar magnitude to Lake Istokpoga.

Benthic Invertebrate Sampling

Macroinvertebrates are defined as those organisms retained by a U.S. Standard #30 sieve (U.S.E.P.A., 1973). A larger size sieve (#20) was used in this work to expedite the collection and processing of a large number of benthic samples in a short period of time. It can be assumed that some individuals, and perhaps some taxa were not sampled by the techniques employed here. Caution should be employed in attempting to compare these results and diversities with other literature values.

A total of 46 different benthic species were recovered during the sampling, and 13 of these species were recovered from all four lakes. An additional five species were found in three of the four lakes. The greatest number of species (30) were found in Lake Istokpoga and Lake June-in-Winter, and the least number (22) in Lake Placid. The largest number of species would be expected in Lake Istokpoga since sampling was undertaken during a 15 month period and the other lakes were sampled only once in the fall and early winter of 1974-75. The large number of species that were recovered from Lake June-in-Winter partly resulted from sampling in a unique habitat of submergent vegetation in 12 feet of water. Seven benthic species in Lake June-in-Winter were unique to this submergent vegetation. Lake Istokpoga had a considerably smaller average density of benthic organisms, $71/ft^2$ ($764/m^2$), than the other lakes, which had 148-183 individuals/ft^2 (1592-1969/m^2). The densities from Lakes Arbuckle, Placid and June-in-Winter were high due to a few samples with large numbers of _Glyptotendipes paripes_.

Lakes Istokpoga and Arbuckle are dark colored, shallow lakes, while Placid and June-in-Winter are clear and deep. Major differences in species composition between lakes were apparent in the class Pelecypoda. _Corbicula leana_, the Asiatic clam, was abundant in Lakes Istokpoga and Arbuckle, but absent from the deep, clear lakes. _Corbicula_ can become extremely abundant on lake bottoms and in creeks, and can compete with native clams for food and space. _Corbicula_ may have some potential as food for human consumption and is presently a food source for some waterfowl (Ehlers, 1972). Conversely, Sphaerium sp. were common in Lakes Placid and June-in-Winter, but were absent from the dark, shallow lakes.

Within each lake, differences were apparent between species distribution and benthic habitat. Bottom sediments were primarily sandy, with various amounts of mud, silt and detritus. Generally, the sandy sediments occupied shallow bottoms, and the amount of organic material in the sediment increased with depth.

In Lake Istokpoga, sandy sediments generally had the lowest diversity index, but had the highest densities of Corbicula leana. Two of the routinely sampled locations were at the mouths of Arbuckle Creek and Josephine Creek, where swiftly moving water would prevent accumulation of small particles, and where conditions were favorable for a filter feeding organism such as Corbicula. In contrast, detrital feeding organisms such as Viviparus georgianus and Hexagenia munda orlando showed a definite preference for the mud and detritus sediments.

Relationships between benthic species and bottom type were consistent in Lake Arbuckle. The sandy areas had consistently higher densities of individuals, number of species, and diversity indices than the mud areas.

The transects that were established in Lake June-in-Winter were similar to each other with respect to depths sampled and substrate types. Only slight differences in species composition were evident between the transects. Diversity indices were highest on the transect that was adjacent to the native shoreline and were lowest on the transect adjacent to the residential shoreline. Along each transect the number of species reached the maximum at the 3.7 m (12 ft) depth where submergent vegetation was present. At the

11.6 m (38 ft) depth, where the sediment was entirely mud, benthic organisms were nearly absent.

Sample depths and substrate conditions were similar along each of the three transects on Lake Placid. Consequently, species composition was also similar from each of the transects except for large numbers of Glyptotendipes paripes and Sphaerium sp. recovered from a depth of 9.2 (30 ft) on transect CD. Hexagenia munda orlando showed a preference for mud sediments at the greater depths, and 87% of these mayflies were recovered from depths of 9.2 m (30 ft) or more. Likewise, 86% of Chaoborus punctipennis were found in mud sediments in 16.2 m (53 ft) of water. The benthic diversity index was highest for samples from the transect adjacent to the citrus shoreline, and lowest from the transect adjacent to the residential shoreline.

Many investigators have attempted to classify the quality of a habitat by the "indicator" species that are present. Beck (1972) has classified many aquatic invertebrate species as Class I (good quality) to Class V (poor quality) organisms based on the substrate quality. Each of the four lakes contain species from each of the five classes, and the bottom types in these lakes ranged from clean, firm sand to very loose, muddy bottoms. For example, both Viviparus sp. and Hexagenia munda orlando are Class V organisms according to Beck and showed a preference for mud dominated sediments.

Water Chemistry

The seven lakes that were sampled in the Istokpoga Basin fall into two general catagories. Lakes Placid, June-in-Winter, Clay and Reedy had low color (11.6-22.2 mg Pt/l)and were relatively deep. Lakes Istokpoga, Arbuckle and Josephine, had high color (119.2-160.8 mg Pt/l) and were shallow.

Table 20 summarizes the average water quality characteristics of Istokpoga Basin lakes. The nutrient composition of water in the dark lakes was substantially different from nutrient composition in the clear lakes. The dark lakes had considerably higher concentrations of total phosphate, ortho-phosphate and total Kjeldahl nitrogen than clear lakes. Reedy Lake was an exception and had the highest total Kjeldahl nitrogen levels of all lakes. Variations in concentration of the chemical parameters from one sampling period to the next were more pronounced in the dark lakes than in the clear lakes, as is evident by the standard deviation values in Table 20. The volume of dark, shallow lakes was much less than clear, deep lakes of similar surface area. Therefore, the dark lakes have less water available to dilute surface inflows, and experience greater fluctuations in concentration of chemical parameters than the clear lakes.

Despite differences in water color and primary nutrient composition, other characteristics of water quality were similar throughout the basin. Six of the seven lakes, Istokpoga, Arbuckle, Josephine, June-in-Winter, Placid and Clay, had many similar characteristics.

Generally, water in the Istokpoga Basin lakes was slightly acidic to neutral (pH 6.1 - 7.0) and quite soft, with alkalinity ranging from 0.11 meq/l to 0.36 meq/l (5.5 to 17.0 mg $CaCO_3$/l). The major dissolved chemical constituents, in order of concentration, were chloride, sodium, calcium, magnesium, potassium, and silica. Concentrations of these substances were relatively low so average specific conductance was also low, from 50 μmhos/cm to 137 μmhos/cm in Lake Clay.

Reedy Lake did not fit the general characteristics of either the deep, clear lakes or the dark shallow lakes. Reedy Lake was the northern-most

TABLE 20 AVERAGE WATER QUALITY CHARACTERISTICS, ISTOKPOGA BASIN LAKES

Lake		Color mg/l Pt	Turb JTU	pH	Sp Cond μmho/cm	Secchi cm	NO_2 mg/l N	NO_3 mg/l N	NH_4 mg/l N	TKN mg/l N	o-PO_4 mg/l P	T-PO_4 mg/l P	Td-PO_4 mg/l P	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	Cl mg/l	SiO_2 mg/l	Alk meq/l
Istokpoga	$\bar{x}$	155.4	8.0	6.8	106	69	.005	.023	.03	1.00	.008	.048	.031	5.8	3.5	8.5	1.7	15.4	2.9	.25
	S.D.	77.0	3.2	.7	22	15	.001	.017	.02	.15	.006	.009	.013	1.9	.5	1.9	.4	4.5	1.6	.32
Arbuckle	$\bar{x}$	160.8	3.5	7.0	114	95	.007	.036	.04	.85	.008	.046	.023	6.9	4.1	7.7	1.9	12.0	1.8	.25
	S.D.	123.9	1.4	.8	23	12	.004	.030	.03	.20	.013	.014	.016	1.7	1.0	2.3	.5	4.3	1.2	.11
Josephine	$\bar{x}$	119.2	5.7	6.1	75	73	.005	.023	.04	.90	.012	.045	.026	4.6	2.4	5.1	1.3	10.9	1.7	.11
	S.D.	35.0	2.1	.6	12	10	.002	.022	.03	.27	.008	.013	.010	1.1	.6	1.2	.3	1.3	.7	.02
June-In Winter	$\bar{x}$	13.2	3.3	6.6	124	258	.004	.056	.03	.49	.002	.014	.005	5.6	3.8	7.8	2.4	13.8	0.5	.25
	S.D.	5.5	0.9	.3	10	38	.000	.055	.01	.06	.000	.002	.001	1.2	.3	.6	.5	1.2	.2	.01
Placid	$\bar{x}$	11.6	2.5	6.7	50	256	.004	.035	.03	.36	.002	.012	.005	2.0	1.4	4.9	0.8	9.7	0.5	.15
	S.D.	2.9	1.0	.4	9	91	.000	.038	.05	.11	.001	.003	.000	.5	.3	.9	.2	3.1	.1	.08
Clay	$\bar{x}$	22.2	3.3	6.9	137	237	.005	.058	.03	.64	.003	.014	.006	7.0	4.0	8.3	4.3	15.5	0.8	.36
	S.D.	24.2	1.0	.2	12	127	.001	.098	.02	.17	.000	.005	.001	1.2	.5	.6	.7	1.2	.4	.33
Reedy	$\bar{x}$	18.1	8.2	7.9	217	78	.005	.083	.26	1.30	.003	.021	.005	15.4	7.0	11.6	3.9	16.1	6.0	.87
	S.D.	7.7	2.9	.5	15	24	.002	.114	.44	.39	.001	.006	.003	1.9	.7	2.0	.6	2.6	.8	.14

lake sampled in the basin, located near the city of Frostproof, and was influenced by effluent from the city waste water treatment plant and a large citrus processing firm (Federico, 1975). Reedy Lake is fairly deep (4 m) and has low levels for water color, but the average Secchi transparency was similar to values recorded from dark lakes. Turbidity was the highest recorded for any lake, and was most likely influenced by the high concentrations of phytoplankton. Reedy was also the only lake with pH values generally above 7.0. Concentrations of each of the major dissolved ions were higher in Reedy Lake than in other Basin Lakes, and calcium displaced sodium as the second most abundant ion. Alkalinity in Reedy Lake averaged 0.87 meq/l (43.5 mg $CaCO_3$/l), and specific conductance averaged 217 µmhos/cm.

The chemical composition of water in vertical profiles was generally uniform in all lakes (up to a maximum depth of 15 m in Lake Placid). Slight differences which did occur were not indicative of a stratified water column. Occasionally dissolved oxygen, temperature and pH exhibited decreasing gradients with depth of water. These gradients were most apparent in the warmer months, and in the afternoon hours. Sunlight warms the upper layers of the water column, and increases photosynthetic activity. The uptake of CO_2 by phytoplankton, and production of oxygen cause an increase in pH and dissolved oxygen levels towards the lake surface. These vertical gradients were usually temporary. After sunset the water cools, cell respiration consumes oxygen and releases carbon dioxide, so vertical gradients in the water column are reduced.

Primary Productivity

Primary productivity is defined as the rate at which carbon is fixed by primary producers, and is estimated by measurements of the amount of oxygen produced. Gross primary production is based on the net amount of oxygen produced during photosynthesis, and adds oxygen consumed by respiration. Since chlorophyll $\bar{a}$ concentrations were generally uniform with depth, it is assumed that respiration was also uniform through the entire water column. Respiration in Istokpoga Basin lakes was variable and ranged from zero to 75% of the gross primary production in Lakes June-in-Winter, Placid, Reedy, Istokpoga and Arbuckle, and 44% or less in Lakes Clay and Josephine.

Daily productivity rates that were calculated for the lakes are probably over estimated since hourly rates that were determined during periods of high light intensity were expanded to total daylight length. Phytoplankton levels were estimated from concentrations of chlorophyll $\bar{a}$. Besides phytoplankton abundance, primary productivity is dependent on other factors such as species composition, light intensity, water temperature, turbulence, turbidity, pH and available nutrients.

Some physical and chemical characteristics of water in the Istokpoga Basin affect primary productivity rates. The euphotic zone is the layer of water that receives ample light for photosynthesis. This zone is influenced by water color and turbidity, as well as weather. The lower limit of the euphotic zone was measured as the depth where gross primary production equalled zero. Nutrient concentrations also affect phytoplankton populations and growth rates.

The three dark lakes, Istokpoga, Arbuckle and Josephine, had shallow euphotic zones, and most of the photosynthesis occurred in the upper meter of the water column. The depth of the euphotic zone was 2.3 to 2.6 times the Secchi depth. Primary production was greatest at the surface and declined rapidly with depth. Photoinhibition at the surface due to high intensity light was seldom observed in the dark lakes. Maximum productivities occurred in the early summer months, and minimum productivities were recorded in December or March. Productivity rates appeared to be more dependent on the season than on chlorophyll ā concentrations. Seasonal fluctuations in chlorophyll ā concentrations were more pronounced in Lakes Arbuckle and Josephine than in Lake Istokpoga.

The euphotic zone in the clear lakes was much deeper than in the colored lakes. The lower limit of production in Lakes Placid, June-in-Winter and Clay averaged 1.9 to 2.2 times the Secchi depth. Primary production per unit volume of water was considerably lower in the clear lakes than in the dark lakes, but due to the depth of the euphotic zone, total primary production per unit surface area was equal to or greater than productivity in the dark lakes. Generally, maximum production occurred from 0.5 to 2 m deep, and photoinhibition occurred at the lake surface. Since nutrient and chlorophyll ā concentrations and temperature were fairly uniform with depth, the point of maximum primary production was dependent on optimal light intensity. Maximum productivities occurred in September in Lake June-in-Winter and Lake Clay, but in December and June in Lake Placid. Chlorophyll ā concentrations were nearly uniform throughout the year in Lakes Placid and June-in-Winter so productivity rates were influenced by factors such as day length, temperature or algal species composition. In Lake Clay productivity rates paralleled both temperature and chlorophyll ā concentration fluctuations.

Reedy Lake did not fit the general characteristics of dark, shallow lakes, or the clear, deep lakes with respect to primary production. Reedy

Lake had the highest chlorophyll $\bar{a}$ concentrations and the highest average productivity. Nearly the entire water column was productive with an average euphotic zone of 3.8 m, although most of the photosynthesis occurred in the upper 2 m of the water column. Primary productivity rates during the winter were less than in the summer but the depth of the euphotic zone was greater in the winter than the summer in Reedy Lake.

Previous Sampling

Previous water quality sampling of lakes in the Istokpoga Drainage Basin has beem limited. The Florida Game and Fresh Water Fish Commission (GFC) sampled two lakes annually from 1968 to 1973 (Holcomb, 1969; Duchrow, 1971; Holcomb, 1973). Lake Francis is a clear lake that is located just north of Lake June-in-Winter. Red Beach Lake is a dark lake that lies about four miles (6 km) northwest of Lake Istokpoga. Table 21 summarizes the water quality data collected from these lakes by GFC. The two-year average values from Lake June-in-Winter have been included for comparison with Lake Francis. One sample taken from Red Beach Lake in March 1976 is also included for comparison.

Water quality in Istokpoga Basin lakes was generally better than quality in other lakes in the SFWMD (Table 22). The Upper Kissimmee Basin is characterized by numerous inter-connected lakes. Water in the Kissimmee lakes is darkly-colored, and average nutrient concentrations have a wide range of values. Lake Tohopekaliga has extremely poor quality due to runoff from the nearby urban and agricultural areas and wastewater discharges. Concentrations of phosphorus and nitrogen decrease in downstream lakes to more acceptable levels. Lake Kissimmee and East Lake Tohopekaliga have lower phosphorus and higher nitrogen levels than the dark Istokpoga

TABLE 21. WATER QUALITY DATA FROM LAKE FRANCIS, LAKE JUNE-IN-WINTER AND RED BEACH LAKE

	LAKE FRANCIS	LAKE JUNE-IN-WINTER	RED BEACH LAKE	
Investigator	GFC	SFWMD	GFC	SFWMD
Dates	1968-73	1974-76	1968-73	1976
pH (field)	7.1	6.6	6.5	--
Sp. cond. (μmhos/cm)	113	124	62	--
Secchi (cm)	228	258	98	--
Turbidity (JTU)	23	3	49	--
NO_3-N	.01	.06	.05	.05
NH_4-N	.05	.03	.04	.05
Organic Nitrogen	.43	.46**	.46	.66**
o-PO_4*	.03	.01	.02	>.01
T-PO_4*	.10	.04	.07	.06
Ca	4.0	5.6	1.6	2.4
Mg	2.6	3.8	1.2	1.6
Na	6.5	7.8	4.1	5.6
K	1.8	2.4	1.0	1.2
Cl	13.0	14.0	6.3	13.1
Alk (mg$CaCO_3$/l)	10.0	13.0	4.0	5.0
Chl ā (mg/m^3)	3.3	9.3	8.0	--

* mg l PO_4 x .326 = mg/l P

** (TKN)-(NH_4)

unless otherwise stated, all values in mg/l

TABLE 22 SELECTED LAKE AVERAGE CHEMICAL AND PHYSICAL PARAMETERS FROM SFWMD LAKES

Lake	Sample Dates	pH	Sp Cond umho/cm	Secchi cm	NO_2 mg/l N	NO_3 mg/l N	NH_4 mg/l N	TKN mg/l N	o-PO_4 mg/l P	T-PO_4 mg/l P	Td-PO_4 mg/l P	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	Cl mg/l	SiO_2 mg/l
Placid	9-74 to 9-76	6.7	50	256	.004	.035	.030	.36	.002	.012	.005	2.0	1.4	4.9	0.8	9.7	0.5
June-in-Winter	8-74 to 9-76	6.6	124	258	.004	.056	.030	.49	.002	.014	.005	5.6	3.8	7.8	2.4	13.8	0.5
Clay	3-75 to 9-76	6.9	137	237	.005	.058	.030	.64	.003	.014	.006	7.0	4.0	8.3	4.3	15.5	0.8
E Tohopekaliga*	1-74 to 6-74	6.7	113	148	.005	.005	.028	.94	.003	.022	.011	3.8	2.9	12.1	1.7	18.8	0.7
Kissimmee*	7-73 to 6-74	7.5	125	91	.005	.015	.017	1.26	.002	.028	.007	6.8	3.5	12.1	1.2	18.3	2.6
Arbuckle	9-74 to 9-76	7.0	114	95	.007	.036	.040	.85	.008	.046	.023	6.9	4.1	7.7	1.9	12.0	1.8
Josephine	9-74 to 9-76	6.1	75	73	.005	.023	.040	.90	.012	.045	.026	4.6	2.4	5.1	1.3	10.9	1.7
Istokpoga	9-73 to 8-76	6.8	106	69	.005	.023	.030	1.00	.008	.048	.031	5.8	3.5	8.5	1.7	15.4	2.9
Reedy	9-75 to 9-76	7.9	217	78	.005	.083	.260	1.30	.003	.021	.005	15.4	2.0	11.6	3.9	16.1	6.0
Hatchineha*	7-73 to 6-74	6.8	120	64	.005	.030	.030	1.37	.009	.058	.026	7.3	3.8	11.1	1.2	17.5	2.7
Okeechobee**	1-74 to 12-74	8.1	568	58	.005	.103	.020	1.48	.012	.049	--	43.1	15.4	50.1	4.0	80.2	5.4
Cypress*	7-73 to 6-74	7.4	133	64	.004	.023	.016	1.50	.009	.084	.023	5.6	3.6	14.3	1.8	20.7	2.0
Tohopekaliga*	7-73 to 6-74	7.7	157	62	.006	.029	.024	1.59	.184	.300	.221	9.0	3.7	14.7	2.4	20.7	1.9

*Milleson (1975)
**Modified from Davis and Marshall (1974)

Basin Lakes. Three of the clear lakes, Placid, June-in-Winter and Clay, have lower nitrogen and phosphorus levels than any of the Kissimmee Lakes. Kissimmee Basin and Istokpoga Basin Lakes have similar concentrations of dissolved minerals, and specific conductivities which average less than 200 µmhos/cm.

Lake Okeechobee has slightly higher concentrations of nitrogen and phosphorus, and considerably higher dissolved mineral levels than Istokpoga Basin Lakes. The relative order listed in Table 22 is based on concentrations of nitrogen and phosphorus.

Trophic State Characterization

Limnological investigators have for years attempted to classify lakes on the basis of trophic structure, and to measure one or several parameters which would indicate their trophic state. A considerable amount of work has been done on trophic structure in temperate lakes. Many factors that influence production in temperate lakes such as winter overturn, ice cover, and wide fluctuations in plankton populations and primary productivity do not occur in semi-tropical lakes. Therefore, comparisons between temperate and semi-tropical lakes are difficult. Studies by Brezonik, Morgan, Shannon and Putnam (1969) and Shannon and Brezonik (1972), centered in north central Florida, produced a great deal of information suitable for comparisons with Istokpoga Basin lakes.

As indicated earlier, the lakes that were surveyed in the Istokpoga Basin were classified either clear and deep, or dark and shallow. According to Shannon and Brezonik (1972), lakes with color values less than 60 mg Pt/l are clear, and lakes with color levels exceeding 114 mg Pt/l are colored. Separate classification of lake trophic states were developed for clear and colored water categories.

Brezonik, _et al_ (1969) based trophic classification on a combination of 22 characteristics. Lakes were described as oligotrophic, mesotrophic, eutrophic, hypereutrophic, dystrophic, senescent, and organically colored. Shannon and Brezonik (1972) later selected seven fundamental trophic state indicators; primary productivity, chlorophyll $\tilde{a}$ concentration, Secchi depth, total phosphate, total organic nitrogen, specific conductance and cation ratio (Mg + Ca) ÷ (Na + K). The latter six parameters are easily measured with current limnological and analytical methods. Primary production, however, is a more subjective factor with several different methodologies practiced. Shannon and Brezonik (1972) reported primary productivity values based on measurements made in a light box. The Istokpoga Basin study utilized _in situ_ measurements so comparison with laboratory rates is questionable. In order to provide a more constant value, average primary production rates at the Secchi depth are reported here for Istokpoga Basin lakes. Table 23 lists the trophic state indicator values suggested by Shannon and Brezonik (1972) based on data observed from 55 north central Florida lakes, and the average values obtained from Istokpoga Basin lakes. It should be stressed that trophic state is a multidimensional concept, and that a lake may have values that are characteristic of several different trophic states (Shannon and Brezonik, 1972) so that final classification is necessarily subjective. From the information provided in Table 23 Lake Placid would be classified between oligo- and mesotrophic, Lake June-in-Winter and Lake Clay mesotrophic, and Reedy Lake nearly eutrophic.

Trophic state indicators in colored lakes do not exhibit as consistent a gradient from oligotrophic to eutrophic as clear lakes. Lakes Istokpoga, Arbuckle and Josephine had similar concentrations of nutrients and chlorophyll $\tilde{a}$

TABLE 23. TROPHIC STATE INDICATOR VALUES* AND AVERAGE RESULTS FROM ISTOKPOGA BASIN LAKES.

	Primary Production ($mg\ C/m^3/hr$)	Chl $\bar{a}$ (mg/m^3)	Total PO_4 mg P/1)	Total Organic N (mg N/1)	Secchi depth $(\frac{1}{m})$	Conductivity (µmho/cm)	Cation Ratio $(\frac{Ca+Mg}{Na+K})$
CLEAR LAKES							
Oligotrophic	1.3	1.8	.013	.25	.25	38.5	.61
Mesotrophic	5.8	4.3	.023	.73	.47	61.5	.86
Eutrophic	150.2	39.5	.306	1.98	1.72	244.0	3.61
Lake Placid	18.2	6.2	.012	.33	.39	50	.60
Lake June-in-Winter	31.5	9.3	.014	.46	.39	124	.92
Lake Clay	38.7	9.6	.014	.61	.42	137	.87
Reedy Lake	118.6	42.5	.021	1.04	1.28	217	1.45
COLORED LAKES							
Oligotrophic	11.4	7.3	.032	.70	.67	48.0	.60
Oligo-mesotrophic	9.7	6.7	.058	.72	1.24	47.6	.60
Meso-eutrophic	24.1	19.5	.060	1.24	1.07	82.2	1.21
Dystrophic	31.6	21.1	.213	1.36	1.59	46.0	1.36
Residual	55.1	35.6	.211	1.13	1.54	64.2	1.67
Lake Josephine	32.3	17.0	.048	.97	1.45	106	.91
Lake Istokpoga	58.2	25.6	.046	.81	1.05	114	1.15
Lake Arbuckle	26.7	20.6	.045	.86	1.37	75	1.09

* Shannon and Brezonik (1972)

and had similar cation ratios. However, average values for productivity, Secchi depth and conductivity in these three lakes exhibited a wide range. The three lakes could probably be classified as mesotrophic based on total phosphate, total organic nitrogen, and cation ratio. However, these lakes would be classed dystrophic based on chlorophyll ā and Secchi depth; and residual based on primary productivity. The lakes investigated by Shannon and Brezonik (1972), from which the trophic indicator values were derived were very low conductivity lakes, and were not comparable to lakes in the Istokpoga Basin.

Another widely used method for assigning trophic state classification to lakes is based on concentrations of total phosphorus, total nitrogen, and inorganic nitrogen. Table 24 summarizes a classification system based on compilations made by Vollenweider (1971) and Sakamoto (1966). Again, different classifications are reached for the lakes based on different indicator values. Phosphorus levels suggest that Lakes Placid, June-in-Winter and Clay are oligotrophic, Reedy Lake is mesotrophic or meso-eutrophic, and Josephine, Istokpoga and Arbuckle are eutrophic or eupolytrophic. Total nitrogen levels show that Lakes Placid, June-in-Winter and Clay are mesotrophic and the other four lakes are eutrophic. Inorganic nitrogen concentrations indicate that Reedy Lake is oligo-mesotrophic or meso-eutrophic, and all other lakes are ultra-oligotrophic. By selectively grouping these classifications, the Basin Lakes could be assigned the following trophic state:

Placid	Oligo-mesotrophic
June-in-Winter	Mesotrophic
Clay	Mesotrophic
Reedy	Eutrophic
Josephine	Eutrophic
Arbuckle	Eutrophic
Istokpoga	Eutrophic

TABLE 24 TROPHIC STATE CLASSIFICATIONS BASED ON NITROGEN AND PHOSPHORUS CONCENTRATION IN LAKE WATER

Classification	Total Phosphorus mg/l	Total Nitrogen[3] mg/l	Inorganic Nitrogen[4] mg/l
Ultra-oligotrophic[1]	< .005		< .200
Oligotrophic[2]	.002 - .020	.020 - .200	
Oligo-mesotrophic[1]	.005 - .010		.200 - .400
Mesotrophic[2]	.010 - .030	.100 - .700	
Meso-eutrophic[1]	.010 - .030		.300 - .650
Eutrophic[2]	.010 - .090	.500 -1.300	
Eu-polytrophic[1]	.030 - .100		.500 -1.500
Lake Placid	.012	.399	.069
Lake June-in-Winter	.014	.550	.090
Lake Clay	.014	.703	.093
Reedy Lake	.021	1.388	.348
Lake Josephine	.045	.928	.068
Lake Arbuckle	.046	.893	.083
Lake Istokpoga	.048	1.028	.058

[1]Vollenweider (1968)

[2]Sakamoto (1966)

[3]Total Nitrogen = TKN + NO_x

[4]Inorganic Nitrogen = NO_x + NH_4

Sakamoto (1966) and Vollenweider (1971) do not distinguish between clear and colored lakes, therefore all of the dark lakes would be classified as eutrophic using their system. This would indicate that their systems are not applicable for this study area.

SUMMARY

1. This study was undertaken to develop a data base of the characteristics of surface water resources in the Lake Istokpoga drainage basin, a 1700 km^2 (650 mi^2) area tributary to Lake Okeechobee.

2. Seven lakes selected for study represented different geographic features in the basin, and were surrounded by various land use areas: citrus, improved pasture, residential, and native. These lakes included Lake Istokpoga, Lake Arbuckle, Lake Josephine, Lake Placid, Lake June-in-Winter, Lake Clay and Reedy Lake, and ranged from 148 to 11,207 ha (367 to 27,692 acres) in size.

3. Most of the lakes in the basin have been subjected to some type of water level control in order to provide water for irrigation, and to prevent extremely high stages for the protection of adjacent property.

4. The littoral zone vegetation in Lake Istokpoga was dominated by bulrushes and cattails along the west, north, and northeast shorelines, and by bald cypress and spatter-dock along the southeast and south shoreline. The emergent littoral area that is adjacent to two islands in the lake center has recently increased in size. A total of 1295 ha (3200 acres), or 11.6% of the total surface area of Lake Istokpoga is inhabited by emergent aquatic vegetation.

The littoral areas of Lake Placid and Lake June-in-Winter were confined to a fairly narrow band of maidencane around the lake perimeter. Emergent littoral vegetation coverage was measured as 3.1% of the total lake area in Lake Placid, and 3.7% in Lake June-in-Winter. A unique zone of submergent tape grass and southern naiad was located in 3.7 to 4 m (12 to 13 ft) of water in Lake June-in-Winter.

5. The benthic invertebrate fauna of Lakes Istokpoga, Arbuckle, Placid, and June-in-Winter contained 13 species which were recovered from each of the four lakes. These species included three Annelids, one amphipod, a unionid clam, six species of Diptera larvae and two species of mayfly larvae. Throughout the basin the most dominant benthic organism was the Chironomid larvae, Glyptotendipes paripes. This organism was extremely abundant at some locations in Lakes Placid, June-in-Winter and Arbuckle in the late fall and winter months. The asiatic clam, Corbicula leana, which competes with native clams for benthic habitat, was the dominant organism in Lake Istokpoga and was very common in Lake Arbuckle. Within most of the lakes, distinct relationships were noted between invertebrate species composition and bottom substrate type.

6. The lakes sampled in the basin generally fell into two categories based on certain physical characteristics. Lake Istokpoga, Lake Arbuckle, and Lake Josephine were shallow and had dark colored water that allowed little light penetration. Lake Placid, Lake June-in-Winter, Lake Clay and Reedy Lake were relatively deep, had clear water, and had high transparencies.

7. With the exception of Reedy Lake, general water quality characteristics were similar in each of the other six lakes. Water was slightly acid, and turbidity was low. Concentrations of dissolved mineral substances were low, and hence specific conductance averaged less than 140 μmho/cm. In Reedy Lake pH averaged 7.9, turbidity was higher and specific conductance averaged 217 μmho/cm. All of the lakes occasionally had moderate vertical gradients of temperature, pH, and dissolved oxygen in the water column. These gradients were more pronounced during the warmer months of the year.

8. The "dark, shallow" and "clear, deep" lake categories had considerable differences in concentrations of nitrogen and phosphorus in the water. Total Kjeldahl nitrogen in the dark, shallow lakes averaged 0.85 to 1.00 mg/l compared with 0.36 to 0.64 mg/l for clear lakes, except Reedy Lake (1.30 mg/l TKN). In all lakes, nitrate showed distinct seasonal trends, with high values common during the winter. Clear lakes generally had higher average nitrate concentrations than dark lakes.

Ortho-phosphate concentrations were usually near detectable limits, although slightly higher concentrations were present in the dark lakes. Average total phosphate values ranged from 0.012 to 0.021 mg P/l in the clear lakes, and 0.045 to 0.048 mg P/l in dark lakes.

9. Primary productivity measurements throughout the basin indicated that the entire water column was usually euphotic, regardless of water color. The average depth of the productive zone was generally more than twice the Secchi depth.

Gross primary production per square meter lake surface area was generally higher in the clear lakes than in the dark lakes. Average gross primary productivity ranged from 1135 to 1736 mg C/m^2/day in the clear lakes (except Reedy Lake, 2903 mg C/m^2/day), and from 644 to 1383 mg C/m^2/day in the dark lakes. In the clear lakes maximum productivity usually occurred at one-half to two meters below the surface, while maximum productivity occurred at the surface in the dark lakes, and diminished rapidly with depth.

Productivity measurements through the water column in clear lakes were relatively low, and reflected the low chlorophyll $\bar{a}$ concentrations. Lakes Placid, June-in-Winter, and Clay averaged less than 10 mg/m^3

chlorophyll $\bar{a}$, while the dark lakes ranged from 17.0 to 25.6 mg/m^3 chlorophyll $\bar{a}$. Reedy Lake had an average chlorophyll $\bar{a}$ concentration of 42.5 mg/m^3.

10. Previous sampling of two Istokpoga Basin Lakes by the Florida Game and Freshwater Fish Commission from 1968 to 1973 showed little differences in water quality when compared with the results of this study.

11. By applying some of the indicator values for trophic state indicators assembled by investigators in north central Florida, the Istokpoga Basin Lakes were classified as follows: Placid - Oligo-mesotrophic; June-in-Winter - mesotrophic; Clay - mesotrophic; Reedy - eutrophic; Istokpoga, Arbuckle, and Josephine - between meso-eutrophic and dystrophic.

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APPENDIX A

WATER CHEMISTRY LABORATORY TECHNIQUES

ANALYTICAL METHODS USED FOR DETERMINATION OF WATER CHEMISTRY

AUTO ANALYZER

Determination	Method	Range	Sensitivity
Alkalinity	1. Methyl Orange; Technicon Auto Analyzer II, method #111-71W	0-10 meq/l	0.10 meq/l 2% of full scal
	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 scal
Chloride	Ferric Thiocyanate complex Technicon AA II, method #99-70W Ref: Automatic Analysis of Chloride 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 scal
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 scal
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 scal
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 scal

AUTO ANALYZER

Determination	Method	Range	Sensitivity
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
Total Dissolved Phosphate	Same as Total Phosphate; using sample filtered through 45 micron membrane	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

ATOMIC ABSORPTION

Parameter	Wave Length	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 to sodium. Two inch burner used in normal position.

APPENDIX B

ANNUAL LAKE STAGE

EXTREMES AND FLUCTUATIONS

LAKE ISTOKPOGA

Lake stage data have been recorded on a daily basis for Lake Istokpoga since 1936, and published by United States Department of the Interior Geological Survey since October 1960. The primary tributaries to Lake Istokpoga are Josephine Creek, which drains the Highlands Ridge, and Arbuckle Creek, which drains the flatlands region north of the lake. Originally the only surface water outlet was Istokpoga Creek which flowed east to the Kissimmee River. During high water periods, when stages exceeded 41 feet msl, water spilled over the south and southeast rim of the lake and flowed towards the Indian Prairie area. The Istokpoga Canal was constructed parallel to Istokpoga Creek to increase water control capability in 1949. A dam with removable stop logs about 2 miles downstream in the creek controlled lake levels somewhat. Lake Istokpoga was connected to Harney Pond and Indian Prairie Canals via C-41A in 1962 and lake levels were controlled by Structure 68 on the southeast shore of the lake.

Table B-1 lists the maximum and minimum stages recorded in Lake Istokpoga during the water year ending on September 30 of each year. The maximum water level was estimated at 42.9 feet in September 1945 and the minimum stage was 35.4 feet msl in May 1962, for a total range of 7.5 feet. The maximum annual fluctuation recorded was 6.87 feet in 1945. The impact of water control efforts are evident by examining annual fluctuations. In the thirteen year period from 1937-49, average annual fluctuation was 4.10 feet. After construction of Istokpoga Canal and the associated structure, average annual fluctuation from 1950-62 was 3.41 feet. Water control by S-68 in the period 1963-75 reduced average annual fluctuation to 2.36 feet.

TABLE B-1 Lake Istokpoga High and Low Lake Stages for Water Years Ending September 30. 1937 - 1975

Year	High (feet msl)	Low	Difference	Year	High (feet msl)	Low	Difference
1937	40.9	38.0	2.9	1957	39.95	37.09	2.86
1938	39.4	37.1	2.3	1958	40.14	37.53	2.61
1939	41.0	36.5	4.5	1959	40.86	37.18	3.68
1940	41.6	38.1	3.5	1960	41.99	38.09	3.90
1941	41.6	38.4	3.2	1961	41.83	37.20	4.63
1942	40.4	38.5	1.9	1962	38.74	35.40	3.34
1943	40.51	36.93	3.58	1963	39.69	37.26	2.43
1944	41.38	37.09	4.29	1964	39.47	37.13	2.34
1945	42.9	36.03	6.87	1965	39.17	37.77	1.40
1946	41.9	37.25	4.65	1966	39.63	37.39	2.24
1947	42.47	37.57	4.90	1967	39.46	36.71	2.75
1948	42.44	37.78	4.66	1968	39.59	37.54	2.05
1949	42.42	36.4	6.02	1969	39.67	37.46	2.21
1950	40.63	36.22	4.41	1970	40.06	37.52	2.54
1951	39.51	36.52	2.99	1971	39.15	36.20	2.95
1952	39.40	37.16	2.24	1972	39.68	37.42	2.26
1953	41.77	37.33	4.44	1973	39.81	37.52	2.29
1954	42.27	37.43	4.84	1974	39.60	36.84	2.76
1955	39.24	36.20	3.04	1975	39.47	36.99	2.48
1956	37.28	35.93	1.35				

SUMMARY	High (feet msl)	Low	Difference	Maximum Annual Difference	Average Annual Difference
1937-1949	42.90	36.03	6.87	6.87	4.10
1950-1962	42.27	35.40	6.87	4.84	3.41
1963-1975	40.06	36.20	3.86	2.95	2.36

Measures to control the water level of Lake Istokpoga have had greatest impact on the high lake stages. From 1937-49, maximum lake stage exceeded 42 feet msl in 31% of the years, and exceeded 41 feet msl in 69% of the years. From 1950-62, stages in excess of 42 feet occurred in only 1 year, and stages in excess of 41 feet in 4 years. In only one year since 1963 have lake stages in excess of 40 feet msl occurred.

LAKE ARBUCKLE

Lake stage data have been recorded daily for Lake Arbuckle since December 1941 and have been published by United States Department of the Interior Geological Survey since October 1960. Lake Arbuckle is the furthest downstream of the Arbuckle Creek headwater lakes and receives surface water flow from Reedy Creek, to the northwest, and the Blue Jordan Swamp, from the northeast. The only surface water outlet is Arbuckle Creek on the south side, which has no water control structure. The maximum recorded stage of 58.3 feet msl occurred in September 1948, however, local residents suspect a maximum stage of 58.7 feet msl in 1926 and 1928. The minimum stage recorded was 51.31 feet msl in June 1967.

Table B-2 lists the maximum and minimum stage for each year since 1942. The total recorded lake fluctuation was 6.99 feet, and the maximum annual fluctuation of 6.30 feet occurred in 1945. The annual stage fluctuation from 1942-75 averaged 3.54 feet.

LAKE JOSEPHINE

Lake stage data have been recorded for Lake Josephine on a weekly basis from December 1946 to July 1955 and daily since August 1955. This information has been published by the United States Department of the

TABLE B-2 Lake Arbuckle Annual High and Low Lake Stages, 1942 - 1975

Year	High (feet msl)	Low (feet msl)	Difference	Year	High (feet msl)	Low (feet msl)	Difference
1942	55.02	52.67	2.35	1959	56.75	53.29	3.46
1943	55.73	52.15	3.58	1960	57.43	53.69	3.74
1944	55.15	52.48	2.67	1961	54.68	51.72	2.96
1945	57.73	51.43	6.30	1962	55.47	51.39	4.08
1946	55.85	52.17	3.68	1963	54.67	52.29	2.38
1947	57.67	53.15	4.52	1964	55.73	52.81	2.92
1948	58.30	53.21	5.09	1965	55.53	52.23	3.30
1949	57.46	51.79	5.67	1966	56.23	52.67	3.56
1950	56.53	52.04	4.49	1967	55.17	51.31	3.86
1951	56.03	52.69	3.34	1968	56.18	51.63	4.55
1952	56.52	52.70	3.82	1969	56.53	53.13	3.40
1953	57.73	53.33	4.40	1970	54.95	52.53	2.42
1954	55.65	53.73	1.92	1971	54.05	51.69	2.36
1955	53.72	51.73	1.99	1972	54.18	52.15	2.03
1956	55.03	51.43	3.60	1973	55.57	52.95	2.62
1957	56.07	52.71	3.36	1974	56.55	51.47	5.08
1958	55.62	53.01	2.61	1975	55.93	51.67	4.26

SUMMARY	High (feet msl)	Low (feet msl)	Difference	Maximum Annual Difference	Average Annual Difference
1942-1975	58.30	51.31	6.99	6.30	3.54

TABLE B-3 Lake Josephine Annual High and Low Lake Stages, 1947 - 1975

Year	High (feet msl)	Low (feet msl)	Difference	Year	High (feet msl)	Low (feet msl)	Difference
1947	75.12	70.63	4.49	1962	73.03	69.09	3.94
1948	76.80	70.65	6.15	1963	71.87	69.97	1.90
1949	74.97	70.13	4.84	1964	72.42	70.33	2.09
1950	72.52	69.96	2.56	1965	71.51	69.79	1.72
1951	73.53	70.63	2.90	1966	72.09	70.79	1.30
1952	73.71	71.13	2.58	1967	71.73	69.77	1.96
1953	74.97	70.82	4.15	1968	71.95	69.99	1.96
1954	74.44	71.27	3.17	1969	72.27	70.82	1.45
1955	73.31	70.48	2.83	1970	71.79	70.87	0.92
1956	73.33	69.11	4.22	1971	71.57	70.41	1.16
1957	73.87	70.17	3.70	1972	71.99	70.77	1.22
1958	72.57	69.66	2.91	1973	71.53	70.67	0.86
1959	74.47	69.83	4.64	1974	71.51	69.93	1.58
1960	75.07	70.63	4.44	1975	71.64	70.10	1.54
1961	71.91	69.71	2.20				

SUMMARY	High (feet msl)	Low (feet msl)	Difference	Maximum Annual Difference	Average Annual Difference
1947-1964	76.80	69.09	7.71	6.15	3.54
1965-1975	72.27	69.77	2.50	1.96	1.42

Interior Geological Survey since October 1960. Lake Josephine drains southward, and then eastward through Josephine Creek to Lake Istokpoga. The upper lake level is controlled by a concrete dam which was placed at the head of Josephine Creek in April 1965.

Table B-3 lists the annual high and low lake stages based on all available data for each calendar year. The maximum stage elevation was estimated at 76.8 feet msl in September 1948, and the minimum was 69.09 feet msl in May 1962, for a range of 7.71 feet. The maximum annual fluctuation of 6.15 feet occurred in 1948. Average annual lake fluctuations were severely reduced by the water control structure installed in 1965. From 1947-64 lake fluctuation averaged 3.54 feet, and high stages in excess of 73.0 feet msl occurred in 13 of 18 years. The average annual lake fluctuation from 1965-74 was 1.42 feet and high stages in excess of 72.0 feet were reached in only 2 years of 11 years.

