

654777
BUFF

WATER QUALITY REPORT

1985 - 1990



*Division of Resource Management
and Visitor Protection*

Buffalo National River

September, 1991

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

WATER QUALITY REPORT
1985 - 1990

NATIONAL PARK SERVICE

BUFFALO NATIONAL RIVER
HARRISON, ARKANSAS

Prepared by: David N. Mott
Hydrologist

EXECUTIVE SUMMARY

The concentrated, large, and expanding numbers of poultry, cattle, and swine produced in northwestern Arkansas have resulted in water quality degradation in this portion of the state. The Governor's Animal Waste Task Force has estimated that the poultry industry will double in the coming decade with similar increases in beef and swine production also occurring. Because the Buffalo River watershed is at the fringe of the saturated animal producing counties to the north and west, it is likely that poultry, beef, and swine production will become prominent growth industries in the Buffalo River watershed in the next ten years.

The National Park Service has shown great foresight in instigating a Water Quality Monitoring Program at Buffalo National River. Through this program, valuable background data are being collected and used by managers to interpret the effects of changing land use patterns on the water quality of the Buffalo River. Other important contributions of the program include:

- 1.) development of cooperative assistance with the Arkansas Department of Pollution Control and Ecology to conduct routine nutrient analyses and perform special investigations on impacted tributaries outside the boundaries of BUFF;

- 2.) instigation of macroinvertebrate community structure studies in cooperation with the University of Arkansas focusing on river reaches and tributaries experiencing water quality degradation;

- 3.) development of cooperative networking with the U. S. Geological Survey and participation by the hydrologist as a liaison member of the National Water Quality Assessment Program which may include the Buffalo River watershed as part of this region-wide study;

- 4.) providing water quality data and hydrologic information to researchers involved with Global Change studies and Fish and Wildlife personnel conducting research on fish population dynamics in the river;

- 5.) providing water quality and land use information to the Soil Conservation Service to aid them in securing federal grant money to assist farmers in instigating nonpoint pollution control measures along impacted tributaries to the Buffalo River;

- 6.) providing technical assistance and research documentation, such as this report, to other government agencies and private interest groups attempting to understand the effects of agriculture and nonpoint pollution on Arkansas' streams.

The findings of the Water Quality Monitoring Program show that Boxley Valley is the only area directly adjacent to the river corridor contributing measurable amounts of pollutants to the river. In most other cases, water quality impairment appears to result from the confluencing of more degraded tributaries with the river. Impacted tributaries usually have a higher percentage of agriculture in their watersheds when compared to more pristine tributaries. For these reasons, it is critical that BUFF

BUFF WATER QUALITY REPORT, 1985 - 1990

maintain a close relationship with other state and federal agencies and private landholders responsible for land use management in the 89% of the watershed outside park boundaries.

Public use areas have been extensively monitored and have not been shown to directly contribute to water quality impairment. Mill Creek (near Pruitt) has been determined to be the most impacted tributary and a special investigation was recently conducted on this stream by the Arkansas Department of Pollution Control and Ecology. Highest concentrations of nutrients are observed in the middle portion of the river, peaking at Gilbert, and may be related to the higher percentage of land use devoted to agriculture in this portion of the watershed. A list of the important findings contained in the body of this report can be found in the conclusions section and will not be restated here.

In general, the Buffalo River remains in a state of near pristine water quality. The protected riparian corridor along most of the river allows for assimilation of organic constituents through natural processes. Where wastes are imported by degraded tributaries, pollutants are usually eliminated through assimilation before the river confluences with the next tributary. However, during rain events when pasture surfaces are flushed by storm driven runoff, large amounts of bacteria and nutrients are transported to the river from sources throughout the watershed. With the potential for increased development in the watershed, the natural cleansing ability of the river could be overloaded, at which point water quality would worsen in the downstream direction. When considering which factors might potentially affect water quality at BUFF, it is important to remember that the park lies downstream from all the diverse land use activities and pollution sources within the watershed.

TABLE OF CONTENTS

	Page
Introduction.....	1
Results.....	2
Fecal Coliform.....	2
Nutrients.....	4
Turbidity.....	7
Dissolved Oxygen.....	8
Temperature.....	9
Specific Conductance.....	10
pH.....	11
Rain Event Discussion.....	11
Conclusions.....	14
Recommendations.....	16
References.....	21

FIGURES

Figure 1, Water Quality Monitoring Sites.....	22
Figure 2, River Corridor Fecal Coliform Mean and Geometric Mean Values...	23
Figure 3, River Corridor Fecal Coliform Mean and Geometric Mean Values by Year.....	23
Figure 4, River Corridor Fecal Coliform Mean Values by Month.....	24
Figure 5, Tributary Fecal Coliform mean and Geometric Mean Values...	24
Figure 6, Tributary Fecal Coliform Mean and Geometric Mean Values by Year.....	25
Figure 7, River Corridor Nutrient Mean Values.....	25
Figure 8, Nutrient Parameters Detection Limit Comparisons Using 1990 ADPC&E Data.....	26
Figure 9, River Corridor Nutrient Mean Values by Year.....	26
Figure 10, River Corridor Nutrient Mean Values by Month.....	27
Figure 11, Buffalo River at Highway 65 Nutrient and Discharge Mean Monthly Values from 1978 - 1989.....	27
Figure 12, Tributary Nutrient Mean Values.....	28
Figure 13, Tributary Total Phosphate Mean Values.....	28
Figure 14, River Corridor Turbidity Mean Values.....	29
Figure 15, River Corridor Turbidity Mean Values by Month.....	29
Figure 16, River Corridor Turbidity Mean Values for the Summer Season.....	30
Figure 17, Tributary Turbidity Mean Values.....	30
Figure 18, River Corridor pH, Temperature, Dissolved Oxygen and Specific Conductance Mean Values.....	31
Figure 19, River Corridor Dissolved Oxygen Mean Values by Month.....	31
Figure 20, Tributary Dissolved Oxygen and Temperature Mean Values.....	32
Figure 21, River Corridor Specific Conductance Mean Values by Month.....	32
Figure 22, Tributary Specific Conductance Mean Values.....	33
Figure 23, Tributary pH Mean Values.....	33



Digitized by the Internet Archive
in 2012 with funding from
LYRASIS Members and Sloan Foundation

<http://archive.org/details/waterqualityrepo00mott>

TABLE OF CONTENTS (cont.)

Figure 24, River Corridor Comparisons Between Base and Storm Flow Mean Values.....	34
Figure 25, Tributary Comparisons Between Base and Storm Flow Mean Values.....	34
Figure 25, Spring Comparisons Between Base and Storm Flow Mean Values.....	35

TABLES

Table 1, Tributaries Ranked in Order From Most to Least Impacted.....	36
--	----

APPENDICES

Appendix A1, River Corridor Statistics, 1985 - 1990	
Appendix A2, River Corridor Statistics, All Sites Lumped, Analyzed by Year	
Appendix A3, River Corridor Statistics, All Sites Lumped, Analyzed by Month	
Appendix A4, Tributary Statistics, 1985 - 1990	
Appendix A5, Tributary Statistics, All Sites Lumped, Analyzed by Year	
Appendix A6, Spring Statistics, 1985 - 1990	
Appendix B1, Base Flow Statistics for the River, Tributaries, and Springs	
Appendix B2, Storm Flow Statistics for the River, Tributaries and Springs	
Appendix C1, Water Quality Data, Base Flow, 1985 - 1990	
Appendix C2, Water Qaulity Data, Storm Flow, 1985 -1990	

BUFF WATER QUALITY REPORT, 1985 - 1990

INTRODUCTION

Buffalo National River (BUFF) was established by Congress (P.L. 92-237) in 1972 "for the purposes of conserving and interpreting an area containing unique scenic and scientific features, and preserving as a free-flowing stream an important segment of the Buffalo River...". The Buffalo River is also designated by the Arkansas Department of Pollution Control and Ecology (ADPCE) as Outstanding National Resource Waters (ONRW) with extraordinary recreation and aesthetic values, the highest ranking of stream quality in this system (ADPCE, 1988). ADPCE applies specific standards to BUFF, under the ONRW designation, which exceed those standards applied to undesignated waters.

The water quality monitoring program (WQM) at BUFF is designed to evaluate the waters of the Buffalo River and its major tributaries to determine compliance with state standards. The WQM program also defines the present water quality of the surface and ground waters at BUFF, thereby establishing a baseline against which future changes can be compared. This information is critical to park managers making decisions about the effects of changing land use on the Buffalo River and the waters within its drainage basin. As the Buffalo River's watershed becomes increasingly populated and developed, background water quality data will be crucial in understanding the effects of growth on the National River's water resources. The goal of the WQM program is the protection of visitors to BUFF and the preservation of the entire array of Buffalo River's aquatic resources.

The objective of this report is to provide a comprehensive analysis of the water quality data collected since the inception of the Water Quality Monitoring Program in 1985. Six years worth of data have been statistically examined to characterize water quality patterns and trends. Because this report analyzes a large volume of data collected over a number of years, mean values are the primary statistic referenced and minimum and maximum concentrations are not specifically addressed. The first part of this report concentrates on low-flow (base flow) data only. Any data associated with rain events and surface runoff (data collected from the rising or falling limb of a storm hydrograph) have been removed. In the second part, rain event data are examined and reports and investigations relating to rain events are reviewed. Because nonpoint agricultural sources are the dominant contributors of bacteria and nutrients in the Buffalo River watershed, it is important to consider rain event data which typically produce the highest concentrations of these parameters.

BUFF WATER QUALITY REPORT, 1985 - 1990

Sampling locations included in the Water Quality Monitoring Program consist of nine river corridor sites, twenty tributaries and three springs (Figure 1). The sampling schedule included all river corridor sites on a monthly basis and the tributary and spring sites twice each month from May until September. The river corridor samples were analyzed for selected metals and nutrient parameters once each season. The availability of additional funding in FY89 allowed BUFF to measure the concentration of nutrients in tributary samples five times during the summer season. In 1990, Buffalo National River initiated a cooperative program with the Arkansas Department of Pollution Control and Ecology (ADPC&E) through which samples collected on a monthly basis from the river corridor and selected tributaries and spring sites are analyzed by ADPC&E for nutrients, chlorine and sulfate. In total, 1,312 site visits were made with approximately 9,487 measurements recorded from 1985 to 1990.

RESULTS

FECAL COLIFORM

River Corridor

Figure 2 shows that the highest mean and geometric mean fecal coliform (FC) values occur at the Ponca site (R2) (see Appendix A1). Highest FC values have been observed at this site each year since 1985 and are approximately four times higher than other river sites. As documented in previous studies (Thornton and Nix, 1985, Mott, 1990, Mott and Apel, 1988, Fraser, 1988, and Weeks, 1987), the cattle grazing operations in Boxley Valley are responsible for the higher bacterial concentrations. There are between 400 and 800 head of cattle in Boxley Valley (depending on the season) which produce twenty to forty thousand pounds of feces per day (Reddy, 1980) and have direct access to the river and its tributaries in some areas of Boxley Valley.

The data collected at all the river corridor sites was analyzed by year collected and the mean and geometric mean FC values are shown in Figure 3 (see Appendix A2). Fluctuations are observed from year to year and result from hydrologic variations (i.e. extremely low flows in 1988) and inconsistencies in the sampling frequency (as indicated by differing N-values). The trend line shown in Figure 3 indicates a doubling (2.5 col/100 mL in 1985 versus 5 col/100 mL in 1990) in geometric mean FC values over this six year period. Significant variability is present within the data set and it will require several more years of sampling to confirm or deny this trend.

Monthly variations in FC geometric mean values are shown in Figure 4 (see Appendix A3). In general, spring samples have higher FC concentrations resulting from surface water influx which transports fecal material from pasture areas and from vadose waters flushing leachate from cattle and septic fields

(Mott, 1990, and Canter and Knox, 1985). This pattern would be more pronounced if rain event samples were included in the statistical analysis.

Tributaries

Figure 5 shows the mean and geometric mean values for FC at each tributary site (see Appendix A4). On the average, FC concentrations were twice as high in tributaries as compared to the river. Ten tributaries had g-mean values greater than 10 col/100 mL. The tributary with the highest g-mean concentration was Tomahawk Creek (T14) at 37 col/100 mL. Tributaries with consistently higher FC concentrations include Tomahawk Creek (T14), Bear Creek (T12), Richland Creek (T9), Davis Creek (T7), Mill Creek (T4), and Leatherwood Creek (T24). Higher FC concentrations in these tributaries are attributable to livestock sources except for Mill Creek (T4) and Leatherwood Creek (T24).

In Mill Creek, studies by Fraser (1988) using fecal coliform/fecal streptococci ratios indicated human waste as the dominant source of the fecal contamination. Leachate from faulty septic tank systems (or possible direct discharges) from the many residences located along Highway 7 between Dogpatch and the Buffalo River and sewage from the Dogpatch amusement park are possible sources. The drainage area for Leatherwood Creek is within the boundaries of the Lower Buffalo (NPS) and Leatherwood (USFS) Wilderness areas. Sources of FCs may be associated with private inholdings within the Forest Service Wilderness, horse/hunting camps, or from other recreational uses. However, another possible explanation is deposition of fecal material from wildlife (beavers, deer, etc.) and this in combination with the dense forest canopy (which shields the FC from ultraviolet radiation) and generally low flows due to the summer sampling schedule, result in higher background concentrations.

