EAC-77-01

TENNESSEE VALLEY AUTHORITY

DIVISION OF ENVIRONMENTAL PLANNING

WATER QUALITY AND BIOLOGICAL CONDITIONS IN WHEELER RESERVOIR DURING OPERATION OF BROWNS FERRY NUCLEAR PLANT JANUARY 1, 1976 - DECEMBER 31, 1976

Environmental Assessment and Compliance Staff
Chattanooga, Tennessee
March, 1977

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INTRODUCTION

The Tennessee Valley Authority (TVA), by law, a resource development agency, generates electricity as a part of its responsibility for the physical, social, and economic development of the Tennessee Valley region and as a part of national defense. The ample supply of low-cost electric power has been a principal factor in the economic development of the region since 1933. Because of the industrial growth of the area and demand for more low-cost energy, TVA is focusing on the use of nuclear plants for generating large quantities of low-cost electricity. The addition of Browns Ferry Nuclear Plant (BFNP) to TVA's existing power system is a key element in continuing to provide the supply of electricity needed for the Tennessee Valley region. The TVA system supplies the power requirements of an area of approximately 80,000 square miles containing about 6.7 million people and interconnects at 26 points with neighboring utility systems.

The Browns Ferry Nuclear Plant is located in Limestone County in northern Alabama on the north bank of Wheeler Reservoir at Tennessee River mile (TRM) 294. It is located about 10 air miles northwest of Decatur, Alabama, and 10 miles southwest of Athens, Alabama.

Browns Ferry Nuclear Plant, consisting of three separate units with electrical generator nameplate ratings of 1152 megawatts each, occupies an 840-acre tract. The plant has the following physical structures on the site: reactor containment building, turbine building, radwaste building, service building, transformer yard, 161-kV and 500-kV switchyards, stack, sewage treatment plant, and mechanical draft cooling towers.

This report covers the reporting period from January 1, 1976, to December 31, 1976. This report is the first annual report. Five semi-annual reports have been submitted previously. Quarterly monitoring periods of the calendar year are defined as follows:

First - January 1 through March 31 (Winter)

Second - April 1 through June 30 (Spring)

Third - July 1 through September 30 (Summer)

Fourth - October 1 through December 31 (Fall)

Figure 1 shows the locations of the various environmental monitoring stations at the Browns Ferry Nuclear Plant.

This report is submitted in conformance with Section 5.6.1 of the Environmental Technical Specifications for the Browns Ferry Nuclear Plant; Unit 3 (July 2, 1976) and Units 1 and 2 (August 20, 1976).

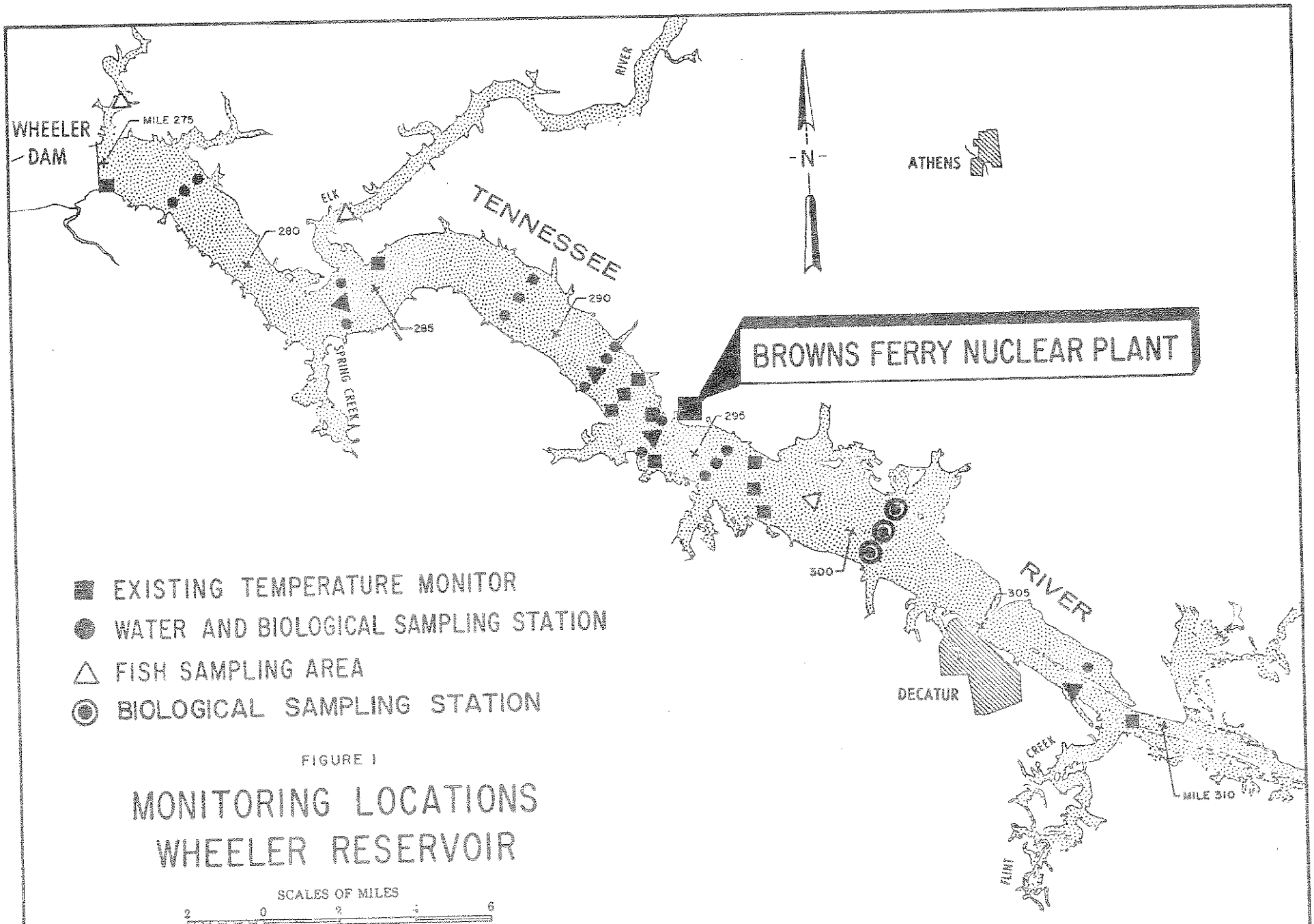


FIGURE 1

MONITORING LOCATIONS WHEELER RESERVOIR

II. PLANT OPERATION DURING THE REPORTING PERIOD

Browns Ferry Unit 1 was placed in commercial operation on August 1, 1974. Unit 2 was placed in commercial operation March 1, 1975. Unit 3 was placed in initial operation September 12, 1976. Thermal power levels for this reporting period for Units 1, 2, and 3 are shown in figure 2. No power was generated from March 22, 1975, to September 1, 1976.

Unit 3 was licensed to operate by the NRC on July 2, 1976. The relicensing for units 1 and 2 was effective on August 20, 1976. Since units 1, 2, and 3 operate as a integrated system for reporting purposes, to July 2, 1976, to correspond with the effective date of the technical specifications for unit 3.

As required by the technical specifications, waste discharges described in the following sections were monitored during this reporting period. Specifications, bases, and methodology may be found in "Water Quality and Biological Conditions in Wheeler Reservoir During Operation of Browns Ferry Nuclear Plant (Unit 1), August 17, 1973 - February 17, 1974," TVA, Division of Environmental Planning, April 1, 1974.

No limiting conditions of operation were experienced during the reporting period.

Thermal Discharge

Figure 3 is a plotted summary of the water temperature differentials of the control monitoring stations for Browns Ferry Nuclear Plant. The temperature differentials displayed in figure 3 are based upon one hour interval data rather than the actual data used for plant operation control.

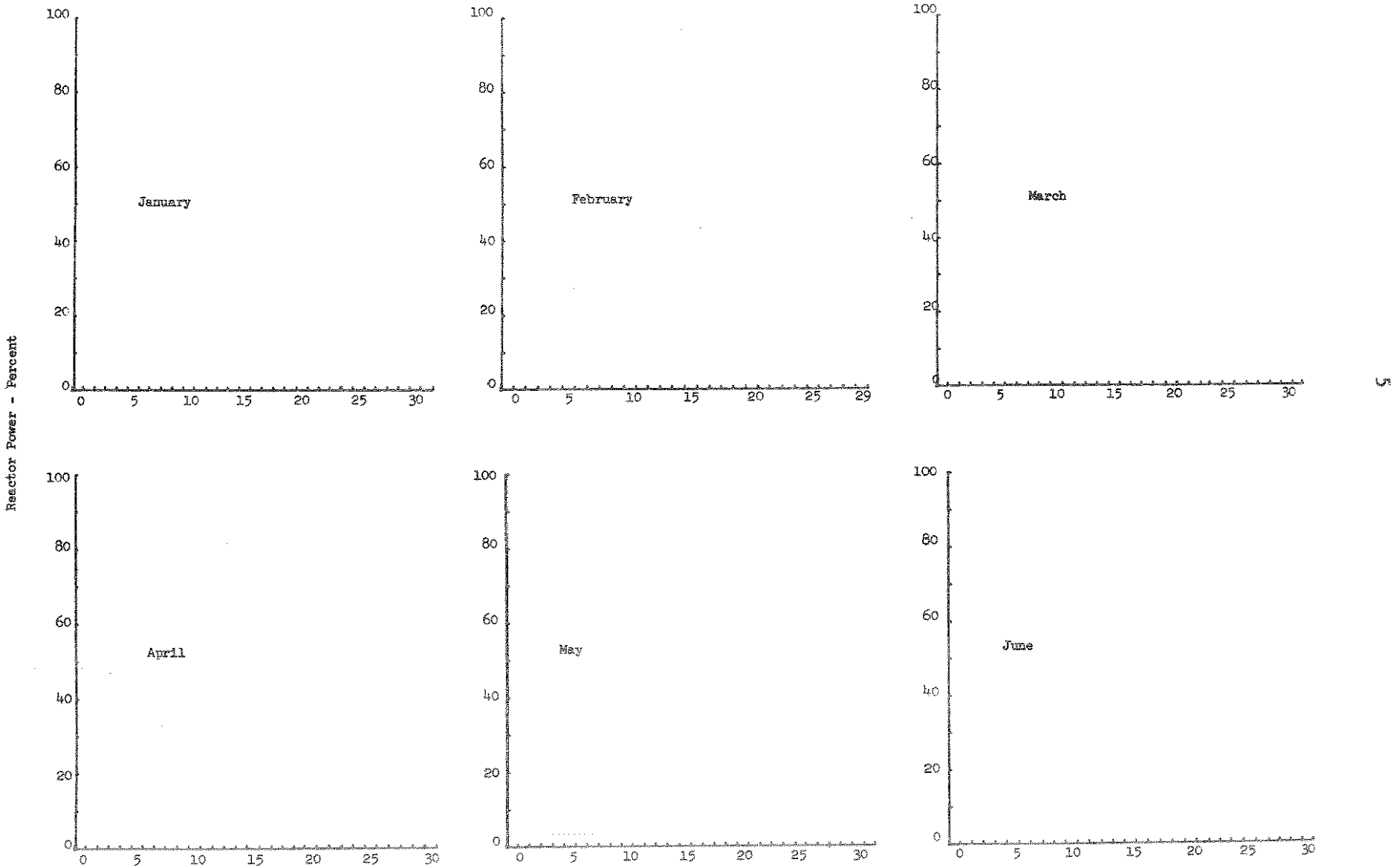


Figure 2. Unit 1 Reactor Power During January 1976 Through December 1976

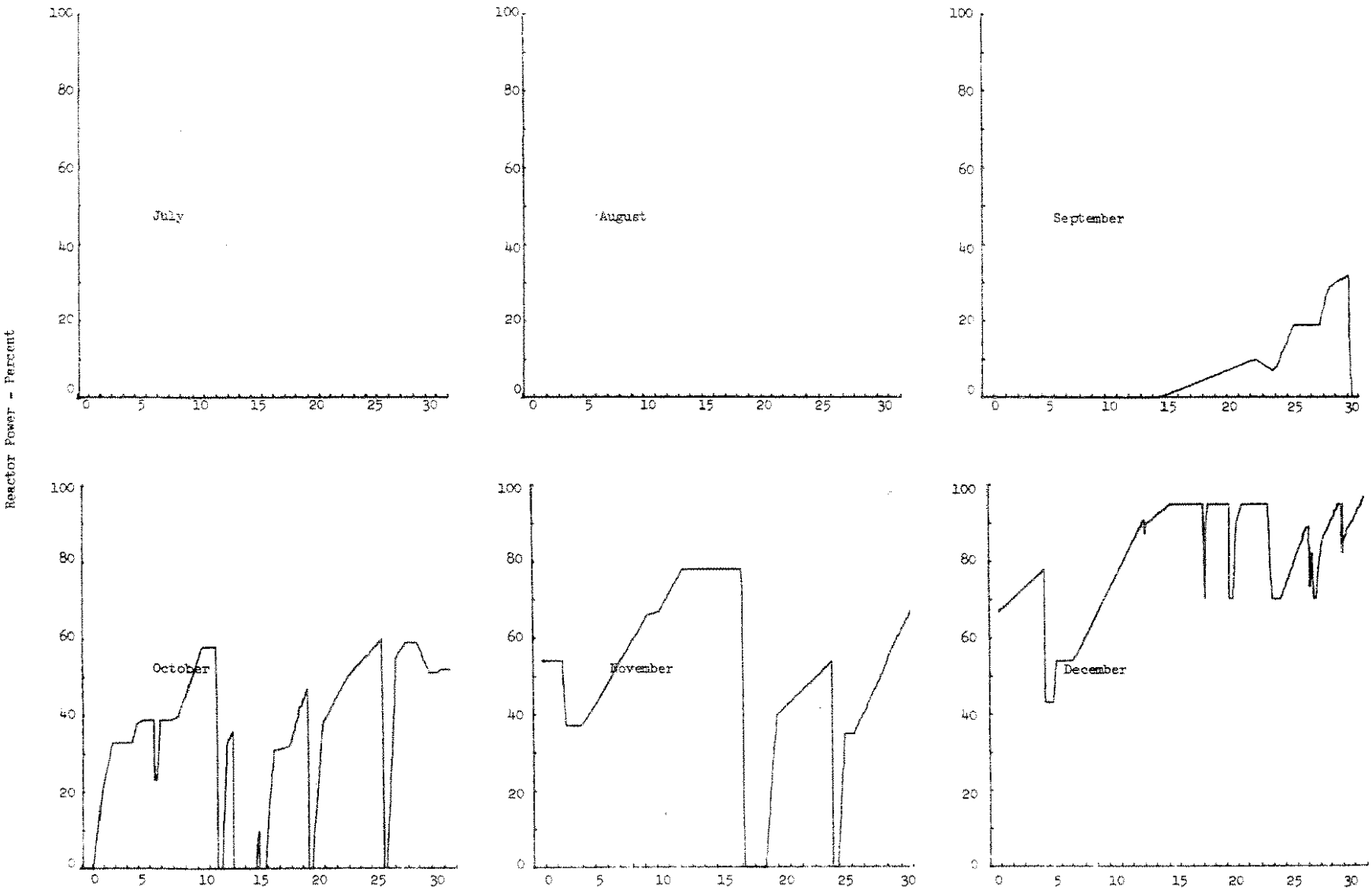


Figure 2. Unit 1 (Continued)

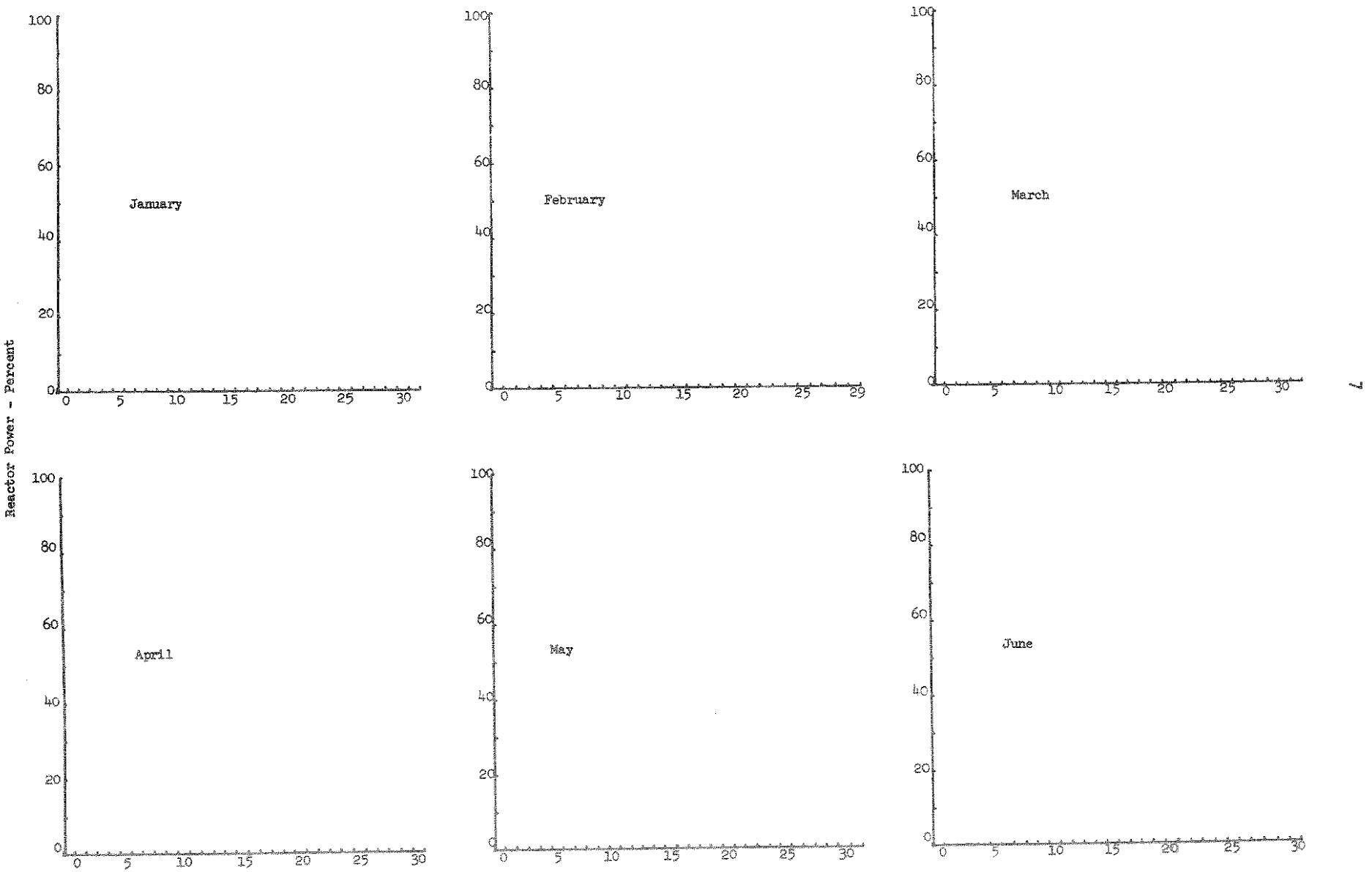


Figure 2. Unit 2 Reactor Power During January 1976 Through December 1976

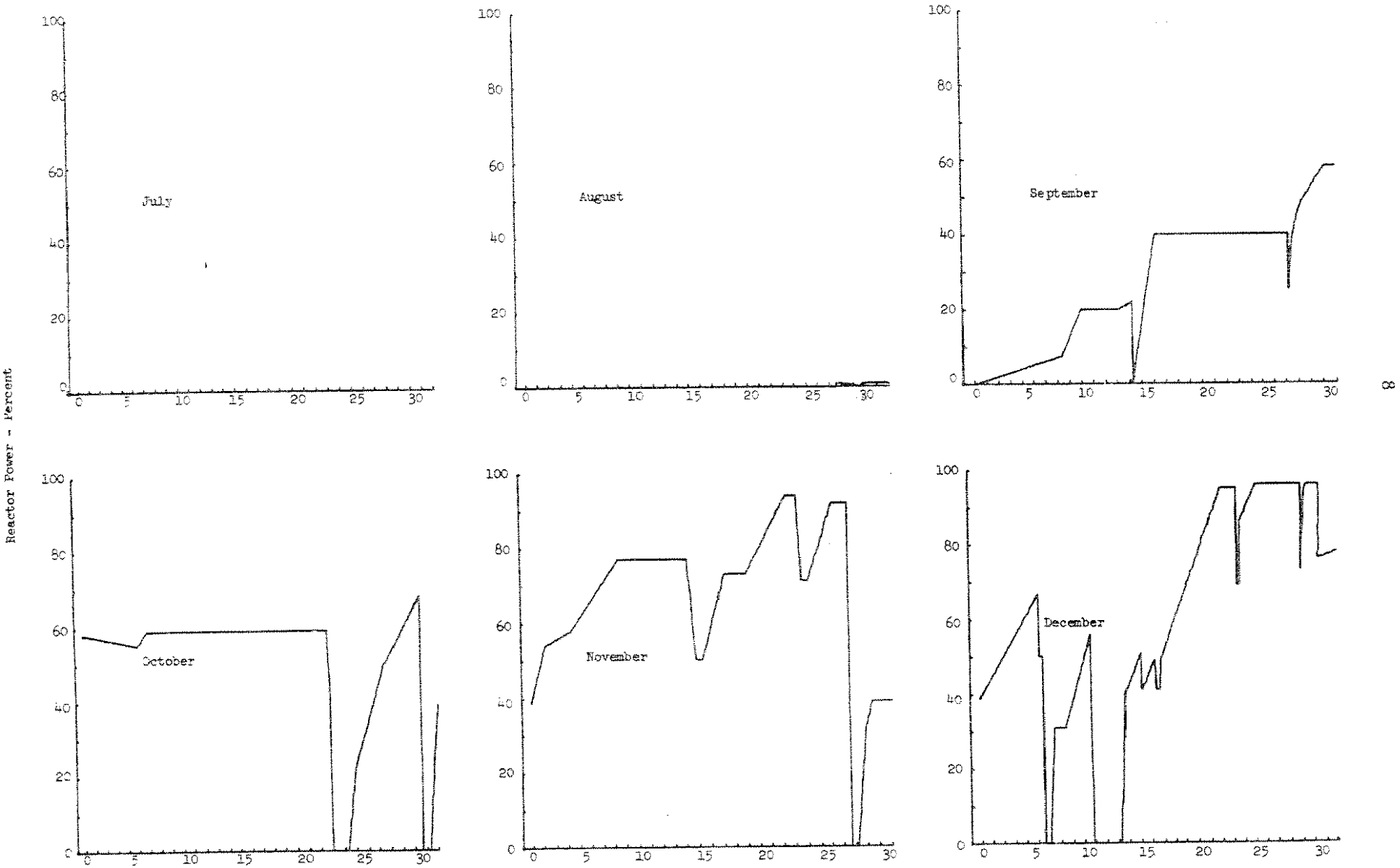


Figure 2. Unit 2 (Continued)

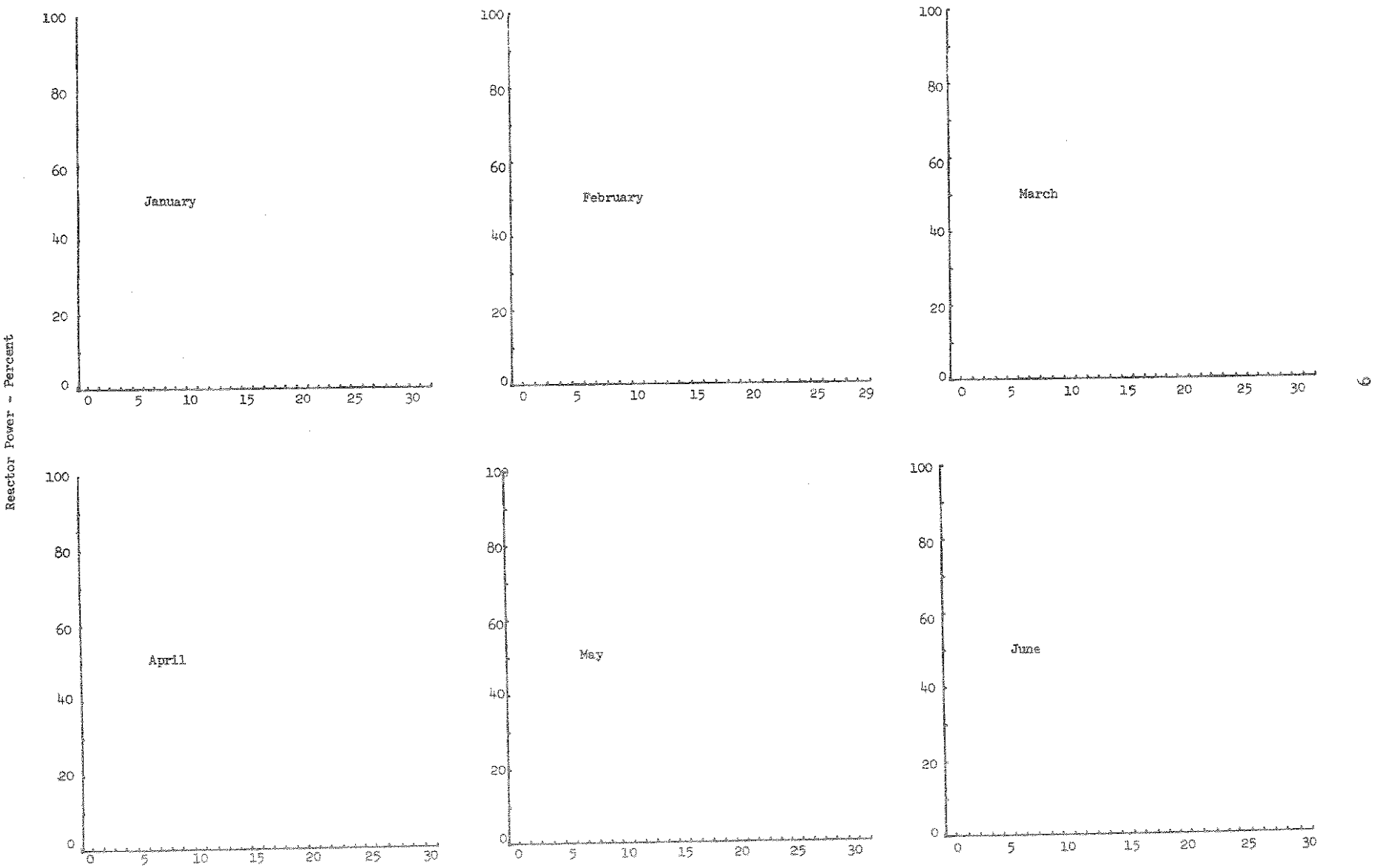


Figure 2. Unit 3 Reactor Power During January 1976 Through December 1976

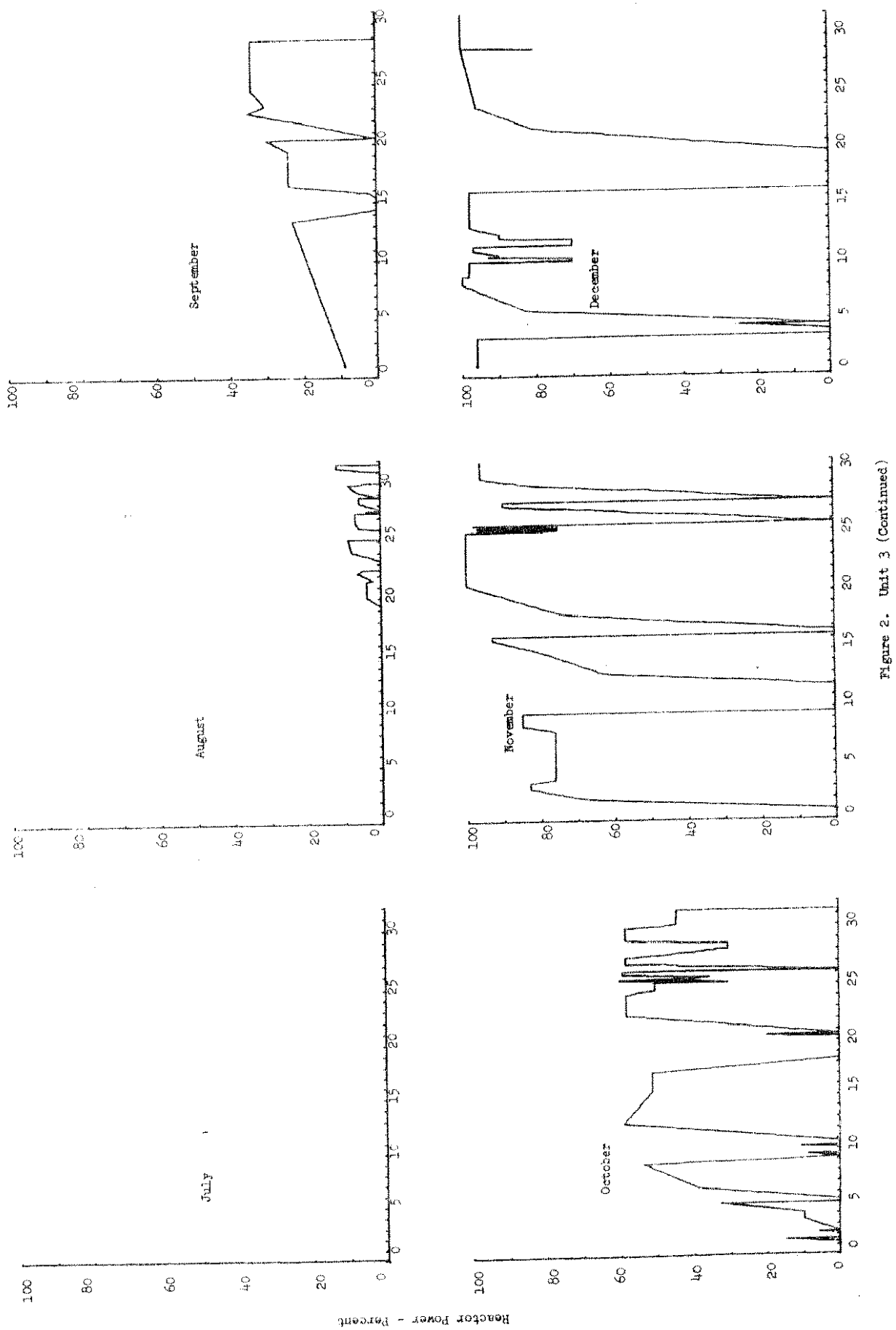


Figure 2. Unit 3 (Continued)

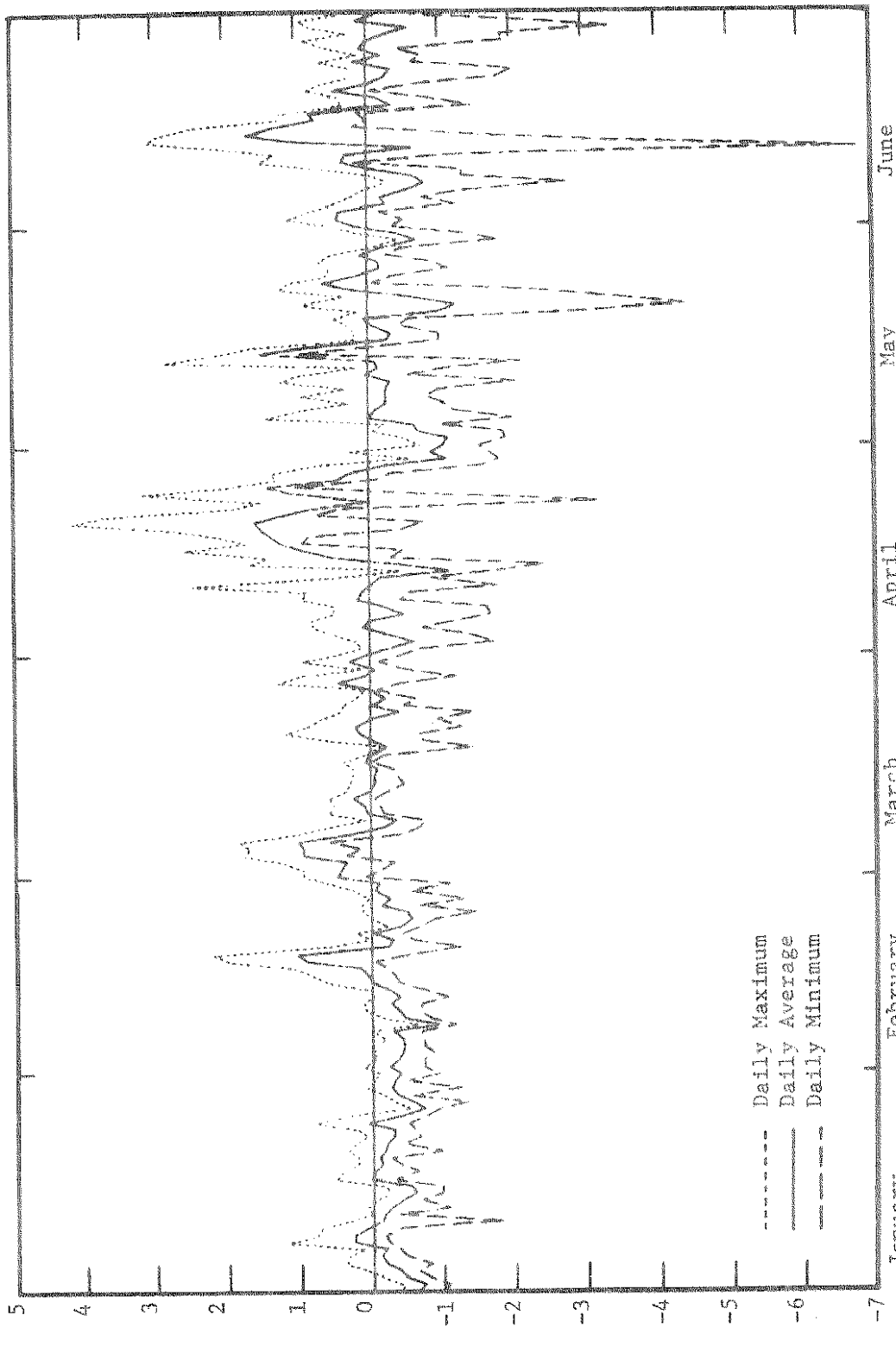


Figure 3. Temperature Differential Between Thermal Control Monitors at Primary Upstream Control Station (TRM 297.6) and the Average Downstream Control Station (TRM 292.5 LMP) for the 5' Depth.

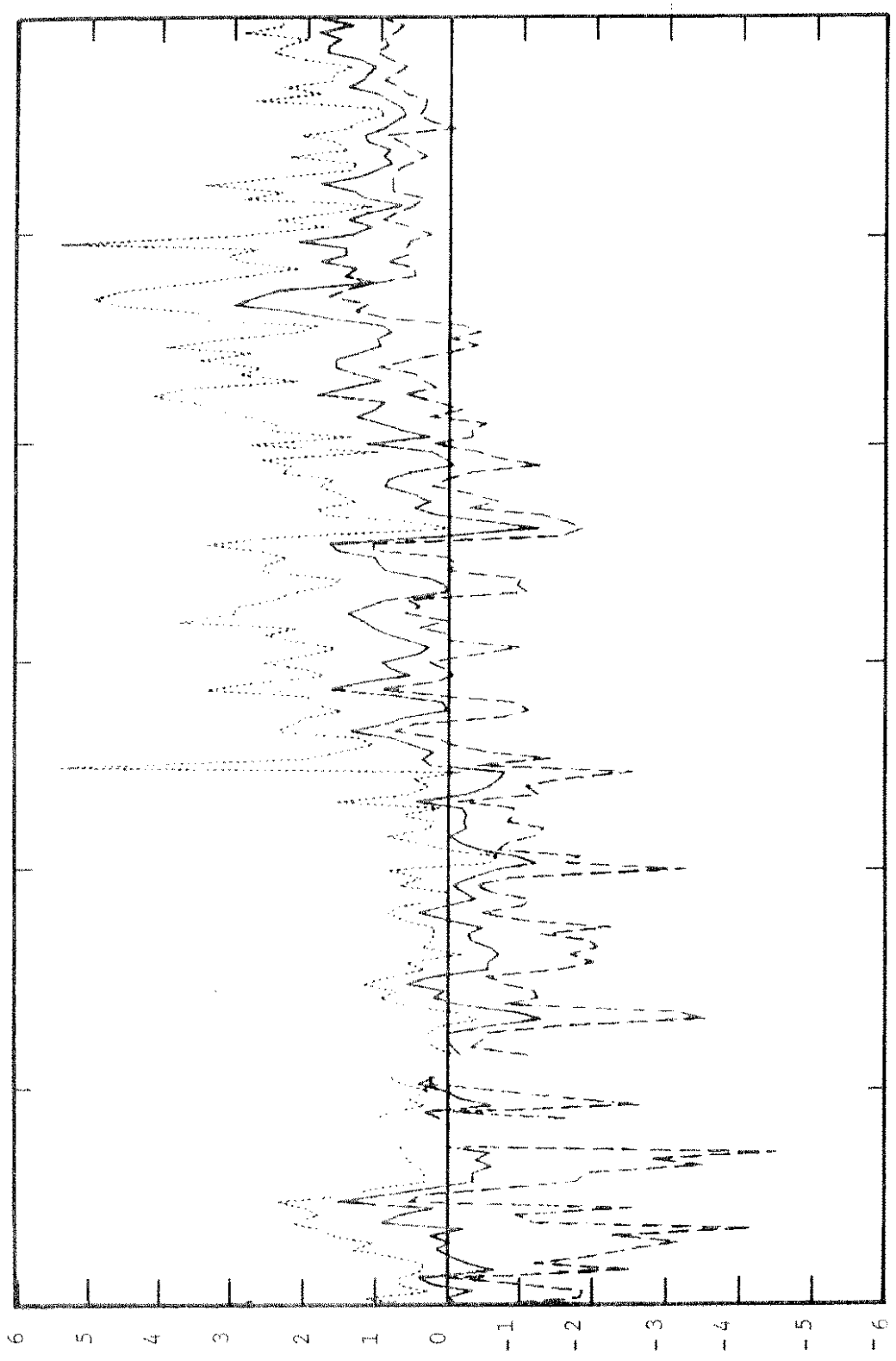


Figure 3 (Continued)

Plant operation is based on 15-minute interval, two-hour moving average temperatures measured at the thermal control monitors. The information presented in figure 3 indicates the maximum temperature rise of 5°F of the thermal discharge limiting condition of operation was exceeded on September 15, and November 29, 1976. This information is inconsistent with the actual data used for plant operation and does not represent a violation of the environmental technical specifications. Current plans are to depict in future operating reports the data used for plant operational control instead of the hourly data to avoid these apparent violations of the technical specifications.

The temperature differentials depicted in the following figures are computed by subtracting the temperature of the upstream control monitor from the average temperature of the three downstream control monitors. Therefore, a positive temperature differential indicates the temperature at the downstream monitors was higher than the upstream monitor.

Sanitary Wastes

The BFNP sewage treatment plant operated satisfactorily at all times and within the technical specification limits during the reporting period. The technical specification requirements for sanitary wastes were eliminated effective July 2, 1976.

Makeup Water Treatment Plant
(Spent Demineralizer Regenerants)

Discharges to the river during the reporting period were as follows:

Month	Discharge (Gallons)
January	None
February	None
March	1.10 E+06*
April	None
May	None
June	None
July	None
August	1.0 E+03**
September	None
October	8.76 E+05***
November	1.93 E+06***
December	1.42 E+06***

NOTES:

*Emergency field pond.
**Lined pond.
***Unlined pond.

The pH of the release was maintained within the technical specification limits of 6.0 - 8.5 from January 1, through July 1, 1976, and technical specification limits of 6.0 - 9.0 from July 2, through December 31, 1976.

Chlorine

The raw water chlorination system was operated for a period of 57.5 days during the reporting period. The residual chlorine in the condenser cooling-water was maintained below the technical specification limits.

Chemical Usage

Table 1 is a list of chemical usage at BFNP during the reporting period.

TABLE 1

CHEMICAL USAGE AT BROWNS FERRY NUCLEAR PLANT

Chemical	Description Grade, Concentration, Amount, etc.	Amount Used During Reporting Period (1976) Jan 1-Jun 30	Jul 1-Dec 31
Aluminum Sulfate	Commercial Grade	9900 lbs.	4000 lbs.
Coagulant Aid, Poly-electrolyte	Wisperfloc	100 lbs.	150 lbs.
Soda Ash	58 Percent	None	400 lbs.
Lime-Basic	Technical	500 lbs.	None
Chlorine	1-Ton Cylinders	4 Tons	10 Tons
Sodium Hypochlorite	10 Percent	742 gals.	488 gals.
Anthracite (filter media)	Technical	800 lbs.	100 lbs.
Sodium Hydroxide	50 Percent	33.88 Tons	46.8 Tons
Ammonium Hydroxide	4-Pound Bottles	8 lbs.	8 lbs.
Sulfuric Acid, Demineralizer	93 Percent	20.19 Tons	84.2 Tons
Hydrazine, Hydrate	35 Percent	100 lbs.	100 lbs.
Resins, Bead Type	IRN-150 Cation/Anion	240 cu-ft	None
Resins, (Bead Type) Anion IRA 402	Anion/Hydroxide	20 cu-ft	10 cu-ft
Resins, (Bead Type) Cation IRA 200C	Cation/Hydrogen	20 cu-ft	None
Powdex, PAO	Anion/Hydroxide	2208 cu-ft	1992 cu-ft
Powdex, PCH	Cation/Hydrogen	2328 cu-ft	2688 cu-ft
Epicor-Anion PD-1	Anion/Hydroxide	1824 cu-ft	1728 cu-ft
Epicor-Cation PD-3	Cation/Hydroxide	1344 cu-ft	1272 cu-ft
Epicor-Mixed Cation/Anion	Mixed Cation - AC-31	189 cu-ft	357 cu-ft
Coagulant, Liquid Polymer	Magnifloc 575C	750 lbs.	750 lbs.
Solka Flox	Liquid Radwaste Solidification	108 cu-ft	273 cu-ft
Radex RWO		14 cu-ft	None
Radex RWO		14 cu-ft	None
Sulfuric Acid	93 Percent	12 gals.	None

Potential Environmental Stress From
Condenser Cooling Water Discharge

In addition to the in-plant thermal monitors used for plant control, there are a series of fixed temperature monitors located in Wheeler Reservoir above and below Browns Ferry Nuclear Plant. A summary of the temperature differential between the upstream control monitor (TRM 297.6) and monitors located at three stations downstream from Browns Ferry (TRM 292.5, 286.04, and 275.0) are shown in figure 4. There were no significant thermal discharges from Browns Ferry between January 1, 1976, and December 31, 1976. A summary of the hourly temperature data by months can be found in Appendix A. The large volume of detailed hourly data precludes inclusion in this report but is on file in the office of the Water Quality and Ecology Branch, Division of Environmental Planning, Chattanooga, Tennessee.

Figure 5 is a graphical display of the percentage of time that a given temperature difference was within the specified range during the reporting period as determined from the upstream temperature station and the average of the three downstream stations.

Figure 6 documents the mean daily streamflows which occur in the vicinity of the plant during the reporting period. These data are based on actual mean daily discharges from Guntersville and Wheeler Dam and computed mean daily streamflows at Browns Ferry.

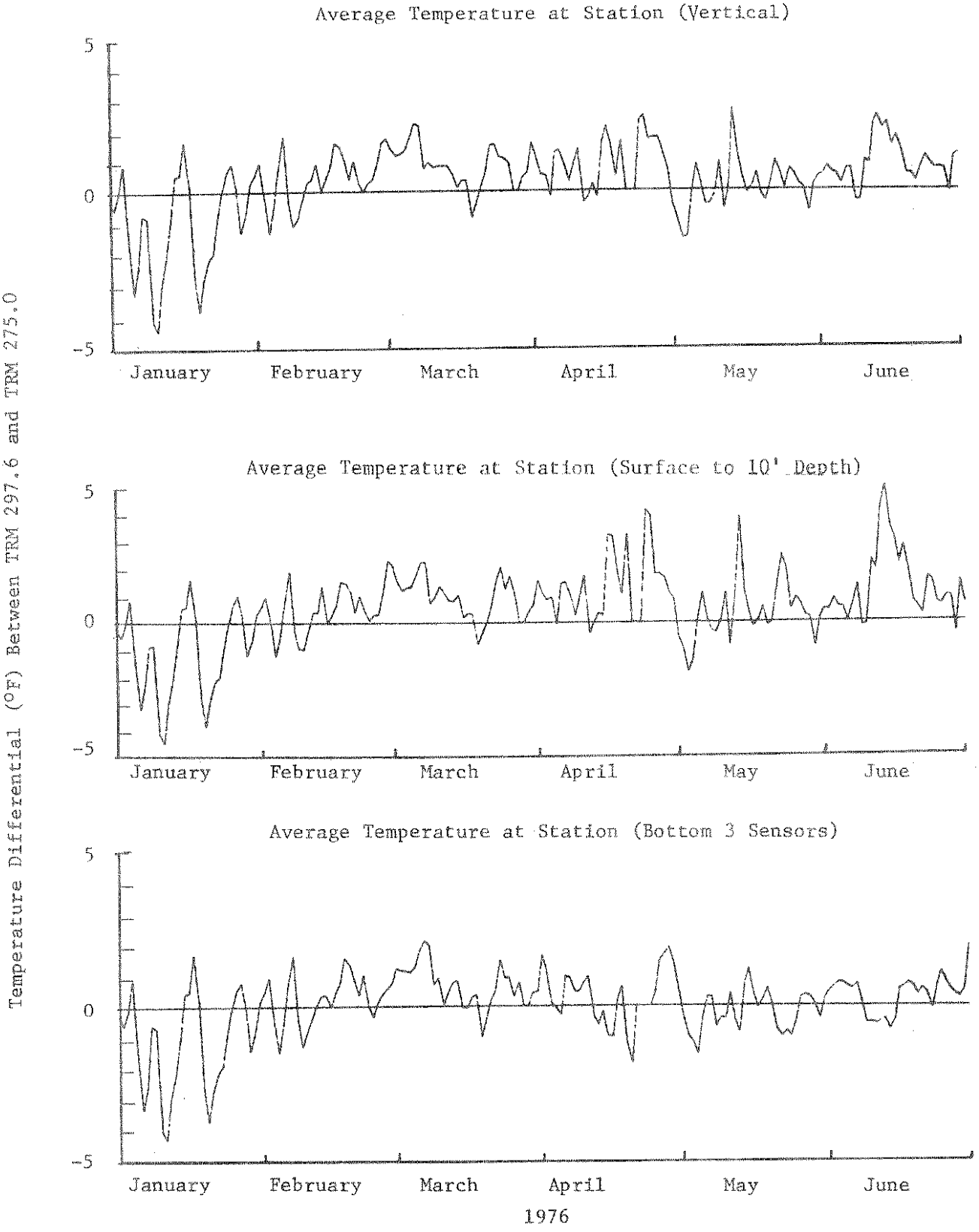
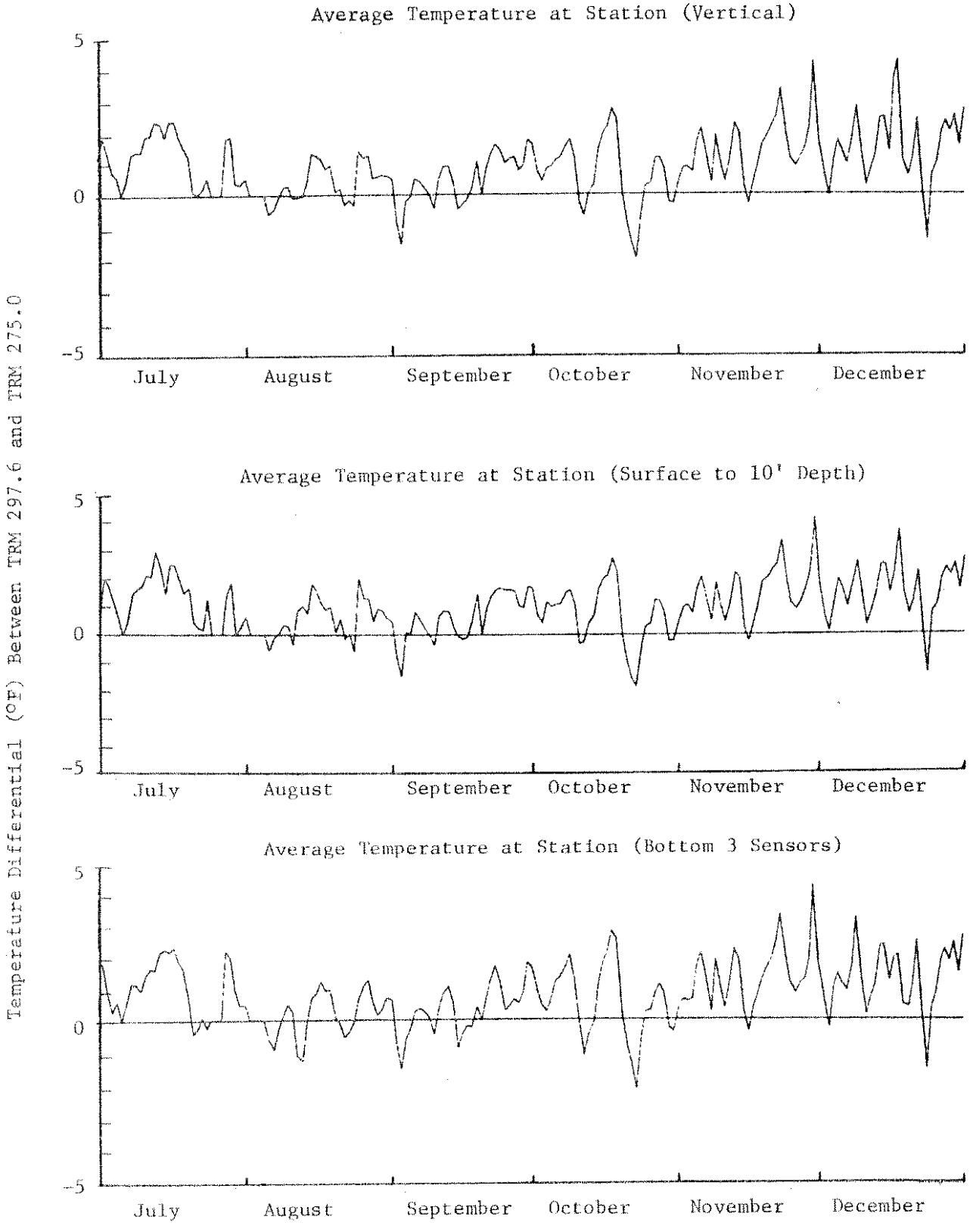


Figure 4. Average Daily Temperature Differentials Between an Upstream Control Station (TRM 297.6) and Selected Downstream Stations.



1976

Figure 4 (Continued)

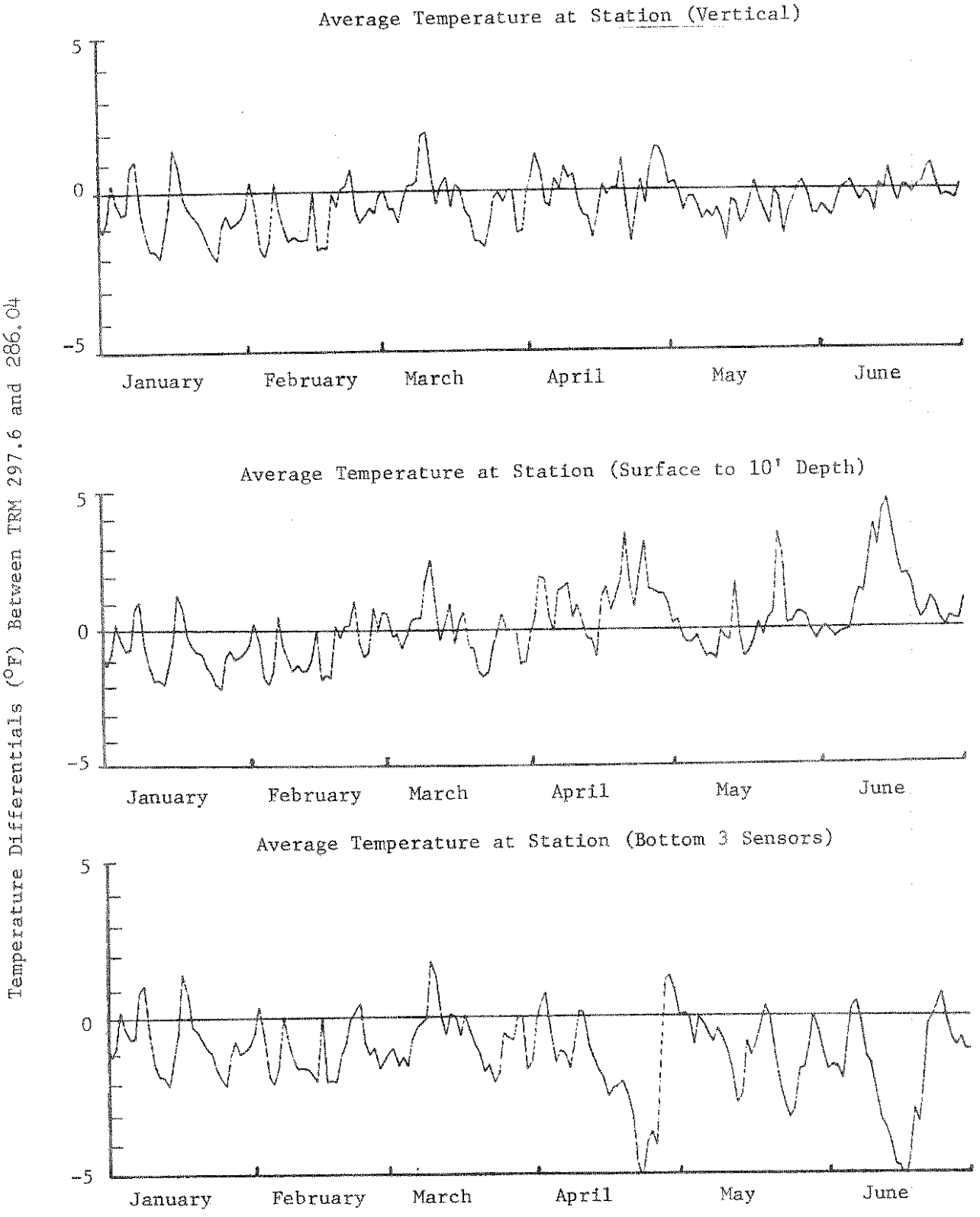


Figure 4 (Continued)

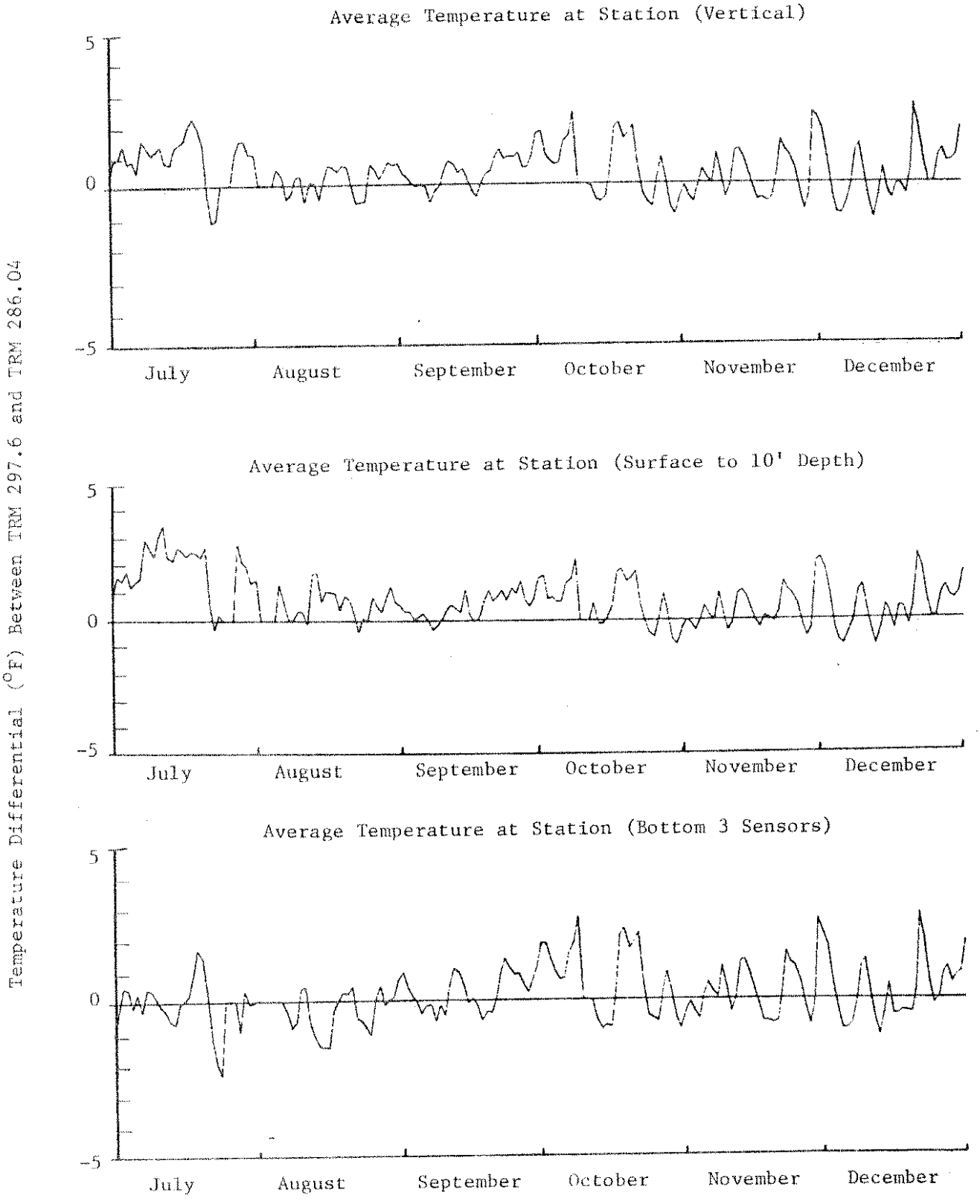


Figure 4 (Continued)

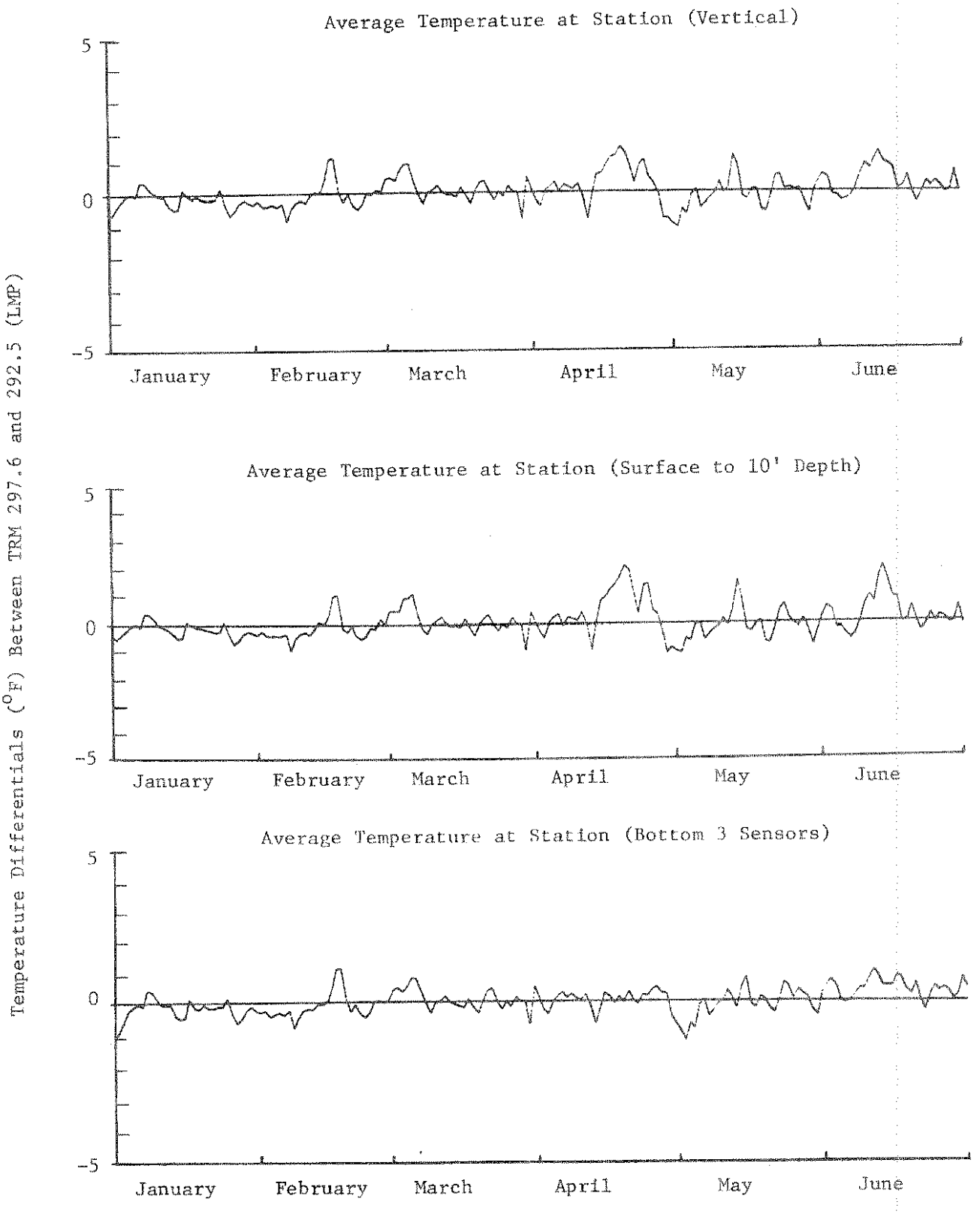


Figure 4 (Continued)

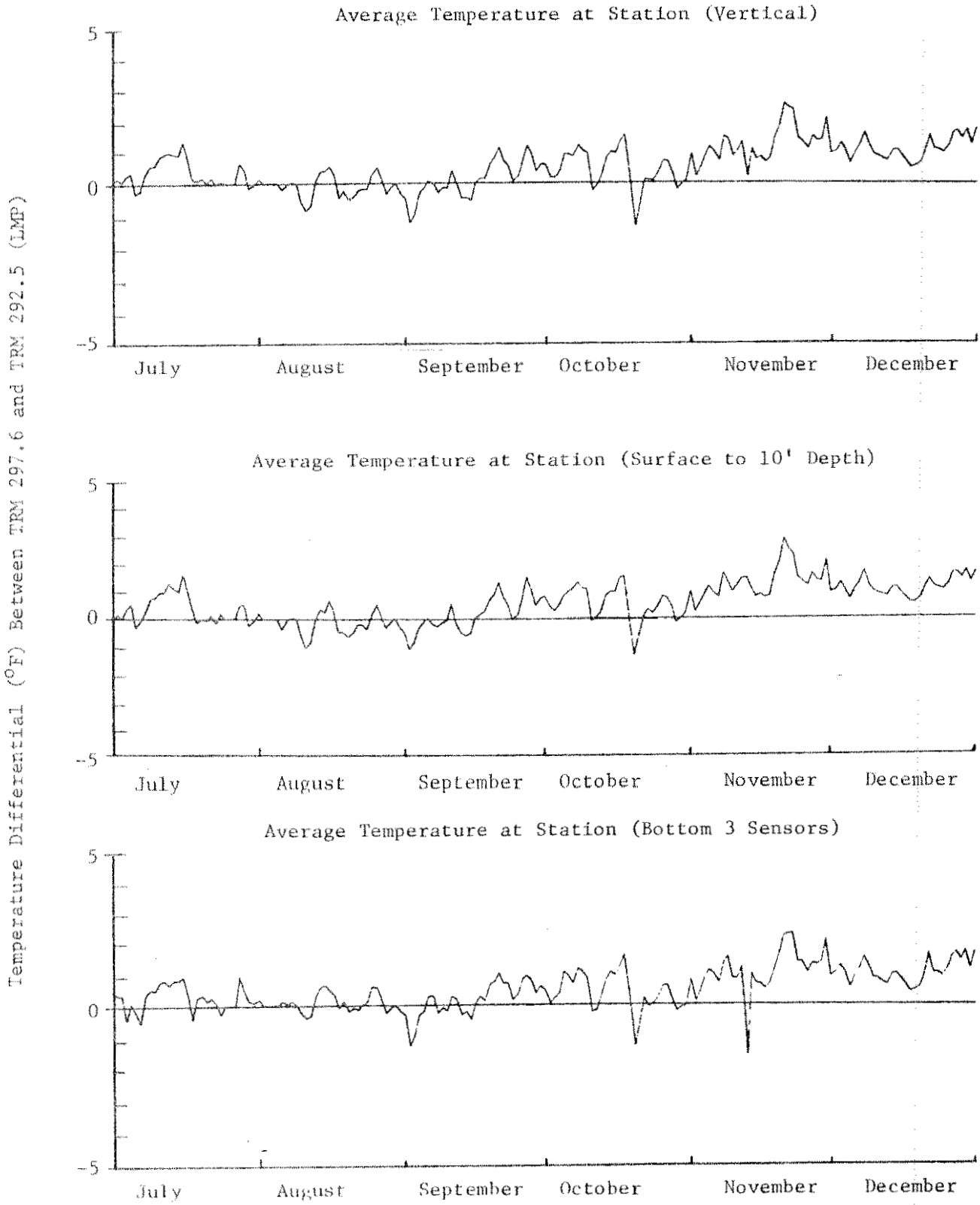


Figure 4 (Continued)

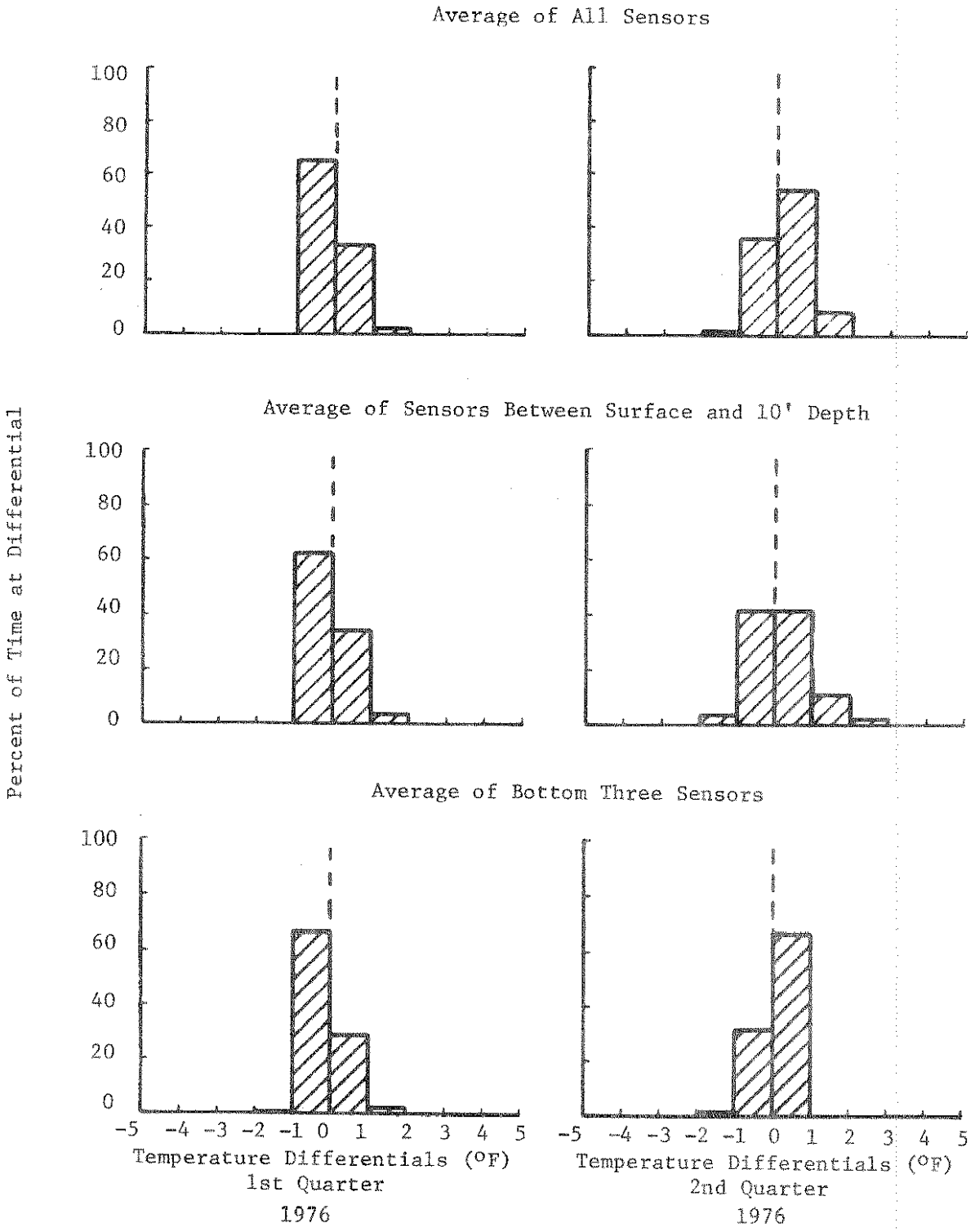


Figure 5. Temperature Differential Between TRM 297.6 and TRM 292.5 (LMP) for 1976, Expressed as Percentage of Time at the Given Differential.