LAKE JUNE-IN-WINTER

Lake stage data is available for Lake June-in-Winter on a weekly basis from April 1945 to present, and have been published by the United States Department of the Interior Geological Survey since October 1960. Lake June-in-Winter drains northward toward Josephine Creek through Sterns Creek. Lake levels were controlled by a 10-bay sheet pile stoplog control in Stearns Creek from March 1955 until February 1968, and by a series of 1 and 3-culvert stoplog structures from February 1968 until August 1976. A 2-bay vertical lift control structure designated G-90 was installed and operational in August 1976. Table B-4 presents annual high and low lake stages based on available data for each calendar year. A maximum lake stage of 77.58 feet msl was reported in October 1948 and a

TABLE B-4 Lake June-in-Winter Annual High and Low Lake Stages, 1945-1974

Year	High (feet msl)	Low (feet msl)	Difference	Year	High (feet msl)	Low (feet msl)	Difference
1945	75.44	72.62	2.82	1960	75.01	73.56	1.45
1946	75.06	72.88	2.18	1961	74.64	73.15	1.49
1947	76.89	72.72	4.17	1962	75.04	72.56	2.48
1948	77.58	73.12	4.46	1963	75.01	73.61	1.40
1949	74.49	72.64	1.85	1964	74.98	73.86	1.12
1950	73.39	72.24	1.15	1965	74.42	73.24	1.18
1951	75.11	72.28	2.83	1966	74.82	73.59	1.23
1952	74.62	73.51	1.11	1967	74.34	73.05	1.29
1953	77.55	73.27	4.28	1968	74.28	72.38	1.90
1954	75.40	72.95	2.45	1969	74.61	73.58	1.03
1955	74.37	73.35	1.02	1970	74.66	73.42	1.24
1956	73.97	72.60	1.37	1971	73.83	72.68	1.15
1957	74.99	73.52	1.47	1972	74.60	73.68	0.92
1958	74.80	73.36	1.44	1973	74.65	73.48	1.17
1959	74.66	73.63	1.03	1974	74.16	72.52	1.64

SUMMARY	High (feet msl)	Low (feet msl)	Difference	Maximum Annual Difference	Average Annual Difference
1945-1954	77.58	72.24	5.34	4.46	2.73
1955-1967	75.04	72.56	2.48	2.48	1.38
1968-1974	74.66	72.38	2.28	1.90	1.29

TABLE B-5 Lake Placid Annual High and Low Lake Stages, 1945 - 1975

Year	High (feet msl)	Low (feet msl)	Difference	Year	High (feet msl)	Low (feet msl)	Difference
1945	94.04	90.52	3.52	1961	93.96	91.53	2.43
1946	93.50	92.13	1.37	1962	94.76	90.30	4.46
1947	95.38	92.10	3.28	1963	94.05	92.76	1.29
1948	95.64	92.90	2.74	1964	93.66	92.30	1.36
1949	93.41	91.66	1.75	1965	94.29	91.39	2.90
1950	92.38	90.66	1.72	1966	94.92	93.14	1.78
1951	93.28	90.01	3.27	1967	93.53	91.70	1.83
1952	94.63	92.58	2.05	1968	92.96	90.61	2.35
1953	95.36	92.93	2.43	1969	93.76	92.26	1.50
1954	94.25	92.66	1.59	1970	94.21	92.56	1.65
1955	93.02	91.75	1.27	1971	92.55	90.76	1.79
1956	91.78	90.28	1.50	1972	91.26	90.35	0.91
1957	93.74	90.50	3.24	1973	92.09	90.11	1.98
1958	94.12	92.62	1.50	1974	92.80	89.99	2.92
1959	95.42	92.54	2.88	1975			
1960	96.00	93.36	2.64				

SUMMARY	High (feet msl)	Low (feet msl)	Difference	Maximum Annual Difference	Average Annual Difference
1945-1971	96.00	90.01	5.99	4.46	2.23
1972-1974	92.80	89.88	2.92	2.92	1.94

minimum of 72.24 feet msl recorded in August 1950.

The total range of stages recorded in Lake June-in-Winter was 5.34 feet and the maximum annual fluctuation was 4.46 feet in 1948. Water control structures have had a pronounced impact on stage fluctuations. The average annual fluctuation for the period 1945-54, prior to any water control, was 2.73 feet. Annual water fluctuations averaged 1.38 feet from 1955-67 and 1.29 feet from 1968-74. Primarily, attempts at water control have eliminated high lake stages in excess of 75.0 feet msl. Present attempts are to maintain Lake June-in-Winter between 73.5 and 74.5 feet msl (Hydrology, FCD).

LAKE PLACID

Lake stage information is available for Lake Placid on a weekly basis from April 1945 to December 1952 and daily since January 1953, and has been published by the United States Department of the Interior Geological Survey since October 1960. Lake Placid (formerly Lake Childs) was originally isolated from other lakes in the area, except during very high stages when it flowed east through Gum Swamp to Lake Huntley. The lake level was lowered approximately four feet to provide a sandy beach by constructing a channel from Lake Placid to Catfish Slough, and hence to Lake June-in-Winter (Youngberg, 1927). The control structure placed in this canal was subsequently destroyed, and lake levels were maintained by vegetation and a sandbar in the canal (FCD 1953) until 1972 when a control culvert was installed with a bottom elevation of 93.0 feet msl.

Table B-5 presents the annual high and low lake stages. A maximum lake stage of 96.0 feet msl was estimated in September 1960, and a minimum of 89.88 feet msl was recorded in June 1974 for a maximum stage range of

6.12 feet. The maximum annual fluctuation recorded was 4.46 feet in 1960. The average annual stage fluctuation for the period 1945-1974 was 2.20 feet.

LAKE CLAY

Lake stage data is available for Lake Clay from November 1951 until September 1962. Stage readings were taken at monthly intervals from November 1951 until December 1952, weekly from February 1953 until January 1955, daily from February 1955 through April 1960, and then at irregular intervals until September 1962. Table B-6 summarized the high and low lake stages for each year in which sufficient data is available. The maximum recorded stage was 79.0 feet msl in 1960 and the minimum was 75.77 feet msl in 1956. The maximum annual lake fluctuation on Lake Clay was 1.99 feet in 1957.

REEDY LAKE

Lake stage data has been collected irregularly from Lake Reedy since April 1945, and published by United States Department of the Interior Geological Survey since October 1960. Lake Reedy is in the Arbuckle Creek headwater chain of Lakes and drains southerly to Lake Arbuckle. Lake levels are controlled by a sandbar or concrete control structure with removable boards near the head of Reedy Creek. Table B-7 presents the annual high and low lake stages based as nearly as possible on month end elevations rounded to nearest 0.1 feet. A maximum lake stage of 80.66 feet msl was recorded in 1960, and a minimum of 76.89 feet msl in 1967 for a total range of 3.77 feet. The maximum annual fluctuation of 2.6 feet occurred in 1953 and 1960. Average annual fluctuation was 1.41 feet. Actual highs, lows and fluctuations may be greater due to the lack of complete stage information.

TABLE B-6 Lake Clay Annual High and Low Lake Stages, 1952 - 1960

Year	High (feet msl)	Low (feet msl)	Difference	Year	High (feet msl)	Low (feet msl)	Difference
1952	78.86	78.39	0.47	1957	78.84	76.85	1.99
1953	79.44	77.96	1.48	1958	78.34	77.44	0.90
1954	78.98	77.40	1.58	1959	78.74	77.52	1.22
1955	78.41	76.93	1.48	1960	79.60	77.68	1.92
1956	77.73	75.77	1.96				

SUMMARY	High (feet msl)	Low (feet msl)	Difference	Maximum Annual Difference	Average Annual Difference
1952-1960	79.60	75.77	3.83	1.99	1.44

TABLE B-7 Reedy Lake Annual High and Low Lake Stages, 1945 - 1975 (Based on Month End Recordings Rounded to 0.1 Foot)

Year	High (feet msl)	Low (feet msl)	Difference	Year	High (feet msl)	Low (feet msl)	Difference
1945	79.8	77.3	2.5	1961	79.0	77.5	1.5
1946	78.7	78.1	0.6	1962	78.7	77.5	1.2
1947	80.3	78.3	2.0	1963	78.9	77.8	1.1
1948	80.4	77.9	2.5	1964	78.7	77.9	0.8
1949	79.5	77.5	2.0	1965	79.1	77.5	1.6
1950	78.2	77.5	0.7	1966	79.1	77.9	1.2
1951	78.9	77.4	1.5	1967	78.5	76.9	1.6
1952	78.3	77.5	0.8	1968	79.2	77.3	1.9
1953	80.1	77.5	2.6	1969	79.1	78.0	1.1
1954	79.7	78.0	1.7	1970	78.9	77.9	1.0
1955	78.2	77.5	0.7	1971	78.5	77.6	0.9
1956	78.6	77.4	1.2	1972	78.5	77.7	0.8
1957	78.7	77.9	0.8	1973	79.3	78.0	1.3
1958	78.7	77.9	0.8	1974	79.6	77.5	2.1
1959	79.4	78.1	1.3	1975			
1960	80.6	78.0	2.6				

SUMMARY	High (feet msl)	Low (feet msl)	Difference	Maximum Annual Difference	Average Annual Difference
1945-1974	80.6	76.9	3.7	2.6	1.41

APPENDIX C

WATER CHEMISTRY RESULTS

FROM ISTOKPOGA BASIN LAKES

LAKE PLACID WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 09/03/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/12/74 - 9/ 9/76 MO/DA/YR

STATIONS IBL301 IBL302 IBL303 IBL304 IBL305

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	SECCHI M	TEMP CENT	D.O. MG/L	PH	SP COND UMHOS/CM	COLOR UNITS	TURB JTU	CHLOR A MG/M3
I - 365	9/12/74	IBL301	0.0	2.26			6.00	60.			
I - 366	9/12/74	IBL302	0.0				5.80	53.			
I - 361	9/12/74	IBL303	15.4				5.70	61.			
I - 362	9/12/74	IBL303	0.0	2.95			6.00	60.			
I - 364	9/12/74	IBL305	0.0	2.47			6.10	59.			
I - 297	11/21/74	IBL301	0.0								
I - 298	11/21/74	IBL303	0.0								
I - 452	12/12/74	IBL301	0.0		18.0	8.6	6.60	54.			
I - 453	12/12/74	IBL301	2.0		17.5	8.3	6.50	53.			
I - 454	12/12/74	IBL301	3.0		17.5	8.4	6.50	53.			
I - 455	12/12/74	IBL301	5.0		17.5	8.5	6.45	53.			
I - 456	12/12/74	IBL301	6.0		17.5	8.5	6.40	53.			
I - 451	12/12/74	IBL302	0.0		19.5	8.7	6.70	54.			
I - 432	12/12/74	IBL303	0.0	3.54	17.5	8.1	6.80	55.	12.0	1.5	
I - 433	12/12/74	IBL303	1.0		17.5	8.1	6.50	54.			
I - 434	12/12/74	IBL303	2.0		17.4	8.1	6.50	54.			
I - 435	12/12/74	IBL303	3.0		17.3	8.1	6.50	54.			
I - 436	12/12/74	IBL303	4.0		17.2	8.1	6.45	54.			
I - 437	12/12/74	IBL303	5.0		17.2	8.1	6.45	54.			
I - 438	12/12/74	IBL303	6.0		17.2	8.1	6.40	54.			
I - 439	12/12/74	IBL303	7.0		17.2	8.1	6.40	54.			
I - 440	12/12/74	IBL303	8.0		17.2	8.3	6.35	54.			
I - 441	12/12/74	IBL303	9.0		17.2	8.2	6.35	54.			
I - 442	12/12/74	IBL303	10.0		17.2	8.2	6.35	54.			
I - 443	12/12/74	IBL303	11.0		17.2	8.2	6.30	54.			
I - 444	12/12/74	IBL303	12.0		17.0	8.2	6.30	54.			
I - 445	12/12/74	IBL303	13.0		17.0	8.2	6.30	54.			
I - 446	12/12/74	IBL305	0.0	3.30	17.5	8.4	6.40	54.			
I - 447	12/12/74	IBL305	1.0		17.2	8.3	6.40	54.			
I - 448	12/12/74	IBL305	2.0		17.1	8.3	6.40	54.			
I - 449	12/12/74	IBL305	3.0		17.1	8.3	6.40	54.			
I - 450	12/12/74	IBL305	4.0		17.0	8.3	6.40	53.			
I - 545	3/ 6/75	IBL301	0.0	2.62	19.0	9.3	6.10	42.			
I - 546	3/ 6/75	IBL301	2.0		19.0	8.7	6.00	46.			
I - 547	3/ 6/75	IBL301	4.0		18.9	8.6	6.00	48.			
I - 548	3/ 6/75	IBL302	0.0		18.5	8.5	6.00	40.			
I - 549	3/ 6/75	IBL303	0.0	3.08	19.0	8.5	6.15	49.	15.0	2.2	
I - 550	3/ 6/75	IBL303	2.0		19.0	8.7	6.00	51.			
I - 551	3/ 6/75	IBL303	4.0		19.0	8.6	5.90	51.			
I - 552	3/ 6/75	IBL303	6.0		19.0	8.5	5.90	52.			
I - 553	3/ 6/75	IBL303	8.0		19.0	8.4	5.80	52.			
I - 554	3/ 6/75	IBL303	10.0		19.0	8.4	5.85	52.			
I - 555	3/ 6/75	IBL303	12.0		19.0	8.4	5.85	52.			
I - 556	3/ 6/75	IBL303	13.0		19.0	8.3	5.80	52.			
I - 557	3/ 6/75	IBL303	15.0		19.0	8.3	5.80	52.			
I - 558	3/ 6/75	IBL303	16.0		19.0	7.9	5.70	54.			
I - 559	3/ 6/75	IBL304	0.0		18.5	8.8	6.10	51.			
I - 560	3/ 6/75	IBL304	2.0		18.5	8.8	6.10	52.			
I - 561	3/ 6/75	IBL305	0.0		19.0	8.8	6.10	45.			
I - 562	3/ 6/75	IBL305	1.0		19.0	8.7	6.10	47.			
I - 563	3/ 6/75	IBL305	3.0		18.7	8.6	6.00	51.			
I - 564	3/ 6/75	IBL305	5.0		18.5	8.6	6.00	52.			
I - 565	3/ 6/75	IBL305	6.0		18.5	8.6	6.00	53.			
I - 566	4/ 9/75	IBL301	0.0	3.32	23.9	8.5	6.50	57.			4.1
I - 567	4/ 9/75	IBL301	1.0		23.4	8.4	6.50	58.			
I - 568	4/ 9/75	IBL301	2.0		23.0	8.3	6.50	58.			4.2
I - 569	4/ 9/75	IBL301	3.0		22.9	8.2	6.50	58.			
I - 570	4/ 9/75	IBL301	4.0		22.8	8.2	6.50	58.			4.7
I - 571	4/ 9/75	IBL301	5.0		22.6	8.0	6.40	58.			
I - 572	4/ 9/75	IBL301	6.0		22.3	7.3	6.50	58.			
I - 573	4/ 9/75	IBL301	7.0		22.1	7.0	6.70	58.			
I - 632	4/ 9/75	IBL303	0.0	3.33	23.7	8.1	6.70	58.			5.4
I - 633	4/ 9/75	IBL303	1.0		23.1	8.0	6.65	57.			
I - 634	4/ 9/75	IBL303	2.0		23.0	8.1	6.60	57.			5.3
I - 635	4/ 9/75	IBL303	4.0		22.7	8.1	6.60	57.			4.6
I - 636	4/ 9/75	IBL303	6.0		22.5	8.1	6.50	57.			
I - 637	4/ 9/75	IBL303	8.0		22.5	7.9	6.40	57.			6.5
I - 638	4/ 9/75	IBL303	10.0		22.0	7.3	6.10	57.			
I - 639	4/ 9/75	IBL303	12.0		22.0	7.2	6.05	57.			
I - 640	4/ 9/75	IBL303	13.0		22.0	7.1	6.00	57.			
I - 665	6/24/75	IBL301	0.0		28.0	7.5	7.40	50.	17.0	2.5	5.7
I - 666	6/24/75	IBL301	1.0		28.0	7.2	7.30	48.			
I - 667	6/24/75	IBL301	2.0		27.5	7.5	7.20	50.			
I - 668	6/24/75	IBL301	4.0		27.5	7.4	6.90	53.			
I - 669	6/24/75	IBL301	6.0		27.0	7.2	6.80	55.			
I - 670	6/24/75	IBL302	0.0	2.57	29.0	8.0	6.90	39.			5.6
I - 671	6/24/75	IBL303	0.0	2.74	29.0	7.4	7.00	49.	12.0	3.4	5.3

LAKE PLACID WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 09/03/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/12/74 - 9/ 9/76 MO/DA/YR

STATIONS IBL301 IBL302 IBL303 IBL304 IBL305

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	CA MG/L	MG MG/L	NA MG/L	K MG/L	CL MG/L	SIO2 MG/L	ALK MEQ/L
I - 365	9/12/74	IBL301	0.0	1.60	1.40	5.40		7.7	0.7	
I - 366	9/12/74	IBL302	0.0	1.40	1.40	5.30		7.5	0.5	
I - 361	9/12/74	IBL303	15.4	2.20	1.40	5.20		7.9	0.9	
I - 362	9/12/74	IBL303	0.0	1.40	1.40	5.30		7.9	0.8	
I - 364	9/12/74	IBL305	0.0	1.40	1.40	5.20		7.9	0.7	
I - 297	11/21/74	IBL301	0.0	1.60	1.40	5.40	0.80	12.2	< 0.4	
I - 298	11/21/74	IBL303	0.0	1.60	1.40	5.40	0.80	9.4	< 0.4	
I - 452	12/12/74	IBL301	0.0	2.40	1.40	5.40	0.85	10.2	0.6	
I - 453	12/12/74	IBL301	2.0							
I - 454	12/12/74	IBL301	3.0							
I - 455	12/12/74	IBL301	5.0							
I - 456	12/12/74	IBL301	6.0							
I - 451	12/12/74	IBL302	0.0	2.30	1.40	5.40	0.84	10.2	0.6	
I - 432	12/12/74	IBL303	0.0	2.30	1.40	5.50	0.86	9.2	0.7	
I - 433	12/12/74	IBL303	1.0							
I - 434	12/12/74	IBL303	2.0							
I - 435	12/12/74	IBL303	3.0							
I - 436	12/12/74	IBL303	4.0							
I - 437	12/12/74	IBL303	5.0							
I - 438	12/12/74	IBL303	6.0							
I - 439	12/12/74	IBL303	7.0							
I - 440	12/12/74	IBL303	8.0							
I - 441	12/12/74	IBL303	9.0							
I - 442	12/12/74	IBL303	10.0							
I - 443	12/12/74	IBL303	11.0							
I - 444	12/12/74	IBL303	12.0							
I - 445	12/12/74	IBL303	13.0	2.30	1.40	5.40	0.88	9.4	0.6	
I - 446	12/12/74	IBL305	0.0	2.40	1.40	5.50	0.87	9.6	0.6	
I - 447	12/12/74	IBL305	1.0							
I - 448	12/12/74	IBL305	2.0							
I - 449	12/12/74	IBL305	3.0							
I - 450	12/12/74	IBL305	4.0							
I - 545	3/ 6/75	IBL301	0.0	1.80	1.40	5.60	0.90	9.4	< 0.4	
I - 546	3/ 6/75	IBL301	2.0							
I - 547	3/ 6/75	IBL301	4.0							
I - 548	3/ 6/75	IBL302	0.0							
I - 549	3/ 6/75	IBL303	0.0	2.60	1.30	5.60	1.00	9.4	< 0.4	
I - 550	3/ 6/75	IBL303	2.0							
I - 551	3/ 6/75	IBL303	4.0							
I - 552	3/ 6/75	IBL303	6.0							
I - 553	3/ 6/75	IBL303	8.0							
I - 554	3/ 6/75	IBL303	10.0							
I - 555	3/ 6/75	IBL303	12.0							
I - 556	3/ 6/75	IBL303	13.0							
I - 557	3/ 6/75	IBL303	15.0							
I - 558	3/ 6/75	IBL303	16.0							
I - 559	3/ 6/75	IBL304	0.0							
I - 560	3/ 6/75	IBL304	2.0							
I - 561	3/ 6/75	IBL305	0.0							
I - 562	3/ 6/75	IBL305	1.0							
I - 563	3/ 6/75	IBL305	3.0							
I - 564	3/ 6/75	IBL305	5.0							
I - 565	3/ 6/75	IBL305	6.0							
I - 566	4/ 9/75	IBL301	0.0	0.90	1.20	6.60	0.80	12.8	< 0.4	
I - 567	4/ 9/75	IBL301	1.0							
I - 568	4/ 9/75	IBL301	2.0							
I - 569	4/ 9/75	IBL301	3.0							
I - 570	4/ 9/75	IBL301	4.0							
I - 571	4/ 9/75	IBL301	5.0							
I - 572	4/ 9/75	IBL301	6.0	0.90	1.20	6.50	0.90	11.8	< 0.4	
I - 573	4/ 9/75	IBL301	7.0							
I - 632	4/ 9/75	IBL303	0.0	0.90	1.20	6.70	0.80	13.0	< 0.4	
I - 633	4/ 9/75	IBL303	1.0							
I - 634	4/ 9/75	IBL303	2.0							
I - 635	4/ 9/75	IBL303	4.0							
I - 636	4/ 9/75	IBL303	6.0	0.90	1.30	6.80	0.80	11.4	< 0.4	
I - 637	4/ 9/75	IBL303	8.0							
I - 638	4/ 9/75	IBL303	10.0							
I - 639	4/ 9/75	IBL303	12.0	0.90	1.30	6.70		10.4	< 0.4	
I - 640	4/ 9/75	IBL303	13.0							
I - 665	6/24/75	IBL301	0.0	1.80	1.40	2.50	0.70			
I - 666	6/24/75	IBL301	1.0							
I - 667	6/24/75	IBL301	2.0							
I - 668	6/24/75	IBL301	4.0							
I - 669	6/24/75	IBL301	6.0							
I - 670	6/24/75	IBL302	0.0							
I - 671	6/24/75	IBL303	0.0	2.00	1.40	5.10	0.60			

LAKE PLACID WATER QUALITY SUMMARY

PROJECT I　　　　DATE OF PRINTING 09/03/77

PARAMETER　　RANGE OF VALUES　　UNITS

DATE　9/12/74 - 9/ 9/76 MO/DA/YR

STATIONS　IBL301　IBL302　IBL303　IBL304　IBL305

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	NO2 MG/L	NO3 MG/L	NH4 MG/L	TKN MG/L	O-PO4 MG/L	T-PO4 MG/L	TDPO4 MG/L
I - 365	9/12/74	IBL301	0.0	0.007	0.093	< 0.01	0.42	< 0.002	0.007	0.002
I - 366	9/12/74	IBL302	0.0	0.007	< 0.004	< 0.01	0.46	0.003	0.009	0.007
I - 361	9/12/74	IBL303	15.4	0.007	0.078	0.08	6.25	0.002	0.135	0.006
I - 362	9/12/74	IBL303	0.0	0.007	0.022	0.01	0.49	0.002	0.012	0.004
I - 364	9/12/74	IBL305	0.0	0.007	0.019	< 0.01	0.45	< 0.002	0.007	0.002
I - 297	11/21/74	IBL301	0.0	< 0.004	0.015	0.02	0.26	0.005	0.012	0.015
I - 298	11/21/74	IBL303	0.0	< 0.004	0.001	0.01	0.21	< 0.002	0.011	0.007
I - 452	12/12/74	IBL301	0.0	< 0.004	0.014	< 0.01	0.26	< 0.002	0.014	0.004
I - 453	12/12/74	IBL301	2.0							
I - 454	12/12/74	IBL301	3.0							
I - 455	12/12/74	IBL301	5.0							
I - 456	12/12/74	IBL301	6.0							
I - 451	12/12/74	IBL302	0.0	< 0.004	0.017	0.03	0.26	< 0.002	0.025	0.005
I - 432	12/12/74	IBL303	0.0	< 0.004	0.033	0.02	0.24	< 0.002		0.006
I - 433	12/12/74	IBL303	1.0							
I - 434	12/12/74	IBL303	2.0							
I - 435	12/12/74	IBL303	3.0							
I - 436	12/12/74	IBL303	4.0							
I - 437	12/12/74	IBL303	5.0							
I - 438	12/12/74	IBL303	6.0							
I - 439	12/12/74	IBL303	7.0							
I - 440	12/12/74	IBL303	8.0							
I - 441	12/12/74	IBL303	9.0							
I - 442	12/12/74	IBL303	10.0							
I - 443	12/12/74	IBL303	11.0							
I - 444	12/12/74	IBL303	12.0							
I - 445	12/12/74	IBL303	13.0	< 0.004	0.032	0.02	0.62	< 0.002	0.010	0.004
I - 446	12/12/74	IBL305	0.0	< 0.004	0.146	0.04	0.26	< 0.002	0.016	0.009
I - 447	12/12/74	IBL305	1.0							
I - 448	12/12/74	IBL305	2.0							
I - 449	12/12/74	IBL305	3.0							
I - 450	12/12/74	IBL305	4.0							
I - 545	3/ 6/75	IBL301	0.0	< 0.004	0.034	0.03	0.35	< 0.002	0.010	0.004
I - 546	3/ 6/75	IBL301	2.0							
I - 547	3/ 6/75	IBL301	4.0							
I - 548	3/ 6/75	IBL302	0.0	< 0.004	0.056	0.03	0.37	< 0.002	0.008	0.004
I - 549	3/ 6/75	IBL303	0.0	< 0.004	0.070	< 0.01	0.27	< 0.002	0.009	0.005
I - 550	3/ 6/75	IBL303	2.0							
I - 551	3/ 6/75	IBL303	4.0							
I - 552	3/ 6/75	IBL303	6.0							
I - 553	3/ 6/75	IBL303	8.0							
I - 554	3/ 6/75	IBL303	10.0							
I - 555	3/ 6/75	IBL303	12.0							
I - 556	3/ 6/75	IBL303	13.0							
I - 557	3/ 6/75	IBL303	15.0							
I - 558	3/ 6/75	IBL303	16.0							
I - 559	3/ 6/75	IBL304	0.0	< 0.004	0.082	< 0.01	0.23	< 0.002	0.009	0.003
I - 560	3/ 6/75	IBL304	2.0							
I - 561	3/ 6/75	IBL305	0.0	< 0.004	0.078	< 0.01	0.23	< 0.002	0.009	0.006
I - 562	3/ 6/75	IBL305	1.0							
I - 563	3/ 6/75	IBL305	3.0							
I - 564	3/ 6/75	IBL305	5.0							
I - 565	3/ 6/75	IBL305	6.0							
I - 566	4/ 9/75	IBL301	0.0	< 0.004	< 0.004	0.02	0.40	< 0.002	0.006	0.008
I - 567	4/ 9/75	IBL301	1.0							
I - 568	4/ 9/75	IBL301	2.0							
I - 569	4/ 9/75	IBL301	3.0							
I - 570	4/ 9/75	IBL301	4.0							
I - 571	4/ 9/75	IBL301	5.0							
I - 572	4/ 9/75	IBL301	6.0	< 0.004			0.30		0.012	0.005
I - 573	4/ 9/75	IBL301	7.0							
I - 632	4/ 9/75	IBL303	0.0	< 0.004	< 0.004	< 0.01	0.29	< 0.002	0.008	0.005
I - 633	4/ 9/75	IBL303	1.0							
I - 634	4/ 9/75	IBL303	2.0							
I - 635	4/ 9/75	IBL303	4.0							
I - 636	4/ 9/75	IBL303	6.0	< 0.004	< 0.004	< 0.01	0.22	< 0.002	0.009	0.003
I - 637	4/ 9/75	IBL303	8.0							
I - 638	4/ 9/75	IBL303	10.0							
I - 639	4/ 9/75	IBL303	12.0	< 0.004	< 0.004	< 0.01	0.23	< 0.002	0.009	0.005
I - 640	4/ 9/75	IBL303	13.0							
I - 665	6/24/75	IBL301	0.0	< 0.004	0.016	< 0.01	0.35	< 0.002	0.012	0.002
I - 666	6/24/75	IBL301	1.0							
I - 667	6/24/75	IBL301	2.0							
I - 668	6/24/75	IBL301	4.0							
I - 669	6/24/75	IBL301	6.0							
I - 670	6/24/75	IBL302	0.0	< 0.004	< 0.004	< 0.01	0.31	< 0.002	0.014	< 0.002
I - 671	6/24/75	IBL303	0.0	< 0.004	< 0.004	0.02	0.40	< 0.002	0.009	

LAKE PLACID WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 09/03/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/12/74 - 9/ 9/76 MO/DA/YR

STATIONS IBL301 IBL302 IBL303 IBL304 IBL305

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	SECCHI M	TEMP CENT	D.O. MG/L	PH	SP COND UMHOS/CM	COLOR UNITS	TURB JTU	CHLOR A MG/M3
I - 672	6/24/75	IBL303	1.0		28.0	7.3	6.30	51.			
I - 673	6/24/75	IBL303	2.0		27.5	7.2	6.20	52.			
I - 674	6/24/75	IBL303	3.0		27.5	7.2	6.00	54.			5.7
I - 675	6/24/75	IBL303	4.0		27.5	7.3	6.00	55.			6.2
I - 676	6/24/75	IBL303	6.0		27.5	7.4	5.90	56.			6.4
I - 677	6/24/75	IBL303	8.0		27.5	7.2	5.80	57.			7.7
I - 678	6/24/75	IBL304	0.0	2.51	29.0	7.7	6.60	38.			5.4
I - 679	6/24/75	IBL304	1.0		28.5	7.5	6.10	40.			
I - 680	6/24/75	IBL304	2.0		28.0	7.9	6.10	37.			
I - 681	6/24/75	IBL304	3.0		27.5	8.0	6.00	40.			
I - 682	6/24/75	IBL304	4.0		27.0	7.6	5.90	43.			
I - 683	6/24/75	IBL304	5.0		27.0	7.0	5.50	44.			
I - 684	6/24/75	IBL305	0.0	2.50	28.5	7.5	6.00	50.			6.2
I - 685	6/24/75	IBL305	1.0		28.0	7.6	6.30	52.			
I - 686	6/24/75	IBL305	2.0		27.5	7.6	6.30	54.			
I - 687	6/24/75	IBL305	3.0		27.0	7.3	6.00	56.			
I - 777	9/ 9/75	IBL301	0.0	3.02	29.0	7.0	7.00	49.	7.5	2.5	10.8
I - 778	9/ 9/75	IBL302	0.0								
I - 779	9/ 9/75	IBL303	0.0	3.21	28.5	7.3	7.10	52.	8.0	1.5	7.1
I - 780	9/ 9/75	IBL303	2.0		28.5	7.3	7.00	51.			
I - 781	9/ 9/75	IBL303	4.0		28.5	7.3	6.70	52.			7.2
I - 782	9/ 9/75	IBL303	8.0					52.			6.0
I - 783	9/ 9/75	IBL304	0.0								4.9
I - 784	9/ 9/75	IBL305	0.0								
I - 858	12/ 2/75	IBL301	0.0	3.25	19.6	7.5	6.90	53.	12.0	2.0	5.8
I - 859	12/ 2/75	IBL301	2.0		19.6	7.6	6.60	52.			5.0
I - 860	12/ 2/75	IBL301	4.0		19.3	7.4	6.50	52.			5.6
I - 861	12/ 2/75	IBL302	0.0								
I - 862	12/ 2/75	IBL303	0.0	3.23	20.0	7.5	7.00	73.	13.0	1.9	5.4
I - 863	12/ 2/75	IBL303	2.0		19.8	7.7	6.90	52.			5.2
I - 864	12/ 2/75	IBL303	4.0		19.6	7.4	6.70	52.	10.0	3.9	7.4
I - 865	12/ 2/75	IBL303	8.0		19.0	6.3	6.20	52.			3.9
I - 867	12/ 2/75	IBL304	0.0								6.6
I - 866	12/ 2/75	IBL305	0.0								
I - 939	3/ 2/76	IBL301	0.0	2.00	20.4	8.3	7.50	57.	15.0	1.7	4.2
I - 940	3/ 2/76	IBL301	0.5		20.2	8.5	7.30	56.			5.8
I - 941	3/ 2/76	IBL301	2.0		19.8	8.7	7.20	55.			4.8
I - 942	3/ 2/76	IBL301	4.0		19.6	8.7	7.10	55.			5.0
I - 943	3/ 2/76	IBL302	0.0								
I - 944	3/ 2/76	IBL303	0.0	2.20	19.6	8.1	7.50	45.	13.0	3.5	4.8
I - 945	3/ 2/76	IBL303	0.5		19.5	8.2	7.40	44.			4.7
I - 946	3/ 2/76	IBL303	2.0		19.2	8.2	7.30	45.			4.8
I - 947	3/ 2/76	IBL303	4.0		19.0	8.2	7.20	48.			4.7
I - 948	3/ 2/76	IBL303	8.0		18.3	8.0	6.80	53.			5.4
I - 949	3/ 2/76	IBL304	0.0								4.9
I - 950	3/ 2/76	IBL305	0.0								
I -1110	6/ 9/76	IBL301	0.0	2.22	26.0	8.2	7.20	55.	15.0	4.9	6.1
I -1111	6/ 9/76	IBL301	1.0		25.5	8.0	7.20	55.			6.0
I -1112	6/ 9/76	IBL301	2.0		25.5	8.0	7.20	55.			6.0
I -1113	6/ 9/76	IBL301	4.0								7.6
I -1114	6/ 9/76	IBL302	0.0								
I -1122	6/ 9/76	IBL302	0.0								7.9
I -1115	6/ 9/76	IBL303	0.0	2.30	26.0	8.3	7.10	53.	5.0	4.2	5.8
I -1116	6/ 9/76	IBL303	1.0								4.1
I -1117	6/ 9/76	IBL303	2.0		26.0	8.1	7.20	53.			6.2
I -1118	6/ 9/76	IBL303	4.0		26.0	8.1	7.20	53.			6.0
I -1119	6/ 9/76	IBL303	6.0		25.0	7.1	6.70	54.			9.7
I -1120	6/ 9/76	IBL303	8.0								7.2
I -1121	6/ 9/76	IBL303	10.0								8.2
I -1123	6/ 9/76	IBL305	0.0								
I -1172	9/ 1/76	IBL301	0.0	2.50	29.0	7.4	6.20	80.	7.0	1.6	6.2
I -1173	9/ 1/76	IBL301	1.0		28.9	7.4	6.20	80.			4.9
I -1174	9/ 1/76	IBL301	2.0		28.8	7.4	6.20	80.			8.6
I -1175	9/ 1/76	IBL301	4.0		28.4	7.4	6.20	80.			12.2
I -1176	9/ 1/76	IBL302	0.0								
I -1177	9/ 1/76	IBL303	0.0	2.89	29.5	7.7	6.70	85.	8.0	1.8	5.0
I -1178	9/ 1/76	IBL303	0.5		29.4	7.7	6.70	85.			5.5
I -1179	9/ 1/76	IBL303	2.0		29.3	7.7	6.70	85.			6.7
I -1180	9/ 1/76	IBL303	4.0		28.8	7.8	6.65	85.			7.5
I -1181	9/ 1/76	IBL303	8.0		28.2	7.0	6.55	85.			6.3
I -1182	9/ 1/76	IBL303	10.0		28.1	6.8	6.50	85.			5.2
I -1183	9/ 1/76	IBL304	0.0								5.9
I -1184	9/ 1/76	IBL305	0.0								

LAKE PLACID WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 09/03/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/12/74 - 9/ 9/76 MO/DA/YR

STATIONS IBL301 IBL302 IBL303 IBL304 IBL305

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	NO2 MG/L	NO3 MG/L	NH4 MG/L	TKN MG/L	O-PO4 MG/L	T-PO4 MG/L	TOPO4 MG/L
I - 672	6/24/75	IBL303	1.0							
I - 673	6/24/75	IBL303	2.0							
I - 674	6/24/75	IBL303	3.0							
I - 675	6/24/75	IBL303	4.0	< 0.004	< 0.004	0.02	0.45	0.014	0.019	0.006
I - 676	6/24/75	IBL303	6.0							
I - 677	6/24/75	IBL303	8.0	< 0.004	0.007		0.35	< 0.002	0.011	0.005
I - 678	6/24/75	IBL304	0.0	< 0.004	< 0.004	< 0.01	0.39	< 0.002	0.010	0.011
I - 679	6/24/75	IBL304	1.0							
I - 680	6/24/75	IBL304	2.0							
I - 681	6/24/75	IBL304	3.0							
I - 682	6/24/75	IBL304	4.0							
I - 683	6/24/75	IBL304	5.0							
I - 684	6/24/75	IBL305	0.0	< 0.004	0.006	< 0.01	0.39	< 0.002	0.014	0.005
I - 685	6/24/75	IBL305	1.0							
I - 686	6/24/75	IBL305	2.0							
I - 687	6/24/75	IBL305	3.0							
I - 777	9/ 9/75	IBL301	0.0	< 0.004	< 0.004	< 0.01	0.27	< 0.002	0.023	0.003
I - 778	9/ 9/75	IBL302	0.0	< 0.004	< 0.004	0.02	0.21	< 0.002	0.017	0.004
I - 779	9/ 9/75	IBL303	0.0	< 0.004	< 0.004	0.02	0.20	< 0.002	0.015	0.004
I - 780	9/ 9/75	IBL303	2.0							
I - 781	9/ 9/75	IBL303	4.0	< 0.004	< 0.004	< 0.01	0.27	< 0.002	0.016	0.004
I - 782	9/ 9/75	IBL303	8.0	< 0.004	< 0.004	< 0.01	0.31	< 0.002	0.013	0.003
I - 783	9/ 9/75	IBL304	0.0	< 0.004	< 0.004	< 0.01	0.19	< 0.002	0.012	0.003
I - 784	9/ 9/75	IBL305	0.0	< 0.004	< 0.004	0.01	0.28	< 0.002	0.017	0.002
I - 858	12/ 2/75	IBL301	0.0	< 0.004	< 0.004	0.02	0.12	< 0.002	0.013	0.007
I - 859	12/ 2/75	IBL301	2.0							
I - 860	12/ 2/75	IBL301	4.0							
I - 861	12/ 2/75	IBL302	0.0	< 0.004	< 0.004	0.03	0.16	< 0.002	0.016	0.006
I - 862	12/ 2/75	IBL303	0.0	< 0.004	0.015	0.04	0.17	< 0.002	0.013	0.006
I - 863	12/ 2/75	IBL303	2.0							
I - 864	12/ 2/75	IBL303	4.0	< 0.004	< 0.004	0.04	0.20	< 0.002	0.016	0.007
I - 865	12/ 2/75	IBL303	8.0	< 0.004	0.021	0.04	0.22	< 0.002	0.017	0.007
I - 867	12/ 2/75	IBL304	0.0	< 0.004	< 0.004	0.02	0.19	< 0.002	0.014	0.006
I - 866	12/ 2/75	IBL305	0.0	< 0.004	0.018	0.02	0.22	< 0.002	0.013	0.006
I - 939	3/ 2/76	IBL301	0.0	< 0.004	< 0.004	0.02	0.61	< 0.002	0.015	0.005
I - 940	3/ 2/76	IBL301	0.5							
I - 941	3/ 2/76	IBL301	2.0							
I - 942	3/ 2/76	IBL301	4.0							
I - 943	3/ 2/76	IBL302	0.0	< 0.004	0.025	0.04	0.59	< 0.002	0.020	0.005
I - 944	3/ 2/76	IBL303	0.0	< 0.004	< 0.004	0.07	0.51	< 0.002	0.014	0.004
I - 945	3/ 2/76	IBL303	0.5							
I - 946	3/ 2/76	IBL303	2.0	< 0.004	0.189	0.08	0.62	< 0.002	0.016	0.007
I - 947	3/ 2/76	IBL303	4.0	< 0.004	0.069	0.01	0.51	< 0.002	0.016	0.006
I - 948	3/ 2/76	IBL303	8.0	< 0.004	0.018	0.02	0.55	< 0.002	0.018	0.005
I - 949	3/ 2/76	IBL304	0.0	< 0.004	< 0.004	< 0.01	0.47	< 0.002	0.016	0.004
I - 950	3/ 2/76	IBL305	0.0	< 0.004	0.035	< 0.01	0.54	< 0.002	0.016	0.003
I -1110	6/ 9/76	IBL301	0.0	< 0.004	0.191	0.21	0.54	0.005	0.009	0.006
I -1111	6/ 9/76	IBL301	1.0							
I -1112	6/ 9/76	IBL301	2.0							
I -1113	6/ 9/76	IBL301	4.0							
I -1114	6/ 9/76	IBL302	0.0	< 0.004	0.009	0.03	0.50	0.002	0.020	0.008
I -1122	6/ 9/76	IBL302	0.0	< 0.004	0.169	0.54	0.49	0.009	0.011	0.005
I -1115	6/ 9/76	IBL303	0.0	< 0.004	0.004	0.02	0.44	< 0.002	0.007	0.004
I -1116	6/ 9/76	IBL303	1.0							
I -1117	6/ 9/76	IBL303	2.0	< 0.004	0.016	0.08	0.41	< 0.002	0.008	0.006
I -1118	6/ 9/76	IBL303	4.0	< 0.004	0.105	0.14	0.50	< 0.002	0.010	0.004
I -1119	6/ 9/76	IBL303	6.0							
I -1120	6/ 9/76	IBL303	8.0	< 0.004	0.156	0.30	0.36	0.002	0.011	0.005
I -1121	6/ 9/76	IBL303	10.0	< 0.004	0.092	0.13	0.38	0.006	0.009	0.014
I -1123	6/ 9/76	IBL305	0.0	< 0.004	0.391	< 0.01	0.49	0.011	0.008	0.004
I -1172	9/ 1/76	IBL301	0.0	< 0.004	< 0.004	< 0.01	0.44	0.002	0.008	0.013
I -1173	9/ 1/76	IBL301	1.0							
I -1174	9/ 1/76	IBL301	2.0	< 0.004	< 0.004	< 0.01	0.39	< 0.002	0.007	0.004
I -1175	9/ 1/76	IBL301	4.0							
I -1176	9/ 1/76	IBL302	0.0	< 0.004	< 0.004	0.01	0.39	< 0.002	0.006	0.006
I -1177	9/ 1/76	IBL303	0.0	< 0.004	< 0.004	< 0.01	0.42	0.002	0.006	
I -1178	9/ 1/76	IBL303	0.5							
I -1179	9/ 1/76	IBL303	2.0	< 0.004	< 0.004	< 0.01	0.40	< 0.002	0.006	0.004
I -1180	9/ 1/76	IBL303	4.0	< 0.004		0.02	0.45	< 0.002	0.007	0.003
I -1181	9/ 1/76	IBL303	8.0	< 0.004	< 0.004	< 0.01	0.39	< 0.002	0.006	0.003
I -1182	9/ 1/76	IBL303	10.0	< 0.004	< 0.004	0.04	0.37	< 0.002	0.006	0.005
I -1183	9/ 1/76	IBL304	0.0	< 0.004	< 0.004	< 0.01	0.33	< 0.002	0.006	0.003
I -1184	9/ 1/76	IBL305	0.0	< 0.004	0.090	< 0.01	0.38	< 0.002	0.006	0.004