Figure 6 shows the mean and g-mean FC values by year collected (see Appendix A5). All tributary sites have been combined in this analysis. As with the river corridor, 1988 was the year with the lowest summertime stream flows and the lack of dilution resulted in relatively higher values for that year. The trend line for the g-mean begins near 8 for 1985 and reaches 13 by 1990 indicating an increase in FC concentrations in tributaries over this time period. As with the river corridor, inconsistencies in the data set could be partially responsible for the positive slope of this trend line.

Because year round sampling of tributaries was not initiated until 1991, seasonal analysis of FC in the tributaries is not possible at this time. However, the same general trends are expected for the tributaries as have been observed in the river corridor; higher values in the spring corresponding to periods of increased surface runoff.

Springs

Geometric mean values for the three springs sampled were 4 col/100 mL at Luallen Spring (S2), 3 col/100 mL at Mitch Hill Spring (S33), and 7 col/100 mL at Gilbert Spring (S41) (see Appendix A6). Highest g-mean FC values are found at Gilbert Spring because the karst geology in the vicinity of the town of Gilbert (see Figure 1) allows septic tank leachate to migrate into the underlying ground water system. However, the bacterial concentrations in Gilbert Spring are generally very low given the geologic setting. Luallen and Mitch Hill Springs generally had fecal coliform concentrations lower than those found in the river or tributaries indicating the recharge areas for these springs are relatively unimpaired.

NUTRIENTS

River Corridor

The variation in nutrient mean concentrations at the river corridor sites is shown in Figure 7. The nutrient parameters showing the highest concentrations and most variance are total Kjeldahl nitrogen (TKN) and nitrate plus nitrite as nitrogen (NO₃). As depicted in Figure 8, 87% of the samples analyzed by the Arkansas Department of Pollution Control and Ecology in 1990 were below detection limits (0.03 mg/L) for ortho phosphate (OPO₄) indicating that phosphorus may be the limiting nutrient in the Buffalo River's floral community. Additionally, total phosphate (TPO₄) was below detection limits (0.03 mg/L) in 52% of the samples and ammonium (NH₄) was below detection limits (0.05 mg/L) in 60% of the samples.

Focusing on TKN and NO₃, it can be observed that TKN is relatively high at the Wilderness Boundary (R1) because flow volumes are typically low in this headwaters portion of the river. The abundant organic detritus produced from the heavily forested wilderness area receives little dilution and becomes concentrated in these waters. Further downstream, flow volumes increase (mainly from karst springs) while the input of organics remains static and some of the original organic nitrogen settles out or is converted to inorganic forms and subsequently lost through plant uptake or volatilization of ammonia (Reddy, 1980). It is worth noting that nutrient concentrations do not appear to increase at R2 during base flow conditions, in contrast to fecal coliform bacteria, despite the cattle grazing in Boxley Valley.

There is a notable increase in NO₃ concentrations beginning at Hasty (R4) that peaks at Wolum (R6) and declines to upper river concentrations at the river mouth (R9). TKN concentrations also increase within this river interval. The source of the increased nitrogen may be linked to the relatively high nutrient concentrations in some of the tributaries feeding this stretch of the river as discussed below.

Figure 9 shows the behavior of TKN, NO₃, and TPO₄ by year for the river corridor sites. The trend lines for NO₃ and TPO₄

increase only slightly over this six year period while TKN demonstrates a substantial increase of 0.3 mg/L. The positive slopes for these nutrients indicate elevated loading of organic materials through time and may be indicative of expanding agricultural activities in the watershed. However, as with FC, the positive slopes and fluctuations from year to year are at least due in part to non-standard sampling times, different numbers of samples collected each year, seasonal variations, hydrologic fluctuations, and utilization of different labs with different analysis techniques and detection limits. Beginning in 1990, nutrient analysis has been performed by the ADPC&E on a monthly basis from each of the river corridor sites except R9. This will allow for significance testing of trend data such as is presented in Figure 9 to determine if these changes are statistically valid.

A seasonal analysis of nutrient data collected from the river corridor sites is shown in Figure 10. TKN values are typically higher in the fall as a result of the Autumn leaf fall. Other conclusions can not be drawn from the data with any degree of confidence because so few nutrient samples have been collected and hydrologic fluctuations (such as unusually high or low flows) are imprinted on the data set and skew the results. A better understanding of seasonal variations in nutrient concentrations can be observed in Figure 11 which is drawn from data collected by the ADPC&E at Highway 65 and shows monthly mean NO₃ and flow values from 1978 to 1989. In Figure 11, it can be seen that flow and NO₃ concentration are not directly related. Highest concentrations of nutrients are present in the winter and begin to fall off sharply beginning in April, even though flows and surface runoff continue to increase. This indicates that the plant community controls the abundance of inorganic nitrogen in the river and is supported by Hynes, 1972. In winter months, the plant community is not actively extracting nutrients from the river water, whereas in spring and summer, the plant community is dependent on nutrients and is limited by their availability. Thus it is critical to identify and maintain a near natural level of nutrient input to the river because any increase in nutrient loading will result in the growth of nuisance algae which thrive on nutrients.

Tributaries

Figure 12 displays the mean TKN, NO₃, and NH₄ values at each tributary site from 1985-1990. Mean nitrate values greater than 0.1 mg/L are considered anomalous relative to pristine tributaries and have been highlighted in Figure 12 with an asterisk. Mill Creek (T4) has the highest mean nitrate concentration (.44 mg/L) of any tributary monitored. Nitrate contamination in Mill Creek may be the result of faulty sewage disposal systems at some of the many residences located along Highway 7 and adjacent to Mill Creek, from lack of proper sewage

treatment or trout raising operations at Dogpatch Amusement Park, contaminated spring water, or from some other source. In addition to nitrate contamination, Figure 12 shows Mill Creek to have the second highest TPO4 mean value of 0.021 mg/L.

Other tributaries with notably higher nitrate concentrations are Davis Creek (T7), Calf Creek (T10), and Mill Creek (T11). Calf Creek also displays the highest TPO4 mean concentration for any tributary sampled at 0.028 mg/L (Figure 13). Nitrate and phosphate contamination in Calf Creek may possibly result from agricultural operations in this watershed. However, Owen and Johnson, 1966, suggest that much of the phosphate reaching streams does so through bank erosion. About 50 feet above the sampling site on Calf Creek is a large erosion scarp which may be the source of the elevated phosphate levels. For all the tributaries highlighted with an asterisk in Figure 12, only Mill Creek (T4) is being impacted by human waste as the dominant source. For the remainder of the tributaries, livestock grazing is probably the dominant source of fecal coliform and nutrient contamination. Most of the impacted tributaries are in the middle river section and the nutrient loading from these tributaries is believed responsible for the increased nutrient concentrations in the river corridor shown in Figure 7.

Springs

NO3 and TPO4 mean concentrations were generally higher in the springs as compared to either the tributaries or the river corridor. The highest mean nitrate concentration was calculated for Gilbert Spring at 0.817 mg/L. However, this value was only slightly higher than the concentration of 0.768 mg/L observed at Mitch Hill Spring which is typified by very low fecal coliform concentrations. Conversely, TKN values were very similar in both surface and ground waters. It is interesting to note that the pattern of higher nitrate concentrations as compared to TKN concentrations is observed in Mill Creek (T4) and most of the other spring fed tributaries indicating that the source of the elevated nutrient concentrations may in part be associated with the large spring located at Dogpatch Amusement Park.

Nitrates are readily soluble in ground water and considerable research would be needed to determine if natural or anthropogenic sources are responsible for the elevated nutrient levels in BUFF's springs. Dye tracing work and other hydrologic investigations performed by Aley, 1989, showed that ground water can migrate to Mitch Hill Spring from outside the surface water drainage and as far away as Pindall (5 miles). Other dye tracing work performed by Aley (1982) demonstrated the potential for ground water contamination from the town of Gilbert and the agricultural activities along Dry Creek which is a losing stream that flows underground to Gilbert Spring. The recharge area for Luallen Spring is dominantly covered by deciduous hardwood forest, whereas the recharge areas for Mitch Hill and Gilbert

Springs have a significant component of land area converted to agriculture (grazing) and an additional portion in urban land use.

TURBIDITY

River Corridor

Figure 14 shows the mean turbidity values for each river corridor site. Despite the presence of cattle in the Boxley Valley area and the associated trampled and eroding banks, fecal deposition, and poor soil cover in winter, average low flow turbidity values are less at Ponca (R2) than at the upstream Wilderness Boundary collection site (R1). Under high flow conditions associated with rain events the opposite was shown (Mott, 1990). Lower average turbidity is dominantly the result of the geologic differences between the upper and lower site. The Ponca site (R2) has a much greater proportion of limestone in its drainage area than the upstream, Wilderness Boundary site (R1). The Boone Limestone Formation, the major karst unit at BUFF, outcrops in Boxley Valley and its associated abundant springs and seeps add a significant percentage of low turbidity ground water to the river in this stretch. The watershed above the R1 site is dominated by interbedded Pennsylvanian aged sandstones and shales and also exhibits a higher gradient.

There is no clear relationship between higher nutrient concentrations (Figure 7) and higher turbidities (Figure 14). However, there is a tendency for both higher nutrient concentrations and higher turbidities in the middle river. The reason for the apparent lack of correlation may be explained by Figure 15 which shows the average monthly turbidity values for all of the stations combined. It is clear that late winter and spring samples have a significantly higher turbidity than samples collected from the other times of the year. The higher turbidity during these months results from surface runoff and transport of sediment and other particles by high velocity waters. Higher values in the spring have the effect of dampening out the small perturbations that might otherwise be observed between individual stations.

In Figure 16, the effects of higher turbidity in the spring are removed to highlight the relative degree of turbidity at each station resulting from algae by focusing only on those samples collected during the summer months. During the summer, R2 shows a higher average turbidity than R1, and station R4 shows an anomalous high turbidity value relative to the other stations. Summer low flow turbidity is typically related to phytoplankton and algal growth which in the case of R4 may result from nutrient loading from Mill Creek and the other tributaries above Hasty.

Tributaries

The highest mean turbidity value shown in Figure 17 is at Richland Creek (T9). The higher mean turbidity values resulted from very low flows and the direct deposition of fecal material by wading cattle which spurred excessive growths of phytoplankton. As with the river corridor, the turbidity in the tributaries shows no clear relationship to nutrient concentrations and are probably more a function of geology and sediment transport during rainstorms than algal production. For example, Tomahawk Creek (T14) has some of the highest nutrient and fecal coliform concentrations and yet exhibits a very low turbidity. This indicates that a significant amount of the ground water recharge feeds Tomahawk Creek and that this ground water may be contaminated by land use practices occurring in Tomahawk Creek's ground water recharge area.

Generally, the low flow turbidity of the tributaries is between 2 and 3 FTU's. Turbidities as high as 68 FTU's have been recorded in association with rain events. The dominant source of turbidity during high flow times is from erosion of road surfaces and ditches, cattle pastures and other cleared land, and unprotected rapidly eroding cutbanks. Although turbidity and FC concentrations correlate very well during rainstorms (Mott, 1990), a similar relationship is not observed during low flows.

Springs

Turbidity in springs is dominantly a function of the relative amount of discrete recharge associated with the spring's drainage basin. Luallen Spring had the highest turbidity of 2.5 FTU's while Gilbert and Mitch Hill Springs both showed mean turbidities of 0.9 FTU's. The reason for the higher turbidity at Luallen Spring results from higher sediment loads which are transported in through sinkholes and fractures.

DISSOLVED OXYGEN (DO)

River Corridor

Mean dissolved oxygen values are in the range of 10 mg/L for the river corridor as shown in Figure 18. D.O. concentrations increase in the downstream direction in spite of the increasing temperatures also observed downstream. It should be noted that D.O. measurements were made during daylight hours when photosynthesis and reoxidation are at a maximum. It would be beneficial to modify the database and data analysis programs to provide percent saturation calculations.

Monthly D.O. averages are shown in Figure 19 and display classic summertime troughs and winter peaks. The fluctuation is in the order of 5 mg/L and results from changing temperatures which are inversely proportional to the saturation potential of oxygen in water. During the critical summer months, diurnal measurements should be taken to develop characteristic plots of the daily D.O. cycle.

Tributaries

Mean D.O. values are fairly consistent throughout the tributaries as shown in Figure 20. Highest D.O. concentrations are observed at Richland Creek (T9) at 9.7 mg/L (Appendix A4) and lowest at Cecil Creek (T3) and Leatherwood Creek (T24) at 7.8 mg/L. Overall, D.O. values are higher in the river corridor than in the tributaries. This result is probably more a function of the sampling schedule than a real difference in D.O. concentrations. Tributaries were sampled only during the summer from 1985 to 1990, while the river corridor was sampled monthly on a year round basis and thus contains more data collected during winter months.

Springs

Spring D.O. mean values were very similar to the tributaries (see Appendix A6). The maximum D.O. concentration was observed at Luallen Spring (S2) at 9.1 mg/L and the minimum at Mitch Hill Spring (S33) at 8.0 mg/L.

TEMPERATURE

River Corridor

Mean temperature concentrations tended to increase in a downstream direction from the Wilderness Boundary (R1) to Woolum (R5) where the mean values leveled off at 19.0 to 19.5 degrees Celsius as shown in Figure 18. Temperature values ranged from a minimum of 2.4 degrees C. at the Mouth (R9) to a maximum of 32.6 at Woolum (R5) (see Appendix C1).