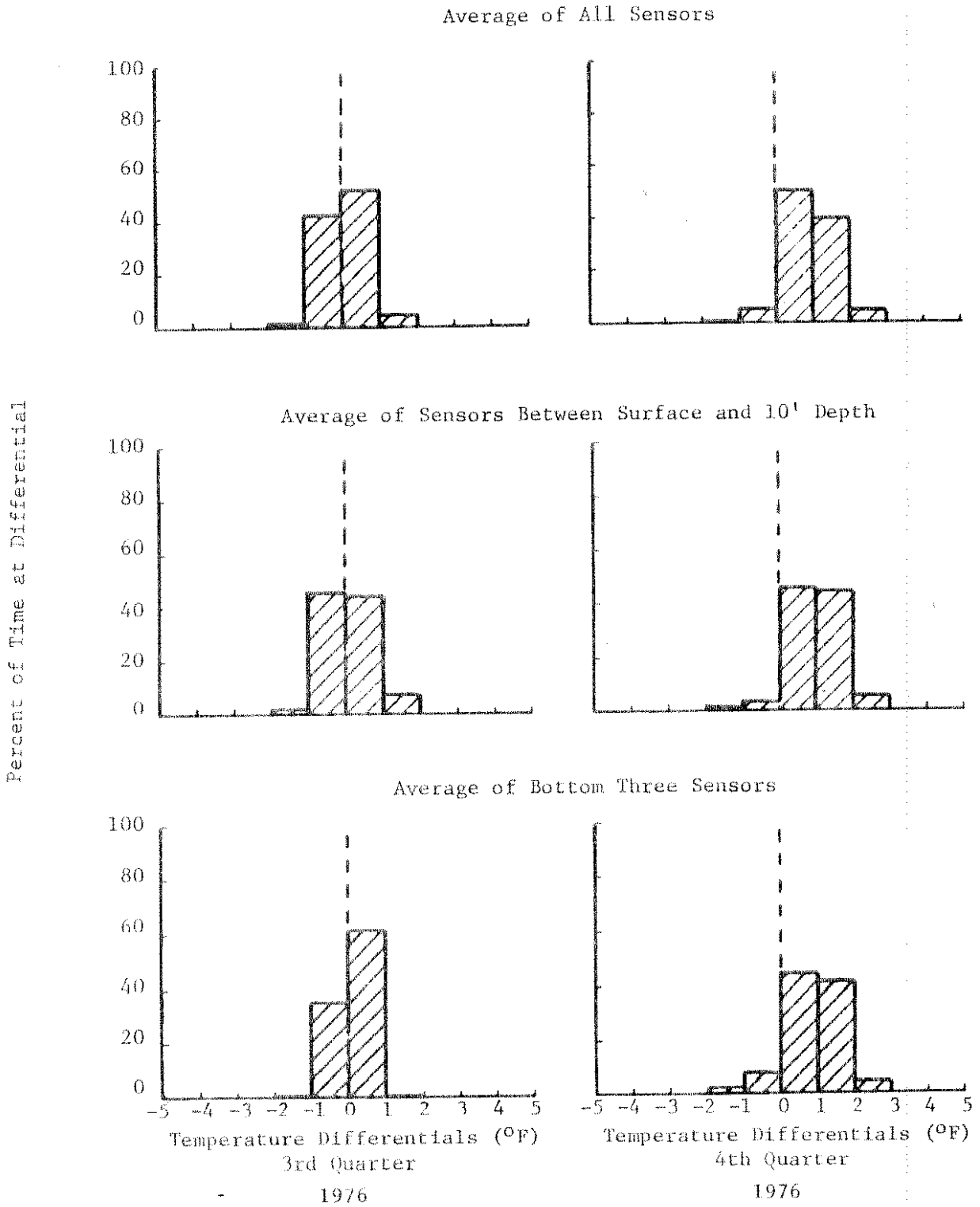


Figure 5 (Continued)

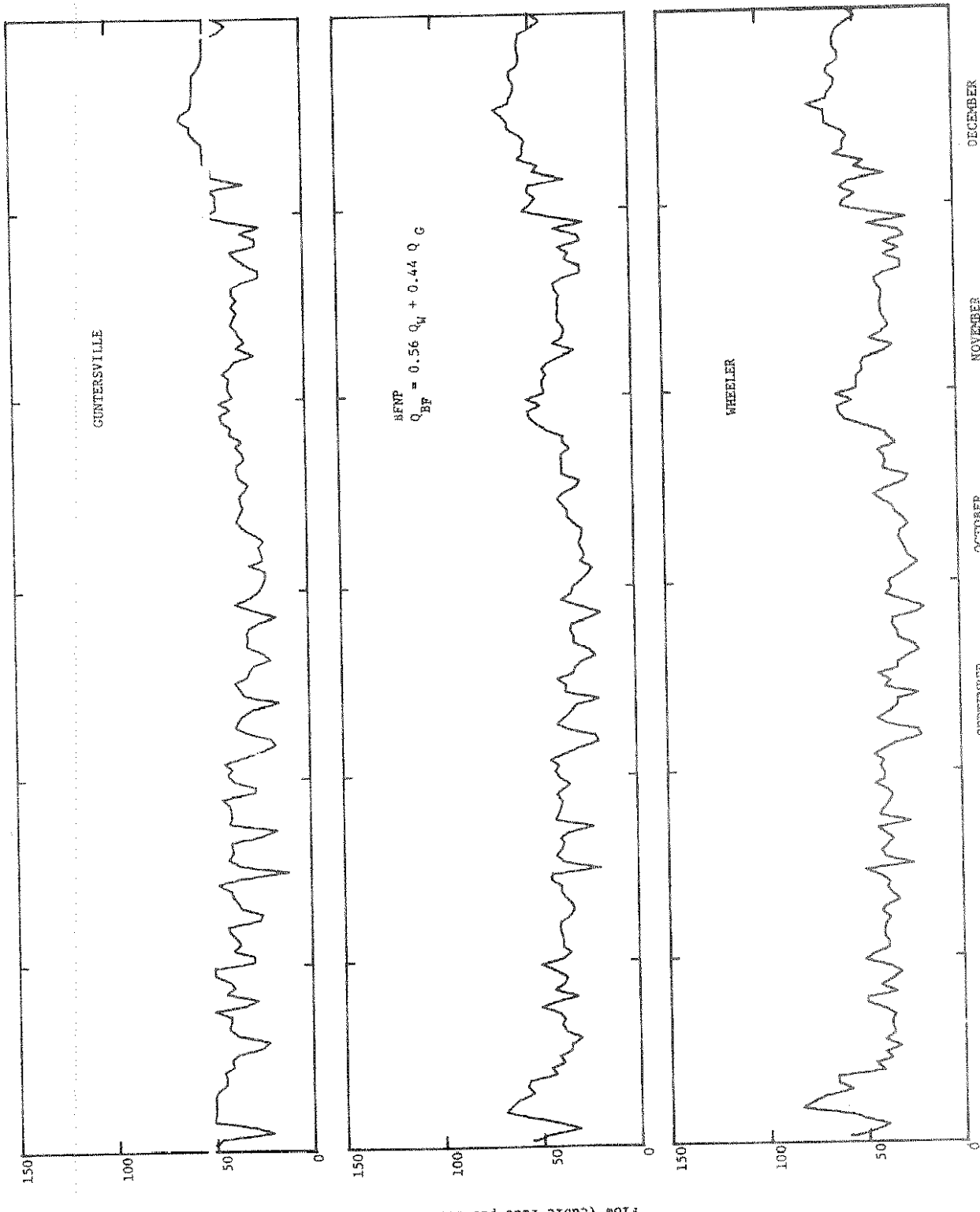


Figure 6 continued. Daily average discharge from Guntersville and Wheeler Dams and the calculated daily average flow past Browns Ferry Nuclear Plant.

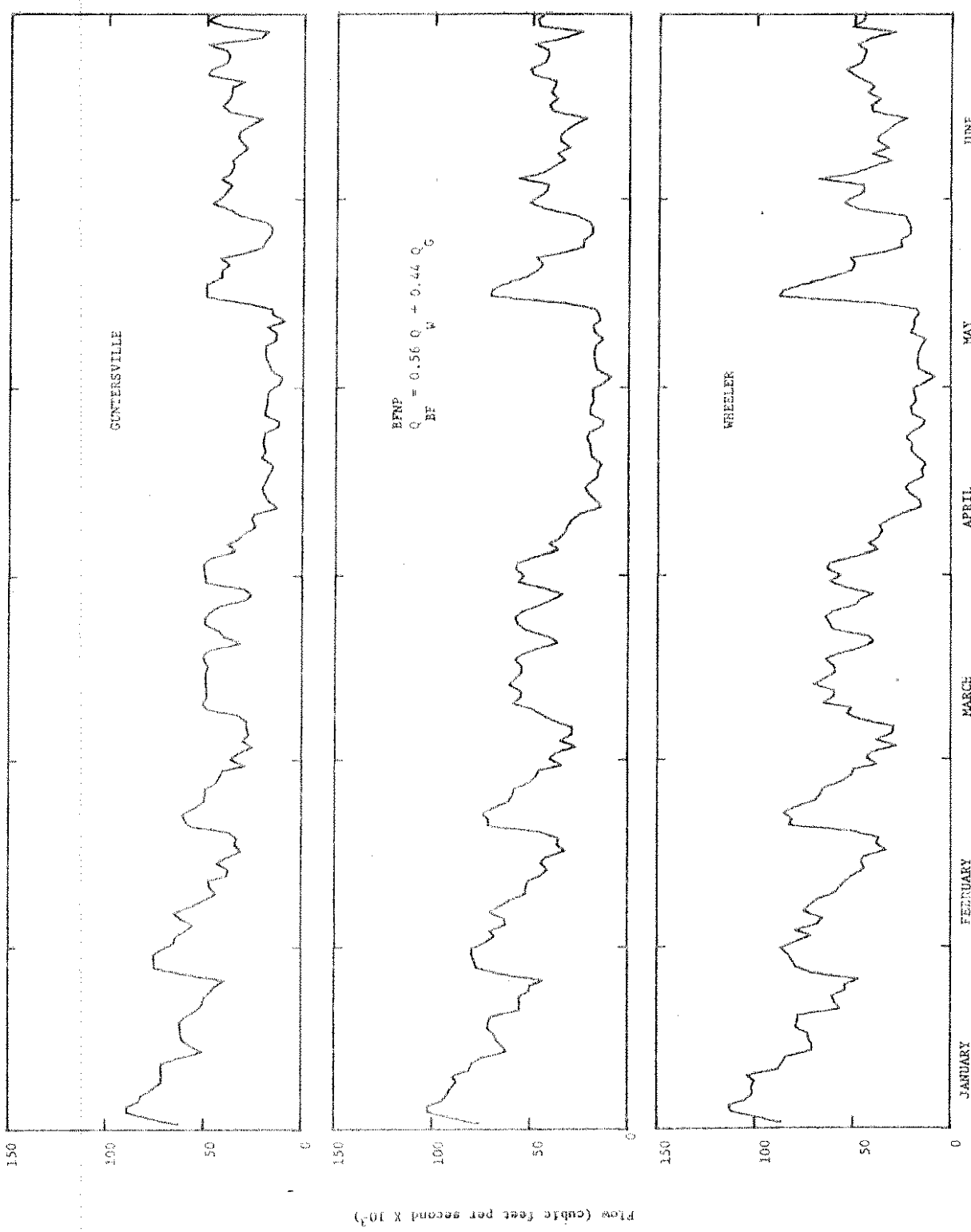


Figure 6. Daily average discharge from Guntersville and Wheeler Dams and the calculated daily average flow past Browns Ferry Nuclear Plant.

III. RESULTS OF OFFSITE WATER QUALITY SURVEYS

As in other sections of this report, specifications, bases, and methodology may be found in the corresponding section of previous semiannual reports. ["Water Quality and Biological Conditions in Wheeler Reservoir During Operation of Browns Ferry Nuclear Plant (Unit 1) August 17, 1973 - February 17, 1974," TVA, Division of Environmental Planning, April 1, 1974, and "Water Quality and Biological Conditions in Wheeler Reservoir During Operation of Browns Ferry Nuclear Plant (Unit 1) February 18, 1974 - June 30, 1974," TVA, Division of Environmental Planning, August 15, 1974.]

Water quality data for the winter, spring, summer, and fall quarters of 1976 are presented in Appendix B. These data are collected once each quarter during a water quality survey which includes both upstream and downstream stations as identified in figure 1. The data are summarized to include the maximum, minimum, mean, and standard deviation of the horizontal and vertical observations at each station. Table 2 is the summary table of "t" statistic comparisons of the means of the various stations during this reporting period for Browns Ferry Nuclear Plant. The hypothesis tested was that the samples were taken from the same population, more specifically that the mean value for one station was statistically equal to the mean value at another station. Table 2 indicates good agreement in these values. Thus the hypothesis, H: $m_1 = m_2$ is accepted and water quality parameters for the stations tested are considered to be unaltered by plant operation. (Note: Total solids are calculated as the arithmetic sum of dissolved and nonfilterable solids. Therefore, no entries are made on the STORET system for total solids.) Table 3 lists the analytical methods used in sample analysis.

During the period covered by this report, there was no apparent long-term alteration of water quality in Wheeler Reservoir due to the operation of the Browns Ferry Nuclear Plant. This conclusion is based on statistical comparison of the quarterly mean of water quality parameters from upstream and downstream stations.

TABLE 2

SUMMARY TABLE FOR "t" STATISTIC FOR OPERATIONAL WATER QUALITY DATA

Temperature	DO	BOD 5-Day	COD	pH	Total Alkalinity	Conductivity	Sodium	Sulfate	Chloride	NH_3-N	NO_2+NO_3-N	Org-N	Dissolved Solids	Non-Filterable Solids
						First Quarter 1976								
						Tennessee River Mile 283.94 vs. Tennessee River Mile 295.87								
-0.22	3.47**	a	1.79	3.73***	0.73	1.83	-1.16	-0.69	-1.06	1.01	1.06	1.65	1.70	-0.34
						Tennessee River Mile 283.94 vs. Tennessee River Mile 291.76								
-0.61	-1.52	a	0.71	1.76	1.15	0.92	-1.06	-0.26	-0.75	1.01	1.20	1.65	1.18	0.88
						Tennessee River Mile 291.76 vs. Tennessee River Mile 295.87								
0.20	1.69	a	1.41	2.01	-4.00	2.60**	-0.32	-0.58	a	a	-0.50	0.00	a	b
						Tennessee River Mile 277.98 vs. Tennessee River Mile 288.78								
-9.75***	-0.32			3.22**		4.43***								
						Tennessee River Mile 277.98 vs. Tennessee River Mile 293.70								
-4.31***	1.06			3.75**		6.95***								
						Tennessee River Mile 277.98 vs. Tennessee River Mile 307.52								
-19.75***	-2.26*			4.98***		5.82***								
						Second Quarter 1976								
						Tennessee River Mile 283.94 vs. Tennessee River Mile 295.87								
1.00	-0.56	1.66	2.32*	1.66	1.36	-0.28	-0.21	0.00	-0.38	0.27	0.21	-0.88	0.68	1.81
						Tennessee River Mile 283.94 vs. Tennessee River Mile 291.76								
0.49	-0.71	2.70*	-0.42	0.07	1.78	0.55	-1.27	-1.41	-1.46	-0.38	2.45*	0.52	1.11	-0.80
						Tennessee River Mile 291.76 vs. Tennessee River Mile 295.87								
1.13	-0.16	a	0.61	2.09*	0.70	-0.75	4.30**	0.60	0.98	0.66	-6.17***	-1.18	a	2.66*
						Tennessee River Mile 277.98 vs. Tennessee River Mile 288.78								
0.66	1.57			2.43*		a								
						Tennessee River Mile 277.98 vs. Tennessee River Mile 293.70								
0.50	1.39			3.00**		2.85*								
						Tennessee River Mile 277.98 vs. Tennessee River Mile 307.52								
2.51*	2.40*			4.23***		0.75								

*Significant at the 0.05 level
**Significant at the 0.01 level
***Significant at the 0.001 level (i.e., the difference between the means is greater than could be expected by chance 1 time in 1000)

a. All sample values were equal
b. undefined

TABLE 2

SUMMARY TABLE FOR "t" STATISTIC FOR OPERATIONAL WATER QUALITY DATA

(Continued)

Temperature	DO	BOD 5-Day	COD	pH	Total Alkalinity	Conductivity	Sodium	Sulfate	Chloride	NH_3-N	NO_2+NO_3-N	Org-N	Dissolved Solids	Non-Filterable Solids
						Third Quarter 1976								
						Tennessee River Mile 283.94 vs. Tennessee River Mile 295.87								
0.39	-0.19	1.08	1.48	-1.99	0.67	2.87**	-1.95	0.62	0.79	-3.43**	-4.16**	1.38	1.01	0.70
						Tennessee River Mile 283.94 vs. Tennessee River Mile 291.76								
-3.97***	2.03*	1.34	0.63	2.31*	1.46	2.21*	-1.87	-1.25	-0.66	-3.73**	0.08	-1.58	1.25	0.32
						Tennessee River Mile 291.76 vs. Tennessee River Mile 295.87								
3.67**	-1.06	0.32	1.63	-2.48*	-0.43	0.61	-0.10	1.26	1.15	0.68	-2.84*	1.38	0.00	3.71*
						Tennessee River Mile 277.98 vs. Tennessee River Mile 288.78								
1.52	4.50***			4.78***		a								
						Tennessee River Mile 277.98 vs. Tennessee River Mile 293.70								
-4.97***	4.88***			7.15***		1.42								
						Tennessee River Mile 277.98 vs. Tennessee River Mile 307.52								
8.81***	8.47***			9.12***		a								
						Fourth Quarter 1976								
						Tennessee River Mile 283.94 vs. Tennessee River Mile 295.87								
4.17***	1.53	1.40	1.04	2.51*	1.39	2.39*	1.21	1.26	-3.13*	-5.16***	-4.97***	2.35*	-0.29	-2.48*
						Tennessee River Mile 283.94 vs. Tennessee River Mile 291.76								
3.70***	3.10**	2.07*	1.22	4.47***	0.14	1.98	3.23*	2.34*	-0.69	-2.99*	-5.45***	2.03	-2.36*	-2.06
						Tennessee River Mile 291.76 vs. Tennessee River Mile 295.87								
2.32*	-1.36	-0.52	0.35	-1.62	1.44	1.80	-1.46	-0.67	-4.90**	-3.50*	1.24	-0.22	1.63	-1.17
						Tennessee River Mile 277.98 vs. Tennessee River Mile 288.78								
-1.25	-1.11			0.19		1.97								
						Tennessee River Mile 277.98 vs. Tennessee River Mile 293.70								
1.13	-0.15			2.30*		4.07*								
						Tennessee River Mile 277.98 vs. Tennessee River Mile 307.52								
0.99	0.39			2.36*		4.71***								

*Significant at the 0.05 level
**Significant at the 0.01 level
***Significant at the 0.001 level (i.e., the difference between the means is greater than could be expected by chance 1 time in 1000)

a. All sample values were equal
b. Undefined

TABLE 3

ANALYTICAL METHODS FOR CHEMICAL PARAMETERS

MEASURED IN WHEELER RESERVOIR

Reporting Period
January 1, 1976-December 31, 1976

Parameter	Method and Reference[a]	Preservation Techniques	Detection Limits
Temperature	Thermister-Thermometer	In situ	0.1 C°
Dissolved oxygen	Membrane EPA, 1974, p. 56 Titration-Winkler, EPA, 1974, p. 51	In situ Determine immediately	0.1 mg/l
BOD	5-day, 20°C incubation DO depletion measured with YSI (model 54RC) membrane or Titration-Winkler EPA, 1974, p.11; Standard Methods 14th ed., p. 543	Iced	1 mg/l
COD	Titrimetric - $K_2Cr_2O_7$ reflux EPA, 1974, p. 20	Sulfuric acid (1 + 4) 1 ml/4 oz.	1 mg/l
pH	Potentiometric EPA, 1974, p. 239	In situ or Determine immediately	Not applicable
Total Alkalinity	Potentiometric Titration Standard Methods 14th ed., p. 278	Determine immediately	1 mg/l
Specific Conductance	Self-contained meter EPA, 1974, p. 275	None	0.5 µmho/cm
Sodium	Atomic absorption EPA, 1974, p. 147	None	0.1 mg/l
Sulfate	Turbidimetric EPA, 1974, p. 277	None	1 mg/l
Chlorides	Titrimetric EPA, 1974, p. 29	None	1 mg/l
NH_3-N	Colorimetric EPA, 1974, p. 168	Sulfuric acid (1 + 4) 1 ml/8 oz.	0.01 mg/l
NO_2 + NO_3-N	Colorimetric EPA, 1974, p. 207	Sulfuric acid (1 + 4) 1 ml/8 oz.	0.01 mg/l
Organic-N	Colorimetric EPA, 1974, p. 182	Sulfuric acid (1 + 4) 1 ml/8 oz.	0.01 mg/l
Filterable residue	Gravimetric EPA, 1974, p. 266	None	10 mg/l
Nonfilterable residue	Gravimetric EPA, 1974, p. 268	None	1 mg/l
Total residue	Gravimetric or sum of filterable plus nonfilterable residues EPA, 1974, p. 270	None	10 mg/l

a. Methods for Chemical Analysis of Water and Wastes, EPA-625-/6-74-003, 1974.
Standard Methods for the Examination of Water and Wastewater, 14th Edition, 1975.

IV. RESULTS OF AQUATIC BIOLOGICAL MONITORING

Introduction

Aquatic biological indicators have been selected for detecting biological changes in Wheeler Reservoir attributable to the operation of Browns Ferry Nuclear Plant (BFNP). All samples (phytoplankton, zooplankton, and benthos) have been collected quarterly since January 1969. Sampling is conducted seasonally, usually during January, April, July, and October. Eight stations have been used for biological sampling since the inception of the monitoring program at BFNP. The stations shown in figure 1 are as follows:

	Tennessee River Mile
Controls	307.52
	301.06
	295.87
Below BFNP	293.70
	291.76
	288.78
	283.94
	277.98

Benthic samples are collected by a stratified random sampling design. Plankton samples are also collected randomly in the river channel near each station. Although BFNP was not operational during portions of this period of monitoring due to repairs, the biological monitoring continued as planned.

This is the sixth report prepared since BFNP began operation and includes data for winter, spring, summer, and fall of 1976. Some biological data from the previous semiannual reports are included where necessary. These data will be compared with data collected before operation began. Specifically, data will be examined to determine whether changes have occurred in aquatic

biological communities as the result of operating the BFNP. Seasonal data from stations below the plant are compared with those from three stations above the plant.

Standard operating procedures for all sample collection and laboratory methods are on file in TVA's Division of Environmental Planning, Water Quality and Ecology Branch, Aquatic Biology Section, Muscle Shoals, Alabama. Specifications, bases, and methodology can be found in previous reports.

Phytoplankton

The frequency of occurrence of phytoplankton cells by population count before and during operation of BFNP is shown in figure 7 (cells/liter). It also illustrates the relationship between populations at control stations and at stations below BFNP. These results are more clearly shown by population ranges of 500,000 cells (Table 4).

TABLE 4
TOTAL PHYTOPLANKTON POPULATION FREQUENCY OF OCCURRENCE
IN RANGE GROUPS OF 500,000 CELLS/LITER
(Data Taken From Figure 7)

	Range Groups (Cells/l) x 10^5					
	0-5	5-10	10-15	15-20	20-27	>27
	Percentage Occurrence					
Preoperational - Control	48	26	9	6	6	5
Preoperational - Below BFNP	30	30	10	5	15	10
Operational - Control	51	28	13	5	3	-
Operational - Below BFNP	41	11	8	6	6	28

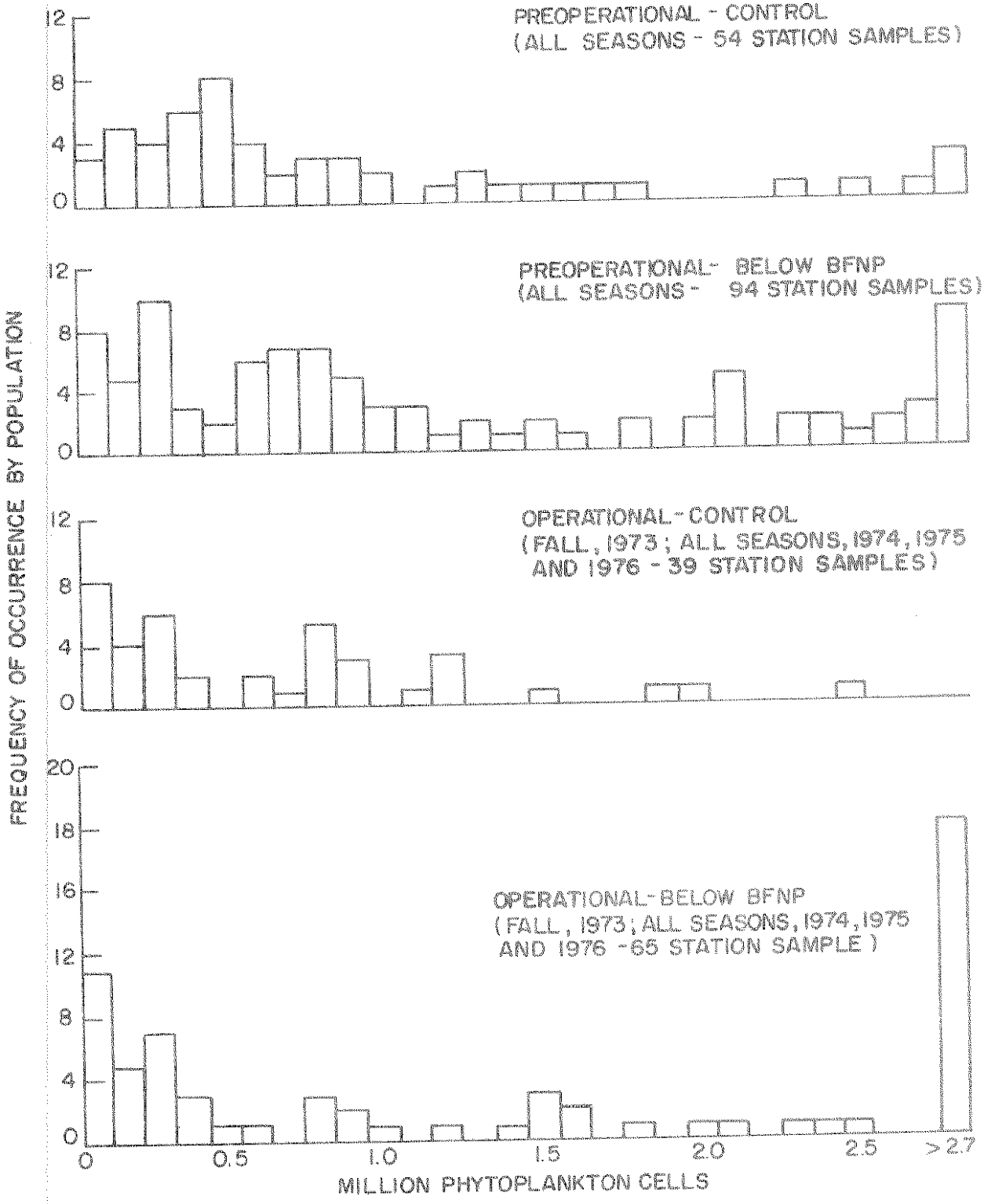


FIGURE 7. FREQUENCY OF PHYTOPLANKTON OCCURRENCE BY POPULATION NUMBERS ABOVE AND BELOW BROWNS FERRY NUCLEAR PLANT BEFORE AND DURING OPERATION.

Winter, spring, summer, and fall samples are used in figure 7 and table 4 to establish a frequency range for the entire preoperational monitoring phase. Operational data for fall of 1973, all seasons during 1974, 1975, and 1976 are combined for the same reason. The value of these types of comparisons will increase as additional data are obtained from operational monitoring. At this time, 148 preoperational samples are compared with only 104 operational.

Winter and spring phytoplankton samples throughout the entire monitoring period have shown a similarity in the standing crop of phytoplankton below BFNP and in the control area, because the water is homogenously mixed by seasonal flow regulations and lack of temperature stratification. However, the spring samples of 1976 tend to reflect summer conditions because of unusually high water temperatures in the control area as well as below BFNP. This is partly due to extremely low rainfall throughout the Tennessee Valley during March and April of 1976 allowing far more stratification near Wheeler Dam. These results are shown in Appendix C (tables 1, 2, 7, 8, 9, 21, 22, 27, and 28). From this analysis, it is concluded that total phytoplankton numbers were not affected by the operation of BFNP during the winter and spring of 1976.

Phytoplankton samples which were collected throughout the summer and fall monitoring period of 1976 have shown a larger standing crop of phytoplankton below BFNP than in the control area. This has been the case during each of the previous 8-year study periods including preoperational and operational sampling. Phytoplankton growth in Wheeler Reservoir during the summer and

fall of 1976 was generally greater than any of the other study years due to ideal summer and fall growing conditions. These conditions consisted of physical factors such as lower water levels, clearer water, longer water retention time, and ideal solar radiation. These results are shown in Appendix C (tables 9, 37, 38, 43, 44, 53, 54, 59, and 60).

From this analysis it is concluded that total phytoplankton numbers were not affected by the operation of BFNP during the summer and fall of 1976.

Figure 8 shows percentages of Chrysophyta, Chlorophyta, and Cyanophyta in the total phytoplankton populations for winter and spring seasons of each year and the differences between control and below BFNP. Larger than usual blue-green algae percentages are shown (28% and 35%) in figure 8 for the winter of 1976 above and below BFNP due to the early spring weather and more retention time for the water due to minimum rainfall. Additional data are shown in tables 4, 5, 6, 24, 25, and 26 in Appendix C.

Figure 9 shows percentages of Chrysophyta, Chlorophyta, and Cyanophyta in the total phytoplankton populations for summer and fall seasons of each year and the differences between control and below BFNP. Larger than usual blue-green algae percentages (68% and 56%) and smaller than usual diatom percentages (15% and 26%) are shown in figure 9 for the fall of 1976 above and below BFNP. This is not due to the operation of BFNP because increases and decreases are similar above and below BFNP. Additional data are shown in tables 40, 41, 42, 56, 57, and 58.

Diversity

Chrysophyta (diatoms), Chlorophyta (green algae), and Cyanophyta (blue-green algae) are the major groups of phytoplankton examined for diversity.

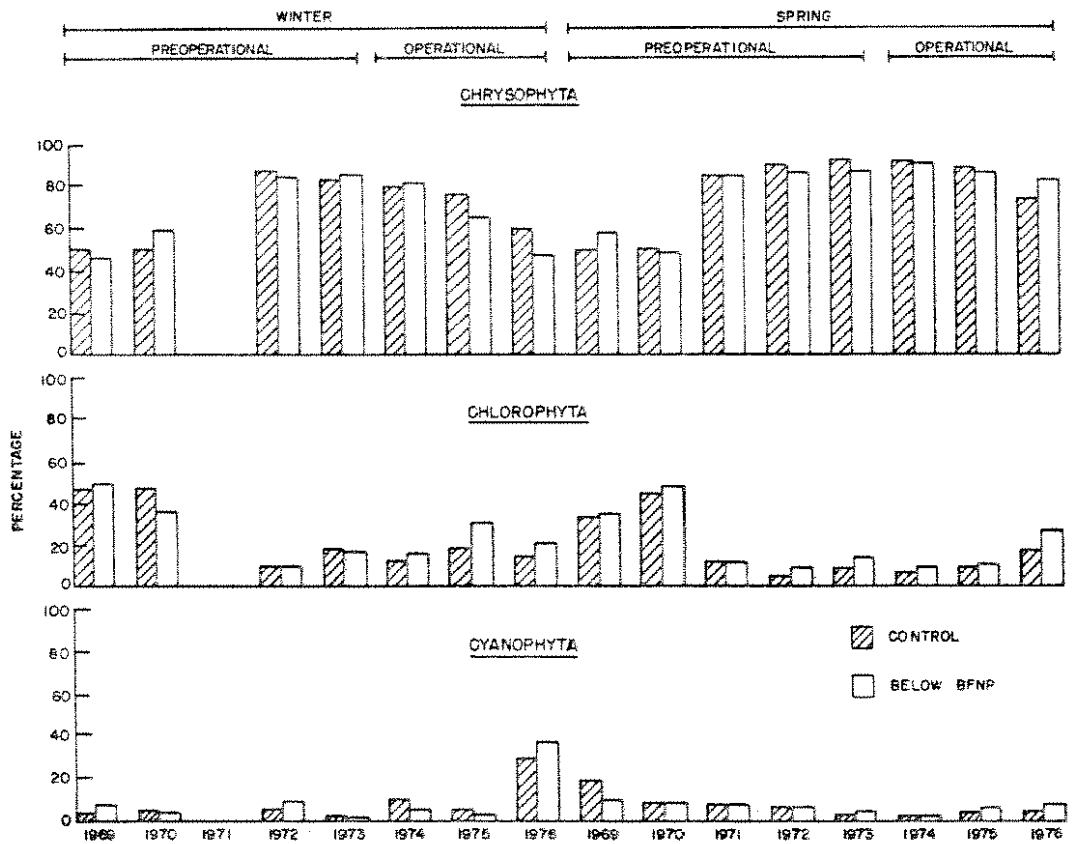


FIGURE 8. PHYTOPLANKTON GROUP DIVERSITY BY PERCENTAGES DURING THE WINTER AND SPRING OF ALL YEARS SAMPLED SHOWING PREOPERATIONAL VERSUS OPERATIONAL AND CONTROL VERSUS BELOW BFNP

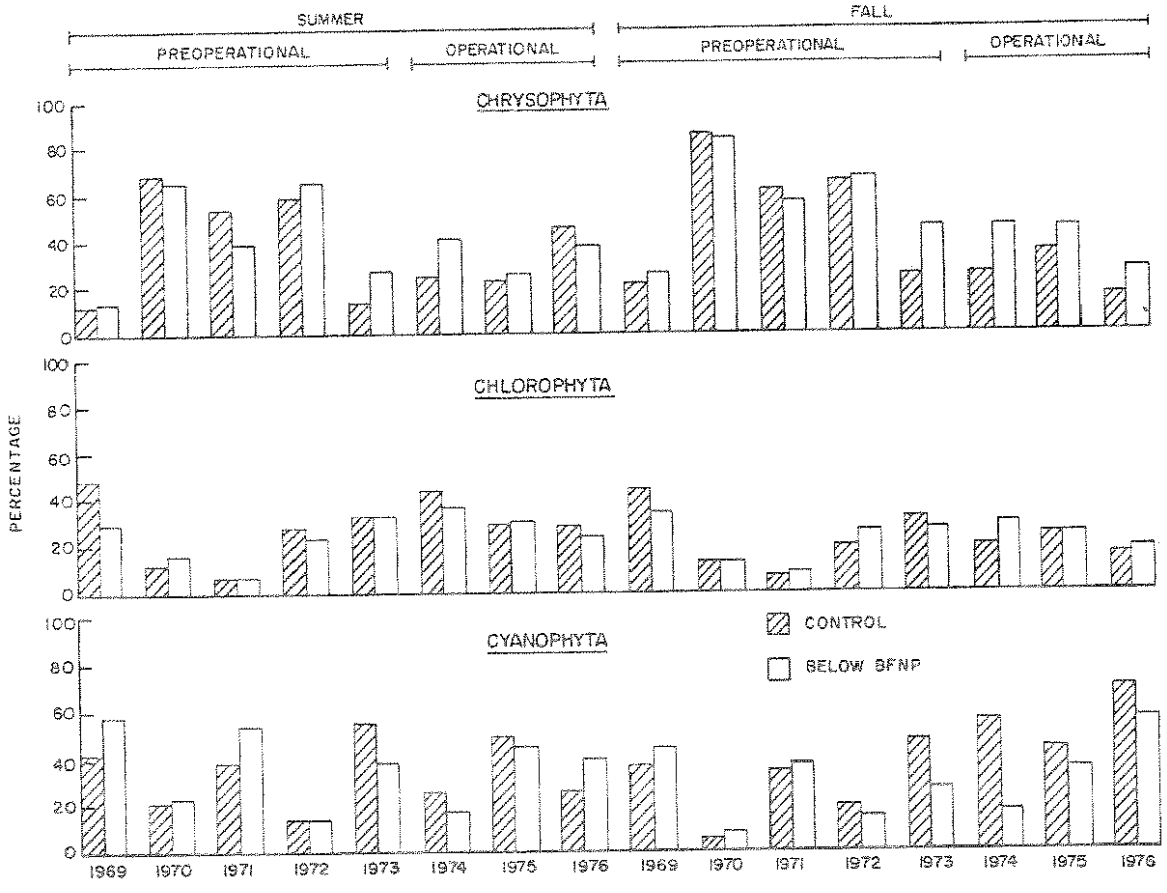


FIGURE 9. PHYTOPLANKTON GROUP DIVERSITY BY PERCENTAGE DURING THE SUMMER AND FALL SHOWING PREOPERATIONAL VERSUS OPERATIONAL AND CONTROL VERSUS BELOW BFNP

A genera index of change was established within each group for the winter, spring, summer, and fall seasons as follows:

PHYTOPLANKTON GENERA INDEX OF CHANGE DEVELOPED FOR BROWNS FERRY NUCLEAR PLANT WINTER PREOPERATIONAL AND 1976 OPERATIONAL COMPARISONS

Objective: To determine whether the genera diversity for phytoplankton in each group (Chrysophyta, Chlorophyta, and Cyanophyta) has changed because of operation of Browns Ferry Nuclear Plant by the employment of a genera index of change.

Data analyzed from table 3 (appendix C)

Diversity Index Formulas and Definitions:

r - m + n = d.c. (r, m, n, and d.c. represent numerical values of different genera present)

where

r = resident genera (present during every preoperational sampling period)

m = missing genera (present during every preoperational sampling period but missing during operational sampling)

n = new genera (found for first time during operational sampling)

d.c. = diversity change (+ change from resident population after operation of Browns Ferry Nuclear Plant)

p.n. = plotted number (indicating whether diversity index is above or below normal)

r - m + n = d.c. employed:

TRM	Chrysophyta	Chlorophyta	Cyanophyta	Total
Below BFNP				
(a) 277.98	3 - 0 + 2 = 5	0 - 0 + 7 = 7	0 - 0 + 2 = 2	3 - 0 + 11 = 14
(b) 283.94	4 - 0 + 3 = 7	0 - 0 + 8 = 8	0 - 0 + 4 = 4	4 - 0 + 15 = 19
(c) 288.78	4 - 0 + 1 = 5	0 - 0 + 8 = 8	0 - 0 + 2 = 2	4 - 0 + 11 = 15
(d) 291.76	4 - 1 + 4 = 7	1 - 0 + 7 = 8	0 - 0 + 4 = 4	5 - 1 + 15 = 19
(e) 293.70	4 - 0 + 1 = 5	0 - 0 + 3 = 3	0 - 0 + 2 = 2	4 - 0 + 6 = 10
	r = 19 d.c. = 29	r = 1 d.c. = 34	r = 0 d.c. = 14	r = 20 d.c. = 77
$\bar{x}$	r = 3.8 d.c. = 5.8	r = 0.2 d.c. = 6.8	r = 0 d.c. = 2.8	r = 4.0 d.c. = 15.4

Control

(f)	283.94	4 - 0 + 0 = 4	2 - 1 + 8 = 9	0 - 0 + 2 = 2	6 - 1 + 10 = 15
(g)	301.06	4 - 0 + 3 = 7	0 - 0 +10 =10	0 - 0 + 2 = 2	4 - 0 + 15 = 19
(h)	307.52	4 - 0 + 2 = 6	0 - 0 + 6 = 6	0 - 0 + 1 = 1	4 - 0 + 9 = 13
		r = 12 d.c. = 17	r= 2 d.c. = 25	r= 0 d.c. = 5	r=14 d.c. = 47

$\bar{x}$ d.c. - $\bar{x}$ r = p.n. employed:

	Chrysophyta	Chlorophyta	Cyanophyta
Below BFNP	5.8 - 3.8 = 2.0	6.8 - 0.2 = 6.6	2.8 - 0 = 2.8
Control	5.7 - 4.0 = 1.7	8.3 - 0.7 = 7.6	1.7 - 0 = 1.7

PHYTOPLANKTON GENERA INDEX OF CHANGE DEVELOPED FOR BROWNS FERRY NUCLEAR PLANT

SPRING PREOPERATIONAL AND SPRING 1976 OPERATIONAL COMPARISONS

The objective, diversity index formulas, definitions, and discussions are the same as those for the winter season as previously shown.

Data analyzed from table 23 (appendix C).

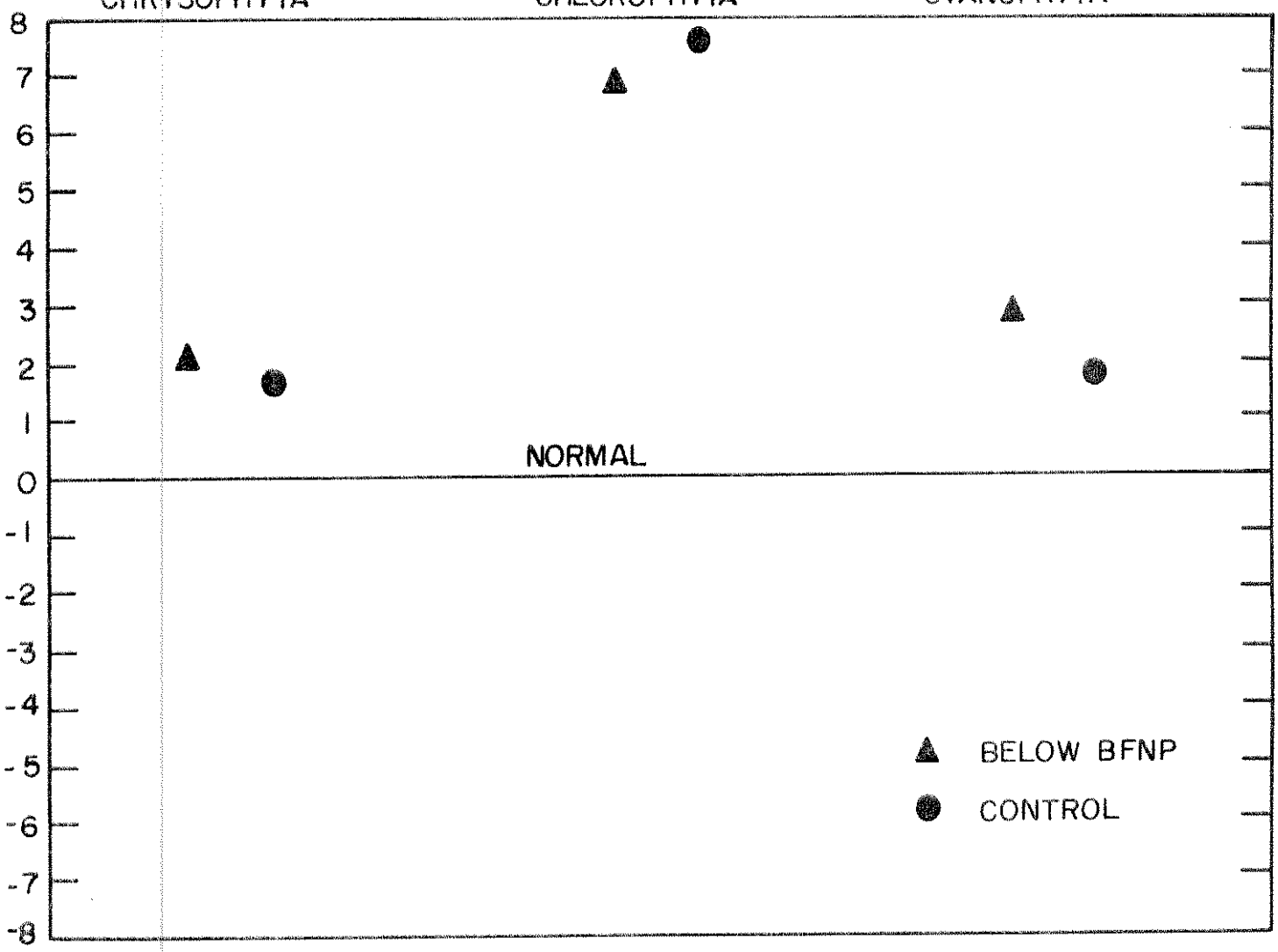
r - m + n = d.c. employed:

		Chrysophyta	Chlorophyta	Cyanophyta	Total
Below BFNP					
(a)	277.98	4 - 1 + 3 = 6	0 - 0 + 5 = 5	0 - 0 + 2 = 2	4 - 1 + 10 = 13
(b)	283.94	3 - 1 + 0 = 2	1 - 0 + 7 = 8	0 - 0 + 4 = 4	4 - 1 + 11 = 14
(c)	288.78	3 - 0 + 1 = 4	1 - 0 + 5 = 6	0 - 0 + 2 = 2	4 - 0 + 8 = 12
(d)	291.76	4 - 1 + 5 = 8	1 - 0 + 6 = 7	0 - 0 + 3 = 3	5 - 1 + 14 = 18
(e)	293.70	4 - 1 + 2 = 5	0 - 0 +10 =10	0 - 0 + 2 = 2	4 - 1 + 14 = 17
		r = 18 d.c. = 25	r = 3 d.c. = 36	r = 0 d.c. = 13	r = 21 d.c. = 74
	$\bar{x}$	r = 3.6 d.c. = 5.0	r = 0.6 d.c. = 7.2	r = 0 d.c. =2.6	r = 4.2 d.c. = 14.8

Control					
(f)	295.87	4 - 1 + 3 = 6	0 - 0 + 5 = 5	0 - 0 + 0 = 0	4 - 1 + 8 = 11
(g)	301.06	4 - 1 + 0 = 3	0 - 0 + 0 = 0	0 - 0 + 3 = 3	4 - 1 + 3 = 6
(h)	307.52	2 - 0 + 5 = 7	0 - 0 + 4 = 4	0 - 0 + 1 = 1	2 - 0 +10 = 12
		r = 10 d.c. = 16	r = 0 d.c. = 9	r = 0 d.c. = 4	r=10 d.c. = 29
	$\bar{x}$	r = 3.3 d.c. = 5.3	r = 0 d.c. = 3.0	r = 0 d.c. = 1.3	r=3.3 d.c. = 9.6

$\bar{x}$ d.c. - $\bar{x}$ r = p.n. employed:

	Chrysophyta	Chlorophyta	Cyanophyta
Below BFNP	5.0 - 3.6 = 1.4	7.2 - 0.6 = 6.6	2.6 - 0 = 2.6
Control	5.3 - 3.3 = 2.0	3.0 - 0 = 3.0	1.3 - 0 = 1.3



RESULTS OF WINTER 1976 PHYTOPLANKTON GENERA INDEX OF CHANGE

Discussion:

(a) If pn below BFNP is normal or above, the phytoplankton genera diversity is the same or greater than before operation of BFNP.

(b) If pn below BFNP is below normal, the genera diversity is less than before operation of BFNP (go to c or d for final consideration).

(c) If pn below BFNP is below normal, the pn for control is below normal and similar to pn below BFNP (<1) , the decrease in the diversity index is not caused by operation of BFNP.

(d) If pn below BFNP is below normal and pn for control is above normal and greatly different (>1) , the diversity index decrease may be because of operation of BFNP and needs to be investigated more thoroughly.

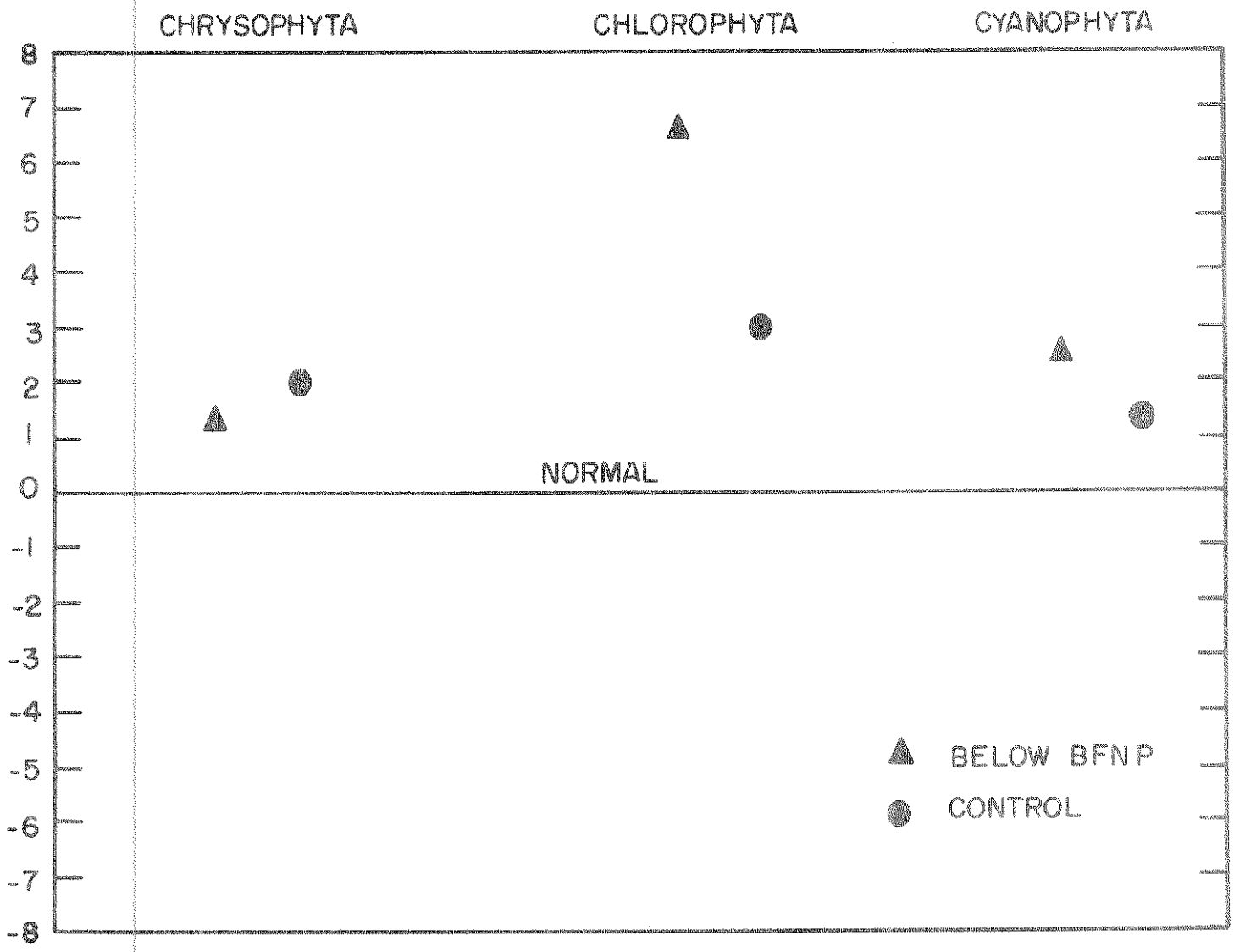
(e) Whenever pn for control is >1 over pn below BFNP whether above or below normal, the investigator assumes the diversity index below BFNP may be changed because of operation of BFNP and needs to be investigated more thoroughly.

Conclusions:

a or c from Discussion - Phytoplankton genera diversity index unchanged.

d or e from Discussion - Phytoplankton genera diversity index decreased below BFNP as compared with control and may be because of operation of BFNP. Comment required.

Phytoplankton Group	Discussion Category	Comment
Chrysophyta	a	None required
Chlorophyta	a	None required
Cyanophyta	a	None required



RESULTS OF SPRING 1976 PHYTOPLANKTON GENERA INDEX OF CHANGE

Phytoplankton Group	Discussion Category	Comment
Chrysophyta	a	None Required
Chlorophyta	a	None Required
Cyanophyta	a	None Required

From these analyses, it is concluded that group diversity was not affected by operation of BFNP during the spring and winter of 1976 because of the similarity of percentages of each group present above and below BFNP during both preoperational and operational monitoring and also because of the results of the genera index of change for winter and spring of 1976.

PHYTOPLANKTON GENERA INDEX OF CHANGE DEVELOPED FOR BROWNS FERRY NUCLEAR PLANT

SUMMER PREOPERATIONAL AND 1976 OPERATIONAL COMPARISONS

Objective: The objective, diversity index formulas, definitions, and discussions are the same as those for the winter season as shown previously.