LAKE PLACID WATER QUALITY SUMMARY

PROJECT I   DATE OF PRINTING 09/03/77

PARAMETER   RANGE OF VALUES   UNITS

DATE   9/12/74 - 9/ 9/76 MO/DA/YR

STATIONS IBL301   IBL302   IBL303   IBL304   IBL305

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	CA MG/L	MG MG/L	NA MG/L	K MG/L	CL MG/L	SIO2 MG/L	ALK MEQ/L
I - 672	6/24/75	IBL303	1.0							
I - 673	6/24/75	IBL303	2.0							
I - 674	6/24/75	IBL303	3.0							
I - 675	6/24/75	IBL303	4.0	1.80	1.40	5.60	0.70			
I - 676	6/24/75	IBL303	6.0							
I - 677	6/24/75	IBL303	8.0	1.80	1.40	4.90	0.80	11.9	0.8	
I - 678	6/24/75	IBL304	0.0							
I - 679	6/24/75	IBL304	1.0							
I - 680	6/24/75	IBL304	2.0							
I - 681	6/24/75	IBL304	3.0							
I - 682	6/24/75	IBL304	4.0							
I - 683	6/24/75	IBL304	5.0							
I - 684	6/24/75	IBL305	0.0							
I - 685	6/24/75	IBL305	1.0							
I - 686	6/24/75	IBL305	2.0							
I - 687	6/24/75	IBL305	3.0							
I - 777	9/ 9/75	IBL301	0.0	1.82	1.24	4.35	0.69	6.2	< 0.4	0.11
I - 778	9/ 9/75	IBL302	0.0					6.4	0.4	0.13
I - 779	9/ 9/75	IBL303	0.0	1.88	1.18	3.23	0.78	6.2	1.6	0.18
I - 780	9/ 9/75	IBL303	2.0							
I - 781	9/ 9/75	IBL303	4.0	1.57	1.24	3.68	0.69	5.6	< 0.4	0.14
I - 782	9/ 9/75	IBL303	8.0	1.70	1.12	4.12	0.63	5.2	< 0.4	0.12
I - 783	9/ 9/75	IBL304	0.0					4.8	< 0.4	0.12
I - 784	9/ 9/75	IBL305	0.0					5.0	< 0.4	0.12
I - 858	12/ 2/75	IBL301	0.0					13.1	0.4	< 0.10
I - 859	12/ 2/75	IBL301	2.0							
I - 860	12/ 2/75	IBL301	4.0							
I - 861	12/ 2/75	IBL302	0.0					12.9	< 0.4	< 0.10
I - 862	12/ 2/75	IBL303	0.0	2.07	1.05	3.51	0.65	11.6	< 0.4	< 0.10
I - 863	12/ 2/75	IBL303	2.0							
I - 864	12/ 2/75	IBL303	4.0	1.99	1.09	3.66	0.76	7.8	< 0.4	< 0.10
I - 865	12/ 2/75	IBL303	8.0	1.99	1.09	4.44	0.76	12.2	0.4	< 0.10
I - 867	12/ 2/75	IBL304	0.0					7.4	< 0.4	< 0.10
I - 866	12/ 2/75	IBL305	0.0					9.2	0.4	< 0.10
I - 939	3/ 2/76	IBL301	0.0	3.64	1.52	4.73	1.18		< 0.4	0.26
I - 940	3/ 2/76	IBL301	0.5							
I - 941	3/ 2/76	IBL301	2.0							
I - 942	3/ 2/76	IBL301	4.0							
I - 943	3/ 2/76	IBL302	0.0						0.4	0.34
I - 944	3/ 2/76	IBL303	0.0	2.05	1.57	3.96	1.12		< 0.4	0.28
I - 945	3/ 2/76	IBL303	0.5							
I - 946	3/ 2/76	IBL303	2.0	2.05	1.59	4.13	1.05		0.8	0.30
I - 947	3/ 2/76	IBL303	4.0	2.12	1.63	4.47	1.11		< 0.4	0.28
I - 948	3/ 2/76	IBL303	8.0	2.28	1.63	< 2.91	1.07		0.8	0.28
I - 949	3/ 2/76	IBL304	0.0		4.64				< 0.4	0.26
I - 950	3/ 2/76	IBL305	0.0						0.5	0.29
I -1110	6/ 9/76	IBL301	0.0	< 2.03	1.65	5.35	1.05	17.8	< 0.4	< 0.10
I -1111	6/ 9/76	IBL301	1.0							
I -1112	6/ 9/76	IBL301	2.0							
I -1113	6/ 9/76	IBL301	4.0							
I -1114	6/ 9/76	IBL302	0.0					9.7	< 0.4	< 0.10
I -1122	6/ 9/76	IBL302	0.0					10.5	0.5	< 0.10
I -1115	6/ 9/76	IBL303	0.0	2.41	1.61	5.18	1.07	9.8	< 0.4	< 0.10
I -1116	6/ 9/76	IBL303	1.0							
I -1117	6/ 9/76	IBL303	2.0	< 2.03	1.68	5.35	1.20	10.8	< 0.4	0.16
I -1118	6/ 9/76	IBL303	4.0	< 2.03	1.74	5.35	1.00	9.8	< 0.4	0.16
I -1119	6/ 9/76	IBL303	6.0							
I -1120	6/ 9/76	IBL303	8.0	< 2.03	1.70	5.18	0.86	10.7	< 0.4	< 0.10
I -1121	6/ 9/76	IBL303	10.0	< 2.03	1.74	5.35	1.00	11.9	1.4	< 0.10
I -1123	6/ 9/76	IBL305	0.0					10.9	0.5	< 0.10
I -1172	9/ 1/76	IBL301	0.0	1.95	1.31	4.60	0.69	9.3	< 0.4	0.12
I -1173	9/ 1/76	IBL301	1.0							
I -1174	9/ 1/76	IBL301	2.0	2.22	1.35	4.44	0.76	9.3	< 0.4	< 0.07
I -1175	9/ 1/76	IBL301	4.0							
I -1176	9/ 1/76	IBL302	0.0					9.3	< 0.4	< 0.07
I -1177	9/ 1/76	IBL303	0.0	< 3.00	1.40	5.91	0.68	10.1	< 0.4	< 0.07
I -1178	9/ 1/76	IBL303	0.5							
I -1179	9/ 1/76	IBL303	2.0	2.88	1.53	4.44	0.75	8.9	< 0.4	< 0.07
I -1180	9/ 1/76	IBL303	4.0	2.22	1.53	4.44	0.71	9.5	0.8	< 0.07
I -1181	9/ 1/76	IBL303	8.0	3.60	1.53	4.44	0.73	8.9	< 0.4	< 0.07
I -1182	9/ 1/76	IBL303	10.0	3.87	1.48	4.44	0.79	8.9	< 0.4	< 0.07
I -1183	9/ 1/76	IBL304	0.0					8.7	< 0.4	< 0.07
I -1184	9/ 1/76	IBL305	0.0					9.5	< 0.4	0.13

LAKE JUNE-IN-WINTER WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 8/21/74 - 9/ 9/76 MO/DA/YR

STATIONS IBL202 IBL201 IBL203 IBL204 IBL205 IBL206

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	SECCHI M	TEMP CENT	D.O. MG/L	PH	SP COND UMHOS/CM	COLOR UNITS	TURB JTU	CHLOR A MG/M3
I - 179	8/21/74	IBL201	0.0								
I - 180	8/21/74	IBL201	5.0								
I - 181	8/21/74	IBL201	10.0								
I - 183	8/22/74	IBL202	0.0								
I - 184	8/22/74	IBL203	0.0								
I - 185	8/22/74	IBL204	0.0								
I - 186	8/22/74	IBL205	0.0								
I - 187	8/22/74	IBL206	0.0								
I - 238	9/ 6/74	IBL201	0.0	2.23	28.5	7.4	6.70	110.			
I - 239	9/ 6/74	IBL201	1.0		28.5	7.2	6.70				
I - 240	9/ 6/74	IBL201	2.0		28.5	7.1	6.70				
I - 241	9/ 6/74	IBL201	3.0		28.5	6.9	6.70				
I - 242	9/ 6/74	IBL201	4.0		28.5	6.8	6.65				
I - 243	9/ 6/74	IBL201	5.0		28.5	6.7	6.60				
I - 244	9/ 6/74	IBL201	6.0		28.5	6.6	6.50				
I - 245	9/ 6/74	IBL201	7.0		28.5	6.6	6.60				
I - 246	9/ 6/74	IBL201	8.0		28.5	6.6	6.60				
I - 247	9/ 6/74	IBL201	9.0		28.5	6.6	6.60				
I - 248	9/ 6/74	IBL201	10.0		28.3	6.5	6.50	121.			
I - 249	9/ 6/74	IBL201	10.5		28.0	5.7	6.50				
I - 407	9/ 6/74	IBL202	0.0	2.43	28.5	6.7	6.40	100.			
I - 408	9/ 6/74	IBL202	1.0		28.5	6.6	6.40				
I - 409	9/ 6/74	IBL202	2.0		28.5	6.6	6.40				
I - 410	9/ 6/74	IBL202	3.0		28.3	6.7	6.30				
I - 411	9/ 6/74	IBL202	4.0		28.3	6.6	6.30				
I - 412	9/ 6/74	IBL202	5.0		28.3	6.3	6.20				
I - 413	9/ 6/74	IBL202	6.0		28.3	5.0	5.90				
I - 400	9/ 6/74	IBL203	0.0		28.3	7.1	6.80	112.			
I - 401	9/ 6/74	IBL203	1.0		28.0	6.8	6.80				
I - 402	9/ 6/74	IBL203	1.5		28.0	6.6	6.80				
I - 403	9/ 6/74	IBL204	0.0	2.45	28.3	6.7	6.50	113.			
I - 404	9/ 6/74	IBL204	1.0		28.3	6.7	6.50				
I - 405	9/ 6/74	IBL204	2.0		28.3	6.8	6.50				
I - 406	9/ 6/74	IBL204	3.0		28.2	6.9	6.45				
I - 414	9/ 6/74	IBL205	0.0	1.93	28.0	7.4	6.90	115.			
I - 415	9/ 6/74	IBL205	1.0		28.0	7.3	6.90				
I - 416	9/ 6/74	IBL206	0.0	2.15	28.5	6.6	6.45	113.			
I - 417	9/ 6/74	IBL206	1.0		28.5	6.2	6.45				
I - 418	9/ 6/74	IBL206	2.0		28.5	6.3	6.45				
I - 419	9/ 6/74	IBL206	3.0		28.5	6.4	6.45				
I - 420	9/ 6/74	IBL206	4.0		28.5	6.3	6.45				
I - 421	9/ 6/74	IBL206	5.0		28.5	6.3	6.45				
I - 422	9/ 6/74	IBL206	6.0		28.5	6.2	6.45				
I - 387	12/12/74	IBL201	0.0		17.0	8.8	7.00	120.			
I - 388	12/12/74	IBL201	1.0	2.91	16.8	8.8	6.90	120.			
I - 389	12/12/74	IBL201	2.0		16.8	8.7	6.90	120.			
I - 390	12/12/74	IBL201	3.0		16.7	8.7	6.85	120.			
I - 391	12/12/74	IBL201	4.0		16.7	8.7	6.85	120.			
I - 392	12/12/74	IBL201	5.0		16.5	8.7	6.85	120.			
I - 393	12/12/74	IBL201	6.0		16.5	8.7	6.80	120.			
I - 394	12/12/74	IBL201	7.0		16.5	8.6	6.80	120.			
I - 395	12/12/74	IBL201	8.0		16.5	8.7	6.80	120.			
I - 396	12/12/74	IBL201	9.0		16.5	8.7	6.80	120.			
I - 397	12/12/74	IBL201	10.0		16.5	8.4	6.80	120.			
I - 378	12/12/74	IBL202	0.0	3.44	17.0	8.6	7.00	120.	16.0	2.7	
I - 379	12/12/74	IBL202	1.0		17.0	8.7	7.00	120.			
I - 380	12/12/74	IBL202	2.0		17.0	8.1	6.90	120.			
I - 381	12/12/74	IBL202	3.0		16.6	7.9	6.90	120.			
I - 382	12/12/74	IBL202	5.0		16.5	6.3	6.90	120.			
I - 383	12/12/74	IBL203	0.0		17.5	9.0	6.90	120.			
I - 384	12/12/74	IBL203	1.0		17.3	8.9	6.90	120.			
I - 385	12/12/74	IBL204	0.0		16.2	8.4	6.90	120.			
I - 386	12/12/74	IBL204	1.0		16.2	8.4	6.85	120.			
I - 424	12/12/74	IBL205	0.0		17.0	6.8	7.00	120.			
I - 425	12/12/74	IBL205	1.5		17.0	6.7	6.95	120.			
I - 426	12/12/74	IBL206	0.0		17.2	7.8	6.95	130.			
I - 427	12/12/74	IBL206	1.0		17.0	7.8	6.90	130.			
I - 428	12/12/74	IBL206	2.0		17.0	7.7	6.80	130.			
I - 429	12/12/74	IBL206	3.0		17.0	7.3	6.75	130.			
I - 430	12/12/74	IBL206	4.0		17.0	7.2	6.75	130.			
I - 431	12/12/74	IBL206	5.0		16.6	7.1	6.70	130.			
I - 529	3/ 5/75	IBL201	0.0	2.50	19.0	7.9	6.70	120.	10.0	2.8	
I - 530	3/ 5/75	IBL201	2.0		19.0	7.9	6.60	120.			
I - 531	3/ 5/75	IBL201	4.0		19.0	7.8	6.60	120.			
I - 532	3/ 5/75	IBL201	5.0		19.0	7.8	6.60	120.			
I - 533	3/ 5/75	IBL201	6.0		19.0	7.7	6.60	120.			
I - 534	3/ 5/75	IBL201	8.0		19.0	7.7	6.60	120.			
I - 535	3/ 5/75	IBL201	10.0		19.0	7.6	6.60	120.			
I - 522	3/ 5/75	IBL202	0.0		18.5	6.8	6.40	95.			

LAKE JUNE-IN-WINTER WATER QUALITY SUMMARY

PROJECT I   DATE OF PRINTING 08/31/77

PARAMETER   RANGE OF VALUES   UNITS

DATE   8/21/74 - 9/ 9/76   MO/DA/YR

STATIONS IBL202 IBL201 IBL203 IBL204 IBL205 IBL206

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	NO2 MG/L	NO3 MG/L	NH4 MG/L	TKN MG/L	D-PO4 MG/L	T-PO4 MG/L	TOPO4 MG/L
I - 179	8/21/74	IBL201	0.0	< 0.004	< 0.005	< 0.01	0.50	0.002	0.011	0.006
I - 180	8/21/74	IBL201	6.0	< 0.004	< 0.006	< 0.01	0.45	< 0.002	0.012	0.003
I - 181	8/21/74	IBL201	10.0	< 0.004	0.012	0.05	0.48	< 0.002	0.011	
I - 183	8/22/74	IBL202	0.0	< 0.004	< 0.006	< 0.01	0.79	< 0.002	0.023	0.005
I - 184	8/22/74	IBL203	0.0	< 0.004	< 0.008	< 0.01	0.49	< 0.002	0.008	0.004
I - 185	8/22/74	IBL204	0.0	< 0.004	< 0.005	< 0.01	0.54	< 0.002	0.012	0.005
I - 186	8/22/74	IBL205	0.0	< 0.004	< 0.006	< 0.01	0.42	< 0.002	0.010	
I - 187	8/22/74	IBL206	0.0	< 0.004	0.010	< 0.01	0.51	< 0.002	0.011	0.004
I - 238	9/ 6/74	IBL201	0.0	< 0.004	0.009	0.03	1.06	< 0.002	0.011	0.003
I - 239	9/ 6/74	IBL201	1.0							
I - 240	9/ 6/74	IBL201	2.0							
I - 241	9/ 6/74	IBL201	3.0							
I - 242	9/ 6/74	IBL201	4.0							
I - 243	9/ 6/74	IBL201	5.0							
I - 244	9/ 6/74	IBL201	6.0							
I - 245	9/ 6/74	IBL201	7.0							
I - 246	9/ 6/74	IBL201	8.0							
I - 247	9/ 6/74	IBL201	9.0							
I - 248	9/ 6/74	IBL201	10.0	< 0.004	0.016	0.03	0.49	< 0.002	0.011	0.004
I - 249	9/ 6/74	IBL201	10.5							
I - 407	9/ 6/74	IBL202	0.0	< 0.004	< 0.008	0.03	0.50	0.003	0.012	0.008
I - 408	9/ 6/74	IBL202	1.0							
I - 409	9/ 6/74	IBL202	2.0							
I - 410	9/ 6/74	IBL202	3.0							
I - 411	9/ 6/74	IBL202	4.0							
I - 412	9/ 6/74	IBL202	5.0							
I - 413	9/ 6/74	IBL202	6.0							
I - 400	9/ 6/74	IBL203	0.0	< 0.004	< 0.008	0.03	0.43	< 0.002	0.011	0.004
I - 401	9/ 6/74	IBL203	1.0							
I - 402	9/ 6/74	IBL203	1.5							
I - 403	9/ 6/74	IBL204	0.0	< 0.004	0.006	0.03	0.39	0.012	< 0.015	0.015
I - 404	9/ 6/74	IBL204	1.0							
I - 405	9/ 6/74	IBL204	2.0							
I - 406	9/ 6/74	IBL204	3.0							
I - 414	9/ 6/74	IBL205	0.0	< 0.004	0.007	0.03	0.57	< 0.002	0.011	0.003
I - 415	9/ 6/74	IBL205	1.0							
I - 416	9/ 6/74	IBL206	0.0	< 0.004	0.020	0.04	0.63	< 0.002	0.011	0.002
I - 417	9/ 6/74	IBL206	1.0							
I - 418	9/ 6/74	IBL206	2.0							
I - 419	9/ 6/74	IBL206	3.0							
I - 420	9/ 6/74	IBL206	4.0							
I - 421	9/ 6/74	IBL206	5.0							
I - 422	9/ 6/74	IBL206	6.0							
I - 387	12/12/74	IBL201	0.0	< 0.004	0.036	0.03	0.51	< 0.002	0.012	0.006
I - 388	12/12/74	IBL201	1.0							
I - 389	12/12/74	IBL201	2.0							
I - 390	12/12/74	IBL201	3.0							
I - 391	12/12/74	IBL201	4.0							
I - 392	12/12/74	IBL201	5.0							
I - 393	12/12/74	IBL201	6.0							
I - 394	12/12/74	IBL201	7.0							
I - 395	12/12/74	IBL201	8.0							
I - 396	12/12/74	IBL201	9.0							
I - 397	12/12/74	IBL201	10.0	< 0.004	0.059	0.07	0.44	< 0.002	0.013	0.005
I - 378	12/12/74	IBL202	0.0	< 0.004	0.039	0.03	0.62	< 0.002	0.014	0.007
I - 379	12/12/74	IBL202	1.0							
I - 380	12/12/74	IBL202	2.0							
I - 381	12/12/74	IBL202	3.0							
I - 382	12/12/74	IBL202	5.0							
I - 383	12/12/74	IBL203	0.0	< 0.004	0.019	0.01	0.44	< 0.002	0.014	0.009
I - 384	12/12/74	IBL203	1.0							
I - 385	12/12/74	IBL204	0.0	< 0.004	0.051	0.03	0.49	< 0.002	0.014	0.006
I - 386	12/12/74	IBL204	1.0							
I - 424	12/12/74	IBL205	0.0	< 0.004	0.101	0.04	0.67	< 0.002	0.012	0.007
I - 425	12/12/74	IBL205	1.5							
I - 426	12/12/74	IBL206	0.0	< 0.004	0.277	0.03	0.47	< 0.002	0.012	< 0.002
I - 427	12/12/74	IBL206	1.0							
I - 428	12/12/74	IBL206	2.0							
I - 429	12/12/74	IBL206	3.0							
I - 430	12/12/74	IBL206	4.0							
I - 431	12/12/74	IBL206	5.0							
I - 529	3/ 5/75	IBL201	0.0	< 0.004	0.171	0.03	0.53	0.003	0.016	0.008
I - 530	3/ 5/75	IBL201	2.0							
I - 531	3/ 5/75	IBL201	4.0							
I - 532	3/ 5/75	IBL201	5.0							
I - 533	3/ 5/75	IBL201	6.0							
I - 534	3/ 5/75	IBL201	8.0							
I - 535	3/ 5/75	IBL201	10.0							
I - 522	3/ 5/75	IBL202	0.0	< 0.004	0.074	0.06	0.37	0.003	0.018	0.006

LAKE JUNE-IN-WINTER WATER QUALITY SUMMARY

PROJECT I　　　　DATE OF PRINTING 08/31/77

PARAMETER　　RANGE OF VALUES　　UNITS

DATE　　8/21/74 - 9/ 9/76　MO/DA/YR

STATIONS　IBL202　IBL201　IBL203　IBL204　IBL205
IBL206

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	CA MG/L	MG MG/L	NA MG/L	K MG/L	CL MG/L	SIO2 MG/L	ALK MEQ/L
I - 179	8/21/74	IBL201	0.0	4.60	2.80	6.00	1.90	12.6	< 0.4	
I - 180	8/21/74	IBL201	6.0	5.20	3.40	7.00	2.30	12.4	< 0.4	
I - 181	8/21/74	IBL201	10.0	5.20	3.40	7.00	2.30	12.2	< 0.4	
I - 183	8/22/74	IBL202	0.0	4.80	3.40	7.00	2.20	12.4	0.4	
I - 184	8/22/74	IBL203	0.0	5.20	3.50	7.00	2.30	12.6	0.5	
I - 185	8/22/74	IBL204	0.0	5.20	3.40	7.00	2.30	12.4	0.5	
I - 186	8/22/74	IBL205	0.0	5.20	3.50	7.00	2.40	12.6	0.6	
I - 187	8/22/74	IBL206	0.0	5.60	3.60	7.00	2.50	13.0	0.6	
I - 238	9/ 6/74	IBL201	0.0	3.20	3.40	7.00	2.00	12.0	< 0.4	
I - 239	9/ 6/74	IBL201	1.0							
I - 240	9/ 6/74	IBL201	2.0							
I - 241	9/ 6/74	IBL201	3.0							
I - 242	9/ 6/74	IBL201	4.0							
I - 243	9/ 6/74	IBL201	5.0							
I - 244	9/ 6/74	IBL201	6.0							
I - 245	9/ 6/74	IBL201	7.0							
I - 246	9/ 6/74	IBL201	8.0							
I - 247	9/ 6/74	IBL201	9.0							
I - 248	9/ 6/74	IBL201	10.0	2.80	3.40	9.00	2.20	12.0	< 0.4	
I - 249	9/ 6/74	IBL201	10.5							
I - 407	9/ 6/74	IBL202	0.0	5.40	3.40	8.50	2.10	12.0	< 0.4	
I - 408	9/ 6/74	IBL202	1.0							
I - 409	9/ 6/74	IBL202	2.0							
I - 410	9/ 6/74	IBL202	3.0							
I - 411	9/ 6/74	IBL202	4.0							
I - 412	9/ 6/74	IBL202	5.0							
I - 413	9/ 6/74	IBL202	6.0							
I - 400	9/ 6/74	IBL203	0.0	3.20	3.40	9.00	2.10	12.0	< 0.4	
I - 401	9/ 6/74	IBL203	1.0							
I - 402	9/ 6/74	IBL203	1.5							
I - 403	9/ 6/74	IBL204	0.0	3.20	3.60	8.00	2.10	12.0	< 0.4	
I - 404	9/ 6/74	IBL204	1.0							
I - 405	9/ 6/74	IBL204	2.0							
I - 406	9/ 6/74	IBL204	3.0							
I - 414	9/ 6/74	IBL205	0.0	3.20	3.60	9.00	2.10	12.4	< 0.4	
I - 415	9/ 6/74	IBL205	1.0							
I - 416	9/ 6/74	IBL206	0.0	3.80	3.60	8.00	2.30	12.6	< 0.4	
I - 417	9/ 6/74	IBL206	1.0							
I - 418	9/ 6/74	IBL206	2.0							
I - 419	9/ 6/74	IBL206	3.0							
I - 420	9/ 6/74	IBL206	4.0							
I - 421	9/ 6/74	IBL206	5.0							
I - 422	9/ 6/74	IBL206	6.0							
I - 387	12/12/74	IBL201	0.0	6.20	3.70	8.40	2.42	15.8	0.5	
I - 388	12/12/74	IBL201	1.0							
I - 389	12/12/74	IBL201	2.0							
I - 390	12/12/74	IBL201	3.0							
I - 391	12/12/74	IBL201	4.0							
I - 392	12/12/74	IBL201	5.0							
I - 393	12/12/74	IBL201	6.0							
I - 394	12/12/74	IBL201	7.0							
I - 395	12/12/74	IBL201	8.0							
I - 396	12/12/74	IBL201	9.0							
I - 397	12/12/74	IBL201	10.0	5.50	3.70	8.10	2.49	15.2	0.5	
I - 378	12/12/74	IBL202	0.0	5.30	3.60	10.30	2.04	14.2	0.5	
I - 379	12/12/74	IBL202	1.0							
I - 380	12/12/74	IBL202	2.0							
I - 381	12/12/74	IBL202	3.0							
I - 382	12/12/74	IBL202	5.0							
I - 383	12/12/74	IBL203	0.0	5.30	3.70	7.90	2.48	18.2	1.3	
I - 384	12/12/74	IBL203	1.0							
I - 385	12/12/74	IBL204	0.0	5.20	3.60	7.80	2.40	14.2	0.5	
I - 386	12/12/74	IBL204	1.0							
I - 424	12/12/74	IBL205	0.0	5.60	3.80	8.20	2.55	15.2	0.6	
I - 425	12/12/74	IBL205	1.5							
I - 426	12/12/74	IBL206	0.0	5.80	3.90	8.10	2.64	14.2	0.6	
I - 427	12/12/74	IBL206	1.0							
I - 428	12/12/74	IBL206	2.0							
I - 429	12/12/74	IBL206	3.0							
I - 430	12/12/74	IBL206	4.0							
I - 431	12/12/74	IBL206	5.0							
I - 529	3/ 5/75	IBL201	0.0	7.20	4.20	8.50	2.70	14.4	0.7	
I - 530	3/ 5/75	IBL201	2.0							
I - 531	3/ 5/75	IBL201	4.0							
I - 532	3/ 5/75	IBL201	5.0							
I - 533	3/ 5/75	IBL201	6.0							
I - 534	3/ 5/75	IBL201	8.0							
I - 535	3/ 5/75	IBL201	10.0							
I - 522	3/ 5/75	IBL202	0.0	6.80	3.90	8.50	2.70	13.8	1.2	

LAKE JUNE-IN-WINTER WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 8/21/74 - 9/ 9/76 MO/DA/YR

STATIONS IBL202 IBL201 IBL203 IBL204 IBL205
IBL206

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	SECCHI M	TEMP CENT	D.O. MG/L	PH	SP COND UMHOS/CM	COLOR UNITS	TURB JTU	CHLOR A MG/M3
I - 523	3/ 5/75	IBL202	1.0		18.5	6.8	6.30	97.			
I - 524	3/ 5/75	IBL202	3.0		18.5	6.7	6.20	101.			
I - 525	3/ 5/75	IBL202	5.0		18.5	6.5	6.00	105.			
I - 526	3/ 5/75	IBL202	6.0		18.5	5.6	5.90	110.			
I - 527	3/ 5/75	IBL203	0.0		18.5	7.9	6.70	120.			
I - 528	3/ 5/75	IBL203	1.0		18.2	7.8	6.70	120.			
I - 536	3/ 5/75	IBL204	0.0		18.0	7.9	6.80	67.			
I - 537	3/ 5/75	IBL204	2.0		17.7	7.9	6.70	96.			
I - 519	3/ 5/75	IBL205	0.0	2.31	19.0	8.0	6.50	85.			
I - 520	3/ 5/75	IBL205	1.0		19.0	7.6	6.60	91.			
I - 521	3/ 5/75	IBL205	2.0		19.0	7.6	6.60	96.			
I - 538	3/ 5/75	IBL206	0.0		19.5	7.4	6.60	130.			
I - 539	3/ 5/75	IBL206	2.0		19.5	7.3	6.40	130.			
I - 540	3/ 5/75	IBL206	4.0		19.3	7.2	6.40	140.			
I - 541	3/ 5/75	IBL206	6.0		19.3	7.1	6.30	140.			
I - 653	5/ 7/75	IBL201	0.0	3.00	27.7	8.0	7.00	135.	5.0	4.5	3.6
I - 654	5/ 7/75	IBL201	2.0		27.4	7.9	7.00	135.			4.1
I - 655	5/ 7/75	IBL201	4.0		26.8	7.5	6.90	135.			4.8
I - 740	7/15/75	IBL201	0.0	2.36	28.0	8.3	6.90	120.	17.0	3.2	7.6
I - 741	7/15/75	IBL201	1.0		27.8	8.3	6.70	120.			
I - 742	7/15/75	IBL201	2.0		27.7	8.2	6.70	120.			7.8
I - 743	7/15/75	IBL201	4.0		27.7	8.2	6.60	120.			8.0
I - 744	7/15/75	IBL201	5.0		27.6	8.1	6.60	120.			
I - 745	7/15/75	IBL201	6.0		27.3	7.5	6.50	120.			
I - 746	7/15/75	IBL201	8.0		27.0	7.0	6.20	120.			8.3
I - 747	7/15/75	IBL201	9.0		27.0	5.8	6.10	120.			
I - 727	7/15/75	IBL202	0.0	1.86	28.1	8.6	6.80	110.			10.4
I - 728	7/15/75	IBL202	1.0		28.0	8.6	6.50	110.			
I - 729	7/15/75	IBL202	2.0		27.8	8.6	6.40	110.			
I - 730	7/15/75	IBL202	3.0		27.7	8.4	6.00	110.			
I - 731	7/15/75	IBL202	4.0		27.5	6.4	5.70	110.			
I - 732	7/15/75	IBL202	5.0		26.8	4.6	5.40	110.			
I - 748	7/15/75	IBL203	0.0	1.94	28.0	8.5	6.90	110.			5.4
I - 749	7/15/75	IBL203	2.0		28.0	8.4	6.60	110.			
I - 750	7/15/75	IBL204	0.0		27.5	7.7	6.70	120.			8.5
I - 751	7/15/75	IBL204	1.0		27.5	7.8	6.50	120.			
I - 724	7/15/75	IBL205	0.0	2.65	27.8		7.10	110.			7.0
I - 725	7/15/75	IBL205	1.0		27.6		7.10	110.			
I - 726	7/15/75	IBL205	2.0		27.5		7.00	110.			
I - 733	7/15/75	IBL206	0.0	2.35	28.0	8.9	7.00	130.	16.0	3.8	11.6
I - 734	7/15/75	IBL206	1.0		28.0	8.9	6.90	130.			
I - 735	7/15/75	IBL206	2.0		27.9	8.9	6.90	130.			14.1
I - 736	7/15/75	IBL206	3.0		27.7	8.9	6.90	130.			
I - 737	7/15/75	IBL206	4.0		27.6	8.6	5.80	130.			14.3
I - 738	7/15/75	IBL206	5.0		27.5	4.5	6.10	130.			
I - 739	7/15/75	IBL206	6.0		27.5	3.9	5.70	130.			
I - 788	9/10/75	IBL201	0.0	3.14	28.5	6.9	6.70	120.	9.0	2.0	10.9
I - 789	9/10/75	IBL201	2.0		28.5	6.9	6.60	120.			8.5
I - 790	9/10/75	IBL201	4.0		28.5	6.9	6.60	120.			9.9
I - 791	9/10/75	IBL201	8.0		28.5	6.8	6.60	120.			9.6
I - 787	9/10/75	IBL202	0.0								
I - 792	9/10/75	IBL203	0.0								
I - 793	9/10/75	IBL204	0.0								10.2
I - 796	9/10/75	IBL205	0.0								10.9
I - 795	9/10/75	IBL206	0.0	2.10	28.5	6.7	6.80	120.	10.0	3.4	19.1
I - 869	12/ 3/75	IBL201	0.0	2.55	19.5	8.9	7.00	120.			10.5
I - 870	12/ 3/75	IBL201	2.0		19.4	8.7	6.80	120.			9.2
I - 871	12/ 3/75	IBL201	5.0		19.4	8.4	6.80	120.			9.8
I - 872	12/ 3/75	IBL201	9.0		19.2	7.4	6.50	120.			10.9
I - 873	12/ 3/75	IBL202	0.0								
I - 874	12/ 3/75	IBL203	0.0								
I - 875	12/ 3/75	IBL204	0.0								9.1
I - 876	12/ 3/75	IBL205	0.0								10.4
I - 877	12/ 3/75	IBL206	0.0	2.27	19.2	9.1	6.90	120.	10.0	4.0	11.6
I - 878	12/ 3/75	IBL206	2.0		19.2	8.6	6.60	120.			12.1
I - 879	12/ 3/75	IBL206	4.0		19.3	8.4	6.60	120.			13.0
I - 957	3/ 3/76	IBL201	0.0	2.65	21.2	8.8	7.70	130.	11.0	5.9	8.0
I - 958	3/ 3/76	IBL201	0.5		21.0	8.7	7.60	130.			7.6
I - 959	3/ 3/76	IBL201	2.0		21.0	8.8	7.60	130.			6.4
I - 960	3/ 3/76	IBL201	4.0		20.2	8.6	7.50	130.			7.2
I - 961	3/ 3/76	IBL201	8.0		18.7	5.8	6.90	130.			4.2
I - 956	3/ 3/76	IBL202	0.0								10.9
I - 962	3/ 3/76	IBL203	0.0								
I - 963	3/ 3/76	IBL204	0.0								9.0
I - 955	3/ 3/76	IBL205	0.0								7.7
I - 951	3/ 3/76	IBL206	0.0	2.60	20.4	8.2	7.50	115.	10.0	3.3	5.1
I - 952	3/ 3/76	IBL206	0.5		20.4	8.2	7.50	115.			5.3
I - 953	3/ 3/76	IBL206	2.0		20.3	7.9	7.40	115.			6.4
I - 954	3/ 3/76	IBL206	4.0		19.7	7.2	7.30	125.			6.4

LAKE JUNE-IN-WINTER WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 8/21/74 - 9/ 9/76 MO/DA/YR

STATIONS IBL202 IBL201 IBL203 IBL204 IBL205
IBL206

	SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	NO2 MG/L	NO3 MG/L	NH4 MG/L	TKN MG/L	O-PO4 MG/L	T-PO4 MG/L	TOPO4 MG/L
I	- 523	3/ 5/75	IBL202	1.0							
I	- 524	3/ 5/75	IBL202	3.0							
I	- 525	3/ 5/75	IBL202	5.0							
I	- 526	3/ 5/75	IBL202	6.0							
I	- 527	3/ 5/75	IBL203	0.0	< 0.004	0.091	0.03	0.55	< 0.002	0.014	0.007
I	- 528	3/ 5/75	IBL203	1.0							
I	- 536	3/ 5/75	IBL204	0.0	< 0.004	0.085	0.03	0.47	0.002	0.016	0.006
I	- 537	3/ 5/75	IBL204	2.0							
I	- 519	3/ 5/75	IBL205	0.0	< 0.004	0.107	0.01	0.50	< 0.002	0.014	0.008
I	- 520	3/ 5/75	IBL205	1.0							
I	- 521	3/ 5/75	IBL205	2.0							
I	- 538	3/ 5/75	IBL206	0.0	< 0.004	0.366	0.03	0.41	0.002	0.012	0.008
I	- 539	3/ 5/75	IBL206	2.0							
I	- 540	3/ 5/75	IBL206	4.0							
I	- 541	3/ 5/75	IBL206	6.0							
I	- 653	5/ 7/75	IBL201	0.0	< 0.004	0.009	< 0.01	0.43	< 0.002	0.013	0.006
I	- 654	5/ 7/75	IBL201	2.0							
I	- 655	5/ 7/75	IBL201	4.0	< 0.004	0.006	0.02	0.50	< 0.002	0.010	0.003
I	- 740	7/15/75	IBL201	0.0	< 0.004	< 0.004	< 0.01	0.45	< 0.002	0.013	0.002
I	- 741	7/15/75	IBL201	1.0							
I	- 742	7/15/75	IBL201	2.0							
I	- 743	7/15/75	IBL201	4.0							
I	- 744	7/15/75	IBL201	5.0							
I	- 745	7/15/75	IBL201	6.0							
I	- 746	7/15/75	IBL201	8.0	< 0.004	0.007	0.09	0.53	< 0.002	0.012	0.004
I	- 747	7/15/75	IBL201	9.0							
I	- 727	7/15/75	IBL202	0.0	< 0.004	0.014	0.02	0.39	< 0.002	0.016	0.005
I	- 728	7/15/75	IBL202	1.0							
I	- 729	7/15/75	IBL202	2.0							
I	- 730	7/15/75	IBL202	3.0							
I	- 731	7/15/75	IBL202	4.0							
I	- 732	7/15/75	IBL202	5.0							
I	- 748	7/15/75	IBL203	0.0	0.004	< 0.004	0.03	0.49	< 0.002	0.011	0.006
I	- 749	7/15/75	IBL203	2.0							
I	- 750	7/15/75	IBL204	0.0	0.004	0.009	0.01	0.45	< 0.002	0.013	0.007
I	- 751	7/15/75	IBL204	1.0							
I	- 724	7/15/75	IBL205	0.0	< 0.004	0.004	< 0.01	0.50	< 0.002	0.011	0.004
I	- 725	7/15/75	IBL205	1.0							
I	- 726	7/15/75	IBL205	2.0							
I	- 733	7/15/75	IBL206	0.0	< 0.004	0.031	0.02	0.35	< 0.002	0.011	0.003
I	- 734	7/15/75	IBL206	1.0							
I	- 735	7/15/75	IBL206	2.0							
I	- 736	7/15/75	IBL206	3.0							
I	- 737	7/15/75	IBL206	4.0							
I	- 738	7/15/75	IBL206	5.0							
I	- 739	7/15/75	IBL206	6.0							
I	- 788	9/10/75	IBL201	0.0	< 0.004	< 0.004	< 0.01	0.48	< 0.002	0.013	< 0.002
I	- 789	9/10/75	IBL201	2.0							
I	- 790	9/10/75	IBL201	4.0	< 0.004	< 0.004	0.02	0.43	< 0.002	0.014	< 0.002
I	- 791	9/10/75	IBL201	8.0	< 0.004	0.005	0.02	0.45	< 0.002	0.014	< 0.002
I	- 787	9/10/75	IBL202	0.0	< 0.004	< 0.004	0.02	0.41	< 0.002	0.024	< 0.002
I	- 792	9/10/75	IBL203	0.0	< 0.004	< 0.004	0.03	0.48	< 0.002	0.017	0.006
I	- 793	9/10/75	IBL204	0.0	< 0.004	< 0.004	< 0.01	0.46	< 0.002	0.014	< 0.002
I	- 786	9/10/75	IBL205	0.0	< 0.004	< 0.004	< 0.01	0.40	< 0.002	0.022	< 0.002
I	- 785	9/10/75	IBL206	0.0	< 0.004	0.110	0.01	0.33	< 0.002	0.020	< 0.002
I	- 869	12/ 3/75	IBL201	0.0	0.006	0.010	0.03	0.36	0.003	0.019	0.010
I	- 870	12/ 3/75	IBL201	2.0							
I	- 871	12/ 3/75	IBL201	5.0	< 0.004	0.005	0.03	0.40	< 0.002	0.015	0.009
I	- 872	12/ 3/75	IBL201	9.0	< 0.004	0.010	0.05	0.44	< 0.002	0.017	0.005
I	- 873	12/ 3/75	IBL202	0.0	< 0.004	< 0.004	0.02	0.57	0.004	0.014	0.009
I	- 874	12/ 3/75	IBL203	0.0	< 0.004	< 0.004	0.03	0.45	< 0.002	0.013	0.005
I	- 875	12/ 3/75	IBL204	0.0	< 0.004	< 0.004	0.03	0.49	< 0.002	0.014	0.005
I	- 876	12/ 3/75	IBL205	0.0	< 0.004	< 0.004	0.02	0.49	< 0.002	0.015	0.007
I	- 877	12/ 3/75	IBL206	0.0	< 0.004	0.149	0.02	0.53	< 0.002	0.013	0.005
I	- 878	12/ 3/75	IBL206	2.0							
I	- 879	12/ 3/75	IBL206	4.0							
I	- 957	3/ 3/76	IBL201	0.0	< 0.004	0.087	0.01	0.61	< 0.002	0.013	0.007
I	- 958	3/ 3/76	IBL201	0.5							
I	- 959	3/ 3/76	IBL201	2.0	< 0.004	0.087	0.01	0.62	< 0.002	0.015	0.004
I	- 960	3/ 3/76	IBL201	4.0	< 0.004	0.092	< 0.01	0.59	< 0.002	0.013	0.005
I	- 961	3/ 3/76	IBL201	8.0	< 0.004	0.140	0.03	0.55	< 0.002	0.013	0.003
I	- 956	3/ 3/76	IBL202	0.0	< 0.004	0.004	< 0.01	0.66	0.003	0.015	0.009
I	- 962	3/ 3/76	IBL203	0.0	< 0.004	0.294	0.07	0.69	< 0.002	0.015	0.006
I	- 963	3/ 3/76	IBL204	0.0	< 0.004	0.070	< 0.01	0.68	< 0.002	0.014	0.005
I	- 955	3/ 3/76	IBL205	0.0	< 0.004	0.124	0.01	0.55	< 0.002	0.017	0.003
I	- 951	3/ 3/76	IBL206	0.0	< 0.004	0.270	0.01	0.57	< 0.002	0.017	0.003
I	- 952	3/ 3/76	IBL206	0.5							
I	- 953	3/ 3/76	IBL206	2.0							
I	- 954	3/ 3/76	IBL206	4.0							

LAKE JUNE-IN-WINTER WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 6/21/74 - 9/ 9/76 MO/DA/YR