Tributaries

Mean temperature values in the tributaries ranged from a low of 18.4 Degrees C. at Brush Creek (T13) to a high of 24.1 at Big Creek (T18) in the lower part of the river as shown in Figure 19. Generally, tributaries with mean temperature values less than 20 are influenced by spring water input from a source fairly close to where the samples are collected and tend to have higher conductivity values as well. The opposite is true for the tributaries showing relatively high temperatures and streams with higher temperatures are often the larger tributaries that flow through grazing areas from which the overhanging canopy has been removed. However, this is not always the case and lack or presence of spring water influence and the season appears to be the dominant controlling factor to stream temperature.

Springs

Average spring temperatures ranged from a low of 14.0 degrees C. at Luallen Spring (S2) to a maximum of 16.1 at Gilbert Spring (S41). Temperature is controlled by the residence time for the ground water in the spring system indicating that Luallen Spring may have a longer residence time than Gilbert or Mitch Hill Springs. Ideally, spring temperatures should approach the

BUFF WATER QUALITY REPORT, 1985 - 1990

mean annual temperature for northwest Arkansas of 14.5 degrees. Another regulating factor is the orientation of the spring (whether it faces north or south) and the depth and physiography of the spring valley which can act as a cold air trap and result in localized mean annual temperature anomalies.

SPECIFIC CONDUCTANCE

River Corridor

Specific conductance mean values increased in the river corridor from a low of 109.0 $\mu\text{mhos/cm}$ at the Wilderness Boundary (R1) to a maximum of 245 at the Mouth (R9) as shown in Figure 18. The increase is caused by a longer residence time for waters in the lower river and subsequent increase in the level of dissolved constituents. Another factor contributing to the increase in dissolved solids is the greater percentage of carbonate (soluble limestone and dolomite) rock types exposed in the lower watershed.

Monthly variations in specific conductance mean values are given in Figure 21. During the higher precipitation months (Jan - May) runoff and vadose recharge mix with the river water and dilute the more conductive ground waters, resulting in lower specific conductance values. During the drier summer months, when river recharge is dominated by more conductive ground water, the mean specific conductance values are higher by over 100 $\mu\text{mhos/cm}$.

Tributaries

Specific conductance mean values are highly variable in the tributaries as shown in Figure 22 and range from a low of 164.7 $\mu\text{mhos/cm}$ at Richland Creek (T9) to a high of 393.0 at Middle Creek (T23). Specific conductance is apparently higher in the tributaries than the river but this results from the fact that most of the tributary samples were collected during the low-flow summer months. In general, conductance is higher in the tributaries confluent in the lower half of the watershed because of increasing amounts of carbonate rock types in this area. Additionally, tributaries that enter from the north side of the river typically have a higher conductance than tributaries entering from the south. This indicates that northern tributaries have a higher percentage of spring water recharge and that their ground water recharge areas may extend beyond the area of their surface water drainages as demonstrated by Aley, 1988, for Mitch Hill Spring.

Springs

Luallen Spring has a mean specific conductance value of 220.3 $\mu\text{mhos/cm}$ as listed in Appendix A6 which is markedly lower than the specific conductance values for Mitch Hill Spring (376.2 $\mu\text{mhos/cm}$) and Gilbert Spring (390.6 $\mu\text{mhos/cm}$). The difference in specific conductance observed between these springs is related to

the geologic characteristics of their respective recharge areas. Lower conductance values indicate a lower residence time and larger conduits through which the ground water migrates allowing less surface area from which to dissolve carbonate ions. There are undoubtedly other factors involved, but it should be kept in mind that each of the springs discharge from the Boone formation with the predominate difference being volume of discharge and presence of overlying strata.

pH

River Corridor

Figure 18 shows that the mean pH value becomes slightly more alkaline in the downstream direction (7.81 at R1 to 8.13 at R9). This is directly correlatable to the increase in specific conductance which is in turn related to an increase in carbonate ions. pH in limestone buffered streams is controlled by the carbonate equilibrium equation and the increase in dissolved oxygen and decrease in carbon dioxide favors the precipitation of calcium carbonate and a decrease in free hydrogen ions.

Tributaries

Mean pH values in the tributaries ranged from a low of 7.81 at Calf Creek (T10) to a high of 8.29 at Water Creek (T15) as shown in Figure 23.

Springs

Mean pH values were lower in the springs than either the tributaries or the river. The lowest mean pH value was calculated for Mitch Hill Spring (S33) at 7.30 and represents the lowest mean pH for any of the sampling sites. Water which has percolated through soils and into ground water systems tends to have a lower pH than surface waters because of hydrogen ions produced by the dissociation of carbonic acid. pH in carbonate waters is also highly influenced by the amount of dissolved carbon dioxide. After ground waters emerge from a spring, photosynthesis and gaseous diffusion cause CO₂ concentrations to decrease which results in the precipitation of calcium carbonate and a loss of free hydrogen ions. Carbonate equilibrium is soon achieved in surface streams at a pH closer to 8.0 as observed in the tributary and river corridor mean pH values.

Rain Event Discussion

In both routine water quality monitoring and site specific studies the highest concentrations of nonpoint associated pollutants have been observed during rain events. In a study performed by Thornton and Nix, 1985, it was determined that nutrient and bacterial concentrations increased in a downstream direction within Boxley Valley (see Figure 1). Thornton and Nix

BUFF WATER QUALITY REPORT, 1985 - 1990

attributed this increase to cattle grazing based on fecal coliform/fecal streptococci ratios and the land use patterns in the drainage area. A more intensive study conducted by Weeks, 1987, confirmed these findings and demonstrated that several tributaries to the Buffalo River in Boxley are significantly impacted by direct access of cattle to these streams. In both studies, it was noted that several parameters increased in concentration during rainstorms due to flushing of pasture surfaces by storm generated runoff. In order to further quantify the relationship between rainstorms and agricultural land use on the water chemistry in Boxley Valley, the National Park Service initiated an intensive study in cooperation with the Arkansas Water Resources Research Center and the University of Arkansas.

To accomplish this study, two sampling stations were located; one above and one below the grazing areas in Boxley Valley. Samples were subsequently collected throughout the duration of four rainstorms; two in the winter and two in the spring. The conclusions of this study (Mott, 1990) were:

- 1.) Fecal coliform bacteria consistently (during each season and at all discharge levels) demonstrated a relationship between land use and water quality degradation
- 2.) Maximum fecal coliform concentrations were as much as three times higher below the pasture area (1500 colonies/100 mL versus 500) and remained higher for a longer period of time
- 3.) Average fecal coliform concentrations are 50 times higher in pasture runoff than forest runoff
- 4.) A single rain event can flush as much fecal coliform bacteria into the Buffalo River as are transported during 150 low-flow days
- 5.) Nutrient concentrations were generally higher below the pasture area
- 6.) Seasonal variations in nutrient concentrations were significant, especially for inorganic forms of nitrate and phosphate.

Because the nutrient parameters correlated better with turbidity than with discharge, it was concluded that organic nutrients are transported in with suspended solids, as opposed to being in solution. These suspended particles could subsequently be deposited in river sediments (as point bars, in eddys, etc.) and increase the concentration of organic nutrients in bottom sediments. Subsequently, in warmer summer months, microorganisms decompose and convert the organic material to soluble inorganic forms (Bigger and Corey, 1968, Hynes, 1972). As reported by

BUFF WATER QUALITY REPORT, 1985 - 1990

Hynes, 1972, "Thus while it (phosphate) may be washed in in large amounts at certain times it is not all swept rapidly downstream and lost. Shadin (1956) reports that ooze collected from floodwaters in the Volga, when soaked for ten days in water from the river, raised the dissolved content of the water as follows:

Ca	from 19.6 to 51.2 mg./l.
Mg	from 6.1 to 51.7 mg./l.
N	from 0.075 to 0.260 mg./l.
P	from 0.0008 to 0.0125 mg./l.

Normally the concentration of nitrate and phosphate actually in solution in stream and river water are low because the ions are rapidly taken up by plants" (Hynes, 1972, pp. 47 and 48).

Obviously the concept of nutrient loading in stream sediments has been around for some time, but this concept has not been directly studied in relation to agricultural nonpoint loading in Arkansas. Algal blooms are often observed in the Buffalo River and show both temporal and spatial fluctuations. How these algal blooms relate to the above discussion can only be speculated and studies need to be conducted to determine if sediment loading and increased algal production are correlatable. Additionally, it is not known if "nuisance" algae are only an aesthetic concern. We do not know which species benefit and which are impaired by nutrient input from nonpoint sources throughout the Buffalo River watershed.

Figures 24, 25 and 26 show the comparisons between base and storm flow mean values for the river, tributaries, and springs, respectively (note the scale is logarithmic). In all three figures, fecal coliform, turbidity, and total phosphate increased substantially during storm events while specific conductance decreased. Total Kjeldahl nitrogen increased in the river and the tributaries during storm events and decreased in springs. Nitrate + nitrite as nitrogen concentrations increased in the river during storms but decreased in tributaries and springs. Dissolved orthophosphate was lower in the river during storms and higher in the tributaries and springs. Ammonium was higher in the river and springs and below detection limits in the tributaries during storms. When interpreting these results it is important to consider both the number of samples taken and the season during which they were collected. Much more data were collected during low flow and most of the tributary and spring data were collected during the spring and summer seasons, while river corridor data represents all seasons. However, because the majority of storm flow data were collected during the spring for the river corridor, these data are also somewhat seasonally biased.

BUFF WATER QUALITY REPORT, 1985 - 1990

When examining Figure 24, it can be seen that only dissolved orthophosphate and specific conductance show the effects of dilution, all other parameters become more concentrated in association with storm runoff. Probably the most dramatic increase is observed in total phosphate concentrations which average four times higher during rain events and displays this relationship in the tributaries and springs as well as the river. This excess phosphate is, according to Owen and Johnson (1966) and Mott (1990), adsorbed to soil particles or associated with fecal material and has important considerations on river sediment phosphate concentrations as discussed above. Total Kjeldahl nitrogen generally displayed similar behavior and also may show "loading" of stream sediments with organic nitrogen during storm events. How much of this storm event loading is natural and how much is related to agricultural and other land use activities in the watershed remains to be answered.

CONCLUSIONS

The major findings discussed in the body of this report include:

- 1.) Average base-flow fecal coliform concentrations are well below state standards;
- 2.) The highest mean and geometric mean fecal coliform concentrations observed in the river occur at the Ponca site (downstream from Boxley Valley);
- 3.) Trend analysis indicates a doubling in fecal coliform concentrations over the six year period since routine water quality monitoring was established;
- 4.) Highest fecal coliform concentrations occur in the spring as a result of contaminated surface runoff entering streams;
- 5.) Average fecal coliform concentrations in the tributaries are twice that observed in the river;
- 6.) Nutrient concentrations are generally very low in the river with the exception of rain event data;
- 7.) Tributaries in the middle river, and the middle river itself, tend to have higher nutrient concentrations;
- 8.) Seasonal variations in nutrient concentrations are pronounced and are controlled by the level of activity in the floral community;
- 9.) Spring waters are generally higher in nitrate concentrations as compared to surface waters;
- 10.) Highest summertime turbidities are associated with the Hasty site indicating that the highest phytoplankton production is occurring in this stretch of the river.

BUFF WATER QUALITY REPORT, 1985 - 1990

Boxley Valley represents the only area along the river corridor where degradation of water quality is occurring from sources adjacent to the river. This degradation consists of fecal coliform concentrations averaging four times higher than other river sites, with maximum concentrations near 1500 colonies/100 mL during periods of storm induced runoff. Organic nutrients were also shown to be higher below Boxley Valley during storm events. Another source of potential degradation along the river corridor is from recreational activities. In 1985, public use areas were intensely monitored for increased fecal coliform concentrations and have been sampled subsequently during periods of heavy use. In all cases, no increase in fecal coliform concentrations was affiliated with these swimming and camping activities.

The middle portion of the river (from Hasty to Rush) shows relatively higher nitrate concentrations than above and below this stretch. The source of the increased nutrients appears to be related to higher nutrient concentrations in tributaries confluencing in this same area. Table 1 lists the tributaries, in order from most to least impacted, and gives the potential sources based on a knowledge of the land use activities occurring in each of the tributary watersheds.

Mill Creek was determined to be the most impacted tributary based on the six years of water quality data. A study performed by Mathis (1991) examined the macroinvertebrate community structure in Mill Creek and compared the findings to the more pristine Cecil Creek. Species richness and diversity indices provided information showing negative impacts within the aquatic community in Mill Creek. Values of Margalef's Index place Mill Creek in the mildly to moderately polluted category. Based on the results of the macroinvertebrate investigation and the physicochemical data, an intensive "one-shot" water quality investigation was performed by the Arkansas Department of Pollution Control and Ecology at 12 sites within the Mill Creek watershed. Results of this investigation will be presented in a separate report pending completion of the analyses.

Overall, the Buffalo River is characterized by excellent water quality. The protected riparian corridor provided by the park along most of the river allows for assimilation of organic constituents through natural processes. Where more degraded tributaries confluence with the river, pollutants are usually eliminated through assimilation before the river confluences with the next tributary. The only major exception to this excellent water quality occurs during rainstorm-runoff events when large amounts of bacteria and nutrients are transported to the river from sources (dominantly agricultural) throughout the watershed. Also, increasing development in the watershed could eventually overload the natural cleansing ability of the river, at which point water quality would worsen in the downstream direction.