Data analyzed from table 39 (appendix C)

r - m + n = d.c. employed:

TRM	Chrysophyta		Chlorophyta		Cyanophyta		Total	
	r	d.c.	r	d.c.	r	d.c.	r	d.c.
Below BFNP								
(a) 277.98	3 - 0 + 0 =	3	4 - 0 + 3 =	7	1 - 0 + 2 =	3	8 - 0 + 5 =	13
(b) 283.94	4 - 0 + 0 =	4	3 - 0 + 3 =	6	0 - 0 + 1 =	1	7 - 0 + 4 =	11
(c) 288.78	4 - 0 + 0 =	4	2 - 1 + 4 =	5	0 - 0 + 1 =	1	6 - 1 + 5 =	10
(d) 291.76	4 - 1 + 1 =	4	3 - 0 + 4 =	7	1 - 0 + 1 =	2	8 - 1 + 6 =	13
(e) 293.70	2 - 0 + 1 =	3	4 - 1 + 5 =	0	1 - 0 + 1 =	2	7 - 1 + 7 =	13
Σ_e^a	17	18	16	33	3	9	36	60
$\bar{x}_e^a$	3.4	3.6	3.2	6.6	0.6	1.8	7.2	12.0
Control								
(f) 295.87	4 - 0 + 2 =	6	2 - 0 + 3 =	5	1 - 0 + 1 =	2	7 - 0 + 6 =	13
(g) 301.06	3 - 0 + 2 =	5	3 - 1 + 4 =	6	0 - 0 + 1 =	1	6 - 1 + 7 =	12
(h) 307.52	3 - 0 + 1 =	4	2 - 1 + 3 =	4	0 - 0 + 0 =	0	5 - 1 + 4 =	8
Σ_h^f	10	15	7	15	1	3	18	33
$\bar{x}_h^f$	3.3	5.0	2.3	5.0	0.3	1.0	6.0	11.0

$\bar{x}$ d.c. - $\bar{x}$ r = p.n. employed:

	Chrysophyta	Chlorophyta	Cyanophyta
Below BFNP	3.6 - 3.4 = 0.2	6.6 - 3.2 = 3.4	1.8 - 0.6 = 1.2
Control	5.0 - 3.3 = 1.7	5.0 - 2.3 = 2.7	1.0 - 0.3 = 0.7

PHYTOPLANKTON GENERA INDEX OF CHANGE DEVELOPED FOR BROWNS FERRY NUCLEAR PLANT

FALL PREOPERATIONAL AND 1976 OPERATIONAL COMPARISONS

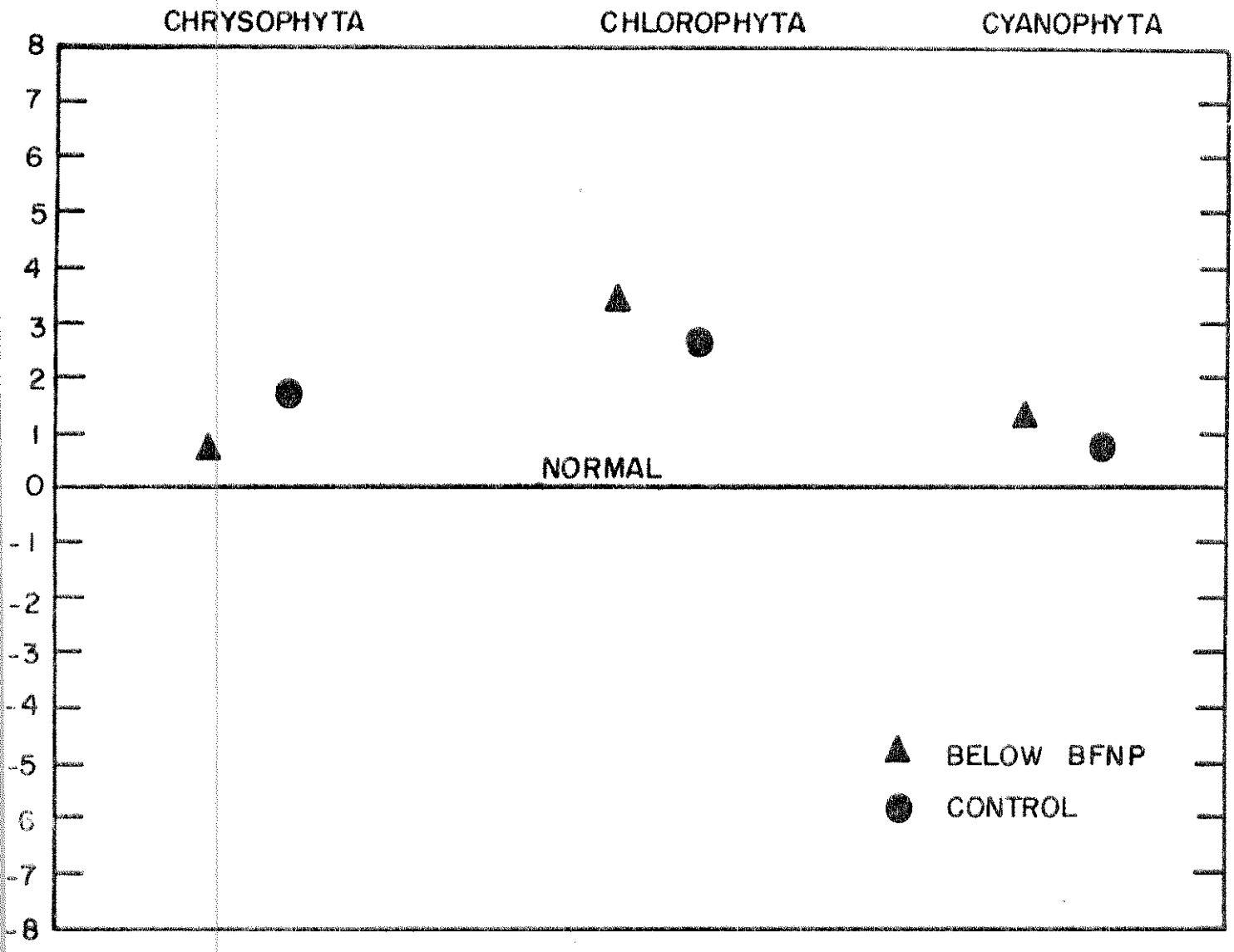
Data analyzed from table 55, appendix C

r - m + n = d.c. employed:

TRM	Chrysophyta		Chlorophyta		Cyanophyta		Total	
	r	d.c.	r	d.c.	r	d.c.	r	d.c.
Below BFNP								
(a) 277.98	3 - 0 + 1	= 4	5 - 2 + 8	= 11	1 - 0 + 4	= 5	9 - 2 + 13	= 20
(b) 283.94	4 - 1 + 3	= 6	4 - 1 + 7	= 10	1 - 0 + 2	= 3	9 - 2 + 12	= 19
(c) 288.78	4 - 1 + 3	= 6	3 - 1 + 9	= 11	1 - 0 + 3	= 4	8 - 2 + 15	= 21
(d) 291.76	4 - 0 + 5	= 9	3 - 1 + 8	= 10	1 - 0 + 2	= 3	8 - 1 + 15	= 22
(e) 293.70	4 - 0 + 3	= 6	3 - 1 + 16	= 18	1 - 0 + 3	= 4	8 - 1 + 22	= 29
Σ_e^a	19	31	18	60	5	19	42	111
$\bar{x}_e^a$	3.8	6.2	3.6	12.0	1.0	3.8	8.4	22.0
Control								
(f) 295.87	4 - 1 + 4	= 7	3 - 0 + 15	= 18	1 - 0 + 1	= 2	8 - 1 + 20	= 27
(g) 301.06	3 - 0 + 1	= 4	2 - 1 + 11	= 12	1 - 0 + 4	= 5	6 - 1 + 16	= 21
(h) 307.52	3 - 0 + 4	= 7	2 - 1 + 10	= 11	1 - 0 + 4	= 5	6 - 1 + 18	= 23
Σ_h^f	10	18	7	41	3	12	20	71
$\bar{x}_h^f$	3.3	5.7	2.3	14.0	1.0	3.0	6.6	22.7

$\bar{x}$ d.c. - $\bar{x}$r = p.n. employed:

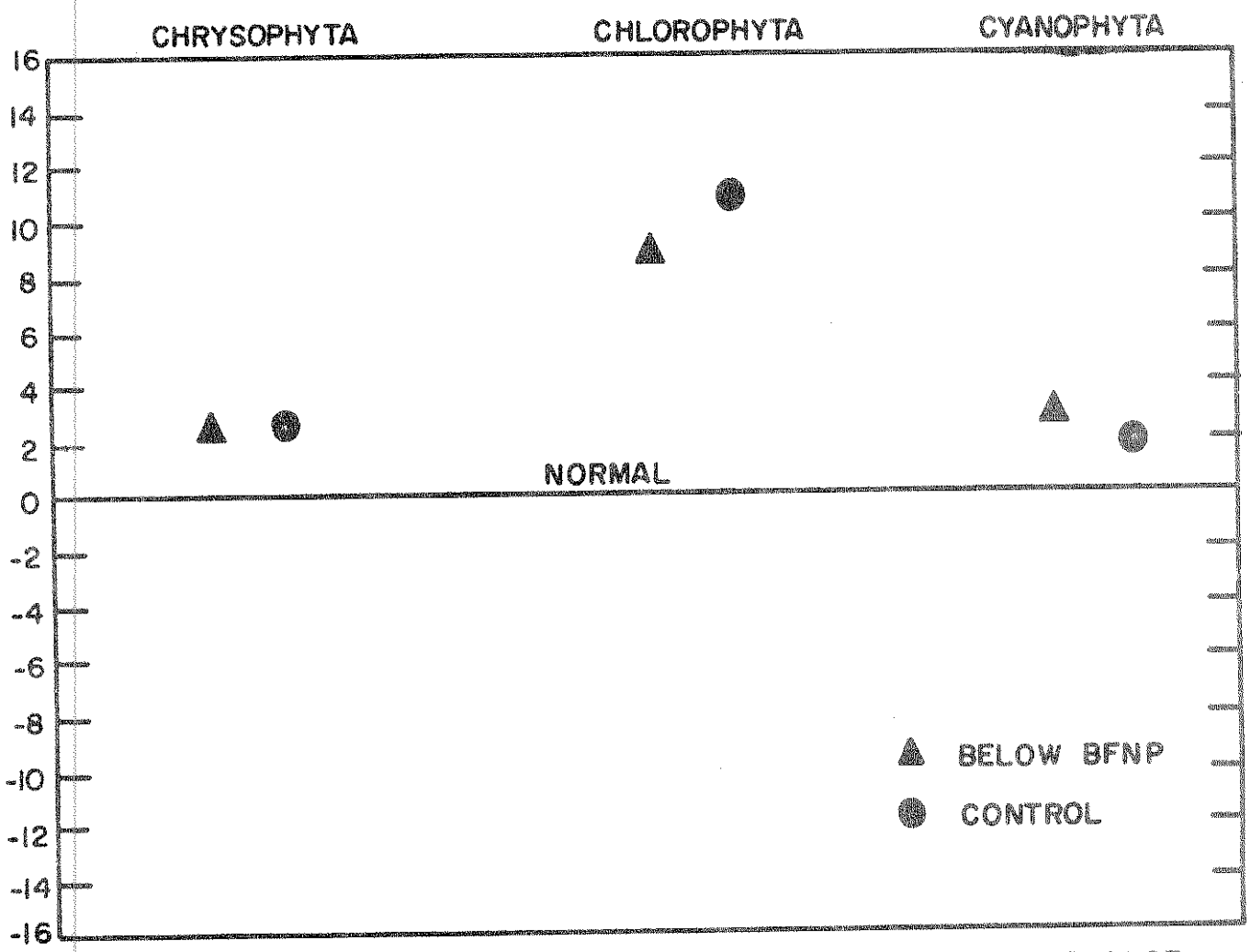
	Chrysophyta	Chlorophyta	Cyanophyta
Below BFNP	6.2 - 3.8 = 2.4	12.0 - 3.6 = 8.4	3.8 - 1.0 = 2.8
Control	5.7 - 3.3 = 2.4	14.0 - 2.3 = 11.7	3.0 - 1.0 = 2.0



RESULTS OF SUMMER 1976 PHYTOPLANKTON GENERA INDEX OF CHANGE

Phytoplankton Group	Discussion Category	Comment
Chrysophyta	a,e	See Below
Chlorophyta	a	None Required
Cyanophyta	a	None Required

Chrysophyta is in categories a and e but the control area index is only 0.5 out of the established one normal range (1.7 for control - 0.2 for below BFNP = 0.5). This difference is not considered significant since Achnanthes was found for the first time at all control stations and has previously been found at all stations below BFNP. This is the cause for the index being larger in the control area above BFNP.



RESULTS OF FALL 1976 PHYTOPLANKTON GENERA INDEX OF CHANGE

Phytoplankton Group	Discussion Category	Comment
Chrysophyta	a	None
Chlorophyta	a,e	See Below
Cyanophyta	a	None

Chlorophyta is in categories a and e because new genera were found in the control area that have previously been found in the area below BFNP; therefore, these genera below BFNP were not counted during the summer of 1976 as new genera. This is the reason for the larger index in the control area. The index below BFNP has been higher or similar during previous fall reports.

From these analyses, it is concluded that group diversity was not affected by operation of BFNP during the spring, winter, summer, and fall of 1976 because of the similarity of percentages of each group present above and below BFNP during both preoperational and operational monitoring and also because of the results of the genera index of change for winter, spring, summer, and fall of 1976.

Biomass--Biomass or weight was calculated from chlorophyll a extraction and is another means of expressing standing crop in a unit area at a given time. Figure 10 shows biomass comparisons by the chlorophyll a extraction method for the winter and spring seasons for each year and the differences between values for control stations and stations below BFNP. Additional chlorophyll a data are shown in tables 7, 8, 27, and 28 in appendix C. Phytoplankton biomass was not affected by operation of BFNP in the winter and spring of 1976. The relationship between data for control stations and that for the stations below BFNP remains similar due to the normal homogeneity already expressed in the previous paragraphs of phytoplankton discussion. These results are also reflected in the phytoplankton productivity studies.

Figure 11 shows biomass comparisons by the chlorophyll a extraction method for the summer and fall seasons for each year and the differences between values for control stations and stations below BFNP. The summer and fall chlorophyll samples throughout the entire monitoring period have shown a larger biomass per sample below BFNP than in the control area. This was also indicated by phytoplankton enumeration samples. These results are also reflected in the phytoplankton productivity studies. Additional chlorophyll a data are shown in tables 43, 44, 59, and 60 in Appendix C.

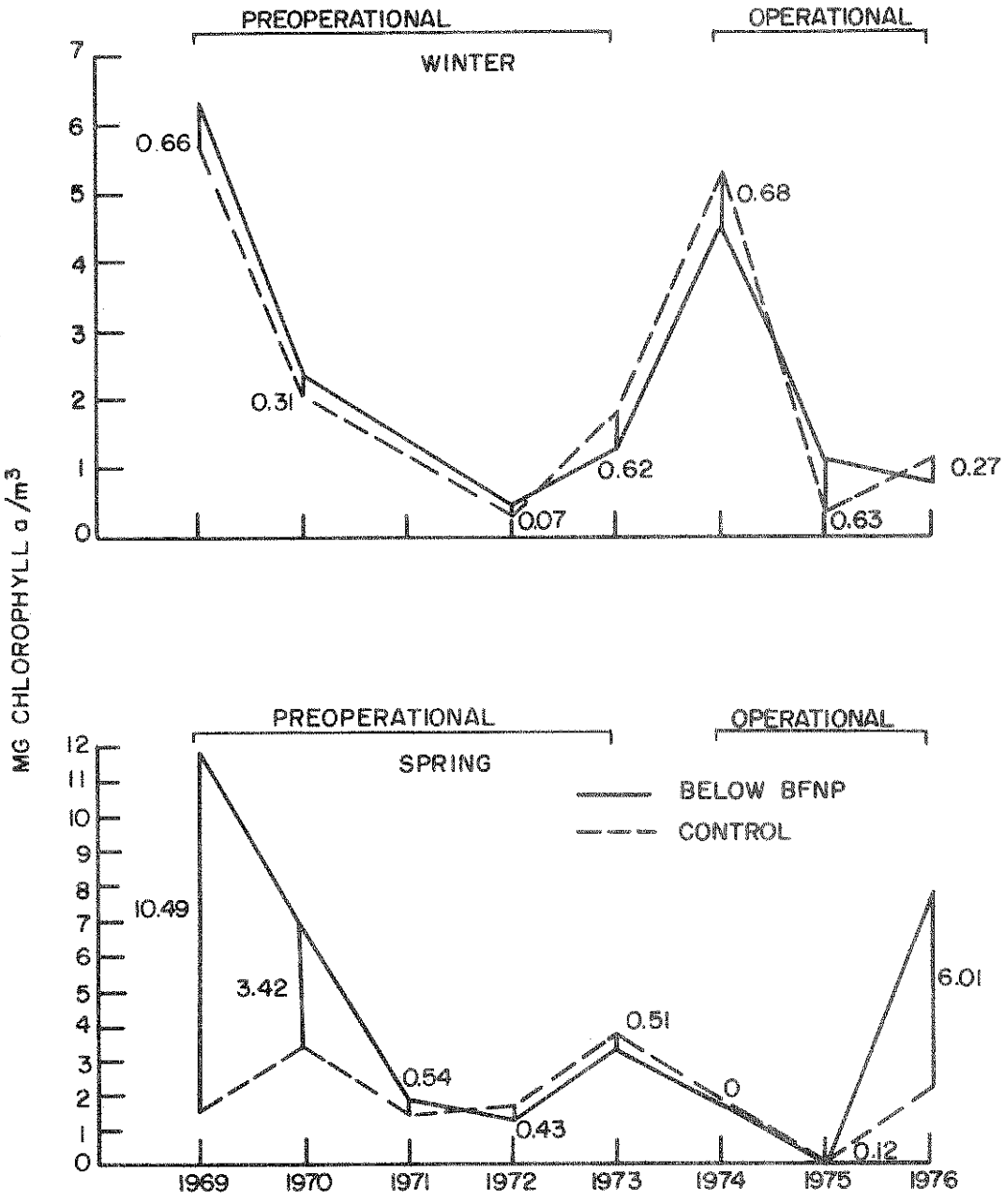


FIGURE 10. CHLOROPHYLL A COMPARISONS BY YEARS SHOWING THE DIFFERENCES BETWEEN CONTROL AND BELOW BFNP FOR WINTER AND SPRING 1976.

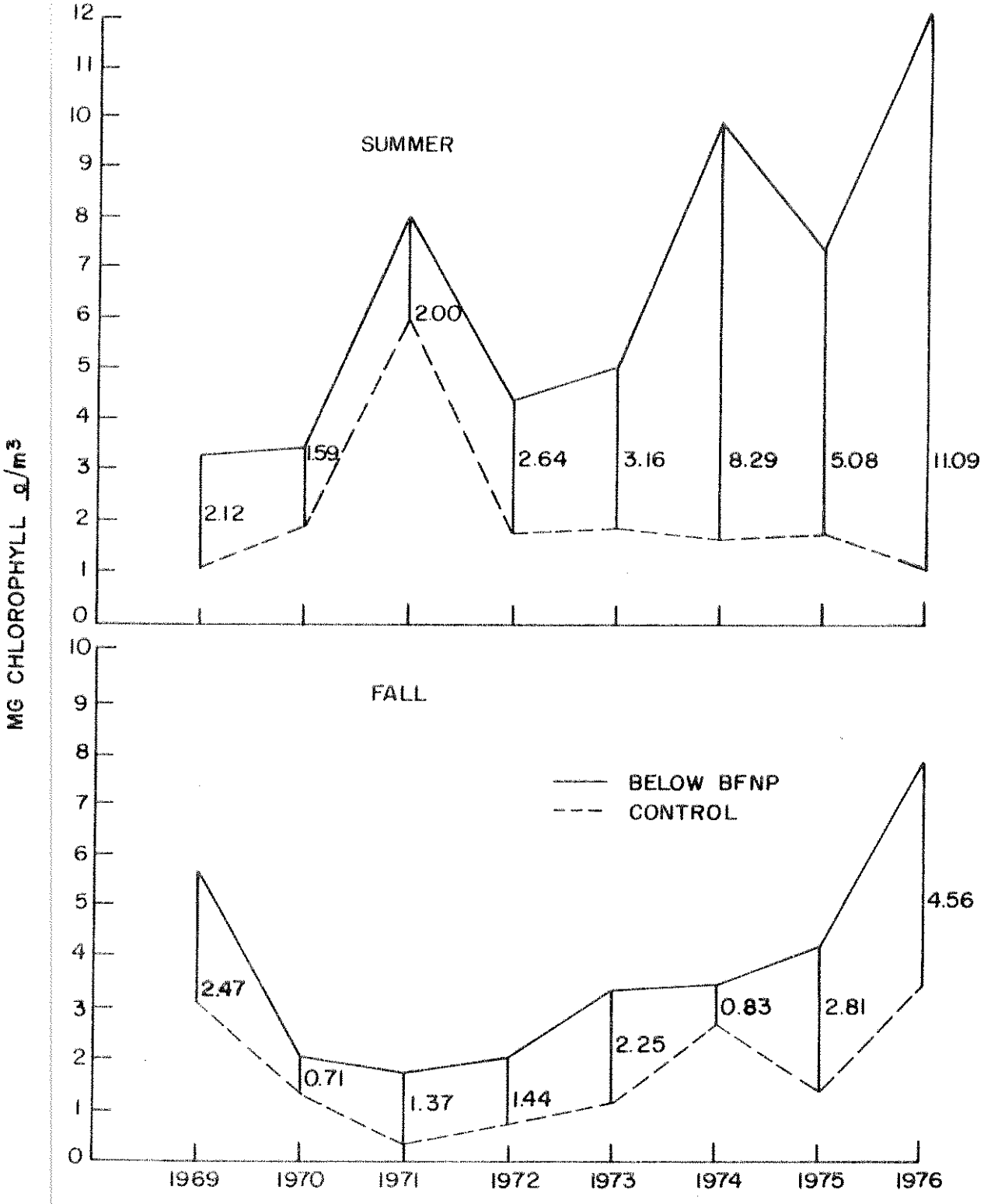


FIGURE 11. CHLOROPHYLL A COMPARISONS BY YEARS SHOWING THE DIFFERENCE BETWEEN CONTROL AND BELOW BFNP FOR SUMMER AND FALL SAMPLES.

Productivity--Productivity is the rate of accumulation of new organic matter or stored energy; that is, productivity is the observed change in biomass plus all losses, except respiration, divided by the time interval and expressed by the carbon-14 method. Figures 12 and 13 show phytoplankton productivity data comparisons for preoperational versus operational and control versus below BFNP. Additional pertinent data are shown in summary form in table 9 of Appendix C.

Data in milligram units of carbon per square meter per day are available only from winter 1972 to the present; before 1972, solar radiation data were not available for daily calculations of phytoplankton productivity. The homogeneity of the water mass and the lower productivity values during the winter months are expressed clearly in figure 12 and table 9 of Appendix C. The higher productivity values for spring 1976 are due to the same physical factors as stated in the phytoplankton biomass and enumeration section for both the control area and below BFNP.

Productivity values below BFNP were greater than those in the control area during both summer and fall months as shown in figure 13 and table 9 of Appendix C. The lower productivity values are due to the same physical factors as stated in the previous phytoplankton biomass section for both the control area and below BFNP.

From this analysis it is concluded that phytoplankton productivity was not affected by the operation of BFNP during the winter, spring, summer, or fall of 1976.

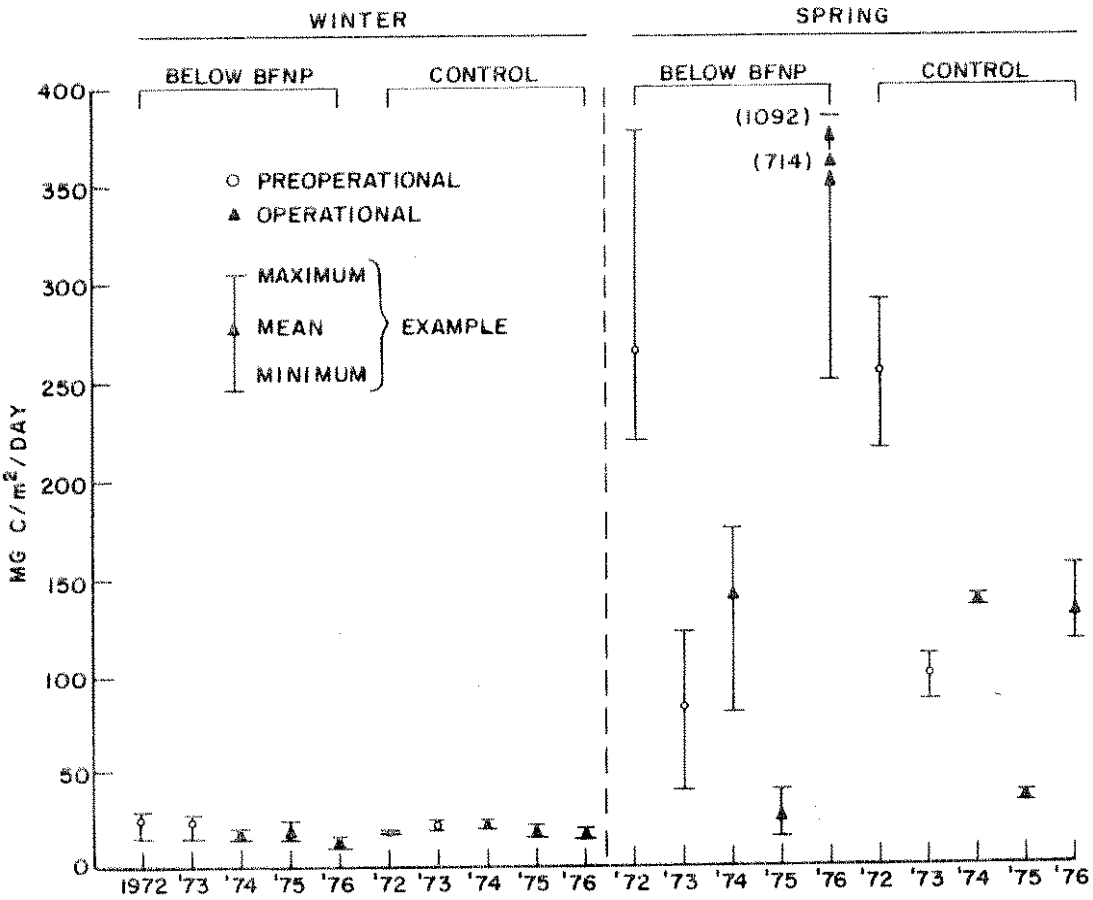


FIGURE 12. PHYTOPLANKTON PRODUCTIVITY DURING THE WINTER AND SPRING SEASONS SHOWING PREOPERATIONAL VERSUS OPERATIONAL AND CONTROL VERSUS BELOW BFNP

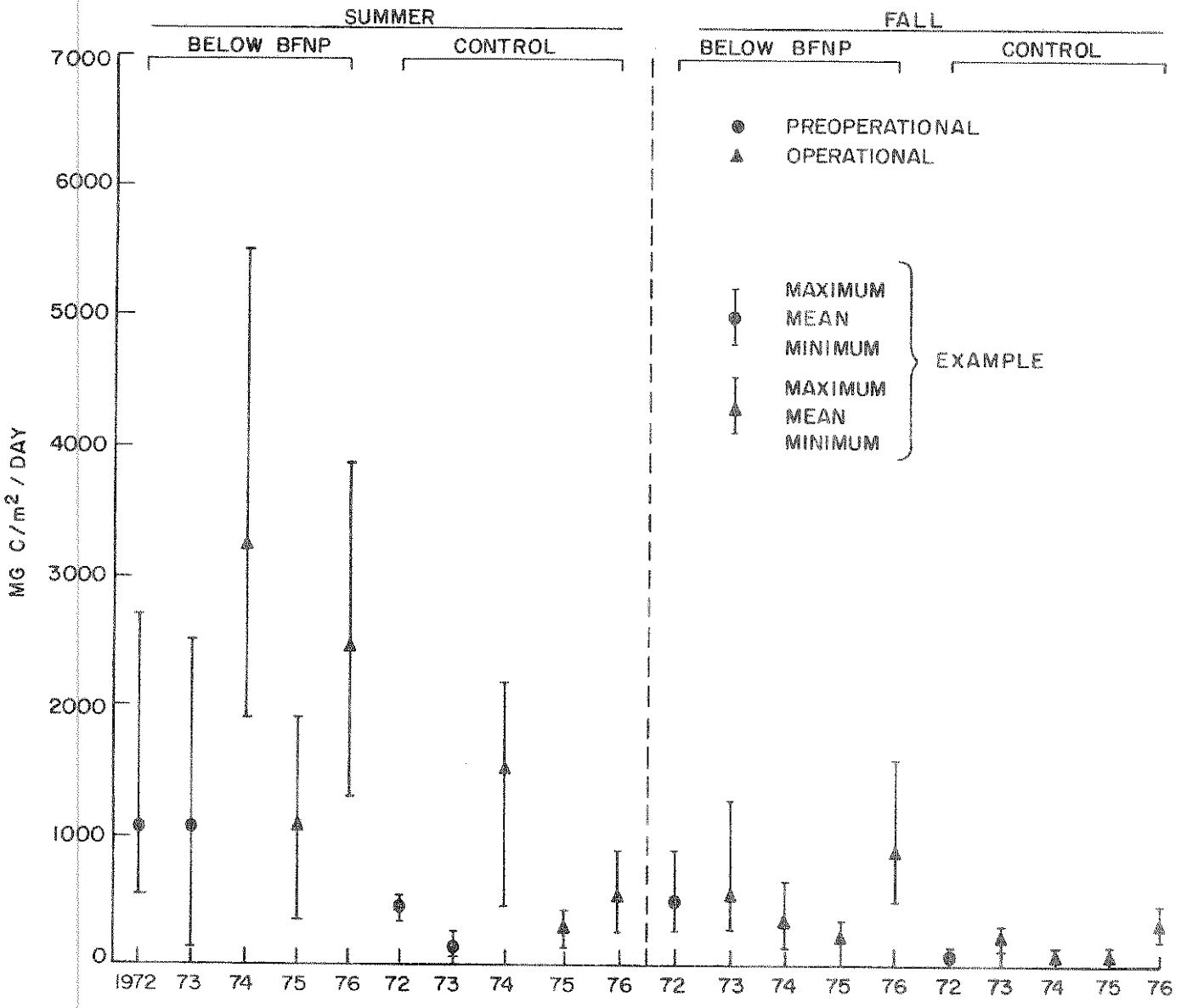


FIGURE 13. PHYTOPLANKTON PRODUCTIVITY DURING THE SUMMER AND FALL SEASONS SHOWING PREOPERATIONAL VERSUS OPERATIONAL AND CONTROL VERSUS BELOW BFNP

Zooplankton

Resident Species--The resident species found during preoperational and operational sampling are as follows: 4 cladocerans (Bosmina longirostris, Daphnia retrocurva, Diaphanosoma leuchtenbergianum, and Leptodora kindtii); 5 copepods (Cyclops bicuspidatus, Cyclops vernalis, Diaptomus pallidus, Diaptomus reighardi, and Eucyclops agilis); and 7 rotifers (Brachionus caudatus, Conochilus unicornis, Keratella cochlearis, and Keratella crassa, Brachionus argularis, Brachionus budapestinenis, Brachionus calyciflorus).

Species List--As shown in the species identification list (table 10, ppendix C), 32 cladoceran, 24 copepod, and 47 rotifer species have been identified in Wheeler Reservoir. Table 11, Appendix C, shows the numerical diversity of species by major groups (Cladocera, Copepoda, and Rotifera) taken from table 10, Appendix C, for preoperational versus operational and control versus below BFNP. The diversity of each major group in the preoperational and operational phases and control versus below BFNP in table 11, Appendix C, does not appear to have been affected by the operation of BFNP during the winter, spring, summer, or fall of 1976.

Enumeration--Table 12, Appendix C, shows total zooplankton per cubic meter during the sixteen sampling periods from the winter of 1973 through the fall of 1976. All winter and spring samples were $<5,000/m^3$ except at TRM 277.98 during the spring of 1976, and numbers were similar throughout the sampling reach. These are the less productive zooplankton seasons and water is usually well mixed at all sampling stations.

Summer and fall are the more productive zooplankton seasons, and higher values are generally found below BFNP during preoperational and operational sampling during these seasons. Summer and fall values during 1976 were higher than any of the other summer and fall seasons sampled since 1973, probably due to the large amount of phytoplankton available for feeding. Total zooplankton numbers were not affected by the operation of BFNP during any of the four seasons in 1976.

Corbicula manilensis--Corbicula has a semiplanktonic larval stage followed by a benthic adult life cycle of about seven years. Corbicula moves around on the bottom but has a very localized habitat range.

Figures 14, 15, 16, and 17 show Corbicula population distribution by years and river miles and distinguish between control versus below BFNP and preoperational versus operational. Additional data are shown in tables 13, 14, 29, 30, 45, 46, 61, and 62 in Appendix C.

From these figures, it can be concluded that Corbicula was not affected by operation of BFNP during the winter, spring, summer, or fall of 1976.

Hexagenia bilineata--Figures 18, 19, 20, and 21 show the Hexagenia population distribution by years and river miles and distinguish between control versus below BFNP and preoperational versus operational. Additional data are shown in tables 15, 16, 31, 32, 47, 48, 63, and 64 in Appendix C. Hexagenia was not affected by BFNP during the winter, spring, summer, and fall of 1976 as indicated by large numbers found below BFNP after operation as compared with baseline data before operation. The mayfly hatch during

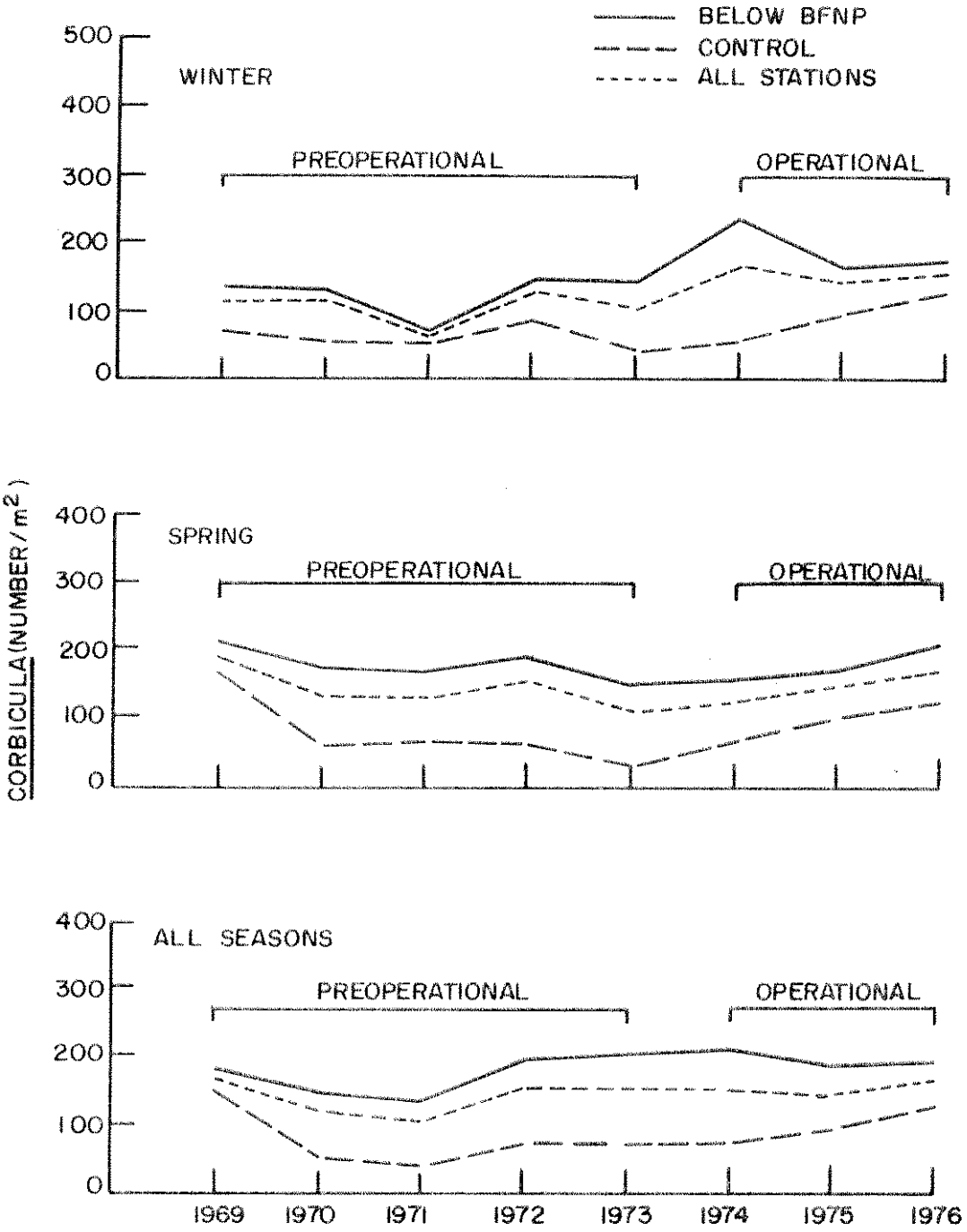


FIGURE 14. CORBICULA (NUMBER/m^2) BY YEAR FOR WINTER, SPRING, AND ALL SEASONS GROUPED BY THOSE TAKEN FROM BELOW BFNP, CONTROL AND ALL SAMPLES (FALL 1973 THROUGH SPRING 1976 OPERATIONAL)

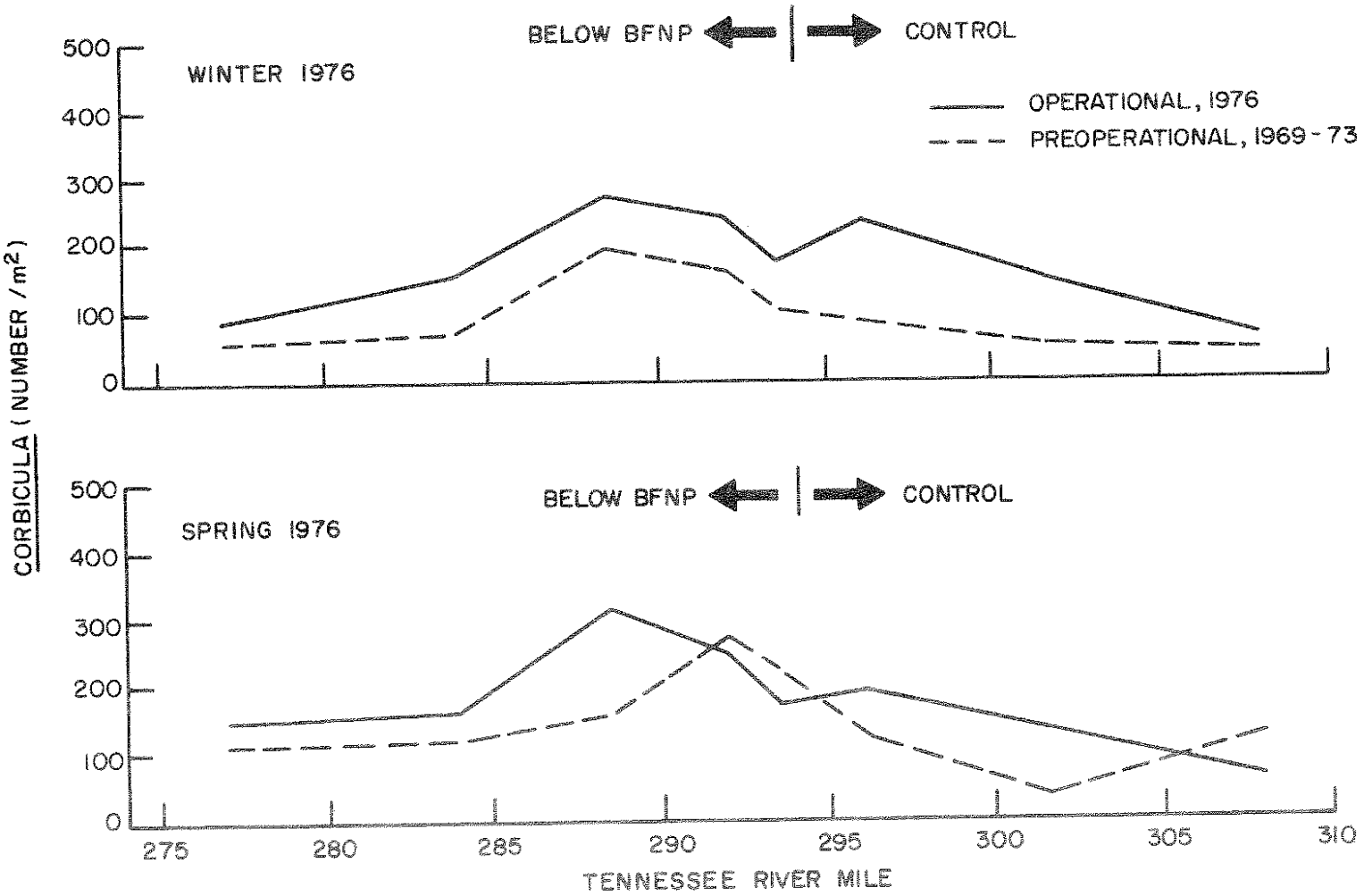


FIGURE 15. CORBICULA (NUMBER / m^2) BY RIVER MILES DISTINGUISHING BETWEEN PREOPERATIONAL AND OPERATIONAL SAMPLES.

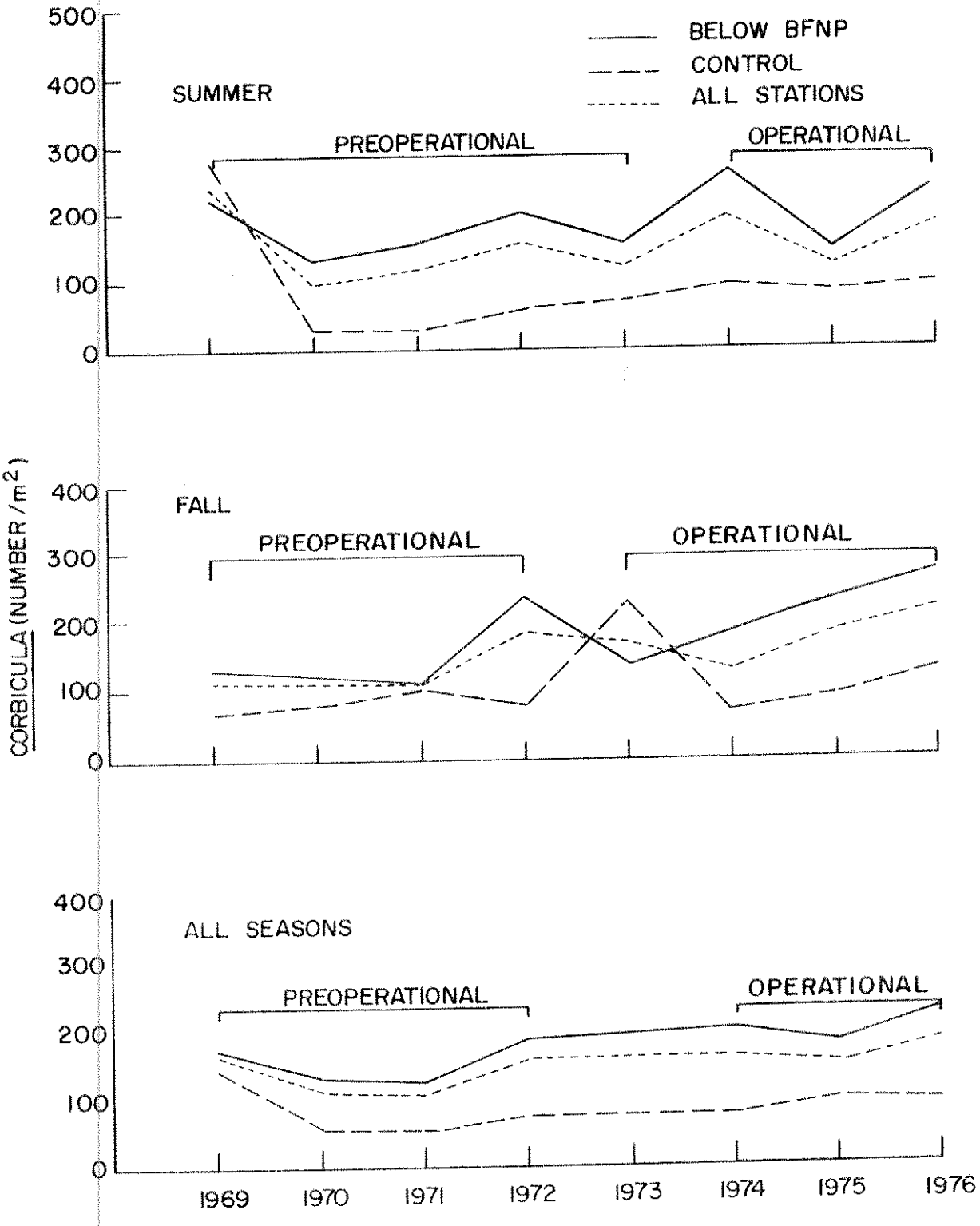


FIGURE 16. CORBICULA (NUMBER / m^2) BY YEAR FOR SUMMER, FALL, AND ALL SEASONS WITH SAMPLES GROUPED BY THOSE TAKEN FROM BELOW BFNP, CONTROL, AND ALL SAMPLES.

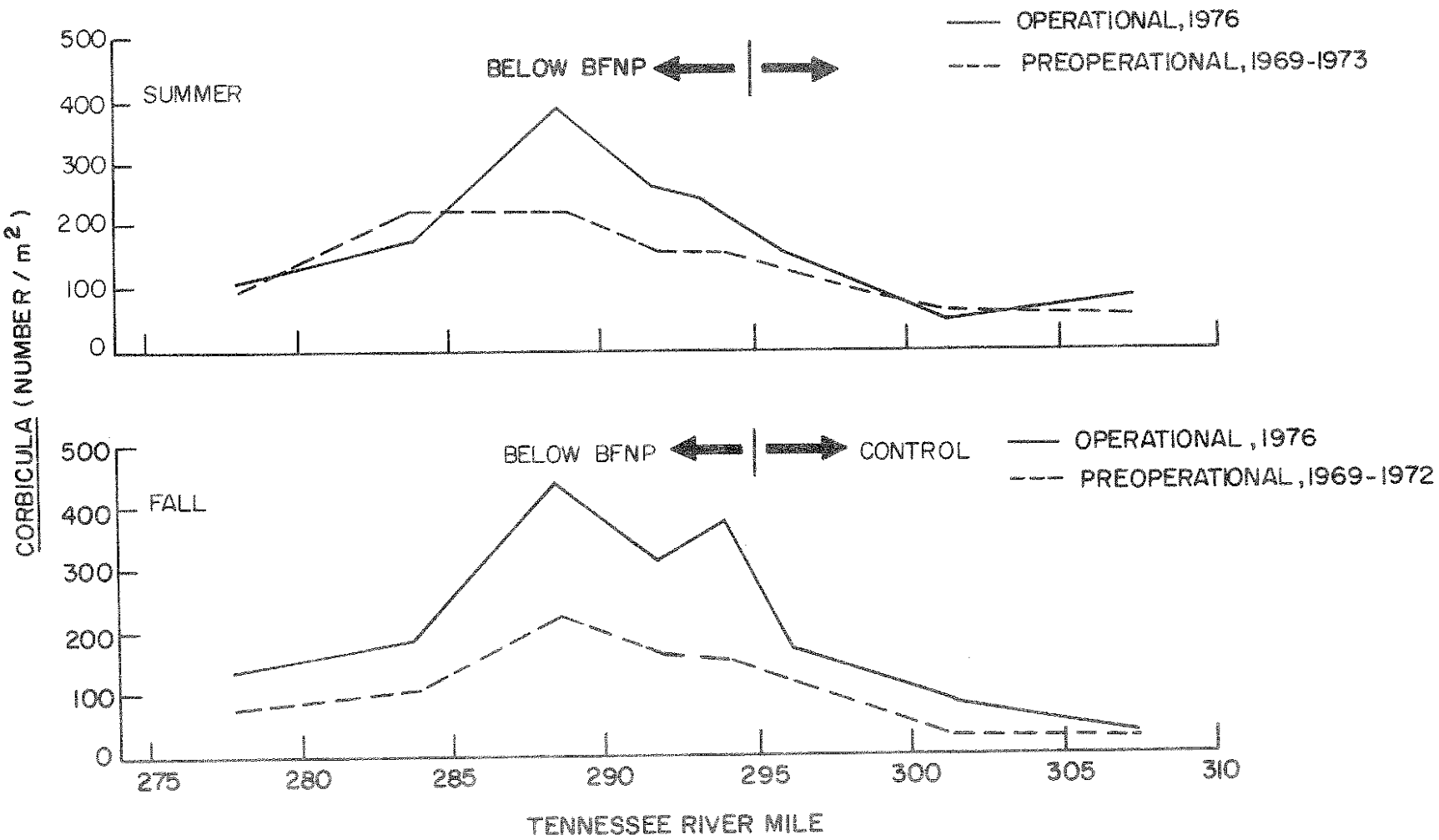


FIGURE 17. CORBICULA (NUMBER / m²) BY RIVER MILES DISTINGUISHING BETWEEN PREOPERATIONAL AND OPERATIONAL SAMPLES.

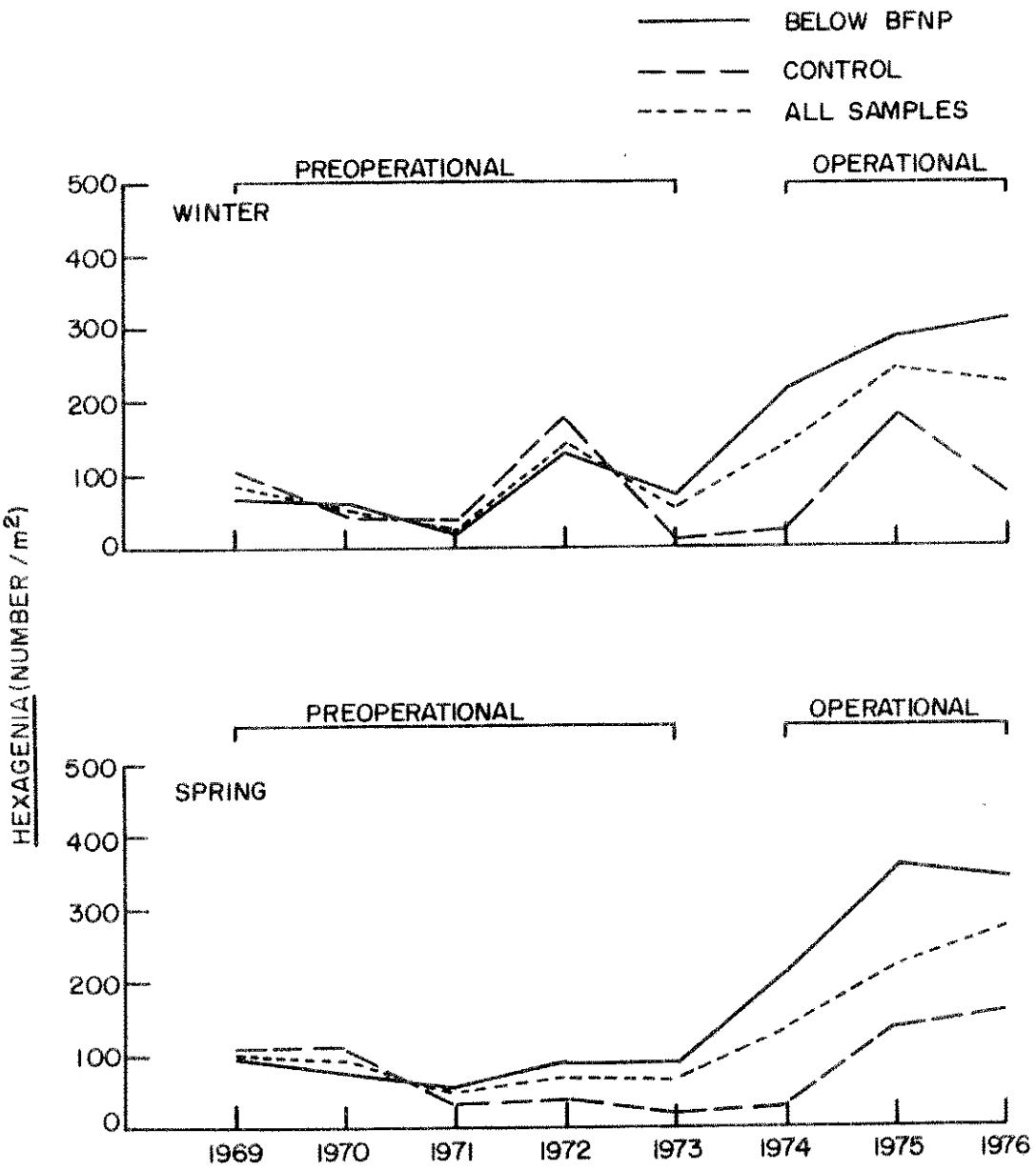


FIGURE 18. HEXAGENIA (NUMBER / m^2) BY YEAR FOR WINTER AND SPRING 1976 WITH SAMPLES GROUPED BY THOSE TAKEN FROM BELOW BFNP, CONTROL, AND ALL SAMPLES (WINTER AND SPRING 1969 THROUGH WINTER AND SPRING 1976.)

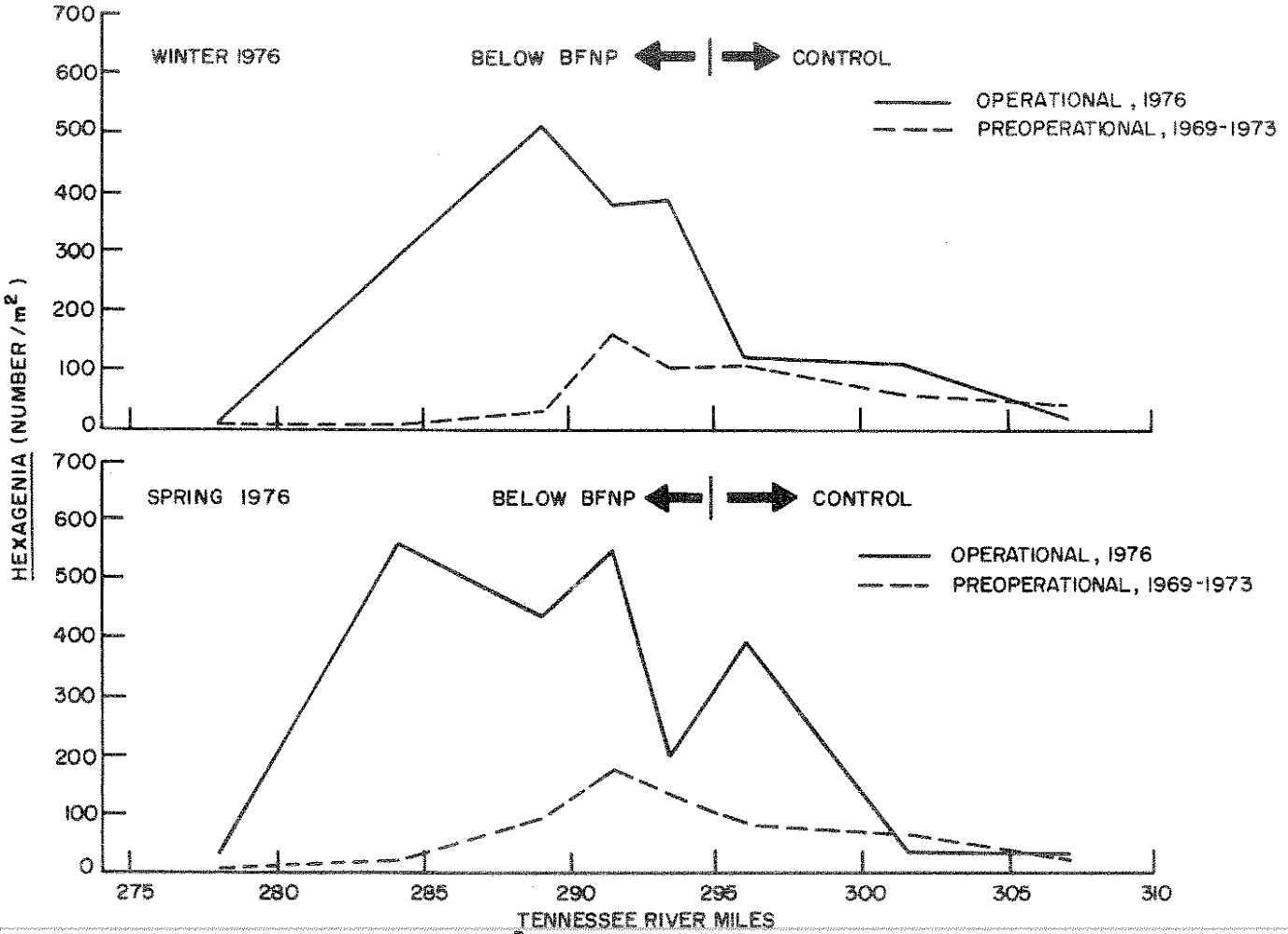


FIGURE 19. HEXAGENIA (NUMBER/m^2) BY RIVER MILES DISTINGUISHING BETWEEN PREOPERATIONAL AND OPERATIONAL SAMPLES

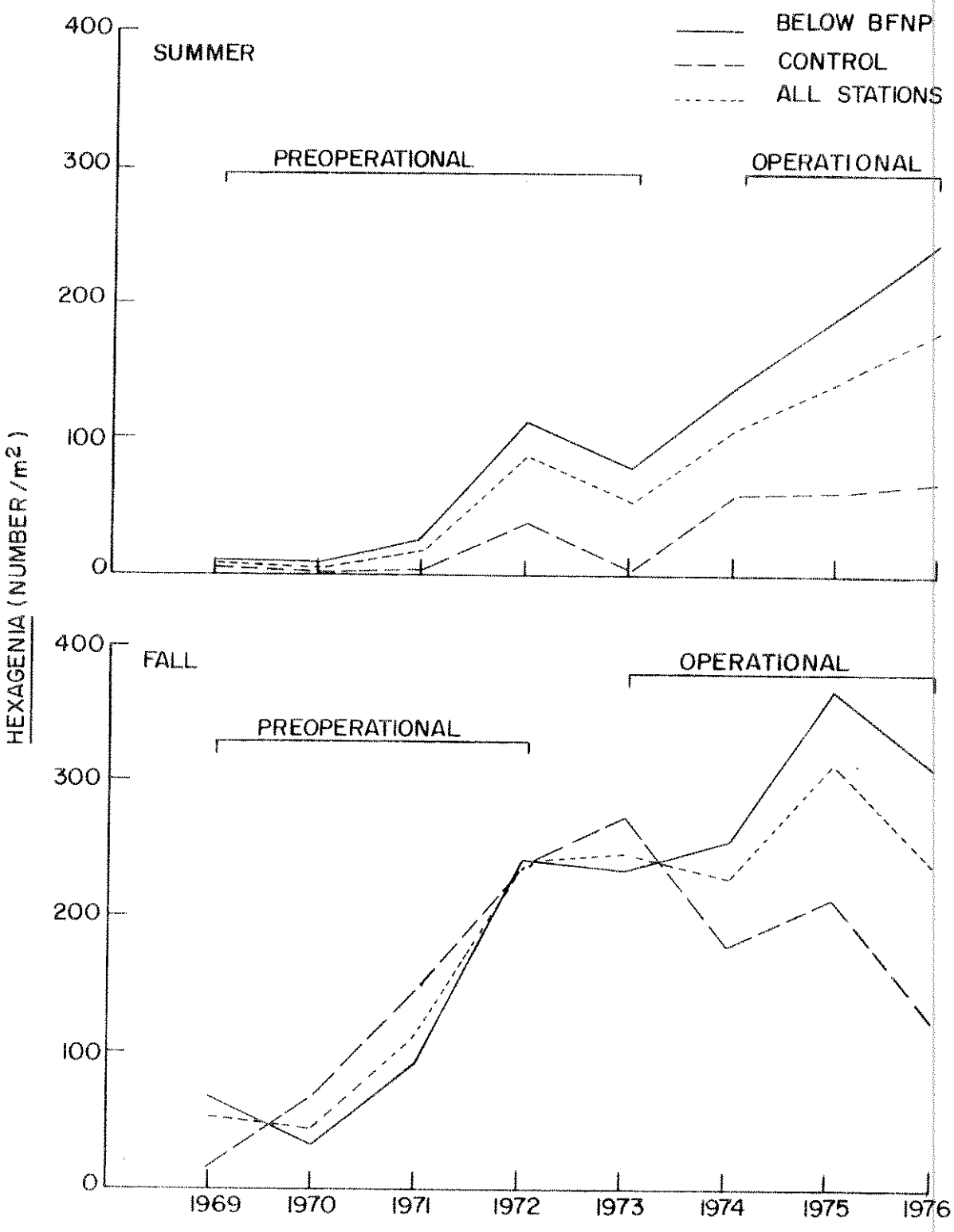


FIGURE 20. HEXAGENIA (NUMBER / m^2) BY YEAR FOR SUMMER AND FALL WITH SAMPLES GROUPED BY THOSE TAKEN FROM BELOW BFNP, CONTROL, AND ALL STATIONS (SUMMER AND FALL 1969 THROUGH SUMMER AND FALL 1976)

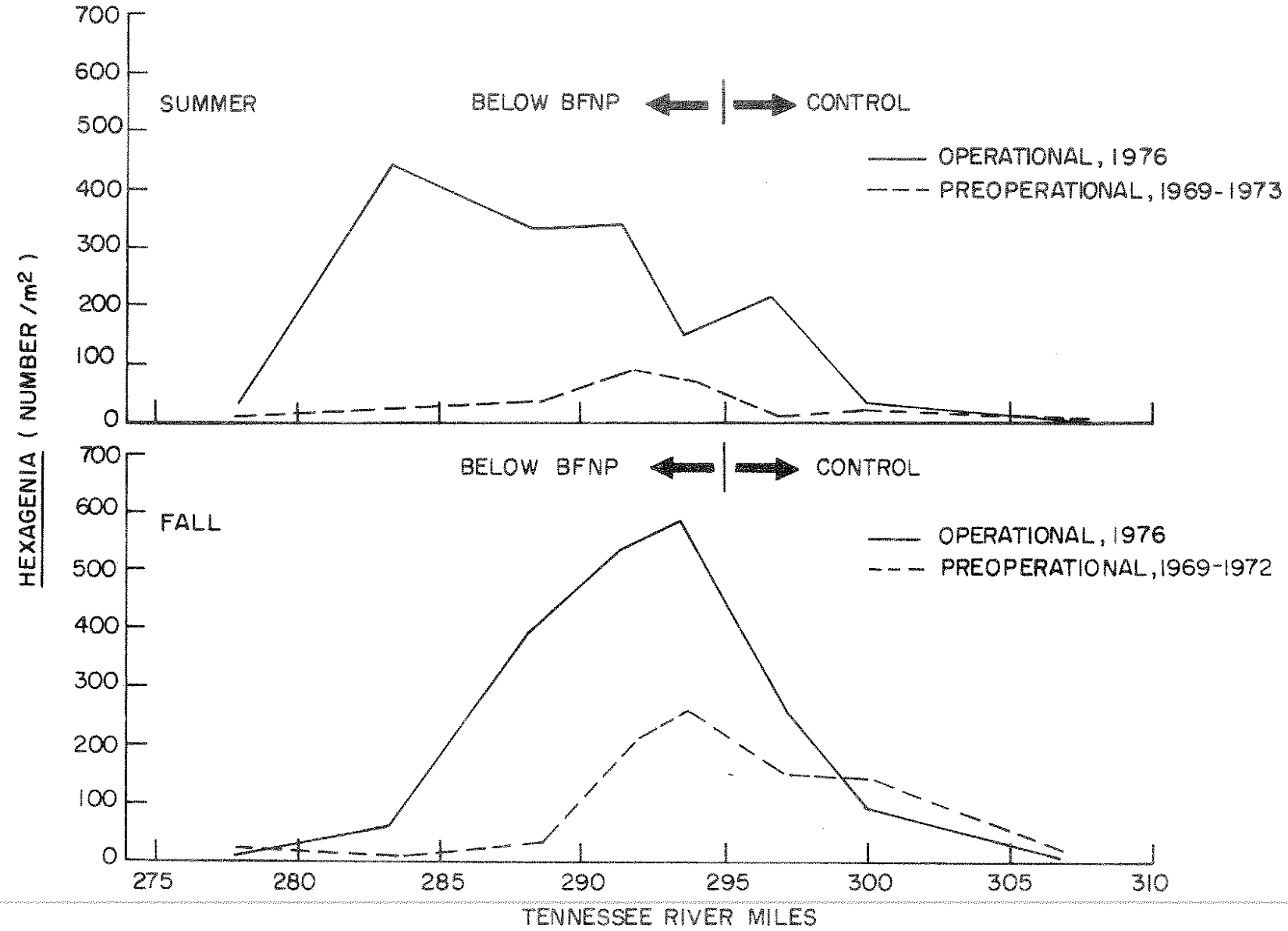


FIGURE 21. HEXAGENIA (NUMBER / m^2) BY RIVER MILES DISTINGUSHING BETWEEN PREOPERATIONAL AND OPERATIONAL SAMPLES.

the summer of 1976 was the largest in Wheeler Reservoir since sampling began in 1969. This large population was predicted because of the large amount of nymphs found during the spring of 1976.