STATIONS IBL202 IBL201 IBL203 IBL204 IBL205
IBL206

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	CA MG/L	MG MG/L	NA MG/L	K MG/L	CL MG/L	SIO2 MG/L	ALK MEQ/L
I - 523	3/ 5/75	IBL202	1.0							
I - 524	3/ 5/75	IBL202	3.0							
I - 525	3/ 5/75	IBL202	5.0							
I - 526	3/ 5/75	IBL202	6.0							
I - 527	3/ 5/75	IBL203	0.0							
I - 529	3/ 5/75	IBL203	1.0							
I - 536	3/ 5/75	IBL204	0.0	7.70	4.00	8.50	2.70	13.4	0,9	
I - 537	3/ 5/75	IBL204	2.0							
I - 519	3/ 5/75	IBL205	0.0							
I - 520	3/ 5/75	IBL205	1.0							
I - 521	3/ 5/75	IBL205	2.0							
I - 538	3/ 5/75	IBL206	0.0							
I - 539	3/ 5/75	IBL206	2.0							
I - 540	3/ 5/75	IBL206	4.0							
I - 541	3/ 5/75	IBL206	6.0							
I - 653	5/ 7/75	IBL201	0.0	6.20	4.20	7.00	1.70	14.0	0.5	
I - 654	5/ 7/75	IBL201	2.0							
I - 655	5/ 7/75	IBL201	4.0					15.0	0.4	
I - 740	7/15/75	IBL201	0.0	4.40	3.76	7.70	1.75	36.8	< 0.4	
I - 741	7/15/75	IBL201	1.0							
I - 742	7/15/75	IBL201	2.0							
I - 743	7/15/75	IBL201	4.0							
I - 744	7/15/75	IBL201	5.0							
I - 745	7/15/75	IBL201	6.0							
I - 746	7/15/75	IBL201	8.0	5.21	3.82	7.70	1.80	34.7	< 0.4	
I - 747	7/15/75	IBL201	9.0							
I - 727	7/15/75	IBL202	0.0	5.37	3.54	7.39	1.84	48.2	< 0.4	
I - 728	7/15/75	IBL202	1.0							
I - 729	7/15/75	IBL202	2.0							
I - 730	7/15/75	IBL202	3.0							
I - 731	7/15/75	IBL202	4.0							
I - 732	7/15/75	IBL202	5.0							
I - 748	7/15/75	IBL203	0.0					34.3	< 0.4	
I - 749	7/15/75	IBL203	2.0							
I - 750	7/15/75	IBL204	0.0	5.69	3.92	7.39	1.88	34.3	< 0.4	
I - 751	7/15/75	IBL204	1.0							
I - 724	7/15/75	IBL205	0.0					35.3	< 0.4	
I - 725	7/15/75	IBL205	1.0							
I - 726	7/15/75	IBL205	2.0							
I - 733	7/15/75	IBL206	0.0	4.89	4.11	7.39	2.20	36.1	< 0.4	
I - 734	7/15/75	IBL206	1.0							
I - 735	7/15/75	IBL206	2.0							
I - 736	7/15/75	IBL206	3.0							
I - 737	7/15/75	IBL206	4.0							
I - 738	7/15/75	IBL206	5.0							
I - 739	7/15/75	IBL206	6.0							
I - 788	9/10/75	IBL201	0.0	4.54	3.72	9.94	2.26	13.6	0.5	0.18
I - 789	9/10/75	IBL201	2.0							
I - 790	9/10/75	IBL201	4.0	4.21	3.78	6.36	2.71	14.8	0.6	0.13
I - 791	9/10/75	IBL201	8.0	4.21	3.72	6.56	2.74	13.6	0.6	0.14
I - 787	9/10/75	IBL202	0.0					9.6	0.7	0.22
I - 792	9/10/75	IBL203	0.0					14.6	0.8	0.13
I - 793	9/10/75	IBL204	0.0					13.0	0.7	0.16
I - 794	9/10/75	IBL205	0.0					10.8	0.5	0.21
I - 785	9/10/75	IBL206	0.0	5.20	4.15	7.70	3.06	9.8	< 0.4	0.22
I - 869	12/ 3/75	IBL201	0.0	5.09	3.97	7.09	2.20	12.0	< 0.4	0.14
I - 870	12/ 3/75	IBL201	2.0							
I - 871	12/ 3/75	IBL201	5.0	5.25	4.10	7.23	2.29	12.0	< 0.4	0.16
I - 872	12/ 3/75	IBL201	9.0	5.92	3.66	6.92	2.16	14.5	< 0.4	0.23
I - 873	12/ 3/75	IBL202	0.0					12.0	0.4	0.26
I - 874	12/ 3/75	IBL203	0.0					12.7	< 0.4	0.26
I - 875	12/ 3/75	IBL204	0.0					13.3	< 0.4	0.26
I - 876	12/ 3/75	IBL205	0.0					16.7	< 0.4	0.26
I - 877	12/ 3/75	IBL206	0.0	6.41	3.92	6.46	2.31	12.9	< 0.4	0.29
I - 878	12/ 3/75	IBL206	2.0							
I - 879	12/ 3/75	IBL206	4.0							
I - 957	3/ 3/76	IBL201	0.0	6.78	4.21	7.70	3.23		< 0.4	0.37
I - 958	3/ 3/76	IBL201	0.5							
I - 959	3/ 3/76	IBL201	2.0	6.17	4.19	7.59	3.21		< 0.4	0.43
I - 960	3/ 3/76	IBL201	4.0	6.16	4.16	8.10	3.24		< 0.4	0.38
I - 961	3/ 3/76	IBL201	8.0	6.15	4.26	7.65	3.17		0.4	0.37
I - 956	3/ 3/76	IBL202	0.0						< 0.4	0.37
I - 962	3/ 3/76	IBL203	0.0						< 0.4	0.38
I - 963	3/ 3/76	IBL204	0.0						< 0.4	0.36
I - 955	3/ 3/76	IBL205	0.0						< 0.4	0.39
I - 951	3/ 3/76	IBL206	0.0	7.56	4.97	7.70	3.42		0.6	0.36
I - 952	3/ 3/76	IBL206	0.5							
I - 953	3/ 3/76	IBL206	2.0							
I - 954	3/ 3/76	IBL206	4.0							

LAKE JUNE-IN-WINTER WATER QUALITY SUMMARY

PROJECT I   DATE OF PRINTING 08/31/77

PARAMETER   RANGE OF VALUES   UNITS

DATE   8/21/74 - 9/ 9/75   MO/DA/YR

STATIONS   IBL202   IBL201   IBL203   IBL204   IBL205
IBL206

	SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	SECCHI M	TEMP CENT	D.O. MG/L	PH	SP COND UMHOS/CM	COLOR UNITS	TURB JTU	CHLOR A MG/M3
I	-1061	5/27/76	IBL201	0.0	3.30	26.0	8.2	6.70	140.	17.0	4.7	5.7
I	-1062	5/27/76	IBL201	0.5								5.7
I	-1063	5/27/76	IBL201	2.0		25.1	8.2	7.00	140.			6.9
I	-1064	5/27/76	IBL201	4.0		24.8	8.2	6.90	140.			8.2
I	-1065	5/27/76	IBL201	6.0								9.3
I	-1066	5/27/76	IBL201	8.0		24.2	7.7	6.30	140.			9.1
I	-1059	5/27/76	IBL202	0.0								
I	-1060	5/27/76	IBL203	0.0								
I	-1067	5/27/76	IBL204	0.0								5.8
I	-1058	5/27/76	IBL205	0.0								8.1
I	-1068	5/27/76	IBL206	0.0	2.79	26.5	8.3	6.80	140.	22.0	3.5	7.8
I	-1069	5/27/76	IBL206	2.0		25.5	8.4	6.60	140.			8.5
I	-1070	5/27/76	IBL206	4.0		24.6	8.3	6.20	140.			9.2
I	-1071	5/27/76	IBL206	5.0		24.5	7.9	5.50	140.			13.4
I	-1135	7/19/76	IBL201	0.0								
I	-1136	7/19/76	IBL201	0.5								
I	-1137	7/19/76	IBL201	2.0								
I	-1138	7/19/76	IBL201	4.0								
I	-1139	7/19/76	IBL201	8.0								
I	-1140	7/19/76	IBL203	0.0								
I	-1141	7/19/76	IBL203	0.5								
I	-1142	7/19/76	IBL203	1.0								
I	-1143	7/19/76	IBL203	2.0								
I	-1144	7/19/76	IBL203	3.0								
I	-1197	9/ 8/76	IBL201	0.0	2.22	30.7	7.4	5.30	135.		2.1	7.0
I	-1198	9/ 8/76	IBL201	1.0		28.9	7.6	5.20	135.			10.4
I	-1199	9/ 8/76	IBL201	2.0		28.5	7.7	5.00	135.			11.8
I	-1200	9/ 8/76	IBL201	4.0		28.0	7.5	4.50	135.			10.9
I	-1201	9/ 8/76	IBL201	6.0		27.6	4.6	4.50	135.			9.2
I	-1195	9/ 8/76	IBL202	0.0								
I	-1196	9/ 8/76	IBL203	0.0								
I	-1202	9/ 8/76	IBL204	0.0								11.6
I	-1194	9/ 8/76	IBL205	0.0								8.3
I	-1203	9/ 8/76	IBL206	0.0	1.90	30.0	7.3	6.60	135.	22.0	2.6	12.9
I	-1204	9/ 8/76	IBL206	2.0		28.3	7.4	6.70	135.			17.3
I	-1205	9/ 8/76	IBL206	4.0		27.9	7.0	6.50	135.			18.5

	SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	NO2 MG/L	NO3 MG/L	NH4 MG/L	TKN MG/L	O-PO4 MG/L	T-PO4 MG/L	TDPO4 MG/L
I	-1061	5/27/76	IBL201	0.0	< 0.004	0.005	0.03	0.38	< 0.002	0.009	0.008
I	-1062	5/27/76	IBL201	0.5							
I	-1063	5/27/76	IBL201	2.0	< 0.004		0.02	0.39	< 0.002	0.012	0.007
I	-1064	5/27/76	IBL201	4.0	< 0.004		< 0.01	0.41	< 0.002	0.010	0.010
I	-1065	5/27/76	IBL201	6.0							
I	-1066	5/27/76	IBL201	8.0	< 0.004	0.004	0.03	0.41	< 0.002	0.010	0.003
I	-1059	5/27/76	IBL202	0.0	< 0.004	< 0.004	< 0.01	0.25	< 0.002	0.016	0.006
I	-1060	5/27/76	IBL203	0.0	< 0.004	< 0.004	< 0.01	0.22	< 0.002	0.019	0.006
I	-1067	5/27/76	IBL204	0.0	< 0.004	< 0.004	< 0.01	0.41	< 0.002		< 0.002
I	-1058	5/27/76	IBL205	0.0	< 0.004	0.016	0.19	0.25	< 0.002	0.022	0.008
I	-1068	5/27/76	IBL206	0.0	< 0.004	0.066	< 0.01	0.61	< 0.002	0.031	0.004
I	-1069	5/27/76	IBL206	2.0	< 0.004	0.071	0.03	0.46	< 0.002	0.010	0.008
I	-1070	5/27/76	IBL206	4.0	< 0.004	0.061	0.02	0.56	< 0.002	0.015	0.004
I	-1071	5/27/76	IBL206	5.0	< 0.004	0.124	0.01	0.52	< 0.002	0.021	0.005
I	-1135	7/19/76	IBL201	0.0	< 0.004	0.004	0.01	0.57	< 0.002	0.015	0.005
I	-1136	7/19/76	IBL201	0.5	< 0.004	< 0.004	< 0.01	0.43	< 0.002	0.012	< 0.002
I	-1137	7/19/76	IBL201	2.0	< 0.004	< 0.004	0.01	0.46	< 0.002	0.011	0.005
I	-1138	7/19/76	IBL201	4.0	< 0.004	< 0.004	0.02	0.49	< 0.002	0.011	0.004
I	-1139	7/19/76	IBL201	8.0	< 0.004	< 0.004	0.05	0.43	< 0.002	0.011	0.002
I	-1140	7/19/76	IBL203	0.0	< 0.004	< 0.004	0.01	0.45	< 0.002	0.011	0.004
I	-1141	7/19/76	IBL203	0.5	< 0.004	< 0.004	0.02	0.51	< 0.002	0.013	0.002
I	-1142	7/19/76	IBL203	1.0	< 0.004	< 0.004	< 0.01	0.53	< 0.002	0.011	< 0.002
I	-1143	7/19/76	IBL203	2.0	< 0.004	< 0.004	0.04	0.51	< 0.002	0.011	0.010
I	-1144	7/19/76	IBL203	3.0	< 0.004	< 0.004	0.04	0.55	< 0.002	0.011	0.005
I	-1197	9/ 8/76	IBL201	0.0	< 0.004	0.949	0.01	0.50	< 0.002	0.012	0.003
I	-1198	9/ 8/76	IBL201	1.0							
I	-1199	9/ 8/76	IBL201	2.0	< 0.004	< 0.004	0.01	0.46	< 0.002	0.012	0.005
I	-1200	9/ 8/76	IBL201	4.0	< 0.004	< 0.004	0.02	0.52	< 0.002	0.011	0.005
I	-1201	9/ 8/76	IBL201	8.0	< 0.004	0.013	< 0.01	0.46	< 0.002	0.009	0.004
I	-1195	9/ 8/76	IBL202	0.0	< 0.004	0.009	0.02	0.48	< 0.002	0.013	0.009
I	-1196	9/ 8/76	IBL203	0.0	< 0.004	< 0.004	0.01	0.44	0.003	0.010	0.008
I	-1202	9/ 8/76	IBL204	0.0	< 0.004	0.199	0.02	0.45	< 0.002	0.011	0.006
I	-1194	9/ 8/76	IBL205	0.0	< 0.004	0.071	< 0.01	0.46	< 0.002	0.010	0.005
I	-1203	9/ 8/76	IBL206	0.0	< 0.004	2.821	0.15	0.49	0.006	0.009	0.014
I	-1204	9/ 8/76	IBL206	2.0	< 0.004	0.051	0.01	0.46	< 0.002	0.018	0.008
I	-1205	9/ 8/76	IBL206	4.0	< 0.004	0.005	0.01	0.50	< 0.002	0.013	0.004

LAKE JUNE-IN-WINTER WATER QUALITY SUMMARY

PROJECT I   DATE OF PRINTING 08/31/77

PARAMETER   RANGE OF VALUES   UNITS

DATE   8/21/74   -   9/ 9/76   MO/DA/YR

STATIONS IBL202   IBL201   IBL203   IBL204   IBL205
IBL206

	SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	CA MG/L	MG MG/L	NA MG/L	K MG/L	CL MG/L	SIO2 MG/L	ALK MEQ/L
I	-1061	5/27/76	IBL201	0.0	4.61	3.45	7.22	2.67			
I	-1062	5/27/76	IBL201	0.5							
I	-1063	5/27/76	IBL201	2.0	4.31	3.50	7.27	2.70			
I	-1064	5/27/76	IBL201	4.0	4.31	3.45	7.37	2.89			
I	-1065	5/27/76	IBL201	5.0							
I	-1066	5/27/76	IBL201	6.0	4.31	3.64	7.37	3.01			
I	-1059	5/27/76	IBL202	0.0							
I	-1060	5/27/76	IBL203	0.0							
I	-1067	5/27/76	IBL204	0.0							
I	-1058	5/27/76	IBL205	0.0							
I	-1068	5/27/76	IBL206	0.0	4.97	3.59	7.37	3.01			
I	-1069	5/27/76	IBL206	2.0	4.48	3.41	7.51	2.84			
I	-1070	5/27/76	IBL206	4.0							
I	-1071	5/27/76	IBL206	5.0	4.64	3.54	6.34				
I	-1135	7/19/76	IBL201	0.0	5.58	3.88	8.75	0.32	14.5	< 0.4	0.27
I	-1136	7/19/76	IBL201	0.5	5.42	3.88	10.04	0.31	12.8	< 0.4	0.27
I	-1137	7/19/76	IBL201	2.0	5.74	3.92	9.75	0.33	12.8	< 0.4	0.28
I	-1138	7/19/76	IBL201	4.0	5.42	3.92	6.75	0.31	12.6	< 0.4	0.27
I	-1139	7/19/76	IBL201	8.0	5.74	3.92	8.43	0.31	12.9	< 0.4	0.12
I	-1140	7/19/76	IBL203	0.0	5.42	3.96	8.27	0.31	12.7	< 0.4	0.12
I	-1141	7/19/76	IBL203	0.5	5.10	3.96	8.59	0.30	12.9	< 0.4	0.14
I	-1142	7/19/76	IBL203	1.0	5.10	3.96	7.30	0.29	12.7	< 0.4	0.18
I	-1143	7/19/76	IBL203	2.0	5.26	3.96	7.14	0.31	13.5	< 0.4	0.12
I	-1144	7/19/76	IBL203	3.0	5.59	3.92	8.91	0.33	14.4	< 0.4	0.14
I	-1197	9/ 8/76	IBL201	0.0	5.42	3.73	7.33	2.28	13.2	< 0.4	0.15
I	-1198	9/ 8/76	IBL201	1.0							
I	-1199	9/ 8/76	IBL201	2.0	6.54	3.42	7.17	2.22	16.6	< 0.4	0.12
I	-1200	9/ 8/76	IBL201	4.0	6.86	3.64	7.64	2.17	13.2	< 0.4	0.16
I	-1201	9/ 8/76	IBL201	8.0	5.74	3.46	7.49	2.12	13.4	< 0.4	0.21
I	-1195	9/ 9/76	IBL202	0.0					16.2	0.6	0.10
I	-1196	9/ 8/76	IBL203	0.0					13.8	0.4	0.15
I	-1202	9/ 8/76	IBL204	0.0					13.0	0.5	0.21
I	-1194	9/ 8/76	IBL205	0.0					14.6	0.4	0.12
I	-1203	9/ 8/76	IBL206	0.0	7.34	3.95	7.95	2.32	15.8	0.5	0.21
I	-1204	9/ 8/76	IBL206	2.0	6.54	3.81	7.95	2.64	17.2	0.5	0.21
I	-1205	9/ 8/76	IBL206	4.0	13.59	4.34	8.42	2.34	13.2	0.4	< 0.07

LAKE CLAY WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 3/12/75 - 9/15/76 MO/DA/YR

STATIONS IBL501 IBL502 IBL503 IBL504

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	SECCHI M	TEMP CENT	D.O. MG/L	PH	SP COND UMHOS/CM	COLOR UNITS	TURB JTU	CHLOR A MG/M3
I - 615	3/12/75	IBL501	0.0	1.54	22.0	8.7	6.80	145.			
I - 616	3/12/75	IBL501	1.0		22.0	8.7	6.90	145.			
I - 617	3/12/75	IBL501	2.0		21.8	8.7	6.90	145.			
I - 618	3/12/75	IBL502	0.0	2.40	21.5	8.6	6.80	145.	12.0	3.0	
I - 619	3/12/75	IBL502	2.0		21.4	8.7	6.95	145.			
I - 620	3/12/75	IBL502	3.0		21.3	8.8	7.00	145.			
I - 621	3/12/75	IBL503	0.0								
I - 622	3/12/75	IBL504	0.0	3.05	21.2	8.6	6.90	145.			
I - 623	3/12/75	IBL504	1.0		21.3	8.6	6.90	145.			
I - 624	3/12/75	IBL504	2.0		21.0	8.6	6.95	145.			
I - 625	3/12/75	IBL504	4.0		19.5	7.9	6.95	145.			
I - 626	3/12/75	IBL504	5.0		19.4	7.0	6.60	145.			
I - 627	3/12/75	IBL504	6.0		19.2	6.4	6.70	145.			
I - 708	6/26/75	IBL501	0.0	1.03	28.0	6.6	5.50	110.			
I - 709	6/26/75	IBL501	1.0		27.5	4.3	5.80	100.			
I - 710	6/26/75	IBL501	2.0		27.5	3.6	5.60	100.			
I - 711	6/26/75	IBL502	0.0	1.17	28.5	7.6	7.20	110.			17.6
I - 712	6/26/75	IBL502	1.0		28.0	7.0	6.90	115.			
I - 713	6/26/75	IBL502	2.0		27.5	6.9	6.80	120.			
I - 714	6/26/75	IBL503	0.0	1.25	28.5	7.5	6.80	100.			
I - 715	6/26/75	IBL503	1.0		28.0	7.1	6.20	100.			
I - 716	6/26/75	IBL504	0.0	1.30	29.0	7.7	7.80	80.			21.2
I - 717	6/26/75	IBL504	1.0		28.5	7.2	7.60	120.			
I - 718	6/26/75	IBL504	2.0		28.5	7.0	7.30	130.			24.7
I - 719	6/26/75	IBL504	3.0		28.5	6.9	7.10	130.			
I - 720	6/26/75	IBL504	4.0		28.0	6.5	6.80	135.			24.1
I - 796	9/11/75	IBL501	0.0								19.3
I - 797	9/11/75	IBL502	0.0	1.25	28.5	6.9	7.40	140.	17.0	3.7	16.4
I - 798	9/11/75	IBL503	0.0								
I - 799	9/11/75	IBL504	0.0	1.05	28.5	6.6	7.00	140.	13.0	4.0	15.1
I - 800	9/11/75	IBL504	2.0		28.5	6.5	6.90	140.			22.0
I - 801	9/11/75	IBL504	4.0		28.5	6.5	6.80	140.			21.1
I - 802	9/11/75	IBL504	6.0		28.0		6.40	145.			16.6
I - 881	12/ 4/75	IBL501	0.0								
I - 882	12/ 4/75	IBL502	0.0	1.97	19.2	8.1	6.90	135.	12.0	4.5	8.5
I - 883	12/ 4/75	IBL502	2.0		19.2	7.6	6.70	135.			8.8
I - 884	12/ 4/75	IBL502	3.0		19.3	7.6	6.60	135.			10.4
I - 885	12/ 4/75	IBL503	0.0								
I - 886	12/ 4/75	IBL504	0.0	2.37	19.3	8.3	6.70	140.	10.0	4.5	11.7
I - 887	12/ 4/75	IBL504	2.0		19.3	7.7	6.50	135.			12.9
I - 888	12/ 4/75	IBL504	4.0		19.3	7.3	6.40	135.			11.4
I - 889	12/ 4/75	IBL504	6.0		19.0	3.7	6.30	135.			10.3
I - 964	3/ 4/76	IBL501	0.0								0.8
I - 965	3/ 4/76	IBL502	0.0	3.29	22.0	7.6	7.10	150.	12.0	2.0	0.6
I - 966	3/ 4/76	IBL502	0.5		22.0	8.0	7.00	150.			1.1
I - 967	3/ 4/76	IBL502	1.5		21.5	7.7	7.00	150.			0.9
I - 968	3/ 4/76	IBL502	3.0		21.5	7.0	6.80	150.			1.9
I - 969	3/ 4/76	IBL503	0.0								
I - 970	3/ 4/76	IBL504	0.0	6.40	21.5	8.0	7.00	150.	14.0	1.9	0.8
I - 971	3/ 4/76	IBL504	0.5		22.0	8.0	7.00	150.			1.3
I - 972	3/ 4/76	IBL504	2.0		21.5	8.1	7.00	150.			0.8
I - 973	3/ 4/76	IBL504	4.0		20.0	7.2	6.80	155.			0.2
I - 974	3/ 4/76	IBL504	6.0		19.5	4.5	6.50	155.			0.8
I -1124	6/10/76	IBL501	0.0						9.0		
I -1125	6/10/76	IBL502	0.0	2.77	26.5	7.8	7.30	110.		4.5	3.8
I -1126	6/10/76	IBL502	1.0		26.5	7.5	7.30	115.			3.7
I -1127	6/10/76	IBL502	2.0		26.5	7.3	7.30	120.			3.8
I -1128	6/10/76	IBL502	3.0		26.5	7.3	7.30	125.			4.2
I -1129	6/10/76	IBL503	0.0								
I -1130	6/10/76	IBL504	0.0	3.20	26.5	7.9	7.40	150.	12.0	3.6	6.2
I -1131	6/10/76	IBL504	1.0								5.9
I -1132	6/10/76	IBL504	2.0		26.5	7.5	7.40	150.			5.6
I -1133	6/10/76	IBL504	4.0		26.5	7.5	7.40	150.			5.7
I -1134	6/10/76	IBL504	6.0		25.5	2.6	6.80	155.			5.2
I -1225	9/15/76	IBL501	0.0							2.4	8.2
I -1226	9/15/76	IBL502	0.0	2.04	28.5	7.9	6.50	140.	71.0	1.8	9.1
I -1227	9/15/76	IBL502	1.0		27.5	8.0	6.60	140.			10.4
I -1228	9/15/76	IBL502	2.0		27.0	8.0	6.50	140.		2.2	10.3
I -1229	9/15/76	IBL502	3.0		25.5	8.0	6.30	140.			10.8
I -1230	9/15/76	IBL503	0.0							1.7	10.0
I -1231	9/15/76	IBL504	0.0	2.12	29.0	8.1	6.80	145.	72.0	2.3	13.7
I -1232	9/15/76	IBL504	1.0		28.0	8.3	7.30	145.			15.9
I -1233	9/15/76	IBL504	2.0		27.5	8.3	7.50	145.		2.6	17.6
I -1234	9/15/76	IBL504	4.0		27.0	7.7	6.60	145.		2.0	20.1
I -1235	9/15/76	IBL504	6.0		26.8	5.1	6.00	145.		2.5	17.1
I -1236	9/15/76	IBL504	6.0								

LAKE CLAY WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 3/12/75 - 9/15/76 MO/DA/YR

STATIONS IBL501 IBL502 IBL503 IBL504

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	NO2 MG/L	NO3 MG/L	NH4 MG/L	TKN MG/L	O-PO4 MG/L	T-PO4 MG/L	TOPO4 MG/L
I - 615	3/12/75	IBL501	0.0	< 0.004	< 0.004	< 0.01	0.69	< 0.002	0.013	0.005
I - 616	3/12/75	IBL501	1.0							
I - 617	3/12/75	IBL501	2.0							
I - 618	3/12/75	IBL502	0.0	< 0.004	0.023	0.03	0.65	0.002	0.011	0.006
I - 619	3/12/75	IBL502	2.0							
I - 620	3/12/75	IBL502	3.0							
I - 621	3/12/75	IBL503	0.0							
I - 622	3/12/75	IBL504	0.0	< 0.004	0.071	0.07	0.69	0.004	0.011	0.008
I - 623	3/12/75	IBL504	1.0							
I - 624	3/12/75	IBL504	2.0							
I - 625	3/12/75	IBL504	4.0							
I - 626	3/12/75	IBL504	5.0							
I - 627	3/12/75	IBL504	6.0							
I - 708	6/26/75	IBL501	0.0	< 0.004	< 0.004	< 0.01	0.49	< 0.002	0.029	0.006
I - 709	6/26/75	IBL501	1.0							
I - 710	6/26/75	IBL501	2.0							
I - 711	6/26/75	IBL502	0.0	< 0.004	< 0.004	< 0.01	0.66	< 0.002	0.014	0.003
I - 712	6/26/75	IBL502	1.0							
I - 713	6/26/75	IBL502	2.0							
I - 714	6/26/75	IBL503	0.0	< 0.004	< 0.004	< 0.01	0.71	< 0.002	0.016	0.007
I - 715	6/26/75	IBL503	1.0							
I - 716	6/26/75	IBL504	0.0	< 0.004	< 0.004	< 0.01	0.37	0.005	0.014	0.004
I - 717	6/26/75	IBL504	1.0							
I - 718	6/26/75	IBL504	2.0	< 0.004	0.076	< 0.01	0.40	< 0.002	0.016	< 0.002
I - 719	6/26/75	IBL504	3.0							
I - 720	6/26/75	IBL504	4.0	< 0.004	< 0.004	< 0.01	0.81	0.012	0.049	0.025
I - 796	9/11/75	IBL501	0.0	< 0.004	< 0.004	0.01	0.99	< 0.002	0.020	0.003
I - 797	9/11/75	IBL502	0.0	< 0.004		< 0.01	0.81	< 0.002	0.017	0.003
I - 798	9/11/75	IBL503	0.0	< 0.004	0.008	< 0.01	0.96	< 0.002	0.019	0.004
I - 799	9/11/75	IBL504	0.0	< 0.004	< 0.004	0.02	0.94	< 0.002	0.018	0.003
I - 800	9/11/75	IBL504	2.0							
I - 901	9/11/75	IBL504	4.0	< 0.004	0.007	< 0.01	0.93	< 0.002	0.018	0.004
I - 902	9/11/75	IBL504	6.0	< 0.004	0.007	0.25	1.16	< 0.002	0.024	0.004
I - 881	12/ 4/75	IBL501	0.0	0.005	< 0.004	0.02	0.70	< 0.002	0.016	0.004
I - 882	12/ 4/75	IBL502	0.0	< 0.004	0.006	0.04	0.70	< 0.002	0.012	0.004
I - 883	12/ 4/75	IBL502	2.0							
I - 884	12/ 4/75	IBL502	3.0							
I - 885	12/ 4/75	IBL503	0.0	0.006	0.019	0.07	0.64	< 0.002	0.016	0.004
I - 886	12/ 4/75	IBL504	0.0	< 0.004	0.037	0.02	0.74	< 0.002	0.016	0.005
I - 887	12/ 4/75	IBL504	2.0							
I - 888	12/ 4/75	IBL504	4.0	< 0.004	0.038	0.02	0.76	< 0.002	0.015	0.006
I - 889	12/ 4/75	IBL504	6.0	< 0.004	0.031	0.04	0.67	< 0.002	0.014	0.004
I - 964	3/ 4/76	IBL501	0.0	< 0.004	0.207	0.05	0.61	0.002	0.011	0.009
I - 965	3/ 4/76	IBL502	0.0	< 0.004	0.335	0.02	0.62	< 0.002	0.008	0.006
I - 966	3/ 4/76	IBL502	0.5							
I - 967	3/ 4/76	IBL502	1.5							
I - 968	3/ 4/76	IBL502	3.0							
I - 969	3/ 4/76	IBL503	0.0	< 0.004	0.210	0.02	0.68	< 0.002	0.010	0.008
I - 970	3/ 4/76	IBL504	0.0	0.011	0.251	0.03	0.72	< 0.002	0.008	0.004
I - 971	3/ 4/76	IBL504	0.5							
I - 972	3/ 4/76	IBL504	2.0	< 0.004	0.267	0.08	0.65	< 0.002	0.008	0.004
I - 973	3/ 4/76	IBL504	4.0	< 0.004	0.267	0.04	0.43	< 0.002	0.008	0.004
I - 974	3/ 4/76	IBL504	6.0	< 0.004	0.270	0.01	0.49	< 0.002	0.015	0.004
I -1124	6/10/76	IBL501	0.0	< 0.004	< 0.004	< 0.01	0.58	< 0.002	0.011	0.005
I -1125	6/10/76	IBL502	0.0	< 0.004	0.035	0.15	0.54	< 0.002	0.009	0.006
I -1126	6/10/76	IBL502	1.0							
I -1127	6/10/76	IBL502	2.0							
I -1128	6/10/76	IBL502	3.0							
I -1129	6/10/76	IBL503	0.0	< 0.004	0.105	0.06	0.55	0.003	0.012	0.006
I -1130	6/10/76	IBL504	0.0	< 0.004	0.035	0.32	0.59	< 0.002	0.012	0.005
I -1131	6/10/76	IBL504	1.0							
I -1132	6/10/76	IBL504	2.0	< 0.004	0.246	0.22	0.50	< 0.002	0.011	0.004
I -1133	6/10/76	IBL504	4.0	< 0.004	< 0.004	0.02	0.45	< 0.002	0.011	0.006
I -1134	6/10/76	IBL504	6.0	< 0.004	0.032	0.15	0.46	0.005	0.011	0.009
I -1225	9/15/76	IBL501	0.0	0.008	< 0.004	< 0.01	0.52	0.002	0.011	0.006
I -1226	9/15/76	IBL502	0.0	0.008	< 0.004	0.02	0.47	< 0.002	0.008	
I -1227	9/15/76	IBL502	1.0							
I -1228	9/15/76	IBL502	2.0	0.008	0.074	< 0.01	0.43	< 0.002	0.009	0.005
I -1229	9/15/76	IBL502	3.0							
I -1230	9/15/76	IBL503	0.0	0.008	< 0.004	0.01	0.44		0.008	0.006
I -1231	9/15/76	IBL504	0.0	0.008	< 0.004	0.02	0.39	< 0.002	0.008	
I -1232	9/15/76	IBL504	1.0							
I -1233	9/15/76	IBL504	2.0	0.008	< 0.004	< 0.01	0.42	< 0.002	0.010	0.004
I -1234	9/15/76	IBL504	4.0	< 0.004	0.015	< 0.01	0.42	< 0.002	0.010	
I -1235	9/15/76	IBL504	6.0	< 0.004	< 0.004	0.02	0.42	< 0.002	0.009	0.004
I -1236	9/15/76	IBL504	6.0							

LAKE CLAY WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 3/12/75 - 9/15/76 MO/DA/YR

STATIONS IBL501 IBL502 IBL503 IBL504

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	CA MG/L	MG MG/L	NA MG/L	K MG/L	CL MG/L	SIO2 MG/L	ALK MEQ/L
I - 615	3/12/75	IBL501	0.0							
I - 616	3/12/75	IBL501	1.0							
I - 617	3/12/75	IBL501	2.0							
I - 618	3/12/75	IBL502	0.0	5.10	4.60	8.80	4.70	14.2	< 0.4	
I - 619	3/12/75	IBL502	2.0							
I - 620	3/12/75	IBL502	3.0							
I - 621	3/12/75	IBL503	0.0							
I - 622	3/12/75	IBL504	0.0							
I - 623	3/12/75	IBL504	1.0							
I - 624	3/12/75	IBL504	2.0							
I - 625	3/12/75	IBL504	4.0							
I - 626	3/12/75	IBL504	5.0							
I - 627	3/12/75	IBL504	6.0							
I - 708	6/26/75	IBL501	0.0					15.3	0.6	
I - 709	6/26/75	IBL501	1.0							
I - 710	6/26/75	IBL501	2.0							
I - 711	6/26/75	IBL502	0.0	6.80	4.10	8.10	4.40	15.7	0.6	
I - 712	6/26/75	IBL502	1.0							
I - 713	6/26/75	IBL502	2.0							
I - 714	6/26/75	IBL503	0.0					15.5	0.6	
I - 715	6/26/75	IBL503	1.0							
I - 716	6/26/75	IBL504	0.0	7.40	4.10	8.10	4.40	16.1	0.6	
I - 717	6/26/75	IBL504	1.0							
I - 718	6/26/75	IBL504	2.0	7.40	4.70	8.10	4.50	19.3	0.6	1.01
I - 719	6/26/75	IBL504	3.0							
I - 720	6/26/75	IBL504	4.0	7.40	4.10	8.10	4.40	15.9	0.6	
I - 796	9/11/75	IBL501	0.0					14.2	1.0	0.22
I - 797	9/11/75	IBL502	0.0	4.87	3.59	6.37	3.60	14.4	1.0	0.24
I - 798	9/11/75	IBL503	0.0					14.4	1.9	0.26
I - 799	9/11/75	IBL504	0.0	6.03	3.59	9.05	3.78	14.6	1.1	0.12
I - 800	9/11/75	IBL504	2.0							
I - 801	9/11/75	IBL504	4.0	5.37	3.72	9.49	3.72	14.8	2.1	0.16
I - 802	9/11/75	IBL504	6.0	5.86	3.66	9.94	3.98	15.0	1.2	0.21
I - 881	12/ 4/75	IBL501	0.0					13.7	1.2	0.37
I - 882	12/ 4/75	IBL502	0.0	6.08	3.94	7.86	3.71	18.0	1.2	0.17
I - 883	12/ 4/75	IBL502	2.0							
I - 884	12/ 4/75	IBL502	3.0							
I - 885	12/ 4/75	IBL503	0.0					14.1	1.2	0.16
I - 886	12/ 4/75	IBL504	0.3	8.24	3.84	7.55	3.80	19.0	1.3	0.24
I - 887	12/ 4/75	IBL504	2.0							
I - 888	12/ 4/75	IBL504	4.0	9.41	3.84	7.86	3.84	13.9	1.3	0.26
I - 889	12/ 4/75	IBL504	6.0	6.41	3.92	7.55	3.54	14.1	1.3	0.28
I - 964	3/ 4/76	IBL501	0.0						< 0.4	0.40
I - 965	3/ 4/76	IBL502	0.0	7.51	4.37	8.29	5.55		< 0.4	0.41
I - 966	3/ 4/76	IBL502	0.5							
I - 967	3/ 4/76	IBL502	1.5							
I - 968	3/ 4/76	IBL502	3.0							
I - 969	3/ 4/76	IBL503	0.0						< 0.4	0.39
I - 970	3/ 4/76	IBL504	0.0	7.38	4.41	8.10	5.43		< 0.4	0.40
I - 971	3/ 4/76	IBL504	0.5							
I - 972	3/ 4/76	IBL504	2.0	7.49	4.23	8.13	5.22		< 0.4	0.46
I - 973	3/ 4/76	IBL504	4.0	7.54	4.37	8.16	5.25		< 0.4	0.40
I - 974	3/ 4/76	IBL504	6.0	7.97	4.29	8.65	5.34		< 0.4	0.41
I -1124	6/10/76	IBL501	0.0					16.4	0.5	0.18
I -1125	6/10/76	IBL502	0.0	7.63	4.54	8.34	4.62	20.4	0.4	0.17
I -1126	6/10/76	IBL502	1.0							
I -1127	6/10/76	IBL502	2.0							
I -1128	6/10/76	IBL502	3.0							
I -1129	6/10/76	IBL503	0.0					19.0	0.6	0.14
I -1130	6/10/76	IBL504	0.0	8.08	4.61	8.67	4.78	16.6	< 0.4	0.21
I -1131	6/10/76	IBL504	1.0							
I -1132	6/10/76	IBL504	2.0	7.97	4.48	8.67	4.67	15.7	0.5	0.14
I -1133	6/10/76	IBL504	4.0	12.08	4.63	9.00	4.67	16.8	0.5	0.11
I -1134	6/10/76	IBL504	6.0	7.30	4.54	8.67	4.83	16.6	0.6	0.14
I -1225	9/15/76	IBL501	0.0					15.0	0.5	0.19
I -1226	9/15/76	IBL502	0.0	7.30	3.28	7.54	3.54	14.8	1.3	0.19
I -1227	9/15/76	IBL502	1.0							
I -1228	9/15/76	IBL502	2.0					14.7	0.6	< 0.07
I -1229	9/15/76	IBL502	3.0							
I -1230	9/15/76	IBL503	0.0					19.3	0.6	< 0.07
I -1231	9/15/76	IBL504	0.0	5.36	3.11	7.54	3.43	13.9	0.6	< 0.07
I -1232	9/15/76	IBL504	1.0							
I -1233	9/15/76	IBL504	2.0	5.20	3.36	7.70	3.64	14.3	0.7	< 0.07
I -1234	9/15/76	IBL504	4.0	11.30	3.19	7.21	3.61	14.3	0.8	< 0.07
I -1235	9/15/76	IBL504	6.0	7.94	3.44	7.86	3.42	13.9	0.7	< 0.07
I -1236	9/15/76	IBL504	6.0							

REEDY LAKE WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/30/75 - 9/ 9/76 MO/DA/YR

STATIONS IBL601 IBL602 IBL603 IBL604 IBL605

	SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	SECCHI M	TEMP CENT	D.O. MG/L	PH	SP COND UMHOS/CM	COLOR UNITS	TURB JTU	CHLOR A MG/M3
I	- 842	9/30/75	IBL602	0.0		26.8	8.2	8.10	200.	20.0	7.9	55.3
I	- 843	9/30/75	IBL602	1.0		26.5	8.2	8.00	200.			58.5
I	- 844	9/30/75	IBL602	3.0		26.0	7.4	7.70	200.			62.2
I	- 837	9/30/75	IBL603	0.0	0.70	26.2	7.6	7.30	200.	25.0	7.5	62.1
I	- 838	9/30/75	IBL603	2.0		26.0	6.8	7.20	200.			63.8
I	- 839	9/30/75	IBL603	4.0		26.0	6.2	7.20	200.			60.3
I	- 841	9/30/75	IBL604	0.0		26.5	8.1	8.00	200.			59.1
I	- 840	9/30/75	IBL605	0.0		26.5	8.3	8.20	170.			55.2
I	- 927	1/ 7/76	IBL601	0.0								
I	- 922	1/ 7/76	IBL602	0.0	0.64	16.0	8.4	7.60	210.	28.0	6.5	39.6
I	- 923	1/ 7/76	IBL602	0.5		15.8	8.4	7.60	210.			42.8
I	- 924	1/ 7/76	IBL602	1.5		15.6	8.2	7.50	210.			44.6
I	- 925	1/ 7/76	IBL602	3.0		15.5	8.1	7.50	210.			47.4
I	- 928	1/ 7/76	IBL603	0.0	0.67	15.5	8.5	7.60	210.	20.0	9.0	80.3
I	- 929	1/ 7/76	IBL603	0.5		15.4	8.5	7.60	210.			39.1
I	- 930	1/ 7/76	IBL603	1.5		15.2	8.5	7.60	210.			49.4
I	- 931	1/ 7/76	IBL603	3.0		15.1	8.4	7.50	210.			46.9
I	- 933	1/ 7/76	IBL604	0.0								41.2
I	- 932	1/ 7/76	IBL605	0.0								40.8
I	-1013	3/16/76	IBL601	0.0								
I	-1014	3/16/76	IBL602	0.0	1.07	22.5	7.7	8.40	230.			17.3
I	-1015	3/16/76	IBL602	0.0		22.6	7.7	8.20	230.			16.3
I	-1016	3/16/76	IBL602	0.0		22.6	7.7	8.20	230.			16.8
I	-1017	3/16/76	IBL602	0.0		22.6	7.7	8.20	230.			15.7
I	-1018	3/16/76	IBL603	0.0	1.14	23.0	7.5	8.20	230.			21.2
I	-1019	3/16/76	IBL603	0.5		23.0	7.5	8.20	230.			21.9
I	-1020	3/16/76	IBL603	1.5		23.0	7.5	8.20	230.			20.6
I	-1021	3/16/76	IBL603	3.0		23.0	7.4	8.20	230.			18.5
I	-1022	3/16/76	IBL604	0.0								22.7
I	-1023	3/16/76	IBL605	0.0								17.6
I	-1090	6/ 3/76	IBL601	0.0								42.7
I	-1091	6/ 3/76	IBL602	0.0	0.91	26.7	8.5	9.50	240.	15.0	4.4	44.6
I	-1092	6/ 3/76	IBL602	1.0		26.7	8.5	9.40	240.			41.1
I	-1093	6/ 3/76	IBL602	2.0		26.5	8.5	9.40	240.			47.0
I	-1094	6/ 3/76	IBL602	3.0		26.5	8.5	8.90	240.			48.7
I	-1095	6/ 3/76	IBL603	0.0	0.94	26.0	5.4	8.60	220.	23.0	5.8	42.6
I	-1096	6/ 3/76	IBL603	1.0		26.0	5.1	8.40	220.			37.8
I	-1097	6/ 3/76	IBL603	2.0		26.0	5.1	8.40	225.			43.6
I	-1098	6/ 3/76	IBL603	3.0		26.0	5.1	8.40	230.			43.6
I	-1099	6/ 3/76	IBL604	0.0		25.4	9.8	9.60	240.			41.7
I	-1100	6/ 3/76	IBL604	2.0								48.9
I	-1101	6/ 3/76	IBL605	0.0								53.4
I	-1206	9/ 9/76	IBL601	0.0							8.2	
I	-1207	9/ 9/76	IBL602	0.0	0.51	31.3	9.0	7.90	220.	9.0	18.0	68.0
I	-1208	9/ 9/76	IBL602	1.0		29.0	9.4	7.80	220.			60.5
I	-1209	9/ 9/76	IBL602	2.0		28.5	9.1	7.70	220.		10.2	59.9
I	-1210	9/ 9/76	IBL602	3.0		28.1	8.3	7.60	220.			60.1
I	-1211	9/ 9/76	IBL603	0.0	0.50	30.6	7.8	6.90	220.	5.0	12.0	54.9
I	-1212	9/ 9/76	IBL603	1.0		29.0	9.1	7.10	220.		12.0	58.0
I	-1213	9/ 9/76	IBL603	2.0		28.5	9.0	6.90	220.		12.0	56.7
I	-1214	9/ 9/76	IBL603	3.0		28.1	8.8	6.90	220.			58.[illegible]
I	-1215	9/ 9/76	IBL603	4.0		27.9	5.2	5.20	220.		14.0	62.2
I	-1216	9/ 9/76	IBL604	0.0							11.0	59.9
I	-1217	9/ 9/76	IBL605	0.0							12.0	55.4