RECOMMENDATIONS

Based on six years of water quality monitoring, a knowledge of the relationship between land use and aquatic resources, and the findings of this report, the following recommendations are proposed:

- 1.) Continue Water Quality Monitoring Program - Without the Water Quality Monitoring Program this report would not have been possible. BUFF needs to continue this program to quantify the impacts caused by agriculture, sewage treatment facilities, recreation, silviculture, and construction on its aquatic resources. Water quality information is the single best tool available to managers defining the relationship between land use activities in the watershed and resultant changes in the chemical quality of BUFF's ground and surface waters. This need is identified in BUFF's Resource Management Plan (RMP) as project number BUFF-N-110.
- 2.) Expand Biological Monitoring Efforts - Limited data have been gathered on the aquatic macroinvertebrate fauna of the Buffalo River drainage. The present level of taxonomic knowledge and habitat sampling is insufficient to identify rare and endangered species or undescribed taxa. Aquatic macroinvertebrate communities can be extremely sensitive to pollution and are therefore good indicators of the health of the aquatic ecosystem. Baseline data are needed to characterize the function, distribution, and pollution tolerances of the aquatic macroinvertebrates at BUFF. In conjunction with this characterization process, a biological monitoring scheme would be designed to supplement the present Water Quality Monitoring Program and a taxonomic key specific to Buffalo River developed. Biological data is critical in understanding the link between observed physicochemical alterations in the aquatic environment and associated impacts on faunal communities. This need is identified in BUFF's RMP as project numbers BUFF-N-112 and 113.
- 3.) Perform a Seepage Run - A seepage run consists of conducting discharge measurements at numerous locations along the course of a stream to determine gaining and losing reaches. This is important because the base or low flow water in the Buffalo River comes from ground water sources. Some of this input likely comes from springs within the river channel that would contribute significant amounts of water to the river yet are unknown because they can not be directly seen. Other areas can lose water to the ground water system such as the stretch below Woolum where the river actually goes dry during summer months and reemerges from artesian springs further downstream. Additionally, discharge

BUFF WATER QUALITY REPORT, 1985 - 1990

measurements would be performed at tributaries and the relative volume from the north and the south sides of the watershed would be determined. A surprising facet of the karst geology of the area is that the northern watershed, although smaller in surface extent, appears to be providing as much or more water to the river as the south side during periods of low flow. This indicates that the ground water recharge area for a significant portion of the northern watershed may extend beyond the limits of the surface water drainage divide as demonstrated by Aley (1989) in the case of Mitch Hill Spring.

4.) Continue to Promote Interactive Relationships with the Arkansas Department of Pollution Control and Ecology (ADPC&E) - Some of the most valuable insights gained through the Water Quality Monitoring Program were gained through nutrient analysis performed by the ADPC&E laboratory. Additionally, sources of contamination outside the boundaries of the Buffalo National River are beyond direct control of the National Park Service. BUFF is therefore dependent on state regulatory agencies to bring polluters into compliance. In the past, ADPC&E employees have conducted special investigations on impacted tributaries, provided insight into state water quality regulations, and developed a networking link to other local, state and federal agencies concerned with water quality protection in the state. Continued cooperation will be critical to the National Park Service and the State of Arkansas in our combined efforts to protect one of our nation's truly Outstanding National Resource Waters - the Buffalo River.

5.) Encourage Implementation of Best Management Practices - The number one source of water quality degradation, and the greatest threat to the future water quality of the Buffalo River, is agricultural. The Soil Conservation Service (SCS) has proposed several of the tributaries to the Buffalo River be listed as impacted waterways. In conjunction with this listing they would seek federal grants to assist farmers in implementing Best Management Practices (BMPs) on their farms. Additionally, Buffalo National River should encourage and assist farmers in Boxley Valley to implement BMPs. Agricultural activities in Boxley directly impact the water quality of the Buffalo River as demonstrated in this and other reports. Implementation of BMPs in Boxley Valley would lessen water quality degradation and serve as a positive example to other farmers in the watershed.

6.) Mitigate Eroding Stream Banks and Restore Natural Riparian Vegetation - Numerous erosion sites exist at BUFF where the rate of soil loss is so great as to preclude the natural recovery processes of revegetation and erosion continues unimpeded. In some cases, as much as twenty four feet per year of horizontal migration is occurring resulting in tons of nutrient rich sandy

and silty floodplain deposits being swept into the river. The erosion process is compounded at Boxley Valley because of the significant historical, archeological and agricultural resources being lost there. Erosion is a natural process that under natural riparian conditions occurs at a relatively slow rate. The goal of modern erosion mitigation is to attempt to restore the natural vegetation adjacent to the river and significantly slow the rate of erosion. BUFF needs to begin the process of stream bank revetment using vegetative materials so that natural and cultural resources can be protected. This need is identified in BUFF's RMP as project number BUFF-N-142.

7.) Inventory Springs - The water flowing into the Buffalo River is supplied by ground water flowing from springs, seeps, and fractures for most of the year. Protecting the quality of BUFF's ground water is as critical as protecting BUFF's surface water because the karst geology of the area allows the two to be interconnected. In the four Arkansas counties to the northwest of BUFF, significant ground water contamination has occurred with subsequent contamination of streams through spring discharge. The major source of the contamination is poultry litter spread on pastures and subsequent leaching of nutrients and bacteria from this litter into ground water. The Governor's Animal Waste Task Force estimates that poultry production in Arkansas will double in the next ten years. As the poultry industry continues to expand, land application of poultry wastes could become an additional source of nonpoint contamination within the Buffalo River watershed. BUFF needs to perform a baseline inventory of its larger springs to collect critical background information on the water quality and quantity emerging from these springs. This need is identified in BUFF's RMP as project number BUFF-N-160.

8.) Calculate Percent Saturation for Dissolved Oxygen - A relatively minor change that can be accomplished with a slight modification of the existing database.

9.) Algal Monitoring - Periphyton and phytoplankton have been shown to undergo dramatic growth responses to the input of organic pollution in stream systems. Algal blooms in the Buffalo River can be significant and show both spatial and temporal fluctuations. How this algal biomass production relates to nonpoint source pollution, land use activities, hydrologic cycles, and nutrient contributions from incoming tributaries is unknown. The aesthetic quality of the river is impaired by these algal growths and public perception of them is usually negative. Studies relating the biomass production to season, water quality, and tributary inputs in quantitative terms are needed to begin understanding the relationship between the factors that drive algal production and the amount and type of algae being produced. Additionally, it is not known what other aquatic species benefit,

BUFF WATER QUALITY REPORT, 1985 - 1990

and which are impaired, by increased periphyton production. This need is identified in BUFF's RMP as project number BUFF-N-115.

10.) Nutrient Cycling in Sediments - As discussed in this report, the cause and effect relationship between nutrient input from agricultural sources and increased growth of nuisance algae may not be immediate. River sediments may act as nutrient traps, building up organic nutrients during winter and spring, and releasing them in the summer. Direct measurement of nutrient concentrations in the water column may provide relatively low values because the plant community is actively assimilating these nutrients and converting them to biomass. As is the case in the Buffalo River, the concentration of nutrients may remain low, but during the summer season biomass production can be quite high. The source of the nutrients driving the biomass production is likely to be stream bottom sediments. Buffalo National River needs to promote a study that would:

- a.) sample stream sediments throughout the course of a year and plot concentrations versus time to determine if nutrient concentrations peak in winter and spring months (in conjunction with storm events) and reach minimums during the summer (when nutrient conversion and biomass production would be highest);
- b.) set algal traps on submerged sediments and determine if higher nutrient levels in stream sediments correlate positively with increased algal biomass; and
- c.) install piezometers in gravel bars and determine if nutrient concentrations increase downgradient within the pore waters of gravel bars indicating that leaching is taking place.

A study of this nature would have important implications for other streams in Arkansas affected by nonpoint source runoff from agricultural sources and other National Park Service units with similar hydrologic and land use settings.

11.) Monitor Rain Events - Due to the steep topography of the area, concentrated grazing occurs predominantly in floodplains and terraces adjacent to streams. When rain events occur, surface runoff and vadose recharge transport large quantities of fecal coliform bacteria, nutrients, and sediments into surface streams. These contaminants represent both a health risk to visitors (pathogens) and the potential to produce undesirable aquatic life or result in the dominance of nuisance species (periphyton, algal blooms, etc.). A previous study focusing on Boxley Valley demonstrated bacterial levels as much as seven times higher than state standards and increases in nutrient concentrations resulting from nonpoint sources. Because several major tributaries flowing into the park have larger and more concentrated grazing areas within their drainages than the pervious study site, they have the potential to produce much higher levels of bacteria and nutrients. These levels need to be

BUFF WATER QUALITY REPORT, 1985 - 1990

quantified to determine the effects of nonpoint source pollution from external sources. The rain event monitoring on selected tributaries should be done in the same manner as the previous rain event study so that results can be compared. This need is identified in BUFF's RMP as project number BUFF-N-116.

12.) Develop a Water Resources Management Plan - The water resources issues at BUFF are complex and are not confined to the park's legal boundaries. Because the waters of the Buffalo River are the primary resource of the park, a Water Resources Management plan should be developed with the intended purpose of:

- a.) identifying water resources issues facing the park;
- b.) assisting management in developing and evaluating alternative actions, as appropriate, concerning these issues; and
- c.) selecting a preferred course of action.

13.) Revise the sampling schedule beginning in 1992 to collect water samples at each site on a bimonthly as opposed to monthly basis. Seasonal water quality variations would be measured and enough data would be collected to allow yearly statistical analysis. The time saved would be used to collect nutrient samples from all stations and to instigate other recommendations proposed herein.

The recommendations presented above are both numerous and complex. They are based on concerns arising from six years of intensive water quality monitoring and the intricacy of BUFF's aquatic resources and ecosystems. Many of these recommendations are also presented in the Resource Management Plan. With approximately one million visitors per year attracted to the park and changes in land use occurring throughout the watershed, it is important to develop an understanding of BUFF's aquatic resources and take the appropriate actions to further their protection.