Chironomidae--Figures 22, 23, 24, and 25 indicate the Chironomidae mean population numbers by years and river miles and distinguish between control versus below BFNP and preoperational versus operational. This Chironomidae population includes Colelotanypus, Procladius, C. tentans, Cryptochironomus, Xenochironomus festivus, Smittia, and Pentaneura. Data are shown in tables 17, 18, 33, 34, 49, 50, 65, and 66 in Appendix C. Chironomidae was not affected by the operation of BFNP during the winter, spring, summer, or fall of 1976, as indicated by large numbers found below BFNP during operation as shown in figures 22, 23, 24, and 25.

Oligochaeta--Aquatic earthworms are abundant in Wheeler Reservoir and occur in a clumped distribution wherever a silty substrate and organic detritus are available. Mixed populations of Limnodrilus claparedianus and Branchiura sowerbyi usually occur in the same sample, and these two species are combined for the Oligochaeta indicator. If any new species are found in the future, they will be noted and evaluated.

Figures 26, 27, 28, and 29 show the seasonal Oligochaeta population distribution by years and river miles and distinguish between control versus below BFNP and preoperational versus operational. Additional data are shown in tables 19, 20, 35, 51, 52, 67, and 68 in Appendix C.

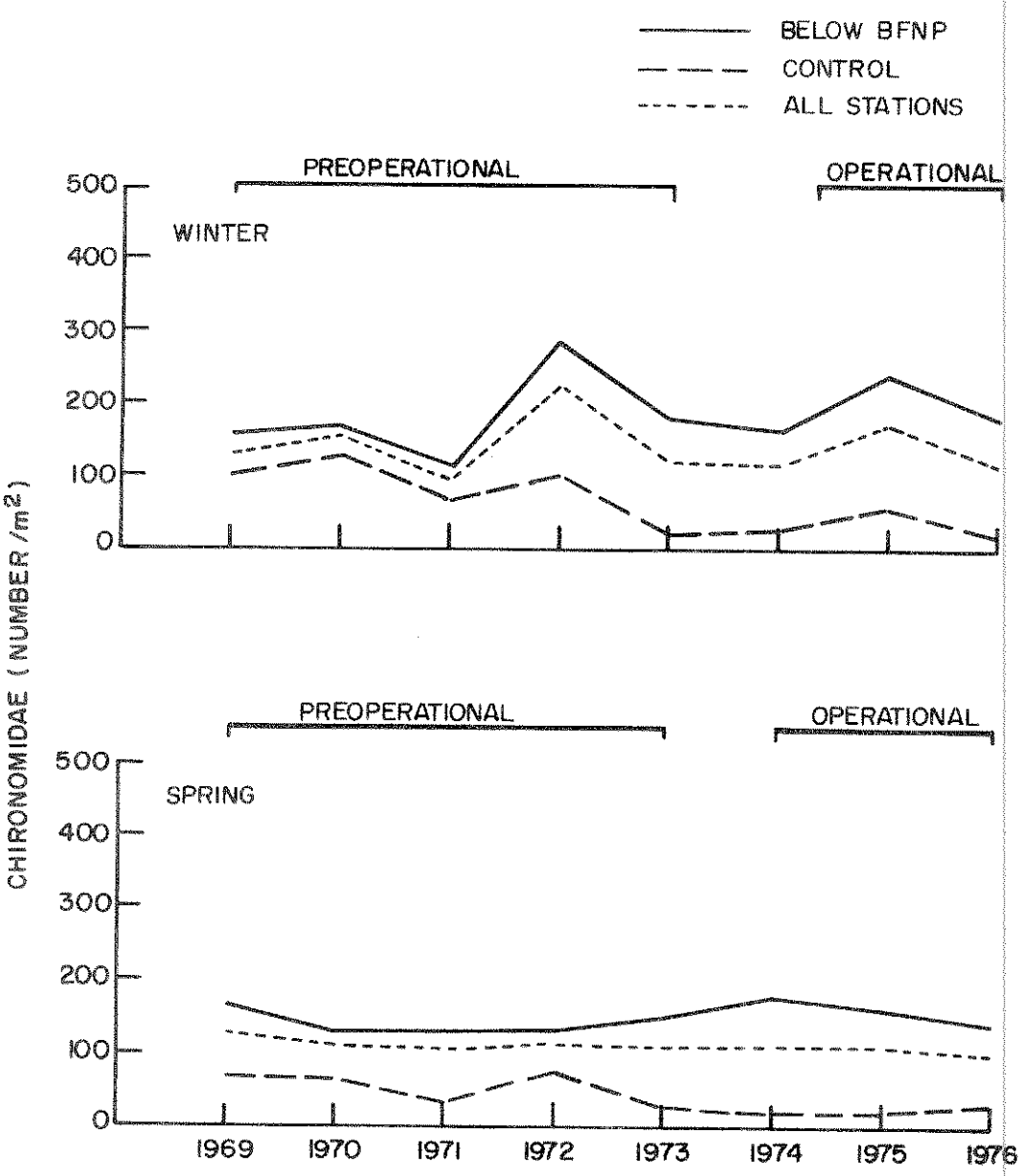


FIGURE 22. CHIRONOMIDAE (NUMBER/m^2) BY YEAR FOR WINTER AND SPRING WITH SAMPLES GROUPED BY THOSE TAKEN FROM BELOW BFNP, CONTROL, AND ALL SAMPLES (WINTER 1969 THROUGH SPRING 1976.)

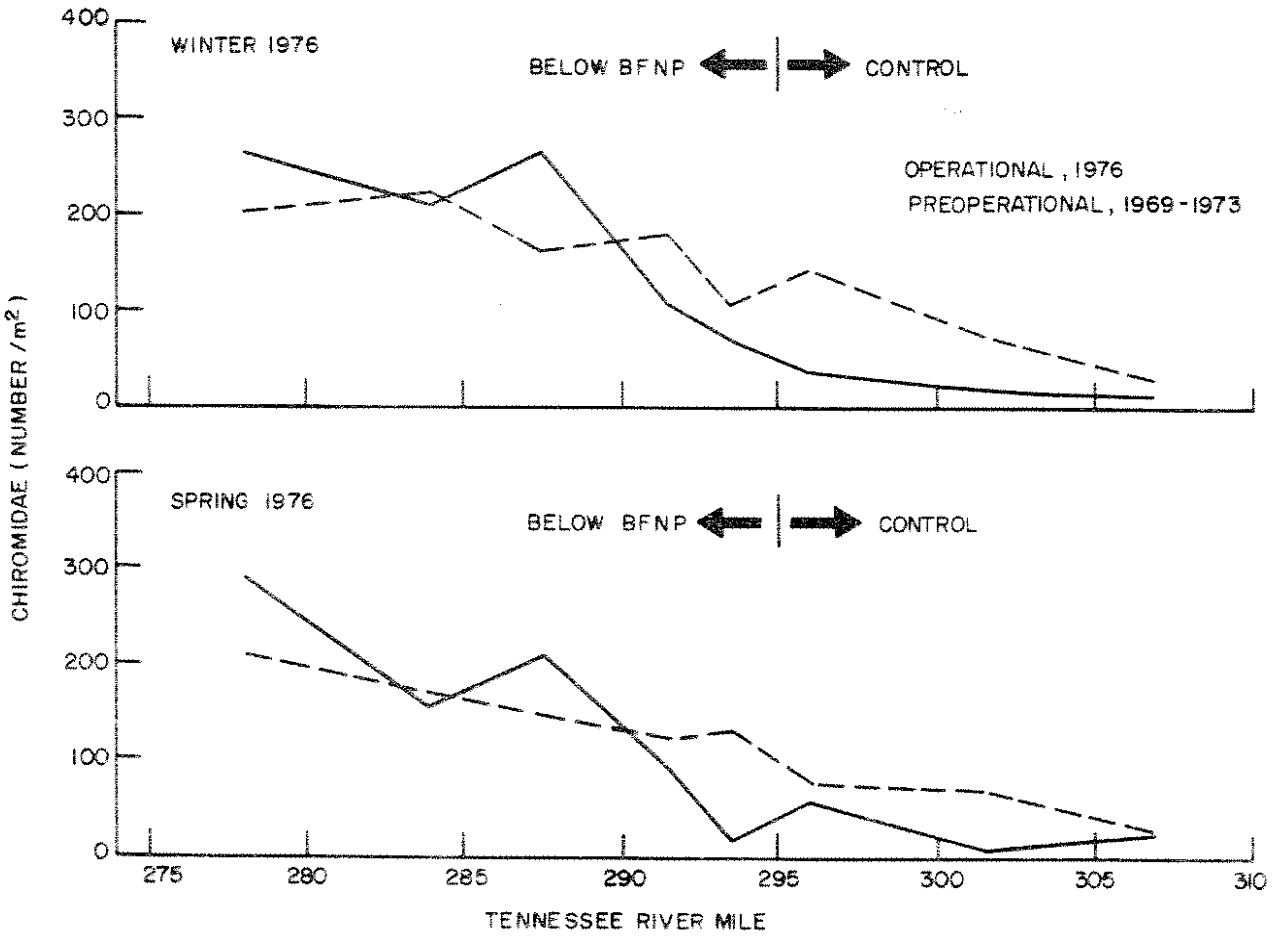


FIGURE 23. CHIRONOMIDAE (NUMBER/m^2) BY RIVER MILES DISTINGUISHING BETWEEN PREOPERATIONAL AND OPERATIONAL SAMPLES.

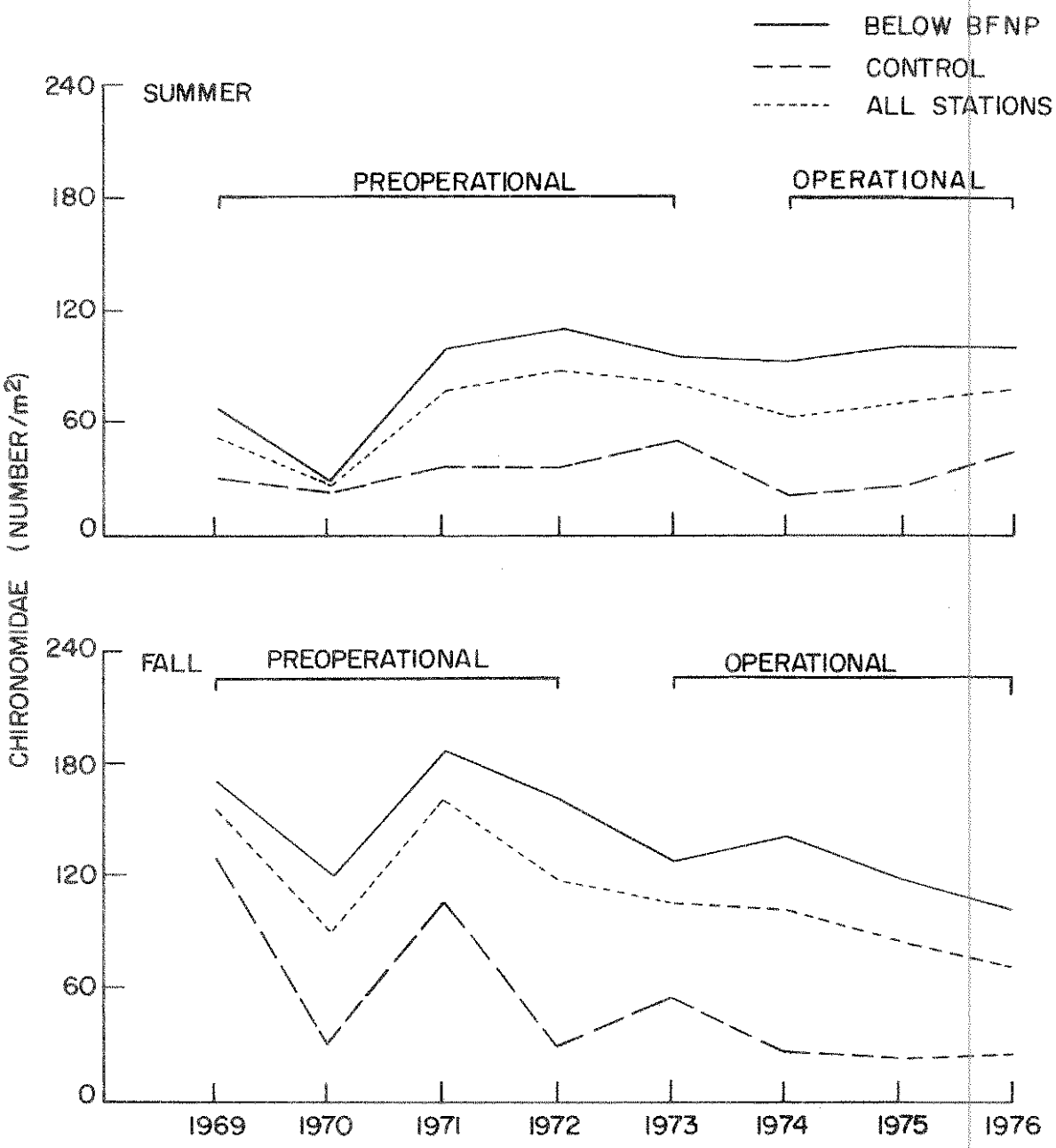


FIGURE 24. CHIRONOMIDAE (NUMBER/m^2) BY YEAR FOR SUMMER AND FALL WITH SAMPLES GROUPED BY THOSE TAKEN BELOW BFNP, CONTROL, AND ALL STATIONS.

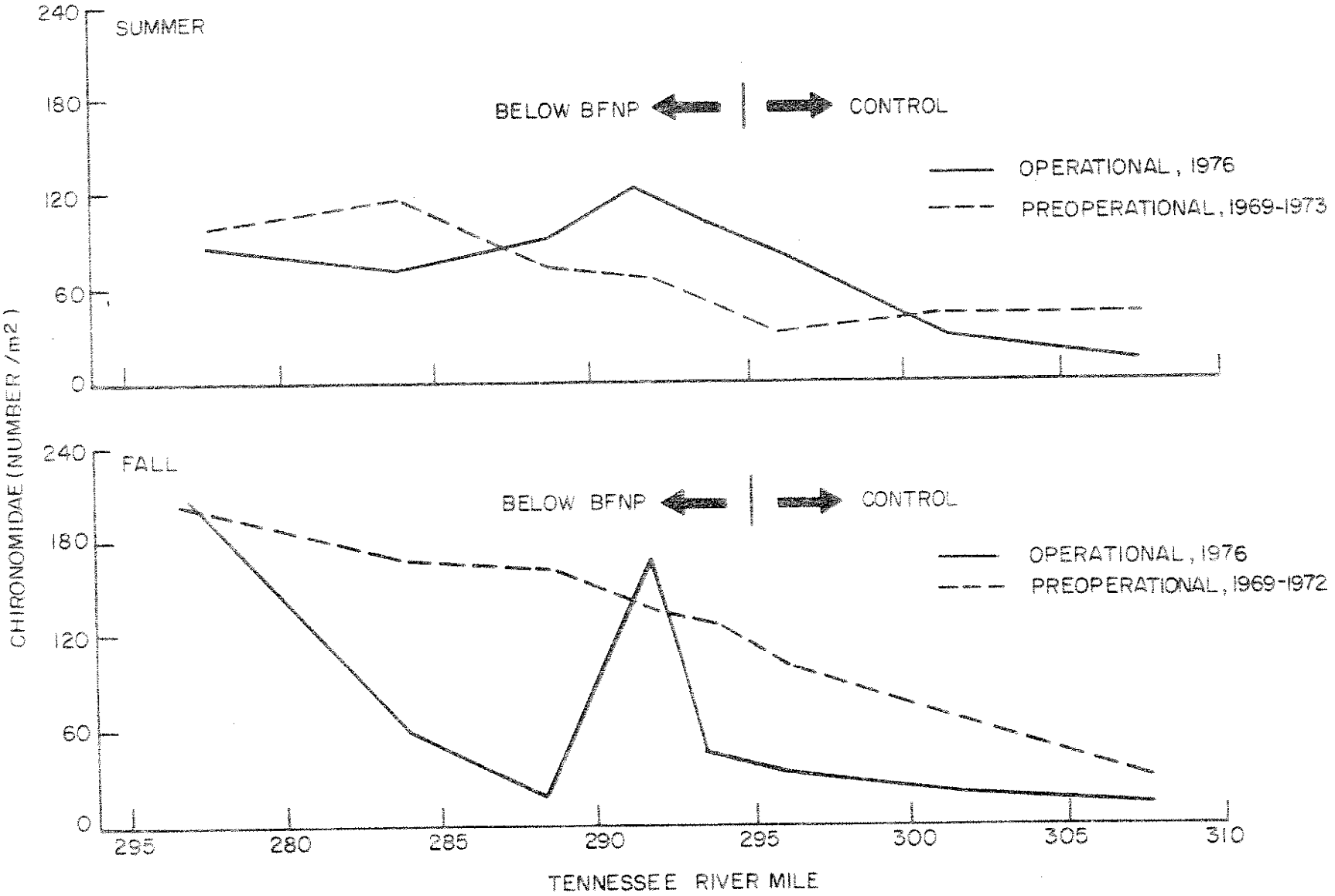


FIGURE 25. CHIRONOMIDAE (NUMBER /m2) BY RIVER MILES DISTINGUSHING BETWEEN PREOPERATIONAL AND OPERATIONAL SAMPLES.

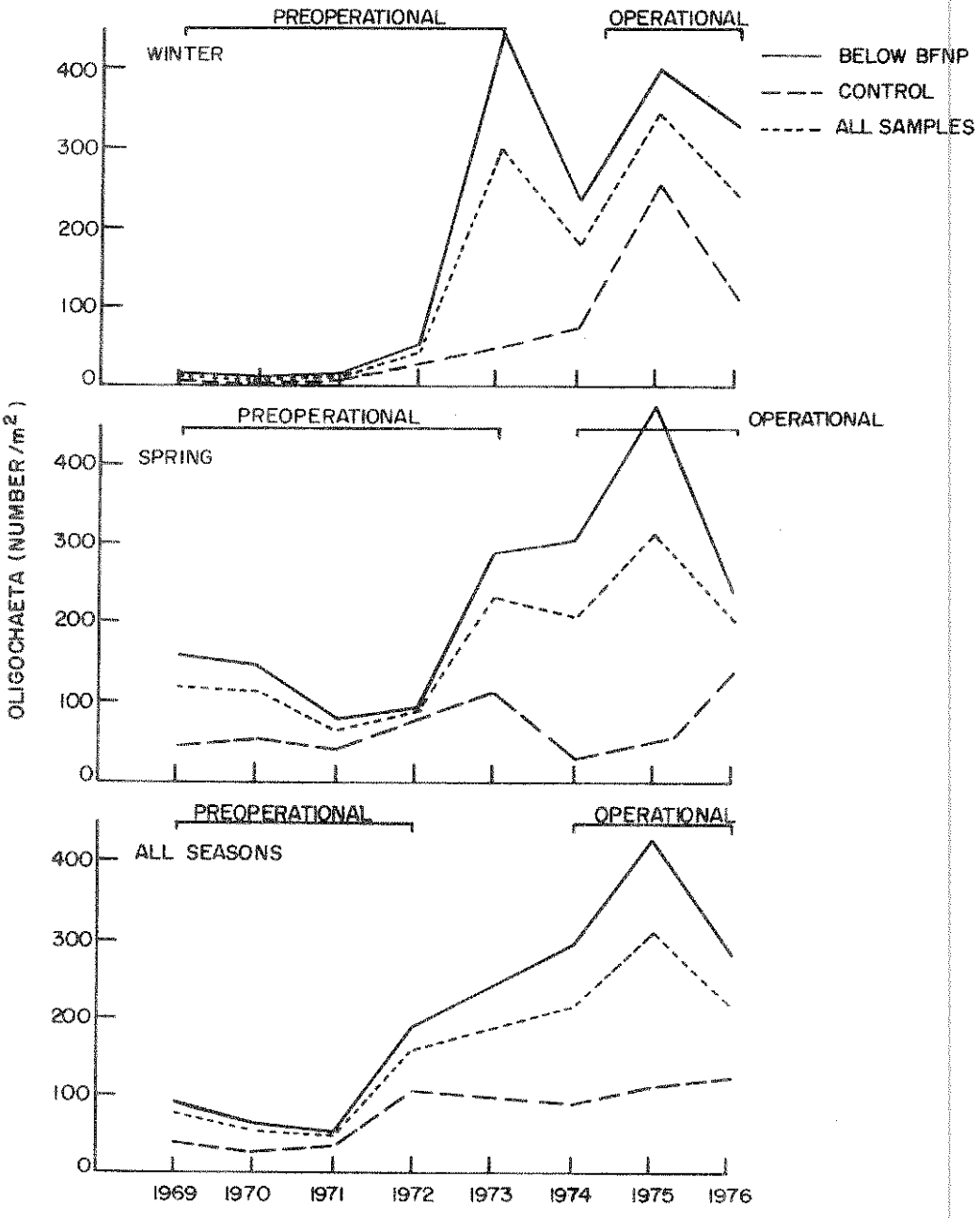


FIGURE 26. OLIGOCHAETA (NUMBER/m^2) BY YEAR FOR WINTER SPRING, AND ALL SEASONS GROUPED BY SAMPLES TAKEN FROM BELOW BFNP, CONTROL, AND ALL SAMPLES (WINTER 1969 THROUGH SPRING 1976)

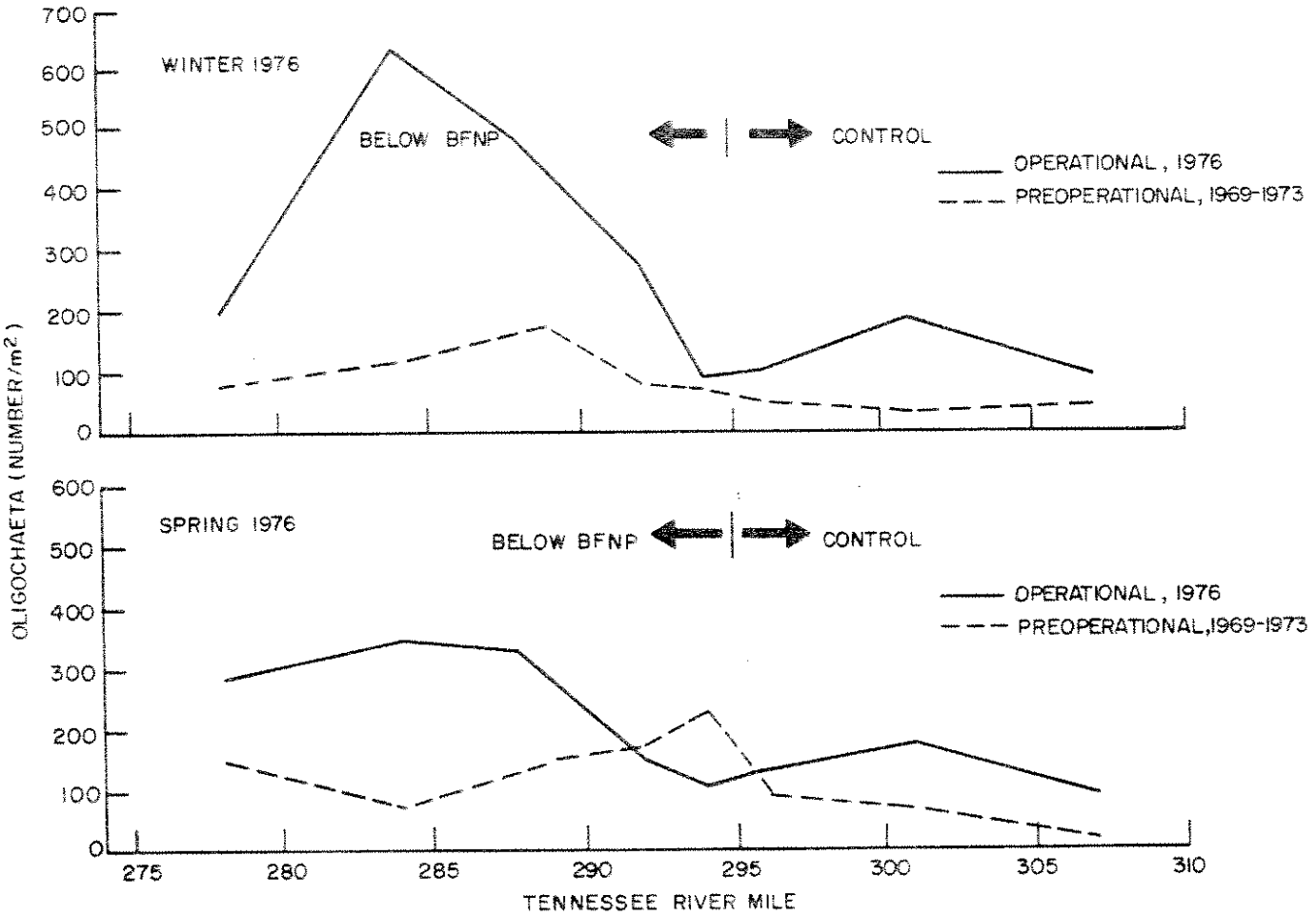


FIGURE 27. OLIGOCHAETA (NUMBER / m^2) BY RIVER MILES DISTINGUISHING BETWEEN PREOPERATIONAL AND OPERATIONAL SAMPLES.

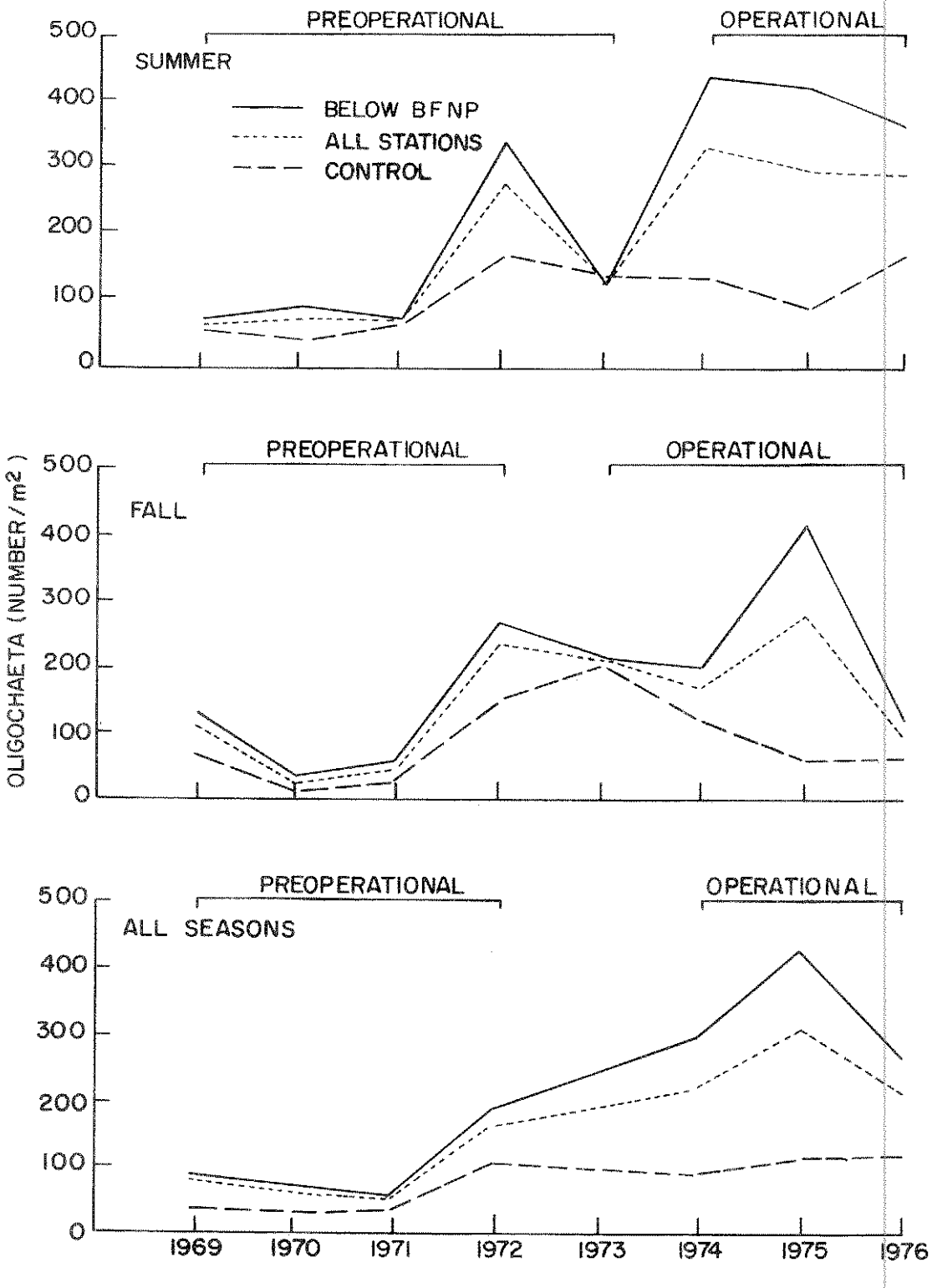


FIGURE 28. OLIGOCHAETA (NUMBER/m^2) BY YEAR FOR SUMMER, FALL, AND ALL SEASONS GROUPED BY SAMPLES TAKEN BELOW BFNP, CONTROL, AND ALL STATIONS.

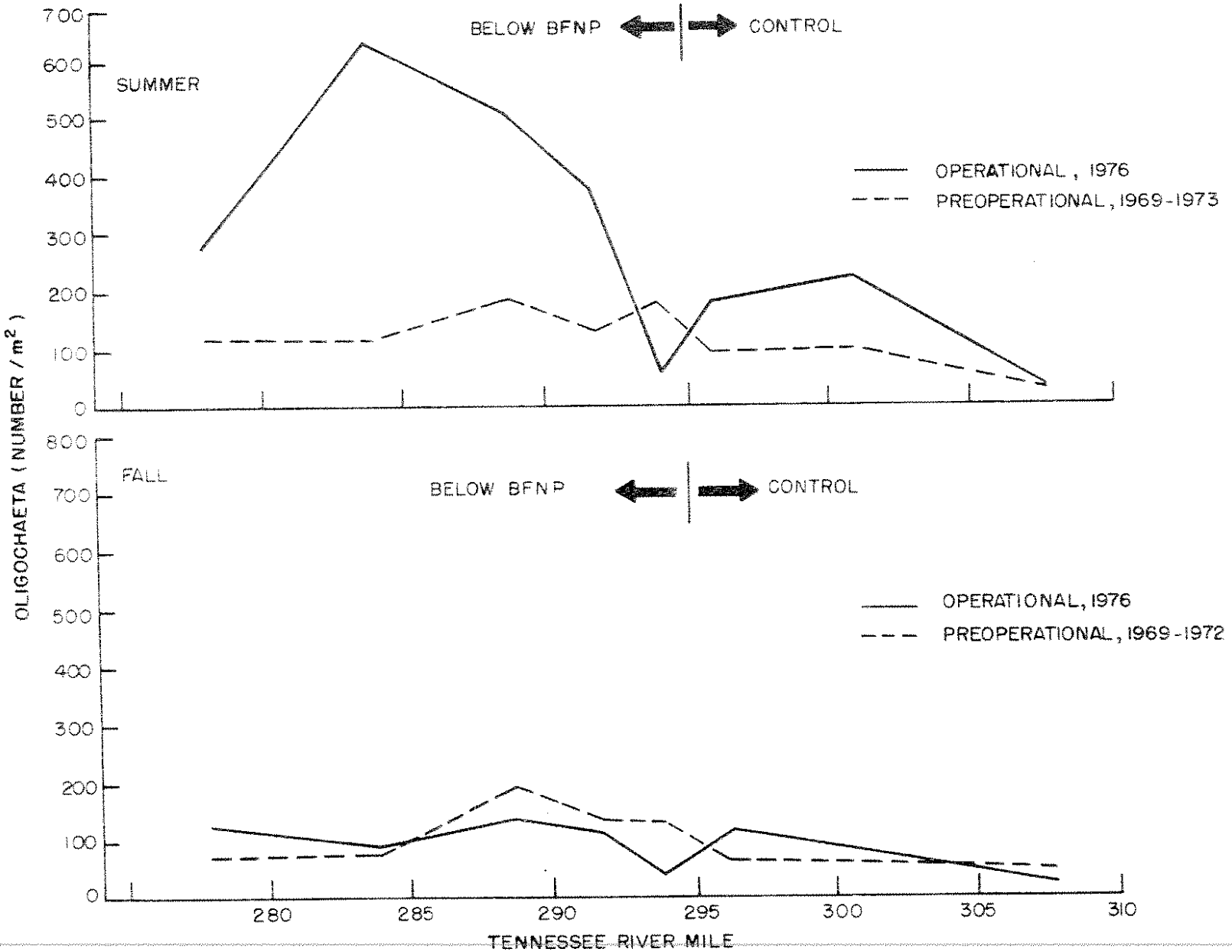


FIGURE 29. OLIGOCHAETA (NUMBER/m^2) BY RIVER MILES DISTINGUISHING BETWEEN PREOPERATIONAL SAMPLES.

Oligochaeta was not affected by BFNP during the winter, spring, summer, or fall of 1976 as indicated by large numbers found below BFNP after operation began as compared with baseline data before operation began.

V. RESULTS OF FISHERIES STUDIES

Introduction

These investigations were designed and initiated to assess possible plant impacts on the movement, distribution, relative abundance, creel harvest, species composition, growth and survival of fish in Wheeler Reservoir. Fisheries monitoring is conducted by the Division of Forestry, Fisheries, and Wildlife Development using standard accepted sampling and evaluation procedures. Specific descriptions of sampling gear, stations, and procedures are outlined in the Browns Ferry Preoperational Report, soon to be available from the Fisheries and Waterfowl Resources Branch, Norris, Tennessee.

Gill net and trap net sampling is conducted quarterly (except summer quarter for trap nets) at three locations in Wheeler Reservoir, with catches providing data for species composition, relative abundance, and growth studies. Selected species from trap nets are tagged and released with recapture data used to determine normal movement patterns in the reservoir.

Rotenone sampling in three coves during late August and early September of each year serves as a basis for determining standing stocks, species composition, and reproductive success.

Creel census studies are conducted each month to establish catch per hour and per trip, species and weights of fish taken, and hours fished per trip in each of six areas of the reservoir. Previously recorded data will be the basis for determining the location and magnitude of the sport fishery before operation of Browns Ferry Nuclear Plant.

Ichthyoplankton data are collected weekly during the period March-July from three areas of the reservoir and the intake basin. Information on species, numbers, and distribution of fish eggs and larvae in the reservoir will be compared with data collected prior to plant operation to define normal yearly variation and to assess any effects of plant operation. Full three-unit plant operation has not been maintained during the larval fish season, since initial operational sampling began, thus comparisons and discussions of annual entrainment estimates will be presented following the 1977 season.

Impingement of fish on all operating intake screens during a 24-hour period was estimated, prior to September 1976, thrice weekly by applying a factor to the number of fish counted on one screen. On September 1, 1976, this procedure was replaced as follows: All fish impinged on each screen during a 24-hour period are counted directly once per week. Estimation of the impingement of fish on the intake screens will allow assessment of fish losses from normal plant operation and identify the need for possible corrective action.

RESULTS

Gill Net

Gill net catches by station and by quarter for 1976 are presented in Tables 5-16. Catches are, as observed in previous years, dominated by clupeids and ictalurids, with percichthyids, catostomids, and sciaenids usually comprising significant portions of the catch by number. Tables 17-20 present comparisons of preoperational and operational gill net catches summarized by quarter. Inherent variation between years and irregular levels of plant operation during 1976 prevent valid analysis of these

TABLE 5

GILL NET CATCH, STATION 1, TRM 293, MARCH 17-19, 1976

Species	N	c/f	Wt. Kg.	c/f
Lepisosteus oculatus	4	.1000	3.17	.0792
Dorosoma cepedianum	45	1.1250	10.36	.2590
Alosa chrysochloris	48	1.2000	18.72	.4680
Minytrema melanops	5	.1250	2.67	.0667
Moxostoma carinatum	1	.0250	.36	.0090
Moxostoma erythrurum	11	.2750	6.02	.1505
Ictalurus furcatus	7	.1750	2.31	.0577
Ictalurus punctatus	39	.9750	16.81	.4202
Pylodictis olivaris	1	.0250	.36	.0090
Aplodinotus grunniens	2	.0500	.41	.0102
Morone chrysops	32	.8000	8.84	.2210
Morone mississippiensis	20	.5000	4.11	.1027
Lepomis macrochirus	5	.1250	.36	.0090
Lepomis megalotis	1	.0250	.09	.0022
Lepomis microlophus	2	.0500	.84	.0210
Micropterus salmoides	1	.0250	.60	.0150
Pomoxis annularis	3	.0750	.91	.0227
Stizostedion canadense	26	.6500	13.15	.3287
Total	253	6.3250	90.09	2.2518

c/f = catch per net-night

TABLE 6

GILL NET CATCH, STATION 2, TRM 299, MARCH 17-19, 1976

Species	N	c/f	Wt. Kg.	c/f
Dorosoma cepedianum	96	2.4000	18.66	.4665
Alosa chrysochloris	17	.4250	7.58	.1895
Hiodon tergisus	1	.0250	.20	.0050
Minytrema melanops	1	.0250	.30	.0075
Ictalurus furcatus	45	1.1250	18.38	.4595
Ictalurus punctatus	140	3.5000	49.99	1.2497
Pylodictus olivaris	16	.4000	5.10	.1275
Aplodinotus grunniens	1	.0250	.18	.0045
Morone chyrsops	53	1.3250	13.14	.3285
Morone mississippiensis	11	.2750	1.71	.0427
Lepomis macrochirus	1	.0250	.50	.0125
Lepomis microlophus	13	.3250	2.44	.0610
Promoxis annularis	1	.0250	.23	.0057
Stizostedion canadense	37	.9250	16.21	.4052
Total	433	10.8250	134.62	3.3653

c/f = catch per net-night

TABLE 7

GILL NET CATCH, STATION 3, TRM 294, MARCH 17-19, 1976

Species	N	c/f	Wt. Kg.	c/f
Lepisosteus oculatus	2	.0500	1.80	.0450
Dorosoma cepedianum	50	1.2500	11.84	.2960
Alosa chrysochloris	15	.3750	6.22	.1555
Hiodon tergisus	47	1.1750	13.14	.3285
Moxostoma erythrurum	3	.0750	1.40	.0350
Ictalurus punctatus	6	.1500	3.61	.0902
Aplodinotus grunniens	3	.0750	.72	.0180
Morone chrysops	18	.4500	6.24	.1560
Lepomis microlophus	5	.1250	1.09	.0272
Stizostedion canadense	2	.0500	1.09	.0272
Total	151	3.7750	47.15	1.1786

c/f = catch per net-night

TABLE 8

GILL NET CATCH, STATION 1, TRM 293, APRIL 20-23, 1976

Species	N	c/f	Wt. Kg.	c/f
Lepisosteus osseus	3	.0750	4.99	.1247
Lepisosteus oculatus	17	.4250	19.70	.4925
Dorosoma cepedianum	610	15.2500	117.70	2.9425
Alosa chrysochloris	71	1.7750	31.01	.7752
Hiodon tergisus	5	.1250	1.92	.0480
Minytrema melanops	9	.2250	5.62	.1405
Ictiobus bubalus	2	.0500	.41	.0102
Moxostoma erythrurum	15	.3750	9.23	.2307
Ictalurus furcatus	44	1.1000	19.39	.4847
Ictalurus punctatus	374	9.3500	167.21	4.1802
Pylodictis olivaris	4	.1000	1.64	.0410
Aplodinotus grunniens	52	1.3000	13.91	.3477
Morone chrysops	10	.2500	2.65	.0662
Morone mississippiensis	65	1.6250	15.98	.3995
Lepomis macrochirus	11	.2750	1.44	.0360
Lepomis microlophus	17	.4250	3.47	.0867
Pomoxis annularis	4	.1000	3.73	.0932
Stizostedion canadense	31	.7750	15.75	.3937
Total	1344	33.6000	435.75	10.8932

c/f = catch per net-night

TABLE 10

GILL NET CATCH, STATION 3, TRM 294, APRIL 20-23, 1976

Species	N	c/f	Wt. Kg.	c/f
Lepisosteus oculatus	1	.0250	.77	.0192
Dorosoma cepedianum	445	11.1250	88.91	2.2227
Alosa chrysochloris	28	.7000	15.16	.3790
Hiodon tergisus	8	.2000	3.05	.0762
Minytrema melanops	1	.0250	.50	.0125
Moxostoma erythrurum	4	.1000	2.18	.0545
Ictalurus furcatus	80	2.0000	37.99	.9497
Ictalurus punctatus	170	4.2500	69.57	1.7392
Pylodictis olivaris	1	.0250	.70	.0022
Aplodinotus grunniens	22	.5500	5.93	.1482
Hybopsis storeriana	1	.0250	.09	.0022
Morone chrysops	4	.1000	1.07	.0267
Morone mississippiensis	3	.0750	.59	.0147
Lepomis macrochirus	1	.0250	.09	.0022
Lepomis microlophus	11	.2750	2.24	.0560
Stizostedion canadense	49	1.2250	25.32	.6330
Total	829	20.7250	254.16	6.3539

c/f = catch per net-night

TABLE 11

GILL NET CATCH, STATION 1, TRM 293, JUNE 22-25, 1976

Species	N	c/f	Wt. Kg.	c/f
Lepisosteus osseus	1	0.0250	3.22	0.0805
Lepisosteus oculatus	5	.1250	6.33	.1582
Dorosoma cepedianum	521	13.0250	93.14	2.3285
Dorosoma petenense	1	.0250	.06	.0015
Alosa chrysochloris	66	1.6500	30.38	.7595
Hiodon tergisus	26	.6500	8.01	.2002
Minytrema melanops	3	.0750	1.52	.0380
Ictiobus bubalus	4	.1000	1.54	.0385
Moxostoma erythrurum	5	.1250	3.68	.0920
Ictalurus furcatus	10	.2500	2.80	.0700
Ictalurus punctatus	159	3.9750	64.90	1.6225
Pylodictis olivaris	3	.0750	1.36	.0340
Aplodinotus grunniens	41	1.0250	8.11	.2027
Morone chrysops	6	.1500	1.47	.0367
Lepomis macrochirus	8	.2000	1.02	.0255
Lepomis microlophus	22	.5500	4.40	.1100
Micropterus salmoides	1	.0250	.62	.0155
Pomoxis annularis	4	.1000	1.21	.0302
Stizostedion canadense	11	.2750	6.93	.1732
Total	897	22.4250	240.70	6.0174

c/f = catch per net-night

TABLE 12

GILL NET CATCH, STATION 2, TRM 299, JUNE 29-JULY 2, 1976

Species	N	c/f	Wt. Kg.	c/f
Lepisosteus osseus	6	0.1818	16.30	0.4939
Lepisosteus oculatus	2	.0606	3.26	.0988
Dorosoma cepedianum	50	1.5152	11.37	.3445
Alosa chrysochloris	15	.4545	7.85	.2379
Hiodon tergisus	3	.0909	.93	.0282
Minytrema melanops	2	.0606	1.05	.0318
Moxostoma anisurum	2	.0606	1.15	.0348
Moxostoma macrolepidotum	1	.0303	.45	.0136
Moxostoma erythrurum	5	.1515	3.54	.1073
Ictalurus furcatus	2	.0606	1.08	.0327
Ictalurus punctatus	35	1.0606	19.29	.5845
Aplodinotus grunniens	20	.6061	3.97	.1203
Morone chrysops	4	.1212	1.30	.0394
Morone saxatilis	4	.1212	1.62	.0491
Lepomis macrochirus	4	.1212	.58	.0176
Lepomis microlophus	11	.3333	1.81	.0548
Micropterus dolomieui	1	.0303	.35	.0106
Stizostedion canadense	12	.3636	6.36	.1927
Total	179	5.4242	82.26	2.4927

c/f = catch per net-night

TABLE 13

GILL NET CATCH, STATION 3, TRM 294, JUNE 22-25, 1976

Species	N	c/f	Wt. Kg.	c/f
Lepisosteus osseus	4	0.1000	11.57	0.2892
Lepisosteus oculatus	19	.4750	23.02	.5755
Dorosoma cepedianum	731	18.2750	127.18	3.1795
Alosa chrysochloris	38	.9500	20.17	.5042
Hiodon tergisus	2	.0500	.68	.0170
Cyprinus carpio	1	.0250	5.52	.1380
Minytrema melanops	1	.0250	.45	.0112
Ictiobus bubalus	2	.0500	1.22	.0305
Ictalurus furcatus	40	1.0000	20.14	.5035
Ictalurus punctatus	89	2.2250	38.69	.9672
Aplodinotus grunniens	23	.5750	4.34	.1085
Morone chrysops	2	.0500	.39	.0097
Morone mississippiensis	1	.0250	.23	.0057
Lepomis macrochirus	1	.0250	.14	.0035
Lepomis microlophus	9	.2250	1.83	.0457
Pomoxis annularis	1	.0250	.23	.0057
Stizostedion canadense	26	.6500	16.67	.4167
Total	990	24.7500	272.47	6.8117

c/f = catch per net-night

TABLE 14

GILL NET CATCH, STATION 1, TRM 293, NOVEMBER 10-12, 1976

Species	N	c/f	Wt. Kg.	c/f
Lepisosteus osseus	1	0.0250	1.72	0.0430
Lepisosteus oculatus	2	.0500	1.36	.0340
Dorosoma cepedianum	25	.6250	5.02	.1255
Alosa chrysochloris	194	4.8500	80.37	2.0092
Hiodon tergisus	19	.4750	4.89	.1222
Carpiodes cyprinus	1	.0250	.32	.0080
Minytrema melanops	18	.4500	6.71	.1677
Hypentelium nigricans	1	.0250	.27	.0067
Moxostoma erythrurum	40	1.0000	11.95	.2987
Ictalurus furcatus	7	.1750	2.71	.0677
Ictalurus punctatus	17	.4250	7.39	.1847
Pylodictis olivaris	2	.0500	.68	.0170
Morone chrysops	27	.6750	8.03	.2007
Morone mississippiensis	9	.2250	1.52	.0380
Morone saxatilis	2	.0500	1.68	.0420
Lepomis macrochirus	4	.1000	.69	.0172
Lepomis microlophus	21	.5250	3.46	.0865
Micropterus salmoides	5	.1250	3.31	.0827
Pomoxis annularis	1	.0250	.18	.0045
Pomoxis nigromaculatus	6	.1500	1.09	.0272
Stizostedion canadense	83	2.0750	34.53	.8632
Stizostedion vitreum vitreum	1	.0250	.86	.0215
Total	486	12.1500	178.74	4.4684

c/f = catch per net-night

TABLE 15

GILL NET CATCH, STATION 3, TRM 294, NOVEMBER 10-12, 1976

Species	N	c/f	Wt. Kg.	c/f
Lepisosteus oculatus	1	0 .0250	0 .72	0.0180
Dorosoma cepedianum	34	.8500	7.35	.1837
Alosa chrysochloris	50	1.2500	20.75	.5187
Hiodon tergisus	68	1.7000	19.28	.4820
Cyprinus carpio	2	.0500	.59	.0147
Minytrema melanops	16	.4000	7.58	.1895
Ictiobus bubalus	3	.0750	.95	.0237
Moxostoma erythrurum	33	.8250	14.24	.3560
Ictalurus furcatus	8	.2000	6.22	.1555
Ictalurus punctatus	36	.9000	16.40	.4100
Aplodinotus grunniens	4	.1000	.78	.0195
Morone chrysops	9	.2250	2.93	.0732
Morone mississippiensis	4	.1000	.86	.0215
Morone saxatilis	2	.0500	1.04	.0260
Lepomis macrochirus	1	.0250	.14	.0035
Lepomis microlophus	1	.0250	.14	.0035
Micropterus salmoides	1	.0250	.32	.0080
Pomoxis annularis	1	.0250	.23	.0057
Pomoxis nigromaculatus	2	.0500	.28	.0070
Stizostedion canadense	47	1.1750	25.27	.6317
Total	323	8.0750	126.07	3.1517

c/f = catch per net-night

TABLE 16

GILL NET CATCH, STATION 3, TRM 294, NOVEMBER 10-12, 1976

Species	N	c/f	Wt. Kg.	c/f
Lepisosteus osseus	1	0.0250	1.00	0.0250
Lepisosteus oculatus	1	.0250	.68	.0170
Dorosoma cepedianum	5	.1250	1.13	.0282
Alosa chrysochloris	241	6.0250	106.66	2.6665
Hiodon tergisus	3	.0750	.64	.0160
Minytrema melanops	52	1.3000	20.53	.5132
Ictiobus bubalus	3	.0750	1.00	.0250
Moxostoma anisurum	1	.0250	1.68	.0420
Moxostoma erythrurum	39	.9750	11.07	.2767
Ictalurus furcatus	2	.0500	1.18	.0295
Ictalurus punctatus	65	1.6250	28.41	.7102
Aplodinotus grunniens	3	.0750	.77	.0192
Morone chrysops	32	.8000	9.04	.2260
Morone mississippiensis	11	.2750	2.09	.0522
Lepomis macrochirus	1	.0250	.14	.0035
Lepomis microlophus	8	.2000	1.32	.0330
Micropterus salmoides	1	.0250	1.36	.0340
Pomoxis annularis	3	.0750	.64	.0160
Stizostedion canadense	138	3.4500	64.24	1.6060
Total	610	15.2500	253.58	6.3394

c/f = catch per net-night

TABLE 17

SUMMARY OF WINTER QUARTER GILL NET SAMPLING PREOPERATIONAL (1969-1973) AND OPERATIONAL (1974-1976)

STATION	$\bar{x}$N	c/f SE	$\bar{x}$ wt	SE			N	c/f	wt. kg.	c/f
1 - preoperational (means)	10.046	4.632	3.502	1.915	1 - operational	1974	418	10.450	165.53	4.138
						1975	308	8.105	137.46	3.617
						1976	253	6.325	90.09	2.252
2 - preoperational (means)	10.087	1.168	3.848	.607	2 - operational	1974	231	6.417	96.03	2.668
						1975	NO SAMPLE			
						1976	151	3.775	47.15	1.179
3 - preoperational (means)	8.138	4.063	3.089	1.548	3 - operational	1974	292	7.300	124.41	3.110
						1975	414	10.615	161.95	4.153
						1976	433	10.825	134.62	3.364

TABLE 18

SUMMARY OF SPRING QUARTER GILL NET SAMPLING PREOPERATIONAL (1969-1973) AND OPERATIONAL (1974-1976)

STATION	$\bar{x}$N	SE	c/f $\bar{x}$ wt	SE			N	c/f	wt. kg.	c/f
1 - preoperational (means)	18.827	3.919	6.049	.800	1 - operational	1974	985	24.625	269.18	6.730
						1975	997	26.237	285.57	7.515
						1976	897	22.425	240.70	6.017
2 - preoperational (means)	11.815	3.810	3.613	.977	2 - operational	1974	164	4.100	92.37	2.309
						1975	405	10.125	87.35	2.184
						1976	179	5.424	82.26	2.493
3 - preoperational (means)	22.977	16.520	5.878	3.438	3 - operational	1974	686	22.867	158.61	5.287
						1975	423	10.575	96.33	2.408
						1976	990	24.750	272.47	6.812

TABLE 19

SUMMARY OF SUMMER QUARTER GILL NET SAMPLING PREOPERATIONAL (1968-1972) AND OPERATIONAL (1974-1976)

STATION	$\bar{x}$N	SE	c/f $\bar{x}$ wt	SE			N	c/f	wt. kg.	c/f
1 - preoperational (means)	29.42	6.34	8.29	1.90	1 - operational	1974	316	7.90	101.75	2.54
						1975	735	19.34	164.56	4.33
						1976	897	22.43	240.70	6.02
2 - preoperational (means)	23.18	14.64	3.44	1.27	2 - operational	1974	85	2.83	64.82	2.16
						1975	114	2.85	45.46	1.14
						1976	179	5.42	82.26	2.49
3 - preoperational (means)	41.90	11.15	9.77	3.25	3 - operational	1974	643	16.08	174.92	4.37
						1975	1,111	27.78	178.01	4.45
						1976	990	24.75	272.47	6.81

TABLE 20

SUMMARY OF FALL QUARTER GILL NET SAMPLING PREOPERATIONAL (1969-1972) AND OPERATIONAL (1973-1976)

STATION	$\overline{x}$N	SE	c/f $\overline{x}$ wt	SE			N	c/f	wt. kg.	c/f
1 - preoperational (means)	9.88	1.53	2.80	0.37	1 - operational	1973	476	11.90	166.22	4.16
						1974	252	8.55	138.97	3.47
						1975	268	6.70	94.28	2.38
						1976	486	12.15	178.74	4.47
2 - preoperational (means)	7.98	1.87	3.16	.64	2 - operational	1973	169	4.23	96.72	2.42
						1974	129	3.23	43.62	1.09
						1975	237	5.93	89.55	2.24
						1976	323	8.08	126.07	3.15
3 - preoperational (means)	18.10	9.73	7.01	2.37	3 - operational	1973	304	7.60	117.60	2.90
						1974	822	20.55	246.78	6.17
						1975	475	11.86	159.73	3.99
						1976	610	15.25	253.58	6.34

data in relation to plant effects at this time. Spring quarter catches remain higher than during other quarters except at station two, which is consistently less productive in terms of catch.

Trap Net

Catches from winter quarter trap nets were dominated by clupeids, catostomids, and sciaenids (Tables 21-23). In the spring quarter, Pomoxis replaced the catostomids as the third taxon in order of abundance (Tables 24-26). No trap netting is conducted in the summer quarter. Fall-quarter trap net catches (Tables 27-29) were highly variable between stations, but major taxa were clupeids, sciaenids, percicthyids, and hiodontids.

Tagging and Movement Data

During the fall quarter 464 additional fish were tagged and released from the trap nets. White bass and smallmouth buffalo were the primary species tagged (Table 30). The cumulative total of fish tagged to date is 8,599 with 295, or 3.4 percent, having been recaptured or returned by fishermen.

Creel and Harvest Data

Creel data for Wheeler Reservoir is summarized in Tables 31-4 , including data collected through December 1975. Estimated sport fishing success rate (catch per hour) decreased in 1975 (0.736) from a value of 1.096 in 1974 (Table 41). Bluegill, largemouth bass, and white crappie were the most frequently encountered species in the 1974 Wheeler creel survey (Table 35). In 1975, the order of abundance by individual species was: bluegill, white crappie, channel catfish (Table 36).