REEDY LAKE WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/30/75 - 9/ 9/76 MO/DA/YR

STATIONS IBL601 IBL602 IBL603 IBL604 IBL605

	SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	NO2 MG/L	NO3 MG/L	NH4 MG/L	TKN MG/L	O-PO4 MG/L	T-PO4 MG/L	TDPO4 MG/L
I	- 842	9/30/75	IBL602	0.0	< 0.004	0.023	0.02	0.68	< 0.002	0.023	0.005
I	- 843	9/30/75	IBL602	1.0							
I	- 844	9/30/75	IBL602	3.0							
I	- 837	9/30/75	IBL603	0.0	< 0.004	0.034	0.21	1.38	0.005	0.024	0.003
I	- 838	9/30/75	IBL603	2.0	< 0.004	< 0.004	0.07	1.34	< 0.002	0.024	< 0.002
I	- 839	9/30/75	IBL603	4.0	< 0.004	< 0.004	< 0.01	1.37	< 0.002	0.020	0.003
I	- 841	9/30/75	IBL604	0.0	< 0.004	< 0.004	0.07	0.87	< 0.002	0.018	0.004
I	- 840	9/30/75	IBL605	0.0	< 0.004	< 0.004	< 0.01	1.36	< 0.002	0.018	0.003
I	- 927	1/ 7/76	IBL601	0.0	< 0.004	0.110	0.10	1.50	< 0.002	0.027	0.002
I	- 922	1/ 7/76	IBL602	0.0	< 0.004	0.091	0.11	1.26	< 0.002	0.019	0.003
I	- 923	1/ 7/76	IBL602	0.5							
I	- 924	1/ 7/76	IBL602	1.5							
I	- 925	1/ 7/76	IBL602	3.0							
I	- 928	1/ 7/76	IBL603	0.0	< 0.004	0.099	0.06	2.32	< 0.002	0.024	0.004
I	- 929	1/ 7/76	IBL603	0.5							
I	- 930	1/ 7/76	IBL603	1.5	< 0.004	0.054	0.09	1.34	< 0.002	0.021	0.003
I	- 931	1/ 7/76	IBL603	3.0	< 0.004	0.188	0.06	1.26	< 0.002	0.020	0.004
I	- 933	1/ 7/76	IBL604	0.0	< 0.004	0.106	0.08	1.07	< 0.002	0.020	< 0.002
I	- 932	1/ 7/76	IBL605	0.0	< 0.004	0.036	0.02	1.31	< 0.002	0.018	0.002
I	-1013	3/16/76	IBL601	0.0	0.017	0.221	1.41	1.89	0.007	0.026	0.011
I	-1014	3/16/76	IBL602	0.0	0.009	0.159	1.19	1.87	0.005	0.021	0.012
I	-1015	3/16/76	IBL602	0.0							
I	-1016	3/16/76	IBL602	0.0							
I	-1017	3/16/76	IBL602	0.0							
I	-1018	3/16/76	IBL603	0.0	0.011	0.128	1.00	1.74	< 0.002	0.019	0.010
I	-1019	3/16/76	IBL603	0.5	0.011	0.131	0.93	1.69	< 0.002	0.022	0.010
I	-1020	3/16/76	IBL603	1.5	0.009	0.228	0.92	1.91	< 0.002	0.034	0.011
I	-1021	3/16/76	IBL603	3.0	0.008	0.127	0.91	1.93	< 0.002	0.023	0.010
I	-1022	3/16/76	IBL604	0.0	0.005	0.936	1.04	1.86	< 0.002	0.018	0.010
I	-1023	3/16/76	IBL605	0.0	0.010	0.208	0.96	1.90	< 0.002	0.021	0.010
I	-1090	6/ 3/76	IBL601	0.0	< 0.004		0.02	0.72	0.003	0.013	< 0.002
I	-1091	6/ 3/76	IBL602	0.0	< 0.004		0.20	0.80	0.009	0.010	0.005
I	-1092	6/ 3/76	IBL602	1.0	< 0.004	< 0.004	0.02	0.69	0.002	0.012	< 0.002
I	-1093	6/ 3/76	IBL602	2.0	< 0.004	< 0.004	0.03	0.86	0.004	0.009	< 0.002
I	-1094	6/ 3/76	IBL602	3.0	< 0.004	< 0.004	0.02	0.97	0.003	0.011	< 0.002
I	-1095	6/ 3/76	IBL603	0.0	< 0.004	< 0.004	0.05	0.82	0.005	0.010	0.004
I	-1096	6/ 3/76	IBL603	1.0	< 0.004	0.005	0.04	0.83	0.006	0.009	0.005
I	-1097	6/ 3/76	IBL603	2.0	< 0.004	< 0.004	0.05	0.52	0.005	0.009	0.004
I	-1098	6/ 3/76	IBL603	3.0	< 0.004	< 0.004	0.20	0.59	0.006	0.010	0.004
I	-1099	6/ 3/76	IBL604	0.0	< 0.004	< 0.004	0.05	0.86	0.003	0.008	< 0.002
I	-1100	6/ 3/76	IBL604	2.0	< 0.004	< 0.004	0.07	0.80	0.004	0.013	0.004
I	-1101	6/ 3/76	IBL605	0.0	< 0.004	< 0.004	0.43	0.99	0.004	0.017	0.004
I	-1206	9/ 9/76	IBL601	0.0	< 0.004	0.026	< 0.01	1.17	< 0.002	0.027	0.005
I	-1207	9/ 9/76	IBL602	0.0	< 0.004	< 0.004	< 0.01	1.59	< 0.002	0.035	0.005
I	-1208	9/ 9/76	IBL602	1.0							
I	-1209	9/ 9/76	IBL602	2.0	< 0.004	< 0.004	0.02	1.23	< 0.002	0.028	0.004
I	-1210	9/ 9/76	IBL602	3.0							
I	-1211	9/ 9/76	IBL603	0.0	< 0.004	< 0.004	< 0.01	0.92	< 0.002	0.025	0.005
I	-1212	9/ 9/76	IBL603	1.0	< 0.004	0.117	0.09	1.26	0.003	0.026	0.004
I	-1213	9/ 9/76	IBL603	2.0	< 0.004	< 0.004	0.01	1.24	< 0.002	0.029	0.004
I	-1214	9/ 9/76	IBL603	3.0							
I	-1215	9/ 9/76	IBL603	4.0	< 0.004	< 0.004	0.01	1.34	0.005	0.028	0.006
I	-1216	9/ 9/76	IBL604	0.0	< 0.004	< 0.004	< 0.01	1.11	< 0.002	0.029	0.005
I	-1217	9/ 9/76	IBL605	0.0	< 0.004	0.023	< 0.01	1.05	< 0.002	0.023	0.004

REEDY LAKE WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/30/75 - 9/ 9/75 MO/DA/YR

STATIONS IBL601 IBL602 IBL603 IBL604 IBL605

	SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	CA MG/L	MG MG/L	NA MG/L	K MG/L	CL MG/L	SIO2 MG/L	ALK MEQ/L
I	- 842	9/30/75	IBL602	0.0	13.43	6.44	10.90	3.39	14.7	6.5	0.86
I	- 843	9/30/75	IBL602	1.0							
I	- 844	9/30/75	IBL602	3.0							
I	- 837	9/30/75	IBL603	0.0	13.91	6.44	11.07	3.53	16.9	6.6	0.87
I	- 838	9/30/75	IBL603	2.0	14.07	6.71	11.56	3.50	17.1	6.5	0.86
I	- 839	9/30/75	IBL603	4.0	13.43	6.44	10.41	3.44	< 4.0	6.5	0.89
I	- 841	9/30/75	IBL604	0.0					15.1	6.6	0.86
I	- 840	9/30/75	IBL605	0.0	13.27	6.26	10.41	3.28	14.7	6.5	0.86
I	- 927	1/ 7/76	IBL601	0.0					12.9	6.8	0.94
I	- 922	1/ 7/76	IBL602	0.0	12.20	7.07	9.11	3.80	12.9	6.8	0.78
I	- 923	1/ 7/76	ILL602	0.5							
I	- 924	1/ 7/76	IBL602	1.5							
I	- 925	1/ 7/76	IBL602	3.0							
I	- 928	1/ 7/76	IBL603	0.0	13.36	6.93	9.11	3.93	13.5	6.8	0.90
I	- 929	1/ 7/76	IBL603	0.5							
I	- 930	1/ 7/76	IBL603	1.5	13.36	7.07	8.94	3.80	13.3	6.8	0.86
I	- 931	1/ 7/76	IBL603	3.0	13.86	6.93	8.62	3.74	13.3	6.8	0.85
I	- 933	1/ 7/76	IBL604	0.0					13.3	6.8	0.89
I	- 932	1/ 7/76	IBL605	0.0					12.9	6.8	0.98
I	-1012	3/16/76	IBL601	0.0					18.5	6.2	1.06
I	-1014	3/16/76	IBL602	0.0	16.86	7.24	12.72	4.19	16.5	6.2	0.83
I	-1015	3/16/76	IBL602	0.0							
I	-1016	3/16/76	IBL602	0.0							
I	-1017	3/16/76	IBL602	3.0							
I	-1018	3/16/76	IBL603	0.0	17.03	6.78	11.39	4.20	15.9	6.4	1.12
I	-1019	3/16/76	IBL603	0.5	12.06	4.86	8.41	2.97	16.7	6.3	1.11
I	-1020	3/16/76	IBL603	1.5	16.00	7.06	11.72	4.08	16.3	6.3	1.15
I	-1021	3/16/76	IBL603	3.0	16.51	6.78	11.89	4.06	16.3	6.3	1.16
I	-1022	3/16/76	IBL604	0.0					35.2	6.3	1.02
I	-1023	3/16/76	IBL605	0.0					21.8	6.3	1.26
I	-1090	6/ 3/76	IBL601	0.0					19.0	5.0	0.68
I	-1091	6/ 3/76	IBL602	0.0	17.29	8.10	14.25		17.0	4.9	0.71
I	-1092	6/ 3/76	IBL602	1.0					16.2	4.9	0.72
I	-1093	6/ 3/76	IBL602	2.0	16.96	8.10	15.19	4.86	15.6	5.0	0.71
I	-1094	6/ 3/76	IBL602	3.0					16.4	5.0	0.74
I	-1095	6/ 3/76	IBL603	0.0	17.29	8.24	14.35	4.94	16.6	4.9	0.75
I	-1096	6/ 3/76	IBL603	1.0					17.2	5.1	0.75
I	-1097	6/ 3/76	IBL603	2.0	17.29	8.33	14.67	4.93	16.8	4.9	0.74
I	-1098	6/ 3/76	IBL603	3.0					16.2	5.0	0.73
I	-1099	6/ 3/76	IBL604	0.0	17.63	8.15	14.88	5.06	16.2	4.8	0.70
I	-1100	6/ 3/76	IBL604	2.0	17.63	8.46	14.88	4.83	16.4	4.7	0.68
I	-1101	6/ 3/76	IBL605	0.0					16.2	5.1	0.67
I	-1206	9/ 9/76	IBL601	0.0					14.5	5.6	0.54
I	-1207	9/ 9/76	IBL602	0.0					18.8	5.7	0.50
I	-1208	9/ 9/76	IBL602	1.0							
I	-1209	9/ 9/76	IBL602	2.0					15.1	5.7	0.55
I	-1210	9/ 9/76	IBL602	3.0							
I	-1211	9/ 9/76	IBL603	0.0	15.34	7.22	11.06	3.45	17.1	5.7	0.54
I	-1212	9/ 9/76	IBL603	1.0	20.94	7.26	11.53	3.71	14.7	5.7	0.64
I	-1213	9/ 9/76	IBL603	2.0	16.62	7.09	12.62	3.68	14.9	5.7	0.55
I	-1214	9/ 9/76	IBL603	3.0							
I	-1215	9/ 9/76	IBL603	4.0	15.18	6.82	12.62	3.41	23.9	5.8	0.57
I	-1216	9/ 9/76	IBL604	0.0					20.4	5.6	0.57
I	-1217	9/ 9/76	IBL605	0.0					14.9	5.7	0.58

LAKE ISTOKPOGA WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/ 4/73 - 8/31/76 MO/DA/YR

STATIONS IBL003 IBL004 IBL005 IBL006 IBL007
IBL008 IBL011 IBL012 IBL013 IBL014
IBL015 IBL016

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	SECCHI M	TEMP CENT	D.O. MG/L	PH	SP COND UMHOS/CM	COLOR UNITS	TURB JTU	CHLOR A MG/M3
I - 34	9/ 4/73	IBL007	1.3		27.5	6.2	6.40	110.			
I - 35	9/ 4/73	IBL007	1.0		27.5	6.4	6.50	110.			
I - 36	9/ 4/73	IBL007	0.0		28.0	6.9	6.75	110.			
I - 37	9/ 4/73	IBL008	1.0		27.5	6.3	5.60	90.			
I - 38	9/ 4/73	IBL008	0.0		28.5	6.4	5.70	85.			
I - 49	9/ 4/73	IBL012	1.5		28.0	7.4	6.80	93.			
I - 50	9/ 4/73	IBL012	1.0		28.5	7.6	6.80	93.			
I - 51	9/ 4/73	IBL012	0.0		26.5	7.6	6.80	93.			
I - 52	9/ 4/73	IBL013	2.0		27.0	5.8	5.90	95.			
I - 53	9/ 4/73	IBL013	1.0		27.7	6.8	6.15	84.			
I - 54	9/ 4/73	IBL013	0.0		27.9	6.7	6.40	83.			
I - 60	9/ 4/73	IBL016	1.7		27.8	6.4	6.60	110.			
I - 61	9/ 4/73	IBL016	1.0		27.9	6.5	6.55	115.			
I - 62	9/ 4/73	IBL016	0.0		28.0	6.7	6.65	110.			
I - 22	9/ 5/73	IBL003	0.7		29.0	6.6	6.20	71.			
I - 23	9/ 5/73	IBL003	0.0		29.7	6.7	6.30	71.			
I - 24	9/ 5/73	IBL004	1.4		29.0	6.8	6.60	80.			
I - 25	9/ 5/73	IBL004	1.0		29.4	7.1	6.70	78.			
I - 26	9/ 5/73	IBL004	0.0		29.5	7.6	6.80	75.			
I - 27	9/ 5/73	IBL005	2.3		27.7	6.9	6.35	92.			
I - 28	9/ 5/73	IBL005	2.0		27.8	6.9	6.40	92.			
I - 29	9/ 5/73	IBL005	1.0		28.0	7.0	6.60	91.			
I - 30	9/ 5/73	IBL005	0.0		28.0	7.1	6.65	91.			
I - 31	9/ 5/73	IBL006	1.7		27.3	6.5	6.20	95.			
I - 32	9/ 5/73	IBL006	1.0		27.5	6.7	6.25	95.			
I - 33	9/ 5/73	IBL006	0.0		27.5	6.5	6.30	95.			
I - 45	9/ 5/73	IBL011	2.2		27.5	6.2	6.60	91.			
I - 46	9/ 5/73	IBL011	2.0		27.9	6.6	6.80	91.			
I - 47	9/ 5/73	IBL011	1.0		28.5	7.4	7.00	91.			
I - 48	9/ 5/73	IBL011	0.0		29.5	7.4	7.10	91.			
I - 55	9/ 5/73	IBL014	2.0		27.3	6.6	6.20	98.			
I - 56	9/ 5/73	IBL014	1.0		27.4	6.9	6.30	98.			
I - 57	9/ 5/73	IBL014	0.0		27.5	7.0	6.50	97.			
I - 58	9/ 5/73	IBL015	0.7		27.6	6.0	6.00	68.			
I - 59	9/ 5/73	IBL015	0.0		27.7	5.9	6.10	69.			
I - 70	12/ 4/73	IBL003	1.0		20.2	8.1	6.20	61.			
I - 71	12/ 4/73	IBL003	0.0		20.5	8.9	6.10	59.			
I - 72	12/ 4/73	IBL004	1.5	0.74	20.9	8.0	6.70	84.			
I - 73	12/ 4/73	IBL004	1.0		21.0	8.3	6.40	84.			
I - 74	12/ 4/73	IBL004	0.0		21.1	8.5	6.40	83.			
I - 85	12/ 4/73	IBL008	1.2	0.79	19.8	8.1	6.10	78.			
I - 86	12/ 4/73	IBL008	1.0		20.0	8.3	6.00	77.			
I - 87	12/ 4/73	IBL008	0.0		20.0	8.6	6.00	77.			
I - 94	12/ 4/73	IBL011	2.4	0.66	18.8	7.8	6.30	70.			
I - 95	12/ 4/73	IBL011	2.0		19.0	8.0	6.10	66.			
I - 96	12/ 4/73	IBL011	1.0		19.5	8.4	6.10	64.			
I - 97	12/ 4/73	IBL011	0.0		20.0	9.0	6.20	61.			
I - 98	12/ 4/73	IBL012	2.3	0.69	19.0	7.5	6.20	67.			
I - 99	12/ 4/73	IBL012	2.0		19.5	7.9	6.10	67.			
I - 100	12/ 4/73	IBL012	1.0		20.0	8.3	6.10	65.			
I - 101	12/ 4/73	IBL012	0.0		20.0	8.8	6.10	64.			
I - 102	12/ 4/73	IBL013	2.2	0.69	19.5	6.9	6.65	88.			
I - 103	12/ 4/73	IBL013	2.0		19.5	7.4	6.80	89.			
I - 104	12/ 4/73	IBL013	1.0		19.8	7.6	6.75	83.			
I - 105	12/ 4/73	IBL013	0.0		20.5	8.9	6.65	79.			
I - 75	12/ 5/73	IBL005	2.4	0.64	20.5	8.2	6.20	76.			
I - 76	12/ 5/73	IBL005	2.0		20.5	8.4	6.10	77.			
I - 77	12/ 5/73	IBL005	1.0		20.5	8.4	6.10	76.			
I - 78	12/ 5/73	IBL005	0.0		20.5	8.5	6.00	76.			
I - 79	12/ 5/73	IBL006	2.0	0.61	19.8	7.9	6.30	78.			
I - 80	12/ 5/73	IBL006	1.0		19.8	8.2	6.10	77.			
I - 81	12/ 5/73	IBL006	0.0		20.0	8.4	6.10	78.			
I - 82	12/ 5/73	IBL007	2.0	0.64	19.5	7.9	6.30	75.			
I - 83	12/ 5/73	IBL007	1.0		19.5	8.0	6.10	76.			
I - 84	12/ 5/73	IBL007	0.0		19.5	8.3	6.00	75.			
I - 106	12/ 5/73	IBL014	2.5	0.46	20.0	8.3	6.10	77.			
I - 107	12/ 5/73	IBL014	2.0		20.0	8.4	6.00	77.			
I - 108	12/ 5/73	IBL014	1.0		20.0	8.5	6.00	76.			
I - 109	12/ 5/73	IBL014	0.0		20.0	8.6	6.00	77.			
I - 110	12/ 5/73	IBL015	1.0	0.69	20.0	5.1	5.50	79.			
I - 111	12/ 5/73	IBL015	0.0		20.5	6.2	5.40	78.			
I - 112	12/ 5/73	IBL016	1.5	0.71	19.5	8.4	6.20	78.			
I - 113	12/ 5/73	IBL016	1.0		19.5	8.3	6.00	76.			
I - 114	12/ 5/73	IBL016	0.0		19.5	8.4	6.00	76.			
I - 127	3/14/74	IBL003	0.0	0.90	23.0	7.8	6.90	125.			
I - 128	3/14/74	IBL003	1.0		22.7	7.6	6.60	130.			
I - 129	3/14/74	IBL004	0.0	0.64	23.0	8.3	7.10	80.			
I - 130	3/14/74	IBL004	1.0		22.7	8.2	6.90	81.			
I - 131	3/14/74	IBL004	1.3		22.6	8.1	6.70	81.			
I - 138	3/14/74	IBL007	0.0	0.55	22.0	8.0	7.00	97.			

LAKE ISTOKPOGA WATER QUALITY SUMMARY

PROJECT 1 DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/ 4/73 - 8/31/76 MO/DA/YR

STATIONS IBL003 IBL004 IBL005 IBL006 IBL007
IBL008 IBL011 IBL012 IBL013 IBL014
IBL015 IBL016

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	NO2 MG/L	NO3 MG/L	NH4 MG/L	TKN MG/L	O-PO4 MG/L	T-PO4 MG/L	TDPO4 MG/L
I - 34	9/ 4/73	IBL007	1.3							
I - 35	9/ 4/73	IBL007	1.0							
I - 36	9/ 4/73	IBL007	0.0	< 0.008	< 0.004	0.29		0.005	0.027	0.017
I - 37	9/ 4/73	IBL008	1.0							
I - 38	9/ 4/73	IBL008	0.0	< 0.008	< 0.008	0.03		0.003	0.026	0.010
I - 49	9/ 4/73	IBL012	1.5							
I - 50	9/ 4/73	IBL012	1.0							
I - 51	9/ 4/73	IBL012	0.0	< 0.008	< 0.004	0.06		0.004	0.032	0.018
I - 52	9/ 4/73	IBL013	2.0							
I - 53	9/ 4/73	IBL013	1.0							
I - 54	9/ 4/73	IBL013	0.0	< 0.008	< 0.008	0.03		0.013	0.043	0.029
I - 60	9/ 4/73	IBL016	1.7							
I - 61	9/ 4/73	IBL016	1.0							
I - 62	9/ 4/73	IBL016	0.0	< 0.008	< 0.006	0.05		0.003	0.036	0.013
I - 22	9/ 5/73	IBL003	0.7							
I - 23	9/ 5/73	IBL003	0.0	< 0.008	< 0.008	0.08		0.014	0.062	0.034
I - 24	9/ 5/73	IBL004	1.4							
I - 25	9/ 5/73	IBL004	1.0							
I - 26	9/ 5/73	IBL004	0.0	< 0.008	< 0.004	0.04		0.008	0.026	0.023
I - 27	9/ 5/73	IBL005	2.3							
I - 28	9/ 5/73	IBL005	2.0							
I - 29	9/ 5/73	IBL005	1.0							
I - 30	9/ 5/73	IBL005	0.0	< 0.008	< 0.004	0.04		0.004	0.052	0.021
I - 31	9/ 5/73	IBL006	1.7							
I - 32	9/ 5/73	IBL006	1.0							
I - 33	9/ 5/73	IBL006	0.0	< 0.008	< 0.004	0.03		0.005	0.035	0.023
I - 45	9/ 5/73	IBL011	2.2							
I - 46	9/ 5/73	IBL011	2.0							
I - 47	9/ 5/73	IBL011	1.0							
I - 48	9/ 5/73	IBL011	0.0	< 0.008	< 0.004	0.04		0.004	0.026	0.019
I - 55	9/ 5/73	IBL014	2.0							
I - 56	9/ 5/73	IBL014	1.0							
I - 57	9/ 5/73	IBL014	0.0	< 0.008	0.038	0.02		0.002	0.050	0.011
I - 58	9/ 5/73	IBL015	0.7							
I - 59	9/ 5/73	IBL015	0.0	< 0.008	0.011	0.04		0.002	0.043	0.013
I - 70	12/ 4/73	IBL003	1.0							
I - 71	12/ 4/73	IBL003	0.0	0.004	0.002	0.03	0.90	< 0.002	0.029	0.018
I - 72	12/ 4/73	IBL004	1.5							
I - 73	12/ 4/73	IBL004	1.0							
I - 74	12/ 4/73	IBL004	0.0	0.005	0.180	0.01	0.76	< 0.002	0.029	0.016
I - 85	12/ 4/73	IBL008	1.2							
I - 86	12/ 4/73	IBL008	1.0							
I - 87	12/ 4/73	IBL008	0.0	0.004	0.052	0.02	0.61	0.006	0.036	0.026
I - 94	12/ 4/73	IBL011	2.4							
I - 95	12/ 4/73	IBL011	2.0							
I - 96	12/ 4/73	IBL011	1.0							
I - 97	12/ 4/73	IBL011	0.0	0.004	0.033	0.05	0.65	0.005	0.037	0.025
I - 98	12/ 4/73	IBL012	2.3							
I - 99	12/ 4/73	IBL012	2.0							
I - 100	12/ 4/73	IBL012	1.0							
I - 101	12/ 4/73	IBL012	0.0	0.004	0.050	0.01	0.63	0.002	0.038	0.025
I - 102	12/ 4/73	IBL013	2.2							
I - 103	12/ 4/73	IBL013	2.0							
I - 104	12/ 4/73	IBL013	1.0							
I - 105	12/ 4/73	IBL013	0.0	0.005	0.034	0.12	1.78	< 0.002	0.032	0.024
I - 75	12/ 5/73	IBL005	2.4							
I - 76	12/ 5/73	IBL005	2.0							
I - 77	12/ 5/73	IBL005	1.0							
I - 78	12/ 5/73	IBL005	0.0	0.005	0.052	0.01	0.73	0.003	0.042	0.023
I - 79	12/ 5/73	IBL006	2.0							
I - 80	12/ 5/73	IBL006	1.0							
I - 81	12/ 5/73	IBL006	0.0	0.005	0.056	< 0.01	0.61	0.004	0.037	0.023
I - 82	12/ 5/73	IBL007	2.0							
I - 83	12/ 5/73	IBL007	1.0							
I - 84	12/ 5/73	IBL007	0.0	0.004	0.061	0.02	0.81	0.005	0.035	0.026
I - 106	12/ 5/73	IBL014	2.5							
I - 107	12/ 5/73	IBL014	2.0							
I - 108	12/ 5/73	IBL014	1.0							
I - 109	12/ 5/73	IBL014	0.0	0.005	0.061	0.02	1.35	0.006	0.038	0.027
I - 110	12/ 5/73	IBL015	1.0							
I - 111	12/ 5/73	IBL015	0.0	0.004	0.014	0.01	0.81	< 0.002	0.032	0.020
I - 112	12/ 5/73	IBL016	1.5							
I - 113	12/ 5/73	IBL016	1.0							
I - 114	12/ 5/73	IBL016	0.0	0.005	0.056	0.04	1.05	0.003	0.036	0.026
I - 127	3/14/74	IBL003	0.0	0.005	< 0.004	0.05	1.17	0.003	0.028	0.025
I - 128	3/14/74	IBL003	1.0							
I - 129	3/14/74	IBL004	0.0	< 0.004	< 0.004	0.06	1.12	0.005	0.039	0.025
I - 130	3/14/74	IBL004	1.0							
I - 131	3/14/74	IBL004	1.3							
I - 138	3/14/74	IBL007	0.0	< 0.004	0.048	0.06	1.11	0.004	0.038	0.026

LAKE ISTOKPOGA WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/ 4/73 - 8/31/76 MO/DA/YR

STATIONS IBL003 IBL004 IBL005 IBL006 IBL007
IBL008 IBL011 IBL012 IBL013 IBL014
IBL015 IBL016

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	CA MG/L	MG MG/L	NA MG/L	K MG/L	CL MG/L	SIO2 MG/L	ALK MEQ/L
I - 34	9/ 4/73	IBL007	1.3							
I - 35	9/ 4/73	IBL007	1.0							
I - 36	9/ 4/73	IBL007	0.0	4.30	3.20	8.90	1.45			
I - 37	9/ 4/73	IBL008	1.0							
I - 38	9/ 4/73	IBL008	0.0	3.60	2.70	7.90	1.34			
I - 49	9/ 4/73	IBL012	1.5							
I - 50	9/ 4/73	IBL012	1.0							
I - 51	9/ 4/73	IBL012	0.0	5.10	3.30	8.10	1.37			
I - 52	9/ 4/73	IBL013	2.0							
I - 53	9/ 4/73	IBL013	1.0							
I - 54	9/ 4/73	IBL013	0.0	4.30	2.70	7.00	1.16			
I - 60	9/ 4/73	IBL016	1.7							
I - 61	9/ 4/73	IBL016	1.0							
I - 62	9/ 4/73	IBL016	0.0	3.70	3.60	8.70	1.49			
I - 22	9/ 5/73	IBL003	0.7							
I - 23	9/ 5/73	IBL003	0.0	4.80	2.10	6.50	0.89			
I - 24	9/ 5/73	IBL004	1.4							
I - 25	9/ 5/73	IBL004	1.0							
I - 26	9/ 5/73	IBL004	0.0	3.30	2.80	7.40	1.26			
I - 27	9/ 5/73	IBL005	2.3							
I - 28	9/ 5/73	IBL005	2.0							
I - 29	9/ 5/73	IBL005	1.0							
I - 30	9/ 5/73	IBL005	0.0	4.20	3.40	8.30	1.38			
I - 31	9/ 5/73	IBL006	1.7							
I - 32	9/ 5/73	IBL006	1.0							
I - 23	9/ 5/73	IBL006	0.0	4.20	3.10	8.70	1.40			
I - 45	9/ 5/73	IBL011	2.2							
I - 46	9/ 5/73	IBL011	2.0							
I - 47	9/ 5/73	IBL011	1.0							
I - 48	9/ 5/73	IBL011	0.0	4.20	3.10	7.90	1.31			
I - 55	9/ 5/73	IBL014	2.0							
I - 56	9/ 5/73	IBL014	1.0							
I - 57	9/ 5/73	IBL014	0.0	4.20	3.70	9.00	1.44			
I - 58	9/ 5/73	IBL015	0.7							
I - 59	9/ 5/73	IBL015	0.0	3.30	3.20	8.00	1.30			
I - 70	12/ 4/73	IBL003	1.0							
I - 71	12/ 4/73	IBL003	0.0	3.30	2.60	7.30	1.37	12.8	1.4	
I - 72	12/ 4/73	IBL004	1.5							
I - 73	12/ 4/73	IBL004	1.0							
I - 74	12/ 4/73	IBL004	0.0	4.60	3.00	7.00	1.40	12.1	2.5	
I - 85	12/ 4/73	IBL008	1.2							
I - 86	12/ 4/73	IBL008	1.0							
I - 87	12/ 4/73	IBL008	0.0	3.80	2.60	7.30	1.43	13.0	1.2	
I - 94	12/ 4/73	IBL011	2.4							
I - 95	12/ 4/73	IBL011	2.0							
I - 96	12/ 4/73	IBL011	1.0							
I - 97	12/ 4/73	IBL011	0.0	3.40	2.60	7.50	1.43	13.2	1.5	
I - 98	12/ 4/73	IBL012	2.3							
I - 99	12/ 4/73	IBL012	2.0							
I - 100	12/ 4/73	IBL012	1.0							
I - 101	12/ 4/73	IBL012	0.0	3.30	2.80	7.30	1.41	13.2	1.7	
I - 102	12/ 4/73	IBL013	2.2							
I - 103	12/ 4/73	IBL013	2.0							
I - 104	12/ 4/73	IBL013	1.0							
I - 105	12/ 4/73	IBL013	0.0	3.10	2.60	7.60	1.54	13.4	1.4	
I - 75	12/ 5/73	IBL005	2.4							
I - 76	12/ 5/73	IBL005	2.0							
I - 77	12/ 5/73	IBL005	1.0							
I - 78	12/ 5/73	IBL005	0.0	3.40	2.60	7.40	1.37	12.6	1.8	
I - 79	12/ 5/73	IBL006	2.0							
I - 80	12/ 5/73	IBL006	1.0							
I - 81	12/ 5/73	IBL006	0.0	3.30	2.60	7.30	1.40	13.2	1.9	
I - 82	12/ 5/73	IBL007	2.0							
I - 83	12/ 5/73	IBL007	1.0							
I - 84	12/ 5/73	IBL007	0.0	3.30	2.60	7.30	1.40	12.6	1.8	
I - 106	12/ 5/73	IBL014	2.5							
I - 107	12/ 5/73	IBL014	2.0							
I - 108	12/ 5/73	IBL014	1.0							
I - 109	12/ 5/73	IBL014	0.0	3.30	2.60	7.50	1.43	13.2	1.7	
I - 110	12/ 5/73	IBL015	1.0							
I - 111	12/ 5/73	IBL015	0.0	3.10	2.60	7.70	1.29	13.8	1.1	
I - 112	12/ 5/73	IBL016	1.5							
I - 113	12/ 5/73	IBL016	1.0							
I - 114	12/ 5/73	IBL016	0.0	3.40		7.50	1.41	13.2	1.9	
I - 127	3/14/74	IBL003	0.0	6.60	3.60	10.00	2.00	14.0		
I - 128	3/14/74	IBL003	1.0							
I - 129	3/14/74	IBL004	0.0	5.00	3.20	9.00	1.80	14.0		
I - 130	3/14/74	IBL004	1.0							
I - 131	3/14/74	IBL004	1.3							
I - 138	3/14/74	IBL007	0.0	5.00	3.20	9.00	1.80	15.0		

LAKE ISTOKPOGA WATER QUALITY SUMMARY

PROJECT I   DATE OF PRINTING 08/31/77

PARAMETER   RANGE OF VALUES   UNITS

DATE   9/ 4/73 - 8/31/76   MO/DA/YR

STATIONS IBL003 IBL004 IBL005 IBL006 IBL007
IBL008 IBL011 IBL012 IBL013 IBL014
IBL015 IBL016

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	SECCHI M	TEMP CENT	D.O. MG/L	PH	SP COND UMHOS/CM	COLOR UNITS	TURB JTU	CHLOR A MG/M3
I - 139	3/14/74	IBL007	1.0		21.6	7.6	6.80	97.			
I - 140	3/14/74	IBL007	1.4		21.5	7.7	6.70	96.			
I - 124	3/14/74	IBL011	0.0	0.78	22.5	8.0	7.10	110.			
I - 125	3/14/74	IBL011	1.0		22.3	7.9	6.80	110.			
I - 126	3/14/74	IBL011	2.0		21.5	7.6	6.70	110.			
I - 132	3/14/74	IBL012	0.0	0.75	22.7	9.0	6.90	97.			
I - 133	3/14/74	IBL012	1.0		22.3	7.8	6.70	96.			
I - 134	3/14/74	IBL012	1.3		21.9	7.6	6.60	97.			
I - 115	3/14/74	IBL013	0.0	0.65	21.5	7.7	7.20	97.			
I - 116	3/14/74	IBL013	1.0		21.5	7.8	7.00	97.			
I - 117	3/14/74	IBL013	2.0		21.5	7.9	6.90	97.			
I - 135	3/14/74	IBL016	0.0	0.71	22.0	8.0	7.00	97.			
I - 136	3/14/74	IBL016	1.0		21.7	7.8	6.80	95.			
I - 137	3/14/74	IBL016	1.6		21.0	7.6	6.60	96.			
I - 148	3/15/74	IBL005	0.0	0.50	22.0	8.4	6.70	93.			
I - 149	3/15/74	IBL005	1.0		22.0	8.2	6.50	91.			
I - 153	3/15/74	IBL006	0.0	0.34	21.5	8.1	6.60	90.			
I - 154	3/15/74	IBL006	1.0		21.5	7.9	6.40	90.			
I - 155	3/15/74	IBL006	1.6		21.5	7.9	6.30	91.			
I - 156	3/15/74	IBL008	0.0	0.81	20.6	7.5	6.60	92.			
I - 157	3/15/74	IBL008	1.3		20.5	7.4	6.40	92.			
I - 150	3/15/74	IBL014	0.0	0.53	20.7	8.3	6.80	91.			
I - 151	3/15/74	IBL014	1.0		20.6	8.3	6.50	90.			
I - 152	3/15/74	IBL014	1.5		20.5	8.2	6.40	91.			
I - 146	3/15/74	IBL015	0.0	0.73	20.3	7.1	6.40	93.			
I - 147	3/15/74	IBL015	0.7		20.4	6.9	6.30	94.			
I - 250	6/12/74	IBL013	0.0		28.0	0.7	6.10			8.2	
I - 251	6/12/74	IBL013	1.0		27.0	7.4	8.55	145.			
I - 252	6/12/74	IBL013	1.5		26.7	6.3	7.70	145.			
I - 275	6/13/74	IBL003	0.0	0.49	32.5	9.8	9.25	150.		10.0	
I - 276	6/13/74	IBL003	0.7		32.5	9.6	9.20	150.			
I - 273	6/13/74	IBL004	0.0	0.55	31.0	9.2	9.20	148.		10.0	
I - 274	6/13/74	IBL004	0.8		30.0	8.2	9.20	150.			
I - 266	6/13/74	IBL005	0.0	0.62	30.0	8.5	8.60	140.		9.2	
I - 267	6/13/74	IBL005	1.0		27.5	7.8	8.70	135.			
I - 268	6/13/74	IBL005	1.8		26.8	7.2	7.70	140.			
I - 261	6/13/74	IBL006	0.0	0.74	29.0	7.6	7.50	140.		6.3	
I - 262	6/13/74	IBL006	1.0		27.3	7.4	7.40	130.			
I - 263	6/13/74	IBL006	1.4		27.0	7.3	7.50	135.			
I - 259	6/13/74	IBL007	0.0	0.50	29.0	8.3	8.00	140.		9.9	
I - 260	6/13/74	IBL007	1.0		28.0	7.1	7.70	140.			
I - 257	6/13/74	IBL008	0.0	0.50	28.0	8.4	8.30	150.		9.8	
I - 258	6/13/74	IBL008	0.7		27.6	7.9	6.20	150.			
I - 269	6/13/74	IBL012	0.0	0.60	30.3	9.2	9.05	145.		8.6	
I - 270	6/13/74	IBL012	0.7		27.7	8.6	9.05	145.			
I - 264	6/13/74	IBL014	0.0	0.59	29.4	8.6	8.60	135.		9.2	
I - 265	6/13/74	IBL014	0.7		29.0	8.6	8.60	135.			
I - 271	6/13/74	IBL016	0.0	0.64	30.5	8.8	8.85	145.		7.4	
I - 272	6/13/74	IBL016	0.9		27.5	8.4	8.90	140.			
I - 282	6/14/74	IBL011	0.0		27.5	8.0	8.60	140.		9.1	
I - 283	6/14/74	IBL011	1.0		26.9	6.7	8.20	140.			
I - 284	6/14/74	IBL011	1.2		26.9	6.5	8.00	140.			
I - 285	6/14/74	IBL015	0.0		28.5	7.7	7.80	130.		9.0	
I - 286	6/14/74	IBL015	0.7		28.0	7.6	7.70	130.			
I - 348	6/28/74	IBL007	0.0								
I - 164	7/24/74	IBL013	0.0								
I - 200	9/ 4/74	IBL003	0.0	1.06	31.7	7.2	5.90	83.			
I - 201	9/ 4/74	IBL003	0.7		30.7	6.6	5.70				
I - 202	9/ 4/74	IBL004	0.0	1.25	30.0	7.2	5.80	95.			
I - 203	9/ 4/74	IBL004	1.0		28.0	6.2	5.60				
I - 218	9/ 4/74	IBL005	0.0	0.70	31.3	7.7	6.25	79.			
I - 219	9/ 4/74	IBL005	1.0		28.4	5.9	5.90				
I - 220	9/ 4/74	IBL005	2.0		28.5	4.6	5.40				
I - 212	9/ 4/74	IBL006	0.0	0.95	30.0	6.9	6.20	90.			
I - 213	9/ 4/74	IBL006	1.0		27.5	4.9	5.80				
I - 214	9/ 4/74	IBL006	1.5		27.5	4.0	5.70				
I - 209	9/ 4/74	IBL007	0.0	0.92	31.3	7.0	6.10	90.			
I - 210	9/ 4/74	IBL007	1.0		31.0	6.7	6.10				
I - 211	9/ 4/74	IBL007	2.0		29.0	5.9	5.90				
I - 226	9/ 4/74	IBL008	0.0								
I - 198	9/ 4/74	IBL011	0.0	0.90	31.5	7.2	6.10	84.			
I - 199	9/ 4/74	IBL011	0.7		30.3	6.7	5.80				
I - 204	9/ 4/74	IBL012	0.0	0.76	31.5	7.7	6.40	85.			
I - 205	9/ 4/74	IBL012	1.0		29.5	6.8	6.00				
I - 206	9/ 4/74	IBL012	1.2		28.5	6.4	5.85				
I - 189	9/ 4/74	IBL013	0.0	0.62	30.5	6.9	6.20	80.			
I - 190	9/ 4/74	IBL013	1.0		28.0	6.1	6.00				
I - 191	9/ 4/74	IBL013	2.0		28.0	6.0	6.00				
I - 215	9/ 4/74	IBL014	0.0	0.73	31.5	8.0	6.60	80.			
I - 216	9/ 4/74	IBL014	1.0		29.0	6.8	6.20				