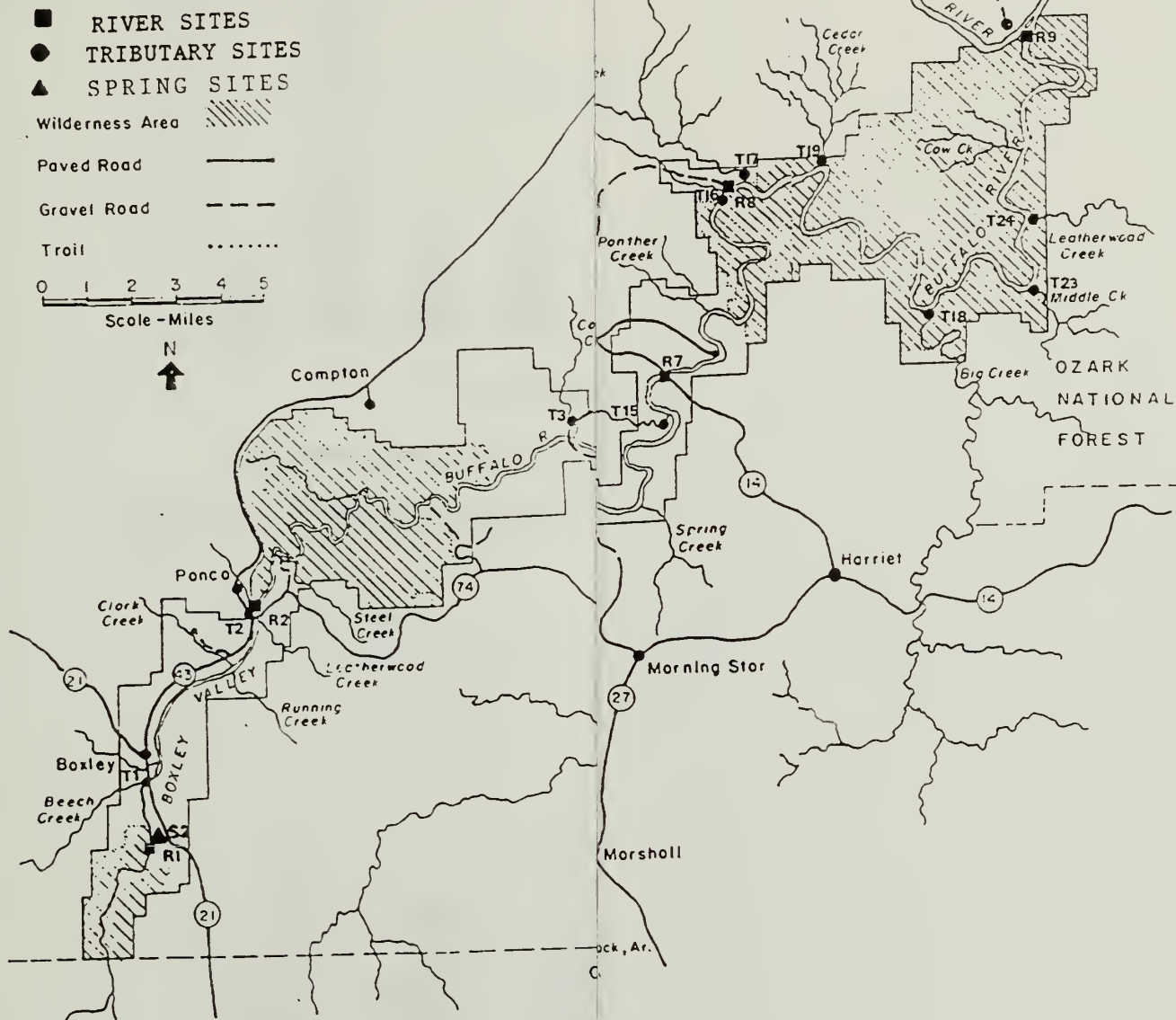
BUFF WATER QUALITY REPORT, 1985 - 1990

REFERENCES

- Aley, T., 1982, Characterization of groundwater movement and contamination hazards on the Buffalo National River: Ozarks Underground Laboratory, Protom, Missouri, 132 pp.
- Aley, T., 1989, Delineation and characterization of the recharge area for Mitch Hill Spring, Buffalo National River, Arkansas: Ozarks Underground Laboratory, Protom, Missouri, 69 pp.
- Bigger, J.W., and Corey, R.B., 1969, Agricultural drainage and eutrophication: in Eutrophication; causes, consequences, correctives: Proc. International Eutrophication Symposium, Madison, Wisconsin, National Academy of Sciences.
- Canter, L.W., and Knox, R.C., 1985, Septic tank system effects on ground water quality: Lewis Publishers, Inc, Chelsea, Michigan, 336 pp.
- Fraser, E.W., Jones, D., and Zimmerman, J., 1988, Report on water quality monitoring of two tributaries of the Buffalo National River: Arkansas College, Arkansas, 6 pp.
- Hynes, H.B.N., 1972, The ecology of running waters: University of Toronto Press, Canada, 555 pp.
- Mathis M.L., 1991, Macroinvertebrate community structure at selected sites on the upper Buffalo River: University of Arkansas, Fayetteville, Arkansas, 52 pp.
- Mott, D.N., and Apel, J.K., 1989, Water quality monitoring report - 1988: Buffalo National River, Harrison, Arkansas, 71 pp.
- Mott, D.N., 1990, Effects of cattle pasture runoff on the water chemistry of the Buffalo River, Boxley Valley, Arkansas: Unpublished Master's Thesis, Arkansas Water Resources Research Center, Fayetteville, Arkansas, 181 pp.
- Owen, G.E., and Johnson, M.G., 1966, Significance of some factors affecting yields of phosphorus from several Lake Ontario watersheds: Great Lakes Reservoir Institution, v. 15, p. 400-445.
- Reddy, K.R., 1980, Land areas receiving organic wastes, transformations and transport in relation to nonpoint sources: in Overcash and Davidson, eds., Environmental impact of nonpoint source pollution: Ann Arbor Science, Ann Arbor, Michigan, p. 243 - 274.
- Thornton, K.W., and Nix, J.F., 1985, Water quality monitoring program, Buffalo National River, Boxley Valley, Arkansas: Ouachita Baptist University, Arkadelphia, Arkansas, 215 pp.
- Weeks, D.P., 1987, Bacteria and nutrient investigation of the waters in Boxley Valley, Arkansas: Buffalo National River, Harrison, Arkansas, 40 pp.

Figure 1

Water Quality Monitoring Sites



RIVER SING SITES

- R-1 (Wild. Luallen Spring)
- R-2 (Ponca) Mitch Hill Spring)
- R-3 (Pruitt) Gilbert Spring)
- R-4 (Hasty)
- R-5 (Woolum)
- R-6 (Gilbert)
- R-7 (HWY 14)
- R-8 (Rush)
- R-9 (Mouth)

Figure 1

Water Quality Monitoring Sites



RIVER SITES

- R-1 (Wild. boundary)
- R-2 (Ponca)
- R-3 (Pruitt)
- R-4 (Hasty)
- R-5 (Woolum)
- R-6 (Gilbert)
- R-7 (HWY 14)
- R-8 (Rush)
- R-9 (Mouth)

TRIBUTARY SITES

- T-1 (Beech Creek)
- T-2 (Ponca Creek)
- T-3 (Cecil Creek)
- T-4 (Mill Creek U)
- T-5 (Little Buffalo River)
- T-6 (Big Creek M)
- T-7 (Davis Creek)
- T-8 (Cave Creek)
- T-9 (Richland Creek)
- T-10 (Calf Creek)

- T-11 (Mill Creek M)
- T-12 (Bear Creek)
- T-13 (Brush Creek)
- T-14 (Tomahawk Creek)
- T-15 (Water Creek)
- T-16 (Rush Creek)
- T-17 (Clabber Creek)
- T-18 (Big Creek L)
- T-19 (Cedar Creek)
- T-23 (Middle Creek)
- T-24 (Leatherwood Creek)

SPRING SITES

- S-2 (Luallen Spring)
- S-33 (Mitch Hill Spring)
- S-41 (Gilbert Spring)

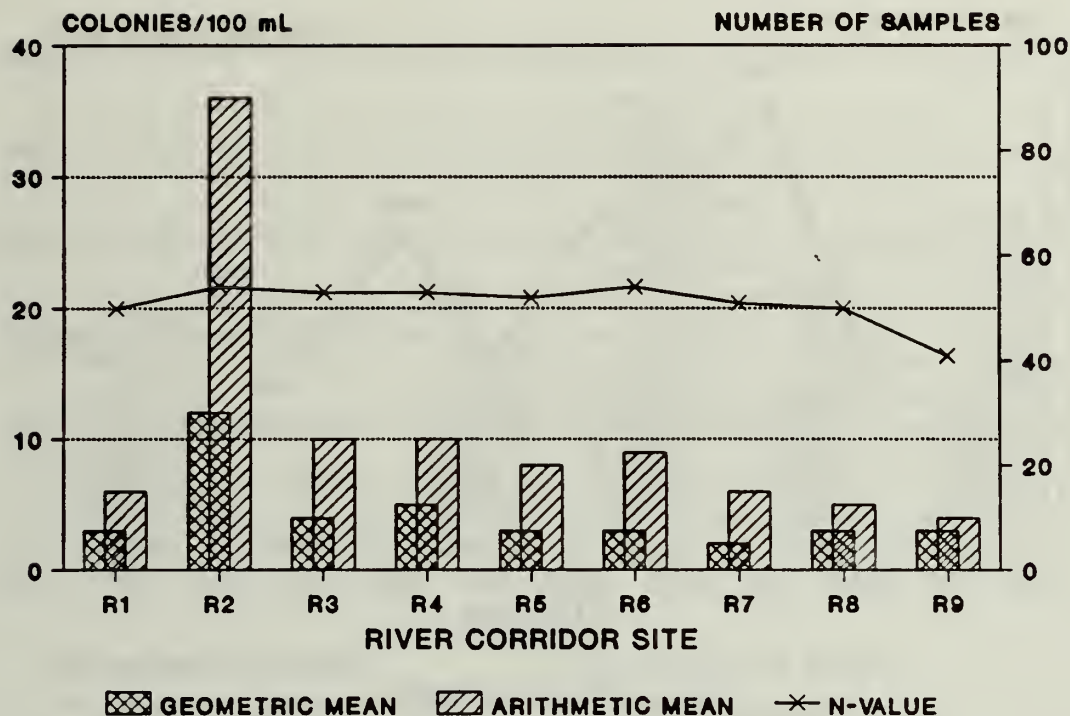


Figure 2: River corridor sites fecal coliform mean and geometric mean values.

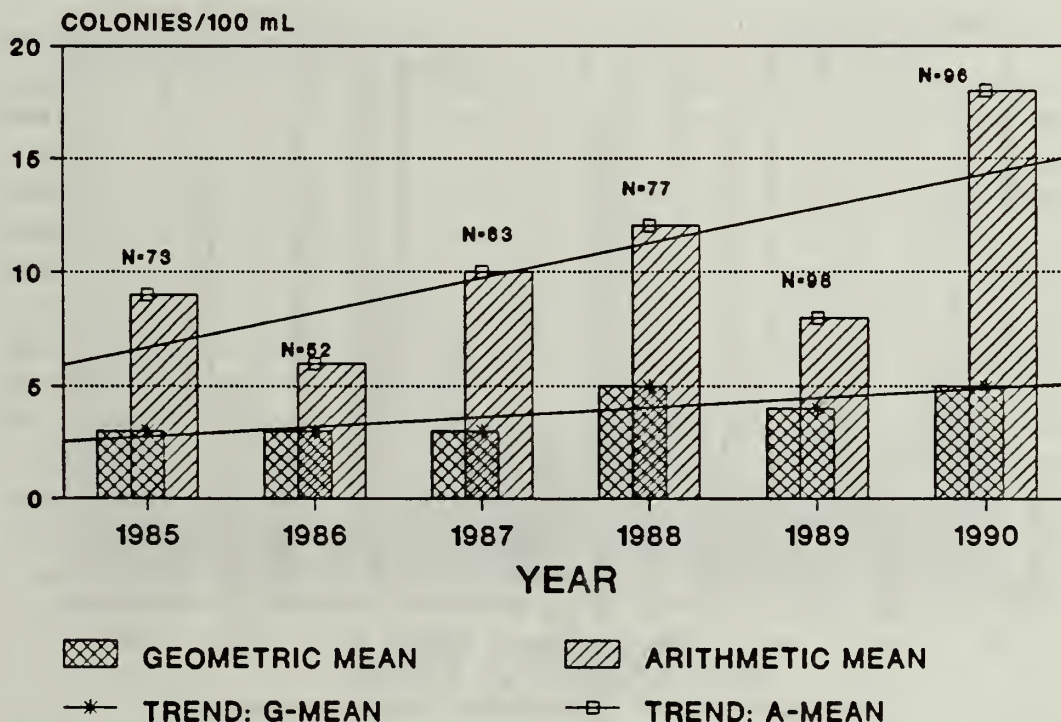


Figure 3: River corridor fecal coliform mean and geometric mean values by year collected.

BUFF WATER QUALITY REPORT, 1985 - 1990

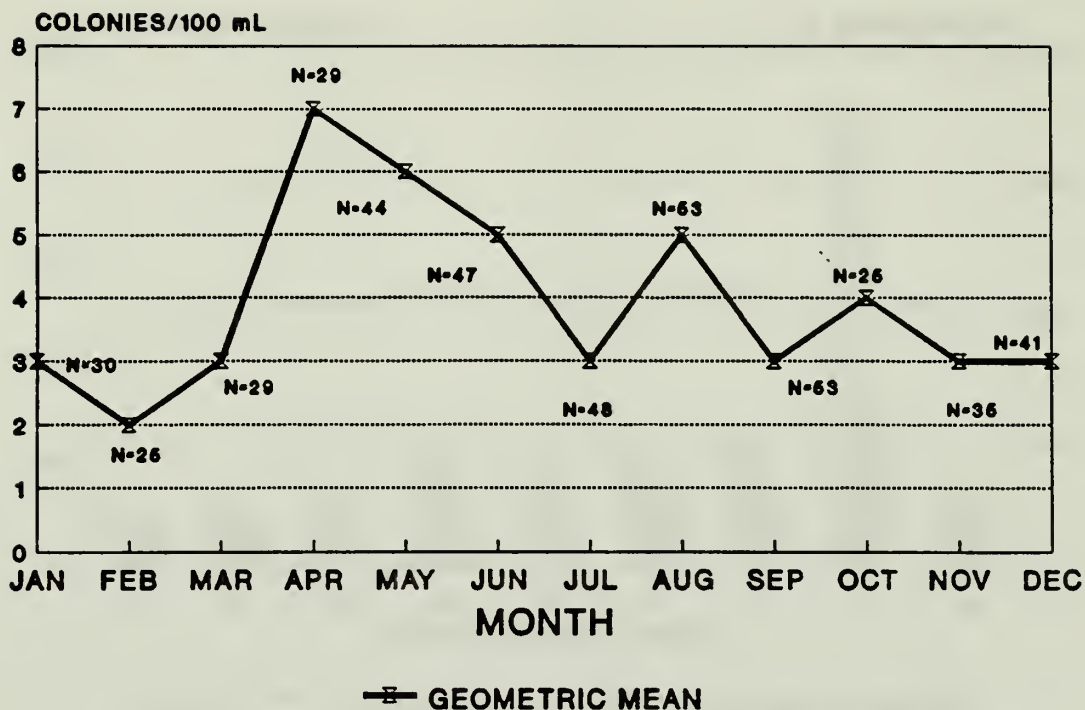


Figure 4: River corridor fecal coliform mean values by month collected.