TABLE 21

TRAP NET CATCH, STATION 1, TRM, 283, FEBRUARY 27-MARCH 10, 1976

Species	N	c/f	Wt. Kg.	c/f
Dorosoma cepedianum	845	211.2500	77.51	19.3775
Alosa chrysochloris	28	7.0000	11.17	2.7925
Hiodon tergisus	1	.2500	.23	.0575
Minytrema melanops	14	3.5000	4.85	1.2125
Ictiobus bubalus	58	14.5000	25.15	6.2875
Ictiobus cyprinellus	1	.2500	2.04	.5100
Ictalurus punctatus	36	9.0000	10.98	2.7450
Pylodictis olivaris	6	1.5000	6.13	1.5325
Aplodinotus grunniens	99	24.7500	19.78	4.9450
Morone chrysops	10	2.5000	1.41	.3525
Morone mississippiensis	18	4.5000	2.13	.5325
Lepomis macrochirus	11	2.7500	.82	.2050
Pomoxis annularis	46	11.5000	11.48	2.8700
Pomoxis nigromaculatus	1	.2500	.14	.0350
Stizostedion canadense	1	.2500	.41	.1025
Total	1175	293.7500	174.23	43.5575

c/f = catch per lift

TABLE 22

TRAP NET CATCH, STATION 2, TRM 293, FEBRUARY 27-MARCH 10, 1976

Species	N	c/f	Wt. Kg.	c/f
Polyodon spathula	2	.5000	5.37	1.3425
Dorosoma cepedianum	396	99.0000	41.67	10.4175
Alosa chrysochloris	18	4.5000	7.71	1.9275
Hiodon tergisus	1	.2500	.27	.0675
Minytrema melanops	7	1.7500	2.67	.6675
Ictiobus bubalus	39	9.7500	24.24	6.0600
Moxostoma carinatum	1	.2500	.86	.2150
Moxostoma erythrurum	2	.5000	3.27	.8175
Ictalurus furcatus	6	1.5000	1.63	.4075
Ictalurus punctatus	45	11.2500	13.06	3.2650
Pylodictus olivaris	4	1.0000	5.13	1.2825
Aplodinotus grunniens	78	19.5000	14.69	3.6725
Morone chrysops	1	.2500	.27	.0675
Morone mississippiensis	12	3.0000	2.09	.5225
Lepomis megalotus	17	4.2500	1.14	.2850
Lepomis microlophus	27	6.7500	7.93	1.9825
Pomoxis annularis	15	3.7500	5.71	1.4275
Stizostedion canadense	6	1.5000	2.09	.5225
Total	677	169.2500	139.80	34.9500

c/f = catch per lift

TABLE 23

TRAP NET CATCH, STATION 3, TRM 287, FEBRUARY 27-MARCH 10, 1976

Species	N	c/f	Wt. Kg.	c/f
Polyodon spathula	2	.5000	8.64	2.1600
Dorosoma cepedianum	1527	381.7500	166.49	41.6225
Dorosoma petenense	1	.2500	.14	.0350
Alosa chrysochloris	40	10.0000	20.32	5.0800
Hiodon tergisus	15	3.7500	2.08	.5200
Minytrema melanops	1	.2500	.45	.1125
Ictiobus bubalus	107	26.7500	49.85	12.4625
Ictiobus niger	1	.2500	1.36	.3400
Ictalurus furcatus	12	3.0000	4.27	1.0675
Ictalurus punctatus	29	7.2500	16.60	4.1500
Pylodictis olivaris	2	.5000	3.30	.8250
Aplodinotus grunniens	445	111.2500	77.84	19.4600
Morone chrysops	53	13.2500	7.35	1.8375
Morone mississippiensis	34	8.5000	4.12	1.0300
Lepomis macrochirus	77	19.2500	6.90	1.7250
Lepomis microlophus	45	11.2500	7.71	1.9275
Pomoxis annularis	86	21.5000	36.86	9.2150
Stizostedion canadense	22	5.5000	10.48	2.6200
Total	2499	624.7500	424.76	106.1900

c/f = catch per lift

TABLE 24

TRAP NET CATCH, STATION 1, TRM 283, MAY 7-20, 1976

Species	N	c/f	Wt. Kg.	c/f
Polyodon spathula	1	.2500	10.90	2.7250
Dorosoma cepedianum	711	177.7500	116.09	29.0225
Hiodon tergisus	1	.2500	.23	.0575
Cyprinus carpio	1	.2500	1.10	.2750
Hypentelium etowanum	1	.2500	.60	.1500
Ictiobus bubalus	4	1.0000	3.98	.9950
Ictalurus furcatus	5	1.2500	2.51	.6275
Ictalurus punctatus	22	5.5000	20.70	5.1750
Pylodictis olivaris	12	3.0000	53.12	13.2800
Aplodinotus grunniens	176	44.0000	35.04	8.7600
Morone chrysops	49	12.2500	9.85	2.4625
Morone mississippiensis	1	.2500	.40	.1000
Lepomis macrochirus	55	13.7500	5.38	1.3450
Lepomis microlophus	1	.2500	.18	.0450
Pomoxis annularis	102	25.5000	68.49	17.1225
Pomoxis nigromaculatus	1	.2500	.23	.0575
Total	1143	285.7500	328.80	82.2000

c/f = catch per lift

TABLE 25

TRAP NET CATCH, STATION 2, TRM 293, MAY 7-20, 1976

Species	N	c/f	Wt. Kg.	c/f
Polyodon spathula	1	.2500	2.65	.6625
Dorosoma cepedianum	1398	349.5000	184.89	46.2225
Alosa chrysochloris	22	5.5000	10.05	2.5125
Hiodon tergisus	5	1.2500	1.46	.3650
Cyprinnus carpio	1	.2500	1.81	.4525
Carpiodes carpio	1	.2500	.85	.2125
Ictiobus bubalus	49	12.2500	61.07	15.2675
Moxostoma erythrurum	1	.2500	.70	.1750
Ictalurus furcatus	4	1.0000	1.68	.4200
Ictalurus punctatus	16	4.0000	7.30	1.8250
Pylodictis olivaris	6	1.5000	34.14	8.5350
Aplodinotus grunniens	18	4.5000	5.52	1.3800
Morone chrysops	2	.5000	.91	.2275
Morone mississippiensis	4	1.0000	.95	.2375
Lepomis macrochirus	28	7.0000	3.46	.8650
Lepomis megalotus	1	.2500	.09	.0225
Lepomis microlophus	6	1.5000	2.27	.5675
Pomoxis annularis	11	2.7500	4.71	1.1775
Total	1574	393.5000	324.51	81.1275

c/f = catch per lift

TABLE 26

TRAP NET CATCH, STATION 3, TRM 287, MAY 7-20, 1976

Species	N	c/f	Wt. Kg.	c/f
Polyodon spathula	2	.5000	7.08	1.7700
Dorosoma cepedianum	2033	508.2500	301.54	75.3849
Alosa chrysochloris	13	3.2500	7.99	1.9975
Hiodon tergisus	1	.2500	.23	.0575
Ictiobus bubalus	55	13.7500	91.61	22.9025
Ictiobus niger	1	.2500	3.00	.7500
Moxostoma erythrurum	3	.7500	2.10	.5250
Ictalurus furcatus	1	.2500	.40	.1000
Ictalurus punctatus	16	4.0000	7.23	1.8075
Pylodictis olivaris	48	12.0000	24.53	6.1325
Aplodinotus grunniens	608	152.0000	151.90	37.9750
Morone chrysops	44	11.0000	13.06	3.2650
Morone mississippiensis	19	4.7500	3.76	.9400
Lepomis macrochirus	2	.5000	.14	.0350
Lepomis microlophus	2	.5000	.36	.0900
Pomoxis annularis	80	20.0000	36.85	9.2125
Stizostedion canadense	16	4.0000	12.90	3.2250
Total	2944	736.0000	664.68	166.1699

c/f = catch per lift

TABLE 27

TRAP NET CATCH, STATION 1, TRM 283, NOVEMBER 19-DECEMBER 3, 1976

Species	N	c/f	Wt. Kg.	c/f
Dorosoma cepedianum	219	54.7500	25.50	6.3750
Alosa chrysochloris	85	21.2500	19.78	4.9450
Hiodon tergisus	10	2.5000	1.81	.4525
Moxostoma carinatum	1	.2500	1.13	.2825
Minytrema melanops	19	4.7500	5.30	1.3250
Ictiobus bubalus	77	19.2500	50.84	12.7100
Ictiobus cyprinellus	2	.5000	3.09	.7725
Moxostoma erythrurum	17	4.2500	9.53	2.3825
Ictalurus furcatus	4	1.0000	1.58	.3950
Ictalurus punctatus	73	18.2500	29.53	7.3825
Pylodicitis olivaris	5	1.2500	8.16	2.0400
Aplodinotus grunniens	318	79.5000	47.87	11.9675
Morone chrysops	213	53.2500	32.79	8.1975
Morone mississippiensis	43	10.7500	4.58	1.1450
Lepomis macrochirus	5	1.2500	.36	.0900
Lepomis microlophus	26	6.5000	5.58	1.3950
Pomoxis annularis	40	10.0000	10.48	2.6200
Pomoxis nigromaculatus	34	8.5000	11.80	2.9500
Stizostedion canadense	41	10.2500	24.72	6.1800
Total	1250	308.0000	294.43	73.6074

c/f = catch per lift

TABLE 28

TRAP NET CATCH, STATION 2, TRM 293, NOVEMBER 19-DECEMBER 3, 1976

Species	N	c/f	Wt. Kg.	c/f
Dorosoma cepedianum	292	73.0000	29.48	7.3700
Alosa chrysochloris	350	87.5000	61.27	15.3175
Hiodon tergisus	135	33.7500	22.62	5.6550
Minytrema melanops	3	.7500	.59	.1475
Ictiobus bubalus	43	10.7500	22.23	5.5575
Ictiobus cyprinellus	1	.2500	3.18	.7950
Moxostoma erythrurum	4	1.0000	1.22	.3050
Ictalurus furcatus	11	2.7500	3.85	.9625
Ictalurus punctatus	21	5.2500	7.44	1.8600
Aplodinotus grunniens	9	2.2500	5.08	1.2700
Morone chrysops	7	1.7500	1.44	.3600
Morone mississippiensis	20	5.0000	3.39	.8475
Lepomis macrochirus	1	.2500	.13	.0325
Lepomis microlophus	13	3.2500	1.63	.4075
Pomoxis annularis	5	1.2500	2.31	.5775
Stizostedion canadense	1	.2500	.68	.1700
Total	916	229.0000	166.54	41.6349

c/f = catch per lift

TABLE 29

TRAP NET CATCH, STATION 3, TRM 283, NOVEMBER 19-DECEMBER 3, 1976

Species	N	c/f	Wt. Kg.	c/f
Dorosoma cepedianum	1504	376.0000	157.45	39.3625
Alosa chrysochloris	483	120.7500	124.07	31.0175
Hiodon tergisus	972	243.0000	121.58	30.3950
Minytrema melanops	32	8.0000	17.50	4.3750
Ictiobus bubalus	257	64.2500	156.18	39.0450
Ictiobus cyprinellus	2	.5000	3.60	.9000
Moxostoma carinatum	3	.7500	1.13	.2825
Moxostoma erythrurum	13	3.2500	4.93	1.2325
Ictalurus furcatus	17	4.2500	7.89	1.9725
Ictalurus punctatus	77	19.2500	26.98	6.7450
Pylodictis olivaris	8	2.0000	9.69	2.4225
Aplodinotus grunniens	581	145.2500	118.26	29.5650
Morone chrysops	618	154.5000	136.26	34.0650
Morone mississippiensis	114	28.5000	14.14	3.5350
Lepomis macrochirus	1	.2500	.23	.0575
Lepomis microlophus	62	15.5000	16.20	4.0500
Pomoxis annularis	81	20.2500	27.72	6.9300
Pomoxis nigromaculatus	52	13.0000	17.38	4.3450
Stizostedion canadense	27	6.7500	17.24	4.3100
Stizostedion vitreum vitreum	2	.5000	1.36	.3400
Total	4906	979.79	1226.50	244.9469

c/f = catch per lift

TABLE 30

SUMMARY OF TAGGING OPERATIONS TO DATE, WHEELER RESERVOIR, FALL QUARTER 1976

Species	Total Tagged This Quarter	Total Tagged	Total Returns	Percent Returns
Paddlefish	-	25	-	0.0
Smallmouth buffalo	106	791	5	0.6
Bigmouth buffalo	-	42	-	0.0
Blue catfish	8	617	18	2.9
Channel catfish	32	2604	48	1.8
Flathead catfish	9	777	67	8.6
White bass	244	1470	37	2.5
Bluegill	-	15	-	0.0
Redear sunfish	-	57	-	0.0
Spotted bass	-	8	1	12.5
Largemouth bass	-	29	-	0.0
Smallmouth bass	-	4	-	0.0
White crappie	65	1687	101	6.0
Black crappie	-	18	3	16.7
Sauger	-	63	9	14.3
Walleye	-	1	-	0.0
Freshwater drum	-	391	6	1.5
Totals	464	8599	295	3.4

TABLE 31

ESTIMATED QUARTERLY FISHING PRESSURE (HRS.) JULY 1, 1970, THROUGH DECEMBER 23, 1975, WHEELER RESERVOIR, ALABAMA

	Calendar Year					
	1970	1971	1972	1973	1974	1975
Winter (Jan.-Mar.)		40,606	155,221	135,016	22,077	68,386
Spring (Apr.-June)		247,771	152,658	238,257*	89,653	229,070
Summer (July-Sept.)	102,864	113,477	71,549	105,883	43,570	76,532
Fall (Oct.-Dec.)	47,577	31,946	36,412	19,601	22,934	24,164
Total	150,441	433,800	415,840	498,757	178,234	398,152

*Beginning of creel survey procedures as described by the Institute of Statistics, North Carolina State University, Raleigh, North Carolina.

TABLE 32

FISHING PRESSURE ESTIMATES BY PERIOD, APRIL 1, 1973, THROUGH DECEMBER 23, 1975, WHEELER RESERVOIR, ALABAMA

1973			1974			1975		
Period	Inclusive Dates	Fishing Pressure (hr)	Period	Inclusive Dates	Fishing Pressure (hr)	Period	Inclusive Dates	Fishing Pressure (hr)
			1	Jan. 6-Jan. 22	1,520	1	Jan. 8-Jan 25	1,090
			2	Jan. 23-Feb. 9	1,929	2	Jan. 26-Feb. 11	4,653
			3	Feb. 10-Feb. 26	3,965	3	Feb. 12-Mar. 1	14,701
			4	Feb. 27-Mar. 16	7,660	4	Mar. 2-Mar. 18	9,451
			5	Mar. 17-Apr. 2	7,003	5	Mar. 19-Apr. 5	38,489
1	Apr. 1-Apr. 21	32,721	6	Apr. 3-Apr. 20	17,306	6	Apr. 6-Apr. 22	46,013
2	Apr. 22-May 5	65,143	7	Apr. 21-May 7	25,473	7	Apr. 23-May 10	50,496
3	May 6-May 22	71,799	8	May 8-May 25	25,544	8	May 11-May 27	63,021
4	May 23-June 9	46,267	9	May 26-June 11	10,947	9	May 28-June 14	48,412
5	June 10-June 26	22,323	10	June 12-June 27	12,383	10	June 15-July 1	31,217
6	June 27-July 14	40,294	11	June 28-July 16	18,676	11	July 2-July 19	29,872
7	July 15-July 31	21,023	12	July 17-Aug. 3	11,854	12	July 20-Aug. 5	18,025
8	Aug. 1-Aug. 18	18,524	13	Aug. 4-Aug. 20	5,688	13	Aug. 6-Aug. 23	10,676
9	Aug. 19-Sept. 4	12,136	14	Aug. 21-Sept. 7	4,680	14	Aug. 24-Sept. 9	11,882
10	Sept. 5-Sept. 22	8,221	15	Sept. 8-Sept. 24	2,672	15	Sept. 10-Sept. 27	6,076
11	Sept. 23-Oct. 9	5,637	16	Sept. 25-Oct. 12	7,575	16	Sept. 28-Oct. 14	10,822
12	Oct. 10-Oct. 27	7,732	17	Oct. 13-Oct. 29	8,123	17	Oct. 15-Nov. 1	6,988
13	Oct. 28-Nov. 13	4,784	18	Oct. 30-Nov. 16	2,592	18	Nov. 2-Nov. 18	3,699
14	Nov. 14-Dec. 1	3,954	19	Nov. 17-Dec. 3	1,306	19	Nov. 19-Dec. 6	1,800
15	Dec. 2-Dec. 18	2,294	20	Dec. 4-Dec. 21	1,620	20	Dec. 7-Dec. 23	852
16	Dec. 19-Jan. 5, 1974	764	21	Dec. 22-Jan 7. 1975	1,720			

TABLE 33

SEASONAL FISHING PRESSURE PER HECTARE FOR EACH SAMPLING AREA, APRIL 1, 1973, THROUGH DECEMBER 23, 1975, WHEELER RESERVOIR, ALABAMA

Season (year)	Hours of Pressure per Hectare					
	Sampling Area					Entire Reservoir
	1-1&1-2	2-1	3-1	3-2	4-1	
Spring (1973)	7.5	7.5	6.3	12.2	56.7	11.4
Summer (1973)	3.2	2.5	3.8	6.9	21.5	5.1
Fall (1973)	0.8	0.5	0.5	1.0	3.9	0.9
Winter (1974)	1.1	0.2	0.9	1.1	3.1	1.1
Spring (1974)	2.9	2.8	1.6	10.9	10.4	4.3
Summer (1974)	0.9	2.0	1.8	3.1	8.4	2.1
Fall (1974)	0.5	0.5	0.6	0.8	7.7	1.1
Winter (1975)	3.2	0.8	6.4	2.8	17.7	3.7
Spring (1975)	4.3	12.6	8.5	13.8	50.4	11.0
Summer (1975)	2.0	3.3	3.3	1.9	19.3	3.7
Fall (1975)	0.8	0.4	0.4	1.8	6.3	1.2

TABLE 34

PERCENT OF TOTAL ESTIMATED FISHING PRESSURE ON EACH SAMPLING AREA BY SEASON, APRIL 1, 1973, THROUGH DECEMBER 3, 1975, WHEELER RESERVOIR, ALABAMA

Season (year)	Sampling Area				
	1-1 & 1-2	2-1	3-1	3-2	4-1
Spring (1973)	28.3	8.5	12.5	15.9	34.8
Summer (1973)	26.9	6.5	16.9	20.2	29.6
Fall (1973)	37.0	7.4	10.8	16.1	28.8
Winter (1974)	42.7	2.9	19.1	15.1	20.2
Spring (1974)	28.6	8.4	8.2	37.8	17.0
Summer (1974)	17.9	12.5	19.8	21.8	28.1
Fall (1974)	20.4	6.3	12.8	11.5	49.1
Winter (1975)	42.0	3.0	4.4	12.8	37.8
Spring (1975)	16.8	14.9	17.5	18.6	32.1
Summer (1975)	23.7	11.6	20.1	7.8	36.9
Fall (1975)	28.2	4.3	6.8	22.7	37.8

TABLE 35

ESTIMATED TOTAL SPORT FISHING CATCH BY SPECIES, JANUARY 6, 1974 THROUGH JANUARY 7, 1975, WHEELER RESERVOIR, ALABAMA

Species	Number	Biomass (kg)	% by Number	% by Biomass	Rank by Number	Rank by Biomass
Bluegill	57,161	6,387	29.2	9.1	1	5
Largemouth bass	30,980	22,153	15.8	31.5	2	1
Other sunfish**	25,860	3,070	13.2	4.4	3	6
White crappie	23,995	10,457	12.3	14.9	4	2
Redear sunfish	16,962	2,215	8.7	3.2	5	7
Channel catfish	13,580	8,962	6.9	12.8	6	3
Blue catfish	12,156	8,093	6.2	11.5	7	4
White bass	5,411	1,952	2.8	2.8	8	8
Black crappie	2,734	1,171	1.4	1.7	9	11
Spotted bass	1,629	900	0.8	1.3	10	12
Flathead catfish	1,005	1,293	0.5	1.8	11	10
Carp	864	769	0.4	1.1	12	13
Drum	829	1,578	0.4	2.2	13	9
Yellow bass	779	208	0.4	2.3	14	16
Smallmouth bass	668	522	0.3	0.7	15	14
Other***	550	376	0.3	0.5	16	15
Sauger	237	70	0.1	*	17	17
Rockbass	103	20	*	*	18	18
Total	195,503	70,196				

*Calculated value less than 0.05
**Includes longear sunfish, green sunfish, orangespotted sunfish, warmouth, etc.
***Includes all fish not otherwise categbrized.

TABLE 36

ESTIMATED TOTAL SPORT FISHING CATCH BY SPECIES, JANUARY 7, 1975, THROUGH DECEMBER 23, 1975, WHEELER RESERVOIR, ALABAMA

Species	Number	Biomass (kg)	% by Number	% by Biomass	Rank by Number	Rank by Biomass
Bluegill	114,142	12,543	39.8	20.5	1	1
Largemouth bass	17,132	8,324	6.0	13.6	6	4
Other sunfish*	33,952	3,463	11.9	5.7	3	6
White crappie	39,072	8,391	13.6	13.7	2	3
Redear sunfish	19,638	2,815	6.9	4.6	5	7
Channel catfish	26,135	9,737	9.1	15.9	4	2
Blue catfish	14,688	7,031	5.1	11.4	7	5
White bass	4,045	857	1.4	1.4	9	10
Black crappie	3,428	918	1.2	1.5	10	9
Spotted bass	434	101	0.2	0.2	18	18
Flathead catfish	1,046	439	0.4	0.7	15	12
Carp	911	2,542	0.3	4.1	16	8
Drum	3,231	2,039	1.1	3.3	11	15
Yellow bass	4,282	287	1.5	0.5	8	14
Smallmouth bass	1,141	357	0.4	0.6	14	13
Other**	1,241	874	0.4	1.4	13	11
Sauger	445	153	0.2	0.3	17	17
Rockbass	1,570	262	0.6	0.4	12	16
Total	286,566	61,144				

*Includes longear sunfish, green sunfish, orangespotted sunfish, warmouth, etc.

**Includes all fish not otherwise categorized.

TABLE 37

ESTIMATED SPORT FISH HARVEST PER HOUR AND PER HECTARE, JANUARY 7, 1974, THROUGH JANUARY 8, 1975, WHEELER RESERVOIR, ALABAMA

Species	Catch per Hour		Catch per Hectare	
	Number	Kilogram	Number	Kilogram
Bluegill	0.321	0.035	2.735	0.305
Largemouth bass	0.174	0.124	1.482	1.060
Other sunfish**	0.145	0.017	1.237	0.147
White crappie	0.134	0.058	1.148	0.500
Redear sunfish	0.095	0.012	0.811	0.106
Channel catfish	0.076	0.050	0.649	0.428
Blue catfish	0.068	0.045	0.581	0.387
White bass	0.030	0.010	0.258	0.093
Black crappie	0.015	0.006	0.130	0.056
Spotted bass	0.009	0.005	0.077	0.043
Flathead catfish	0.005	0.007	0.048	0.061
Carp	0.004	0.004	0.041	0.036
Drum	0.004	0.008	0.039	0.075
Yellow bass	0.004	0.001	0.037	0.010
Smallmouth bass	0.003	0.002	0.031	0.025
Other***	0.003	0.002	0.026	0.018
Sauger	0.001	*	0.011	0.003
Rockbass	*	*	0.004	0.001
Total	1.096	0.393	9.354	3.358

*Calculated value less than 0.0005.
**Includes longear sunfish, green sunfish, orangespotted sunfish, warmouth, etc.
***Includes all fish not otherwise categorized.

TABLE 38

ESTIMATED SPORT FISH HARVEST PER HOUR AND PER HECTARE, JANUARY 7, 1975, THROUGH DECEMBER 28, 1975, WHEELER RESERVOIR

Species	Catch per Hour		Catch per Hectare	
	Number	Kilogram	Number	Kilogram
Bluegill	0.286	0.032	5.456	0.600
Largemouth bass	0.043	0.021	0.819	0.398
Other sunfish**	0.085	0.009	1.632	0.166
White crappie	0.098	0.010	1.868	0.401
Redear sunfish	0.049	0.007	0.939	0.135
Channel catfish	0.065	0.024	1.249	0.465
Blue catfish	0.036	0.018	0.702	0.366
White bass	0.010	0.002	0.193	0.041
Black crappie	0.008	0.002	0.164	0.044
Spotted bass	0.001	*	0.021	0.006
Flathead catfish	0.002	0.001	0.050	0.021
Carp	0.002	0.006	0.044	0.122
Drum	0.008	0.005	0.154	0.097
Yellow bass	0.011	.001	0.205	0.014
Smallmouth bass	0.003	0.001	0.055	0.017
Other***	0.003	0.002	0.059	0.042
Sauger	0.001	*	0.021	0.007
Rockbass	0.004	0.001	0.075	0.013
Total	0.736	0.153	13.698	2.923

*Calculated value less than 0.0005.
**Includes longear sunfish, green sunfish, orangespotted sunfish, warmouth, etc.
***Includes all fish not otherwise categorized.

TABLE 39

ESTIMATED TOTAL SPORT FISHING HARVEST FROM EACH SAMPLING AREA BY SPECIES, JANUARY 7, 1975 THROUGH DECEMBER 23, 1975, WHEELER RESERVOIR, ALABAMA

Species	Number					Biomass (kg)				
Area:	1-1 & 1-2	2-1	3-1	3-2	4-1	1-1 & 1-2	2-1	3-1	3-2	4-1
Bluegill	19,766	19,348	11,124	17,573	46,328	2,006	2,077	1,126	2,515	4,817
Largemouth	425	252	2,297	5,087	9,069	122	109	867	2,994	4,283
Other sunfish*	12,687	2,619	805	7,295	10,545	4,747	255	72	990	999
White crappie	2,890	1,741	2,911	8,470	23,058	637	581	694	1,699	4,777
Redear sunfish	11,334	3,211	14	2,723	1,847	1,491	506	-	485	332
Channel catfish	10,011	3,653	8,370	1,848	2,251	2,527	1,189	3,996	1,063	961
Blue catfish	4,050	4,916	4,046	771	903	1,706	1,835	2,781	380	356
White bass	939	552	1,181	208	1,164	137	99	266	47	305
Black crappie	397	127	673	656	1,573	66	32	122	182	514
Spotted bass	0	0	24	251	158	-	-	6	80	14
Flathead catfish	418	96	159	65	305	193	43	81	29	91
Carp	859	0	52	0	0	2,475	-	66	-	-
Drum	1,383	730	487	187	235	831	227	616	173	90
Yellow bass	435	767	802	272	2,004	63	90	102	60	335
Smallmouth bass	27	78	157	393	486	7	24	45	175	105
Other**	676	67	98	0	407	807	4	31	-	31
Sauger	819	27	88	50	135	43	8	31	4	64
Rockbass	355	47	84	89	993	57	3	19	14	187
Total	67,471	38,231	33,372	45,938	101,461	17,915	7,082	10,921	10,890	18,260

*Includes longear sunfish, green sunfish, orangespotted sunfish, warmouth, etc.
**Includes all fish not otherwise categorized.

TABLE 40

ESTIMATED NUMBER AND BIOMASS OF SPORT FISH HARVEST PER HECTARE BY SPECIES, JANUARY 7, 1975, THROUGH DECEMBER 23, 1975, WHEELER RESERVOIR

Species	Number					Biomass (kg)				
Area	1-1 & 1-2	2-1	3-1	3-2	4-1	1-1 & 1-2	2-1	3-1	3-2	4-1
Bluegill	2.20	7.17	2.37	5.67	31.73	0.22	0.77	0.24	0.81	3.30
Largemouth bass	0.04	0.09	0.49	1.64	6.21	0.01	0.04	0.21	0.97	2.93
Other sunfish*	1.41	0.97	0.17	2.35	7.22	0.53	0.08	0.02	0.32	0.68
White crappie	0.32	0.64	0.62	2.73	15.79	0.07	0.22	0.15	0.55	3.27
Redear sunfish	1.26	1.19	*	0.88	1.27	0.17	0.19	-	0.16	0.23
Channel catfish	1.11	1.35	1.78	0.60	1.54	0.28	0.44	0.85	0.34	0.66
Blue catfish	0.45	1.82	0.86	0.25	0.62	0.19	0.68	0.59	0.12	0.24
White bass	0.10	0.32	0.25	0.07	0.80	0.02	0.04	0.06	0.02	0.21
Black crappie	0.04	0.05	0.14	0.21	1.08	0.01	0.01	0.03	0.06	0.35
Spotted bass	-	-	0.01	0.08	0.11	-	-	*	0.03	0.01
Flathead catfish	0.05	0.04	0.03	0.02	0.21	0.02	0.02	0.02	0.01	0.06
Carp	0.10	-	0.01	-	-	0.28	-	0.01	-	-
Drum	0.15	0.27	0.10	0.06	0.61	0.09	0.08	0.13	0.06	0.06
Yellow bass	0.05	0.28	0.17	0.09	1.37	0.01	0.03	0.02	0.02	0.23
Smallmouth bass	*	0.03	0.03	0.13	0.33	*	0.01	0.01	0.06	0.07
Other***	0.08	0.02	0.02	-	0.28	0.09	*	0.01	-	0.08
Sauger	0.09	0.01	0.02	0.02	0.09	*	*	0.01	*	0.04
Rockbass	0.04	0.02	0.02	0.03	0.68	0.01	*	*	*	0.13
Total	7.53	14.16	7.10	14.82	69.50	2.00	2.63	2.33	3.52	12.51

*Calculated values less than 0.005.
**Includes longear sunfish, green sunfish, orangespotted sunfish, warmouth, etc.
***Includes all fish not otherwise categorized.

TABLE 41

ESTIMATED HARVEST RATE OF SPORT FISH FROM EACH SAMPLING AREA, JANUARY 7, 1975, THROUGH DECEMBER 23, 1975, WHEELER RESERVOIR

Sampling Area	Harvest per Hour	
	Number	Kilogram
1-1 & 1-2	0.173	0.194
2-1	0.098	0.153
3-1	0.086	0.181
3-2	0.118	0.173
4-1	0.261	0.133
All areas combined	0.736	0.153

Rotenone

In the summer of 1976 cove rotenone studies were made to assess overall fisheries conditions in Wheeler Reservoir. The samples showed a normal warm water fish assemblage composed of 42 species (Table 42) in 12 families. The numbers of game and rough fish species occurring in the 1976 samples (Table 43) were similar to those in previous studies. The increase in forage species was due to more complete identification of small fish, minnows, and darters that were previously described only to genus.

The numbers and biomass of young-of-year, intermediate, and harvestable fish, by species, are reported in Table 44 and summarized by fish group for each sample site in Table 45. These data show that young-of-year clupeids (forage fish) at the Lawrence County Park site dominate both numbers and biomass of the 1976 sample series. In a balanced fish community an increase in small forage fish is usually reflected in more and larger piscivorous game fish. This increase in numbers and weights is reflected in the relative abundance and weight of the game fish group (Table 46) in 1976. The rough fish numbers (Table 46) are fewer than observed in previous studies, whereas their biomass is higher. The reason is not known for the reduced numbers of rough fish, but their increased mean weight is probably attributable to increased food resources--forage fish.

A comparison through time of the mean numbers and biomass per acre for the three sites (Table 47) indicates that the Lawrence County Park site has significantly greater numbers and biomass than the average of the previous studies. The Second Creek and Elk River sites are not significantly different from the average of their previous studies. Table 47 indicates

that while there is much variability in numbers and biomass, to be expected since fish are highly mobile organisms, the fish community in Wheeler Reservoir appears normal.

TABLE 42

COMMON AND SCIENTIFIC NAMES OF FISHES IN ROTENONE SAMPLES, WHEELER RESERVOIR, 1976

GAME	
White bass	Morone chrysops
Yellow bass	Morone mississippiensis
Warmouth	Lepomis gulosus
Green sunfish	Lepomis cyanellus
Bluegill	Lepomis macrochirus
Longear sunfish	Lepomis megalotis
Redear sunfish	Lepomis microlophus
Smallmouth bass	Micropterus dolomieui
Spotted bass	Micropterus punctulatus
Largemouth bass	Micropterus salmoides
White crappie	Pomoxis annularis
Sauger	Stizostedion canadense
ROUGH	
Spotted gar	Lepisosteus oculatus
Longnose gar	Lepisosteus osseus
Carp	Cyprinus carpio
Northern hog sucker	Hypentelium nigricans
Smallmouth buffalo	Ictiobus bubalus
Spotted sucker	Minytrema melanops
Silver redhorse	Moxostoma anisurum
River redhorse	Moxostoma carinatum
Black redhorse	Moxostoma duquesnei
Golden redhorse	Moxostoma erythrurum
Blue catfish	Ictalurus furcatus
Channel catfish	Ictalurus punctatus
Flathead catfish	Pylodictis olivaris
Freshwater drum	Aplodinotus grunniens
FORAGE	
Skipjack herring	Alosa chrysochloris
Gizzard shad	Dorosoma cepedianum
Threadfin shad	Dorosoma petenense
Silver chub	Hybopsis storeriana
Golden shiner	Notemigonus crysoleucas
Emerald shiner	Notropis atherinoides
Common shiner	Notropis cornutus
Mimic shiner	Notropis volucellus
Bullhead minnow	Pimephales vigilax
Blackstripe topminnow	Fundulus notatus
Mosquitofish	Gambusia affinis
Orangespotted sunfish	Lepomis humilis
Fantail darter	Etheostoma flabellare
Redline darter	Etheostoma rufilineatum
Logperch	Percina caprodes
Brook silverside	Labidesthes sicculus

TABLE 43

POPULATIONS BY AREA AND MAJOR FISH GROUPS, WHEELER RESERVOIR, 1976

Sample Area	Fish Group	No. of Species	Number		Weight	
			Per Acre	Per Hectare	Lbs/Acre	Kg/HA
Lawrence County	Game	12	3,566	8,812	94.9	106.4
2.94 Acres (1.19 ha)	Rough	10	286	708	111.2	124.6
	Forage	14	20,324	50,222	1,253.2	1,404.6
TOTALS		36	24,176	59,742	1,459.3	1,635.6
Second Creek	Game	12	6,552	16,190	103.7	116.2
2.37 Acres (0.96 ha)	Rough	13	169	419	216.1	242.3
	Forage	15	2,727	6,738	90.5	101.5
TOTALS		40	9,448	23,347	410.3	460.0
Elk River	Game	11	9,625	23,782	168.3	188.6
1.56 Acres (0.63 ha)	Rough	9	231	571	177.9	199.4
	Forage	11	4,035	9,971	60.7	68.1
TOTALS		31	13,891	34,324	406.9	456.1
All Areas	Game	12	6,581	16,261	122.3	137.1
6.87 Acres (2.78 ha)	Rough	14	229	566	168.4	188.8
	Forage	16	9,029	22,310	156.0	524.7
TOTALS		42	15,839	39,137	446.7	850.6

TABLE 44

SIZE DISTRIBUTION PER HECTARE BY SPECIES, WHEELER RESERVOIR, 1976

Species	Young-of-Year		Intermediate		Harvestable	
	Number	Weight (kg)	Number	Weight (kg)	Number	Weight (kg)
Threadfin shad	17161.7	100.294	0.0	0.000	5.3	0.143
Bluegill	8597.3	11.788	2066.1	30.165	546.1	32.080
Gizzard shad	56.5	222.092	0.0	0.000	3688.6	195.385
Longear sunfish	2373.8	6.762	970.0	13.462	60.6	2.780
Redear sunfish	268.0	0.674	230.4	3.676	86.7	10.026
Bullhead minnow	581.6	0.414	0.0	0.000	0.0	0.000
Warmouth	371.4	0.685	117.6	1.699	14.8	1.538
Largemouth bass	50.5	0.385	203.6	4.377	26.0	8.878
Freshwater drum	51.9	0.306	89.0	4.721	85.6	39.368
Logperch	193.1	1.591	0.0	0.000	0.0	0.000
Spotted sucker	16.2	0.556	110.2	12.645	30.2	10.507
Silver chub	128.6	0.375	0.0	0.000	0.0	0.000
Skipjack herring	40.9	0.565	55.1	1.897	0.6	0.364
Emerald shiner	85.1	0.152	0.0	0.000	0.0	0.000
Spotted bass	43.8	0.296	34.3	0.538	1.0	0.145
Brook silverside	62.1	0.070	0.0	0.000	0.0	0.000
Smallmouth bass	15.1	0.125	29.7	0.712	10.2	1.494
Channel catfish	3.9	0.016	7.0	0.454	42.6	17.843
Golden shiner	51.0	0.932	0.0	0.000	0.0	0.000
Orangespotted sunfish	33.9	0.045	15.5	0.084	0.3	0.002
Golden redhorse	1.4	0.048	11.0	1.563	37.2	18.620
Green sunfish	15.6	0.043	25.3	0.509	4.4	0.242
White bass	39.2	0.152	2.8	0.149	1.2	0.319
Smallmouth buffalo	0.0	0.000	2.4	0.869	36.3	61.637
Mosquitofish	36.4	0.128	0.0	0.000	0.0	0.000
Mimic shiner	36.1	0.015	0.0	0.000	0.0	0.000
Fantail darter	34.5	0.073	0.0	0.000	0.0	0.000
Yellow bass	25.4	0.243	2.6	0.163	0.0	0.000
Blackstripe topminnow	26.7	0.037	0.0	0.000	0.0	0.000
Sauger	9.1	0.437	11.2	1.146	4.1	1.231
Flathead catfish	15.3	0.105	2.9	0.168	3.8	2.166
Common shiner	15.6	0.038	0.0	0.000	0.0	0.000
Spotted gar	2.1	0.078	1.4	0.243	1.9	1.573
Longnose gar	0.6	0.021	4.4	0.569	0.0	0.000
Carp	0.0	0.000	0.0	0.000	4.0	12.591
White crappie	0.5	0.001	1.3	0.024	1.2	0.169
Black redhorse	0.0	0.000	0.0	0.000	2.3	1.400
Silver redhorse	0.3	0.002	0.0	0.000	1.0	0.385
Redline darter	1.3	0.003	0.0	0.000	0.0	0.000
River redhorse	0.3	0.021	0.0	0.000	0.0	0.000
Blue catfish	0.0	0.000	0.0	0.000	0.3	0.281
Northern hog sucker	0.0	0.000	0.3	0.018	0.0	0.000
TOTALS	30417.8	349.568	3994.0	79.850	4696.3	421.117

TABLE 45

SAMPLE AREAS AND FISH POPULATIONS PER ACRE AND HECTARE, WHEELER RESERVOIR, 1976

Sample Area	Size		Mean Depth		Number Fish		Weight of Fish	
	Hectares	Acres	Meters	Feet	Per Hectare	Per Acre	Kilograms Per Hectare	Pounds Per Acre
Second Creek	0.96	2.37	2.3	7.54	23346.9	9448.2	459.9	410.33
Elk River	0.63	1.56	1.3	4.26	34325.4	13891.1	456.1	406.94
Lawrence County	1.19	2.94	1.4	4.59	59741.2	24176.7	1635.6	1459.28
All Samples Total Weighted Mean	0.93	2.28	1.66	5.46	39,138	15,839	850.6	758.85

TABLE 46

SIZE DISTRIBUTION OF MAJOR FISH GROUPS, WHEELER RESERVOIR, 1976

Fish Group	Percent by Number				Percent by Weight			
	Young-of-Year	Intermediate	Harvestable	Total	Young-of-Year	Intermediate	Harvestable	Total
Game	30.17	9.44	1.93	41.54	2.53	6.65	6.91	16.09
Rough	.23	.58	.64	1.45	.18	2.49	19.56	22.23
Forage	47.38	.18	9.44	57.00	38.42	.23	23.03	61.68
All Fishes	77.78	10.2	12.01	99.99	41.13	9.37	49.50	100.00

TABLE 47

COMPARISON OF ROTENONE SURVEY RESULTS IN SOME COVES OF WHEELER RESERVOIR, 1961, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, and 1976

Cove	Year	Sample area size (acres)	No. fish per acre	Pounds fish per acre
Lawrence County Park	1968	3.70	2,175	190.0
	1969	2.94	4,917	491.0
	1970	3.54	5,724	684.0
	1971	3.54	21,836	472.0
	1972	3.54	5,444	508.0
	1973	3.54	4,347	267.0
	1974	1.96	5,300	417.0
	1975	3.54	10,516	256.0
	1976	2.94	24,177	1,459.3
Second Creek	1961	1.65	2,988	168.0
	1969	2.36	37,345	965.0
	1970	2.75	6,518	985.0
	1971	2.75	5,440	657.9
	1972	2.75	6,024	854.0
	1973	2.75	9,782	252.0
	1974	2.75	2,584	192.0
	1975	2.75	3,198	236.0
	1976	2.37	9,448	410.3
Elk River	1961	1.25	5,520	370.0
	1969	1.55	28,804	1,033.0
	1970	1.60	8,123	429.0
	1971	1.60	10,398	453.1
	1972	1.60	15,399	400.0
	1973	1.60	19,331	333.0
	1974	1.60	8,722	393.0
	1975	1.58	10,174	358.0
	1976	1.56	13,891	406.9

Impingement

Taxonomic lists of fish species impinged on intake screens at Browns Ferry and percent composition by taxonomic group are presented on Tables 48-51. During the first six months of 1976, shad and herring constituted 75.4 percent of the total numbers impinged, while freshwater drum were next in order of abundance with 19.3 percent (Table 49). Between July and December 1976, 98 percent of impinged fish were shad; drum, while still second in abundance, were only 1.18 percent of the total (Table 51).

TABLE 48

TAXONOMIC LIST OF FISH SPECIES IMPINGED AT BROWNS FERRY NUCLEAR PLANT
JANUARY 1976-JUNE 1976

Family and Species	Common Name
Petromyzontidae	
Ichthyomyzon castaneus	Chestnut lamprey
Polyodontidae	
Polyodon spathula	Paddlefish
Lepisosteidae	
Lepisosteus oculatus	Spotted gar
Lepisosteus platostomus	Shortnose gar
Clupeidae	
Alosa chrysochloris	Skipjack herring
Dorosoma cepedianum	Gizzard shad
Dorosoma petenense	Threadfin shad
Hiodontidae	
Hiodon tergisus	Mooneye
Cyprinidae	
Carassius auratus	Goldfish
Cyprinus carpio	Carp
Hybopsis storeriana	Silver chub
Notemigonus crysoleucas	Golden shiner
Notropis atherinoides	Emerald shiner
Notropis buchanani	Ghost shiner
Notropis **Spilopterus**	Spotfin shiner
Pimephales promelas	Fathead minnow
Pimephales vigilax	Bullhead minnow
Catostomidae	
Carpiodes carpio	River carpsucker
Ictiobus bubalus	Smallmouth buffalo
Ictiobus cyprinellus	Bigmouth buffalo
Minytrema melanops	Spotted sucker
Ictaluridae	
Ictalurus furcatus	Blue catfish
Ictalurus melas	Black bullhead
Ictalurus natalis	Yellow bullhead
Ictalurus punctatus	Channel catfish
Pylodictis olivaris	Flathead catfish
Percichthyidae	
Morone chrysops	White bass
Morone mississippiensis	Yellow bass

TABLE 48 Continued.

Family and Species	Common Name
Centrarchidae	
Lepomis cyanellus	Green sunfish
Lepomis gulosus	Warmouth
Lepomis humilis	Orangespotted sunfish
Lepomis macrochirus	Bluegill
Lepomis megalotis	Longear sunfish
Lepomis microlophus	Redear sunfish
Pomoxis annularis	White crappie
Percidae	
Percina caprodes	Logperch
Percina shumardi	River darter
Stizostedion canadense	Sauger
Sciaenidae	
Aplodinotus grunniens	Freshwater drum

TABLE 49

SPECIES AND SPECIES-GROUP* COMPOSITION OF IMPINGED FISH
JANUARY 1976-JUNE 1976 (PERCENTAGES BASED ON ACTUAL COUNT)

Species or Group	Percent
Dorosoma, Alosa	75.4
Ictaluridae	1.3
Micropterus salmoides	-
M. dolomieui	-
M. punctulatus	-
Pomoxis spp.	0.2
Lepomis spp.	1.1
Aplodinotus grunniens	19.3
Other	2.8

*Species and species-groups are those required by NRC for routine reporting of impingement data.

TABLE 50

TAXONOMIC LIST OF FISH SPECIES IMPINGED AT BROWNS FERRY NUCLEAR PLANT FROM JULY 1976-DECEMBER 1976

Scientific Name	Common Name
Petromyzontidae	
Ichthyomyzon castaneus	Chestnut lamprey
Polyodontidae	
Polyodon spathula	Paddlefish
Lepisosteidae	
Lepisosteus oculatus	Spotted gar
Clupeidae	
Alosa chrysochloris	Skipjack herring
Dorosoma cepedianum	Gizzard shad
Dorosoma petenense	Threadfin shad
Salmonidae	
Salmo gairdneri	Rainbow trout
Hiodontidae	
Hiodon alosoides	Goldeye
Hiodon tergisus	Mooneye
Cyprinidae	
Carassius auratus	Goldfish
Cyprinus carpio	Carp
Hybopsis storeriana	Silver chub
Notemigonus crysoleucas	Golden shiner
Notropis atherinoides	Emerald shiner
Notropis blennius	River shiner
Notropis buchanani	Ghost shiner
Notropis spilopterus	Spotfin shiner
Notropis volucellus	Mimic shiner
Notropis whipplei	Steelcolor shiner
Pimephales promelas	Fathead minnow
Pimephales vigilax	Bullhead minnow
Catostomidae	
Carpiodes carpio	River carpsucker
Carpiodes cyprinus	Quillback
Hypentelium nigricans	Northern hog sucker
Ictiobus bubalus	Smallmouth buffalo
Ictiobus cyprinellus	Largemouth buffalo
Minytrema melanops	Spotted sucker

TABLE 50 Continued.

Scientific Name	Common Name
Moxostoma anisurum	Silver redhorse
Moxostoma duquesne	Black redhorse
Moxostoma erythrurum	Golden redhorse
Ictaluridae	
Ictalurus furcatus	Blue catfish
Ictalurus melas	Black bullhead
Ictalurus natalis	Yellow bullhead
Ictalurus nebulosus	Brown bullhead
Ictalurus punctatus	Channel catfish
Pylodictis olivaris	Flathead catfish
Aphredoderidae	
Aphredoderus sayanus	Pirate perch
Percichthyidae	
Morone chrysops	White bass
Morone mississippiensis	Yellow bass
Morone saxatilis	Striped bass
Centrarchidae	
Ambloplites rupestris	Rock bass
Lepomis cyanellus	Green sunfish
Lepomis gibbosus	Pumpkinseed sunfish
Lepomis gulosus	Warmouth
Lepomis humilis	Orangespotted sunfish
Lepomis macrochirus	Bluegill
Lepomis megalotis	Longear sunfish
Lepomis microlophus	Redear sunfish
Micropterus dolomieui	Smallmouth bass
Micropterus punctulatus	Spotted bass
Micropterus salmoides	Largemouth bass
Pomoxis annularis	White crappie
Pomoxis nigromaculatus	Black crappie
Percidae	
Percina caprodes	Logperch
Percina sciera	Dusky darter
Stizostedion canadense	Sauger
Sciaenidae	
Aplodinotus grunniens	Freshwater drum

TABLE 51

SPECIES AND SPECIES-GROUP* COMPOSITION OF IMPINGED FISH AT BROWNS FERRY NUCLEAR PLANT FROM JULY 1976-DECEMBER 1976 (PERCENTAGES BASED ON ACTUAL COUNT)

Species or Group	% Comp.
Dorosoma, Alosa	98.00
Ictaluridae	.09
Micropterus spp.	.00
Pomoxis spp.	.00
Lepomis spp.	.12
Aplodinotus grunniens	1.18
Other	.53
TOTALS	99.92

*Species and Species Group are those required by NRC for routine reporting of impingement data.

Entrainment

Entrainment was estimated from weekly samples collected from the intake basin. Table 52 presents estimates of total numbers of eggs and larvae entrained for each 24-hour period that samples were taken. Velocity data derived from the number of plant cooling pumps operating during each period is incorporated to obtain the entrainment estimates. A total annual entrainment estimate was obtained by integrating the area under a curve of weekly 24-hour estimates.

Periodic reservoir population estimates (Table 53) were obtained by weekly sampling in three strata at three stations (TRMs 288, 293, 298). Estimates were derived by averaging concentrations in each stratum over all stations. These data were expanded by the volume of water occurring in that stratum in the reservoir to yield instantaneous reservoir population estimates. The area under a curve of the weekly estimates was integrated to arrive at a total population estimate for the season.

The total annual reservoir and entrainment estimate and the resulting percentage entrainment of eggs and larvae by the plant are found on Table 54. Both percentages are near those estimated for 1975 (0.08 for eggs, 0.11 for larvae).

TABLE 52

WEEKLY ESTIMATES OF NUMBERS OF FISH EGGS AND LARVAE ENTRAINED DURING A 24-HOUR PERIOD, 1976

Date	Eggs	Larvae
3/25	0	1.012 E5
4/01	0	8.124 E4
4/08	0	2.615 E4
4/15	1.027 E4	4.647 E5
4/22	2.504 E5	4.206 E6
4/29	2.809 E4	3.272 E6
5/06	4.628 E5	1.648 E7
5/13	1.676 E6	1.418 E7
5/20	6.715 E5	8.001 E6
5/27	3.082 E6	9.537 E6
6/03	4.431 E5	3.253 E7
6/10	4.836 E6	9.168 E6
6/17	7.008 E6	3.936 E7
6/24	2.090 E6	2.277 E7
7/01	3.384 E5	9.596 E6
7/08	1.073 E5	1.863 E6
7/15	1.193 E5	4.427 E5
7/22	1.056 E5	7.284 E4

TABLE 53

INSTANTANEOUS ESTIMATES OF NUMBERS OF FISH EGGS AND LARVAE IN WHEELER RESERVOIR, 1976

Date	Eggs	Larvae
3/25	0	3.669 E7
4/01	1.039 E7	2.516 E8
4/08	1.146 E7	3.186 E8
4/15	1.465 E8	3.065 E9
4/22	4.65 E8	3.086 E9
4/29	2.588 E8	3.231 E9
5/06	3.563 E9	1.126 E10
5/13	1.057 E10	1.22 E10
5/20	1.008 E9	7.533 E9
5/27	3.73 E9	1.162 E10
6/03	4.94 E9	9.785 E9
6/10	3.36 E9	6.817 E9
6/17	2.149 E9	1.481 E10
6/24	1.238 E9	6.664 E9
7/01	9.046 E8	3.779 E9
7/08	4.929 E8	9.18 E8
7/15	8.305 E8	9.87 E8
7/22	7.282 E8	3.91 E8

TABLE 54

ESTIMATED ENTRAINMENT, 1976

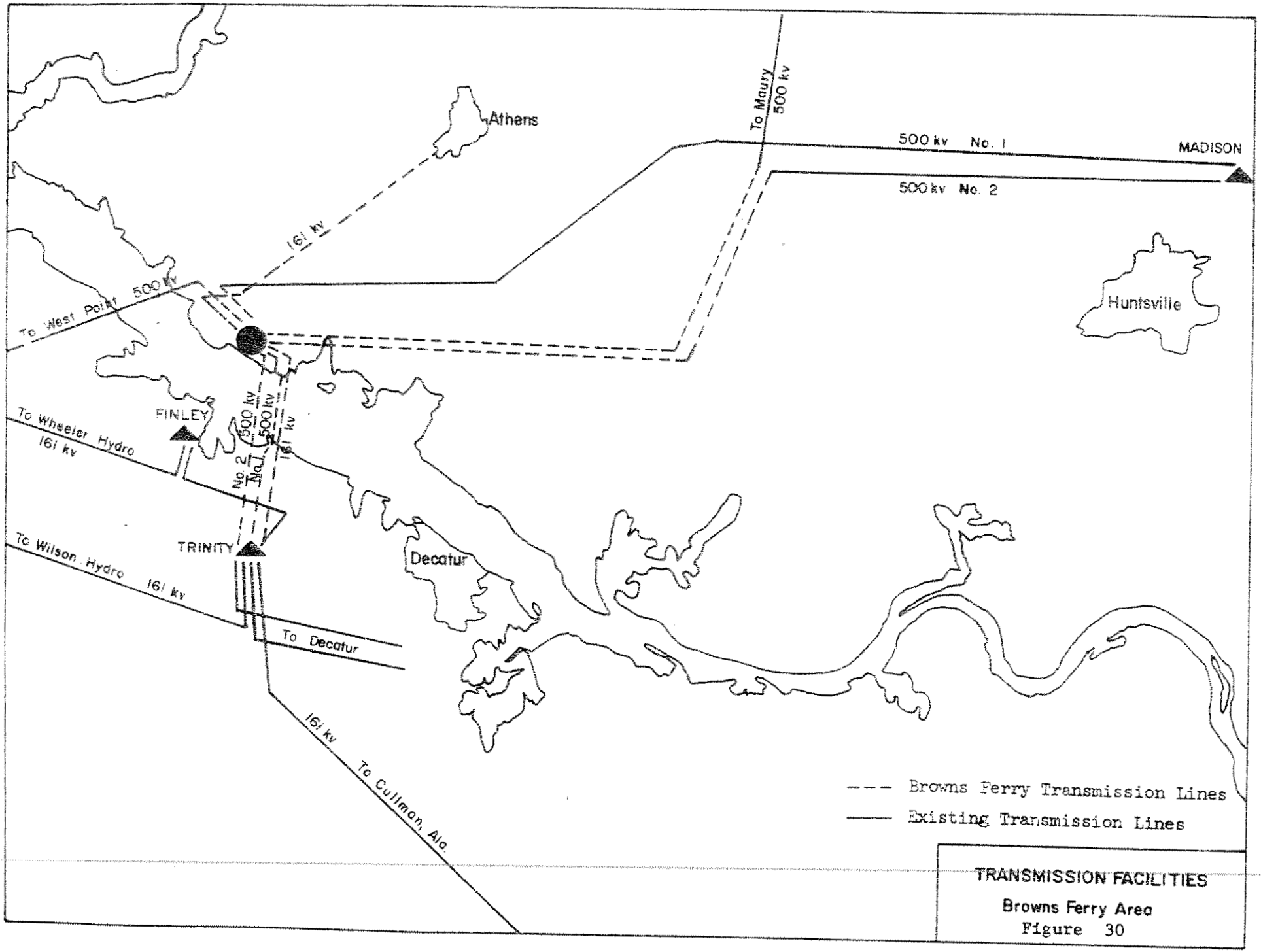
EGGS
1. Entrainment = 1.48234 E8
2. Reservoir population = 2.38306 E11
3. Percent entrainment (1 ÷ 2) = 0.0006 = 0.06 percent

LARVAE
1. Entrainment = 1.20482 E9
2. Reservoir population = 6.7591 E11
3. Percent entrainment (1 ÷ 2) = 0.00178 = 0.18 percent

VI. TRANSMISSION LINE RIGHT-OF-WAY MAINTENANCE

The purpose of this section is to provide specific information on types, volumes, concentrations, manners and frequencies of application, and miles of right-of-way that have been treated with herbicides. This information is only required on transmission lines under NRC's jurisdiction. Although issues concerning the extent of NRC jurisdiction over TVA transmission lines have not been resolved, we are providing this information to be responsive to NRC's staff requests. This action by TVA should not be interpreted as an admission of NRC jurisdiction over TVA transmission lines.

We reviewed the maintenance records for the transmission lines related to Browns Ferry Nuclear Plant indicated in Figure 30 and determined that no herbicides have been applied on these transmission line rights-of-way during the reporting period.