LAKE ISTOKPOGA WATER QUALITY SUMMARY

PROJECT I   DATE OF PRINTING 08/31/77

PARAMETER   RANGE OF VALUES   UNITS

DATE   9/ 4/73 - 8/31/76 MO/DA/YR

STATIONS IBL003 IBL004 IBL005 IBL006 IBL007
IBL008 IBL011 IBL012 IBL013 IBL014
IBL015 IBL016

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	NO2 MG/L	NO3 MG/L	NH4 MG/L	TKN MG/L	O-PO4 MG/L	T-PO4 MG/L	TDPO4 MG/L
I - 139	3/14/74	IBL007	1.0							
I - 140	3/14/74	IBL007	1.4							
I - 124	3/14/74	IBL011	0.0	< 0.004	< 0.004	0.10	1.10	0.004	0.037	0.025
I - 125	3/14/74	IBL011	1.0							
I - 126	3/14/74	IBL011	2.0							
I - 132	3/14/74	IBL012	0.0	0.004	0.008	0.03	1.06	< 0.002	0.044	0.025
I - 133	3/14/74	IBL012	1.0							
I - 134	3/14/74	IBL012	1.3							
I - 115	3/14/74	IBL013	0.0	< 0.004	< 0.004	0.07	1.27	0.007	0.050	0.027
I - 116	3/14/74	IBL013	1.0							
I - 117	3/14/74	IBL013	2.0							
I - 135	3/14/74	IBL016	0.0	< 0.004	0.025	0.05	1.38	0.003	0.041	0.030
I - 136	3/14/74	IBL016	1.0							
I - 137	3/14/74	IBL016	1.6							
I - 148	3/15/74	IBL005	0.0	0.004	0.085	< 0.01	1.49	0.006	0.056	0.025
I - 149	3/15/74	IBL005	1.0							
I - 153	3/15/74	IBL006	0.0	0.011	0.119	< 0.01	1.43	0.005	0.057	0.025
I - 154	3/15/74	IBL006	1.0							
I - 155	3/15/74	IBL006	1.6							
I - 156	3/15/74	IBL008	0.0	< 0.004	0.015	0.07	1.11	0.007	0.036	0.028
I - 157	3/15/74	IBL008	1.0							
I - 150	3/15/74	IBL014	0.0	< 0.004	0.026	0.05	1.27	0.004	0.049	0.024
I - 151	3/15/74	IBL014	1.0							
I - 152	3/15/74	IBL014	1.5							
I - 146	3/15/74	IBL015	0.0	< 0.004		0.02	1.82	0.004	0.034	0.022
I - 147	3/15/74	IBL015	0.7							
I - 250	6/12/74	IBL013	0.0	< 0.004	< 0.004	0.03	1.37	0.004	0.041	0.015
I - 251	6/12/74	IBL013	1.0							
I - 252	6/12/74	IBL013	1.5							
I - 275	6/13/74	IBL003	0.0	< 0.004	< 0.004	< 0.01	0.96	0.003	0.043	0.013
I - 276	6/13/74	IBL003	0.7							
I - 273	6/13/74	IBL004	0.0	< 0.004	< 0.004	< 0.01	0.63	0.003	0.045	0.015
I - 274	6/13/74	IBL004	0.8							
I - 266	6/13/74	IBL005	0.0	< 0.004	< 0.004	< 0.01	0.87	0.004	0.034	0.015
I - 267	6/13/74	IBL005	1.0							
I - 268	6/13/74	IBL005	1.8							
I - 261	6/13/74	IBL006	0.0	< 0.004	< 0.004	0.03	0.94	0.002	0.029	0.014
I - 262	6/13/74	IBL006	1.0							
I - 263	6/13/74	IBL006	1.4							
I - 259	6/13/74	IBL007	0.0	< 0.004	< 0.004	0.01	1.37	0.002	0.048	0.015
I - 260	6/13/74	IBL007	1.0							
I - 257	6/13/74	IBL008	0.0	< 0.004	< 0.004	0.01	1.33	0.002	0.043	0.014
I - 258	6/13/74	IBL008	0.7							
I - 269	6/13/74	IBL012	0.0	< 0.004	< 0.004	< 0.01	1.04	0.003	0.041	0.015
I - 270	6/13/74	IBL012	0.7							
I - 264	6/13/74	IBL014	0.0	< 0.004	< 0.004	< 0.01	1.25	0.002	0.040	0.014
I - 265	6/13/74	IBL014	0.7							
I - 271	6/13/74	IBL016	0.0	< 0.004	< 0.004	< 0.01	1.00	0.002	0.033	0.015
I - 272	6/13/74	IBL015	0.9							
I - 282	6/14/74	IBL011	0.0	< 0.004	< 0.004	0.02	1.05	0.003	0.035	0.015
I - 283	6/14/74	IBL011	1.0							
I - 284	6/14/74	IBL011	1.2							
I - 285	6/14/74	IBL015	0.0	< 0.004	< 0.004	0.01	1.25	0.003	0.081	0.018
I - 286	6/14/74	IBL015	0.7							
I - 348	6/26/74	IBL007	0.0	< 0.004	0.033	0.07	1.02	0.003	0.060	0.017
I - 164	7/24/74	IBL013	0.0	< 0.004	0.216	0.03	0.91	0.055	0.101	0.073
I - 200	9/ 4/74	IBL003	0.0	0.004	< 0.008	0.02	0.36	0.030	< 0.059	0.059
I - 201	9/ 4/74	IBL003	0.7							
I - 202	9/ 4/74	IBL004	0.0	0.004	0.020	0.01	0.29	0.028	< 0.058	0.058
I - 203	9/ 4/74	IBL004	1.0							
I - 218	9/ 4/74	IBL005	0.0	0.004	< 0.008	0.04	1.70	0.018	0.054	0.046
I - 219	9/ 4/74	IBL005	1.0							
I - 220	9/ 4/74	IBL005	2.0							
I - 212	9/ 4/74	IBL006	0.0	< 0.004	< 0.008	0.03	1.22	0.016	0.048	0.041
I - 213	9/ 4/74	IBL006	1.0							
I - 214	9/ 4/74	IBL006	1.5							
I - 209	9/ 4/74	IBL007	0.0	0.004	< 0.008	0.02	0.38	0.023	< 0.056	0.056
I - 210	9/ 4/74	IBL007	1.0							
I - 211	9/ 4/74	IBL007	2.0							
I - 226	9/ 4/74	IBL008	0.0							
I - 198	9/ 4/74	IBL011	0.0	0.004	< 0.008	0.01	0.29	0.025	0.051	0.051
I - 199	9/ 4/74	IBL011	0.7							
I - 204	9/ 4/74	IBL012	0.0	0.004	< 0.008	0.02	0.35	0.045	0.056	
I - 205	9/ 4/74	IBL012	1.0							
I - 206	9/ 4/74	IBL012	1.2							
I - 189	9/ 4/74	IBL013	0.0	0.004	< 0.008	< 0.01	0.22	0.035	0.065	0.062
I - 190	9/ 4/74	IBL013	1.0							
I - 191	9/ 4/74	IBL013	2.0							
I - 215	9/ 4/74	IBL014	0.0	< 0.004	< 0.008	0.04	1.34	0.015	0.055	0.043
I - 216	9/ 4/74	IBL014	1.0							

LAKE ISTOKPOGA WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/ 4/73 - 8/31/76 MO/DA/YR

STATIONS IBL003 IBL004 IBL005 IBL006 IBL007
IBL008 IBL011 IBL012 IBL013 IBL014
IBL015 IBL016

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	CA MG/L	MG MG/L	NA MG/L	K MG/L	CL MG/L	SIO2 MG/L	ALK MEQ/L
I - 139	3/14/74	IBL007	1.0							
I - 140	3/14/74	IBL007	1.4							
I - 124	3/14/74	IBL011	0.0	5.00	3.20	9.00	1.60	15.0		
I - 125	3/14/74	IBL011	1.0							
I - 126	3/14/74	IBL011	2.0							
I - 132	3/14/74	IBL012	0.0	6.60	3.70	8.00	1.70	5.0		
I - 133	3/14/74	IBL012	1.0							
I - 134	3/14/74	IBL012	1.3							
I - 115	3/14/74	IBL013	0.0	5.80	3.20	8.00	1.90	16.0		
I - 116	3/14/74	IBL013	1.0							
I - 117	3/14/74	IBL013	2.0							
I - 135	3/14/74	IBL016	0.0	5.00	3.00	8.00	1.60	13.0		
I - 136	3/14/74	IBL016	1.0							
I - 137	3/14/74	IBL016	1.6							
I - 148	3/15/74	IBL005	0.0	5.00	3.00	9.00	1.90	14.0		
I - 149	3/15/74	IBL005	1.0							
I - 153	3/15/74	IBL006	0.0	3.40	3.00	10.00	1.50	14.0		
I - 154	3/15/74	IBL006	1.0							
I - 155	3/15/74	IBL006	1.6							
I - 156	3/15/74	IBL008	0.0	4.20	3.00	10.00	1.50	17.0		
I - 157	3/15/74	IBL008	1.0							
I - 150	3/15/74	IBL014	0.0	3.40	2.80	9.00	1.70	14.0		
I - 151	3/15/74	IBL014	1.0							
I - 152	3/15/74	IBL014	1.5							
I - 146	3/15/74	IBL015	0.0	6.00	2.80	9.00	1.50	14.0		
I - 147	3/15/74	IBL015	0.7							
I - 250	6/12/74	IBL013	0.0	7.40	4.20	12.00	2.00	19.0	1.5	
I - 251	6/12/74	IBL013	1.0							
I - 252	6/12/74	IBL013	1.5							
I - 275	6/13/74	IBL003	0.0	7.40	3.80	11.00	1.80	18.3	1.6	
I - 276	6/13/74	IBL003	0.7							
I - 273	6/13/74	IBL004	0.0	7.40	3.60	9.00	1.70	15.5	2.3	
I - 274	6/13/74	IBL004	0.8							
I - 266	6/13/74	IBL005	0.0	7.40	4.00	9.00	1.60	15.5	1.6	
I - 267	6/13/74	IBL005	1.0							
I - 268	6/13/74	IBL005	1.8							
I - 261	6/13/74	IBL006	0.0	7.40	4.00	10.00	2.00	15.4	1.3	
I - 262	6/13/74	IBL006	1.0							
I - 263	6/13/74	IBL006	1.4							
I - 259	6/13/74	IBL007	0.0	8.40	4.20	11.00	1.60	16.4	1.5	
I - 260	6/13/74	IBL007	1.0							
I - 257	6/13/74	IBL008	0.0	8.40	4.20	12.00	1.70	17.4	1.5	
I - 258	6/13/74	IBL008	0.7							
I - 269	6/13/74	IBL012	0.0	7.40	4.40	9.00	1.30	16.3	1.4	
I - 270	6/13/74	IBL012	0.7							
I - 264	6/13/74	IBL014	0.0	5.60	4.00	10.00	1.90	15.4	1.6	
I - 265	6/13/74	IBL014	0.7							
I - 271	6/13/74	IBL016	0.0	5.40	3.60	11.00	1.80	16.3	1.5	
I - 272	6/13/74	IBL016	0.9							
I - 282	6/14/74	IBL011	0.0	6.40	3.40	10.00	2.00	15.9	3.1	
I - 283	6/14/74	IBL011	1.0							
I - 284	6/14/74	IBL011	1.2							
I - 285	6/14/74	IBL015	0.0	6.40	3.80	10.00	2.20	16.9	1.5	
I - 286	6/14/74	IBL015	0.7							
I - 348	6/28/74	IBL007	0.0		3.40	8.00	1.30	16.3	1.7	
I - 164	7/24/74	IBL013	0.0	5.20	2.80	7.00	2.10	11.1	4.7	
I - 200	9/ 4/74	IBL003	0.0	3.20	2.60	8.00	1.10	10.9	3.1	
I - 201	9/ 4/74	IBL003	0.7							
I - 202	9/ 4/74	IBL004	0.0	3.80	2.60	7.00	1.40	11.3	2.5	
I - 203	9/ 4/74	IBL004	1.0							
I - 218	9/ 4/74	IBL005	0.0	3.20	2.40	6.00	1.20	10.3	3.3	
I - 219	9/ 4/74	IBL005	1.0							
I - 220	9/ 4/74	IBL005	2.0							
I - 212	9/ 4/74	IBL006	0.0	4.40	0.80	5.50	1.30	10.9	3.3	
I - 213	9/ 4/74	IBL006	1.0							
I - 214	9/ 4/74	IBL006	1.5							
I - 209	9/ 4/74	IBL007	0.0	3.20	3.00	6.00	1.10	10.9	3.3	
I - 210	9/ 4/74	IBL007	1.0							
I - 211	9/ 4/74	IBL007	2.0							
I - 226	9/ 4/74	IBL008	0.0							
I - 198	9/ 4/74	IBL011	0.0	3.20	2.60	7.00	1.20	10.1	3.1	
I - 199	9/ 4/74	IBL011	0.7							
I - 204	9/ 4/74	IBL012	0.0	3.20	2.50	7.00	1.20	10.9	3.4	
I - 205	9/ 4/74	IBL012	1.0							
I - 206	9/ 4/74	IBL012	1.2							
I - 189	9/ 4/74	IBL013	0.0	3.80	2.40	6.00	0.90	9.7	2.6	
I - 190	9/ 4/74	IBL013	1.0							
I - 191	9/ 4/74	IBL013	2.0							
I - 215	9/ 4/74	IBL014	0.0	3.20	2.60	5.50	1.40	10.9	3.3	
I - 216	9/ 4/74	IBL014	1.0							

LAKE ISTOKPOGA WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/ 4/73 - 8/31/76 MO/DA/YR

STATIONS IBL003 IBL004 IBL005 IBL006 IBL007
IBL008 IBL011 IBL012 IBL013 IBL014
IBL015 IBL016

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	SECCHI M	TEMP CENT	D.O. MG/L	PH	SP COND UMHOS/CM	COLOR UNITS	TURB JTU	CHLOR A MG/M3
I - 217	9/ 4/74	IBL014	1.5		28.0	6.2	5.90				
I - 221	9/ 4/74	IBL015	0.0	0.78	34.6	7.8	5.75	80.			
I - 222	9/ 4/74	IBL015	0.5		29.2	5.7	5.60				
I - 207	9/ 4/74	IBL016	0.0	0.89	32.5	7.4	5.85	85.			
I - 208	9/ 4/74	IBL016	1.0		28.0	5.8	5.95				
I - 309	12/11/74	IBL003	0.0		16.0	8.2	6.70	89.			
I - 310	12/11/74	IBL003	1.0		14.9	7.8	6.50	90.			
I - 311	12/11/74	IBL004	0.0		17.5	8.4	7.10	120.			
I - 370	12/11/74	IBL005	0.0		18.1	9.5	7.00	83.			
I - 371	12/11/74	IBL005	1.0		17.5	8.9	6.50	83.			
I - 367	12/11/74	IBL006	0.0		16.7	9.2	6.90	84.			
I - 368	12/11/74	IBL006	1.0		15.0	8.8	6.70	83.			
I - 369	12/11/74	IBL006	1.7		14.5	8.6	6.60	84.			
I - 315	12/11/74	IBL007	0.0		16.0	9.5	6.80	87.			
I - 316	12/11/74	IBL007	1.0		15.0	8.9	6.70	86.			
I - 317	12/11/74	IBL007	1.5		14.8	9.0	6.60	86.			
I - 372	12/11/74	IBL008	0.0		15.3	9.1	6.80	86.			
I - 373	12/11/74	IBL008	1.0		15.0	9.2	6.70	86.			
I - 374	12/11/74	IBL008	1.2		14.7	9.2	6.70	86.			
I - 312	12/11/74	IBL012	0.0		15.3	8.6	7.00	86.			
I - 313	12/11/74	IBL012	1.0		14.5	8.5	6.80	86.			
I - 314	12/11/74	IBL012	2.0		14.5	8.4	6.80	87.			
I - 301	12/11/74	IBL013	0.0		15.5	8.3	7.10	92.	176.0	8.5	
I - 302	12/11/74	IBL013	1.0		14.4	8.3	6.90	90.			
I - 303	12/11/74	IBL013	2.0		14.3	8.4	6.90	89.			
I - 585	3/11/75	IBL004	0.0	0.94	20.5	8.5	6.90	120.			
I - 586	3/11/75	IBL004	1.0		20.5	8.5	6.80	120.			
I - 587	3/11/75	IBL004	1.3		20.5	8.5	6.70	120.			
I - 591	3/11/75	IBL005	0.0	0.61	21.0	8.7	6.80	110.			
I - 592	3/11/75	IBL005	1.0		20.5	8.7	6.80	110.			
I - 593	3/11/75	IBL005	2.0		19.0	7.7	6.70	110.			
I - 596	3/11/75	IBL007	0.0	0.65	21.6	8.7	6.80	115.			
I - 597	3/11/75	IBL007	1.0		19.2	7.5	6.70	115.			
I - 601	3/11/75	IBL008	0.0	0.77	23.0	8.6	6.60	110.			
I - 602	3/11/75	IBL008	1.0	0.77	22.7	8.4	6.50	115.			
I - 588	3/11/75	IBL012	0.0	0.74	21.5	9.2	7.40	110.			
I - 589	3/11/75	IBL012	1.0		20.5	8.8	7.10	120.			
I - 590	3/11/75	IBL012	1.7		18.7	8.1	6.90	120.			
I - 580	3/11/75	IBL013	0.0	0.75	21.0	8.9	7.40	110.	115.0	6.3	
I - 581	3/11/75	IBL013	1.0		20.5	8.6	7.20	110.			
I - 582	3/11/75	IBL013	2.0		18.2	7.1	6.70	115.			
I - 594	3/11/75	IBL014	0.0	0.66	20.5	8.8	6.80	110.	132.0	6.5	
I - 595	3/11/75	IBL014	1.0		20.5	8.6	6.80	110.			
I - 643	4/24/75	IBL013	2.0						115.0	12.0	18.6
I - 646	4/24/75	IBL013	0.0						110.0	19.0	18.4
I - 644	4/24/75	IBL014	0.0						120.0	16.0	23.0
I - 693	6/25/75	IBL003	0.0	0.82	29.0	8.1	6.90	135.			
I - 694	6/25/75	IBL004	0.0	1.10	30.5	8.2	7.20	70.			7.9
I - 695	6/25/75	IBL004	1.0		28.5	7.2	6.60	150.			
I - 698	6/25/75	IBL005	0.0		32.5	8.7	7.80	130.			
I - 696	6/25/75	IBL012	0.0	0.74	28.5	8.5	7.60	70.			14.4
I - 697	6/25/75	IBL012	1.0		27.5	8.4	7.50	80.			
I - 688	6/25/75	IBL013	0.0	0.79	27.0	7.9	7.00	65.	66.0	6.2	15.9
I - 689	6/25/75	IBL013	2.0		26.5	6.9	6.40	110.			19.0
I - 699	6/25/75	IBL014	0.0	0.93	32.5	9.4	7.80	110.	74.0	5.8	13.1
I - 700	6/25/75	IBL014	2.0		27.0	6.7	6.60	115.			17.9
I - 701	6/26/75	IBL007	0.0	1.20	32.5	8.7	7.60	90.			11.0
I - 702	6/26/75	IBL007	1.0		30.5	8.1	7.20	95.			
I - 703	6/26/75	IBL007	2.0		26.0	4.5	6.40	95.			
I - 707	6/26/75	IBL008	0.0	0.92	32.5	8.6	6.40	120.			
I - 808	9/17/75	IBL003	0.0								
I - 809	9/17/75	IBL004	0.0								18.3
I - 811	9/17/75	IBL005	0.0								
I - 815	9/17/75	IBL007	0.0								
I - 817	9/17/75	IBL008	0.0	1.11	28.3	5.8	6.10	101.			10.5
I - 818	9/17/75	IBL008	1.5		27.2	4.9	6.00	101.			10.2
I - 810	9/17/75	IBL012	0.0								13.1
I - 803	9/17/75	IBL013	0.0	0.70	26.0	5.9	6.20	96.	296.0	2.9	13.1
I - 804	9/17/75	IBL013	1.0		27.5	5.4	6.10	96.			8.1
I - 805	9/17/75	IBL013	1.5		27.3	5.4	6.10	96.			7.5
I - 812	9/17/75	IBL014	0.0						296.0	3.9	19.9
I - 813	9/17/75	IBL014	1.0								22.7
I - 814	9/17/75	IBL014	2.0								19.9
I - 899	12/11/75	IBL004	0.0								12.3
I - 902	12/11/75	IBL007	0.0								20.3
I - 903	12/11/75	IBL008	0.0	0.54	16.0	9.6	6.30	92.	280.0	9.1	17.2
I - 904	12/11/75	IBL008	1.0		15.6	9.6	6.30	92.			16.7
I - 900	12/11/75	IBL012	0.0								15.4

LAKE ISTOKPOGA WATER QUALITY SUMMARY

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IBL008 IBL011 IBL012 IBL013 IBL014
IBL015 IBL016

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	NO2 MG/L	NO3 MG/L	NH4 MG/L	TKN MG/L	O-PO4 MG/L	T-PO4 MG/L	TOPO4 MG/L
I - 217	9/ 4/74	IBL014	1.5							
I - 221	9/ 4/74	IBL015	0.0	0.004	< 0.008	0.03	1.63	0.026	0.052	
I - 222	9/ 4/74	IBL015	0.5							
I - 207	9/ 4/74	IBL016	0.0	0.006	0.008	0.04	0.36	0.033	< 0.059	0.059
I - 208	9/ 4/74	IBL016	1.0							
I - 309	12/11/74	IBL003	0.0	< 0.004	0.045	0.05	0.95	0.012	0.049	0.042
I - 310	12/11/74	IBL003	1.0							
I - 311	12/11/74	IBL004	0.0	0.004	0.113	0.03	0.99	0.009	0.045	0.036
I - 370	12/11/74	IBL005	0.0	0.005	0.027	0.03	1.15	0.016	0.060	0.049
I - 371	12/11/74	IBL005	1.0							
I - 367	12/11/74	IBL006	0.0	0.005	0.035	< 0.01	1.07	0.015	0.052	0.050
I - 368	12/11/74	IBL006	1.0							
I - 369	12/11/74	IBL006	1.7							
I - 315	12/11/74	IBL007	0.0	0.005	0.046	0.05	1.30	0.019	0.056	0.055
I - 316	12/11/74	IBL007	1.0							
I - 317	12/11/74	IBL007	1.5							
I - 372	12/11/74	IBL008	0.0	0.005	0.035	0.03	1.05	0.013	0.051	0.044
I - 373	12/11/74	IBL008	1.0							
I - 374	12/11/74	IBL008	1.2							
I - 312	12/11/74	IBL012	0.0	0.004	0.017	0.02	1.01	0.009	0.053	0.038
I - 313	12/11/74	IBL012	1.0							
I - 314	12/11/74	IBL012	2.0							
I - 301	12/11/74	IBL013	0.0	< 0.004	0.091	0.06	0.91	0.011	0.056	0.040
I - 302	12/11/74	IBL013	1.0							
I - 303	12/11/74	IBL013	2.0							
I - 585	3/11/75	IBL004	0.0	0.005	0.116	0.02	1.07	0.008	0.041	0.032
I - 586	3/11/75	IBL004	1.0							
I - 587	3/11/75	IBL004	1.3							
I - 591	3/11/75	IBL005	0.0	0.005	0.042	0.10	1.05	0.007	0.044	0.033
I - 592	3/11/75	IBL005	1.0							
I - 593	3/11/75	IBL005	2.0							
I - 596	3/11/75	IBL007	0.0	0.006	0.040	0.03	1.05	0.005	0.044	0.031
I - 597	3/11/75	IBL007	1.0							
I - 601	3/11/75	IBL008	0.0	0.006	0.008	0.03	1.03	0.011	0.042	0.038
I - 602	3/11/75	IBL008	1.0							
I - 588	3/11/75	IBL012	0.0	0.006	0.031	0.01	1.08	0.006	0.043	0.031
I - 589	3/11/75	IBL012	1.0							
I - 590	3/11/75	IBL012	1.7							
I - 580	3/11/75	IBL013	0.0	0.005	0.082	0.03	1.15	0.005	0.076	0.031
I - 581	3/11/75	IBL013	1.0							
I - 582	3/11/75	IBL013	2.0							
I - 594	3/11/75	IBL014	0.0	0.007	0.045	0.03	1.09	0.010	0.045	0.038
I - 595	3/11/75	IBL014	1.0							
I - 643	4/24/75	IBL013	2.0	< 0.004	< 0.004	0.04	0.92	0.004	0.041	0.028
I - 646	4/24/75	IBL013	0.0	< 0.004	< 0.004	< 0.01	0.86	< 0.002	0.046	0.022
I - 644	4/24/75	IBL014	0.0	< 0.004	< 0.004	0.03	1.01	< 0.002	0.042	0.026
I - 693	6/25/75	IBL003	0.0	< 0.004	0.171	0.03	1.14	< 0.002	0.050	0.011
I - 694	6/25/75	IBL004	0.0	< 0.004	0.031	< 0.01	1.30	< 0.002	0.033	0.017
I - 695	6/25/75	IBL004	1.0							
I - 698	6/25/75	IBL005	0.0	< 0.004	0.011	< 0.01	0.97	< 0.002	0.042	0.013
I - 696	6/25/75	IBL012	0.0	< 0.004	< 0.004	< 0.01	0.92	< 0.002	0.041	0.013
I - 697	6/25/75	IBL012	1.0							
I - 688	6/25/75	IBL013	0.0	< 0.004	< 0.004	0.02	1.00	< 0.002	0.054	0.013
I - 685	6/25/75	IBL013	2.0	< 0.004	< 0.004	< 0.01	0.97	< 0.002	0.051	0.010
I - 699	6/25/75	IBL014	0.0	< 0.004		< 0.01	1.44	< 0.002	0.048	0.013
I - 700	6/25/75	IBL014	2.0	< 0.004	< 0.004	< 0.01	1.28	< 0.002	0.052	0.040
I - 701	6/26/75	IBL007	0.0	< 0.004	< 0.004	< 0.01	1.00	< 0.002	0.037	0.017
I - 702	6/26/75	IBL007	1.0							
I - 703	6/26/75	IBL007	2.0							
I - 707	6/26/75	IBL008	0.0	< 0.004	< 0.004	< 0.01	0.94	0.008	0.040	0.021
I - 808	9/17/75	IBL003	0.0	0.008		0.03	0.71	0.012	0.059	0.038
I - 809	9/17/75	IBL004	0.0	0.008	0.023	0.03	0.51	0.004	0.045	0.029
I - 811	9/17/75	IBL005	0.0	0.006	0.004	0.05	0.57	< 0.002	0.043	0.023
I - 815	9/17/75	IBL007	0.0	0.007		0.04	0.59	0.005	0.038	0.023
I - 817	9/17/75	IBL008	0.0	0.015		0.03	0.69	0.019	0.060	0.052
I - 818	9/17/75	IBL008	1.5							
I - 810	9/17/75	IBL012	0.0	0.009	< 0.004	0.02	0.64	< 0.002	0.046	0.025
I - 803	9/17/75	IBL013	0.0	0.007	0.030	0.02	0.77	0.046	0.100	0.077
I - 804	9/17/75	IBL013	1.0							
I - 805	9/17/75	IBL013	1.5	0.008	0.042	0.05	0.83	0.068	0.119	0.101
I - 812	9/17/75	IBL014	0.0	0.007	< 0.004	0.01	0.62	< 0.002	0.043	0.024
I - 813	9/17/75	IBL014	1.0							
I - 814	9/17/75	IBL014	2.0	0.009	< 0.004	0.01	0.63	< 0.002	0.045	0.020
I - 899	12/11/75	IBL004	0.0	< 0.004	0.145	0.05	0.97	0.009	0.047	0.034
I - 902	12/11/75	IBL007	0.0	< 0.004	0.006	0.03	1.07	0.010	0.062	0.032
I - 902	12/11/75	IBL008	0.0	< 0.004	0.019	< 0.01	1.10	0.009	0.047	0.033
I - 904	12/11/75	IBL008	1.0							
I - 900	12/11/75	IBL012	0.0	< 0.004	0.004	0.03	0.99	0.007	0.047	0.034

LAKE ISTOKPOGA WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/ 4/73 - 8/31/76 MO/DA/YR

STATIONS IBL003 IBL004 IBL005 IBL006 IBL007
IBL008 IBL011 IBL012 IBL013 IBL014
IBL015 IBL016

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	CA MG/L	MG MG/L	NA MG/L	K MG/L	CL MG/L	SIO2 MG/L	ALK MEQ/L
I - 217	9/ 4/74	IBL014	1.5							
I - 221	9/ 4/74	IBL015	0.0	3.20	2.40	7.00	1.10	9.9	3.2	
I - 222	9/ 4/74	IBL015	0.5							
I - 207	9/ 4/74	IBL016	0.0	3.80	2.60	7.00	1.00	10.1	3.3	
I - 208	9/ 4/74	IBL016	1.0							
I - 309	12/11/74	IBL003	0.0	5.40	3.00	7.10	1.44	13.0	0.9	
I - 310	12/11/74	IBL003	1.0							
I - 311	12/11/74	IBL004	0.0	7.10	3.10	9.90	1.33	12.2	1.4	
I - 370	12/11/74	IBL005	0.0	5.50	2.90	7.40	1.41	13.2	3.1	
I - 371	12/11/74	IBL005	1.0							
I - 367	12/11/74	IBL006	0.0	7.40	3.10	9.70	1.25	13.2	1.3	
I - 368	12/11/74	IBL006	1.0							
I - 369	12/11/74	IBL006	1.7							
I - 315	12/11/74	IBL007	0.0	6.20	2.90	7.60	1.50	16.2	2.2	
I - 316	12/11/74	IBL007	1.0							
I - 317	12/11/74	IBL007	1.5							
I - 372	12/11/74	IBL008	0.0	6.70	3.00	7.90	1.32	15.2	2.8	
I - 373	12/11/74	IBL008	1.0							
I - 374	12/11/74	IBL008	1.2							
I - 312	12/11/74	IBL012	0.0	6.60	2.80	9.40	1.24	12.2	1.0	
I - 313	12/11/74	IBL012	1.0							
I - 314	12/11/74	IBL012	2.0							
I - 301	12/11/74	IBL013	0.0	6.00	2.80	7.60	1.35	12.2	2.2	
I - 302	12/11/74	IBL013	1.0							
I - 303	12/11/74	IBL013	2.0							
I - 585	3/11/75	IBL004	0.0							
I - 586	3/11/75	IBL004	1.0							
I - 587	3/11/75	IBL004	1.3							
I - 591	3/11/75	IBL005	0.0							
I - 592	3/11/75	IBL005	1.0							
I - 593	3/11/75	IBL005	2.0							
I - 596	3/11/75	IBL007	0.0							
I - 597	3/11/75	IBL007	1.0							
I - 601	3/11/75	IBL008	0.0							
I - 602	3/11/75	IBL008	1.0							
I - 588	3/11/75	IBL012	0.0							
I - 589	3/11/75	IBL012	1.0							
I - 590	3/11/75	IBL012	1.7							
I - 580	3/11/75	IBL013	0.0	5.50	4.00	8.40	1.70	15.2	2.8	
I - 581	3/11/75	IBL013	1.0							
I - 582	3/11/75	IBL013	2.0							
I - 594	3/11/75	IBL014	0.0	2.60	2.30	4.00	1.00	13.0	2.8	
I - 595	3/11/75	IBL014	1.0							
I - 643	4/24/75	IBL013	2.0	7.70	4.00	10.50	1.70	37.5	2.0	
I - 646	4/24/75	IBL013	0.0	7.70	4.20	10.50	1.60	17.6	1.7	
I - 644	4/24/75	IBL014	0.0	7.10	3.80	10.90	1.60	27.5	2.0	
I - 693	6/25/75	IBL003	0.0					20.1	2.7	
I - 694	6/25/75	IBL004	0.0	7.20	4.20	9.80	1.90	24.5	2.7	0.86
I - 695	6/25/75	IBL004	1.0							
I - 698	6/25/75	IBL005	0.0					22.5	1.9	
I - 696	6/25/75	IBL012	0.0	6.80	4.00	8.90	1.90	17.3	2.5	
I - 697	6/25/75	IBL012	1.0							
I - 688	6/25/75	IBL013	0.0		3.90	9.20	1.60	17.1	2.3	
I - 689	6/25/75	IBL013	2.0					15.9	2.5	
I - 699	6/25/75	IBL014	0.0	6.20	3.70	9.30	1.80	15.9	1.8	
I - 700	6/25/75	IBL014	2.0					15.5	1.8	0.76
I - 701	6/26/75	IBL007	0.0	6.70	3.80	8.80	1.70	17.5	1.4	
I - 702	6/26/75	IBL007	1.0							
I - 703	6/26/75	IBL007	2.0							
I - 707	6/26/75	IBL008	0.0					15.1	2.6	
I - 808	9/17/75	IBL003	0.0					13.7	7.1	< 0.10
I - 809	9/17/75	IBL004	0.0					16.9	6.6	< 0.10
I - 811	9/17/75	IBL005	0.0					15.5	5.0	< 0.10
I - 815	9/17/75	IBL007	0.0					21.6	5.8	< 0.10
I - 817	9/17/75	IBL008	0.0					13.1	7.4	< 0.10
I - 818	9/17/75	IBL008	1.5							
I - 810	9/17/75	IBL012	0.0					14.5	5.8	< 0.10
I - 803	9/17/75	IBL013	0.0	6.61	4.10	13.93	2.42	12.7	5.8	< 0.10
I - 804	9/17/75	IBL013	1.0							
I - 805	9/17/75	IBL013	1.5	5.61	4.10	10.84	2.59	13.1	8.7	< 0.10
I - 812	9/17/75	IBL014	0.0	5.89	4.59	12.69	2.59	14.9	5.6	< 0.10
I - 813	9/17/75	IBL014	1.0							
I - 814	9/17/75	IBL014	2.0	5.17	4.72	12.90	2.59	13.7	6.1	0.12
I - 899	12/11/75	IBL004	0.0					13.1	4.7	< 0.10
I - 902	12/11/75	IBL007	0.0					16.3	3.9	< 0.10
I - 903	12/11/75	IBL008	0.0	7.12	3.95	4.57	1.76	13.5	4.0	< 0.10
I - 904	12/11/75	IBL008	1.0							
I - 900	12/11/75	IBL012	0.0					14.5	3.9	< 0.10

LAKE ISTOKPOGA WATER QUALITY SUMMARY

PROJECT I — DATE OF PRINTING 08/31/77

PARAMETER — RANGE OF VALUES — UNITS

DATE 9/ 4/73 - 8/31/76 MO/DA/YR

STATIONS IBL003 IBL004 IBL005 IBL006 IBL007
IBL008 IBL011 IBL012 IBL013 IBL014
IBL015 IBL016

	SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	SECCHI M	TEMP CENT	D.O. MG/L	PH	SP COND UMHOS/CM	COLOR UNITS	TURB JTU	CHLOR A MG/M3
I	- 905	12/11/75	IBL013	0.0	0.53	16.5	9.6	6.60	92.	250.0	6.8	15.5
I	- 906	12/11/75	IBL013	1.5		16.5	9.5	6.40	92.			14.9
I	- 901	12/11/75	IBL014	0.0								19.6
I	-1000	3/10/76	IBL003	0.0								12.2
I	-1001	3/10/76	IBL004	0.0								
I	- 993	3/10/76	IBL005	0.0								
I	- 989	3/10/76	IBL007	0.0								
I	- 985	3/10/76	IBL008	0.0	0.44	22.6	8.1	8.00	130.			14.0
I	- 986	3/10/76	IBL008	0.5		22.6	7.8	8.00	130.			18.1
I	- 987	3/10/76	IBL008	1.0		22.4	7.7	7.90	130.			15.1
I	- 994	3/10/76	IBL012	0.0								15.1
I	- 995	3/10/76	IBL013	0.0	0.43	22.8	7.7	7.90	135.	125.0	9.8	12.0
I	- 996	3/10/76	IBL013	1.0		22.7	7.6	7.90	135.			15.5
I	- 997	3/10/76	IBL013	2.0		22.7	7.6	7.90	135.			14.8
I	- 990	3/10/76	IBL014	0.0						120.0	7.0	11.0
I	- 991	3/10/76	IBL014	1.0								13.6
I	- 992	3/10/76	IBL014	2.0								16.2
I	-1047	5/26/76	IBL003	0.0								
I	-1048	5/26/76	IBL004	0.0								
I	-1050	5/25/76	IBL005	0.0								
I	-1054	5/26/76	IBL007	0.0								
I	-1055	5/26/76	IBL008	0.0	0.61	26.2	8.7	7.70	140.			15.4
I	-1056	5/26/76	IBL008	1.0		23.5	6.1	6.40	140.			23.4
I	-1049	5/26/76	IBL012	0.0								15.4
I	-1041	5/26/76	IBL013	0.0	0.56	27.0	9.0	7.60	140.	80.0	9.0	11.2
I	-1042	5/26/76	IBL013	0.5								20.8
I	-1043	5/25/76	IBL013	1.0		23.5	8.7	7.50	145.			23.6
I	-1044	5/26/76	IBL013	2.0		23.0	7.6	6.00	145.			23.2
I	-1051	5/26/76	IBL014	0.0						107.0	8.2	18.3
I	-1052	5/26/76	IBL014	1.0								21.4
I	-1053	5/26/76	IBL014	2.0								22.3
I	-1160	8/31/76	IBL003	0.0								
I	-1161	8/31/76	IBL004	0.0								1.9
I	-1163	8/31/76	IBL005	0.0								
I	-1166	8/31/76	IBL007	0.0								27.9
I	-1167	8/31/76	IBL008	0.0	0.68	29.9	6.9	6.80	125.			13.6
I	-1168	8/31/76	IBL008	1.0		29.6	6.8	6.70	125.			14.1
I	-1162	8/31/76	IBL012	0.0								27.1
I	-1169	8/31/76	IBL013	0.0	0.73	29.5	6.6	6.20	120.	164.0	6.8	15.9
I	-1170	8/31/76	IBL013	1.0		29.2	6.5	6.20	120.			16.2
I	-1171	8/31/76	IBL013	2.0		29.0	6.5	6.10	120.			15.7
I	-1164	8/31/76	IBL014	0.0						110.0	6.2	31.7
I	-1165	8/31/76	IBL014	1.0								32.3

LAKE ISTOKPOGA WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/ 4/73 - 8/31/76 MO/DA/YR

STATIONS IBL003 IBL004 IBL005 IBL006 IBL007
IBL008 IBL011 IBL012 IBL013 IBL014
IBL015 IBL016

	SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	NO2 MG/L	NO3 MG/L	NH4 MG/L	TKN MG/L	O-PO4 MG/L	T-PO4 MG/L	TOPO4 MG/L
I	- 905	12/11/75	IBL013	0.0	0.006	< 0.004	0.01	1.07	0.007	0.046	0.033
I	- 906	12/11/75	IBL013	1.5	0.005	< 0.004	0.01	0.96	0.007	0.045	0.030
I	- 901	12/11/75	IBL014	0.0	< 0.004	0.019	0.04	1.10	0.007	0.048	0.030
I	-1000	3/10/76	IBL003	0.0	< 0.004	0.040	0.07	0.96	0.023	0.071	0.047
I	-1001	3/10/76	IBL004	0.0	0.006	1.257	0.04	0.38	0.018	0.030	0.031
I	- 993	3/10/76	IBL005	0.0	< 0.004	< 0.004	0.05	0.92	0.010	0.058	0.035
I	- 989	3/10/76	IBL007	0.0	0.004	0.035	0.03	0.96	0.007	0.077	0.035
I	- 985	3/10/76	IBL008	0.0	< 0.004	< 0.004	0.03	1.05	0.013	0.065	0.044
I	- 986	3/10/76	IBL008	0.5							
I	- 987	3/10/76	IBL008	1.0							
I	- 994	3/10/76	IBL012	0.0	0.004	0.012	0.02	1.04	0.007	0.055	0.031
I	- 995	3/10/76	IBL013	0.0	0.009	0.028	0.02	1.09	0.011	0.066	0.054
I	- 996	3/10/76	IBL013	1.0	0.006	0.018	0.04	1.02	0.013	0.076	0.041
I	- 997	3/10/76	IBL013	2.0	0.006	0.028	0.05	1.00	0.014	0.075	0.046
I	- 990	3/10/76	IBL014	0.0	0.006	0.144	0.04	1.06	0.041	0.054	0.075
I	- 991	3/10/76	IBL014	1.0	< 0.004	0.015	0.07	0.96	0.013	0.057	0.045
I	- 992	3/10/76	IBL014	2.0	< 0.004	< 0.004	0.05	1.11	0.018	0.120	0.042
I	-1047	5/26/76	IBL003	0.0	< 0.004	0.009	< 0.01	0.92	0.006	0.042	0.029
I	-1048	5/26/76	IBL004	0.0	< 0.004	0.005	0.06	0.89	0.003	0.039	0.019
I	-1050	5/26/76	IBL005	0.0	< 0.004	< 0.004	0.03	1.02	< 0.002	0.049	0.026
I	-1054	5/26/76	IBL007	0.0	< 0.004	< 0.004	< 0.01	1.01	0.002	0.065	0.023
I	-1055	5/26/76	IBL008	0.0	< 0.004	< 0.004	< 0.01	1.01	< 0.002	0.042	0.023
I	-1056	5/26/76	IBL008	1.0	< 0.004	< 0.004	0.04	1.04	< 0.002	0.085	0.030
I	-1049	5/26/76	IBL012	0.0	< 0.004		0.02	0.89	< 0.002	0.041	0.018
I	-1041	5/26/76	IBL013	0.0	< 0.004	< 0.004	0.08	0.91	0.006	0.045	0.027
I	-1042	5/26/76	IBL013	0.5							
I	-1043	5/26/76	IBL013	1.0	< 0.004	< 0.004	< 0.01	1.05	< 0.002	0.053	0.016
I	-1044	5/26/76	IBL013	2.0	< 0.004	< 0.004	< 0.01	0.96	0.003	0.064	0.020
I	-1051	5/26/76	IBL014	0.0	< 0.004	< 0.004	< 0.01	0.95	< 0.002	0.054	0.027
I	-1052	5/26/76	IBL014	1.0	< 0.004	0.004	0.12	0.98	0.006	0.057	0.030
I	-1053	5/26/76	IBL014	2.0	< 0.004	< 0.004	0.05	1.03	< 0.002	0.100	0.031
I	-1160	8/31/76	IBL003	0.0	0.010	0.042	0.01	1.00	0.005	0.035	0.027
I	-1161	8/31/76	IBL004	0.0	0.009	0.109	0.01	0.73		0.015	
I	-1163	8/31/76	IBL005	0.0	0.007	< 0.004	< 0.01	1.06	< 0.002	0.041	0.022
I	-1166	8/31/76	IBL007	0.0	0.007	0.018	0.04	1.01	0.003	0.041	0.025
I	-1167	8/31/76	IBL008	0.0	0.008	< 0.004	0.03	0.98	0.005	0.041	0.029
I	-1168	8/31/76	IBL008	1.0							
I	-1162	8/31/76	IBL012	0.0	0.008	< 0.004	0.02	1.04	0.004	0.041	0.037
I	-1169	8/31/76	IBL013	0.0	0.009	< 0.004	0.01	1.09	0.009	0.040	0.037
I	-1170	8/31/76	IBL013	1.0	0.009	< 0.004	< 0.01	1.05	0.009	0.042	0.033
I	-1171	8/31/76	IBL013	2.0	0.009	< 0.004	< 0.01	1.06	0.010	0.031	0.031
I	-1164	8/31/76	IBL014	0.0	0.007	< 0.004	0.02	1.04	< 0.002	0.037	0.024
I	-1165	8/31/76	IBL014	1.0	0.007	0.005	0.06	1.07	< 0.002	0.040	0.025