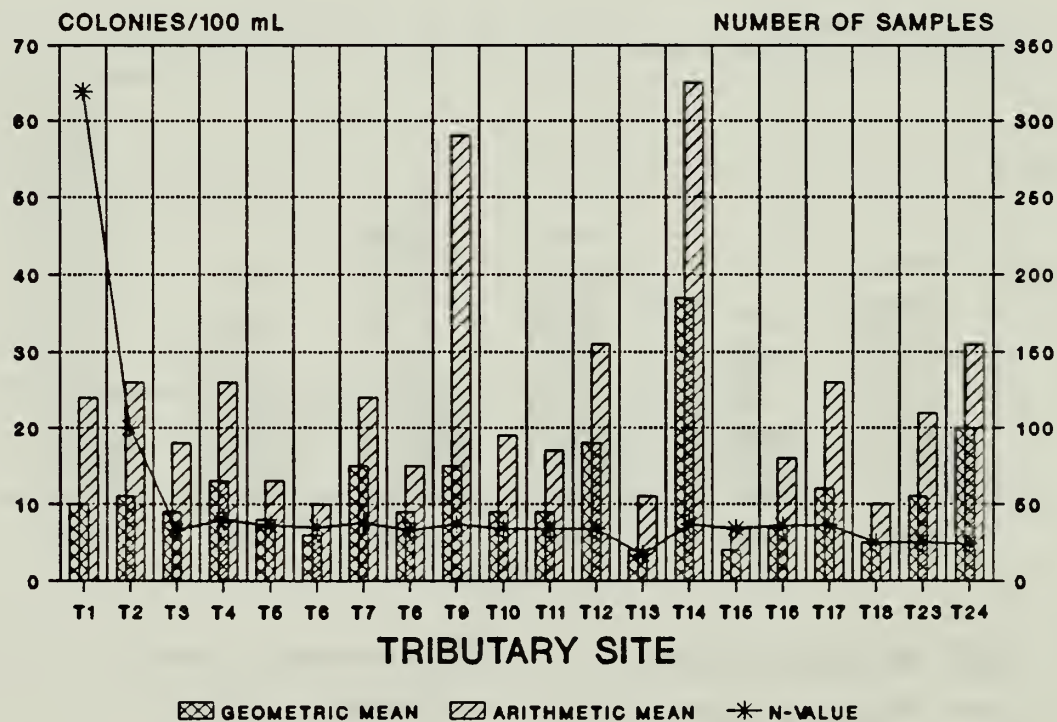


Figure 5: Tributary fecal coliform mean and geometric mean values.

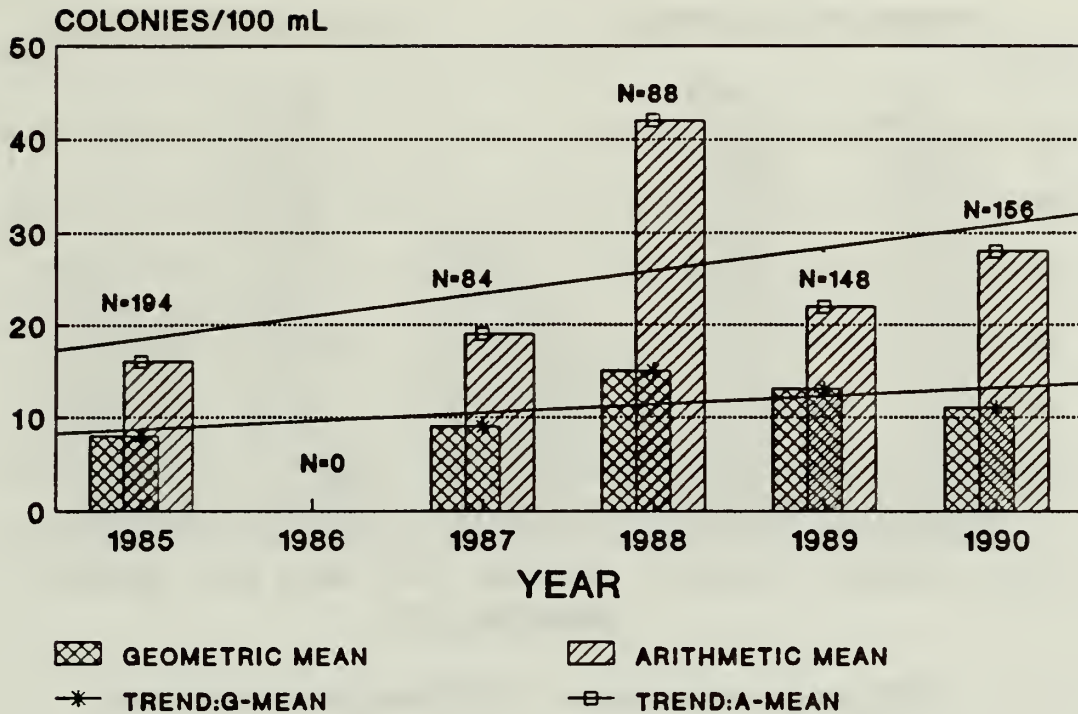


Figure 6: Tributary fecal coliform mean and geometric mean values by year collected.

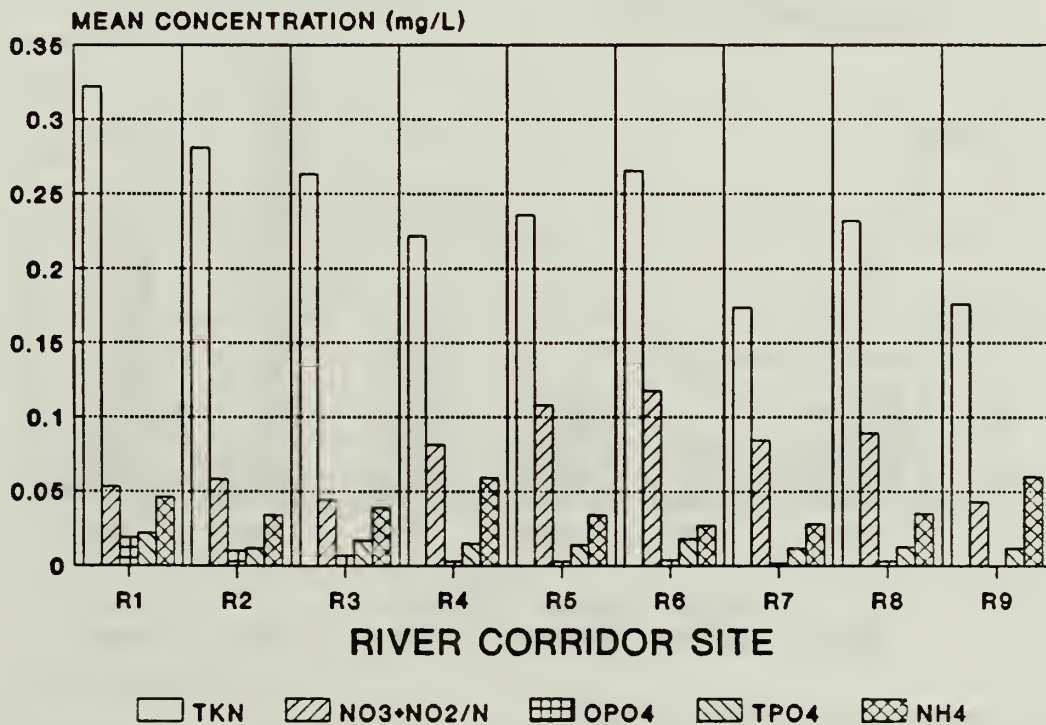


Figure 7: River corridor nutrient mean values.

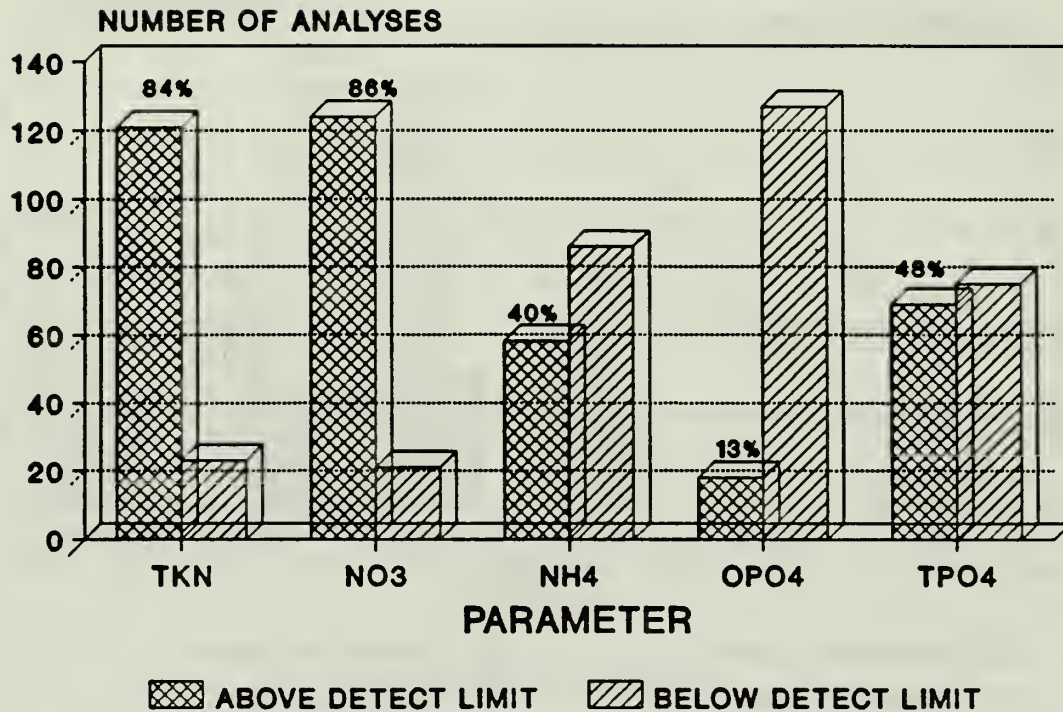
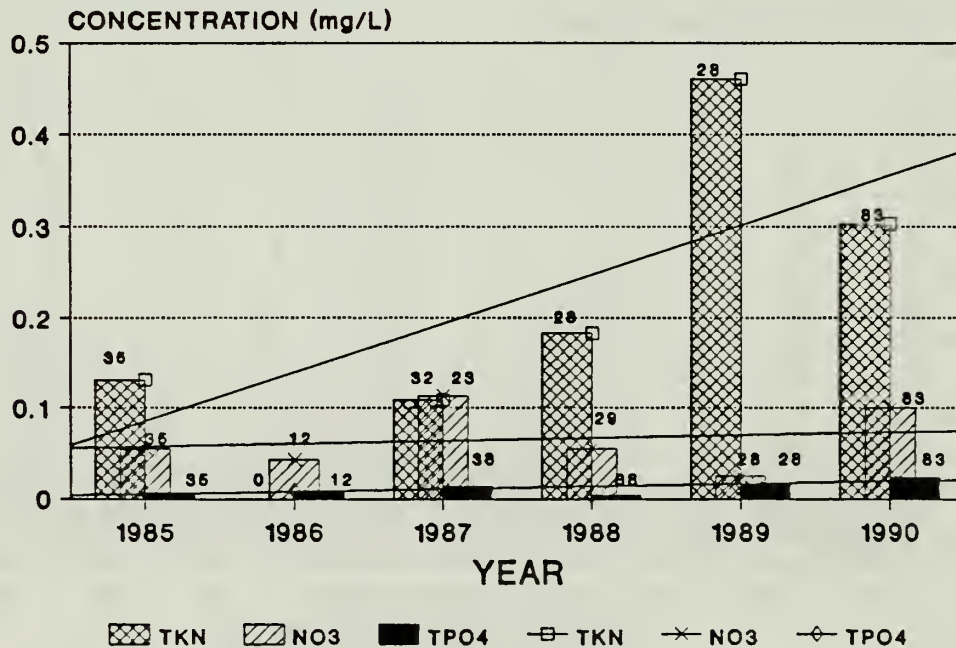


Figure 8: Nutrient parameters detection limit comparison using 1990 Arkansas Department of Pollution Control and Ecology data.



• NUMBER AT TOP OF BAR • N-VALUE

Figure 9: River corridor nutrient mean values by year.