TRANSMISSION FACILITIES
Browns Ferry Area
Figure 30

TENNESSEE VALLEY AUTHORITY
DIVISION OF ENVIRONMENTAL PLANNING

STATION - 017303 WHEELER RESERVOIR TENNESSEE RIVER 277.98

DATE	TIME	DEPTH FEET	SAMPLE % FROM BT BANK	WATER TEMP CENT	DO MG/L	DO SATUR PERCENT	PH SU	CONDUCTVY AT 25C MICROMHO
761005	1233	1	83	22.5	7.9	92.1	7.8	180
761005	1237	3	83	22.6	7.7	89.5	7.8	180
761005	1241	5	83	22.6	7.7	89.9	7.8	180
761005	1245	10	83	22.7	7.6	88.5	7.8	180
761005	1249	16	83	22.6	7.6	88.2	7.7	180
761005	1253	26	83	22.4	7.2	83.7	7.6	180
761005	1257	36	83	22.6	6.9	80.2	7.6	180
761005	1244	43	83	22.4	6.4	74.4	7.4	180
761005								
NUMBER		8		8	8	8	8	8
MAXIMUM		43		22.7	7.9	92.1	7.8	180
MINIMUM		1		22.4	6.4	74.4	7.4	180
SUM		140		180.1	58.9	685.4	61.5	1440
SUM SQ.		4212		405.6	433.9	58971.7	472.9	259200
MEAN		18		22.5	7.3	85.7	7.7	180
VARIANCE		262		0.0	0.2	75.3	0.0	0
STD. DEV.		16		0.1	0.5	5.9	0.1	0
STD. ERR.		6		0.0	0.2	2.1	0.1	0
COEF VAR		91		0.5	6.6	6.9	1.9	0
LOG MEAN		10		22.5	7.3	85.5	7.7	180
761005								

TENNESSEE VALLEY AUTHORITY
DIVISION OF ENVIRONMENTAL PLANNING

STATION - 017305 WHEELER RESERVOIR TENNESSEE RIVER 283.94

DATE	TIME	DEPTH FEET	SAMPLE % FROM BT BANK	WATER TEMP CENT	DO MG/L	DO SATUR PERCENT	BOD 5 DAY MG/L	COD LOWLEVEL MG/L	PH SU	T ALK CACO3 MG/L	CONDUCTVY AT 25C MICROMHO
761005	1237	1	16	22.3	7.1	82.4			7.4		180
761005	1242	3	16	22.3	7.0	81.2	1.0K	6.0	7.4	45	180
761005	1246	5	16	22.3	7.0	81.2			7.4		180
761005	1250	10	16	22.3	7.0	81.2			7.3		180
761005	1254	16	16	22.2	7.0	81.1	1.0	5.0	7.3	42	180
761005	1310	23	16	22.0	6.9	79.2			7.2		180
761005	1233	1	40	22.6	7.2	83.7			7.5		180
761005	1242	3	40	22.4	7.1	82.6	1.0	8.0	7.4	42	180
761005	1246	5	40	22.4	7.0	81.4			7.5		180
761005	1250	10	40	22.4	7.0	81.4			7.5	45	180
761005	1254	16	40	22.3	6.8	78.9	1.0	6.0	7.4	43	180
761005	1260	24	40	22.0	6.4	73.8			7.4		180
761005	1532	1	78	23.0	8.0	94.1			7.6		180
761005	1534	3	78	23.0	8.0	94.1	1.4		7.6	44	180
761005	1536	5	78	23.0	7.9	93.0			7.6		180
761005	1538	10	78	23.0	7.8	91.8			7.5		180
761005	1540	16	78	23.0	7.8	91.8	1.5	7.0	7.5	46	180
761005	1542	26	78	23.0	7.8	91.8			7.5		180
761005	1544	33	78	22.8	7.6	89.4	1.6	6.0	7.5	46	180
761005											
NUMBER		19		19	19	19	7	6	19	8	19
MAXIMUM		33		23.0	8.0	94.1	1.6	8.0	7.6	46	180
MINIMUM		1		22.0	6.4	73.8	1.0K	5.0	7.2	42	180
SUM		213		420.0	135.3	1613.2	6.8	28.0	141.7	353	3420
SUM SQ.		4143		964.7	1011.2	137715.0	11.5	246.0	1357.3	15595	615600
MEAN		11		22.5	7.3	88.9	1.3	6.3	7.5	44	180
VARIANCE		98		0.1	0.3	41.6	0.1	1.1	0.0	3	0
STD. DEV.		10		0.4	0.5	6.5	0.3	1.3	0.1	2	0
STD. ERR.		2		0.1	0.1	1.5	0.1	0.4	0.0	1	0
COEF VAR		88		1.7	6.9	7.6	20.5	18.3	1.5	4	0
LOG MEAN		7		22.5	7.3	88.7	1.2	6.2	7.5	44	180
761005											

DATE	TIME	DEPTH FEET	SAMPLE % FROM BT BANK	SOLIDS NA,TOT MG/L	SULFATE SO4-TOT MG/L	CHLORIDE CL MG/L	NO2-N TOTAL MG/L	ORG N N MG/L	NITROGEN N-TOTAL MG/L	PHOSPHOR DISS-ORTHO P MG/L	PHOSPHOR TOT KELT MG/L
761005	1233	1	16								
761005	1237	3	16	6.80	17	9	0.05	0.140	0.23	100	7
761005	1241	5	16								
761005	1245	10	16								
761005	1249	16	16	6.90	11	9	0.07	0.110	0.23	100	8
761005	1310	23	16								
761005	1233	1	40								
761005	1242	3	40	6.80	18	9	0.07	0.130	0.24	100	9
761005	1246	5	40								
761005	1250	10	40				0.05	0.120	0.24		
761005	1254	16	40	7.20	15	9	0.08	0.120	0.24	100	9
761005	1260	24	40								
761005	1532	1	78								
761005	1534	3	78	7.10	12	10	0.05	0.130	0.20	100	13
761005	1536	5	78								
761005	1538	10	78								
761005	1540	16	78	7.30	11	9	0.04	0.160	0.23	100	12
761005	1542	26	78								
761005	1544	33	78	6.70	13	10	0.04	0.170	0.22	90	67
761005											
NUMBER		19		7	7	7	8	8	8	7	7
MAXIMUM		33		7.30	17	10	0.08	0.170	0.24	100	67
MINIMUM		1		6.70	11	9	0.04	0.110	0.20	90	7
SUM		213		48.70	92	65	0.51	1.100	1.83	690	125
SUM SQ.		4143		339.15	1238	605	0.03	0.154	0.42	68100	5377
MEAN		11		6.96	13	9	0.06	0.137	0.23	99	18
VARIANCE		98		0.06	5	0	0.00	0.000	0.00	14	676
STD. DEV.		10		0.24	2	0	0.02	0.021	0.01	4	26
STD. ERR.		2		0.09	1	0	0.01	0.008	0.00	1	8
COEF VAR		88		3.41	17	5	27.73	15.428	5.53	4	122
LOG MEAN		7		6.95	13	9	0.05	0.136	0.23	99	12
761005											

TENNESSEE VALLEY AUTHORITY
DIVISION OF ENVIRONMENTAL PLANNING

STATION - 017006 WHEELER RESERVOIR TENNESSEE RIVER 298.78

DATE	TIME	DATE	TIME	00003 DEPTH FEET	00032 %SAMPLE FROM BT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00400 PH SU	00095 CNDUCTVY AT 25C MICROMHO
		761005	1135	1	41	22.5	6.5	75.7	7.4	180
		761005	1137	3	41	22.5	6.5	75.7	7.4	180
		761005	1139	5	41	22.5	6.4	74.6	7.4	180
		761005	1141	10	41	22.5	6.4	74.6	7.4	180
		761005	1143	16	41	22.3	6.4	74.3	7.4	180
		761005	1145	20	41	22.0	6.3	72.7	7.4	180
761005										
NUMBER				6		6	6	6	6	6
MAXIMUM				20		22.5	6.5	75.7	7.4	180
MINIMUM				1		22.0	6.3	72.7	7.4	180
SUM				55		134.3	38.5	447.6	44.4	1080
SUM SQ.				791		3006.3	247.1	33400.4	328.6	194400
MEAN				9		22.4	6.4	74.6	7.4	180
VARIANCE				57		0.0	0.0	1.3	0.0	0
STD.DEV.				8		0.2	0.1	1.1	0.0	0
STD.ERR.				3		0.1	0.0	0.5	0.0	0
COEF VAR				83		0.9	1.7	1.5	0.1	0
LOG MEAN				6		22.4	6.4	74.6	7.4	180
761005										

TENNESSEE VALLEY AUTHORITY
DIVISION OF ENVIRONMENTAL PLANNING

STATION - 017007 WHEELER RESERVOIR TENNESSEE RIVER 291.76

DATE	TIME	DATE	TIME	00003 DEPTH FEET	00032 %SAMPLE FROM BT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00310 BOD 5 DAY MG/L	00335 COD LOW LEVEL MG/L	00400 PH SU	00410 T ALK CACO3 MG/L	00095 CNDUCTVY AT 25C MICROMHO
											7.4		180
		761005	1107	1	36	22.8	6.6	77.4			7.4	41	180
		761005	1104	3	36	22.8	6.5	76.2	1.0K	6.0	7.4		180
		761005	1106	5	36	22.8	6.4	75.0			7.4	42	180
		761005	1108	10	36	22.8	6.4	75.3			7.3	43	180
		761005	1111	16	36	22.8	6.2	72.7	1.0K	6.0	7.3		180
		761005	1112	20	36	22.8	6.2	72.7			7.4		170
		761005	1413	1	60	24.0	7.4	88.8			7.4		180
		761005	1411	3	60	24.3	7.4	89.3			7.4		180
		761005	1412	5	60	24.2	7.4	89.1			7.4		180
		761005	1415	1	84	23.0	7.4	87.1			7.4	45	180
		761005	1417	3	84	23.0	7.4	87.1	1.1	6.0	7.4		180
		761005	1423	5	84	23.0	7.2	84.7			7.4		170
		761005	1422	10	84	23.0	7.2	84.7			7.4	43	170
		761005	1425	16	84	23.0	7.2	84.7	1.2	6.0			
761005													
NUMBER				14		14	14	14	4	4	14	5	14
MAXIMUM				20		24.3	7.4	89.3	1.2	6.0	7.4	45	180
MINIMUM				1		22.8	6.2	72.7	1.0K	6.0	7.3	41	170
SUM				99		324.3	96.9	1144.5	4.3	24.0	103.4	214	2490
SUM SQ.				1217		7516.2	673.9	94113.6	4.6	144.0	763.7	9168	443100
MEAN				7		23.2	6.9	81.8	1.1	6.0	7.4	43	178
VARIANCE				40		0.3	0.2	42.3	0.0	0.0	0.0	2	18
STD.DEV.				6		0.6	0.5	6.5	0.1	0.0	0.0	1	4
STD.ERR.				2		0.1	0.1	1.7	0.0	0.0	0.0	1	1
COEF VAR				89		2.4	7.2	8.0	8.9	0.0	0.5	3	2
LOG MEAN				5		23.2	6.9	81.5	1.1	6.0	7.4	43	178
761005													

DATE	TIME	DATE	TIME	00003 DEPTH FEET	00032 %SAMPLE FROM BT BANK	00929 SODIUM NA,TOT MG/L	00945 SULFATE SO4-TOT MG/L	00940 CHLORIDE CL MG/L	00610 NH3-N TOTAL MG/L	00605 ORG N N MG/L	00630 NO2&NO3 N-TOTAL MG/L	70303 RESIDUE DISS-180 C MG/L	00530 RESIDUE TOT NFLT MG/L
		761005	1102	1	36								
		761005	1104	3	36	7.60	14	10	0.13	0.150	0.25	100	11
		761005	1106	5	36								
		761005	1108	10	36				0.13	0.310	0.25		
		761005	1113	16	36	7.10	14	9	0.14	0.150	0.22	90	16
		761005	1112	20	36								
		761005	1413	1	60								
		761005	1411	3	60								
		761005	1412	5	60								
		761005	1415	1	84								
		761005	1417	3	84	7.50	13	10	0.08	0.150	0.21	100	13
		761005	1423	5	84								
		761005	1422	10	84								
		761005	1425	16	84	6.90	19	9	0.06	0.140	0.21	90	17
761005													
NUMBER				14		4	4	4	5	5	5	4	4
MAXIMUM				20		7.60	19	10	0.14	0.310	0.25	100	17
MINIMUM				1		6.93	13	9	0.08	0.140	0.21	90	11
SUM				66		28.10	60	38	0.46	0.993	1.14	380	57
SUM SQ.				1217		213.93	922	362	0.07	0.183	0.26	36233	835
MEAN				7		7.27	15	10	0.11	0.180	0.23	95	14
VARIANCE				40		0.11	7	0	0.00	0.005	0.02	33	8
STD.DEV.				6		0.33	3	1	0.03	0.073	0.02	6	3
STD.ERR.				2		0.17	1	0	0.01	0.033	0.01	3	1
COEF VAR				89		4.54	19	6	72.4	43.645	8.20	6	19
LOG MEAN				5		7.27	15	9	0.11	0.171	0.23	95	14
761005													

TENNESSEE VALLEY AUTHORITY
DIVISION OF ENVIRONMENTAL PLANNING

STATION - 017008 WHEELER RESERVOIR TENNESSEE RIVER 293.77

DATE	TIME	DATE	TIME	00003 DEPTH FEET	00032 SAMPLE % FROM BT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00400 PH SU	00095 CNDUCTVY AT 25C MICROMHO
		761005	1030	1	66	22.8	6.6	77.4	7.2	170
		761005	1032	3	66	22.8	6.6	77.4	7.2	170
		761005	1034	5	66	22.8	6.5	76.2	7.2	180
		761005	1043	1	88	23.8	6.7	80.1	7.3	180
		761005	1047	3	88	23.6	6.5	77.4	7.4	180
		761005	1044	5	88	23.5	6.5	77.2	7.3	180
		761005	1046	10	88	23.4	6.4	75.9	7.4	180
		761005	1049	16	88	23.2	6.3	74.4	7.3	180
		761005	1050	26	88	23.0	5.9	69.4	7.3	180
761005										
NUMBER				9		9	9	9	9	9
MAXIMUM				26		23.8	6.7	80.1	7.4	180
MINIMUM				1		22.8	5.9	69.4	7.2	170
SUM				70		208.9	58.3	605.4	65.6	1630
SUM SQ.				1102		4850.0	374.2	52263.2	478.2	284600
MEAN				8		23.2	6.4	76.2	7.3	178
VARIANCE				70		0.1	0.1	8.7	0.0	19
STD.DEV.				8		0.4	0.2	2.9	0.1	4
STD.ERR.				3		0.1	0.1	1.0	0.0	1
COEF VAR				107		1.7	3.7	3.9	1.1	2
LOG MEAN				5		23.2	6.4	76.1	7.3	178
761006										

TENNESSEE VALLEY AUTHORITY
DIVISION OF ENVIRONMENTAL PLANNING

STATION - 017009 WHEELER RESERVOIR TENNESSEE RIVER 295.87

DATE	TIME	DATE	TIME	00003 DEPTH FEET	00032 SAMPLE % FROM BT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00310 BOD 5 DAY MG/L	00335 COD LOWLEVEL MG/L	00400 PH SU	30410 T ALK CACO3 MG/L	00095 CNDUCTVY AT 25C MICROMHO
											7.3		180
		761005	1017	1	44	22.5	6.5	75.7			7.4	44	180
		761005	1023	3	44	22.5	6.4	74.6	1.1	6.0	7.4		180
		761005	1027	5	44	22.5	6.3	73.4					
		761005	1025	10	44	22.5	6.3	73.4			7.4	41	180
		761005	1029	16	44	22.5	6.5	75.7	1.0K	4.0	7.4	45	180
		761005	1036	23	44	22.3	6.6	76.6			7.4		180
		761005	1326	1	82	22.5	9.2	107.2			8.2		170
		761005	1329	3	82	22.5	9.2	107.2			8.2		170
		761005	1330	5	82	22.5	9.1	106.0			8.2		170
761005													
NUMBER				9		9	9	9	2	2	9	3	9
MAXIMUM				23		22.5	9.2	107.2	1.1	6.0	8.2	45	180
MINIMUM				1		22.3	6.3	73.4	1.0K	4.0	7.3	41	170
SUM				67		202.3	66.1	769.9	2.1	10.0	68.9	130	1590
SUM SQ.				955		4547.3	500.5	67914.4	2.2	52.0	528.8	5642	281100
MEAN				7		22.5	7.3	85.5	1.0	5.0	7.7	43	177
VARIANCE				57		0.0	1.9	255.7	0.0	2.0	0.2	4	25
STD.DEV.				8		0.1	1.4	16.0	0.1	1.4	0.4	2	5
STD.ERR.				3		0.0	0.5	5.3	0.1	1.0	0.1	1	2
COEF VAR				101		0.3	18.7	18.7	6.7	28.3	5.4	5	3
LOG MEAN				5		22.5	7.2	84.3	1.0	4.9	7.6	43	177
761005													

DATE	TIME	DATE	TIME	00003 DEPTH FEET	00032 SAMPLE % FROM BT BANK	00929 SODIUM NA,TOT MG/L	00945 SULFATE SO4-TOT MG/L	00940 CHLORIDE CL MG/L	00610 NH3-N TOTAL MG/L	00605 ORG N N MG/L	00630 NO2&NO3 N-TOTAL MG/L	70300 RESIDUE DISS-180 C MG/L	00500 RESIDUE TOT MELT MG/L
		761005	1017	1	44								
		761005	1020	3	44	7.30	10	9	0.10	0.120	0.26	90	6
		761005	1022	5	44								
		761005	1025	10	44				0.10	0.120	0.26		
		761005	1029	16	44	7.30	14	9	0.10	0.120	0.27	130	7
		761005	1036	23	44								
		761005	1326	1	82								
		761005	1328	3	82								
		761005	1330	5	82								
761005													
NUMBER				9		2	2	2	3	3	3	2	2
MAXIMUM				23		7.30	14	9	0.10	0.120	0.27	130	7
MINIMUM				1		7.30	10	9	0.10	0.120	0.26	90	6
SUM				67		14.60	24	18	0.30	0.360	0.79	194	13
SUM SQ.				955		106.58	296	162	0.03	0.043	0.21	18830	85
MEAN				7		7.30	12	9	0.10	0.120	0.26	95	7
VARIANCE				57		0.00	8	0	0.00	0.000	0.00	50	1
STD.DEV.				8		0.00	3	0	0.00	0.000	0.01	7	1
STD.ERR.				3		0.00	2	0	0.00	0.000	0.00	5	1
COEF VAR				101		0.00	24	0	0.00	0.000	2.19	7	11
LOG MEAN				5		7.30	12	9	0.10	0.120	0.26	95	6
761005													

TENNESSEE VALLEY AUTHORITY
DIVISION OF ENVIRONMENTAL PLANNING

STATION - 017012 WHEELER RESERVOIR TENNESSEE RIVER 307.52

DATE	TIME	DEPTH FEET	% FROM AT BANK	WATER TEMP CENT	DO MG/L	DO SATUR PERCENT	PH SU	CNDUCTVY AT 25C MICROMHO
	761005 0916	1	24	22.3	6.2	72.0	7.2	190
	761005 0918	3	24	22.2	6.2	71.8	7.3	180
	761005 0920	5	24	22.2	6.1	70.7	7.2	180
	761005 0922	10	24	22.2	6.0	69.5	7.2	180
	761005 0924	16	24	22.2	5.9	68.3	7.2	180
	761005 0926	23	24	22.1	5.8	67.1	7.2	180
	761005 0930	1	37	22.2	6.4	74.1	7.3	180
	761005 0932	3	37	22.2	6.1	70.7	7.4	180
	761005 0934	5	37	22.2	6.0	69.5	7.3	180
	761005 0936	10	37	22.2	6.0	69.5	7.3	190
	761005 0938	16	37	22.2	5.9	68.3	7.2	180
	761005 0940	23	37	22.2	5.8	67.2	7.2	180
761005								
NUMBER		12		12	12	12	12	12
MAXIMUM		23		22.3	6.4	74.1	7.4	190
MINIMUM		1		22.1	5.8	67.1	7.2	180
SUM		116		266.4	72.4	838.7	87.0	2160
SUM SQ.		1840		5914.1	437.2	5856.3	630.8	388800
MEAN		10		22.2	6.0	69.9	7.2	180
VARIANCE		65		0.0	0.0	4.4	0.0	0
ST.DEV.		8		0.1	0.2	2.1	0.1	0
STD.ERR.		2		0.0	0.1	0.6	0.0	0
COEF VAR		84		0.2	2.9	3.0	0.9	0
LOG MEAN		6		22.2	6.0	69.9	7.2	180
761005								

APPENDIX C

LISTING OF AQUATIC BIOLOGICAL DATA

INCLUDING RESULTS OF ANALYSES

JANUARY 1, 1976, THROUGH DECEMBER 31, 1976

APPENDIX C

BIOLOGICAL DATA, BROWNS FERRY NUCLEAR PLANT

Table of Contents

Table 1

PHYTOPLANKTON POPULATIONS BY YEAR (WINTER - 1969-1976)

BROWNS FERRY NUCLEAR PLANT

		Phytoplankters/l (mean values)			
	Year	All Stations[a]	Control (Above BFNP)[b]	Below BFNP[c]	Percentage Increase Below or Above BFNP
Preoperational	1969	2,560,437	2,632,750	2,517,050	5 - Above
	1970	1,704,644	1,503,867	1,825,110	21 - Below
	1971	213,313	N/A	N/A	
	1972	222,376	192,135	240,251	25 - Below
	1973	92,233	120,419	75,322	60 - Above
Operational	1974	70,494	81,315	64,002	27 - Above
	1975	41,841	35,792	45,470	27 - Below
	1976	366,451	308,039	401,497	30 - Below

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.97, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 2

PHYTOPLANKTON POPULATIONS BY STATION - 1969-1976 (WINTER)

BROWNS FERRY NUCLEAR PLANT

	Phytoplankters/l (mean values)			
	Preoperational	Operational		
TRM	(1969-1973)	1974	1975	1976
277.98	894,130	31,247	55,469	433,374
283.94	1,060,138	51,394	31,637	366,012
288.78	938,537	53,175	35,061	447,521
291.76	1,052,257	93,192	44,922	388,336
293.70	1,104,488	91,000	60,262	372,242
295.87[a]	1,068,223	67,428	30,678	292,291
301.06[a]	1,075,956	76,198	41,635	329,152
307.52[a]	1,192,699	100,320	35,061	302,674

a. Control stations

Table 3

DIVERSITY OF PHYTOPLANKTON GENERA, BROWNS FERRY NUCLEAR PLANT (1976)[a]

IEM	Phytoplankton Genera Collected During Every Preoperational Sampling Period (1969, 1970, 1972, 1973)[b]		Phytoplankton Genera Collected During Every Winter Preoperational Sampling Period, but not Found During Winter Operational Sampling Period (1976)[b]		Phytoplankton Genera Collected for the First Time During Winter Operational Period (1976)		
	Chrysophyta	Chlorophyta	Chrysophyta	Chlorophyta	Chrysophyta	Chlorophyta	Cyanophyta
277.92	Melosira Navicula Synedra				Cocconeis Cymbella	Kolenkinia Pirshmeriella Closteriopsis Tetraedron Scenedesmus Pteromonas Tetrastrum	Anacystis Merismopedia
283.A-	Cyclotella Melosira Navicula Synedra				Fragilaria Achnanthes Diatoma	Chodatella Kolenkinia Crenuaria Pediastrum Cosmarium Closteriopsis Pirshmeriella Pteromonas	Anacystis Oscillatoria Anabaena Merismopedia
288.78	Cyclotella Melosira Navicula Synedra				Diatoma	Micractinium Scenedesmus Ankistrodesmus Closterium Kolenkinia Dictyosphaerium Crucigenia Elakatothrix	Anacystis Oscillatoria
291.76	Cyclotella Melosira Navicula Synedra	Quadrigula	Cyclotella		Cocconeis Achnanthes Diatoma Tossinodiscus	Chodatella Closterium Crucigenia Pteromerella Coelastrum Micractinium Palmella	Anacystis Merismopedia Anabaena Oscillatoria
293.70	Cyclotella Melosira Navicula Synedra				Achnanthes	Chodatella Pirshmeriella Crenuaria	Anacystis Oscillatoria
295.67	Cyclotella Melosira Navicula Synedra	Cosmarium Scenedesmus		Scenedesmus		Ankistrodesmus Crucigenia Micractinium Chodatella Dictyosphaerium Pirshmeriella Kolenkinia Schroederia	Anacystis Oscillatoria
301.86	Cyclotella Melosira Navicula Synedra				Stephanodiscus Diatoma Fragilaria	Crucigenia Tetraedron Crenuaria Chodatella Kolenkinia Pirshmeriella Pediastrum Closteriopsis Micractinium Dictyosphaerium	Anacystis Merismopedia
307.52	Melosira Navicula Synedra Cyclotella				Rhizosolenia Achnanthes	Chodatella Crucigenia Closteriopsis Micractinium Tetrastrum Dictyota	Anacystis

a. Cyanophyta not applicable.

Table 4

MAJOR GROUPS OF PHYTOPLANKTON POPULATIONS BY YEAR - 1969-1976 (WINTER)

BROWNS FERRY NUCLEAR PLANT

		Percentage Phytoplankton Population by Major Groups								
		Chrysophyta			Chlorophyta			Cyanophyta		
	Year	All Stations[a]	Above[b]	Below[c]	All Stations[a]	Above[b]	Below[c]	All Stations[a]	Above[b]	Below[c]
Preoperational	1969	47	49	45	47	46	48	6	4	7
	1970	55	49	59	41	46	37	4	5	4
	1971	64[d]	M	N/A[e]	29[d]	M	N/A[e]	6[d]	M	N/A[e]
	1972	84	86	83	9	9	9	7	5	8
	1973	82	82	83	15	16	15	2	3	2
Operational	1974	78	78	79	12	11	14	7	9	5
	1975	69	75	65	24	16	29	4	5	3
	1976	50	59	45	17	13	19	32	28	35

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70
d. TRM 277.98, 283.94, 288.78, 291.76 only
e. Not applicable because data are available for only four stations below BFNP and these data are shown as indicated by "d".

Note: M - Sample missing

Table 5

PERCENTAGE DIVERSITY FOR MAJOR GROUPS OF PHYTOPLANKTON

BY RIVER MILE AND YEAR - 1969-1976 (WINTER)

BROWNS FERRY NUCLEAR PLANT

		Major Group Percentage Present									
		Preoperational						Operational			
TRM	Major Groups	1969	1970	1971	1972	1973	X	1974	1975	1976	X
277.98	Chrysophyta	50	62	60	68	86	65	83	65	39	62
	Chlorophyta	44	34	32	11	9	26	11	30	12	18
	Cyanophyta	6	4	8	21	5	9	3	2	48	18
283.94	Chrysophyta	42	54	68	88	96	70	73	75	44	64
	Chlorophyta	43	43	27	8	4	25	21	17	18	19
	Cyanophyta	15	3	5	4	0	5	5	4	36	15
288.78	Chrysophyta	43	53	65	88	80	66	87	64	49	67
	Chlorophyta	52	42	28	4	20	29	9	28	19	19
	Cyanophyta	5	5	7	8	0	5	3	5	31	13
291.76	Chrysophyta	43	56	64	88	75	65	79	64	48	64
	Chlorophyta	54	41	30	9	23	31	11	31	24	22
	Cyanophyta	3	3	6	3	2	3	5	3	27	12
293.70	Chrysophyta	48	69	M	82	78	69	72	57	45	58
	Chlorophyta	47	27	M	12	21	27	16	38	21	25
	Cyanophyta	5	4	M	6	1	4	11	2	33	15
295.87	Chrysophyta	50	50	M	82	82	66	75	78	63	72
	Chlorophyta	46	46	M	8	16	29	14	11	11	12
	Cyanophyta	4	4	M	10	2	5	7	9	25	14
301.06	Chrysophyta	49	51	M	92	83	69	85	72	53	70
	Chlorophyta	46	43	M	6	16	28	6	14	13	11
	Cyanophyta	5	6	M	2	1	3	5	7	33	15
307.52	Chrysophyta	49	46	M	84	80	65	72	75	60	69
	Chlorophyta	47	49	M	12	15	31	12	23	14	16
	Cyanophyta	4	5	M	4	5	4	13	0	25	13

Note: M = Sample missing

Table 6

NUMERICAL GENERA DIVERSITY FOR MAJOR GROUPS OF PHYTOPLANKTON

BY RIVER MILE - 1969-1976 (WINTER)

BROWNS FERRY NUCLEAR PLANT

TRM	Major Groups	Preoperational				Operational		
		1969	1970	1972	1973	1974	1975	1976
277.98	Chrysophyta	10	7	12	7	5	6	12
	Chlorophyta	7	5	3	2	2	7	14
	Cyanophyta	1	1	1	1	1	2	4
	Total	18	13	16	10	8	15	30
283.94	Chrysophyta	7	6	12	5	7	8	13
	Chlorophyta	5	6	2	1	3	3	15
	Cyanophyta	1	1	3	0	1	1	5
	Total	13	13	17	6	11	12	33
288.78	Chrysophyta	7	6	12	10	5	5	15
	Chlorophyta	5	6	2	4	2	6	14
	Cyanophyta	1	2	1	0	1	1	4
	Total	13	14	15	14	8	12	33
291.76	Chrysophyta	9	5	13	10	6	5	13
	Chlorophyta	7	6	2	3	4	6	13
	Cyanophyta	1	2	2	1	1	1	5
	Total	17	13	17	14	11	12	31
293.70	Chrysophyta	9	6	10	9	5	5	13
	Chlorophyta	5	6	6	5	4	5	10
	Cyanophyta	1	2	2	1	2	1	4
	Total	15	14	18	15	11	11	27
295.87	Chrysophyta	10	7	15	5	8	5	11
	Chlorophyta	8	7	4	3	3	2	10
	Cyanophyta	2	2	2	1	2	1	4
	Total	20	16	21	9	13	8	25
301.06	Chrysophyta	8	4	8	10	6	5	14
	Chlorophyta	3	4	2	4	3	3	13
	Cyanophyta	1	1	1	1	2	1	4
	Total	12	9	11	15	11	9	31
307.52	Chrysophyta	8	6	11	10	7	4	15
	Chlorophyta	5	5	2	2	2	4	10
	Cyanophyta	2	2	1	1	2	0	4
	Total	15	13	14	13	11	8	29

Table 7

CHLOROPHYLL CONCENTRATIONS BY YEAR (WINTER)

BROWNS FERRY NUCLEAR PLANT

		Surface Phytoplankton Chlorophyll a (mg Chl a/m^3) (mean values)			
	Year	All Stations[a]	Control (Above BFNP)[b]	Below BFNP[c]	Percentage Increase Above or Below BFNP
Preoperational	1969	6.14	5.71	6.37	12 - Below
	1970	2.25	2.04	2.35	15 - Below
	1971	2.23	N/A	N/A	N/A
	1972	0.49	0.44	0.51	16 - Below
	1973	1.56	1.94	1.32	47 - Above
Operational	1974	4.84	5.27	4.59	15 - Above
	1975	0.87	0.47	1.10	134 - Below
	1976	1.00	1.17	0.90	30 - Above

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 8

CHLOROPHYLL CONCENTRATIONS - 1969-1976 (WINTER)

BROWNS FERRY NUCLEAR PLANT

	Surface Phytoplankton Chlorophyll a (mg Chl a/m^3) (mean values)			
	Preoperational	Operational		
TRM	(1969-1973)	1974	1975	1976
277.98	2.93	4.63	0.42	0.81
283.94	2.47	4.75	2.37	0.81
288.78	2.79	4.11	0.98	0.94
291.76	2.31	5.36	1.03	0.96
293.70	2.71	4.08	0.72	0.98
295.87[a]	2.83	4.80	0.35	1.12
301.06[a]	2.48	4.93	0.35	1.26
307.52[a]	2.34	6.06	0.70	1.13

a. Control Stations

Table 9

SUMMARY - DAILY PRIMARY PRODUCTIVITY, BROWNS FERRY CARBON-14 PROGRAM

mg C/m^2/day

	Preoperational								Operational											
	1972				1973				1974				1975				1976			
TRM	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
277.98	27	280	2,202	896	27	40	1,899	279	16	177	3,784	407	20	22	1,661	356	16	1,092	2,072	1,506
283.94	21	300	2,720	682	25	74	2,539	1,251	16	155	5,496	632	15	16	1,935	338	11	708	2,705	1,225
288.78	17	223	1,167	240	17	123	452	631	20	145	2,957	353	17	20	887	159	10	471	3,808	562
291.76	29	378	1,143	400	23	87	227	254	20	153	2,491	175	19	40	691	53	16	251	1,271	442
293.70	30	220	587	236	26	95	157	356	18	82	1,872	253	24	30	374	99	17	1,048	1,926	435
295.87	19	282	511	157	24	102	220	244	20	135	2,129	109	16	38	419	29	15	157	888	314
301.06	18	270	445	134	25	111	52	143	23	137	1,789	94	20	33	294	102	16	117	515	251
307.52	18	217	350	61	19	87	89	301	23	142	425	56	22	37	127	16	20	125	156	121
Mean	22	271	1,141	351	23	90	704	432	19	141	2,618	260	19	30	798	144	15	496	1,668	607

Table 10

OCCURRENCE OF ZOOPLANKTON SPECIES, BROWNS FERRY NUCLEAR PLANT

	Tennessee River Mile							
	278	284	289	292	294	296	301	308
Cladocera								
Alona sp.	1	2	0	3	3	0	0	0
Alona costata Sars	3	0	0	3	3	0	0	0
Alona gutta	0	0	3	0	0	0	0	0
Alona quadrangularis Leydig	2	0	1	1	3	2	1	2
Alonella sp.	0	0	3	0	3	0	0	0
Bosmina longirostris (O. F. Muller)	1	1	1	1	1	1	1	1
Camptocercus rectirostris Schodler	0	0	3	0	3	0	2	1
Ceriodaphnia lacustris Birge	1	1	3	3	1	3	3	3
Ceriodaphnia quadrangula (O. F. Muller)	0	1	1	1	3	3	0	0
Ceriodaphnia reticulata	3	0	0	3	0	0	0	0
Chydorus sp.	3	1	3	1	1	1	1	1
Daphnia parvula Fordyce	1	1	1	3	1	3	0	3
Daphnia pulex Leydia	0	0	3	0	3	0	0	0
Daphnia retrocurva Forbes	1	1	1	1	1	1	1	1
Daphnia galeata (Mendotae)	3	0	0	3	0	0	3	3
Diaphanosoma leuchtenbergianum Fischer	1	1	1	1	1	1	1	1
Eurycercus sp.	0	0	0	2	1	0	0	2
Gastropus sp.	0	0	0	0	0	0	0	3
Holopedium gibberum Zaddach	1	1	1	1	1	1	2	1
Ilyocryptus spinifer Herrick	1	1	1	3	1	1	1	2
Latona setifera	0	0	0	0	3	0	0	0
Leptodora kindtii (Focke)	1	1	1	1	1	1	1	1
Leydigia quadrangularis (Leydia)	3	3	0	1	0	3	0	0
Moina micrura Kurz	3	3	3	3	0	3	2	1
Moina minuta Hansen	3	3	3	3	3	3	3	0
Pleuroxus denticulatus Birge	3	0	0	1	3	2	0	1
Pleuroxus hamulatus Birge	3	0	0	3	3	3	0	0
Scapholebris Kingi Sars	0	0	0	0	0	0	0	1
Sida crystallina (O. F. Muller)	3	3	1	1	1	1	1	1
Simocephalus (immature)	2	1	1	2	1		2	1
Simocephalus serrulatus	3	3	3	0	3	3	3	0
Simocephalus vetulus Schodler	0	0	2	0	0	0	2	0
Copepoda								
Argulus sp.	0	0	3	0	0	0	0	0
Attheyella illinoisensis (S. A. Forbes)	0	3	0	0	0	0	0	0
Canthocamptus robertcokeri M. S. Wilson	0	3	3	3	3	3	0	3
Canthocamptus staphylinoides Pearse	2	0	0	0	0	2	0	3
Cyclops bicuspidatus thomasi S. A. Forbes	1	1	1	1	1	1	1	1
Cyclops varicans rubellus Lilljeborg	0	3	0	0	3	3	3	3
Cyclops vernalis Fischer	1	1	1	1	1	1	1	1
Diaptomus birgei Marsh	2	0	0	0	0	0	0	0
Diaptomus mississippiensis Marsh	0	0	0	0	0	0	0	2
Diaptomus pallidus Herrick	1	1	1	1	1	1	1	1
Diaptomus reighardi Marsh	1	1	1	1	1	1	1	1

TABLE 10 (CONTINUED)

	Tennessee River Mile							
	278	284	289	292	294	296	301	308
Diaptomus sanguineus S. A. Forbes	3	1	0	2	3	3	1	0
Epischura fluviatilis	0	0	0	0	0	0	0	3
Ergasilus sp.	1	1	1	1	1	1	1	1
Eucyclops agilis (Koch)	1	1	1	1	1	1	1	1
Eucyclops speratus (Lilljeborg)	0	0	3	0	3	0	0	0
Macrocyclops albidus (Jurine)	3	0	0	0	0	0	1	0
Mesocyclops edax (S. A. Forbes)	1	1	1	1	1	1	1	1
Nitocra lacustris Fischer	3	1	2	1	1	1	1	3
Osphranticum laborectum	0	3	0	0	0	0	0	0
Paracyclops fimbriatus Fischer	3	3	0	0	0	3	0	0
Paracyclops fimbriatus poppei Rehberg	0	0	0	0	0	2	0	0
Parastenocaris sp.	0	0	0	0	3	0	0	0
Tropocyclops prasinus (Fischer)	1	1	1	3	3	1	1	1
Rotifera								
Asplanchna sp.[a]	1	1	1	1	1	1	1	1
Asplanchna herricki	3	0	3	3	0	3	0	3
Brachionus angularis Gosse	1	1	1	1	1	1	1	1
Brachionus bennini (Leisslung)	0	0	0	2	0	0	0	0
Brachionus bidentata Anderson	2	3	1	3	1	1	1	1
Brachionus budapestinensis Daday	1	1	1	1	1	1	1	1
Brachionus calcyciflorus Pallas	1	1	1	1	1	1	1	1
Brachionus caudatus Barrois & Daday	1	1	1	1	1	1	1	1
Brachionus havanaensis Rousselet	2	1	3	1	1	3	3	1
Brachionus quadridentatus Herman	3	1	3	3	1	1	3	1
Brachionus rubens Ehrenburg	2	0	0	0	0	0	0	0
Brachionus urcerolaris Muller	3	0	3	0	0	3	3	3
Cephalodella sp.	3	3	3	3	3	1	3	3
Collotheca pelagica	3	3	3	3	1	3	1	1
Conochiloides sp.	1	1	1	1	1	1	1	1
Conochilus hippocrepis (Schrank)	0	0	0	0	2	3	2	2
Conochilus unicornis Burckhardt	1	1	1	1	1	1	1	1
Dissotrocha sp.	0	0	0	0	0	0	0	3
Epiphanes macroura Barrois & Daday	3	3	3	3	3	3	3	3
Euchlanis sp.	3	1	1	1	3	3	3	1
Filinia sp.[b]	1	3	1	3	3	3	1	1
Hexarthra sp.[c]	1	1	3	3	1	0	0	2
Kellicottia bostoniensis (Rousselet)	1	1	1	1	3	1	1	1
Keratella americana (Ahlstrom)[d]	3	3	0	3	3	0	3	3
Keratella cochlearis (Gosse)	1	1	1	1	1	1	1	1
Keratella crassa Ahlstrom	1	1	1	1	1	1	1	1
Keratella earlinae Ahlstrom	3	3	1	3	1	1	1	1
Keratella quadrata	0	0	0	0	3	0	0	0
Keratella valga (Ehrenberg)	0	0	2	0	0	0	0	3
Lecane sp.[e]	0	3	3	0	0	3	3	0
Lepadella sp.	0	0	0	2	0	0	2	3
Macrochaetus sp.	3	0	0	0	0	3	0	0
Monostyla sp.	3	0	1	0	2	3	1	3

TABLE 10 (CONTINUED)

	Tennessee River Mile							
	278	284	289	292	294	296	301	308
Monostyla crenata Harring	0	0	0	0	0	0	0	3
Monostyla quadridentata Ehrenberg	0	0	0	0	0	0	0	2
Notholca sp.	0	3	3	3	3	1	3	0
Platyias patulus (Muller)	1	1	3	0	1	3	1	1
Platyias quadricornis (Ehrenberg)	1	0	0	0	3	0	0	0
Ploesoma sp.[f]	1	1	1	1	1	1	3	1
Polyarthra sp.	1	1	1	1	1	1	1	1
Pompholyx sulcata Hudson	0	0	0	0	0	0	0	3
Ptygura sp.	0	3	0	0	0	0	0	0
Rocaria neptunia	3	3	3	3	3	3	3	3
Synchaeta sp.[g]	1	1	1	1	1	1	1	1
Testudinella sp.	0	3	0	0	0	0	0	0
Trichocerca sp.	1	1	1	1	1	1	1	1
Trichotria sp.	3	3	3	3	1	3	3	1

0. Organism not identified at TRM indicated.
1. Organism identified at TRM indicated in both preoperational and operational monitoring.
2. Organism identified at TRM indicated in only preoperational monitoring.
3. Organism identified at TRM indicated in only operational monitoring.

a. Includes Asplanchna priodonta Gosse, Asplanchna amphora Western, and Asplanchna herricki.
b. Includes Filinia maior (Celditz) and Filinia longiseta.
c. Includes Hexarthra intermedia Wisniewski and Hexarthra mira (Hudson).
d. Formerly Keratella gracilenta Ahlstrom.
e. Includes Lecane leontina.
f. Includes Ploesoma hudsoni (Imhof) and Ploesoma trucantum (Levander).
g. Includes Synchaeta stylata Wierzejsky.

FOURTH QUARTER

APPENDIX A

SUMMARY OF RESULTS OF TEMPERATURE ANALYSIS FOR EVALUATION OF THERMAL STRESSES DURING THE REPORTING PERIOD

JANUARY 1, 1976, THROUGH DECEMBER 31, 1976

BROWNS FERRY NUCLEAR PLANT AVERAGE WATER TEMPERATURE — JAN 1, 1976 THRU DEC 31, 1976

STATION NUMBER:		AVG	13	10	11	4	14	3	5	1	8	7
STATION CODE:		AVG	23	20	21	14	24	13	15	11	18	17
RIVER MILE:		292.5A	292.5P	292.5L	292.5M	297.6	296.0	275.0	286.04	293.6	294.5	295.7
JANUARY	MAXIMUM	45.83	45.90	45.80	45.80	46.30	80.20	45.50	46.00	46.50	45.60	47.40
	MINIMUM	36.73	32.10	38.60	39.50	39.00	32.00	38.50	35.40	37.70	39.00	32.20
	AVERAGE	42.19	42.00	42.23	42.35	42.37	42.27	41.63	41.26	42.20	42.23	41.78
	DT (- 297.6)	.18-	.37-	.14-	.02-		.10-	.74-	1.11-	.17-	.14-	.59-
	DT (- 296.0)	.08-	.27-	.04-	.08	.10		.64-	1.01-	.07-	.04-	.49-
	SURF TO 10 FT	42.22	42.06	42.25	42.35	42.39	42.30	41.66	41.28	42.20	42.20	41.83
	DT (- 297.6)	.17-	.33-	.14-	.04-		.09-	.73-	1.11-	.19-	.19-	.56-
	DT (- 296.0)	.08-	.24-	.05-	.05	.09		.64-	1.02-	.10-	.10-	.47-
	BOTTOM THREE	42.17	41.90	42.25	42.35	42.39	42.11	41.61	41.25	42.21	42.30	41.64
	DT (- 297.6)	.22-	.49-	.14-	.04-		.28-	.78-	1.14-	.18-	.09-	.75-
	DT (- 296.0)	.06	.21-	.14	.24	.28		.50-	.86-	.10	.19	.47-

Δt — Number of days the temperature differential fell within the specified range.

Δt										
- 297.6 < -6										
- 297.6 -6-(-5)										
- 297.6 -5-(-4)							2.00			
- 297.6 -4-(-3)							2.00			1.00
- 297.6 -3-(-2)						2.00	6.00			3.00
- 297.6 -2-(-1)		1.00			1.00	10.00	3.00			7.00
- 297.6 -1-0	24.00	27.00	20.00	18.00	18.00	14.00	9.00	24.00	21.00	12.00
- 297.6 0-1	7.00	3.00	11.00	12.00	10.00	3.00	8.00	7.00	10.00	3.00
- 297.6 1-2				1.00	2.00	2.00	1.00			5.00
- 297.6 2-3										
- 297.6 3-4										
- 297.6 4-5										
- 297.6 5-6										
- 297.6 >6										

BROWNS FERRY NUCLEAR PLANT AVERAGE WATER TEMPERATURE JAN 1, 1976 THRU DEC 31, 1976

STATION NUMBER:		AVG	13	10	11	4	14	3	5	1	6	7
STATION CODE:		AVG	23	20	21	14	24	13	15	11	18	17
RIVER MILE:		292.5A	292.5P	292.5L	292.5M	297.6	296.0	275.0	286.04	293.6	294.5	295.7
FEBRUARY	MAXIMUM	57.97	57.66	60.20	56.10	56.00	77.90	60.30	63.20	58.30	54.60	62.00
	MINIMUM	39.80	36.20	41.10	42.10	41.30	33.00	41.70	41.80	41.40	41.10	36.00
	AVERAGE	48.04	48.00	48.12	48.00	48.16	47.30	47.27	48.81	48.16	47.31	48.51
	DT (- 297.6)	.12-	.16-	.04-	.16-		.86-	.89-	.65		.85-	.35
	DT (- 296.0)	.74	.73	.82	.70	.86		.03-	1.51	.86	.01	1.21
	SURF TO 10 FT	48.10	48.06	48.24	48.01	48.24	47.45	47.56	48.81	48.35	46.96	48.92
	DT (- 297.6)	.14-	.18-		.23-		.79-	.68-	.57	.11	1.28-	.68
	DT (- 296.0)	.65	.61	.79	.56	.79		.11	1.36	.90	.49-	1.47
	BOTTOM THREE	47.99	47.99	48.01	47.98	48.12	46.29	46.95	49.12	47.95	48.00	47.15
	DT (- 297.6)	.13-	.13-	.11-	.14-		1.83-	1.17-	1.00	.17-	.12-	.97-
	DT (- 296.0)	1.70	1.70	1.72	1.69	1.83		.66	2.83	1.66	1.71	.86

Δt — Number of days the temperature differential fell within the specified range.

- 297.6 < -6										
- 297.6 -6-(-5)										
- 297.6 -5-(-4)										
- 297.6 -4-(-3)										
- 297.6 -3-(-2)							1.00			2.00
- 297.6 -2-(-1)		1.00			3.00	11.00	2.00			3.00
- 297.6 -1-0	21.00	20.00	18.00	20.00	23.00	11.00	6.00	15.00	24.00	3.00
- 297.6 0-1	6.00	5.00	10.00	7.00	2.00	5.00	13.00	11.00	4.00	9.00
- 297.6 1-2	2.00	2.00		1.00			7.00	2.00		4.00
- 297.6 2-3										5.00
- 297.6 3-4										2.00
- 297.6 4-5										
- 297.6 5-6										
- 297.6 >6										

BROWNS FERRY NUCLEAR PLANT AVERAGE WATER TEMPERATURE JAN 1, 1976 THRU DEC 31, 1976

STATION NUMBER:		AVG	13	10	11	4	14	3	5	1	8	7
STATION CODE:		AVG	23	20	21	14	24	13	15	11	18	17
RIVER MILE:		292.5A	292.5P	292.5L	292.5M	297.6	296.0	275.0	286.04	293.6	294.5	295.7
MARCH	MAXIMUM	62.73	63.10	62.70	62.40	62.50	61.90	63.00	65.30	64.80	61.40	64.10
	MINIMUM	53.07	52.80	52.90	53.50	52.70	53.50	52.30	53.00	53.20	53.00	51.10
	AVERAGE	56.85	56.89	56.90	56.75	56.52	57.15	56.25	57.49	56.68	56.65	57.69
	DT (- 297.6)	.33	.37	.38	.23		.66	.27-	.97	.16	.11	1.17
	DT (- 296.0)	.33-	.29-	.28-	.43-	.66-		.93-	.31	.50-	.55-	.51
	SURF TO 10 FT	56.96	56.99	57.12	56.76	56.62	57.27	56.60	57.71	56.90	56.56	57.74
	DT (- 297.6)	.34	.37	.50	.14		.65	.02-	1.09	.28	.06-	1.12
	DT (- 296.0)	.31-	.28-	.15-	.51-	.65-		.67-	.44	.37-	.71-	.47
	BOTTOM THREE	56.74	56.83	56.68	56.71	56.46	57.01	55.81	57.25	56.44	56.73	57.45
	DT (- 297.6)	.28	.37	.22	.25		.55	.65-	.79	.02-	.27	.99
	DT (- 296.0)	.27-	.18-	.33-	.30-	.55-		1.20-	.24	.57-	.28-	.44

Δt — Number of days the temperature differential fell within the specified range.

- 297.6 < -6											
- 297.6 -6-(-5)											
- 297.6 -5-(-4)											
- 297.6 -4-(-3)											
- 297.6 -3-(-2)											
- 297.6 -2-(-1)				1.00			6.00				4.00
- 297.6 -1-0	10.00	13.00	13.00	5.00		17.00	12.00	2.00	7.00	13.00	5.00
- 297.6 0-1	21.00	15.00	16.00	23.00		2.00	9.00	15.00	21.00	16.00	8.00
- 297.6 1-2		1.00					2.00	10.00	1.00		6.00
- 297.6 2-3								2.00			4.00
- 297.6 3-4											2.00
- 297.6 4-5											
- 297.6 5-6											
- 297.6 >6											

BROWNS FERRY NUCLEAR PLANT AVERAGE WATER TEMPERATURE

STATION NUMBER:		AVG	13	10	11	4	14	3	5	1	6	7
STATION CODE:		AVG	23	20	21	14	24	13	15	11	16	17
RIVER MILE:		292.5A	292.5P	292.5L	292.5M	297.6	296.0	275.0	266.04	293.6	294.5	295.7
APRIL	MAXIMUM	75.43	75.40	75.10	75.80	73.60	74.40	75.50	95.10	75.50	72.90	76.20
	MINIMUM	57.60	57.90	57.90	57.60	58.20	32.50	58.90	59.00	57.60	58.30	58.40
	AVERAGE	64.25	64.09	64.01	64.66	64.00	63.54	63.94	64.43	64.32	64.66	65.08
	DT (- 297.6)	.25	.09	.01	.66		.46-	.06-	.43	.32	.06	1.06
	DT (- 296.0)	.71	.55	.47	1.12	.46		.40	.89	.78	.52	1.54
	SURF TO 10 FT	64.61	64.67	64.75	64.81	64.41	63.85	65.32	65.20	64.09	64.16	65.21
	DT (- 297.6)	.40	.46	.34	.40		.56-	.91	.79	.28	.23-	.00
	DT (- 296.0)	.96	1.02	.90	.96	.56		1.47	1.35	.34	.33	1.36
	BOTTOM THREE	63.61	63.16	63.36	64.30	63.60	63.06	62.08	63.39	63.64	63.93	64.42
	DT (- 297.6)	.01	.44-	.24-	.70		.54-	1.52-	.21-	.24	.33	.02
	DT (- 296.0)	.55	.10	.30	1.24	.54		.96-	.33	.78	.07	1.36

Δt — Number of days the temperature differential fell within the specified range.

- 297.6 < -6											
- 297.6 -6-(-5)											
- 297.6 -5-(-4)											
- 297.6 -4-(-3)											
- 297.6 -3-(-2)											
- 297.6 -2-(-1)				2.00		1.00	2.00			1.00	3.00
- 297.6 -1-0	9.00	13.00	7.00	6.00		13.00	16.00	5.00	9.00	15.00	4.00
- 297.6 0-1	16.00	12.00	21.00	14.00		11.00	15.00	8.00	15.00	11.00	5.00
- 297.6 1-2	5.00	5.00		7.00		4.00	3.00	11.00	6.00	3.00	10.00
- 297.6 2-3				3.00				5.00			4.00
- 297.6 3-4											4.00
- 297.6 4-5											
- 297.6 5-6											
- 297.6 >6											

BROWNS FERRY NUCLEAR PLANT AVERAGE WATER TEMPERATURE JAN 1, 1976 THRU DEC 31, 1976

STATION NUMBER:		AVG	13	10	11	4	14	3	5	1	8	7
STATION CODE:		AVG	23	20	21	14	24	13	15	11	18	17
RIVER MILE:		292.5A	292.5P	292.5L	292.5M	297.6	296.0	275.0	286.04	293.6	294.5	295.7
MAY	MAXIMUM	76.03	74.40	76.20	77.50	77.50	93.00	78.80	80.40	76.00	71.80	79.50
	MINIMUM	62.73	64.10	60.50	63.60	64.30	32.00	64.70	64.10	64.40	63.40	63.40
	AVERAGE	68.17	68.10	67.98	68.44	68.22	67.91	67.73	68.39	68.34	67.77	68.49
	DT (- 297.6)	.05-	.12-	.24-	.22		.31-	.49-	.17	.12	.45-	.27
	DT (- 296.0)	.26	.19	.07	.53	.31		.18-	.48	.43	.14-	.58
	SURF TO 10 FT	68.50	68.50	68.46	68.55	68.54	67.66	68.66	68.95	68.52	67.66	68.62
	DT (- 297.6)	.04-	.04-	.08-	.01		.88-	.12	.41	.02-	.08-	.08
	DT (- 296.0)	.64	.84	.80	.89	.88		1.00	1.29	.66	.20	.96
	BOTTOM THREE	67.77	67.73	67.43	68.16	67.86	67.93	66.72	67.09	68.13	67.68	67.85
	DT (- 297.6)	.09-	.13-	.43-	.30		.07	1.14-	.17-	.27	.18-	.03-
	DT (- 296.0)	.16-	.20-	.50-	.23	.07-		1.21-	.24-	.20	.25-	.10-

Δt — Number of days the temperature differential fell within the specified range.

- 297.6 < -6											
- 297.6 -6-(-5)											
- 297.6 -5-(-4)											
- 297.6 -4-(-3)											
- 297.6 -3-(-2)											
- 297.6 -2-(-1)	1.00	1.00	2.00		4.00	4.00	2.00		5.00	1.00
- 297.6 -1-0	15.00	19.00	17.00	11.00	22.00	23.00	10.00	14.00	19.00	12.00
- 297.6 0-1	14.00	10.00	12.00	18.00	5.00	4.00	17.00	15.00	7.00	13.00
- 297.6 1-2	1.00	1.00		2.00			1.00	2.00		5.00
- 297.6 2-3							1.00			
- 297.6 3-4										
- 297.6 4-5										
- 297.6 5-6										
- 297.6 >6										

BROWNS FERRY NUCLEAR PLANT AVERAGE WATER TEMPERATURE JAN 1, 1976 THRU DEC 31, 1976

STATION NUMBER:		AVG	13	10	11	4	14	3	5	1	8	7
STATION CODE:		AVG	23	20	21	14	24	13	15	11	18	17
RIVER MILE:		292.5A	292.5P	292.5L	292.5M	297.6	296.0	275.0	286.04	293.6	294.5	295.7
JUNE	MAXIMUM	86.00	85.60	86.40	86.00	85.70	83.70	85.50	88.30	86.10	80.90	87.90
	MINIMUM	70.50	70.70	70.00	70.80	70.50	33.60	68.10	70.60	70.70	70.80	70.20
	AVERAGE	76.29	76.12	76.16	76.59	75.98	75.92	75.92	76.98	76.32	75.66	76.77
	DT (- 297.6)	.31	.14	.18	.61		.06-	.06-	1.00	.34	.32-	.79
	DT (- 296.0)	.37	.20	.24	.67	.06			1.06	.40	.26-	.85
	SURF TO 10 FT	76.69	76.61	76.74	76.72	76.36	76.09	77.68	77.85	76.61	75.71	76.95
	DT (- 297.6)	.33	.25	.38	.36		.27-	1.32	1.49	.25	.65-	.59
	DT (- 296.0)	.60	.52	.65	.63	.27		1.59	1.76	.52	.38-	.86
	BOTTOM THREE	75.87	75.74	75.62	76.25	75.48	75.65	73.66	75.91	76.00	75.61	75.92
	DT (- 297.6)	.39	.26	.14	.77		.17	1.82-	.43	.52	.13	.44
	DT (- 296.0)	.22	.09	.03-	.60	.17-		1.99-	.26	.35	.04-	.27

Δt — Number of days the temperature differential fell within the specified range.

- 297.6 < -6											
- 297.6 -6-(-5)											
- 297.6 -5-(-4)											
- 297.6 -4-(-3)											
- 297.6 -3-(-2)											
- 297.6 -2-(-1)											
- 297.6 -1-0	9.00	13.00	10.00	3.00		16.00	17.00	3.00	7.00	19.00	5.00
- 297.6 0-1	19.00	16.00	19.00	21.00		14.00	13.00	17.00	21.00	11.00	14.00
- 297.6 1-2	2.00	1.00	1.00	5.00				6.00	2.00		6.00
- 297.6 2-3				1.00				4.00			5.00
- 297.6 3-4											
- 297.6 4-5											
- 297.6 5-6											
- 297.6 >6											

BROWNS FERRY NUCLEAR PLANT AVERAGE WATER TEMPERATURE

STATION NUMBER:		AVG	13	10	11	4	14	3	5	1	8	7
STATION CODE:		AVG	23	20	21	14	24	13	15	11	18	17
RIVER MILE:		292.5A	292.5P	292.5L	292.5M	297.6	296.0	275.0	286.04	293.6	294.5	295.7
JULY	MAXIMUM	88.87	88.30	90.10	88.20	88.30	89.70	88.40	87.30	88.30	87.00	89.80
	MINIMUM	71.43	77.70	58.70	77.90	77.20	77.20	76.90	78.60	77.80	77.40	73.10
	AVERAGE	80.56	80.40	80.46	80.83	80.17	80.23	81.24	81.58	80.59	80.48	81.07
	DT (- 297.6)	.39	.23	.29	.66		.06	1.07	1.41	.42	.31	.90
	DT (- 296.0)	.33	.17	.23	.60	.06-		1.01	1.35	.36	.25	.84
	SURF TO 10 FT	81.01	80.83	81.24	80.96	80.62	80.55	82.64	82.13	80.86	80.69	81.29
	DT (- 297.6)	.39	.21	.62	.34		.07-	2.02	1.51	.24	.07	.67
	DT (- 296.0)	.46	.28	.69	.41	.07		2.09	1.58	.31	.14	.74
	BOTTOM THREE	80.02	80.24	79.36	80.47	79.65	80.41	79.68	80.91	80.31	80.24	79.98
	DT (- 297.6)	.37	.59	.29-	.82		.76	.03	1.26	.66	.59	.33
	DT (- 296.0)	.39-	.17-	1.05-	.06	.76-		.73-	.50	.10-	.17-	.43-

Δt — Number of days the temperature differential fell within the specified range.

- 297.6 < -6											
- 297.6 -6-(-5)											
- 297.6 -5-(-4)											
- 297.6 -4-(-3)											
- 297.6 -3-(-2)											
- 297.6 -2-(-1)							2.00				
- 297.6 -1-0	4.00	11.00	7.00	1.00		17.00	1.00		3.00	17.00	4.00
- 297.6 0-1	25.00	16.00	16.00	20.00		11.00	7.00	10.00	24.00	11.00	12.00
- 297.6 1-2	2.00	1.00	5.00	7.00			17.00	13.00	1.00		6.00
- 297.6 2-3							1.00	4.00			6.00
- 297.6 3-4											
- 297.6 4-5											
- 297.6 5-6											
- 297.6 >6											

BROWNS FERRY NUCLEAR PLANT AVERAGE WATER TEMPERATURE JAN 1, 1976 THRU DEC 31, 1976

STATION NUMBER:		AVG	13	10	11	4	14	3	5	1	8	7
STATION CODE:		AVG	23	20	21	14	24	13	15	11	18	17
RIVER MILE:		292.5A	292.5P	292.5L	292.5M	297.6	296.0	275.0	286.04	293.6	294.5	295.7
AUGUST	MAXIMUM	86.53	85.80	87.00	86.80	86.50	86.50	87.20	89.10	86.10	99.30	86.40
	MINIMUM	77.90	78.40	77.30	78.00	76.10	77.50	79.30	79.20	78.20	77.80	78.00
	AVERAGE	81.22	81.59	81.03	81.25	81.26	81.21	81.57	81.76	81.41	81.51	81.09
	DT (- 297.6)	.04-	.13	.23-	.01-		.05-	.31	.50	.15	.25	.17-
	DT (- 296.0)	.01	.16	.18-	.04	.05		.36	.55	.20	.30	.12-
	SURF TO 10 FT	81.44	81.56	81.44	81.31	81.51	81.41	82.26	82.21	81.55	81.15	81.24
	DT (- 297.6)	.07-	.05	.07-	.20-		.10-	.74	.70	.04	.36-	.27-
	DT (- 296.0)	.03	.15	.03	.10-	.10		.84	.80	.14	.26-	.17-
	BOTTOM THREE	81.03	81.25	80.70	81.14	80.90	81.08	80.74	81.21	81.26	82.18	80.31
	DT (- 297.6)	.13	.35	.20-	.24		.18	.16-	.31	.36	1.28	.59-
	DT (- 296.0)	.05-	.17	.36-	.06	.18-		.34-	.13	.16	1.10	.77-

Δt — Number of days the temperature differential fell within the specified range.

- 297.6 < -6											
- 297.6 -6-(-5)											
- 297.6 -5-(-4)											
- 297.6 -4-(-3)											
- 297.6 -3-(-2)											
- 297.6 -2-(-1)			2.00								4.00
- 297.6 -1-0	17.00	14.00	19.00	17.00	21.00	6.00	9.00	9.00	16.00	14.00	
- 297.6 0-1	14.00	13.00	6.00	10.00	6.00	19.00	12.00	18.00	6.00	6.00	
- 297.6 1-2							6.00		5.00	3.00	
- 297.6 2-3											
- 297.6 3-4											
- 297.6 4-5											
- 297.6 5-6											
- 297.6 >6											

BROWNS FERRY NUCLEAR PLANT AVERAGE WATER TEMPERATURE JAN 1, 1976 THRU DEC 31, 1976

STATION NUMBER:		AVG	13	10	11	4	14	3	5	1	8	7
STATION CODE:		AVG	23	20	21	14	24	13	15	11	18	17
RIVER MILE:		292.5A	292.5P	292.5L	292.5M	297.6	296.0	275.0	286.04	293.6	294.5	295.7
SEPTEMBER	MAXIMUM	81.37	81.00	82.30	81.50	82.50	82.40	82.80	83.00	81.90	82.10	81.00
	MINIMUM	72.23	72.50	71.70	72.50	70.50	71.50	73.90	73.60	37.10	71.40	70.90
	AVERAGE	76.86	77.03	76.59	76.97	76.68	76.57	77.08	77.22	77.29	76.48	75.75
	DT (- 297.6)	.18	.35	.09-	.29		.11-	.40	.54	.61	.20-	.93-
	DT (- 296.0)	.29	.46	.02	.40	.11		.51	.65	.72	.09-	.82-
	SURF TO 10 FT	77.09	77.24	76.98	77.05	76.86	76.72	77.44	77.56	77.66	76.56	75.93
	DT (- 297.6)	.23	.38	.12	.19		.14-	.58	.70	.80	.30-	.93-
	DT (- 296.0)	.37	.52	.26	.33	.14		.72	.84	.94	.16-	.79-
	BOTTOM THREE	76.64	76.82	76.26	76.83	76.43	76.46	76.61	76.79	76.80	76.31	75.31
	DT (- 297.6)	.21	.39	.17-	.40		.03	.18	.36	.37	.12-	1.12-
	DT (- 296.0)	.18	.36	.20-	.37	.03-		.15	.33	.34	.15-	1.15-

Δt — Number of days the temperature differential fell within the specified range.

- 297.6 < -6												
- 297.6 -6-(-5)												
- 297.6 -5-(-4)												
- 297.6 -4-(-3)												
- 297.6 -3-(-2)												2.00
- 297.6 -2-(-1)	1.00		2.00	1.00				1.00				9.00
- 297.6 -1-0	10.00	9.00	17.00	11.00		23.00	7.00	7.00	7.00	20.00		13.00
- 297.6 0-1	17.00	18.00	11.00	13.00		7.00	20.00	13.00	14.00	10.00		6.00
- 297.6 1-2	2.00	3.00		5.00			3.00	8.00	8.00			
- 297.6 2-3									1.00			
- 297.6 3-4												
- 297.6 4-5												
- 297.6 5-6												
- 297.6 >6												

BROWNS FERRY NUCLEAR PLANT AVERAGE WATER TEMPERATURE

STATION NUMBER:		AVG	13	10	11	4	14	3	5	1	8	7
STATION CODE:		AVG	23	20	21	14	24	13	15	11	18	17
RIVER MILE:		292.5A	292.5P	292.5L	292.5M	297.6	296.0	275.0	286.04	293.6	294.5	295.7
OCTOBER	MAXIMUM	78.13	76.90	79.30	78.20	76.50	75.80	76.10	78.00	77.40	76.40	74.20
	MINIMUM	56.00	56.00	55.30	56.70	55.40	54.20	55.20	56.50	45.70	54.30	51.80
	AVERAGE	66.06	66.25	65.61	66.33	65.63	65.58	65.51	66.21	66.77	65.23	63.89
	DT (- 297.6)	.43	.62	.02-	.70		.05-	.12-	.58	1.14	.40-	1.74-
	DT (- 296.0)	.48	.67	.03	.75	.05		.07-	.63	1.19	.35-	1.69-
	SURF TO 10 FT	66.26	66.44	65.97	66.37	65.76	65.76	65.69	66.38	67.31	65.21	64.01
	DT (- 297.6)	.50	.68	.21	.61			.07-	.62	1.55	.55-	1.75-
	DT (- 296.0)	.50	.68	.21	.61			.07-	.62	1.55	.55-	1.75-
	BOTTOM THREE	65.89	66.08	65.32	66.27	65.48	65.41	65.39	65.98	66.05	65.25	63.68
	DT (- 297.6)	.41	.60	.16-	.79		.07-	.09-	.50	.57	.23-	1.80-
	DT (- 296.0)	.48	.67	.09-	.86	.07		.02-	.57	.64	.16-	1.73-

Number of days the temperature differential fell within the specified range.

DT - 297.6											
< -6											
-6-(-5)											
-5-(-4)											4.00
-4-(-3)											4.00
-3-(-2)											6.00
-2-(-1)	1.00	1.00	2.00				2.00		3.00	7.00
-1-0	5.00	4.00	15.00	2.00		21.00	10.00	6.00	1.00	21.00	7.00
0-1	21.00	16.00	13.00	21.00		10.00	9.00	11.00	15.00	7.00	2.00
1-2	4.00	10.00	1.00	8.00			7.00	9.00	14.00		
2-3							2.00	3.00	1.00		
3-4											
4-5											
5-6											
>6											

BROWNS FERRY NUCLEAR PLANT AVERAGE WATER TEMPERATURE JAN 1, 1976 THRU DEC 31, 1976

STATION NUMBER:		AVG	13	10	11	4	14	3	5	1	8	7
STATION CODE:		AVG	23	20	21	14	24	13	15	11	18	17
RIVER MILE:		292.5A	292.5P	292.5L	292.5M	297.6	296.0	275.0	286.04	293.6	294.5	295.7
NOVEMBER	MAXIMUM	59.40	61.20	57.60	59.40	57.70	57.20	57.60	59.20	62.50	57.20	64.50
	MINIMUM	41.80	46.40	32.30	46.70	44.70	44.10	47.60	47.00	35.30	44.60	40.50
	AVERAGE	52.72	52.84	52.32	53.01	51.32	51.54	51.62	52.81	53.43	51.40	49.61
	DT (- 297.6)	1.40	1.52	1.00	1.69		.22	.30	1.49	2.11	.08	1.51-
	DT (- 296.0)	1.18	1.30	.78	1.47	.22-		.08	1.27	1.89	.14-	1.73-
	SURF TO 10 FT	52.31	53.07	52.33	53.02	51.39	51.54	51.77	52.93	54.24	51.25	49.95
	DT (- 297.6)	1.42	1.68	.94	1.63		.15	.38	1.54	2.85	.14-	1.44-
	DT (- 296.0)	1.27	1.53	.79	1.48	.15-		.23	1.39	2.70	.29-	1.59-
	BOTTOM THREE	52.64	52.67	52.26	52.98	51.27	51.66	51.60	52.66	52.35	51.67	49.63
	DT (- 297.6)	1.37	1.40	.99	1.71		.39	.33	1.39	1.08	.40	1.64-
	DT (- 296.0)	.98	1.01	.60	1.32	.39-		.06-	1.00	.69	.01	2.03-

Δt — Number of days the temperature differential fell within the specified range.