LAKE ISTOKPOGA WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/ 4/73 - 8/31/76 MO/DA/YR

STATIONS IBL003 IBL004 IBL005 IBL006 IBL007
IBL008 IBL011 IBL012 IBL013 IBL014
IBL015 IBL016

	SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	CA MG/L	MG MG/L	NA MG/L	K MG/L	CL MG/L	SIO2 MG/L	ALK MEQ/L
I	- 905	12/11/75	IBL013	0.0	6.08	3.08	8.42	1.76	13.1	3.9	< 0.10
I	- 906	12/11/75	IBL013	1.5	4.33	3.41	< 2.86	1.76	14.9	4.6	< 0.10
I	- 901	12/11/75	IBL014	0.0	5.20	3.84	4.57	1.69	14.7	3.8	< 0.10
I	-1000	3/10/76	IBL003	0.0						0.9	< 0.10
I	-1001	3/10/76	IBL004	0.0						8.3	0.29
I	- 993	3/10/76	IBL005	0.0						1.3	< 0.10
I	- 989	3/10/76	IBL007	0.0						0.4	< 0.10
I	- 985	3/10/76	IBL008	0.0						2.0	< 0.10
I	- 986	3/10/76	IBL008	0.5							
I	- 987	3/10/76	IBL008	1.0							
I	- 994	3/10/76	IBL012	0.0						0.4	< 0.10
I	- 995	3/10/76	IBL013	0.0	9.36	3.88	8.73	2.40		0.6	< 0.10
I	- 996	3/10/76	IBL013	1.0	7.10	4.47	8.39	2.14		0.6	< 0.10
I	- 997	3/10/76	IBL013	2.0	5.78	3.95	8.56	2.29		0.7	< 0.10
I	- 990	3/10/76	IBL014	0.0	9.74	3.20	11.96	3.07	<	0.4	< 0.10
I	- 991	3/10/76	IBL014	1.0	6.54	3.78	8.56	2.35		1.8	< 0.10
I	- 992	3/10/76	IBL014	2.0	26.31	3.61	7.88	2.14		2.3	< 0.10
I	-1047	5/26/76	IBL003	0.0							
I	-1048	5/26/76	IBL004	0.0							
I	-1050	5/26/76	IBL005	0.0							
I	-1054	5/26/76	IBL007	0.0							
I	-1055	5/26/76	IBL008	0.0							
I	-1056	5/26/76	IBL008	1.0							
I	-1049	5/26/76	IBL012	0.0							
I	-1041	5/26/76	IBL013	0.0	5.97	3.60	8.10	1.88			
I	-1042	5/26/76	IBL013	0.5							
I	-1043	5/26/76	IBL013	1.0	6.31	3.59	8.53	2.14			
I	-1044	5/26/76	IBL013	2.0	6.31	3.36	8.53	2.14			
I	-1051	5/26/76	IBL014	0.0	5.81	3.45	8.68	2.14			
I	-1052	5/26/76	IBL014	1.0	< 2.88	3.50	8.97	1.88			
I	-1053	5/26/76	IBL014	2.0	8.63	3.91	8.83	2.12			
I	-1160	8/31/76	IBL003	0.0					12.6	5.2	< 0.07
I	-1161	8/31/76	IBL004	0.0					13.4	3.9	< 0.07
I	-1163	8/31/76	IBL005	0.0					14.0	4.2	< 0.07
I	-1166	8/31/76	IBL007	0.0					15.0	4.0	0.12
I	-1167	6/31/76	IBL008	0.0					13.0	4.9	0.10
I	-1168	8/31/76	IBL008	1.0							
I	-1162	8/31/76	IBL012	0.0					18.4	4.3	< 0.07
I	-1169	8/31/76	IBL013	0.0	4.23	2.90	7.54	0.90	13.4	5.1	0.08
I	-1170	8/31/76	IBL013	1.0	4.39	2.95	6.07	1.02	13.4	5.0	0.08
I	-1171	8/31/76	IBL013	2.0	5.49	3.03	6.56	1.02	12.4	5.0	0.12
I	-1164	8/31/76	IBL014	0.0	4.23	3.68	7.54	1.21	16.4	3.9	0.13
I	-1165	8/31/76	IBL014	1.0	3.91	4.11	8.20	1.31	14.8	3.9	0.12

LAKE ARBUCKLE WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/11/74 - 9/ 2/76 MO/DA/YR

STATIONS IBL101 IBL102 IBL103 IBL104

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	SECCHI M	TEMP CENT	D.O. MG/L	PH	SP COND UMHOS/CM	COLOR UNITS	TURB JTU	CHLOR A MG/M3
I - 357	9/11/74	IBL101	0.0				6.30	79.			
I - 358	9/11/74	IBL102	0.0				5.60	67.			
I - 356	9/11/74	IBL103	0.0	0.94			6.10	89.			
I - 354	9/11/74	IBL104	0.0				5.90	88.			
I - 461	12/18/74	IBL101	0.0	0.70	16.3	8.2	7.00	92.			
I - 462	12/18/74	IBL102	0.0	0.62	16.5	8.1	7.05	91.			
I - 463	12/18/74	IBL102	1.0		16.2	8.0	6.95	90.			
I - 464	12/18/74	IBL102	2.0		16.0	7.1	6.80	96.			
I - 465	12/18/74	IBL103	0.0		16.5	7.8	6.90	95.			
I - 466	12/18/74	IBL103	1.0		16.2	7.6	6.80	94.			
I - 467	12/18/74	IBL103	1.7		15.1	7.4	6.75	96.			
I - 468	12/18/74	IBL104	0.0	0.79	16.7	7.6	6.90	100.			
I - 469	12/18/74	IBL104	1.0		15.5	7.4	6.83	102.			
I - 470	12/18/74	IBL104	1.5		16.0	6.4	6.60	110.			
I - 495	1/23/75	IBL101	0.0								
I - 496	1/23/75	IBL103	0.0								
I - 497	1/23/75	IBL104	0.0								
I - 508	3/ 4/75	IBL101	0.0		16.5	9.6	7.40	125.			
I - 509	3/ 4/75	IBL102	0.0	0.84	17.6	9.5	7.60	115.			
I - 510	3/ 4/75	IBL102	1.0		15.0	9.1	7.60	120.			
I - 511	3/ 4/75	IBL102	1.5		15.7	9.2	7.40	120.			
I - 512	3/ 4/75	IBL103	0.0	1.00	18.2	9.4	7.35	130.	90.0	2.2	
I - 513	3/ 4/75	IBL103	1.0		16.5	8.9	7.30	130.			
I - 514	3/ 4/75	IBL103	2.0		16.2	8.6	7.00	125.			
I - 515	3/ 4/75	IBL104	0.0	1.10	19.0	9.3	7.45	100.			
I - 516	3/ 4/75	IBL104	1.0		17.0	8.5	7.35	100.			
I - 517	3/ 4/75	IBL104	1.7		16.5	8.1	7.10	110.			
I - 764	7/16/75	IBL101	0.0								24.2
I - 762	7/16/75	IBL102	0.0	1.22	28.2		7.30	130.			16.5
I - 763	7/16/75	IBL102	1.0		27.8		7.00	130.			
I - 759	7/16/75	IBL103	0.0	1.24	27.0		7.30	110.	44.0	5.3	15.8
I - 760	7/16/75	IBL103	1.0		27.0		7.20				
I - 761	7/16/75	IBL103	1.5		27.0		7.20				15.9
I - 755	7/16/75	IBL104	0.0	1.04	27.5		7.60	150.	45.0	5.5	27.7
I - 756	7/16/75	IBL104	1.0		27.3		7.60	150.			
I - 757	7/16/75	IBL104	1.5		27.2		7.50	150.			26.6
I - 827	9/18/75	IBL101	0.0								19.7
I - 826	9/18/75	IBL102	0.0								
I - 823	9/18/75	IBL103	0.0	0.76					350.0	2.3	26.5
I - 824	9/18/75	IBL103	1.0								28.2
I - 825	9/18/75	IBL103	2.0								27.6
I - 819	9/18/75	IBL104	0.0	0.82	28.5	5.7	6.30	89.	360.0	2.5	32.0
I - 820	9/18/75	IBL104	1.0		28.2	5.6	6.30	90.			29.9
I - 821	9/18/75	IBL104	2.0		28.1	5.4	6.30	90.			20.3
I - 920	1/ 6/76	IBL101	0.0								13.8
I - 919	1/ 6/76	IBL102	0.0								
I - 916	1/ 6/76	IBL103	0.0	0.92	16.0	8.6	7.00	94.	280.0	2.1	188.4
I - 917	1/ 6/76	IBL103	0.5		15.7	8.5	6.90	93.			30.3
I - 918	1/ 6/76	IBL103	1.0		15.5	8.5	6.80	93.			24.4
I - 911	1/ 6/76	IBL104	0.0	0.59	16.6	9.3	7.40	102.	250.0	5.4	64.7
I - 912	1/ 6/76	IBL104	0.5		15.5	9.4	7.20	102.			38.6
I - 913	1/ 6/76	IBL104	1.0		15.5	8.9	7.00	101.			18.7
I - 914	1/ 6/76	IBL104	2.0		15.5	8.7	6.90	101.			24.3
I -1024	3/17/76	IBL101	0.0								33.7
I -1039	3/19/76	IBL101	0.0								12.8
I -1031	3/19/76	IBL102	0.0								11.0
I -1032	3/19/76	IBL103	0.0	1.09	19.5	8.1	8.30	130.			9.6
I -1033	3/19/76	IBL103	1.0		19.5	8.1	8.20	130.			12.0
I -1034	3/19/76	IBL104	0.0	0.77	20.4	11.2	8.50	130.			17.3
I -1035	3/19/76	IBL104	0.5		20.4	11.2	8.50	130.			17.8
I -1036	3/19/76	IBL104	1.0		20.1	11.2	8.50	130.			18.6
I -1037	3/19/76	IBL104	1.7		19.7	10.7	8.40	140.			19.5
I -1089	6/ 2/76	IBL101	0.0								11.4
I -1088	6/ 2/76	IBL102	0.0								13.3
I -1085	6/ 2/76	IBL103	0.0	1.07	25.6	7.0	7.60	145.	64.0	2.8	11.9
I -1086	6/ 2/76	IBL103	1.0		25.6	7.0	7.40	145.			18.2
I -1087	6/ 2/76	IBL103	2.0		25.4	7.0	7.30	145.			22.7
I -1081	6/ 2/76	IBL104	0.0	0.91	26.5	7.1	7.60	145.	63.0	6.9	20.5
I -1082	6/ 2/76	IBL104	1.0		26.2	7.0	7.50	145.			22.0
I -1083	6/ 2/76	IBL104	2.0		26.0	6.8	7.10	145.			24.5
I -1151	7/20/76	IBL101	0.0								
I -1152	7/20/76	IBL102	0.0								
I -1146	7/20/76	IBL103	0.0								
I -1147	7/20/76	IBL103	0.5								
I -1148	7/20/76	IBL103	1.0								
I -1149	7/20/76	IBL103	2.0								
I -1150	7/20/76	IBL103	0.0								
I -1153	7/20/76	IBL104	0.0								
I -1154	7/20/76	IBL104	1.0								

LAKE ARBUCKLE WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/11/74 - 9/ 2/76 MO/DA/YR

STATIONS IBL101 IBL102 IBL103 IBL104

	SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	NO2 MG/L	NO3 MG/L	NH4 MG/L	TKN MG/L	O-PO4 MG/L	T-PO4 MG/L	TDPO4 MG/L
I	- 357	9/11/74	IBL101	0.0	0.008	0.076	0.06	1.18	0.025	0.065	0.049
I	- 358	9/11/74	IBL102	0.0	0.009	0.015	0.11	1.09	0.027	0.049	0.043
I	- 356	9/11/74	IBL103	0.0	0.009	0.042	0.11	1.22	0.061	0.095	0.089
I	- 354	9/11/74	IBL104	0.0	0.010	0.034	0.13	1.29	0.062	0.103	0.084
I	- 461	12/18/74	IBL101	0.0	0.008	0.102		0.74		0.017	0.015
I	- 462	12/18/74	IBL102	0.0	0.005	0.004		0.65		0.020	0.003
I	- 463	12/18/74	IBL102	1.0							
I	- 464	12/18/74	IBL102	2.0							
I	- 465	12/18/74	IBL103	0.0	0.005	0.067		0.64		0.020	
I	- 466	12/18/74	IBL103	1.0							
I	- 467	12/18/74	IBL103	1.7							
I	- 468	12/18/74	IBL104	0.0	< 0.004	0.062		0.76		0.014	0.010
I	- 469	12/18/74	IBL104	1.0							
I	- 470	12/18/74	IBL104	1.5							
I	- 495	1/23/75	IBL101	0.0	0.017	0.141	0.07	1.22	< 0.002	0.044	0.015
I	- 496	1/23/75	IBL103	0.0	0.017	0.059	0.03	0.45	< 0.002	0.045	0.021
I	- 497	1/23/75	IBL104	0.0	0.018	0.035	0.08	0.32	< 0.002	0.032	0.022
I	- 508	3/ 4/75	IBL101	0.0	< 0.004	0.036	0.03	0.81	0.003	0.034	0.020
I	- 509	3/ 4/75	IBL102	0.0	< 0.004	< 0.004	0.01	0.72	0.003	0.040	0.018
I	- 510	3/ 4/75	IBL102	1.0							
I	- 511	3/ 4/75	IBL102	1.5							
I	- 512	3/ 4/75	IBL103	0.0	< 0.004	< 0.004	0.04	0.70	0.002	0.037	0.017
I	- 513	3/ 4/75	IBL103	1.0							
I	- 514	3/ 4/75	IBL103	2.0							
I	- 515	3/ 4/75	IBL104	0.0	< 0.004	< 0.004	0.01	0.69	0.003	0.036	0.015
I	- 516	3/ 4/75	IBL104	1.0							
I	- 517	3/ 4/75	IBL104	1.7							
I	- 764	7/16/75	IBL101	0.0	< 0.004	< 0.004	0.01	0.95	0.020	0.060	0.014
I	- 762	7/16/75	IBL102	0.0	< 0.004	< 0.004	0.01	0.85	< 0.002	0.042	0.012
I	- 763	7/16/75	IBL102	1.0							
I	- 759	7/16/75	IBL103	0.0	0.006	< 0.004	0.02	1.00	0.002	0.045	0.018
I	- 760	7/16/75	IBL103	1.0							
I	- 761	7/16/75	IBL103	1.5							
I	- 755	7/16/75	IBL104	0.0	0.006	< 0.004	0.01	0.99	0.002	0.053	0.014
I	- 756	7/16/75	IBL104	1.0							
I	- 757	7/16/75	IBL104	1.5							
I	- 827	9/18/75	IBL101	0.0	< 0.004	0.004	0.01	0.69	< 0.002	0.033	0.014
I	- 826	9/18/75	IBL102	0.0	< 0.004	< 0.004	< 0.01	0.65	< 0.002	0.039	0.015
I	- 823	9/18/75	IBL103	0.0	0.012	0.159	0.04	0.82	< 0.002	0.047	0.017
I	- 824	9/18/75	IBL103	1.0	0.009	0.006	0.05	0.70	< 0.002	0.044	0.017
I	- 825	9/18/75	IBL103	2.0	0.008	< 0.004	0.05	0.69	< 0.002	0.055	0.017
I	- 819	9/18/75	IBL104	0.0	0.009	0.025	0.09	0.70	< 0.002	0.058	0.018
I	- 820	9/18/75	IBL104	1.0							
I	- 821	9/18/75	IBL104	2.0							
I	- 920	1/ 6/76	IBL101	0.0	0.005	0.057	0.06	0.98	0.005	0.033	0.021
I	- 919	1/ 5/76	IBL102	0.0	0.006	0.007	< 0.01	0.91	< 0.002	0.029	0.040
I	- 916	1/ 6/76	IBL103	0.0	0.007	0.017	< 0.01	1.87	0.002	0.105	0.021
I	- 917	1/ 6/76	IBL103	0.5	0.007	0.013	0.03	0.87	< 0.002	0.030	0.016
I	- 918	1/ 6/76	IBL103	1.0	0.005	0.014	0.02	0.96	< 0.002	0.035	0.019
I	- 911	1/ 6/76	IBL104	0.0	0.006	0.359	0.01	0.96	0.006	0.053	0.026
I	- 912	1/ 6/76	IBL104	0.5							
I	- 913	1/ 6/76	IBL104	1.0							
I	- 914	1/ 6/76	IBL104	2.0							
I	-1024	3/17/76	IBL101	0.0	0.006	0.162	0.02	0.94	< 0.002	0.041	0.026
I	-1039	3/19/76	IBL101	0.0	0.005			0.86	< 0.002	0.058	0.024
I	-1031	3/19/76	IBL102	0.0	0.004			0.91	< 0.002	0.048	0.023
I	-1032	3/19/76	IBL103	0.0	< 0.004			0.82	0.003	0.039	0.022
I	-1033	3/19/76	IBL103	1.0	0.005			0.78	0.020	0.056	0.027
I	-1034	3/19/76	IBL104	0.0	0.004			0.90	< 0.002	0.056	0.023
I	-1035	3/19/76	IBL104	0.5	< 0.004			0.88	< 0.002	0.050	0.022
I	-1036	3/19/76	IBL104	1.0	0.005				< 0.002	0.056	0.024
I	-1037	3/19/76	IBL104	1.7	< 0.004			0.90	< 0.002	0.057	0.024
I	-1089	6/ 2/76	IBL101	0.0	< 0.004	< 0.004	0.02	0.52	0.002	0.020	0.009
I	-1088	5/ 2/76	IBL102	0.0	< 0.004	< 0.004	0.02	0.51	0.003	0.019	0.006
I	-1085	6/ 2/76	IBL103	0.0	< 0.004	0.005	0.25	0.63	0.003	0.031	0.008
I	-1086	6/ 2/76	IBL103	1.0	< 0.004	< 0.004	0.03	0.51	0.003	0.029	0.009
I	-1087	6/ 2/76	IBL103	2.0	< 0.004	< 0.004	0.02	0.66	0.004	0.031	0.015
I	-1081	6/ 2/76	IBL104	0.0	< 0.004	< 0.004	0.02	0.64	0.003	0.030	0.011
I	-1082	6/ 2/76	IBL104	1.0	< 0.004		0.03	0.58	0.006	0.033	0.011
I	-1083	6/ 2/76	IBL104	2.0	< 0.004	< 0.004	0.01	0.59	0.003	0.030	0.011
I	-1151	7/20/76	IBL101	0.0	< 0.004	< 0.004	< 0.01	0.88	< 0.002	0.026	0.023
I	-1152	7/20/76	IBL102	0.0	< 0.004	< 0.004	< 0.01	0.92	< 0.002	0.030	0.011
I	-1146	7/20/76	IBL103	0.0	< 0.004	< 0.004	< 0.01	0.95	< 0.002	0.043	0.010
I	-1147	7/20/76	IBL103	0.5	< 0.004	0.012	0.05	0.91	0.002	0.030	0.009
I	-1148	7/20/76	IBL103	1.0	< 0.004	< 0.004	0.10	1.19	< 0.002	0.028	0.012
I	-1149	7/20/76	IBL103	2.0	< 0.004	< 0.004	< 0.01	0.80	< 0.002	0.028	0.011
I	-1150	7/20/76	IBL103	0.0	< 0.004	< 0.004	< 0.01	0.82	< 0.002	0.028	0.013
I	-1153	7/20/76	IBL104	0.0	< 0.004	< 0.004	< 0.01	0.87	< 0.002	0.027	0.011
I	-1154	7/20/76	IBL104	1.0	< 0.004	< 0.004	< 0.01	0.90	< 0.002	0.028	0.016

LAKE ARBUCKLE WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/11/74 - 9/ 2/76 MO/DA/YR

STATIONS IBL101 IBL102 IBL103 IBL104

	SAMPLE NUMBER	DATE MT/DA/YR	STATION CODE	DEPTH METERS	CA MG/L	MG MG/L	NA MG/L	K MG/L	CL MG/L	SIO2 MG/L	ALK MEQ/L
I	- 357	9/11/74	IBL101	0.0	4.00	2.20	5.60		8.9	0.9	
I	- 358	9/11/74	IBL102	0.0	3.20	1.80	4.90		8.1	1.5	
I	- 356	9/11/74	IBL103	0.0	4.40	2.60	6.00		10.7	2.0	
I	- 354	9/11/74	IBL104	0.0	5.10	2.60	6.00		9.3	2.8	
I	- 461	12/18/74	IBL101	0.0	5.80	3.60	8.10	1.86	10.8	0.6	
I	- 462	12/18/74	IBL102	0.0	7.10	3.60	6.10	1.96	10.8	0.5	
I	- 463	12/18/74	IBL102	1.0							
I	- 464	12/18/74	IBL102	2.0							
I	- 465	12/18/74	IBL103	0.0	6.30	3.70	8.30	1.82	11.0	0.7	
I	- 466	12/18/74	IBL103	1.0							
I	- 467	12/18/74	IBL103	1.7							
I	- 468	12/18/74	IBL104	0.0	7.10	3.80	8.40	1.91	11.0	1.0	
I	- 469	12/18/74	IBL104	1.0							
I	- 470	12/18/74	IBL104	1.5							
I	- 495	1/23/75	IBL101	0.0	6.60	4.00	8.20	2.00	11.9	1.5	
I	- 496	1/23/75	IBL103	0.0	6.70	4.00	8.20	2.10	11.5	0.8	
I	- 497	1/23/75	IBL104	0.0	7.00	4.20	8.50	2.10	10.9	1.0	
I	- 508	3/ 4/75	IBL101	0.0	7.70	4.50	8.80	2.10	12.4	0.8	
I	- 509	3/ 4/75	IBL102	0.0							
I	- 510	3/ 4/75	IBL102	1.0							
I	- 511	3/ 4/75	IBL102	1.5							
I	- 512	3/ 4/75	IBL103	0.0	8.50	4.60	8.60	2.20	12.8	1.3	
I	- 513	3/ 4/75	IBL103	1.0							
I	- 514	3/ 4/75	IBL103	2.0							
I	- 515	3/ 4/75	IBL104	0.0							
I	- 516	3/ 4/75	IBL104	1.0							
I	- 517	3/ 4/75	IBL104	1.7							
I	- 764	7/16/75	IBL101	0.0					34.3	< 0.4	
I	- 762	7/15/75	IBL102	0.0					36.8	0.5	
I	- 763	7/16/75	IBL102	1.0							
I	- 759	7/16/75	IBL103	0.0	7.47	5.31	8.34	1.82	36.8	0.4	
I	- 760	7/16/75	IBL103	1.0							
I	- 761	7/16/75	IBL103	1.5							
I	- 755	7/16/75	IBL104	0.0	8.60	5.50	8.02	1.92	34.1	1.1	
I	- 756	7/16/75	IBL104	1.0							
I	- 757	7/16/75	IBL104	1.5							
I	- 827	9/18/75	IBL101	0.0					11.3	5.6	0.15
I	- 826	9/18/75	IBL102	0.0					11.7	4.8	0.14
I	- 823	9/18/75	IBL103	0.0	6.61	4.35	10.84	2.27	10.9	4.5	0.51
I	- 824	9/18/75	IBL103	1.0	6.37	4.17	11.04	2.30	10.3	3.1	0.11
I	- 825	9/18/75	IBL103	2.0	5.61	4.10	11.45	2.30	14.5	5.1	0.16
I	- 819	9/18/75	IBL104	0.0	6.85	4.23	14.34	2.12	10.9	3.5	0.18
I	- 820	9/18/75	IBL104	1.0							
I	- 821	9/18/75	IBL104	2.0							
I	- 920	1/ 6/76	IBL101	0.0					9.3	2.0	0.10
I	- 919	1/ 6/76	IBL102	0.0					9.3	1.4	< 0.10
I	- 916	1/ 6/76	IBL103	0.0	4.52	3.65	3.96	1.65	9.5	1.6	< 0.10
I	- 917	1/ 6/76	IBL103	0.5	3.92	3.70	4.12	1.57	9.3	1.5	< 0.10
I	- 918	1/ 6/76	IBL103	1.0	3.42	3.70	4.12	1.56	9.1	1.8	< 0.10
I	- 911	1/ 6/76	IBL104	0.0	6.57	3.83	4.28	1.87	9.3	2.5	< 0.10
I	- 912	1/ 6/76	IBL104	0.5							
I	- 913	1/ 6/76	IBL104	1.0							
I	- 914	1/ 6/76	IBL104	2.0							
I	-1024	3/17/76	IBL101	0.0	9.29	4.17	7.75	2.09	18.3	1.2	0.56
I	-1039	3/19/76	IBL101	0.0					12.3	1.0	0.29
I	-1031	3/19/76	IBL102	0.0					15.6	3.8	0.24
I	-1032	3/19/76	IBL103	0.0	7.75	3.84	7.45	1.78	12.7	1.2	0.24
I	-1033	3/19/76	IBL103	1.0	6.32	3.64	7.15	1.58	15.6	1.3	0.17
I	-1034	3/19/76	IBL104	0.0	13.84	3.92	8.32	1.78	13.6	1.6	0.27
I	-1035	3/19/76	IBL104	0.5	7.21	3.72	7.01	1.57	16.4	2.0	0.24
I	-1036	3/19/76	IBL104	1.0	7.93	3.56	7.74	1.53	41.8	1.6	0.21
I	-1037	3/19/76	IBL104	1.7	7.21	3.84	8.62	1.66	12.9	1.3	0.26
I	-1089	6/ 2/76	IBL101	0.0					11.9	1.1	0.28
I	-1088	6/ 2/76	IBL102	0.0					12.1	0.9	0.30
I	-1085	6/ 2/76	IBL103	0.0	8.69	4.67	8.92	2.60	12.1	1.2	0.35
I	-1086	6/ 2/76	IBL103	1.0	7.68	4.05	7.98	2.17	12.1	1.0	0.34
I	-1087	6/ 2/76	IBL103	2.0	9.03	8.55	9.13	2.60	12.9	1.2	0.35
I	-1081	6/ 2/76	IBL104	0.0	10.38	4.63	8.82	2.46	12.3	1.7	0.30
I	-1082	6/ 2/76	IBL104	1.0	9.19	5.33	9.08	2.60	12.7	1.3	0.31
I	-1083	6/ 2/76	IBL104	2.0	9.35	5.07	8.92	2.56	12.7	1.3	0.32
I	-1151	7/20/76	IBL101	0.0	6.87	3.59	5.85	0.16	10.9	1.5	0.22
I	-1152	7/20/76	IBL102	0.0	6.23	3.59	3.11	0.16	10.2	1.5	0.27
I	-1146	7/20/76	IBL103	0.0	6.07	3.67	8.10	0.19	10.6	1.5	0.20
I	-1147	7/20/76	IBL103	0.5	7.51	4.05	7.30	0.16	10.6	1.4	0.21
I	-1148	7/20/76	IBL103	1.0	7.19	3.71	5.53	0.15	10.9	1.5	0.21
I	-1149	7/20/76	IBL103	2.0	6.39	3.75	6.01	0.17	10.2	1.5	0.22
I	-1150	7/20/76	IBL103	0.0	6.71	3.50	6.01	0.16	13.5	1.5	0.21
I	-1153	7/20/76	IBL104	0.0	6.55	3.63	3.59	0.16	10.6	0.5	0.28
I	-1154	7/20/76	IBL104	1.0	6.39	3.67	6.01	0.16	11.5	1.5	0.26

LAKE ARBUCKLE WATER QUALITY SUMMARY

PROJECT I   DATE OF PRINTING 08/31/77

PARAMETER   RANGE OF VALUES   UNITS

DATE   9/11/74 - 9/ 2/75 MO/DA/YR

STATIONS IBL101   IBL102   IBL103   IBL104

	SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	SECCHI M	TEMP CENT	D.O. MG/L	PH	SP COND UMHOS/CM	COLOR UNITS	TURB. JTU	CHLOR A MG/M3
I	-1155	7/20/76	IBL104	2.0								
I	-1193	9/ 2/76	IBL101	0.0								14.5
I	-1192	9/ 2/76	IBL102	0.0								20.8
I	-1189	9/ 2/76	IBL103	0.0	0.95	30.3	6.1	6.20	105.	152.0	2.5	21.8
I	-1190	9/ 2/76	IBL103	1.0		28.2	6.5	6.30	105.			22.4
I	-1191	9/ 2/76	IBL103	2.0		27.6	5.9	6.20	105.			22.4
I	-1185	9/ 2/76	IBL104	0.0	0.99	30.2	7.2	7.10	112.	142.0	2.1	26.1
I	-1186	9/ 2/76	IBL104	1.0		23.6	7.3	6.80	112.			28.9
I	-1187	9/ 2/76	IBL104	2.0		28.0	6.2	6.60	112.			26.1

	SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	NO2 MG/L	NO3 MG/L	NH4 MG/L	TKN MG/L	O-PO4 MG/L	T-PO4 MG/L	TOPO4 MG/L
I	-1155	7/20/76	IBL104	2.0	0.007	< 0.004	0.02	0.91	< 0.002	0.030	0.014
I	-1193	9/ 2/76	IBL101	0.0	0.011	0.297	0.04	0.94	< 0.002	0.025	0.013
I	-1192	9/ 2/76	IBL102	0.0	0.008	0.011	0.02	0.73	< 0.002	0.022	0.013
I	-1189	9/ 2/76	IBL103	0.0	0.008	< 0.004	< 0.01	0.85	< 0.002	0.028	0.014
I	-1190	9/ 2/76	IBL103	1.0	0.009	< 0.004	< 0.01	0.84	< 0.002	0.044	0.014
I	-1191	9/ 2/76	IBL103	2.0	0.008	< 0.004	0.17	0.79	< 0.002	0.026	0.014
I	-1185	9/ 2/76	IBL104	0.0	0.009	< 0.004	0.04	0.89	< 0.002	0.033	0.015
I	-1186	9/ 2/76	IBL104	1.0	0.008	< 0.004	0.02	0.95	< 0.002	0.039	0.029
I	-1187	9/ 2/76	IBL104	2.0	0.008	< 0.004	0.02	0.90	< 0.002	0.031	0.030

	SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	CA MG/L	MG MG/L	NA MG/L	K MG/L	CL MG/L	SIO2 MG/L	ALK MEQ/L
I	-1155	7/20/76	IBL104	2.0	6.55	3.71	6.49	0.17	10.4	1.5	0.24
I	-1193	9/ 2/76	IBL101	0.0	5.97	3.03	4.60	0.78	10.9	2.5	0.14
I	-1192	9/ 2/76	IBL102	0.0					9.8	2.6	0.15
I	-1189	9/ 2/76	IBL103	0.0					9.3	2.6	0.30
I	-1190	9/ 2/76	IBL103	1.0					9.3	2.6	0.30
I	-1191	9/ 2/76	IBL103	2.0					10.3	3.2	0.29
I	-1185	9/ 2/76	IBL104	0.0	6.76	3.25	7.05	0.90	9.5	5.2	0.30
I	-1186	9/ 2/76	IBL104	1.0	6.75	3.42	5.91	0.88	10.3	2.9	0.33
I	-1187	9/ 2/76	IBL104	2.0	6.60	3.46	6.07	0.88	10.3	2.8	0.30

LAKE JOSEPHINE WATER QUALITY SUMMARY

PROJECT I   DATE OF PRINTING 08/31/77

PARAMETER   RANGE OF VALUES   UNITS

DATE   9/ 5/74 - 9/14/76 MO/DA/YR

STATIONS IBL401 IBL402 IBL403 IBL404

	SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	SECCHI M	TEMP CENT	D.O. MG/L	PH	SP COND UMHOS/CM	COLOR UNITS	TURB JTU	CHLOR A MG/M3
I	- 227	9/ 5/74	IBL401	0.0	0.67	29.5	7.0	5.90	65.			
I	- 228	9/ 5/74	IBL401	1.0		29.5	6.6	5.90				
I	- 229	9/ 5/74	IBL402	0.0	0.79	29.5	5.9	5.95	71.			
I	- 230	9/ 5/74	IBL402	1.0		29.0	5.7	5.90				
I	- 231	9/ 5/74	IBL402	2.0		29.0	5.4	5.90				
I	- 232	9/ 5/74	IBL403	0.0	0.80	30.0	7.2	5.00	105.			
I	- 233	9/ 5/74	IBL403	1.0		29.8	7.4	4.95				
I	- 234	9/ 5/74	IBL403	2.0		29.6	7.4	4.90				
I	- 235	9/ 5/74	IBL404	0.0	0.76	29.2	6.4	5.10	115.			
I	- 236	9/ 5/74	IBL404	1.0		29.0	6.3	5.05				
I	- 237	9/ 5/74	IBL404	2.0		29.0	6.2	5.05				
I	- 473	12/19/74	IBL401	0.0		16.0	9.4	6.40	59.			
I	- 474	12/19/74	IBL401	1.0		15.5	7.2	5.65	61.			
I	- 475	12/19/74	IBL402	0.0	0.65	16.1	9.4	6.40	61.			
I	- 476	12/19/74	IBL402	1.0		16.0	8.9	6.25	61.			
I	- 477	12/19/74	IBL402	2.0		15.5	8.2	6.20	63.			
I	- 478	12/19/74	IBL403	0.0		15.5	7.5	4.65	84.			
I	- 479	12/19/74	IBL403	1.0		15.4	7.3	4.80	84.			
I	- 480	12/19/74	IBL403	2.0		15.1	7.6	5.10	86.			
I	- 481	12/19/74	IBL404	0.0	0.63	15.6	9.4	5.90	86.			
I	- 482	12/19/74	IBL404	1.0		15.1	8.8	5.60	86.			
I	- 483	12/19/74	IBL404	2.0		15.0	8.6	5.40	86.			
I	- 603	3/12/75	IBL401	0.0	0.86	21.2	8.7	6.60	64.			
I	- 604	3/12/75	IBL401	1.0		21.2	8.5	6.60	64.			
I	- 605	3/12/75	IBL401	1.7		21.2	8.1	6.40	65.			
I	- 606	3/12/75	IBL402	0.0	0.94	21.2	8.6	6.60	67.	108.0	3.2	
I	- 607	3/12/75	IBL402	1.0		21.2	8.5	6.50	68.			
I	- 608	3/12/75	IBL402	2.0		20.8	7.7	6.30	69.			
I	- 609	3/12/75	IBL403	0.0	0.63	21.4	7.7	5.70	88.			
I	- 612	3/12/75	IBL404	0.0	0.84	20.5	7.7	5.60	91.			
I	- 613	3/12/75	IBL404	1.0		20.0	6.9	5.60	91.			
I	- 614	3/12/75	IBL404	2.0		19.0	5.3	5.60	91.			
I	- 767	7/17/75	IBL401	0.0	0.72			6.90	65.	82.0	5.1	28.4
I	- 768	7/17/75	IBL402	0.0	0.99			6.60	60.	76.0	5.0	19.8
I	- 769	7/17/75	IBL403	0.0	0.72							22.0
I	- 770	7/17/75	IBL404	0.0								20.7
I	- 829	9/29/75	IBL401	0.0	0.70	27.0	6.8	6.20	55.	148.0	3.5	18.3
I	- 830	9/29/75	IBL401	1.0		27.0	6.6	6.10	54.			18.6
I	- 831	9/29/75	IBL401	1.5		26.5	6.1	6.00	54.			18.4
I	- 832	9/29/75	IBL402	0.0								
I	- 833	9/29/75	IBL403	0.0	0.75	27.5	7.2	6.50	66.	160.0	4.5	27.0
I	- 834	9/29/75	IBL403	1.0		27.0	7.0	6.00	68.			30.4
I	- 835	9/29/75	IBL403	2.0		26.5	5.7	5.60	68.			28.7
I	- 836	9/29/75	IBL404	0.0								
I	- 890	12/10/75	IBL401	0.0	0.66	18.5	8.9		60.	160.0	5.0	9.3
I	- 891	12/10/75	IBL401	1.0		18.5	8.5	6.40	59.			10.1
I	- 892	12/10/75	IBL401	1.7		18.5	8.4	6.50	59.			9.5
I	- 893	12/10/75	IBL402	0.0								18.4
I	- 894	12/10/75	IBL403	0.0	0.48	18.5	7.8	5.90	51.	150.0	8.9	21.7
I	- 895	12/10/75	IBL403	1.0		18.5	7.8	5.90	53.			21.2
I	- 896	12/10/75	IBL403	1.5		18.5	7.5	5.80	56.			20.5
I	- 897	12/10/75	IBL404	0.0								
I	- 975	3/ 9/76	IBL401	0.0								23.5
I	- 976	3/ 9/76	IBL402	0.0	0.72	23.1	6.9	7.80	72.	100.0	4.0	11.3
I	- 977	3/ 9/76	IBL402	0.5		23.1	6.8	7.70	73.			11.4
I	- 978	3/ 9/76	IBL402	1.0		23.1	6.7	7.60	73.			12.8
I	- 979	3/ 9/76	IBL402	1.5		23.1	6.7	7.50	72.			11.8
I	- 980	3/ 9/76	IBL403	0.0	0.43	23.0	6.9	6.80	94.	115.0	10.5	22.5
I	- 981	3/ 9/76	IBL403	0.5		23.0	6.9	6.80	93.			24.3
I	- 982	3/ 9/76	IBL403	1.0		23.0	6.9	6.80	93.			22.0
I	- 983	3/ 9/76	IBL403	2.0		23.0	6.9	6.80	93.			21.7
I	- 984	3/ 9/76	IBL404	0.0								
I	-1102	6/ 8/76	IBL401	0.0	0.83	26.5	7.7	6.70	67.	94.0	8.7	15.6
I	-1103	6/ 8/76	IBL401	1.0		26.5	7.6	6.60	67.			17.4
I	-1104	6/ 8/76	IBL401	2.0		25.0	6.8	6.40	68.			17.7
I	-1105	6/ 8/76	IBL402	0.0								15.6
I	-1106	6/ 8/76	IBL403	0.0	0.76	27.5	7.4	5.90	105.	56.0	9.2	10.5
I	-1107	6/ 8/76	IBL403	1.0		26.0	6.8	5.80	105.			12.8
I	-1108	6/ 8/76	IBL403	2.0		25.0	6.2	5.70	105.			15.4
I	-1109	6/ 8/76	IBL404	0.0								
I	-1223	9/14/76	IBL401	0.0	0.80	27.3	5.9	5.80	70.	196.0	3.2	31.5
I	-1224	9/14/76	IBL401	1.0		27.0	5.7	5.70	70.		2.4	30.6
I	-1222	9/14/76	IBL402	0.0							3.1	37.1
I	-1218	9/14/76	IBL403	0.0	0.83	26.5	5.8	5.50	90.	124.0	3.7	30.2
I	-1219	9/14/76	IBL403	1.0		26.4	5.7	5.40	90.		3.8	30.3
I	-1220	9/14/76	IBL403	2.0		25.7	5.7	5.40	90.		6.5	29.4
I	-1221	9/14/76	IBL404	0.0							5.2	25.3

LAKE JOSEPHINE WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/ 5/74 - 9/14/76 MO/DA/YR