BUFF WATER QUALITY REPORT, 1985 - 1990

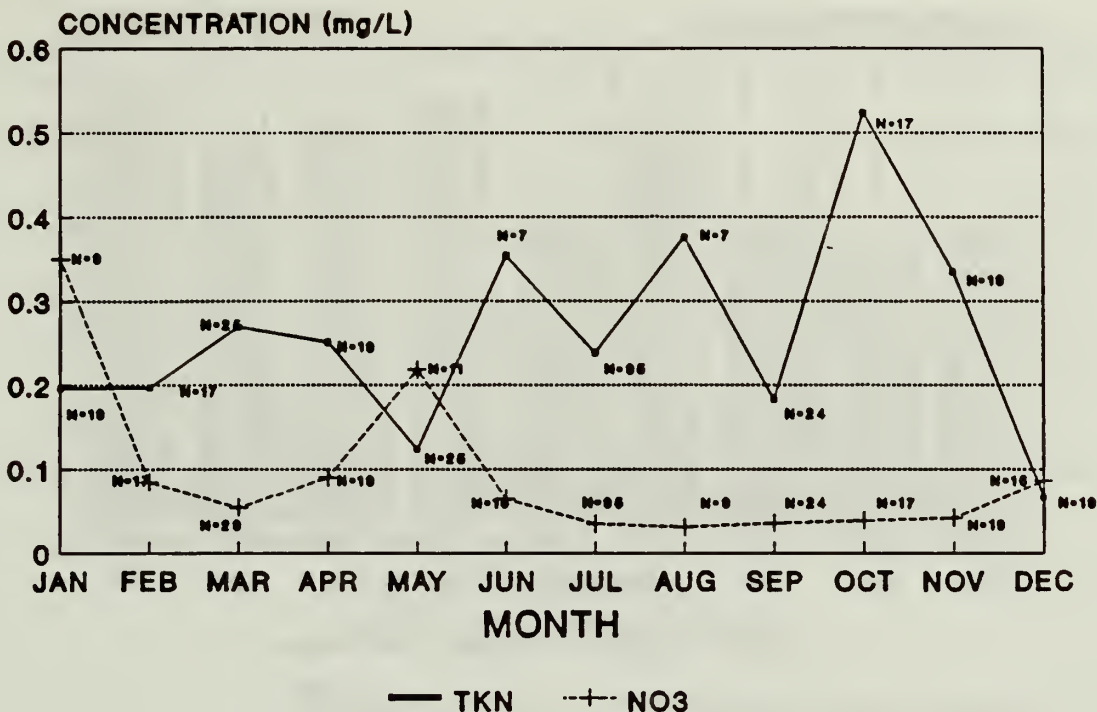
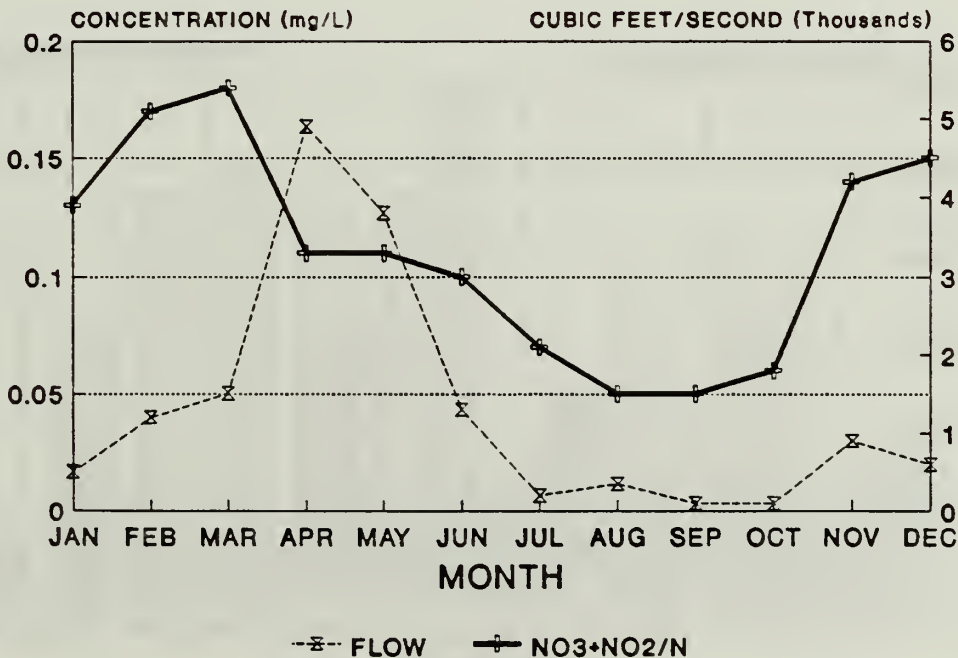
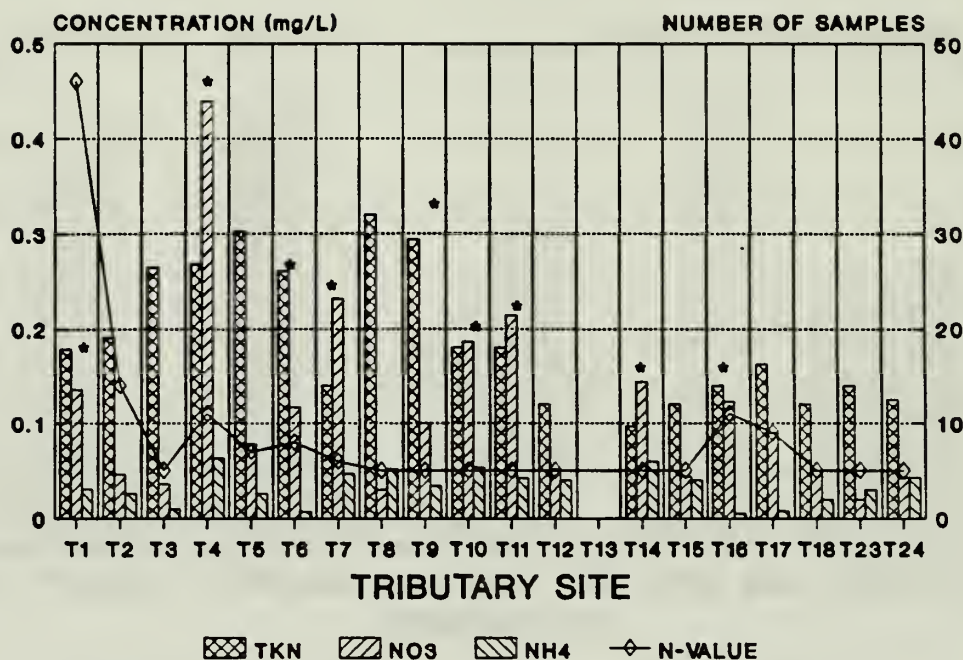


Figure 10: River corridor nutrient mean values by month collected.



N=11 for each month

Figure 11: Buffalo River at Highway 65 nutrient and discharge mean monthly values from 1978 to 1989.



* INDICATES RELATIVELY HIGH NO3 VALUES

Figure 12: Tributary nutrient mean values.

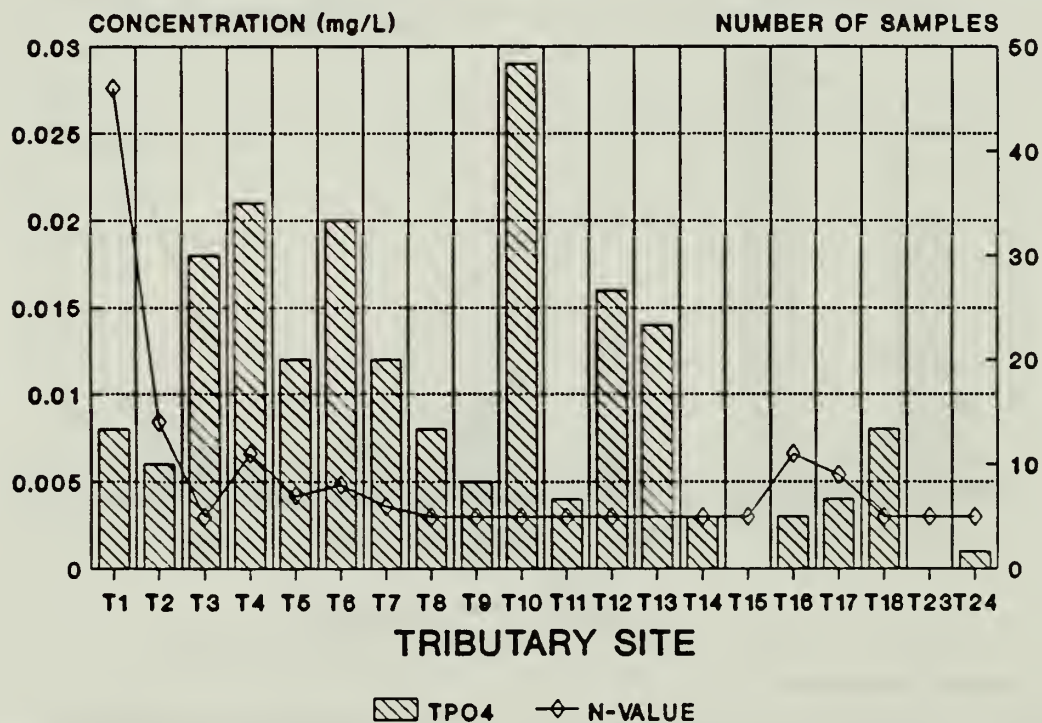


Figure 13: Tributary total phosphate mean values.

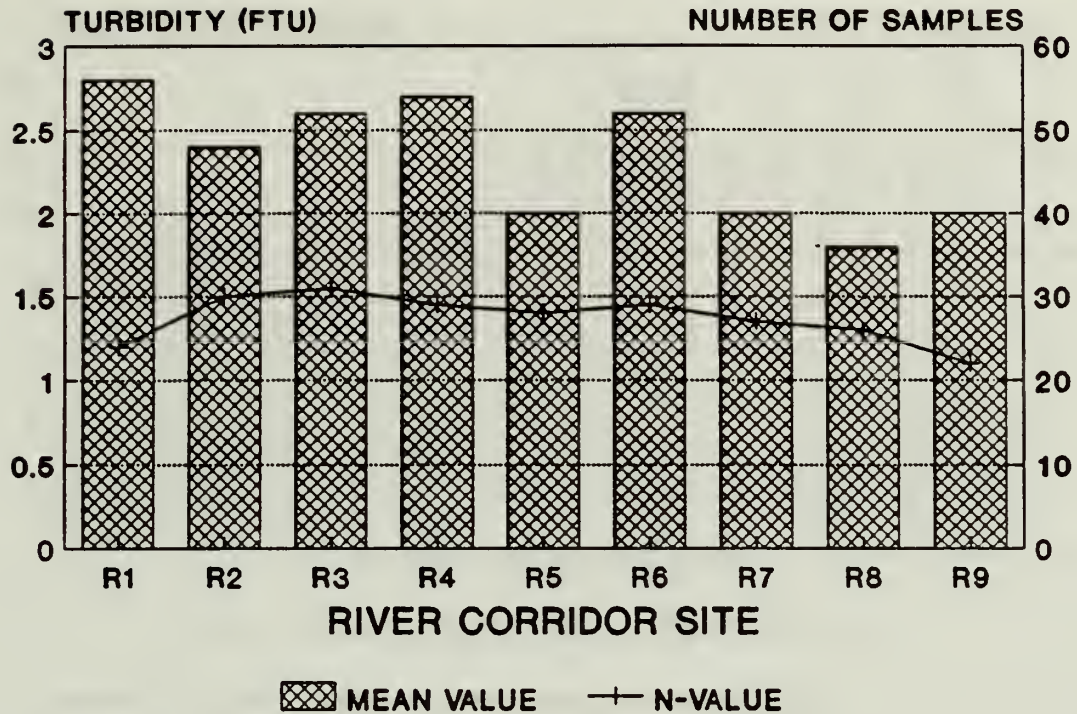


Figure 14: River corridor turbidity mean values.

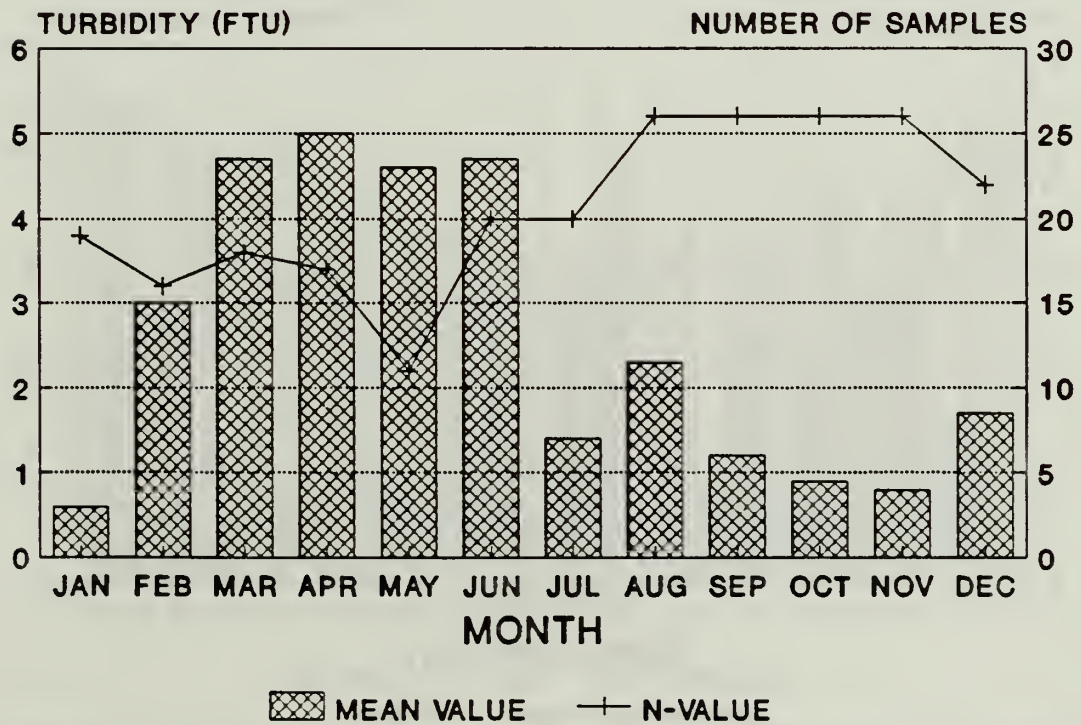


Figure 15: River corridor turbidity mean values by month.