- 297.6 < -6											1.00
- 297.6 -6-(-5)											3.00
- 297.6 -5-(-4)											1.00
- 297.6 -4-(-3)											6.00
- 297.6 -3-(-2)				1.00							8.00
- 297.6 -2-(-1)											4.00
- 297.6 -1-0				6.00		6.00	14.00	1.00		15.00	7.00
- 297.6 0-1	13.00	5.00	14.00	3.00		22.00	9.00	9.00	1.00	14.00	
- 297.6 1-2	13.00	19.00	6.00	21.00		2.00	5.00	12.00	13.00	1.00	
- 297.6 2-3	4.00	6.00	2.00	5.00			2.00	6.00	12.00		
- 297.6 3-4				1.00				1.00	4.00		
- 297.6 4-5								1.00			
- 297.6 5-6											
- 297.6 >6											

BROWNS FERRY NUCLEAR PLANT AVERAGE WATER TEMPERATURE JAN 1, 1976 THRU DEC 31, 1976

STATION NUMBER:		AVG	13	10	11	4	14	3	5	1	8	7
STATION CODE:		AVG	23	20	21	14	24	13	15	11	18	17
RIVER MILE:		292.5A	292.5P	292.5L	292.5M	297.6	296.0	275.0	286.04	293.6	294.5	295.7
DECEMBER	MAXIMUM	51.37	51.50	50.60	51.80	46.80	48.50	51.60	66.20	53.60	48.70	54.30
	MINIMUM	40.07	42.30	38.00	41.70	39.40	40.70	41.60	36.00	39.50	38.50	35.90
	AVERAGE	45.89	46.39	44.87	46.42	44.79	45.13	45.17	46.62	46.55	44.61	43.62
	DT (- 297.6)	1.10	1.60	.08	1.63		.54	.58	1.83	1.76	.18-	.97-
	DT (- 296.0)	.76	1.26	.26-	1.29	.34-		.04	1.49	.42	.52-	1.51-
	SURF TO 10 FT	45.93	46.44	44.91	46.43	44.81	45.03	45.28	46.87	46.66	44.59	43.79
	DT (- 297.6)	1.12	1.63	.10	1.62		.22	.47	1.86	2.05	.22-	1.62-
	DT (- 296.0)	.90	1.41	.12-	1.40	.22-		.25	1.64	1.83	.44-	1.24-
	BOTTOM THREE	45.85	46.34	44.81	46.41	44.80	45.49	45.09	46.26	46.12	44.65	43.88
	DT (- 297.6)	1.05	1.54	.01	1.61		.69	.29	1.40	1.32	.15-	.94-
	DT (- 296.0)	.36	.85	.68-	.92	.09-		.40-	.77	.63	.84-	1.05-

Δt — Number of days the temperature differential fell within the specified range.

- 297.6 < -6												2.00
- 297.6 -6-(-5)												3.00
- 297.6 -5-(-4)												9.00
- 297.6 -4-(-3)								1.00	1.00		1.00	11.00
- 297.6 -3-(-2)												
- 297.6 -2-(-1)												
- 297.6 -1-0			15.00			8.00	13.00	1.00			24.00	6.00
- 297.6 0-1	12.00	5.00	15.00	1.00	21.00	10.00	7.00	2.00	6.00			
- 297.6 1-2	19.00	19.00	1.00	25.00	2.00	6.00	12.00	20.00				
- 297.6 2-3		7.00		5.00		1.00	6.00	9.00				
- 297.6 3-4							1.00					
- 297.6 4-5							1.00					
- 297.6 5-6												
- 297.6 >6												

APPENDIX B

LISTING OF WATER QUALITY DATA AND SUMMARIES

JANUARY 1, 1976, THROUGH DECEMBER 31, 1976

FIRST QUARTER

STATION - 017001 WHEELER RESERVOIR TENNESSEE RIVER 277.90

DATE	TIME	00003 DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00400 PH SU	00095 CNDUCTVY AT 25C MICROMHO
760106	1350	1	6.0	11.2	89.9	7.6	160
760106	1351	3	6.1	11.5	92.5	7.6	170
760106	1352	5	6.1	11.4	91.7	7.6	170
760106	1353	10	6.0	12.4	99.5	7.6	170
760106	1354	16	6.0	12.6	101.1	7.6	170
760106	1355	23	6.0	11.4	91.5	7.6	170
760106	1356	30	6.0	11.5	92.3	7.5	160
760106	1354	39	6.0	11.0	88.3	7.5	160
760106	1300	49	6.0	10.9	87.5	7.5	160
760106							
	NUMBER	9	9	9	9	9	9
	MAXIMUM	49	6.1	12.6	101.1	7.6	180
	MINIMUM	1	6.0	10.9	87.5	7.5	160
	SUM	176	54.2	104.4	838.3	68.1	1550
	SUM SQ.	5762	326.4	1213.8	78253.4	515.3	267300
	MEAN	20	6.0	11.6	93.1	7.6	172
	VARIANCE	288	0.0	0.4	22.4	0.0	44
	STD.DEV.	17	0.0	0.6	4.7	0.1	7
	STD.ERR.	6	0.0	0.2	1.6	0.0	2
	COEF VAR	87	0.7	5.1	5.1	0.7	4
	LOG MEAN	11	6.0	11.6	93.0	7.6	172
760106							

TENNESSEE VALLEY AUTHORITY

STATION - 017005 WHEELER RESERVOIR TENNESSEE RIVER 283.94

DATE	TIME	00003 DEPTH FEET	00002 HSAMPLOC % FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00310 BOD 5 DAY MG/L	00335 COD LOWLEVEL MG/L	00400 PH SU	00410 T ALK CACO3 MG/L	00095 CNDUCTVY AT 25C MICROMHO
760106	1434	1	16	6.2	11.0	88.7			7.6		160
760106	1437	3	16	6.2	11.1	89.5	1.0K	6.0	7.6	48	140
760106	1440	5	16	6.2	11.1	89.5			7.5		160
760106	1442	10	16	6.2	11.1	89.5			7.5		160
760106	1445	16	16	5.7	10.9	86.8	1.0K	6.0	7.5	48	140
760106	1450	23	16	5.4	10.8	85.3			7.5		160
760106	1455	1	40	6.0	11.2	89.9			7.5		160
760106	1457	3	40	6.0	12.9	103.5	1.0K	3.0	7.5	48	140
760106	1500	5	40	6.0	13.0	104.3			7.5		160
760106	1502	10	40	5.8	12.5	99.8			7.6		160
760106	1505	16	40	5.5	12.3	97.4	1.0K	6.0	7.5	47	140
760106	1507	23	40	5.5	11.6	91.9			7.5		160
760106	1510	29	40	5.5	11.0	87.1			7.5		160
760106	1512	36	40	5.5	10.6	84.0			7.5		160
760106	1518	1	78	6.5	10.2	82.9			7.6		190
760106	1520	3	78	6.5	10.2	82.9	1.0K	10.0	7.6	74	150
760106	1521	3	78	6.5	10.2	82.9	1.0K	9.0	7.6	71	150
760106	1523	5	78	6.5	10.2	82.9			7.6		190
760106	1525	10	78	6.5	10.2	82.9			7.6		200
760106	1527	16	78	6.5	10.2	82.9			7.5		200
760106	1530	23	78	6.5	10.2	82.9			7.5		200
760106	1535	26	78	6.5	10.2	82.9	1.0K	7.0	7.5	69	150
760106											
	NUMBER	22		22	22	22	7	7	22	7	22
	MAXIMUM	36		6.5	13.0	104.3	1.0K	10.0	7.6	74	200
	MINIMUM	1		5.4	10.2	82.9	1.0K	3.0	7.5	47	140
	SUM	268		133.7	242.7	1950.7	7.0	47.0	165.7	405	3590
	SUM SQ.	5582		816.0	2694.7	173945.5	7.0	347.0	1248.1	24399	594100
	MEAN	12		6.1	11.0	88.7	1.0	6.7	7.5	58	163
	VARIANCE	110		0.2	0.8	46.9	0.0	5.2	0.0	161	394
	STD.DEV.	11		0.4	0.9	6.8	0.0	2.3	0.0	13	20
	STD.ERR.	2		0.1	0.2	1.5	0.0	0.9	0.0	5	4
	COEF VAR	86		6.7	8.2	7.7	0.0	34.1	0.6	22	12
	LOG MEAN	7		6.1	11.0	88.4	1.0	6.3	7.5	57	162
760106											

DATE	TIME	00003 DEPTH FEET	00002 HSAMPLOC % FROM RT BANK	00929 SODIUM NA,TOT MG/L	00945 SULFATE SO4-TOT MG/L	00940 CHLORIDE CL MG/L	00610 NH3-N TOTAL MG/L	00630 NO2&NO3 N-TOTAL MG/L	00605 ORG N N MG/L	70300 RESIDUE DISS-180 C MG/L	00530 RESIDUE TOT NFLT MG/L
760106	1437	3	16	4.80	12	6	0.10	0.46	0.120	90	9
760106	1445	16	16	4.60	12	6	0.07	0.46	0.170	90	9
760106	1457	3	40	4.50	13	6	0.06	0.48	0.120	80	10
760106	1505	16	40	4.50	11	6	0.07	0.48	0.170	90	11
760106	1520	3	78	1.70	9	4	0.04	0.66	0.160	110	20
760106	1521	3	78	2.40	8	4	0.05	0.67	0.150	110	19
760106	1535	26	78	2.20	8	4	0.06	0.62	0.140	90	18
760106											
	NUMBER	22		7	7	7	7	7	7	7	7
	MAXIMUM	36		4.80	13	6	0.10	0.67	0.170	110	20
	MINIMUM	1		1.70	8	4	0.04	0.46	0.120	80	9
	SUM	268		24.70	73	36	0.45	3.83	1.030	660	96
	SUM SQ.	5582		98.19	787	192	0.03	2.15	0.154	63000	1468
	MEAN	12		3.53	10	5	0.06	0.55	0.147	94	14
	VARIANCE	110		1.04	4	1	0.00	0.01	0.000	129	25
	STD.DEV.	11		1.36	2	1	0.02	0.10	0.021	11	5
	STD.ERR.	2		0.51	1	0	0.01	0.04	0.008	4	2
	COEF VAR	86		38.43	20	21	29.09	17.87	14.511	12	37
	LOG MEAN	7		3.27	10	5	0.06	0.53	0.140	94	13
760106											

TENNESSEE VALLEY AUTHORITY

STATION - 017006 WHEELER RESERVOIR TENNESSEE RIVER 288.79

DATE TIME	00003 DEPTH FEET	00082 HSAMPLOC % FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00400 PH SU	00095 CNDUCTVY AT 25C MICROMHO
760106 1155	1	41	6.2	11.2	98.3	7.5	160
760106 1157	3	41	6.2	11.4	92.0	7.5	160
760106 1200	5	41	6.2	11.8	95.2	7.5	160
760106 1205	10	41	6.2	12.8	103.2	7.5	160
760106 1207	16	41	6.2	11.6	93.6	7.5	160
760106 1210	19	41	6.2	11.4	92.0	7.5	160
760106							
NUMBER	6		6	6	6	6	6
MAXIMUM	19		6.2	12.8	103.2	7.5	160
MINIMUM	1		6.2	11.2	90.3	7.5	160
SUM	54		37.2	70.2	566.3	45.0	960
SUM SQ.	752		230.6	823.8	5354.5	337.5	153600
MEAN	9		6.2	11.7	94.4	7.5	160
VARIANCE	53		0.0	0.3	21.6	0.0	0
STD.DEV.	7		0.0	0.6	4.6	0.0	0
STD.ERR.	3		0.0	0.2	1.9	0.0	0
COEF VAR	81		0.1	4.9	4.9	0.0	0
LOG MEAN	6		6.2	11.7	94.3	7.5	160
760106							

TENNESSEE VALLEY AUTHORITY

STATION - 017007 WHEELER RESERVOIR TENNESSEE RIVER 291.76

DATE TIME	00003 DEPTH FEET	00082 HSAMPLOC % FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00310 BOD 5 DAY MG/L	00335 COD LOWLEVEL MG/L	00400 PH SU	00410 T ALK CACO3 MG/L	00095 CNDUCTVY AT 25C MICROMHO
760106 1300	1	12	6.0	11.2	89.9			7.6		160
760106 1302	3	12	6.0	11.0	88.3			7.6		160
760106 1305	5	12	6.6	11.0	88.3			7.6		160
760106 1307	10	12	6.0	11.0	88.3			7.4		160
760106 1310	1	36	6.4	11.4	92.4			7.5		160
760106 1312	3	36	6.5	11.9	96.7			7.5		160
760106 1314	5	36	6.5	12.0	97.5			7.5		160
760106 1316	10	36	6.5	11.9	96.7			7.5		160
760106 1318	16	36	6.5	11.5	93.5			7.5		160
760106 1320	19	36	6.5	11.0	89.4			7.5		160
760106 1325	1	60	6.4	11.3	91.6			7.5		160
760106 1327	3	60	6.5	11.4	92.7			7.5		160
760106 1329	5	60	6.5	11.4	92.7			7.5		160
760106 1331	26	60	6.5	11.4	92.7			7.5		160
760106 1337	1	84	5.7	11.2	89.2			7.5		160
760106 1340	3	84	5.7	11.3	90.0	1.0K	5.0	7.5	47	160
760106 1342	5	84	5.7	11.3	90.0			7.5		160
760106 1345	10	84	5.7	11.3	90.0			7.4		160
760106 1350	16	84	5.7	11.3	90.0	1.0K	6.0	7.5	47	140
760106 1352	19	84	5.7	11.3	90.0			7.5		160
760106										
NUMBER	20		20	20	20	2	2	20	2	20
MAXIMUM	26		6.5	12.0	97.5	1.0K	6.0	7.6	47	160
MINIMUM	1		5.7	11.0	88.3	1.0K	5.0	7.4	47	140
SUM	162		123.0	227.1	1829.7	2.0	11.0	150.1	94	3180
SUM SQ.	2350		758.9	2580.3	167549.1	2.0	61.0	1126.5	4418	506000
MEAN	8		6.1	11.4	91.5	1.0	5.5	7.5	47	159
VARIANCE	55		0.1	0.1	8.2	0.0	0.5	0.0	0	20
STD.DEV.	7		0.4	0.3	2.9	0.0	0.7	0.1	0	4
STD.ERR.	2		0.1	0.1	0.6	0.0	0.5	0.0	0	1
COEF VAR	91		5.8	2.6	3.1	0.0	12.9	0.7	0	3
LOG MEAN	5		6.1	11.4	91.4	1.0	5.5	7.5	47	159
760106										

DATE TIME	00003 DEPTH FEET	00082 HSAMPLOC % FROM RT BANK	00929 SODIUM NA,TOT MG/L	00945 SULFATE SO4-TOT MG/L	00940 CHLORIDE CL MG/L	00610 NH3-N TOTAL MG/L	00630 NO2&NO3 N-TOTAL MG/L	00605 ORG N N MG/L	70300 RESIDUE DISS-180 C MG/L	00530 RESIDUE TOT NFLT MG/L
760106 1340	3	84	4.90			0.05	0.46	0.130		
760106 1350	16	84	4.30	11	6	0.05	0.46	0.110	80	9
760106										
NUMBER	20		2	1	1	2	2	2	1	1
MAXIMUM	26		4.90			0.05	0.46	0.130		
MINIMUM	1		4.30			0.05	0.46	0.110		
SUM	162		9.20			0.10	0.92	0.240		
SUM SQ.	2350		42.50			0.00	0.42	0.029		
MEAN	8		4.60			0.05	0.46	0.120		
VARIANCE	55		0.18			0.00	0.00	0.000		
STD.DEV.	7		0.42			0.00	0.00	0.014		
STD.ERR.	2		0.30			0.00	0.00	0.010		
COEF VAR	91		9.22			0.12	0.00	11.705		
LOG MEAN	5		4.59			0.05	0.46	0.120		
760106										

TENNESSEE VALLEY AUTHORITY

STATION - 017000 WHEELER RESERVOIR TENNESSEE RIVER 293.70

DATE	TIME	00003 DEPTH FEET	00002 HSAMPLOC % FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00400 PH SU	00095 CNDUCTVY AT 25C MICROMHO
760106	1102	1	43	6.0	11.0	88.3	7.4	160
760106	1105	3	43	6.2	11.1	89.5	7.4	160
760106	1110	5	43	6.1	11.1	89.3	7.4	160
760106	1120	1	65	6.3	11.2	90.6	7.6	160
760106	1122	3	65	6.4	11.3	91.6	7.5	160
760106	1125	5	65	6.4	11.3	91.6	7.4	160
760106	1130	1	88	6.0	12.0	96.3	7.5	160
760106	1132	3	88	6.2	12.4	100.8	7.5	160
760106	1134	5	88	6.2	12.5	100.8	7.5	160
760106	1136	10	88	6.2	12.3	99.2	7.5	160
760106	1137	13	88	6.2	11.1	89.5	7.5	160
760106	1138	16	88	6.2	10.7	86.3	7.5	160
760106	1140	23	88	6.2	9.8	79.0	7.5	160
760106	1145	30	88	6.2	9.8	79.0	7.5	160
760106								
NUMBER		14		14	14	14	14	14
MAXIMUM		30		6.4	12.5	100.8	7.6	160
MINIMUM		1		6.0	9.8	79.0	7.4	160
SUM		119		86.8	157.6	1271.2	104.7	2240
SUM SQ.		2059		538.3	1783.3	116027.4	783.0	358400
MEAN		9		6.2	11.3	90.8	7.5	160
VARIANCE		81		0.0	0.7	45.9	0.0	0
STD.DEV.		9		0.1	0.8	6.8	0.1	0
STD.ERR.		2		0.0	0.2	1.8	0.0	0
COEF VAR		106		1.9	7.5	7.5	0.8	0
LOG MEAN		5		6.2	11.2	90.6	7.5	160
760106								

TENNESSEE VALLEY AUTHORITY

STATION - 017009 WHEELER RESERVOIR TENNESSEE RIVER 295.87

DATE	TIME	00003 DEPTH FEET	00002 HSAMPLOC % FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00310 BOD 5 DAY MG/L	00335 COD LOWLEVEL MG/L	00400 PH SU	00410 T ALK CACO3 MG/L	00095 CNDUCTVY AT 25C MICROMHO
760106	1043	1	22	6.2	11.2	90.3			7.5		160
760106	1045	3	22	6.4	11.2	90.8			7.5		160
760106	1050	5	22	6.4	11.2	90.8			7.6		160
760106	1100	1	44	6.5	11.3	91.9			7.5		160
760106	1105	3	44	6.5	12.0	97.5	1.0K	4.0	7.5	52	160
760106	1107	5	44	6.5	12.0	97.5			7.5		160
760106	1110	10	44	6.5	10.5	85.4			7.5		160
760106	1112	13	44	6.5	10.6	86.2			7.5		160
760106	1113	15	44	6.5	10.0	81.3			7.5		160
760106	1115	16	44	6.5	9.2	74.8	1.0K	5.0	7.5	50	140
760106	1120	1	82	5.0	11.4	89.1			7.4		140
760106	1122	3	82	5.0	11.4	89.1			7.4		140
760106	1125	5	82	5.0	11.4	89.1			7.4		140
760106											
NUMBER		13		13	13	13	2	2	13	2	13
MAXIMUM		16		6.5	12.0	97.5	1.0K	5.0	7.5	52	160
MINIMUM		1		5.0	9.2	74.8	1.0K	4.0	7.4	50	140
SUM		81		79.5	143.4	1153.9	2.0	9.0	97.1	102	1900
SUM SQ.		855		491.1	1589.1	102663.1	2.0	41.0	725.3	5204	302800
MEAN		6		6.1	11.0	88.8	1.0	4.5	7.5	51	152
VARIANCE		29		0.4	0.6	37.1	0.0	0.5	0.0	2	103
STD.DEV.		5		0.6	0.8	6.1	0.0	0.7	0.0	1	10
STD.ERR.		1		0.2	0.2	1.7	0.0	0.5	0.0	1	3
COEF VAR		87		10.5	7.1	6.9	0.0	15.7	0.6	3	7
LOG MEAN		4		6.1	11.0	88.6	1.0	4.5	7.5	51	152
760106											

DATE	TIME	00003 DEPTH FEET	00002 HSAMPLOC % FROM RT BANK	00929 SODIUM NA,TOT MG/L	00945 SULFATE SO4-TOT MG/L	00940 CHLORIDE CL MG/L	00610 NH3-N TOTAL MG/L	00630 NO2&NO3 N-TOTAL MG/L	00605 ORG N N MG/L	70300 RESIDUE DISS-180 C MG/L	00530 RESIDUE TOT NFLT MG/L
760106	1105	3	44	4.80	11	6	0.05	0.49	0.110	80	15
760106	1115	16	44	4.60	12	6	0.05	0.45	0.130	80	15
760106											
NUMBER		13		2	2	2	2	2	2	2	2
MAXIMUM		16		4.80	12	6	0.05	0.49	0.130	80	15
MINIMUM		1		4.60	11	6	0.05	0.45	0.110	80	15
SUM		81		9.40	23	12	0.10	0.94	0.240	160	30
SUM SQ.		855		44.20	265	72	0.00	0.44	0.029	12800	450
MEAN		6		4.70	12	6	0.05	0.47	0.120	80	15
VARIANCE		29		0.02	1	0	0.00	0.00	0.000	0	0
STD.DEV.		5		0.14	1	0	0.00	0.03	0.014	0	0
STD.ERR.		1		0.10	1	0	0.00	0.02	0.010	0	0
COEF VAR		87		3.01	6	0	0.12	6.02	11.785	0	0
LOG MEAN		4		4.70	11	6	0.05	0.47	0.120	80	15
760106											

TENNESSEE VALLEY AUTHORITY

STATION - 017012 WHEELER RESERVOIR TENNESSEE RIVER 307.52

DATE	TIME	00003 DEPTH FEET	00002 #SAMPLOC % FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00400 PH SU	00095 CNDUCTVY AT 25C MICROMHO
760106	0935	1	24	6.5	14.4	117.1	7.4	160
760106	0937	3	24	6.5	14.6	118.7	7.4	160
760106	0940	5	24	6.5	14.6	118.7	7.4	160
760106	0942	10	24	6.5	14.7	119.5	7.4	160
760106	0945	16	24	6.5	14.7	119.5	7.4	160
760106	1000	1	37	6.5	11.3	91.9	7.5	160
760106	1002	3	37	6.4	11.3	91.6	7.6	160
760106	1005	5	37	6.4	11.3	91.6	7.4	160
760106	1007	10	37	6.4	11.4	92.4	7.4	160
760106	1010	16	37	6.4	11.4	92.4	7.4	160
760106								
	NUMBER	10		10	10	10	10	10
	MAXIMUM	16		6.5	14.7	119.5	7.6	160
	MINIMUM	1		6.4	11.3	91.6	7.4	160
	SUM	70		64.6	129.7	1053.4	74.3	1600
	SUM SQ.	782		417.3	1708.8	112743.5	552.1	256000
	MEAN	7		6.5	13.0	105.3	7.4	160
	VARIANCE	32		0.0	3.0	198.4	0.0	0
	STD.DEV.	6		0.1	1.7	14.1	0.1	0
	STD.ERR.	2		0.0	0.5	4.5	0.0	0
	COEF VAR	81		0.8	13.3	13.4	0.9	0
	LOG MEAN	5		6.5	12.9	104.5	7.4	160
760106								

SECOND QUARTER

STATION - 017005 WHEELER RESERVOIR TENNESSEE RIVER 277.98

DATE	TIME	00003 DEPTH FEET	00002 MSAMPLOC % FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00400 PH SU	00095 CNDUCTVY AT 25C MICROMHO
760406	1205	1	83	17.9	10.3	109.3	8.0	180
760406	1207	3	83	17.2	11.0	115.0	8.4	180
760406	1209	5	83	16.5	10.8	111.2	8.3	180
760406	1211	10	83	15.8	9.3	94.3	7.8	180
760406	1213	16	83	15.7	9.2	93.1	7.8	180
760406	1215	26	83	15.3	8.2	82.3	7.4	180
760406	1218	36	83	15.2	8.0	80.1	7.4	180
760406								
NUMBER		7		7	7	7	7	7
MAXIMUM		36		17.9	11.0	115.0	8.4	180
MINIMUM		1		15.2	8.0	80.1	7.4	180
SUM		97		113.6	66.8	685.3	55.1	1260
SUM SQ.		2363		1849.8	646.1	66296.1	434.6	226800
MEAN		14		16.2	9.5	97.9	7.9	180
VARIANCE		170		1.0	1.4	199.7	0.2	0
STD.DEV.		13		1.0	1.2	14.1	0.4	0
STD.ERR.		5		0.4	0.5	5.3	0.1	0
COEF VAR		94		6.3	12.6	14.4	5.0	0
LOG MEAN		8		16.2	9.5	97.0	7.9	180
760406								

TENNESSEE VALLEY AUTHORITY

STATION - 017005 WHEELER RESERVOIR TENNESSEE RIVER 283.94

DATE	TIME	00003 DEPTH FEET	00002 MSAMPLOC % FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00310 BOD 5 DAY MG/L	00335 COD LOKLEVEL MG/L	00400 PH SU	00410 T ALK CACO3 MG/L	00095 CNDUCTVY AT 25C MICROMHO
760406	1053	1	16	17.6	9.1	95.5			7.4		170
760406	1055	3	16	16.8	9.0	93.3	1.4	8.0	7.4	58	160
760406	1057	5	16	16.7	9.2	95.2			7.4		170
760406	1059	10	16	16.6	9.0	91.7			7.4		170
760406	1101	16	16	16.0	8.9	90.7	1.3	7.0	7.4	57	160
760406	1103	20	16	15.7	8.8	89.1			7.4		170
760406	1105	26	16	15.5	8.2	82.6			7.3		180
760406	1110	1	40	17.8	9.5	98.9			7.6		180
760406	1112	3	40	17.0	9.3	96.8	1.4	6.0	7.6	75	160
760406	1114	5	40	16.8	9.3	96.6			7.6		180
760406	1116	10	40	16.8	8.6	87.6			7.5	58	180
760406	1118	16	40	16.0	8.4	85.6	1.0K	5.0	7.4	62	160
760406	1120	26	40	15.8	8.6	87.2			7.4		190
760406	1122	33	40	15.2	8.3	83.1	1.0K	5.0	7.5	72	180
760406	1130	1	78	17.0	9.6	99.9			7.5		170
760406	1132	3	78	16.7	9.5	98.3	1.6	7.0	7.5	57	160
760406	1134	5	78	16.7	9.4	97.2			7.4		160
760406	1136	10	78	16.0	9.0	91.7			7.4		170
760406	1138	16	78	16.0	9.0	91.7	1.3	6.0	7.4	56	160
760406	1140	20	78	16.0	9.2	93.7			7.4		180
760406	1142	33	78	14.7	8.8	87.1	1.1	7.0	7.4	81	180
760406											
NUMBER		21		21	21	21	8	8	21	9	21
MAXIMUM		33		17.8	9.6	99.9	1.6	8.0	7.6	81	190
MINIMUM		1		14.7	8.2	82.6	1.0K	5.0	7.3	56	160
SUM		263		241.8	188.7	1933.4	10.1	51.0	156.3	576	3590
SUM SQ.		5503		5546.4	1698.8	178527.0	13.1	333.0	1183.4	37576	615500
MEAN		13		16.2	9.0	92.1	1.3	6.4	7.4	64	171
VARIANCE		110		0.5	0.2	26.6	0.0	1.1	0.0	89	89
STD.DEV.		11		0.7	0.4	5.2	0.2	1.1	0.1	9	9
STD.ERR.		2		0.1	0.1	1.1	0.1	0.4	0.0	3	2
COEF VAR		84		4.2	4.4	5.6	16.9	16.6	1.1	15	6
LOG MEAN		8		16.2	9.0	91.9	1.2	6.3	7.4	63	171
760406											

DATE	TIME	00003 DEPTH FEET	00002 MSAMPLOC % FROM RT BANK	00929 SODIUM NA-TOT MG/L	00945 SULFATE SO4-TOT MG/L	00940 CHLORIDE CL MG/L	00610 NH3-N TOTAL MG/L	00630 NO2&NO3 N-TOTAL MG/L	00605 ORG N N MG/L	70300 RESIDUE DISS-180 C MG/L	00530 RESIDUE TOT NFLT MG/L
760406	1055	1	16	4.60	12	5	0.06	0.46	0.140	100	9
760406	1101	16	16	4.60	12	5	0.10	0.47	0.130	90	4
760406	1112	3	40	4.30	12	5	0.04	0.46	0.160	100	5
760406	1116	10	40				0.05	0.46	0.140		
760406	1118	16	40	4.30	12	5	0.06	0.47	0.120	90	4
760406	1122	33	40	3.20	11	4	0.06	0.50	0.100	100	9
760406	1132	3	78	4.70	9	5	0.04	0.48	0.160	90	7
760406	1138	16	78		9	5	0.13	0.48	0.060	80	6
760406	1142	33	78	2.40	11	3	0.11	0.54	0.110	100	8
760406											
NUMBER		21		7	8	8	9	9	9	8	8
MAXIMUM		33		4.70	12	5	0.13	0.54	0.160	100	9
MINIMUM		1		2.40	9	3	0.04	0.46	0.060	80	4
SUM		263		28.10	88	38	0.65	4.32	1.120	750	48
SUM SQ.		550.3		117.39	980	186	0.06	2.08	0.147	70700	312
MEAN		13		4.01	11	5	0.07	0.48	0.124	94	6
VARIANCE		110		0.76	2	1	0.00	0.00	0.001	55	3
STD.DEV.		11		0.87	1	1	0.03	0.03	0.012	7	2
STD.ERR.		2		0.31	0	0	0.01	0.01	0.011	3	1
COEF VAR		84		21.79	12	19	45.28	5.41	45.447	8	31
LOG MEAN		8		3.92	11	5	0.07	0.48	0.120	93	6
760406											

TENNESSEE VALLEY AUTHORITY

STATION - 017006 WHEELER RESERVOIR TENNESSEE RIVER 288.70

DATE	TIME	00003 DEPTH FEET	00002 MSAMPLOC % FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00400 PH SU	00095 CNDUCTVY AT 25C MICROMHO
760406	1110	1	41	16.8	9.3	96.4	7.6	180
760406	1112	3	41	16.0	8.8	89.7	7.6	180
760406	1114	5	41	15.8	8.6	87.2	7.4	180
760406	1116	10	41	15.7	8.6	87.0	7.4	180
760406	1118	16	41	15.7	8.6	87.0	7.4	180
760406	1120	20	41	15.6	8.6	86.9	7.4	180
760406								
	NUMBER	6		6	6	6	6	6
	MAXIMUM	20		16.8	9.3	96.4	7.6	180
	MINIMUM	1		15.6	8.6	86.9	7.4	180
	SUM	55		95.6	52.5	534.2	44.8	1080
	SUM SQ.	791		1524.2	459.8	47638.8	334.6	194400
	MEAN	9		15.9	8.7	89.0	7.5	180
	VARIANCE	57		0.2	0.1	14.1	0.0	0
	STD.DEV.	8		0.4	0.3	3.8	0.1	0
	STD.ERR.	3		0.2	0.1	1.5	0.0	0
	COEF VAR	83		2.8	3.2	4.2	1.4	0
	LOG MEAN	8		15.9	8.7	89.0	7.5	180
760406								

TENNESSEE VALLEY AUTHORITY

STATION - 017007 WHEELER RESERVOIR TENNESSEE RIVER 291.76

DATE	TIME	00003 DEPTH FEET	00002 MSAMPLOC % FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00310 BOD 5 DAY MG/L	00335 COD LOWLEVEL MG/L	00400 PH SU	00410 T ALK CACO3 MG/L	00095 CNDUCTVY AT 25C MICROMHO
									7.5		180
760406	0937	1	36	16.5	9.0	92.7			7.6	56	160
760406	0939	3	36	16.5	9.1	93.7	1.0	4.0	7.5		180
760406	0941	5	36	16.2	9.0	92.1			7.5	56	180
760406	0943	10	36	15.9	8.8	89.5	1.0K		7.5	56	160
760406	0945	16	36	15.9	8.8	89.5			7.5		180
760406	0947	20	36	15.9	8.8	89.5			7.4		170
760406	0955	1	60	16.5	9.3	95.8			7.4		170
760406	0957	3	60	16.5	9.3	95.8			7.4		170
760406	0959	5	60	16.2	9.3	95.2			7.4		170
760406	1001	10	60	16.2	9.2	94.1			7.4		170
760406	1010	1	84	16.3	9.1	93.3			7.4	60	160
760406	1012	3	84	16.0	9.1	92.7	1.0	16.0	7.4	57	160
760406	1013	3	84	16.3	9.1	93.3	1.0K	6.0	7.4		170
760406	1015	5	84	16.0	9.1	92.7			7.4		170
760406	1017	10	84	16.0	9.0	91.7			7.4	57	160
760406	1019	16	84	15.9	9.0	91.5	1.0	3.0	7.4		170
760406	1021	20	84	15.8	9.0	91.3					
760406											
	NUMBER	17		17	17	17	5	4	17	6	17
	MAXIMUM	20		16.5	9.3	95.8	1.0	16.0	7.6	60	180
	MINIMUM	1		15.8	8.8	89.5	1.0K	3.0	7.4	56	160
	SUM	132		274.6	154.0	1574.3	5.0	29.0	126.5	342	2880
	SUM SQ.	1726		4436.6	1395.5	145847.8	5.0	317.0	941.4	19506	488800
	MEAN	8		16.2	9.1	92.6	1.0	7.3	7.4	57	169
	VARIANCE	44		0.1	0.0	4.1	0.0	35.6	0.0	2	56
	STD.DEV.	7		0.2	0.2	2.0	0.0	6.0	0.1	2	7
	STD.ERR.	2		0.1	0.0	0.5	0.0	3.0	0.0	1	2
	COEF VAR	85		1.5	1.8	2.2	0.0	82.3	0.8	3	6
	LOG MEAN	5		16.2	9.1	92.6	1.0	5.8	7.4	57	169
760406											

DATE	TIME	00003 DEPTH FEET	00002 MSAMPLOC % FROM RT BANK	00929 SODIUM NA,TOT MG/L	00945 SULFATE SO4-TOT MG/L	00940 CHLORIDE CL MG/L	00610 NH3-N TOTAL MG/L	00630 NO2&NO3 N-TOTAL MG/L	00605 ORG N N MG/L	70300 RESIDUE DISS-180 C MG/L	00530 RESIDUE TOT NFLT MG/L
760406	0939	3	36	4.40	9	6	0.06	0.45	0.130	90	6
760406	0943	10	36				0.06	0.45	0.120		
760406	0945	16	36	4.40	11	6	0.07	0.45	0.100	90	9
760406	1012	3	84	4.60	14	5	0.08	0.46	0.140	90	6
760406	1013	3	84	4.60	14	5	0.07	0.45	0.130	90	5
760406	1019	16	84	4.60	14	5	0.13	0.46	0.080	90	7
760406											
	NUMBER	17		5	5	5	6	6	6	5	5
	MAXIMUM	20		4.60	14	6	0.13	0.46	0.140	90	9
	MINIMUM	1		4.40	9	5	0.06	0.45	0.080	90	5
	SUM	132		22.60	62	27	0.47	2.72	0.700	450	33
	SUM SQ.	1726		102.20	790	147	0.04	1.21	0.084	40500	227
	MEAN	8		4.52	12	5	0.08	0.45	0.117	90	7
	VARIANCE	44		0.01	5	0	0.00	0.00	0.001	0	2
	STD.DEV.	7		0.11	2	1	0.03	0.01	0.023	0	2
	STD.ERR.	2		0.05	1	0	0.01	0.00	0.009	0	1
	COEF VAR	85		2.43	19	10	33.70	1.15	19.694	0	23
	LOG MEAN	5		4.52	12	5	0.08	0.45	0.115	90	6
760406											

TENNESSEE VALLEY AUTHORITY

STATION - 017008 WHEELER RESERVOIR TENNESSEE RIVER 297.70

DATE	TIME	00003 DEPTH FEET	00002 MSAMPLOC % FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00400 PH SU	00095 CNDUCTVY AT 25C MICROMHO
760406	0915	1	65	16.0	8.9	90.7	7.3	170
760406	0917	3	65	16.0	8.9	90.7	7.3	170
760406	0919	5	65	15.9	8.9	90.5	7.3	170
760406	0921	10	65	15.8	8.8	89.3	7.3	170
760406	1028	1	88	17.5	10.2	107.3	7.9	160
760406	1030	3	88	16.5	9.5	97.8	7.7	160
760406	1032	5	88	16.2	9.0	92.1	7.6	170
760406	1034	10	88	16.0	8.8	89.7	7.4	180
760406	1036	16	88	15.6	8.6	86.9	7.4	180
760406	1038	26	88	15.6	8.6	86.9	7.4	180
760406	1040	30	88	15.6	8.7	87.9	7.4	180
760406								
NUMBER		11		11	11	11	11	11
MAXIMUM		30		17.5	10.2	107.3	7.9	180
MINIMUM		1		15.6	8.6	86.9	7.3	160
SUM		110		176.7	98.9	1009.6	82.8	1890
SUM SQ.		2102		2841.5	891.4	93012.5	611.7	325300
MEAN		10		16.1	9.0	91.8	7.5	172
VARIANCE		100		0.3	0.2	35.8	0.0	56
STD.DEV.		10		0.6	0.5	6.0	0.2	8
STD.ERR.		3		0.2	0.1	1.8	0.1	2
COEF VAR		100		3.4	5.2	6.5	2.6	4
LOG MEAN		6		16.1	9.0	91.6	7.5	172
760406								

TENNESSEE VALLEY AUTHORITY

STATION - 017009 WHEELER RESERVOIR TENNESSEE RIVER 295.87

DATE	TIME	00003 DEPTH FEET	00002 MSAMPLOC % FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00310 BOD 5 DAY MG/L	00335 COD LOWLEVEL MG/L	00400 PH SU	00410 T ALK CACO3 MG/L	00095 CNDUCTVY AT 25C MICROMHO
760406	0850	1	44	16.0	8.8	89.7			7.4		180
760406	0852	3	44	15.8	8.8	89.3	1.0K	4.0	7.4	57	180
760406	0854	5	44	15.7	8.7	88.1			7.4		180
760406	0900	10	44	15.6	8.6	86.9			7.4	58	180
760406	0905	16	44	15.5	8.6	86.7	1.0K	5.0	7.4	56	180
760406	0907	23	44	15.4	8.6	86.5			7.4		180
760406	0912	1	82	16.5	9.8	100.9			7.4		160
760406	0914	3	82	16.5	9.7	99.9			7.4		160
760406	0916	5	82	16.5	9.6	98.9			7.4		160
760406	0918	10	82	16.5	9.6	98.9			7.4		160
760406											
NUMBER		10		10	10	10	2	2	10	3	10
MAXIMUM		23		16.5	9.8	100.9	1.0K	5.0	7.4	57	180
MINIMUM		1		15.4	8.6	86.5	1.0K	4.0	7.4	56	160
SUM		77		160.0	90.8	925.5	2.0	9.0	74.0	169	1720
SUM SQ.		1055		2561.9	826.9	86007.7	2.0	41.0	547.6	9521	296800
MEAN		8		16.0	9.1	92.6	1.0	4.5	7.4	56	172
VARIANCE		51		0.2	0.3	38.7	0.0	0.5	0.0	0	107
STD.DEV.		7		0.5	0.5	6.2	0.0	0.7	0.0	1	10
STD.ERR.		2		0.1	0.2	2.0	0.0	0.5	0.0	0	3
COEF VAR		93		2.9	5.7	6.7	0.0	15.7	0.1	1	6
LOG MEAN		5		16.0	9.1	92.4	1.0	4.5	7.4	56	172
760406											

DATE	TIME	00003 DEPTH FEET	00002 MSAMPLOC % FROM RT BANK	00929 SODIUM NA,TOT MG/L	00945 SULFATE SO4-TOT MG/L	00940 CHLORIDE CL MG/L	00610 NH3-N TOTAL MG/L	00630 NO2&NO3 N-TOTAL MG/L	00605 ORG N N MG/L	70300 RESIDUE D155-180 C MG/L	00530 RESIDUE TOT NFLT MG/L
760406	0852	3	44	4.10	14	5	0.05	0.46	0.130	90	3
760406	0900	10	44				0.06	0.47	0.100		
760406	0905	16	44	4.20	8	5	0.09	0.48	0.210	90	4
760406											
NUMBER		10		2	2	2	3	3	3	2	2
MAXIMUM		23		4.20	14	5	0.09	0.48	0.210	90	4
MINIMUM		1		4.10	8	5	0.05	0.47	0.100	90	3
SUM		77		8.30	22	10	0.20	1.43	0.440	180	7
SUM SQ.		1055		34.45	260	50	0.01	0.68	0.071	16200	25
MEAN		8		4.15	11	5	0.07	0.48	0.147	90	4
VARIANCE		51		0.00	18	0	0.00	0.00	0.003	0	1
STD.DEV.		7		0.07	4	0	0.02	0.01	0.057	0	1
STD.ERR.		2		0.05	3	0	0.01	0.00	0.033	0	1
COEF VAR		93		1.70	39	0	31.23	1.21	38.770	0	20
LOG MEAN		5		4.15	11	5	0.06	0.48	0.140	90	3
760406											

TENNESSEE VALLEY AUTHORITY

STATION - 017012 WHEELER RESERVOIR TENNESSEE RIVER 307.52

DATE TIME	00003 DEPTH FEET	00082 HSAMPLOC % FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00400 PH SU	00095 CNDUCTVY AT 25C MICROMHO
760406 0853	1	24	15.5	8.8	88.7	7.4	180
760406 0855	3	24	15.5	8.8	88.7	7.4	180
760406 0857	5	24	15.5	8.8	88.7	7.4	180
760406 0900	10	24	15.5	8.8	88.7	7.4	170
760406 0905	16	24	15.5	8.8	88.7	7.4	180
760406 0907	20	24	15.5	8.8	88.7	7.4	180
760406 0913	1	37	15.5	8.6	86.7	7.4	180
760406 0914	3	37	15.6	8.6	86.9	7.4	180
760406 0915	5	37	15.5	8.6	86.7	7.4	180
760406 0916	10	37	15.5	8.7	87.7	7.4	180
760406 0918	16	37	15.5	8.7	87.7	7.4	180
760406 0920	20	37	15.5	8.7	87.7	7.4	180
760406							
NUMBER	12		12	12	12	12	12
MAXIMUM	20		15.6	8.8	88.7	7.4	180
MINIMUM	1		15.5	8.6	86.7	7.4	170
SUM	110		186.1	104.7	1055.2	88.8	2150
SUM SQ.	1582		2886.1	913.6	92800.3	657.1	385300
MEAN	9		15.5	8.7	87.9	7.4	179
VARIANCE	52		0.0	0.0	0.7	0.0	8
STD.DEV.	7		0.0	0.1	0.9	0.0	3
STD.ERR.	2		0.0	0.0	0.2	0.0	1
COEF VAR	79		0.2	1.0	1.0	0.1	2
LOG MEAN	6		15.5	8.7	87.9	7.4	179
760406							

THIRD QUARTER

TENNESSEE VALLEY AUTHORITY
DIVISION OF ENVIRONMENTAL PLANNING

STATION - 0170C3 WHEELER RESERVOIR TENNESSEE RIVER 277.3R

DATE	TIME	DATE	TIME	00003 DEPTH FEET	00032 HSAMPLDC & FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00400 PH SU	00094 CNDUCTVY AT 25C MICROMHO
		76CT01	1143	1	93	26.4	9.5	109.9	8.3	150
		76CT01	1147	3	93	26.1	9.5	108.2	8.4	160
		76CT01	1148	5	83	26.0	7.8	97.2	8.2	150
		76CT01	1150	10	93	25.8	7.0	86.9	7.5	160
		76CT01	1152	15	93	25.7	6.6	64.3	7.8	160
		76CT01	1154	25	83	25.7	6.4	79.1	7.6	160
		76CT01	1156	33	93	25.5	5.3	65.4	7.2	160
		76CT01	1158	36	83	25.0	4.3	52.3	7.2	150
		76CT01	1200	43	83	25.3	4.1	50.1	7.1	170
		76CT01	1202	46	83	24.9	3.2	38.8	7.0	180
		76CT01	1204	49	83	24.0	2.6	28.8	7.0	190
760101										
NUMBER				11		11	11	11	11	11
MAXIMUM				49		26.4	9.5	108.8	8.4	190
MINIMUM				1		24.0	2.6	28.8	7.0	140
SUM				186		277.7	64.3	776.5	93.6	1801
SUM SQ.				9919		711.3	420.9	9499.2	876.2	322260
MEAN				24		25.4	5.8	72.4	7.6	153
VARIANCE				329		0.5	4.5	730.8	0.3	107
STD.DEV.				18		0.7	2.1	27.0	0.5	10
STD.ERR.				5		0.2	0.6	8.2	0.2	3
COEF VAR				74		2.8	36.3	37.3	7.0	6
LOG MEAN				15		25.4	5.4	67.1	7.6	153
760101										

TENNESSEE VALLEY AUTHORITY
DIVISION OF ENVIRONMENTAL PLANNING

STATION - 017000 WHEELER RESERVOIR TENNESSEE RIVER 283.9A

DATE	TIME	DATE	TIME	00003 DEPTH FEET	00032 HSAMPLDC & FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00310 BOD 5 DAY MG/L	00315 COD LOW LEVEL MG/L	00400 PH SU	00410 T ALK CACO3 MG/L	00095 CNDUCTVY AT 25C MICROMHO
		76CF01	1027	1	16	27.2	9.3	119.6			8.8		150
		76CF01	1027	3	16	27.0	9.3	119.2	3.8	9.0	8.7	48	150
		76CF01	1027	5	16	26.3	8.7	107.5			8.6		150
		76CF01	1031	10	16	25.4	8.0	100.5			8.2		150
		76CF01	1033	15	16	25.7	7.4	92.6	1.8	9.0	7.9	48	150
		76CF01	1034	23	16	25.7	7.4	92.6			7.8		150
		76CF01	1035	25	16	25.8	7.8	97.3			8.5		150
		76CF01	1036	25	16	25.7	6.1	75.9			7.3		150
		76CF01	1038	26	16	25.4	5.4	66.6			7.2		150
		76CF01	1040	33	16	25.1	4.1	50.2			7.0		150
		76CF01	1045	1	40	25.4	8.0	100.3			8.0		150
		76CF01	1047	3	40	25.3	7.5	94.7	1.9	8.0	7.9	44	150
		76CF01	1049	5	40	25.3	6.6	82.1			7.5		150
		76CF01	1051	10	40	25.6	6.2	77.9			7.4	44	150
		76CF01	1053	15	40	25.5	6.1	75.9	1.0K	6.0	7.4	44	150
		76CF01	1055	26	40	25.9	6.6	82.9			7.8		150
		76CF01	1057	30	40	25.4	5.7	70.3			7.8		150
		76CF01	1059	33	40	25.2	5.2	63.5			7.6		150
		76CF01	1110	1	78	26.5	7.6	93.1			7.9		150
		76CF01	1112	3	78	26.2	7.3	91.4	2.9	7.0	7.7	47	150
		76CF01	1114	5	78	26.3	7.3	91.0			7.7		150
		76CF01	1116	10	78	25.3	7.1	87.0			7.8		150
		76CF01	1118	16	78	26.0	7.2	89.5	1.8	8.0	7.7	49	150
		76CF01	1120	23	78	26.0	7.0	87.3			7.9		150
		76CF01	1122	30	78	25.9	6.7	83.9			7.8		150
		76CF01	1124	33	78	25.2	6.4	78.6	1.3	6.0	7.7	50	150
		76CF01	1125	33	78	25.3	6.9	85.2	1.5	6.0	7.7		150
760701													
NUMBER				27		27	27	27	8	8	27	8	27
MAXIMUM				33		27.2	9.3	119.6	3.8	9.0	8.8	56	190
MINIMUM				1		25.1	4.1	50.2	1.0K	6.0	7.0	44	150
SUM				437		701.4	198.4	2391.1	15.6	57.0	209.5	375	4170
SUM SQ.				10575		1922.3	1350.1	2108.8	35.7	417.0	1838.4	17942	646100
MEAN				16		26.0	7.3	87.1	1.9	7.1	7.8	47	154
VARIANCE				135		0.3	1.4	235.2	0.8	1.0	0.2	12	90
STD.DEV.				12		0.5	1.2	15.3	0.9	1.4	0.4	3	9
STD.ERR.				2		0.1	0.2	3.0	0.3	0.5	0.1	1	2
COEF VAR				72		1.9	16.7	17.6	44.6	19.8	5.6	7	6
LOG MEAN				10		26.0	4.7	85.7	1.8	7.0	7.7	47	155
760701													

DATE	TIME	DATE	TIME	00003 DEPTH FEET	00032 HSAMPLDC & FROM RT BANK	00929 SODIUM DISSOLVED MG/L	00945 SULFATE SO4 TOT MG/L	00940 CHLORIDE CL MG/L	00610 NH3+NH4 TOTAL MG/L	00625 TOT KJEL N MG/L	00630 N02&03 N-TOTAL MG/L	70300 RESIDUE DISS-180 C MG/L	00535 RESIDUE VOLATILE MG/L
		76CF01	1025	1	16								
		76CF01	1027	3	16	5.50	11	6	0.02	0.220	0.07	90	8
		76CF01	1029	5	16								
		76CF01	1031	10	16								
		76CF01	1033	14	16	5.30	11	6	0.06	0.210	0.14	80	7
		76CF01	1034	20	16								
		76CF01	1035	23	16								
		76CF01	1036	23	16								
		76CF01	1038	26	16								
		76CF01	1040	30	16								
		76CF01	1045	1	40								
		76CF01	1047	3	40	5.20	11	7	0.01	0.170	0.16	80	8
		76CF01	1049	5	40								
		76CF01	1051	10	40				0.06	0.140	0.17		
		76CF01	1053	16	40	5.20	10	6	0.06	0.130	0.16	83	9
		76CF01	1059	26	40								
		76CF01	1057	30	40								
		76CF01	1059	33	40								
		76CF01	1110	1	78								
		76CF01	1112	3	78	5.00	11	5	0.03	0.150	0.17	90	8
		76CF01	1114	5	78								
		76CF01	1116	10	78								
		76CF01	1118	16	78	4.90	10	6	0.03	0.220	0.14	80	8
		76CF01	1120	23	78								
		76CF01	1122	30	78								
		76CF01	1124	33	78	5.40	10	5	0.04	0.220	0.13	80	8
		76CF01	1125	33	78	5.00	10	5	0.04	0.190	0.13	90	9
760701													
NUMBER				27		8	8	8	8	7	8	8	8
MAXIMUM				33		5.50	11	7	0.06	0.220	0.17	90	9
MINIMUM				1		4.90	10	5	0.01	0.130	0.07	80	7
SUM				437		41.50	84	46	0.33	1.520	1.027	673	63
SUM SQ.				10973		219.57	884	258	0.01	0.331	0.19	56303	559
MEAN				16		5.19	11	6	0.04	0.193	0.14	96	8
VARIANCE				135		0.04	0	1	0.00	0.331	0.003	27	1
STD.DEV.				12		0.21	1	1	0.02	0.0575	0.05	5	1
STD.ERR.				2		0.07	0	0	0.01	0.0217	0.01	2	0
COEF VAR				72		4.05	5	12	45.73	29.765	41.53	5	13
LOG MEAN				10		5.18	10	6	0.03	0.177	0.14	94	9
760701													

TENNESSEE VALLEY AUTHORITY
DIVISION OF ENVIRONMENTAL PLANNING

STATION = CL7C04 WHEELER RESERVOIR TENNESSEE RIVER 295.7R

DATE	TIME	DATE	TIME	00003 DEPTH FEET	00032 %SAMPLDP FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00400 PH SU	00095 CNDUCTVY AT 25C MICROMHO
		76C7C1	1053	1	41	25.3	5.5	108.2	8.1	150
		76C7C1	1057	3	41	26.1	7.8	97.4	7.5	160
		76C7C1	1059	5	41	25.9	7.2	89.4	7.5	150
		76C7C1	1101	7	41	25.6	6.1	75.5	7.4	160
		76C7C1	1103	10	41	25.6	5.8	71.8	7.3	150
		76C7C1	1105	15	41	25.5	6.2	76.6	7.4	160
		76C7C1	1107	20	41	25.5	6.0	74.1	7.4	160
760701										
NUMBER				7		7	7	7	7	7
MAXIMUM				20		26.5	8.6	108.2	8.1	160
MINIMUM				1		25.5	5.5	71.8	7.3	150
SUM				62		180.6	47.7	593.0	52.9	1103
SUM SQ.				840		4550.3	331.9	31430.3	400.3	173300
MEAN				9		25.8	6.8	84.7	7.6	157
VARIANCE				46		0.1	1.1	194.9	0.1	24
STD.DEV.				7		0.4	1.1	14.0	0.3	5
STD.ERR.				3		0.1	0.4	5.3	0.1	2
COEF VAR				79		1.5	15.7	16.5	3.8	3
LOG MEAN				6		25.8	6.7	83.8	7.6	157
760701										

TENNESSEE VALLEY AUTHORITY
DIVISION OF ENVIRONMENTAL PLANNING

STATION = CL7C07 WHEELER RESERVOIR TENNESSEE RIVER 291.7R

DATE	TIME	DATE	TIME	00003 DEPTH FEET	00032 %SAMPLDP FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00310 BOD 5 DAY MG/L	00335 COD LOW LEVEL MG/L	00400 PH SU	00410 T ALK CACO3 MG/L	00095 CNDUCTVY AT 25C MICROMHO
		76C7C1	0934	1	36	25.7	6.6	81.8			7.4		153
		76C7C1	0940	3	36	25.7	5.9	74.4	1.0	7.0	7.2	43	153
		76C7C1	0942	5	36	25.4	5.8	71.5			7.2		150
		76C7C1	0944	10	36	25.3	5.6	68.9			7.2	45	153
		76C7C1	0946	15	36	25.3	5.6	68.9	1.0K	6.0	7.2	45	153
		76C7C1	0948	20	36	25.3	5.6	68.9			7.2		150
		76C7C1	0955	1	60	25.7	6.5	80.6			7.4		150
		76C7C1	0957	3	60	25.6	6.5	80.4			7.4		150
		76C7C1	0959	5	60	25.6	6.4	79.2			7.4		153
		76C7C1	1001	10	60	25.4	6.3	77.6			7.3		150
		76C7C1	1005	1	84	25.9	6.3	78.4			7.4		153
		76C7C1	1007	3	84	25.5	5.9	72.7	1.0	5.0	7.2	50	150
		76C7C1	1009	5	84	25.4	5.8	71.6			7.2		150
		76C7C1	1011	10	84	25.4	5.8	71.5			7.2		150
		76C7C1	1013	16	84	25.3	5.9	72.6	1.1	6.0	7.2	49	150
		76C7C1	1015	23	84	25.3	6.1	75.0			7.2		150
760701													
NUMBER				16		16	16	16	4	4	16	8	16
MAXIMUM				23		25.9	6.6	81.8	1.1	7.0	7.4	50	153
MINIMUM				1		25.3	5.6	68.9	1.0K	6.0	7.2	43	150
SUM				332		407.9	96.7	1194.2	4.1	28.0	116.3	235	2400
SUM SQ.				5545		10373.4	596.2	33424.3	4.2	157.0	846.5	11074	360300
MEAN				9		25.5	6.0	74.6	1.0	6.3	7.3	47	150
VARIANCE				50		0.0	0.1	20.0	0.0	0.3	0.0	9	3
STD.DEV.				7		0.2	0.3	4.5	0.1	0.5	0.1	3	0
STD.ERR.				2		0.0	0.1	1.1	0.0	0.3	0.0	1	0
COEF VAR				26		0.9	5.7	6.0	4.9	8.0	1.3	6	0
LOG MEAN				9		25.5	6.0	74.5	1.0	6.2	7.3	47	150
760701													

DATE	TIME	DATE	TIME	00003 DEPTH FEET	00032 %SAMPLDP FROM RT BANK	00329 SILICA REACTIVE MG/L SI	00945 SULFATE SO4 MG/L	01940 CHLORIDE CL MG/L	00610 NH3-N TOTAL MG/L	00625 TKN N MG/L	00630 NO2&NO3 N-TOT/L MG/L	00631 NO2&NO3 DISS-1RG G MG/L	00620 RESIDUE TOT VOLT MG/L
		76C7C1	0938	1	36								
		76C7C1	0943	3	36	5.00	9	6	0.06	0.100	0.32	90	7
		76C7C1	0942	5	36								
		76C7C1	0944	10	36				0.07	0.150	0.24		
		76C7C1	0946	16	36	4.90	10	6	0.07		0.24	93	13
		76C7C1	0948	20	36								
		76C7C1	0955	1	60								
		76C7C1	0957	3	60								
		76C7C1	0959	5	60								
		76C7C1	1001	10	60								
		76C7C1	1005	1	84								
		76C7C1	1007	3	84	4.80	10	6				93	9
		76C7C1	1009	5	84								
		76C7C1	1011	10	84								
		76C7C1	1013	16	84	4.90	10	6				90	12
		76C7C1	1015	23	84								
760701													
NUMBER				16		4	4	4	3	2	3	4	4
MAXIMUM				23		5.00	10	6	0.07	0.150	0.32	90	13
MINIMUM				1		4.80	9	6	0.06	0.100	0.24	90	7
SUM				132		19.10	39	24	0.20	0.250	0.80	360	41
SUM SQ.				1445		91.93	351	144	0.01	0.032	0.22	32403	443
MEAN				9		4.77	10	6	0.07	0.125	0.27	90	10
VARIANCE				50		0.04	0	0	0.00	0.001	0.00	0	9
STD.DEV.				7		0.21	1	0	0.01	0.035	0.05	0	3
STD.ERR.				2		0.10	0	0	0.00	0.025	0.03	0	1
COEF VAR				66		4.32	5	0	8.55	28.214	17.32	0	27
LOG MEAN				9		4.77	10	6	0.07	0.122	0.26	90	10
760701													

TENNESSEE VALLEY AUTHORITY
DIVISION OF ENVIRONMENTAL PLANNING

STATION - 017009 WHEELER RESERVOIR TENNESSEE RIVER 293.7J

DATE	TIME	DATE	TIME	00003 DEPTH FEET	00032 %SAMPLOC % FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00310 BOD 5 DAY MG/L	00335 COD LOWLEVEL MG/L	00400 PH SU	00410 T ALK CACO3 MG/L	00095 CNDUCTVY AT 25C MICROMHO
		76C7C1	0922	1	65	25.4	6.3	77.6			7.3		150
		76C7C1	0924	3	65	25.2	6.0	73.7			7.2		150
		76C7C1	0926	5	65	25.2	6.0	73.7			7.2		150
		76C7C1	0928	10	65	25.1	5.9	72.3			7.2		150
		76C7C1	1010	1	88	25.5	6.5	80.3			7.3		150
		76C7C1	1012	3	88	25.3	6.3	77.5			7.3		150
		76C7C1	1014	5	88	25.2	5.8	71.2			7.2		150
		76C7C1	1016	10	88	25.0	5.8	70.9			7.2		150
		76C7C1	1018	16	88	25.0	5.6	69.5			7.2		150
		76C7C1	1020	26	88	25.0	5.6	69.5			7.2		160
		76C7C1	1022	30	88	25.0	5.6	68.5			7.2		160
760701													
NUMBER				11		11	11	11			11		11
MAXIMUM				30		25.5	6.5	80.3			7.3		150
MINIMUM				1		25.0	5.6	68.5			7.2		150
SUM				110		276.9	65.4	802.7			79.5		1670
SUM SQ.				1102		6870.5	388.8	58760.3			574.6		253700
MEAN				10		25.2	5.9	73.0			7.2		152
VARIANCE				100		0.0	0.1	16.4			0.0		16
STD.DEV.				10		0.2	0.3	4.1			0.0		4
STD.ERR.				3		0.1	0.1	1.2			0.0		1
COEF VAR				100		0.7	5.2	5.6			0.7		3
LOG MEAN				0		25.2	5.9	72.9			7.2		152
760701													

TENNESSEE VALLEY AUTHORITY
DIVISION OF ENVIRONMENTAL PLANNING

STATION - 017009 WHEELER RESERVOIR TENNESSEE RIVER 293.7J

DATE	TIME	DATE	TIME	00003 DEPTH FEET	00032 %SAMPLOC % FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DO SATUR PERCENT	00310 BOD 5 DAY MG/L	00335 COD LOWLEVEL MG/L	00400 PH SU	00410 T ALK CACO3 MG/L	00095 CNDUCTVY AT 25C MICROMHO
		76C7C1	0900	1	44	25.3	6.3	78.8			7.2		150
		76C7C1	0902	3	44	25.2	5.9	72.4	1.1	5.0	7.2	46	150
		76C7C1	0904	5	44	25.1	5.8	71.1			7.2		150
		76C7C1	0906	10	44	25.0	5.5	68.5			7.2	43	160
		76C7C1	0908	16	44	24.9	5.6	68.4	1.0K	7.0	7.2	44	150
		76C7C1	0910	26	44	24.9	5.6	68.4			7.2		150
		76C7C1	0914	1	82	25.8	7.8	96.9			8.0		140
		76C7C1	0916	3	82	25.6	7.3	90.3			7.6		140
		76C7C1	0917	5	82	25.5	7.1	87.7			7.6		140
		76C7C1	0919	10	82	25.4	6.9	85.0			7.5		140
		76C7C1	0921										
760701													
NUMBER				10		10	10	10	2	2	10	3	10
MAXIMUM				26		25.8	7.8	96.9	1.1	5.0	8.0	46	160
MINIMUM				1		24.9	5.5	68.4	1.0K	5.0	7.2	43	140
SUM				90		252.7	63.6	782.5	2.1	12.0	73.9	133	1470
SUM SQ.				1202		6385.5	413.7	62249.5	2.2	74.0	546.8	5931	215300
MEAN				8		25.3	6.4	78.2	1.0	6.0	7.4	44	147
VARIANCE				62		0.1	0.7	113.7	0.0	2.0	0.1	2	45
STE.DEV.				8		0.3	0.8	10.7	0.1	1.4	0.3	2	7
STD.ERR.				2		0.1	0.3	3.4	0.1	1.0	0.1	1	2
COEF VAR				99		1.2	13.0	13.6	5.7	23.5	3.7	3	5
LOG MEAN				5		25.3	6.3	77.6	1.0	5.9	7.4	46	147
760701													