STATIONS IBL401 IBL402 IBL403 IBL404

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	NO2 MG/L	NO3 MG/L	NH4 MG/L	TKN MG/L	O-PO4 MG/L	T-PO4 MG/L	TOPO4 MG/L
I - 227	9/ 5/74	IBL401	0.0	0.005	0.014	0.05	1.88	0.052	0.098	0.077
I - 228	9/ 5/74	IBL401	1.0							
I - 229	9/ 5/74	IBL402	0.0	0.005	0.004	0.04	1.89	0.013	0.057	0.035
I - 230	9/ 5/74	IBL402	1.0							
I - 231	9/ 5/74	IBL402	2.0							
I - 232	9/ 5/74	IBL403	0.0	< 0.004	< 0.008	0.02	0.71	0.004	0.038	0.017
I - 233	9/ 5/74	IBL403	1.0							
I - 234	9/ 5/74	IBL403	2.0							
I - 235	9/ 5/74	IBL404	0.0	< 0.004	0.004	0.03	1.72	0.002	0.030	0.015
I - 236	9/ 5/74	IBL404	1.0							
I - 237	9/ 5/74	IBL404	2.0							
I - 473	12/19/74	IBL401	0.0	< 0.004	0.045	0.10	0.81	0.034	0.046	0.010
I - 474	12/19/74	IBL401	1.0							
I - 475	12/19/74	IBL402	0.0	< 0.004	0.017	0.07	0.81	< 0.002	0.015	
I - 476	12/19/74	IBL402	1.0							
I - 477	12/19/74	IBL402	2.0							
I - 478	12/19/74	IBL403	0.0	< 0.004	0.050	0.21	0.67	0.007	0.012	0.009
I - 479	12/19/74	IBL403	1.0							
I - 480	12/19/74	IBL403	2.0							
I - 481	12/19/74	IBL404	0.0	< 0.004	0.055	0.07	0.47	< 0.002	0.005	0.010
I - 482	12/19/74	IBL404	1.0							
I - 483	12/19/74	IBL404	2.0							
I - 603	3/12/75	IBL401	0.0	< 0.004	0.021	0.02	0.85	0.022	0.051	0.045
I - 604	3/12/75	IBL401	1.0							
I - 605	3/12/75	IBL401	1.7							
I - 606	3/12/75	IBL402	0.0	< 0.004	< 0.004	0.01	0.85	0.005	0.032	0.020
I - 607	3/12/75	IBL402	1.0							
I - 608	3/12/75	IBL402	2.0							
I - 609	3/12/75	IBL403	0.0	< 0.004	< 0.004	< 0.01	0.79	0.005	0.032	0.018
I - 612	3/12/75	IBL404	0.0	< 0.004	< 0.004	0.02	0.67	0.004	0.029	0.017
I - 613	3/12/75	IBL404	1.0							
I - 614	3/12/75	IBL404	2.0							
I - 767	7/17/75	IBL401	0.0	< 0.004	< 0.004	0.01	0.82	0.005	0.072	0.027
I - 768	7/17/75	IBL402	0.0	< 0.004	< 0.004	0.02	0.62	0.002	0.034	0.016
I - 769	7/17/75	IBL403	0.0	0.005	0.015	0.02	0.59	0.015	0.038	0.015
I - 770	7/17/75	IBL404	0.0	< 0.004	< 0.004	0.02	0.50	0.002	0.035	0.014
I - 829	9/29/75	IBL401	0.0	0.004	0.004	0.04	0.92	0.037	0.090	0.064
I - 830	9/29/75	IBL401	1.0							
I - 831	9/29/75	IBL401	1.5							
I - 832	9/29/75	IBL402	0.0	< 0.004	< 0.004	0.03	0.90	0.003	0.057	0.024
I - 833	9/29/75	IBL403	0.0	0.004	< 0.004	< 0.01	0.84	< 0.002	0.041	0.014
I - 834	9/29/75	IBL403	1.0	< 0.004	< 0.004	0.01	0.84	< 0.002	0.040	0.015
I - 835	9/29/75	IBL403	2.0	< 0.004	< 0.004	0.05	0.79	< 0.002	0.098	0.012
I - 836	9/29/75	IBL404	0.0	< 0.004	< 0.004	0.03	0.71	< 0.002	0.034	0.012
I - 890	12/10/75	IBL401	0.0	< 0.004	0.043	0.04	0.94	0.033	0.075	0.063
I - 891	12/10/75	IBL401	1.0							
I - 892	12/10/75	IBL401	1.7							
I - 893	12/10/75	IBL402	0.0	< 0.004	< 0.004	0.03	1.01	< 0.002	0.035	0.019
I - 894	12/10/75	IBL403	0.0	< 0.004	0.005	0.04	0.97	< 0.002	0.036	0.013
I - 895	12/10/75	IBL403	1.0	< 0.004	< 0.004	0.02	1.03	< 0.002	0.031	0.012
I - 896	12/10/75	IBL403	1.5	< 0.004	< 0.004	0.03	1.01	< 0.002	0.029	0.015
I - 897	12/10/75	IBL404	0.0	< 0.004	0.012	0.05	0.87	< 0.002	0.034	0.047
I - 975	3/ 9/76	IBL401	0.0	< 0.004	0.050	< 0.01	0.88	< 0.002	0.049	0.035
I - 976	3/ 9/76	IBL402	0.0	< 0.004	< 0.004	0.02	0.79	0.007	0.049	0.024
I - 977	3/ 9/76	IBL402	0.5							
I - 978	3/ 9/76	IBL402	1.0							
I - 979	3/ 9/76	IBL402	1.5							
I - 980	3/ 9/76	IBL403	0.0	< 0.004	0.017	0.02	0.90	0.004	0.055	0.018
I - 981	3/ 9/76	IBL403	0.5	< 0.004	0.016	0.01	0.74	0.004	0.059	0.017
I - 982	3/ 9/76	IBL403	1.3	< 0.004	0.009	0.04	0.84	0.004	0.057	0.018
I - 983	3/ 9/76	IBL403	2.0	< 0.004			0.82	0.011	0.057	0.023
I - 984	3/ 9/76	IBL404	0.0	< 0.004	0.024	0.07	0.87	0.007	0.040	0.024
I -1102	6/ 8/76	IBL401	0.0	< 0.004	0.013	0.04	1.00	0.024	0.070	0.047
I -1103	6/ 8/76	IBL401	1.0							
I -1104	6/ 8/76	IBL401	2.0							
I -1105	6/ 8/76	IBL402	0.0	< 0.004	0.080		0.83		0.039	0.020
I -1106	6/ 8/76	IBL403	0.0	< 0.004	0.012	0.06	0.97	< 0.002	0.025	0.016
I -1107	6/ 8/76	IBL403	1.0	< 0.004	0.008	0.04	0.72	< 0.002	0.025	0.012
I -1108	6/ 8/76	IBL403	2.0	< 0.004	0.014	0.08	0.72	0.002	0.033	0.014
I -1109	6/ 8/76	IBL404	0.0	< 0.004	0.069	0.16	0.68	0.004	0.024	0.017
I -1223	9/14/76	IBL401	0.0	0.013	0.130	0.03	1.06	0.084	0.118	0.092
I -1224	9/14/76	IBL401	1.0	0.014	0.337	0.04	1.07	0.080	0.112	0.100
I -1222	9/14/76	IBL402	0.0	0.012	< 0.004	0.01	1.03	0.012	0.057	0.037
I -1218	9/14/76	IBL403	0.0	0.011	< 0.004	< 0.01	0.86	0.005	0.034	0.018
I -1219	9/14/76	IBL403	1.0	0.011		0.06	0.91	0.012	0.034	0.020
I -1220	9/14/76	IBL403	2.0	0.011	< 0.004	0.02	0.89	0.026	0.035	0.017
I -1221	9/14/76	IBL404	0.0	0.010	< 0.004	0.01	0.81	0.015	0.028	0.034

LAKE JOSEPHINE WATER QUALITY SUMMARY

PROJECT I DATE OF PRINTING 08/31/77

PARAMETER RANGE OF VALUES UNITS

DATE 9/ 5/74 - 9/14/76 MO/DA/YR

STATIONS IBL401 IBL402 IBL403 IBL404

SAMPLE NUMBER	DATE MO/DA/YR	STATION CODE	DEPTH METERS	CA MG/L	MG MG/L	NA MG/L	K MG/L	CL MG/L	SIO2 MG/L	ALK MEQ/L
I - 227	9/ 5/74	IBL401	0.0	3.70	1.60	5.00	0.40	9.3	1.0	
I - 228	9/ 5/74	IBL401	1.0							
I - 229	9/ 5/74	IBL402	0.0	2.80	1.60	4.00	0.80	9.4	0.4	
I - 230	9/ 5/74	IBL402	1.0							
I - 231	9/ 5/74	IBL402	2.0							
I - 232	9/ 5/74	IBL403	0.0	3.80	3.80	6.50	0.60	9.7	< 0.4	
I - 233	9/ 5/74	IBL403	1.0							
I - 234	9/ 5/74	IBL403	2.0							
I - 235	9/ 5/74	IBL404	0.0	3.80	3.60	< 3.60	0.70	9.7	< 0.4	
I - 236	9/ 5/74	IBL404	1.0							
I - 237	9/ 5/74	IBL404	2.0							
I - 473	12/19/74	IBL401	0.0	5.60	1.60	5.60	1.18	10.2	1.5	
I - 474	12/19/74	IBL401	1.0							
I - 475	12/19/74	IBL402	0.0	5.40	1.80	5.90	0.89	10.0	1.1	
I - 476	12/19/74	IBL402	1.0							
I - 477	12/19/74	IBL402	2.0							
I - 478	12/19/74	IBL403	0.0	4.80	3.20	6.60	1.33	10.0	3.6	
I - 479	12/19/74	IBL403	1.0							
I - 480	12/19/74	IBL403	2.0							
I - 481	12/19/74	IBL404	0.0	5.40	3.60	6.80	1.18	10.2		
I - 482	12/19/74	IBL404	1.0							
I - 483	12/19/74	IBL404	2.0							
I - 603	3/12/75	IBL401	0.0							
I - 604	3/12/75	IBL401	1.0							
I - 605	3/12/75	IBL401	1.7							
I - 606	3/12/75	IBL402	0.0	4.10	2.20	5.80	1.20	10.2	1.0	
I - 607	3/12/75	IBL402	1.0							
I - 608	3/12/75	IBL402	2.0							
I - 609	3/12/75	IBL403	0.0							
I - 612	3/12/75	IBL404	0.0							
I - 613	3/12/75	IBL404	1.0							
I - 614	3/12/75	IBL404	2.0							
I - 767	7/17/75	IBL401	0.0	4.56	1.73	4.22	1.35	30.0	1.7	
I - 768	7/17/75	IBL402	0.0	4.40	1.95	5.17	1.14	27.6	1.3	
I - 769	7/17/75	IBL403	0.0					35.3	< 0.4	
I - 770	7/17/75	IBL404	0.0					29.2	0.4	
I - 829	9/29/75	IBL401	0.0	3.78	0.91	3.05	1.26	13.1	2.7	< 0.10
I - 830	9/29/75	IBL401	1.0							
I - 831	9/29/75	IBL401	1.5							
I - 832	9/29/75	IBL402	0.0					9.7	1.9	< 0.10
I - 833	9/29/75	IBL403	0.0	2.81	2.20	5.50	1.08	10.9	3.3	< 0.10
I - 834	9/29/75	IBL403	1.0	3.94	2.16	4.69	1.15	13.1	3.3	< 0.10
I - 835	9/29/75	IBL403	2.0	< 2.83	2.29	4.20	1.06	9.7	3.3	< 0.10
I - 836	9/29/75	IBL404	0.0					11.9	2.7	< 0.10
I - 890	12/10/75	IBL401	0.0	4.16	1.79	< 2.86	1.62	10.1	2.0	< 0.10
I - 891	12/10/75	IBL401	1.0							
I - 892	12/10/75	IBL401	1.7							
I - 893	12/10/75	IBL402	0.0					9.1	1.2	< 0.10
I - 894	12/10/75	IBL403	0.0	< 2.86	3.25	3.70	1.48	9.3		< 0.10
I - 895	12/10/75	IBL403	1.0	3.28	3.30	< 2.86	1.46	10.7	2.2	< 0.10
I - 896	12/10/75	IBL403	1.5	3.98	3.19	3.17	1.44	9.5	2.3	< 0.10
I - 897	12/10/75	IBL404	0.0						2.3	< 0.10
I - 975	3/ 9/76	IBL401	0.0						1.8	< 0.10
I - 976	3/ 9/76	IBL402	0.0	3.71	1.91	5.49	1.34		0.8	< 0.10
I - 977	3/ 9/76	IBL402	0.5							
I - 978	3/ 9/76	IBL402	1.0							
I - 979	3/ 9/76	IBL402	1.5							
I - 980	3/ 9/76	IBL403	0.0	6.54	3.32	6.85	1.74		1.9	< 0.10
I - 981	3/ 9/76	IBL403	0.5	5.97	3.24	5.66	1.66		2.1	< 0.10
I - 982	3/ 9/76	IBL403	1.0	7.29	3.28	6.34	1.58		2.1	< 0.10
I - 983	3/ 9/76	IBL403	2.0	7.29	3.26	6.85	1.63		2.1	< 0.10
I - 984	3/ 9/76	IBL404	0.0						2.2	< 0.10
I -1102	6/ 8/76	IBL401	0.0	5.30	1.88	6.68	1.71	12.2	1.9	0.19
I -1103	6/ 8/76	IBL401	1.0							
I -1104	6/ 8/76	IBL401	2.0							
I -1105	6/ 8/76	IBL402	0.0					16.6	2.7	< 0.10
I -1106	6/ 8/76	IBL403	0.0	7.19	3.51	6.51	1.50	16.8	1.0	< 0.10
I -1107	6/ 8/76	IBL403	1.0	5.19	3.51	6.68	1.44	11.8	1.3	0.13
I -1108	6/ 8/76	IBL403	2.0	6.52	3.53	6.84	1.45	11.8	1.2	0.14
I -1109	6/ 8/76	IBL404	0.0					11.3	0.9	< 0.10
I -1223	9/14/76	IBL401	0.0	7.30	0.95	< 3.05	1.50	10.2	2.0	0.10
I -1224	9/14/76	IBL401	1.0	7.62	0.95	< 3.05	1.46	11.0	1.9	0.08
I -1222	9/14/75	IBL402	0.0					11.4	1.3	0.12
I -1218	9/14/76	IBL403	0.0	4.08	2.04	4.64	1.65	9.4	2.7	0.08
I -1219	9/14/76	IBL403	1.0	< 3.00	2.00	5.12	1.57	11.0	2.6	0.08
I -1220	9/14/76	IBL403	2.0	3.27	1.92	4.32	1.58	12.0	2.6	0.08
I -1221	9/14/76	IBL404	0.0					11.4	2.5	0.12

APPENDIX D

ISTOKPOGA BASIN TRIBUTARY

WATER QUALITY RESULTS

Josephine Creek Drainage System

The Josephine Creek drainage system consists of a series of interconnected lakes and tributaries on the Highlands Ridge, extending from Lake Jackson near Sebring south to Lake Annie near SR 70. All surface waters eventually flow into Josephine Creek and eastward into Lake Istokpoga (Figure D-1). The drainage area includes urbanized areas around Sebring and Lake Placid, improved pastureland, and large areas of citrus agriculture and undeveloped pineland.

Water quality samples were collected at three month intervals from the stations indicated in Figure D-1. Results are presented in order to provide background data and to make general observations. Wet season samples are more indicative of actual water quality since the creeks are actively transporting material from one point to another. Average wet season values are shown in Table D-1 while complete sampling results are presented in Table D-2.

Annie Creek (C-205) and Lake Jackson (C-202) are situated near the south and north headwaters, respectively, of the drainage system, and are representative of the initial water quality of the basin. At these sites the water is generally low in both nutrients and major cations and anions. Total nitrogen averaged 0.28 mg/l at C-202 and 0.41 mg/l at C-205. Total phosphorus averaged 0.011 mg/l at C-202 and .008 mg/l at C-205 during the wet seasons. Downstream sample sites, C-200, C-204, and C-201 are influenced by different and larger drainage areas, and exhibit two to tenfold increases in concentrations of nitrogen and phosphorus. The downstream stations generally had higher wet season average concentrations of calcium, magnesium, chloride and silicate, than the headwater stations. Similar trends were not evident for concentrations of potassium and sodium.

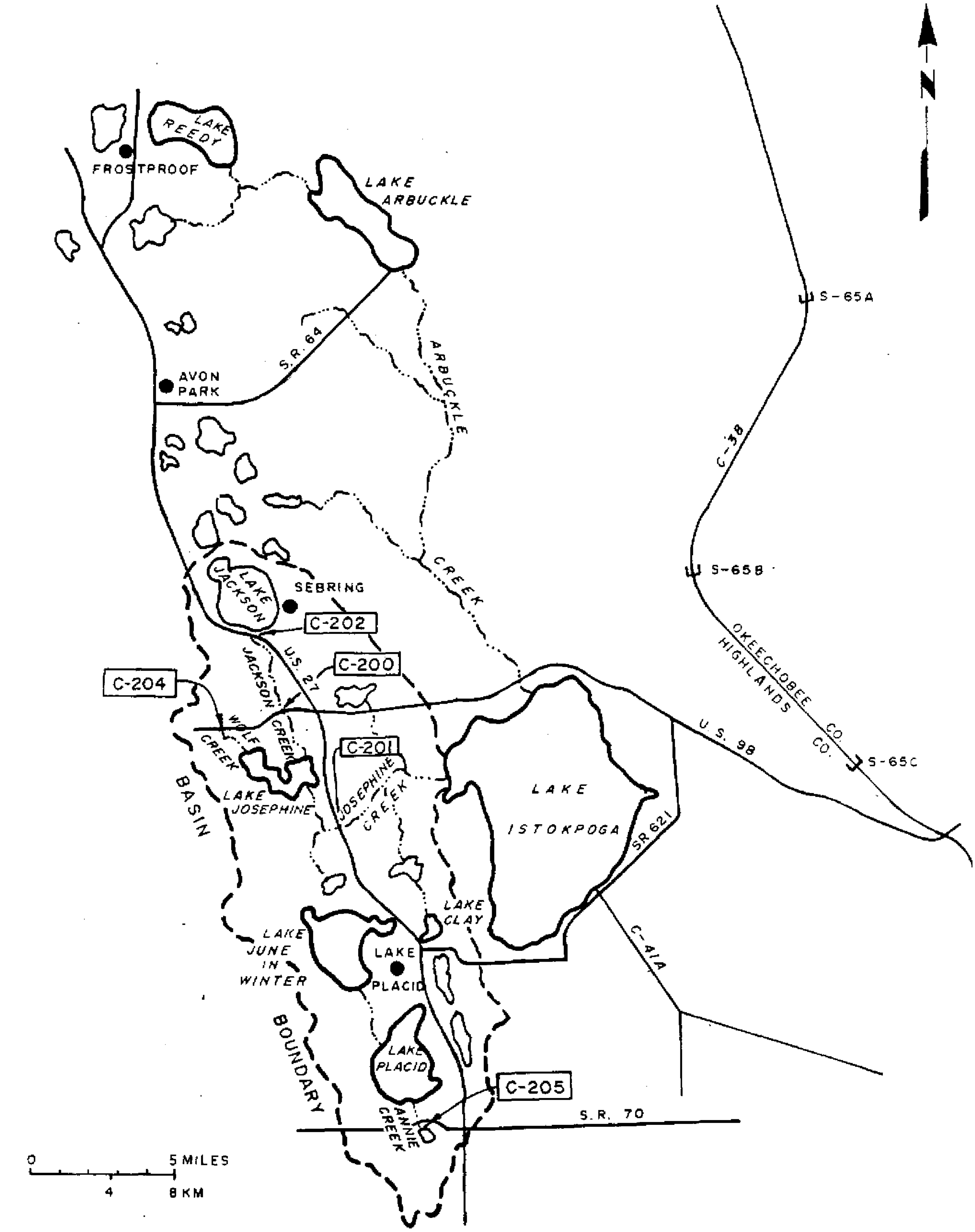

Figure D-1 JOSEPHINE CREEK DRAINAGE BASIN AND SAMPLE SITES

TABLE D-1: WATER QUALITY DATA FROM JOSEPHINE CREEK DRAINAGE SYSTEM STATIONS - WET SEASON AVERAGES

STATION AND LOCATION	DATE	NO_2-N mg/l	NO_3-N mg/l	NH_4N mg/l	TKN mg/l	Total N mg/l	o-PO_4-P mg/l	T-PO_4-P mg/l	Td-PO_4-P mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	Cl mg/l	SiO_2 mg/l	Alk meq/l
C-205 Annie Creek at SR 70	1974-76	<.004	.040	.02	.37	.41	.004	.008	.004	5.2	0.5	4.4	0.4	6.5	1.3	0.10
C-202 Lake Jackson at US 27	1974-76	<.004	.019	.04	.26	.28	.004	.011	.007	2.7	2.3	7.2	2.2	13.8	1.8	0.19
C-200 Jackson Creek at SR 66	1974-76	.005	.030	.39	.85	.89	.022	.112	.030	3.5	3.8	6.7	1.4	11.4	8.4	0.10
C-204 Wolf Creek at SR 66	1974-76	.007	.050	.05	.79	.85	.101	.119	.108	3.0	1.1	4.6	1.4	12.6	8.7	0.10
C-201 Josephine Creek at US 27	1974-76	.006	.127	.08	.82	.95	.019	.058	.033	14.2	6.0	7.2	1.7	11.6	10.4	0.27

TABLE D-2 WATER QUALITY DATA FROM JOSEPHINE CREEK DRAINAGE BASIN

STATION AND LOCATION	DATE	NO_2-N mg/l	NO_3-N mg/l	NH_4N mg/l	TKN mg/l	Total N mg/l	o-PO_4-P mg/l	T-PO_4-P mg/l	Td-PO_4-P mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	Cl mg/l	SiO_2 mg/l	Alk meq/l
C-205 Annie Creek at SR 70	6-27-74	<0.004	0.147	<0.01	0.12	.27	<0.002	0.007	0.004	---	0.8	4.0	0.3	6.7	2.3	
	12-19-74	<0.004	<0.004	0.06	0.32	.38	0.031	0.039	0.029	3.4	1.3	4.6	2.93	10.2	4.4	
	3-12-75	<0.004	0.291	0.05	0.52	.81	0.002	0.007	0.005	---	---	---	---	---	---	
	6-24-75	<0.004	0.039	0.05	0.64	.68	<0.002	0.007	0.004	1.2	0.5	4.6	0.4	---	---	
	9-11-75	<0.004	<0.004	0.02	0.44	.45	<0.002	0.015	<0.002	0.85	0.35	<2.79	0.36	5.4	0.8	<0.10
	12-2-75	<0.004	0.006	0.08	1.01	1.02	0.106	0.162	0.141	1.37	0.48	<2.78	0.65	4.7	1.5	<0.10
	3-16-76	<0.004	<0.008	0.57	0.42	.43	0.009	0.015	0.010	1.91	<0.77	9.40	1.54	8.1	0.6	0.10
	6-1-76	<0.004	<0.004	0.02	0.27	.28	0.002	0.006	<0.002	17.29	<0.80	4.64	0.42	6.7	0.7	<0.10
	9-21-76	<0.004	<0.004	0.02	0.36	.37	0.014	0.006	0.009	1.33	0.46	5.85	0.48	7.2	---	<0.10
C-202 Lake Jackson at US 27	6-26-74	<0.004	0.040	0.02	0.13	.17	<0.002	0.012	0.007	---	2.2	6.0	1.8	14.9	1.7	
	3-16-76	<0.004	0.035	0.09	0.38	.42	<0.002	0.016	0.012	3.32	2.52	7.91	2.08	12.5	1.4	<0.10
	6-1-76	<0.004	<0.004	0.06	0.30	.31	0.003	0.010	0.007	<3.02	2.49	8.40	2.59	14.6	1.9	<0.10
	9-21-76	<0.004	0.013	0.04	0.36	.38	0.007	0.012	0.007	2.38	2.18	7.33	2.19	11.9	---	0.28
C-200 Jackson Creek at SR 66	3-14-74	<0.004	<0.004	0.28	0.93	.94	0.002	0.022	0.012	0.92	1.0	6.0	0.60	9.0	---	
	6-26-74	<0.004	<0.004	0.07	0.29	.30	0.007	0.029	0.016	---	1.6	5.0	0.80		5.5	
	9-12-74	0.009	0.111	0.48	1.17	1.29	0.080	---	0.094	4.60	4.8	6.9	---	9.5	8.3	
	12-19-74	<0.004	0.328	---	0.64	.97	---	0.010	---	3.00	3.2	7.1	2.16	10.6	7.5	
	3-6-75	<0.004	<0.059	0.35	0.60	.66	0.008	0.028	0.017	---	---	---	---	---	---	
	6-26-75	<0.004	<0.004	0.54	1.16	1.17	<0.002	0.366	0.004	2.90	4.4	5.70	1.30	8.9	10.6	
	3-16-76	<0.004	0.008	0.56	1.14	1.15	0.005	0.023	0.019	2.95	4.03	6.26	1.11	6.7	11.4	<0.10
	6-1-76	<0.004	<0.004	0.42	0.72	.73	0.009	0.014	0.009	3.29	4.0	6.00	1.60	9.1	9.1	<0.10
	9-21-76	<0.004	0.027	0.45	0.91	.94	0.014	0.039	0.028	<3.03	4.1	9.81	1.81	17.9	---	<0.10
C-204 Wolf Creek at SR 66	6-26-74	0.005	0.118	0.02	0.79	.91	0.065	0.109	0.089	2.00	1.8	5.0	1.6	15.7	3.2	
	3-16-76	0.005	0.015	0.30	0.83	.85	0.074	0.099	0.099	3.01	1.28	5.76	1.68	10.9	9.0	<0.10
	6-1-76	0.005	0.009	0.03	0.60	.61	0.082	0.112	0.103	3.29	<0.8	4.74	0.99	9.7	14.1	<0.10
	9-21-76	0.010	0.024	0.10	0.99	1.02	0.156	0.137	0.133	3.63	0.82	4.03	1.56	12.5	---	0.11
C-201 Josephine Creek at US 27	3-15-74	<0.004	<0.004	0.04	0.59	.60	0.020	0.057	0.031	12.6	4.0	5.0	0.9	7.0	---	
	6-27-74	0.010	0.586	0.08	0.89	1.49	0.008	0.076	0.018	---	10.0	5.0	0.9	8.0	10.7	
	9-6-74	<0.004	0.038	0.06	0.95	.99	0.029	<0.064	0.064	5.4	3.4	7.0	1.6	11.2	1.1	
	12-19-74	<0.004	0.049	0.16	0.55	.60	0.027	0.017	0.010	10.5	4.4	6.8	1.28	10.4	1.1	
	3-6-75	<0.004	<0.004	0.02	0.35	.36	0.014	0.037	0.026	---	---	---	---	---	---	
	6-26-75	0.008	<0.004	<0.01	1.14	1.15	<0.002	0.078	0.013	36.6	11.30	6.6	0.7	9.7	0.6	
	9-11-75	<0.004	0.053	0.11	0.91	.97	0.022	0.052	0.036	5.37	3.04	8.37	1.67	12.6	2.4	0.12
	12-4-75	0.008	0.072	0.07	0.53	.61	0.012	0.049	0.026	13.23	4.50	3.35	1.02	8.0	9.0	0.61
	3-16-76	<0.004	0.019	0.12	0.46	.48	0.020	0.038	0.036	16.17	4.58	7.91	0.80	7.5	8.8	0.61
	6-1-76	<0.004	<0.004	0.07	0.31	.32	0.025	0.044	0.033	17.13	4.94	7.04	3.08	7.9	9.7	0.45
	9-21-76	0.004	0.075	0.12	0.69	.77	0.028	0.034	0.035	6.35	3.12	8.98	2.03	20.2	---	0.24

Arbuckle Creek Drainage Systems

The Arbuckle Creek drainage system consists of a series of tributaries in the Eastern Flatlands and the Highlands Ridge north of Lake Istokpoga, which flow into Arbuckle Creek, the major source of surface water for Lake Istokpoga (Figure D-2). The system headwaters originate near Frostproof in Polk County to the north. Six sites sampled in this basin are shown in Figure D-2.

The northernmost site, L-101, was situated in Lake Arbuckle at the mouth of the creek and represents the initial water quality of the system which was sampled. Tributaries sampled regularly which flowed into Arbuckle Creek were C-105, Bonnet Creek at SR 64, C-102, Carter Creek at Arbuckle Creek Road, and C-100, Arbuckle Branch at Arbuckle Creek Road. In addition, Arbuckle Creek was sampled midway between Lake Arbuckle and Lake Istokpoga at Arbuckle Creek Road (C-101) and just upstream of Lake Istokpoga at US 98 (L-001). The majority of this portion of the drainage basin consisted of improved pastureland, with smaller portions of citrus and native land. Treated effluent from the town of Sebring flows into Arbuckle Creek several miles upstream of L-001. Water quality samples were taken from most creek sites at three month intervals. Discussion will be limited to the wet season average values presented in Table D-3. Complete data are presented in Table D-4.

Average wet season nitrite values throughout the basin were minimal, 0.010 mg/l or less with no appreciable increase at any point in the system. Nitrate averaged 0.025 mg/l at Lake Arbuckle and concentrations doubled at L-001. Carter Creek, C-102, contributed the highest concentrations of nitrate to the system with an average wet season value of 0.316 mg/l. Average ammonia concentrations through the system increased 80 percent from Lake

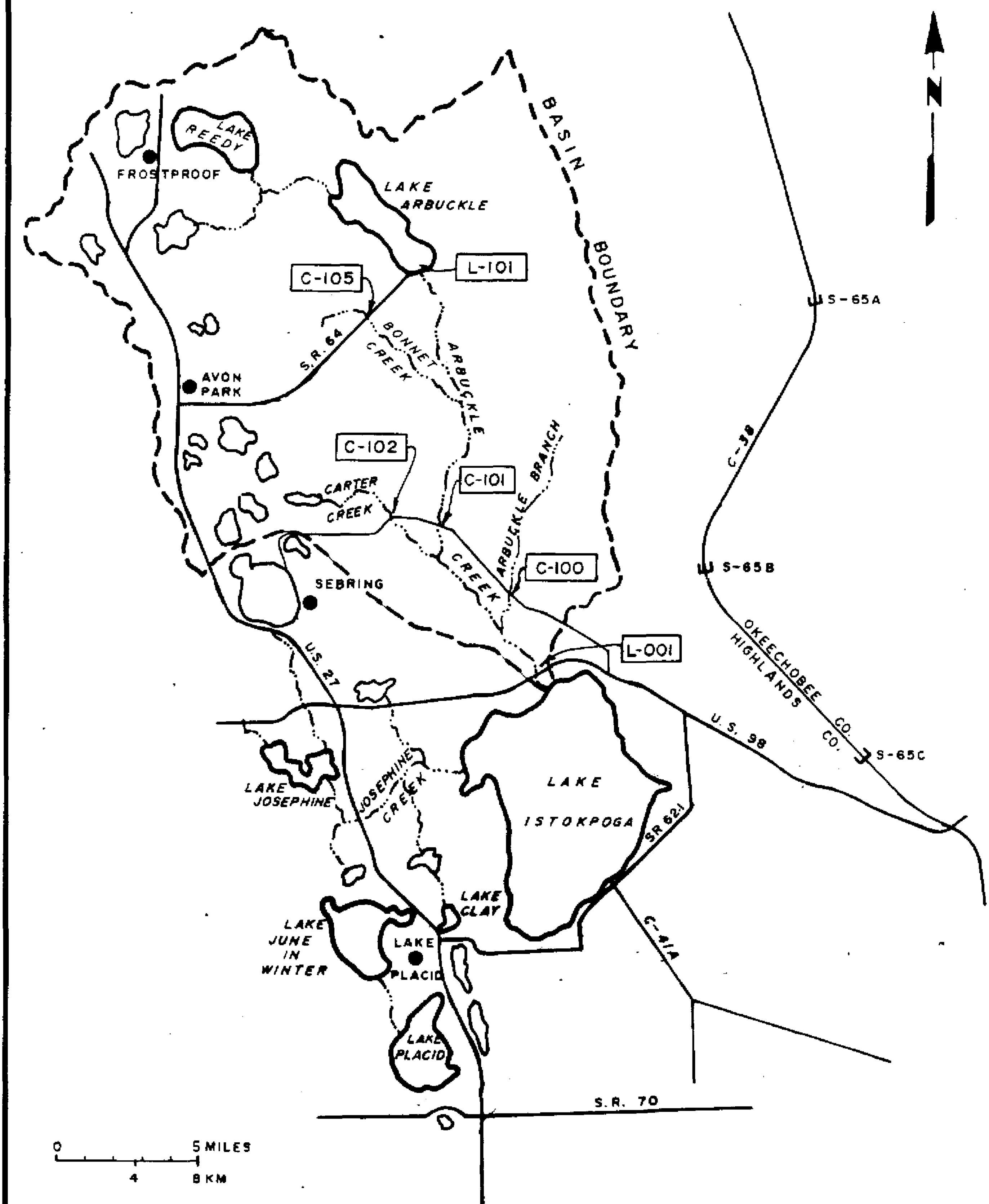

Figure D-2 ARBUCKLE CREEK DRAINAGE BASIN AND SAMPLE SITES

TABLE D-3 : WATER QUALITY DATA FROM JOSEPHINE CREEK DRAINAGE SYSTEM STATIONS - WET SEASON AVERAGES

STATION AND LOCATION	DATE	NO_2-N mg/l	NO_3-N mg/l	NH_4N mg/l	TKN mg/l	Total N mg/l	o-PO_4-P mg/l	T-PO_4-P mg/l	Td-PO_4-P mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	Cl mg/l	SiO_2 mg/l	Alk meq/l
L-101 Lake Arbuckle average	1974-76	.007	.025	.05	.86	.89	.012	.047	.025	6.9	4.1	8.1	1.9	11.5	2.2	.30
C-105 Bonnet Creek at SR 64	1974-75	.010	.037	.05	1.00	1.05	.072	.127	.122	5.7	4.3	8.7	2.6	18.4	8.5	<.10
C-101 Arbuckle Creek at Arbuckle Creek Road	1974-76	.007	.016	.04	.86	.88	.023	.049	.044	7.0	3.7	6.9	1.7	16.6	6.8	.17
C-102 Carter Creek at Arbuckle Creek Road	1974-76	.006	.316	.06	.68	1.00	.017	.030	.027	4.8	3.5	5.2	1.4	11.0	7.5	.23
C-100 Arbuckle Branch at Arbuckle Creek Road	1974-76	.008	.014	.09	1.62	1.64	.230	.314	.284	10.4	11.7	47.7	6.1	52.4	8.2	.93
L-001 Arbuckle Creek at US 98	1973-76	.008	.053	.09	1.15	1.21	.109	.156	.148	9.1	3.6	8.5	2.0	16.4	7.8	.18

TABLE D-4 : WATER QUALITY DATA FROM ARBUCKLE CREEK DRAINAGE BASIN

STATION AND LOCATION	DATE	NO_2-N mg/l	NO_3-N mg/l	NH_4N mg/l	TKN mg/l	Total N mg/l	o-PO_4-P mg/l	T-PO_4-P mg/l	Td-PO_4-P mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	Cl mg/l	SiO_2 mg/l	Alk meq/l
L-101 Lake Arbuckle Average (4 Stations)	9-11-74	.009	.042	.10	1.19	1.24	.044	.078	.066	4.2	2.3	5.6	---	9.3	1.8	
	1-23-75	.017	.078	.06	.66	.76	<.002	.040	.019	6.8	4.1	8.3	2.1	11.4	1.1	
	3-4-75	<.004	.005	.02	.73	.74	.003	.037	.018	8.1	4.6	8.7	2.2	12.6	1.1	
	7-16-75	.005	<.004	.01	.95	.96	.007	.050	.015	8.0	5.4	8.2	1.9	14.1	0.6	
	9-18-75	.008	.034	.04	.71	.75	.002	.046	.016	6.6	4.2	11.9	2.3	11.6	4.4	.21
	1-6-76	.006	.078	.02	1.09	1.17	.003	.047	.024	4.6	3.7	4.1	1.7	9.3	1.8	.10
	3-19-76	.004	----	---	.86	----	.004	.053	.024	8.4	3.8	7.7	1.7	17.7	1.7	.24
	6-2-76	<.004	.004	.05	.58	.63	.003	.028	.010	9.1	5.3	8.8	2.5	12.4	1.2	.32
	9-2-76	.008	.041	.04	.86	.91	<.002	.031	.018	6.5	3.3	5.9	0.9	10.0	3.0	.38
C-105 Bonnet Creek at SR 64	6-26-74	.005	.106	.07	.53	.64	.132	.172	.153	5.4	6.0	11.0	4.1	15.9	13.1	
	9-11-74	.017	.024	.04	1.28	1.32	.040	.175	.177	1.9	1.6	5.4	---	10.1	6.1	
	12-18-74	.005	.075	.14	.83	.91	.142	.098	.102	7.0	4.8	8.9	2.64	14.8	11.0	
	3-4-75	<.004	<.004	.02	.74	.75	.012	.026	.021	---	---	---	----	---	---	
	7-16-75	<.004	.013	.05	.96	.98	.028	.051	.048	11.83	7.21	7.86	1.71	36.1	8.0	
	9-18-75	.014	<.004	.02	1.22	1.24	.089	.111	.108	3.49	2.33	10.63	1.92	11.3	6.8	<.10
	1-6-76	.011	.131	.14	1.02	1.16	.054	.067	.070	<2.83	1.99	<2.76	1.55	16.1	8.4	<.10
	3-17-76	.014	----	.04	1.17	----	.017	.032	.030	2.97	1.87	5.59	0.47	11.5	7.6	.16
C-101 Arbuckle Creek at Arbuckle Creek Road	3-14-74	.006	.414	.10	.79	1.21	.011	.027	.025	10.0	4.4	12.0	2.6	15.0	---	
	6-26-74	.004	.010	.04	.42	.43	.005	.035	.031	10.0	5.0	9.0	2.1	22.8	11.3	
	9-11-74	.008	.004	<.01	1.05	1.06	.019	.041	.036	4.1	1.6	4.8	---	7.1	3.1	
	12-28-74	.010	.359	.23	.92	1.29	.039	.051	.060	12.3	5.1	8.9	4.24	15.0	7.3	
	3-4-75	<.004	.400	.04	.62	1.02	.012	.038	.025	8.9	4.7	8.3	2.3	12.4	2.0	
	7-15-75	.007	.053	.03	.85	.91	.014	.032	.031	12.15	6.16	8.65	1.78	33.7	5.1	
	9-30-75	.007	<.004	.04	.78	.79	.018	.051	.044	5.55	2.02	5.5	1.22	10.3	5.4	<.10
	12-11-75	.006	.320	.07	1.03	1.36	.020	.043	.039	6.08	3.3	4.22	1.57	21.5	2.6	.15
	3-16-76	.004	.264	.18	.89	1.16	.025	.059	.049	9.49	4.58	8.74	2.34	13.9	3.1	.15
	6-1-76	.007	.015	.07	1.10	1.12	.070	.102	.096	5.15	5.65	8.40	2.72	15.8	9.2	.12
	9-21-76	.007	.005	.04	.96	.97	.014	.031	.027	4.91	1.67	5.02	0.64	10.0	---	.29

TABLE D-4 : WATER QUALITY DATA FROM ARBUCKLE CREEK DRAINAGE BASIN (Continued)

STATION AND LOCATION	DATE	NO_2-N mg/l	NO_3-N mg/l	NH_4N mg/l	TKN mg/l	Total N mg/l	o-PO_4-P mg/l	T-PO_4-P mg/l	Td-PO_4-P mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	Cl mg/l	SiO_2 mg/l	Alk meq/l
C-102 Carter	3-14-74	.035	.083	.04	.30	.42	.006	.018	.011	5.8	3.4	7.0	2.4	9.0	---	
Creek at Arbuckle	6-26-74	.005	.019	.05	.53	.55	.019	.043	.037	2.6	3.4	6.0	1.4	10.6	8.3	
Creek Road	9-11-74	.005	.087	<.01	.92	1.01	.014	.034	.023	4.7	3.4	5.4	---	10.5	7.5	
	12-18-74	<.004	.162	.07	.55	.72	<.002	.012	.004	7.3	5.0	6.9	2.35	12.6	9.7	
	3-4-75	<.004	.076	<.01	.55	.63	.007	.014	.012	---	---	---	---	---	---	
	7-15-75	.005	.044	.01	.62	.67	.008	.024	.024	5.05	3.73	3.43	1.29	38.2	5.7	
	9-30-75	.008	.069	.11	.91	.99	.009	.024	.024	7.32	3.05	4.20	1.61	10.5	8.3	<.10
	12-11-75	<.004	.134	.02	.63	.77	.003	.025	.009	5.73	4.05	<2.86	1.67	9.9	7.6	.17
	3-16-76	<.004	.202	.18	.40	.61	.009	.026	.021	7.26	4.72	6.09	2.09	11.1	7.0	<.10
	6-1-76	.005	1.591	.07	.65	2.25	.026	.031	.030	3.63	3.65	6.73	1.39	13.1	7.8	<.10
	9-21-76	.005	.088	.08	.46	.55	.025	.025	.021	5.71	3.80	5.35	2.67	11.4	---	.50
C-100 Arbuckle	3-14-74	<.004	<.004	.06	1.65	1.66	.012	.071	.037	99.2	62.0	208.0	8.8	360.0	---	
Branch at	6-26-74	.009	.027	.10	1.17	1.21	.900	1.090	1.010	14.0	7.8	33.0	7.2	90.4	10.8	
Arbuckle	9-11-74	.008	<.004	.10	2.20	2.21	.063	.111	.096	6.9	2.1	7.8	---	15.1	5.1	
Creek Road	12-18-74	.022	.276	.27	.63	.93	.098	.095	.086	49.5	28.0	98.2	10.5	189.4	14.0	
	3-4-75	<.004	<.004	.04	.16	.17	.003	.014	.010	----	----	----	----	----	---	
	7-15-75	.010	<.004	.04	1.97	1.98	.117	.217	.198	9.41	3.95	14.03	2.03	73.0	4.8	
	12-11-75	<.004	.013	.14	.75	.77	.019	.040	.034	<2.86	2.01	9.12	4.8	30.4	7.0	.12
	3-16-76	<.004	.095	.48	.48	.58	.011	.054	.028	17.2	7.61	35.25	4.21	73.3	6.1	.19
	6-1-76	<.004	.014	.07	1.20	1.22	.054	.100	.083	13.75	41.22	169.7	12.93	----	12.0	1.51
	9-21-76	.008	.022	.14	1.57	1.60	.017	.052	.034	7.67	3.21	13.93	2.1	31.1	---	.34
L-001 Arbuckle	9-5-73	<.008	.032	.08	----	----	.060	.088	.080	---	---	6.3	1.29	---	---	
Creek at US 98	12-4-73	.004	.295	.05	1.09	1.39	.006	.036	.028	---	---	8.4	1.99	13.2	3.1	
	3-14-74	.004	.191	.06	.88	1.08	.027	.045	.045	9.2	4.2	9.0	2.3	13.0	---	
	6-28-74	.012	.197	.17	2.11	2.32	.384	.480	.456	---	4.4	9.0	3.8	21.6	11.8	
	9-4-74	.005	.009	.03	.27	.28	.052	.139	.139	3.8	1.8	5.5	.5	8.1	2.4	
	12-19-74	.008	.323	.29	.86	1.19	.098	.078	.075	9.4	4.5	8.9	4.63	16.2	4.5	
	3-6-75	<.004	.248	.09	.65	.90	.013	.035	.028	11.8	6.4	18.5	2.1	29.7	3.9	
	6-25-75	<.004	.055	.05	1.27	1.33	.064	.092	.081	8.4	3.7	10.8	2.1	20.9	6.7	
	9-17-75	.010	.022	.08	1.11	1.14	.104	.157	.140	8.77	3.86	10.63	2.65	13.9	9.5	<.10
	12-11-75	.007	.284	.09	.97	1.26	.019	.044	.036	5.73	3.41	3.0	1.6	12.1	3.2	.12
	3-16-76	.006	1.185	.44	.83	2.02	.020	.046	.040	9.32	4.4	14.37	2.34	17.9	3.4	.10
	6-1-76	.007	.043	.19	1.25	1.30	.082	.109	.110	12.91	5.47	12.06	3.42	18.8	8.4	.18
	9-21-76	.007	.014	.06	.90	.92	.020	.028	.027	[illegible]	2.4	5.19	.51	14.9	---	.26

Arbuckle to L-001, with the higher concentrations occurring in the southern half of the basin. Total nitrogen increased about 35 percent between L-101 and L-001, but the greatest contributor appeared to be Arbuckle Branch. Organic nitrogen comprised 88 percent or more of the total nitrogen at all stations except Carter Creek, where inorganic nitrogen accounted for an average of 38 percent of the total.

Average total phosphorus concentrations increased downstream in Arbuckle Creek from 0.047 mg/l at Lake Arbuckle to 0.049 mg/l at Arbuckle Creek Road (C-101) and 0.156 mg/l at US 98 (L-001). Although Bonnet Creek concentrations were relatively high, 0.127 mg/l, the quantity of water flowing to Arbuckle Creek was insufficient to increase the total phosphorus concentrations significantly at C-101. The greatest amount of phosphorus entered the Creek in the southern half of the system. In particular, the average wet season concentration of total phosphorus in Arbuckle Branch was 0.314 mg/l. Ortho-phosphorus concentrations followed trends similar to total phosphorus through the system. In all creek stations ortho-phosphorus constituted from 47 to 73 percent of the total phosphorus concentrations. However, in Lake Arbuckle, where biological processes were most likely to convert inorganic phosphorus to an organic form, ortho-phosphorus accounted for only 26 percent of the total amount.

The concentrations of calcium, magnesium, sodium, and potassium were similar at the north and south stations on Arbuckle Creek, and in most tributaries. Arbuckle Branch was an exception and contained considerably higher concentrations of these elements than all other stations. Chloride and silica both exhibited considerable increases in concentration as water left Lake Arbuckle and flowed down Arbuckle Creek.