DATE	TIME	DATE	TIME	00003 DEPTH FEET	00032 %SAMPLOC % FROM RT BANK	00929 SODIUM DISSOLVED MG/L	00945 SULFATE SO4-TOT MG/L	00940 CHLORIDE CL MG/L	00610 NH3-N TOTAL MG/L	00605 ORG N TOTAL MG/L	00620 NO2&NO3 N-TOTAL MG/L	70300 RESIDUE DISS-180 C MG/L	00530 RESIDUE TOT NFLT MG/L
		76C7C1	0700	1	44								
		76C7C1	0902	3	44	5.00	10	8	0.08	0.140	0.24	80	27
		76C7C1	0904	5	44								
		76C7C1	0906	10	44				0.09	0.110	0.23		
		76C7C1	0908	16	44	5.00	10	7	0.10	0.140	0.23	90	9
		76C7C1	0910	26	44								
		76C7C1	0914	1	82								
		76C7C1	0916	3	82								
		76C7C1	0917	5	82								
		76C7C1	0919	10	82								
		76C7C1	0921										
760701													
NUMBER				10		2	2	2	3	3	3	2	2
MAXIMUM				26		5.00	10	8	0.10	0.140	0.24	90	27
MINIMUM				1		5.00	10	7	0.09	0.110	0.23	80	9
SUM				90		10.00	20	15	0.27	0.370	0.70	170	35
SUM SQ.				1232		50.00	200	113	0.02	0.054	0.16	14500	793
MEAN				8		5.00	10	8	0.09	0.123	0.23	85	18
VARIANCE				92		0.00	0	1	0.00	0.010	0.00	50	181
STE.DEV.				9		0.00	0	1	0.01	0.017	0.01	7	13
STD.ERR.				2		0.00	0	1	0.01	0.010	0.00	5	10
COEF VAR				99		0.00	0	7	11.11	13.576	2.47	9	77
LOG MEAN				5		5.00	10	7	0.09	0.123	0.23	85	15
760701													

TENNESSEE VALLEY AUTHORITY
DIVISION OF ENVIRONMENTAL PLANNING

STATION - C17C12 WHEELER RESERVOIR TENNESSEE RIVER 307.52

DATE	TIME	DATE	TIME	00003 DEPTH FEET	00032 %SAMPLDC FROM RT BANK	00010 WATER TEMP CENT	00300 DO MG/L	00301 DC SATUR PERCENT	00400 PH SU	00095 CNDUCTVY AT 25C MICROMHO
		76C7C1	C850	1	24	25.2	5.9	72.4	7.2	150
		76C7C1	C852	3	24	25.2	5.6	68.8	7.2	150
		76C7C1	C854	5	24	25.2	5.5	67.5	7.2	150
		76C7C1	C856	10	24	25.2	5.4	66.3	7.2	150
		76C7C1	C858	16	24	25.2	5.4	66.3	7.2	150
		76C7C1	C905	1	37	25.2	5.8	71.2	7.2	150
		76C7C1	C907	3	37	25.2	5.6	68.8	7.2	150
		76C7C1	0909	5	37	25.2	5.6	68.8	7.2	150
		76C7C1	C911	10	37	25.2	5.5	67.5	7.2	150
		76C7C1	C914	16	37	25.2	5.5	67.5	7.2	150
760701										
NUMBER				10		10	10	10	10	10
MAXIMUM				16		25.2	5.9	72.4	7.2	150
MINIMUM				1		25.2	5.4	66.3	7.2	150
SUM				70		252.0	55.3	685.1	72.0	1500
SUM SQ.				782		6350.4	311.5	46975.8	518.4	225000
MEAN				7		25.2	5.6	68.5	7.2	150
VARIANCE				32		0.0	0.0	4.0	0.0	0
STD.DEV.				6		0.0	0.2	2.0	0.0	0
STD.ERR.				2		0.0	0.1	0.6	0.0	0
COEF VAR				81		0.0	2.9	2.9	0.1	0
LOG MEAN				5		25.2	5.6	68.5	7.2	150
760701										

Table 11

NUMERICAL DIVERSITY OF ZOOPLANKTON SPECIES BY MAJOR GROUPS

BROWNS FERRY NUCLEAR PLANT - ALL SEASONS 1973, 1974, 1975, and 1976

	Control (Above BFNP)[a]	Below BFNP[b]
Different Type Species Found at Some Location During Only Preoperational Monitoring (Winter, Spring, Summer 1973)		
Cladocera	2	1
Copepoda	2	2
Rotifera	2	5
Different Type Species Found at Some Location During Only Operational Monitoring (Fall 1973, All Seasons 1974, 1975, and 1976		
Cladocera	10	12
Copepoda	4	9
Rotifera	11	12
Different Type Species Found at Some Location During Preoperational and Operational Monitoring (All Seasons 1973, 1974, 1975, and 1976)		
Cladocera	14	17
Copepoda	11	10
Rotifera	26	26

a. TRM 296, 301, 308
b. TRM 278, 284, 289, 292, 294

Table 12

ZOOPLANKTON ENUMERATION

BROWNS FERRY NUCLEAR PLANT

(Organisms/m^3)

	Preoperational				Operational											
	1973				1974				1975				1976			
TRM	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
277.98	1,821	2,155	191,959	23,684	1,506	735	208,372	12,527	1,975	1,793	184,544	8,895	2,690	45,323	355,219	95,956
283.94	-	2,121	100,572	17,826	1,194	923	203,530	8,780	1,011	2,259	212,561	3,725	2,690	4,541	114,543	46,801
288.78	4,320	1,866	27,394	8,931	3,067	873	79,827	6,658	1,319	1,207	22,530	1,698	2,964	4,093	114,306	29,003
291.78	3,389	2,830	11,835	19,962	1,514	662	53,560	5,537	1,709	1,891	28,829	1,835	2,353	4,464	39,343	7,098
293.70	4,773	1,342	23,499	5,144	1,254	753	39,593	4,891	1,350	1,860	31,711	2,605	1,524	5,756	94,587	5,305
295.87	4,656	2,029	8,744	2,521	1,727	719	33,335	8,702	2,113	2,039	11,842	2,243	2,204	1,158	9,481	2,037
301.06	4,526	2,043	5,077	1,624	2,522	607	18,640	3,145	1,486	941	14,204	1,484	2,300	1,961	8,114	2,136
307.52	4,454	1,722	18,029	3,402	3,098	1,010	11,088	6,310	1,418	918	12,725	1,773	3,050	1,802	8,309	1,907
Mean	3,991	2,013	48,389	10,387	1,986	785	80,993	7,069	1,548	1,613	64,868	3,032	2,472	8,637	92,988	23,780

Table 13

CORBICULA POPULATIONS BY YEAR

BROWNS FERRY NUCLEAR PLANT

		Corbicula/m^2 (mean values)							
		Winter				All Seasons			
	Year	All Stations[a]	Control[b]	Below BFNP[c]	Percentage Increase Below BFNP	All Stations[a]	Control[b]	Below BFNP[c]	Percentage Increase Below BFNP
Preoperational	1969	111	68	133	96	164	147	172	17
	1970	111	58	132	128	112	57	139	144
	1971	71	60	76	27	103	54	127	135
	1972	128	91	146	60	153	72	192	167
	1973	105	44	142	223	Data included in preoperational and operational			
Operational	1974	161	58	223	284	153	72	202	181
	1975	145	100	173	73	150	97	182	88
	1976	163	136	179	32	Same as winter 1976 (only samples taken)			

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.78, 288.78, 291.76, 293.70

Table 14

CORBICULA POPULATIONS BY STATIONS

BROWNS FERRY NUCLEAR PLANT

	Corbicula/m^2 (mean values)				
	Preoperational		Operational		
TRM	All Seasons	All Winters	Winter 1974	Winter 1975	Winter 1976
277.98	83	59	88	44	81
283.94	119	68	241	143	143
288.78	209	196	191	183	262
291.76	187	157	400	283	232
293.70	149	100	191	211	179
295.87[a]	108	85	132	195	216
301.06[a]	46	55	20	80	135
307.52[a]	64	45	22	24	58

a. Control Stations

Table 15

HEXAGENIA POPULATIONS BY YEAR (WINTER)

BROWNS FERRY NUCLEAR PLANT

		Hexagenia/m^2 (mean values)		
	Year	All Stations[a]	Control[b]	Below BFNP[c]
Preoperational	1969	80	101	69
	1970	57	49	61
	1971	31	44	24
	1972	146	178	130
	1973	53	14	73
Operational	1974	145	19	220
	1975	248	180	289
	1976	223	79	310

a. TRM 277.98, 283.94, 288.78, 291.76, 243.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 16

HEXAGENIA POPULATIONS BY STATIONS (WINTER)

BROWNS FERRY NUCLEAR PLANT

	Hexagenia/m^2 (mean values)			
	Preoperational	Operational		
TRM	(1969-1973)	1974	1975	1976
277.98	4	2	2	4
283.94	4	129	86	288
288.78	33	467	388	502
291.76	154	290	582	375
293.70	99	211	388	379
295.87[a]	105	56	467	119
301.06[a]	59	0	68	109
307.52[a]	41	0	6	10

a. Control Stations

Table 17

CHIRONOMIDAE POPULATIONS BY YEAR (WINTER)

BROWNS FERRY NUCLEAR PLANT

		Chironomidae/m^2 (mean values)			
	Year	All Stations[a]	Control (Above BFNP)[b]	Below BFNP[c]	Percentage Increase Below BFNP
Preoperational	1969	137	101	155	53
	1970	154	136	166	22
	1971	95	68	109	60
	1972	227	103	288	180
	1973	119	21	178	748
Operational	1974	115	29	167	476
	1975	176	57	247	333
	1976	119	21	178	748

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 18

CHIRONOMIDAE POPULATIONS BY STATION (WINTER)

BROWNS FERRY NUCLEAR PLANT

	Chironomidae/m^2 (mean values)			
		Operational		
TRM	Preoperational	Winter 1974	Winter 1975	Winter 1976
277.98	204	218	352	260
283.94	213	227	173	209
288.78	156	187	390	256
291.76	168	132	192	103
293.70	100	70	130	62
295.87[a]	130	52	58	34
301.06[a]	89	22	78	14
307.52[a]	26	14	34	16

a. Control Stations

Table 19

OLIGOCHAETA POPULATIONS BY YEAR, BROWNS FERRY NUCLEAR PLANT

		Oligochaeta/m^2 (mean values)							
		Winter				All Seasons			
	Year	All Stations[a]	Control[b]	Below BFNP	Percentage Increase Below BFNP	All Stations[a]	Control[b]	Below BFNP[c]	Percentage Increase Below BFNP
Preoperational	1969	15	12	17	42	76	44	93	111
	1970	13	10	14	40	56	28	71	154
	1971	19	12	21	75	51	41	55	34
	1972	47	32	55	72	161	107	186	74
	1973	301	54	449	731	Data included in preoperational and operational			
Operational	1974	182	78	244	213	221	93	298	220
	1975	349	260	402	55	312	118	428	263
	1976	248	116	328	183	Same as winter 1976 (only samples taken)			

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 20

OLIGOCHAETA POPULATIONS BY STATION (WINTER)

BROWNS FERRY NUCLEAR PLANT

	Oligochaeta/m^2 (mean values)				
	Preoperational		Operational		
TRM	All Seasons	All Winters	Winter 1974	Winter 1975	Winter 1976
277.98	103	73	86	291	198
283.94	95	101	340	390	623
288.78	174	165	376	418	477
291.76	122	69	138	632	259
293.70	148	61	273	281	84
295.87[a]	74	33	106	428	97
301.06[a]	67	15	93	225	173
307.52[a]	27	20	30	126	78

a. Control Stations

Table 21

PHYTOPLANKTON POPULATIONS BY YEAR (SPRING - 1969-1976)

BROWNS FERRY NUCLEAR PLANT

		Phytoplankters/l (mean values)			
	Year	All Stations[a]	Control (Above BFNP)[b]	Below BFNP[c]	Percentage Increase Below or Above BFNP
Preoperational	1969	1,068,781	599,333	1,350,450	125 - Below
	1970	1,001,493	583,400	1,252,350	115 - Below
	1971	223,109	259,756	201,122	29 - Above
	1972	719,899	814,308	663,254	23 - Above
	1973	78,391	68,524	84,312	23 - Below
Operational	1974	202,008	204,659	200,418	2 - Above
	1975	151,083	164,169	143,231	15 - Above
	1976	2,542,101	845,490	3,560,067	321 - Below

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 22

PHYTOPLANKTON POPULATIONS BY STATION - 1969-1976 (SPRING)

BROWNS FERRY NUCLEAR PLANT

	Phytoplankters/l (mean values)			
	Preoperational	Operational		
TRM	(1969-1973)	1974	1975	1976
277.98	797,625	210,501	105,595	3,754,986
283.94	1,077,970	217,084	91,214	2,149,698
288.78	536,773	257,651	144,628	2,765,462
291.76	488,709	194,059	173,663	2,925,430
293.70	652,411	122,795	201.055	6,204,760
295.87[a]	573,701	195,157	132,027	897,899
301.06[a]	423,322	204,476	153,945	743,410
307.52[a]	398,235	214,343	206,533	895,456

a. Control Stations

Table 23

DIVERSITY OF PHYTOPLANKTON - 1969-1976 (SPRING) - BROWNS FERRY NUCLEAR PLANT

	Phytoplankton Genera Collected During Every Spring Preoperational Sampling Period (1969, 1970, 1972, 1973)[a]		Phytoplankton Genera Collected During Every Spring Preoperational Sampling Period, but not Found During Spring Operational Sampling (1976)[b]	Phytoplankton Genera Collected for the First Time During Operational Sampling		
TRU	Chrysophyta	Chlorophyta	Chrysophyta	Chrysophyta	Chlorophyta	Cyanophyta
277.96	Cyclotella Melosira Navicula Synedra		Cyclotella	Tabellaria Fragilaria Nitzschia	Dictyosphaerium Gloenkinia Pteromonas Tetrastrum Gonium	Anacystis Oscillatoria
283.96	Cyclotella Melosira Synedra	Scenedesmus	Cyclotella		Dictyosphaerium Oocystis Chodatella Coelastrum Pteromonas Sphaerocystis Eudorina	Merismopedia Anacystis Oscillatoria Anabaena
288.76	Melosira Navicula Synedra	Scenedesmus		Achnanthes	Pteromonas Chodatella Pandorina Kirchneriella Eudorina	Anacystis Oscillatoria
291.76	Cyclotella Melosira Navicula Synedra	Scenedesmus	Cyclotella	Chaetoceros Fragilaria Gyrosigma Diatoma Pleurosigma	Micractinium Closteriopsis Pteromonas Dictyosphaerium Oocystis Pandorina	Oscillatoria Anabaena Anacystis
293.70	Cyclotella Melosira Navicula Synedra		Cyclotella	Cymbella Surirella	Dictyosphaerium Golenkinia Oocystis Pandorina Arthrodesmus Chodatella Kirchneriella Treubaria Elaktothrix Pteromonas	Anacystis Oscillatoria
299.37	Cyclotella Melosira Navicula Synedra		Cyclotella	Pinnularia Tabellaria Nitzschia	Dictyosphaerium Golenkinia Chodatella Pteromonas Elaktothrix	
301.06	Cyclotella Melosira Navicula Synedra		Cyclotella			Anacystis Oscillatoria Merismopedia
307.52	Melosira Navicula			Achnanthes Dinobryon Fragilaria Surirella Chaetoceros	Actinastrum Chodatella Golenkinia Acanthosphaera	Oscillatoria

a. Cyanophyta not applicable.
b. Chlorophyta and Cyanophyta not applicable.

Table 24

MAJOR GROUPS OF PHYTOPLANKTON POPULATIONS BY YEAR - 1969-1976 (SPRING)

BROWNS FERRY NUCLEAR PLANT

		Percentage Phytoplankton Population by Major Groups								
		Chrysophyta			Chlorophyta			Cyanophyta		
	Year	All Stations[a]	Above[b]	Below[c]	All Stations[a]	Above[b]	Below[c]	All Stations[a]	Above[b]	Below[c]
Preoperational	1969	55	49	58	34	33	34	12	18	9
	1970	47	49	46	45	43	46	8	8	8
	1971	83	83	83	10	10	10	7	7	7
	1972	88	89	87	6	4	7	6	6	6
	1973	88	92	85	9	7	11	3	3	4
Operational	1974	90	91	90	7	6	8	2	2	2
	1975	86	88	86	9	8	9	4	4	5
	1976	71	80	66	21	16	24	6	4	7

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 25

PERCENTAGE DIVERSITY FOR MAJOR GROUPS OF PHYTOPLANKTON

BY RIVER MILE AND YEAR - 1969-1976 (SPRING)

BROWNS FERRY NUCLEAR PLANT

		Major Group Percentage Present									
		Preoperational						Operational			
TRM	Major Groups	1969	1970	1971	1972	1973	$\bar{X}$	1974	1975	1976	$\bar{X}$
277.98	Chrysophyta	42	49	80	90	85	69	92	87	60	80
	Chlorophyta	52	44	12	5	11	25	6	9	24	13
	Cyanophyta	6	7	8	5	4	6	2	4	11	6
283.94	Chrysophyta	52	30	80	87	89	68	91	84	71	82
	Chlorophyta	42	66	14	7	5	27	8	10	22	13
	Cyanophyta	6	4	6	6	6	6	1	6	6	4
288.78	Chrysophyta	61	55	83	91	82	74	93	87	69	83
	Chlorophyta	25	36	9	3	13	17	6	7	26	13
	Cyanophyta	14	9	8	6	5	8	1	6	5	4
291.76	Chrysophyta	64	51	84	82	83	73	84	93	69	52
	Chlorophyta	28	39	8	12	15	20	13	4	24	14
	Cyanophyta	8	10	8	6	2	7	3	3	7	4
293.70	Chrysophyta	69	47	86	87	88	75	90	78	63	77
	Chlorophyta	22	43	9	8	9	18	6	16	28	17
	Cyanophyta	9	10	5	5	3	6	4	5	9	6
295.87	Chrysophyta	34	59	84	89	91	71	87	89	78	85
	Chlorophyta	39	34	11	4	7	19	9	6	19	11
	Cyanophyta	27	7	5	7	2	10	4	5	4	4
301.06	Chrysophyta	58	47	83	88	95	74	92	91	83	89
	Chlorophyta	25	44	12	4	5	18	5	7	13	8
	Cyanophyta	17	9	5	8	0	8	3	3	5	4
307.52	Chrysophyta	55	41	81	90	90	71	94	84	79	86
	Chlorophyta	36	51	7	4	10	22	5	13	17	12
	Cyanophyta	9	8	12	6	0	7	1	3	4	3

Table 26

NUMERICAL GENERA DIVERSITY FOR MAJOR GROUPS OF PHYTOPLANKTON BY RIVER MILE

1969-1976 (SPRING) - BROWNS FERRY NUCLEAR PLANT

	Preoperational				Operational		
	1969	1970	1972	1973	1974	1975	1976
			TRM 277.98				
Chrysophyta	11	7	11	8	5	5	11
Chlorophyta	8	4	9	3	4	5	11
Cyanophyta	1	1	2	1	1	1	4
Total	20	12	22	12	10	11	26
			TRM 283.94				
Chrysophyta	7	7	16	6	5	7	13
Chlorophyta	4	6	10	2	7	4	13
Cyanophyta	1	1	2	1	1	1	4
Total	12	14	28	9	13	12	30
			TRM 288.78				
Chrysophyta	10	5	13	5	7	5	11
Chlorophyta	5	4	10	3	6	4	13
Cyanophyta	1	1	2	1	1	1	3
Total	16	10	25	9	14	10	27
			TRM 291.76				
Chrysophyta	7	6	12	7	8	5	15
Chlorophyta	5	4	13	5	7	2	12
Cyanophyta	2	1	3	1	2	1	5
Total	14	11	28	13	17	8	32
			TRM 293.70				
Chrysophyta	7	6	14	7	5	6	9
Chlorophyta	9	4	9	3	2	6	15
Cyanophyta	3	1	2	1	1	2	4
Total	19	11	25	11	8	14	28
			TRM 295.87				
Chrysophyta	5	6	13	4	6	6	14
Chlorophyta	6	4	8	2	4	2	10
Cyanophyta	4	3	3	1	2	1	2
Total	15	13	24	7	12	9	26
			TRM 301.06				
Chrysophyta	6	6	15	5	4	5	10
Chlorophyta	4	5	6	1	5	6	3
Cyanophyta	1	1	2	0	1	1	4
Total	11	12	23	6	10	12	17
			TRM 307.52				
Chrysophyta	6	6	13	2	5	7	12
Chlorophyta	6	4	4	2	4	7	10
Cyanophyta	1	1	3	0	1	1	2
Total	13	11	20	4	10	15	24

Euglenophyta and Phyrrophyta not included because of sparse populations.

Table 27

CHLOROPHYLL CONCENTRATIONS BY YEAR (SPRING)

BROWNS FERRY NUCLEAR PLANT

		Surface Phytoplankton Chlorophyll a (mg Chl a/m^3) (mean values)			
	Year	All Stations[a]	Control (Above BFNP)[b]	Below BFNP[c]	Percentage Increase Above or Below BFNP
Preoperational	1969	8.97	1.47	11.96	714 - Below
	1970	5.62	3.34	6.76	102 - Below
	1971	1.77	1.41	1.95	38 - Below
	1972	1.47	1.75	1.32	33 - Above
	1973	3.49	3.81	3.30	15 - Above
Operational	1974	1.78	1.78	1.78	0
	1975	0.04	0.12	0	12 - Above
	1976	5.57	1.90	7.91	316 - Below

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 28

CHLOROPHYLL CONCENTRATIONS - 1969-1976 (SPRING)

BROWNS FERRY NUCLEAR PLANT

	Surface Phytoplankton Chlorophyll *a* (mg Chl *a*/m^3) (mean values)			
	Preoperational	Operational		
TRM	(1969-1973)	1974	1975	1976
277.98	5.62	1.22	0.00	8.67
283.94	6.38	1.52	0.00	3.44
288.78	2.82	2.01	0.00	5.37
291.76	3.06	1.68	0.00	2.61
293.70	2.93	2.47	0.00	19.47
295.87[a]	2.25	1.41	0.35	3.02
301.06[a]	2.36	1.95	0.00	0.65
307.52[a]	1.34	1.99	0.35	2.04

a. Control Stations

Table 29

CORBICULA POPULATIONS BY YEAR - BROWNS FERRY NUCLEAR PLANT

		Corbicula/m^2 (mean values)							
		Spring				All Seasons			
	Year	All Stations[a]	Control[b]	Below BFNP[c]	Percentage Increase Below BFNP	All Stations[a]	Control[b]	Below BFNP[c]	Percentage Increase Below BFNP
Preoperational	1969	191	164	204	24	164	147	172	17
	1970	131	66	164	148	112	57	139	144
	1971	134	76	163	114	103	54	127	135
	1972	151	72	185	157	153	72	192	167
	1973	109	39	144	269	Data included in preoperational and operational			
Operational	1974	122	73	152	108	153	72	202	181
	1975	147	100	175	75	150	97	182	88
	1976	171	121	201	66	167[d]	127[d]	190[d]	48[d]

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.78, 288.78, 291.76, 293.70
d. Only winter and spring data collected for 1976.

Table 30

CORBICULA POPULATIONS BY STATIONS

BROWNS FERRY NUCLEAR PLANT

	Corbicula/m^2 (mean values)				
	Preoperational		Operational		
TRM	All Seasons	All Springs	Spring 1974	Spring 1975	Spring 1976
277.98	83	102	64	95	139
283.94	119	109	84	119	149
288.78	209	157	199	187	304
291.76	187	262	272	212	244
293.70	149	218	141	183	167
295.87	108	114	147	133	183
301.06[a]	48	29	40	83	119
307.52[a]	64	114	32	85	60

a. Control Stations

Table 31

HEXAGENIA POPULATIONS BY YEAR (SPRING)

BROWNS FERRY NUCLEAR PLANT

		Hexagenia/m^2 (mean values)		
	Year	All Stations[a]	Control[b]	Below BFNP[c]
Preoperational	1969	101	105	99
	1970	93	113	84
	1971	51	41	56
	1972	78	45	94
	1973	72	23	96
Operational	1974	144	41	207
	1975	222	143	355
	1976	275	154	347

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 32

HEXAGENIA POPULATIONS BY STATIONS (SPRING)

BROWNS FERRY NUCLEAR PLANT

TRM	Hexagenia/m^2 (mean values) Preoperational (1969-1973)	Operational 1974	1975	1976
277.98	2	28	141	24
283.94	18	6	270	558
288.78	99	523	465	415
291.76	161	427	465	544
293.70	123	50	6	193
245.87[a]	89	114	429	395
301.06[a]	68	8	0	38
307.52[a]	29	0	0	30

a. Control Stations

Table 33

CHIRONOMIDAE POPULATIONS BY YEAR (SPRING)

BROWNS FERRY NUCLEAR PLANT

		Chironomidae/m^2 (mean values)			
	Year	All Stations[a]	Control (Above BFNP)[b]	Below BFNP[c]	Percentage Increase Below BFNP
Preoperational	1969	128	64	161	151
	1970	114	63	139	120
	1971	109	38	144	278
	1972	122	77	144	87
	1973	111	29	151	420
Operational	1974	120	15	182	1113
	1975	111	17	167	882
	1976	103	27	148	448

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 34

CHIRONOMIDAE POPULATIONS BY STATIONS (SPRING)

BROWNS FERRY NUCLEAR PLANT

	Chironomidae/m^2 (mean values)			
		Operational		
TRM	Preoperational	Spring 1974	Spring 1975	Spring 1976
277.98	210	251	257	284
283.94	156	178	165	147
288.78	141	233	245	206
291.76	119	206	147	90
293.70	122	44	20	14
295.87[a]	75	24	40	56
301.06[a]	68	10	4	6
307.52[a]	21	12	8	20

a. Control Stations

Table 35

OLIGOCHAETA POPULATIONS BY YEAR, BROWNS FERRY NUCLEAR PLANT

		Oligochaeta/m^2 (mean values)							
		Spring				All Seasons			
	Year	All Stations[a]	Control[b]	Below BFNP[c]	Percentage Increase Below BFNP	All Stations[a]	Control[b]	Below BFNP[c]	Percentage Increase Below BFNP
Preoperational	1969	120	48	156	230	76	44	93	111
	1970	117	55	148	170	56	28	71	154
	1971	64	40	76	90	51	41	55	34
	1972	89	79	93	20	161	107	186	74
	1973	234	119	292	250	Data included in preoperational and operational			
Operational	1974	205	29	310	969	221	93	298	220
	1975	314	53	470	786	312	118	428	263
	1976	201	135	240	78	224[d]	125[d]	306[d]	145[d]

a. TRM 277.98, 283,94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70
d. Only winter and spring data collected for 1976.

Table 36

OLIGOCHAETA POPULATIONS BY STATIONS (SPRING)

BROWNS FERRY NUCLEAR PLANT

	Oligochaeta/m^2 (mean values)				
	Preoperational		Operational		
TRM	All Seasons	All Springs	Spring 1974	Spring 1975	Spring 1976
277.98	103	151	388	766	280
283.94	95	77	402	584	342
288.78	174	153	172	471	330
291.76	122	161	396	308	147
293.70	148	221	193	223	103
295.87[a]	74	95	86	95	133
301.06[a]	67	76	0	16	177
307.52[a]	27	16	0	48	96

a. Control Stations

Table 38

PHYTOPLANKTON POPULATION BY STATION - (SUMMER - 1969-1975)

BROWNS FERRY NUCLEAR PLANT

	Phytoplankters/l (Mean Values)			
		Operational		
TRM	Preoperational	1974	1975	1976
277.98	3,172,660	3,952,326	6,687,402	5,797,035
283.94	2,693,424	4,995,809	3,542,564	7,339,679
288.78	3,073,504	2,990,385	1,490,106	6,363,632
291.76	1,949,574	2,228,399	1,541,603	2,526,607
293.70	1,318,990	1,481,762	816,819	3,762,519
295.87[a]	1,645,121	1,023,477	1,259,469	1,070,213
301.06[a]	1,171,408	1,198,222	825,584	872,150
307.52[a]	1,238,854	572,811	309,525	159,967

a. Control stations

Table 39

DIVERSITY OF PHYTOPLANKTON GENERA - BROWNS FERRY NUCLEAR PLANT - 1969-1976 (SUMMER)

Phytoplankton Genera Collected During Every Summer Preoperational Sampling Period (1969,1970,1972, and 1973)			Phytoplankton Genera Collected During Every Summer Preoperational Sampling Period, But Not Found During Summer Operational Sampling (1976)			Phytoplankton Genera Collected For the First Time During the Summer Operational Sampling (1976)		
Chrysophyta	Chlorophyta	Cyanophta	Chrysophyta	Chlorophyta	Cyanophta	Chrysophyta	Chlorophyta	Cyanophta
Melosira Synedra Cyclotella	Scenedesmus	Merismopedia						Anacystis Cylindrospermum
Cyclotella Melosira Navicula Synedra	Chlorella Scenedesmus Staurastrum						Quadrigula Arthrodesmus Euastrum	Anacystis
Cyclotella Melosira Navicula Synedra	Chlorella Staurastrum			Staurastrum			Acanthosphaera Gloeoactinium Quadrigula Arthrodesmus	Anacystis
Cyclotella Melosira Navicula Synedra	Chlorella Scenedesmus Staurastrum	Merismopedia	Cyclotella			Cocconeis	Acanthosphaera Gloeoactinium Quadrigula Arthrodesmus	Anacystis
Cyclotella Melosira	Chlorella Scenedesmus Staurastrum Tetraedon	Merismopedia		Staurastrum		Attheya	Gloeoactinium Quadrigula Arthrodesmus Elakatothrix Euastrum	Anacystis
Cyclotella Melosira Navicula Synedra	Chlorella Scenedesmus	Merismopedia				Attheya Achnanthes	Gloeoactinium Closteriopsis Elakatothrix	Anacystis
Melosira Navicula Synedra	Chlorella Cosmarium Scenedesmus			Cosmarium		Cocconeis Achnanthes	Acanthosphaera Pteromonas Arthrodesmus Gonium	Anacystis

TABLE 39 (CONTINUED)

TRM	Phytoplankton Genera Collected During Every Summer Preoperational Sampling Period (1969,1970,1972, and 1973)			Phytoplankton Genera Collected During Every Summer Preoperational Sampling Period, But Not Found During Summer Operational Sampling (1976)			Phytoplankton Genera Collected For the First Time During the Summer Operational Sampling (1976)		
	Chrysophyta	Chlorophyta	Cyanophyta	Chrysophyta	Chlorophyta	Cyanophyta	Chrysophyta	Chlorophyta	Cyanophyta
307.52	Melosira Navicula Synedra	Cosmarium Scenedesmus			Cosmarium		Achnanthes	Acanthosphaera Arthrodesmus Eudornia	

Table 40

MAJOR GROUPS OF PHYTOPLANKTON BY YEAR, BROWNS FERRY NUCLEAR PLANT

1969-1976 (SUMMER)

		Percentage Phytoplankton Populations by Major Groups								
		Chrysophyta			Chlorophyta			Cyanophyta		
	Year	All Stations[a]	Above[b]	Below[c]	All Stations[a]	Above[b]	Below[c]	All Stations[a]	Above[b]	Below[c]
Preoperational	1969	12	11	13	36	48	29	51	41	58
	1970	66	68	65	14	11	16	20	21	23
	1971	44	54	39	7	7	7	48	39	54
	1972	62	59	64	24	27	22	14	14	14
	1973	22	13	27	32	32	32	45	55	39
Operational	1974	34	24	40	39	42	37	20	26	17
	1975	24	21	25	29	29	30	46	48	44
	1976	41	47	37	25	27	24	34	25	39

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. 277.98, 283.94, 288.78, 291.76, 293.70

Table 41

PERCENTAGE DIVERSITY FOR MAJOR GROUPS OF PHYTOPLANKTON BY RIVER MILE AND YEAR - 1969-1976 (SUMMER) - BROWNS FERRY NUCLEAR PLANT

		Major Group Percentage Present									
		Preoperational						Operational			
TRM	Major Groups	1969	1970	1971	1972	1973	$\bar{x}$	1974	1975	1976	$\bar{x}$
277.98	Chrysophyta	14	73	31	61	32	42	32	18	29	26
	Chlorophyta	30	15	9	22	37	23	49	25	26	33
	Cyanophyta	56	12	60	17	31	35	16	56	44	39
283.94	Chrysophyta	12	57	41	64	31	41	30	26	37	31
	Chlorophyta	36	18	10	19	34	23	47	40	24	37
	Cyanophyta	52	25	49	17	35	35	20	34	39	31
288.78	Chrysophyta	8	64	42	71	33	44	43	33	35	37
	Chlorophyta	37	14	6	17	25	20	26	26	18	23
	Cyanophyta	55	22	52	11	32	34	15	39	47	34
291.76	Chrysophyta	10	56	40	68	22	39	53	22	41	39
	Chlorophyta	25	20	6	21	32	21	27	28	21	25
	Cyanophyta	65	24	54	11	46	40	15	49	37	34
293.70	Chrysophyta	20	75	40	55	19	42	44	28	43	38
	Chlorophyta	18	11	6	31	32	20	35	29	27	30
	Cyanophyta	62	14	54	14	49	39	17	41	29	29
295.87	Chrysophyta	8	76	54	51	17	41	30	14	41	28
	Chlorophyta	34	7	7	35	30	23	47	25	18	30
	Cyanophyta	58	17	39	14	53	36	16	60	40	39
301.06	Chrysophyta	14	39	45	58	13	34	30	30	40	33
	Chlorophyta	27	19	6	24	28	21	39	28	28	32
	Cyanophyta	59	42	49	18	59	45	26	40	31	32
307.52	Chrysophyta	12	89	63	67	9	48	11	19	59	30
	Chlorophyta	83	6	8	22	37	31	40	35	35	37
	Cyanophyta	5	5	29	11	54	21	37	45	5	29

Table 42

NUMERICAL GENERA DIVERSITY FOR MAJOR GROUPS OF PHYTOPLANKTON BY RIVER MILE

1969-1975 (SUMMER) - BROWNS FERRY NUCLEAR PLANT

	Preoperational				Operational		
	1969	1970	1972	1973	1974	1975	1976
TRM 277.98							
Chrysophyta	10	4	11	5	8	13	11
Chlorophyta	8	9	17	21	27	30	29
Cyanophyta	2	4	8	6	5	6	6
Total	20	17	36	32	40	49	46
TRM 283.94							
Chrysophyta	10	5	13	8	13	14	12
Chlorophyta	5	8	18	20	25	24	28
Cyanophyta	1	4	8	6	4	4	5
Total	16	17	39	34	42	42	45
TRM 288.78							
Chrysophyta	4	6	13	7	15	8	7
Chlorophyta	8	5	16	16	22	16	22
Cyanophyta	3	0	7	5	4	3	5
Total	15	11	36	28	41	27	34
TRM 291.76							
Chrysophyta	6	6	13	10	9	4	11
Chlorophyta	10	9	13	14	20	17	24
Cyanophyta	2	5	7	6	4	3	4
Total	18	20	33	30	33	24	39
TRM 293.70							
Chrysophyta	4	6	12	8	8	9	13
Chlorophyta	9	7	17	18	18	13	27
Cyanophyta	4	3	7	5	4	4	4
Total	17	16	36	31	30	26	44
TRM 295.87							
Chrysophyta	6	7	12	11	9	9	12
Chlorophyta	7	7	14	20	18	18	19
Cyanophyta	3	5	6	6	4	4	5
Total	16	19	32	37	31	31	36
TRM 301.06							
Chrysophyta	5	6	12	5	8	8	9
Chlorophyta	8	5	14	19	21	16	23
Cyanophyta	3	3	6	4	5	4	5
Total	16	14	32	28	34	28	37
TRM 307.52							
Chrysophyta	5	5	16	8	5	7	8
Chlorophyta	7	4	13	18	14	12	10
Cyanophyta	3	3	5	4	6	3	2
Total	15	12	34	30	25	22	20

Euglenophyta and Pyrrophyta not included because of sparse populations.

Table 43

CHLOROPHYLL CONCENTRATIONS BY YEAR - 1969-1975 (SUMMER)

BROWNS FERRY NUCLEAR PLANT

		Surface Phytoplankton Chlorophyll a (mg Chl a/m^3) (Mean/Values)			
	Year	All Stations[a]	Control (Above BFNP)[b]	Below BFNP[c]	Percentage Increase Below BFNP
Preoperational	1969	2.39	1.06	3.18	200 - Below
	1970	2.95	1.89	3.48	84 - Below
	1971	7.33	6.00	8.00	33 - Below
	1972	3.49	1.73	4.37	153 - Below
	1973	3.81	1.84	5.00	172 - Below
Operational	1974	6.81	1.63	9.92	509 - Below
	1975	4.95	1.75	6.83	290 - Below
	1976	8.09	1.16	12.25	956 - Below

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 44

CHLOROPHYLL CONCENTRATIONS BY STATION, 1969-1975 (SUMMER)

BROWNS FERRY NUCLEAR PLANT

	Surface Phytoplankton Chlorophyll a (mg Chl a/m^3) (Mean/Values)			
		Operational		
TRM	Preoperational	1974	1975	1976
277.98	6.76	16.22	10.56	14.66
283.94	5.72	16.08	13.05	15.60
288.78	4.26	9.01	4.85	17.01
291.76	4.21	6.59	3.70	5.24
293.70	4.53	1.68	2.15	8.74
295.87[a]	3.77	4.04	1.98	0.81
301.06[a]	2.43	0.43	1.81	1.48
307.52[a]	1.88	0.43	1.46	1.09

a. Control stations

Table 45

CORBICULA POPULATIONS BY YEAR

BROWNS FERRY NUCLEAR PLANT

		Corbicula/m^2 (Mean Values)							
		Summer				All Seasons			
	Year	All Stations[a]	Control[b]	Below BFNP[c]	Percentage Increase Below BFNP	All Stations[a]	Control[b]	Below BFNP[c]	Percentage Increase Below BFNP
Preoperational	1969	243	288	220	31[d]	164	147	172	17
	1970	99	31	133	329	112	57	139	144
	1971	113	31	154	397	103	54	127	135
	1972	151	54	200	270	153	72	192	167
	1973	119	65	150	131	Data included in preoperational and operational			
Operational	1974	196	95	257	170	153	72	202	180
	1975	127	93	148	59	150	97	182	88
	1976	178	93	229	215				

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70
d. Increase above BFNP

Table 46

CORBICULA POPULATIONS BY STATIONS

BROWNS FERRY NUCLEAR PLANT

	Corbicula/m^2 (Mean Values)				
	Preoperational		Operational		
TRM	All Seasons	Summer	Summer 1974	Summer 1975	Summer 1976
277.98	83	91	92	173	97
283.94	119	220	133	48	159
288.78	209	224	453	195	387
291.76	187	169	318	139	264
293.70	149	154	288	185	240
295.87	108	136	223	131	153
301.06	46	63	26	97	56
307.52	64	62	36	52	71

Table 47

HEXAGENIA POPULATIONS BY YEAR (SUMMER)

BROWNS FERRY NUCLEAR PLANT

		Hexagenia/m^2 (Mean Values)			
	Year	All Stations[a]	Control[b]	Below BFNP[c]	Percentage Increase Below BFNP
Preoperatinal	1969	10	9	11	22
	1970	7	1	10	900
	1971	21	8	27	237
	1972	89	37	116	213
	1973	53	3	78	2,500
Operational	1974	108	62	137	121
	1975	141	64	187	192
	1976	178	67	244	264

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 48

HEXAGENIA POPULATIONS BY STATIONS (SUMMER)

BROWNS FERRY NUCLEAR PLANT

	Hexagenia/m^2 (Mean Values)			
		Operational		
TRM	Preoperational	1974	1975	1976
277.98	9	22	121	26
283.94	20	40	83	423
288.78	44	179	300	310
291.76	91	173	266	312
293.70	72	269	167	151
295.87	13	185	183	177
301.06	15	0	4	24
307.52	0	0	4	0

Table 49

CHIRONOMIDAE POPULATIONS BY YEAR (SUMMER)

BROWNS FERRY NUCLEAR PLANT

		Chironomidae/m^2 (Mean Values)			
	Year	All Stations[a]	Control (Above BFNP)[b]	Below BFNP[c]	Percentage Increase Below BFNP
Preoperational	1969	54	31	68	119
	1970	29	26	30	15
	1971	79	38	100	163
	1972	86	37	112	203
	1973	81	53	95	79
Operational	1974	66	23	91	296
	1975	76	29	103	255
	1976	74	43	93	116

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 50

CHIRONOMIDAE POPULATIONS BY STATIONS (SUMMER)

BROWNS FERRY NUCLEAR PLANT

	Chironomidae/m^2 (Mean Values)			
		Operational		
TRM	Preoperational	1974	1975	1976
277.98	97	110	147	83
283.94	116	110	92	70
288.78	75	74	150	90
291.76	68	58	92	121
293.70	52	104	36	102
295.87[a]	34	60	18	80
301.06[a]	44	2	2	36
307.52[a]	43	6	68	12

a. Control stations

Table 51

OLIGOCHAETA POPULATIONS BY YEAR

BROWNS FERRY NUCLEAR PLANT

		Oligochaeta/m^2 (Mean Values)							
		Summer				All Seasons			
	Year	All Stations[a]	Control[b]	Below BFNP[c]	Percentage Increase Above or Below BFNP	All Stations[a]	Control[b]	Below BFNP[c]	Percentage Increase Below BFNP
Preoperational	1969	62	52	66	27	76	44	93	111
	1970	74	41	90	120	56	28	71	154
	1971	66	61	69	13	51	41	55	34
	1972	273	164	336	105	161	107	186	74
	1973	125	133	122	9[d]	Data included in preoperational and operational			
Operational	1974	327	144	436	203	221	93	298	220
	1975	298	90	421	368	312	118	428	263
	1976	286	154	365	137				

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 291.76, 293.70
d. Increase above BFNP
e. Only winter, spring, and summer samples available for 1973 preoperational data

Table 52

OLIGOCHAETA POPULATIONS BY STATION (SUMMER)

BROWNS FERRY NUCLEAR PLANT

	Oligochaeta/m^2 (Mean Values)			
		Operational		
TRM	Preoperational	1974	1975	1976
277.98	115	346	516	276
283.94	115	320	409	604
288.78	182	545	457	493
291.76	130	442	409	389
293.70	178	527	316	62
295.87[a]	97	233	147	199
301.06[a]	99	134	89	224
307.52[a]	27	66	38	40

a. Control stations

Table 53

PHYTOPLANKTON POPULATIONS BY YEAR (FALL - 1969-1976)

BROWNS FERRY NUCLEAR PLANT

		Phytoplankters/l (mean values)			
	Year	All Stations[a]	Control (Above BFNP)[b]	Below BFNP[c]	Percentage Increase Below BFNP
Preoperational	1969	1,486,396	837,667	1,876,433	124
	1970	582,012	441,800	579,739	31
	1971	470,870	420,756	500,938	19
	1972	605,864	345,360	762,167	121
Operational	1973	977,206	777,701	1,096,910	41
	1974	866,347	547,651	1,057,565	93
	1975	1,156,939	727,340	1,414,698	95
	1976	3,878,108	2,176,616	4,899,003	125

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.97, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 54

PHYTOPLANKTON POPULATIONS BY STATION - 1969-1976 (FALL)

BROWNS FERRY NUCLEAR PLANT

	Phytoplankters/1 (mean values)				
		Operational			
TRM	Preoperational (1969-1972)	1973	1974	1975	1976
277.98	752,054	1,186,973	844,349	1,658,704	5,818,956
283.94	1,812,004	1,447,525	1,888,381	2,092,176	6,324,829
288.78	962,345	1,559,605	998,153	2,352,944	5,080,028
291.76	615,906	778,981	843,116	422,927	3,645,702
293.70	506,786	511,464	713,827	546,738	3,675,499
295.87[a]	583,257	738,962	382,388	436,623	1,912,424
301.06[a]	519,225	821,739	550,025	1,555,298	2,538,936
307.52[a]	431,704	772,403	710,540	190,098	2,078,487

a. Control stations

Table 55

DIVERSITY OF PHYTOPLANKTON INDEX - BROWNS FERRY NUCLEAR PLANT

1960-1976 (FALL)

TRM	Phytoplankton Genera Collected During Every Fall Preoperational Sampling Period (1969, 1970, 1972)			Phytoplankton Genera Collected During Every Fall Preoperational Sampling Period, But Not Found During Fall Operational Sampling (1976)[a]		Phytoplankton Genera Collected for the First Time During the Fall Operational Sampling (1976)		
	Chrysophyta	Chlorophyta	Cyanophyta	Chrysophyta	Chlorophyta	Chrysophyta	Chlorophyta	Cyanophyta
277.98	Melosira Navicula Synedra	Actinastrum Chlorella Cosmarium Scenedesmus Staurastrum	Merismopedia		Cosmarium Staurastrum	Achnanthes	Dactyloccus Protococcus Closteriopsis Elakatothrix Pyramimonas Chlorococcum Gonium Franceia	Anacystis Aphanizomenon Aphanothece Spirulina
283.94	Cyclotella Melosira Navicula Synedra	Ankistrodesmus Chlorella Cosmarium Scenedesmus	Merismopedia	Cyclotella	Cosmarium	Attheya Gomphonema Dinobryon	Chlorococcum Tetrastrum Chlorogonium Planktosphaeria Closteriopsis Trochiscia Pyramimonas	Aphanizomenon Aphanothece
288.78	Cyclotella Melosira Navicula Synedra	Chlorella Scenedesmus Staurastrum	Merismopedia	Cyclotella	Staurastrum	Cocconeis Gomphonema Dinobryon	Chlorococcum Dactylococcus Protococcus Pteromonas Elakatothrix Schroederia Chlorogonium Westella Gonium	Anacystis Aphanothece Hapalosiphon

TABLE 55 (CONTINUED)

TRM	Phytoplankton Genera Collected During Every Fall Preoperational Sampling Period (1969, 1970, 1972)			Phytoplankton Genera Collected During Every Fall Preoperational Sampling Period, But Not Found During Fall Operational Sampling (1976)[e]		Phytoplankton Genera Collected for the First Time During the Fall Operational Sampling (1976)		
	Chrysophyta	Chlorophyta	Cyanophyta	Chrysophyta	Chlorophyta	Chrysophyta	Chlorophyta	Cyanophyta
291.76	Cyclotella Melosira Navicula Synedra	Actinastrum Scenedesmus Staurastrum	Merismopedia		Staurastrum	Attheya Rhizolenia Cocconeis Chaetoceros Dinobryon	Chlorococcum Kirchneriella Pteromonas Chlorogonium Elakatothrix Closteriopsis Treubaria Voluocaiien	Anacystis Aphanothece
293.70	Cyclotella Melosira Navicula Synedra	Chlorella Cosmarium Scenedesmus	Merismopedia		Cosmarium	Attheya Asterionella Dinobryon	Chlorococcum Closterium Dictyosphaerium Kirchneriella Polyedriopsis Protococcus Tetrastrum Elakatothrix Pandorina Chlorogonium Carteria Echinosphaerella Pteromonas Sphaerocystis Goleoactinium Gonium	

TABLE 55 (CONTINUED)

TRM	Phytoplankton Genera Collected During Every Fall Preoperational Sampling Period (1969, 1970, 1972)			Phytoplankton Genera Collected During Every Fall Preoperational Sampling Period, But Not Found During Fall Operational Sampling (1976)[a]		Phytoplankton Genera Collected for the First Time During the Fall Operational Sampling (1976)		
	Chrysophyta	Chlorophyta	Cyanophyta	Chrysophyta	Chlorophyta	Chrysophyta	Chlorophyta	Cyanophyta
295.87	Cyclotella Navicula Melosira Synedra	Actinastrum Chlorella Cosmarium	Merismopedia	Cyclotella		Chaetoceros Surirella Gomphonema Attheya	Carteria Chlorococcum Kirchneriella Pandorina Tetraedron Charactium Pteromonas Closteriopsis Chlorogonium Polyedriopsis Protococcus Pyramimonas Schroederia Trochiscia Characium	Chroococcus
301.06	Melosira Navicula Synedra	Cosmarium Scenedesmus	Merismopedia		Cosmarium	Cymbella	Carteria Chlorococcum Closteriopsis Trochiscia Chlorogonium Protococcus Selenastrum Pteromonas Pyramimonas Euastrum Ankistrodesmus	Aphanizomenon Lyngbya Spirulina Chroococcus

TABLE 55 (CONTINUED)

TRM	Phytoplankton Genera Collected During Every Fall Preoperational Sampling Period (1969, 1970, 1972)			Phytoplankton Genera Collected During Every Fall Preoperational Sampling Period, But Not Found During Fall Operational Sampling (1976)[a]		Phytoplankton Genera Collected for the First Time During the Fall Operational Sampling (1976)		
	Chrysophyta	Chlorophyta	Cyanophyta	Chrysophyta	Chlorophyta	Chrysophyta	Chlorophyta	Cyanophyta
307.52	Melosira	Cosmarium	Merismopedia		Cosmarium	Chaetoceros	Chlorococcum	Aphanizomenon
	Navicula	Scenedesmus				Dinobryon	Golenkinia	Chroococcus
	Synedra					Cocconeis	Gloeoactinium	Hapalosiphon
						Gomphonema	Trochiscia	Spirulina
							Carteria	
							Kirchneriella	
							Protococcus	
							Pyramimonas	
							Chlorogonium	
							Mougeotia	

a. Cyanophyta N/A.

Table 56

MAJOR GROUPS OF PHYTOPLANKTON POPULATIONS BY YEAR - 1969-1976 (FALL)

BROWNS FERRY NUCLEAR PLANT

		Percentage Phytoplankton Populations by Major Groups								
		Chrysophyta			Chlorophyta			Cyanophyta		
	Year	All Stations[a]	Above[b]	Below[c]	All Stations[a]	Above[b]	Below[c]	All Stations[a]	Above[b]	Below[c]
Preoperational	1969	22	20	24	36	42	33	41	37	43
	1970	82	83	82	12	12	12	6	5	6
	1971	58	61	56	7	6	7	35	33	36
	1972	63	63	63	22	18	24	15	19	13
Operational	1973	36	23	44	29	30	28	35	47	27
	1974	42	25	52	25	19	28	31	54	16
	1975	40	34	43	23	23	23	36	41	33
	1976	22	15	26	17	16	18	60	68	56

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 57

PERCENTAGE DIVERSITY FOR MAJOR GROUPS OF PHYTOPLANKTON BY RIVER MILE AND YEAR - 1969-1976 (FALL) - BROWNS FERRY NUCLEAR PLANT

TRM	Major Groups	Major Group Percentage Present									
		Preoperational					Operational				
		1969	1970	1971	1972	$\bar{x}$	1973	1974	1975	1976	$\bar{x}$
277.98	Chrysophyta	47	78	52	61	59	51	49	31	17	37
	Chlorophyta	33	15	9	29	21	29	36	38	18	30
	Cyanophyta	20	7	39	10	19	20	10	30	65	31
283.94	Chrysophyta	7	82	53	61	51	38	47	35	26	36
	Chlorophyta	41	9	6	26	20	31	36	20	20	27
	Cyanophyta	52	9	41	13	29	31	14	45	54	36
288.78	Chrysophyta	26	82	56	61	56	38	56	28	28	37
	Chlorophyta	33	13	8	19	18	26	29	21	14	22
	Cyanophyta	41	5	36	20	25	36	13	50	59	39
291.76	Chrysophyta	18	82	56	57	53	44	49	59	28	45
	Chlorophyta	38	14	9	28	22	27	18	22	19	21
	Cyanophyta	44	4	35	15	24	29	31	17	52	32
293.70	Chrysophyta	21	83	65	73	60	48	60	62	31	50
	Chlorophyta	19	11	5	18	13	30	23	17	18	22
	Cyanophyta	60	6	30	9	26	22	15	20	50	27
295.87	Chrysophyta	14	77	56	61	52	30	39	37	20	31
	Chlorophyta	49	16	5	14	21	25	18	27	15	21
	Cyanophyta	37	7	39	25	27	45	41	34	65	46
301.06	Chrysophyta	20	84	58	70	58	28	27	29	15	25
	Chlorophyta	36	12	7	24	20	18	24	25	16	21
	Cyanophyta	44	4	35	6	22	54	45	45	68	53
307.52	Chrysophyta	27	88	70	59	61	11	8	35	11	16
	Chlorophyta	42	9	5	17	18	46	14	17	17	23
	Cyanophyta	31	3	25	25	21	43	77	44	71	59

Table 58

NUMERICAL GENERA DIVERSITY FOR MAJOR GROUPS OF PHYTOPLANKTON BY RIVER MILE

1969-1976 (FALL) - BROWNS FERRY NUCLEAR PLANT

	Preoperational			Operational			
	1969	1970	1972	1973	1974	1975	1976
			TRM 277.98				
Chrysophyta	6	5	13	7	7	9	7
Chlorophyta	10	6	15	17	13	19	28
Cyanophyta	3	3	4	4	5	3	8
Total	19	14	32	28	25	31	43
			TRM 283.94				
Chrysophyta	5	7	14	8	10	5	10
Chlorophyta	6	8	14	16	17	25	29
Cyanophyta	2	3	5	5	4	4	7
Total	13	18	33	29	31	34	46
			TRM 288.78				
Chrysophyta	6	6	9	7	5	9	11
Chlorophyta	9	5	10	15	11	17	28
Cyanophyta	3	2	5	5	3	4	8
Total	18	13	24	27	19	30	47
			TRM 291.76				
Chrysophyta	6	6	12	6	6	7	13
Chlorophyta	8	5	14	13	11	9	27
Cyanophyta	3	3	5	4	4	2	6
Total	17	14	31	23	21	18	46
			TRM 293.70				
Chrysophyta	5	7	12	7	8	8	13
Chlorophyta	7	7	11	14	10	10	30
Cyanophyta	3	2	5	4	4	3	7
Total	15	16	28	25	22	21	50
			TRM 295.87				
Chrysophyta	5	7	11	4	5	7	14
Chlorophyta	6	6	10	13	9	13	29
Cyanophyta	2	2	5	5	4	3	5
Total	13	15	26	22	18	23	48

TABLE 58 (CONTINUED)

	Preoperational			Operational			
	1969	1970	1972	1973	1974	1975	1976
			TRM 301.06				
Chrysophyta	6	5	11	6	4	6	10
Chlorophyta	7	7	8	12	10	18	26
Cyanophyta	2	3	3	5	4	4	9
Total	15	15	22	23	18	28	45
			TRM 307.52				
Chrysophyta	8	7	5	4	7	6	13
Chlorophyta	7	6	8	15	11	5	20
Cyanophyta	3	3	3	3	4	3	9
Total	18	16	16	22	22	13	42

Table 59

CHLOROPHYLL CONCENTRATIONS BY YEAR - 1969-1976 (FALL)

BROWNS FERRY NUCLEAR PLANT

		Surface Phytoplankton Chlorophyll a (mg Chl a/m^3) (Mean/Values)			
	Year	All Stations[a]	Control (Above BFNP)[b]	Below BFNP[c]	Percentage Increase Below BFNP
Preoperational	1969	4.70	3.09	5.56	80
	1970	1.77	1.30	2.01	55
	1971	1.27	0.37	1.74	370
	1972	1.61	0.65	2.09	222
Operational	1973	2.60	1.19	3.44	189
	1974	3.17	2.65	3.48	31
	1975	3.60	1.40	4.21	201
	1976	6.20	3.33	7.92	139

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 60

CHLOROPHYLL CONCENTRATIONS BY STATION, 1969-1976 (FALL)

BROWNS FERRY NUCLEAR PLANT

	Surface Phytoplankton Chlorophyll $\underline{a}$ (mg Chl $\underline{a}/m^3$) (Mean/Values)				
TRM	Preoperational (1969-1972)	1973	1974	1975	1976
277.98	4.19	1.02	4.44	7.11	14.00
283.94	3.73	7.37	5.66	6.43	10.50
288.78	2.43	4.39	3.18	3.27	5.86
291.76	1.98	1.39	2.37	1.77	4.28
293.70	1.43	3.04	1.77	2.46	4.24
295.87[a]	1.75	1.50	2.11	1.20	3.34
301.06[a]	0.93	0.91	1.78	2.41	3.15
307.52[a]	1.13	1.17	4.06	0.59	3.51

a. Control stations

Table 61

CORBICULA POPULATIONS BY YEAR

BROWNS FERRY NUCLEAR PLANT

		Corbicula/m^2 (mean values)							
		Fall				All Seasons			
	Year	All Stations	Control[b]	Below BFNP[c]	% Increase Below BFNP	All Stations	Control	Below BFNP	% Increase Below BFNP
Preoperational	1969	111	68	132	94	164	147	172	17
	1970	105	75	121	61	112	57	139	144
	1971	104	100	106	6	103	54	127	135
	1972	181	69	237	243	153	72	192	167
Operational	1973	171	224	144	56[d]	Data included in preoperational and operational			
	1974	134	61	178	192	153	72	202	181
	1975	181	94	234	149	150	97	182	88
	1976	210	117	266	127	180	117	219	87

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70
d. Percentage increase is in control area rather than below BFNP

Table 62

CORBICULA POPULATIONS BY STATIONS

BROWNS FERRY NUCLEAR PLANT

	Corbicula/m^2 (mean values)					
	Preoperational		Operational			
TRM	All Seasons	Fall Only	Fall 1973	Fall 1974	Fall 1975	Fall 1976
277.98	83	73	79	102	66	120
283.94	119	108	44	223	185	170
288.78	209	227	270	201	308	439
291.76	187	168	207	211	294	315
293.70	149	163	101	152	316	384
295.87[a]	108	136	385	132	157	192
301.06[a]	46	44	157	14	68	102
307.52[a]	64	42	81	36	58	56

a. Control stations

Table 63

HEXAGENIA POPULATIONS BY YEAR (FALL)

BROWNS FERRY NUCLEAR PLANT

		Hexagenia/m^2 (mean values)		
	Year	All Stations[a]	Control[b]	Below BFNP[c]
Preoperational	1969	53	18	71
	1970	43	66	31
	1971	111	147	93
	1972	244	242	244
Operational	1973	248	275	234
	1974	227	176	258
	1975	311	214	369
	1976	237	120	306

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 64

HEXAGENIA POPULATIONS BY STATIONS (FALL)

BROWNS FERRY NUCLEAR PLANT

	Hexagenia/m^2 (mean values)				
		Operational			
TRM	Preoperational	Fall 1973	Fall 1974	Fall 1975	Fall 1976
277.98	14	6	10	8	4
283.94	6	4	145	582	49
288.78	38	403	161	457	373
291.76	200	554	584	602	531
293.70	260	95	388	197	575
295.87	156	532	233	626	254
301.06	147	141	290	14	103
307.52	19	90	4	2	4

Table 65

CHIRONOMIDAE POPULATIONS BY YEAR (FALL)

BROWNS FERRY NUCLEAR PLANT

		Chironomidae/m^2 (mean values)			
	Year	All Stations[a]	Control (Above BFNP)[b]	Below BFNP[c]	Percentage Increase Below BFNP
Preoperational	1969	156	127	171	35
	1970	91	32	121	278
	1971	161	109	186	71
	1972	119	32	162	406
Operational	1973	106	56	132	136
	1974	101	27	146	441
	1975	86	25	122	388
	1976	71	23	100	335

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 66

CHIRONOMIDAE POPULATIONS BY STATIONS (FALL)

BROWNS FERRY NUCLEAR PLANT

	Chironomidae/m^2 (mean values)				
		Operational			
TRM	Preoperational	Fall 1973	Fall 1974	Fall 1975	Fall 1976
277.98	206	191	76	157	214
283.94	170	143	128	40	60
288.78	162	133	257	171	19
291.76	138	172	169	163	165
293.70	129	6	98	79	44
295.87[a]	105	44	54	60	35
301.06[a]	72	80	26	8	22
307.52[a]	33	36	2	8	11

a. Control stations

Table 67

OLIGOCHAETA POPULATIONS BY YEAR

BROWNS FERRY NUCLEAR PLANT

		Oligochaeta/m^2 (mean values)							
		Fall				All Seasons			
	Year	All Stations[a]	Control[b]	Below BFNP[c]	% Increase BFNP	All Stations[a]	Control[b]	Below BFNP[c]	% Increase BFNP
Preoperational	1969	111	68	133	96	76	44	93	111
	1970	23	9	31	244	56	28	71	154
	1971	47	29	56	93	51	41	55	34
	1972	231	152	270	78	161	107	186	74
Operational	1973	210	204	213	4	Data included in preoperational and operational			
	1974	172	123	202	64	221	93	298	220
	1975	288	69	420	509	312	118	428	263
	1976	92	63	110	75	207	117	261	123

a. TRM 277.98, 283.94, 288.78, 291.76, 293.70, 295.87, 301.06, 307.52
b. TRM 295.87, 301.06, 307.52
c. TRM 277.98, 283.94, 288.78, 291.76, 293.70

Table 68

OLIGOCHAETA POPULATIONS BY STATIONS (FALL)

BROWNS FERRY NUCLEAR PLANT

	Oligochaeta/m^2 (mean values)					
	Preoperational		Operational			
TRM	All Seasons	Fall	Fall 1973	Fall 1974	Fall 1975	Fall 1976
277.98	103	70	155	90	286	138
283.94	95	71	32	205	108	97
288.78	174	198	455	300	452	155
291.76	122	135	240	245	787	114
293.70	148	133	171	169	466	47
295.87[a]	74	70	387	74	107	130
301.06[a]	67	70	105	179	73	96
307.52[a]	27	50	79	116	26	22

a. Control stations