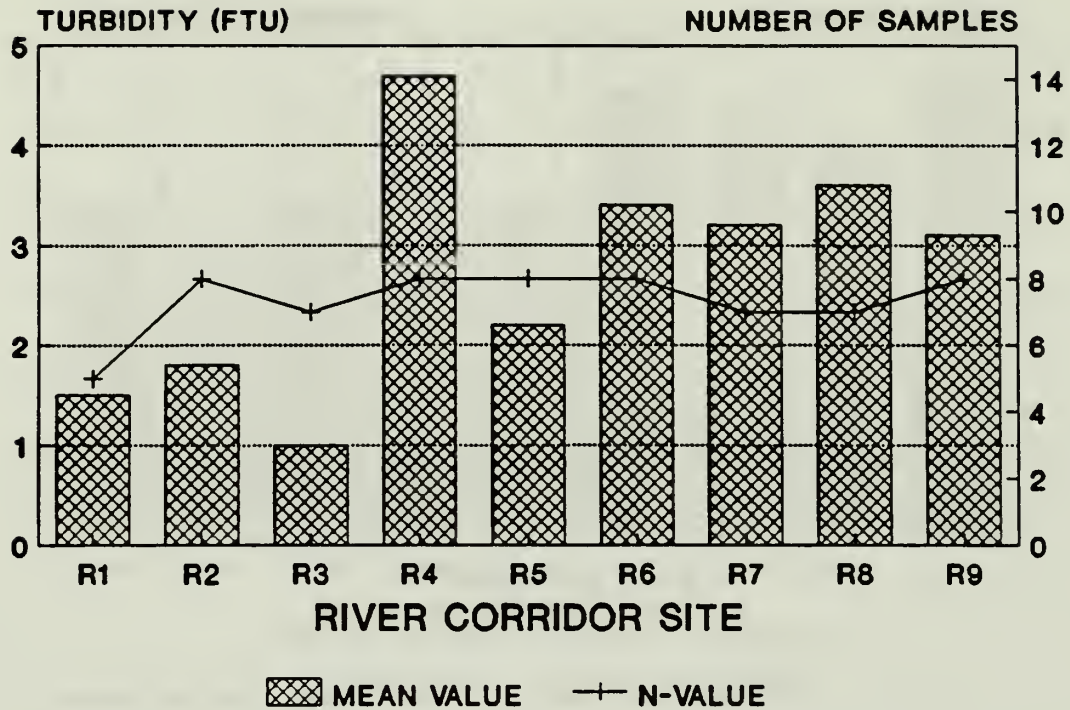


Figure 16: River corridor turbidity mean values for the summer season.

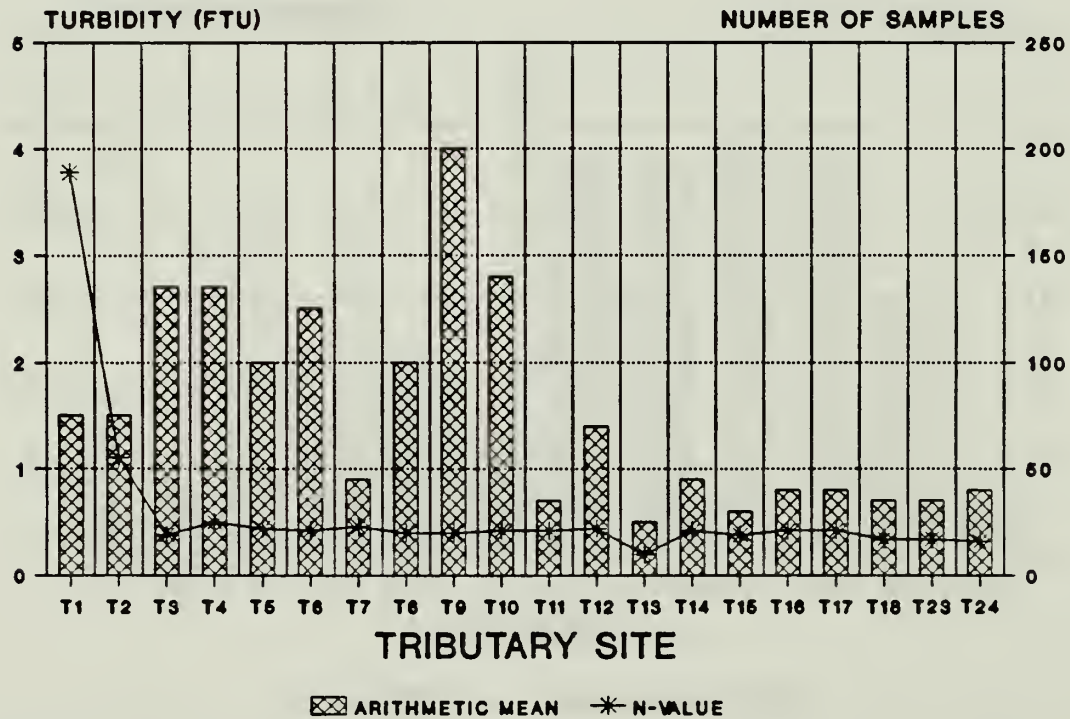
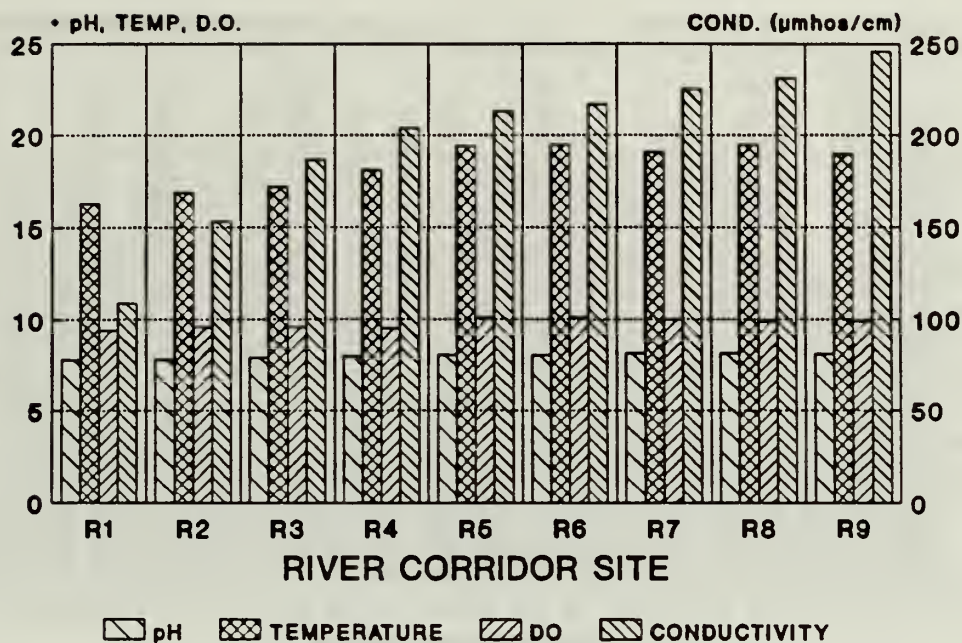


Figure 17: Tributary turbidity mean values.

BUFF WATER QUALITY REPORT, 1985 - 1990



• UNITS ARE DEGREES CELSIUS., AND mg/L

Figure 18: River corridor pH, temperature, dissolved oxygen and specific conductance mean values.

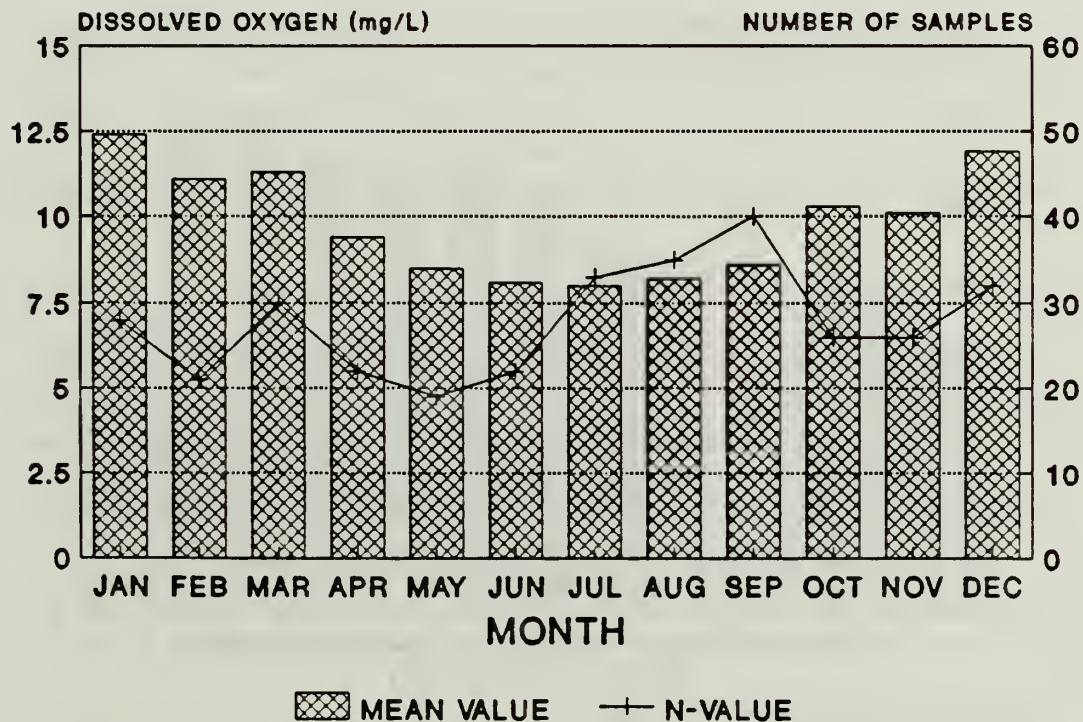


Figure 19: River corridor dissolved oxygen mean values by month.

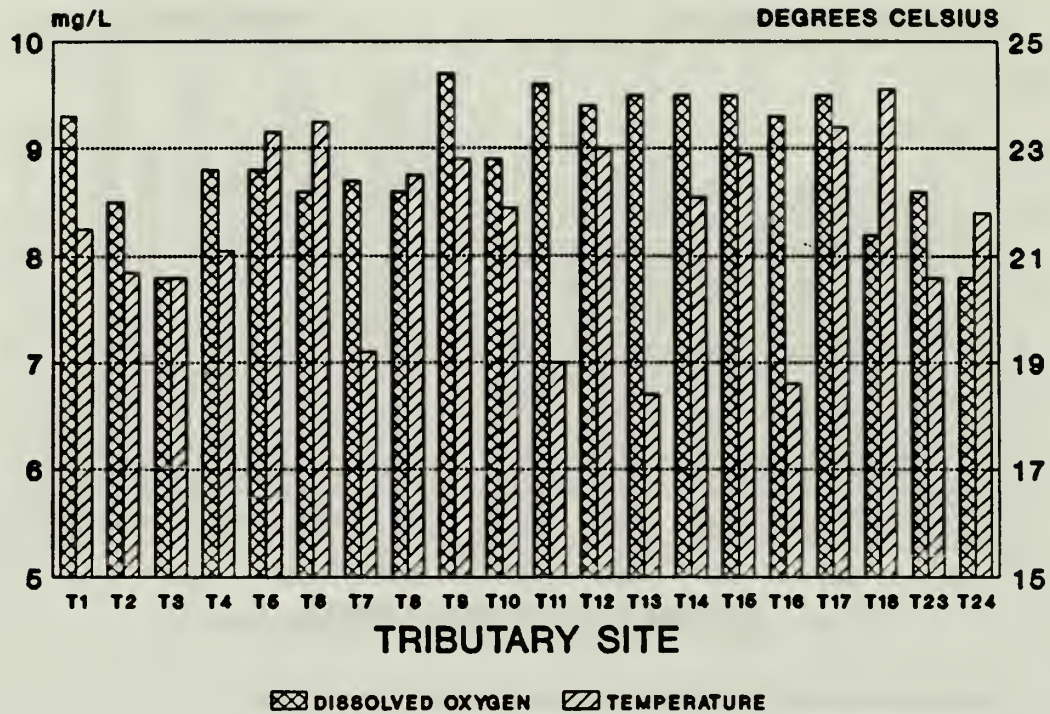
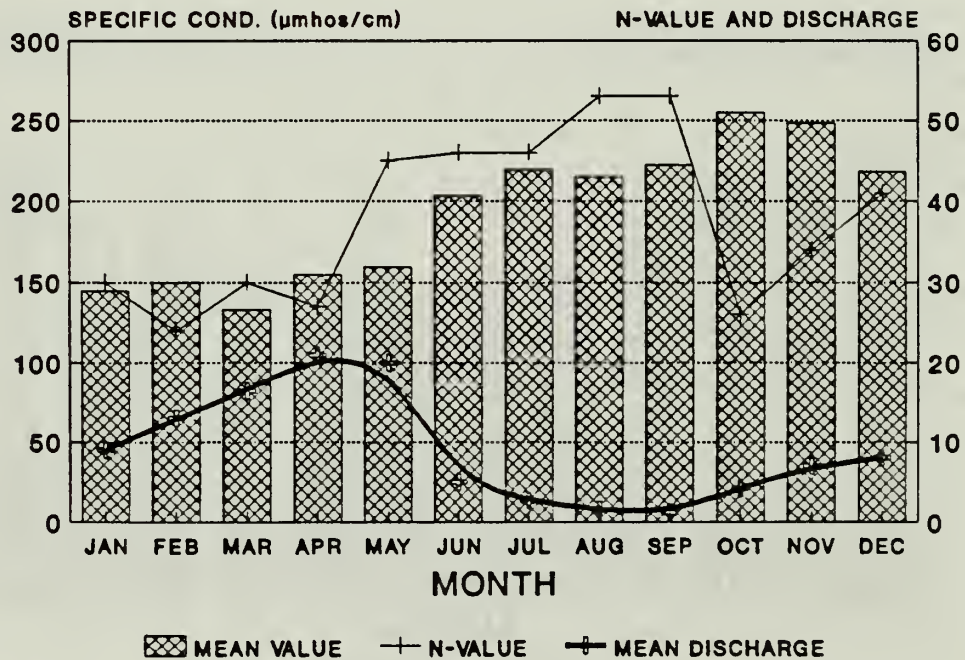


Figure 20: Tributary dissolved oxygen and temperature mean values.



• Heavy line is discharge in cfs (X100)

Figure 21: River corridor specific conductance mean values by month.

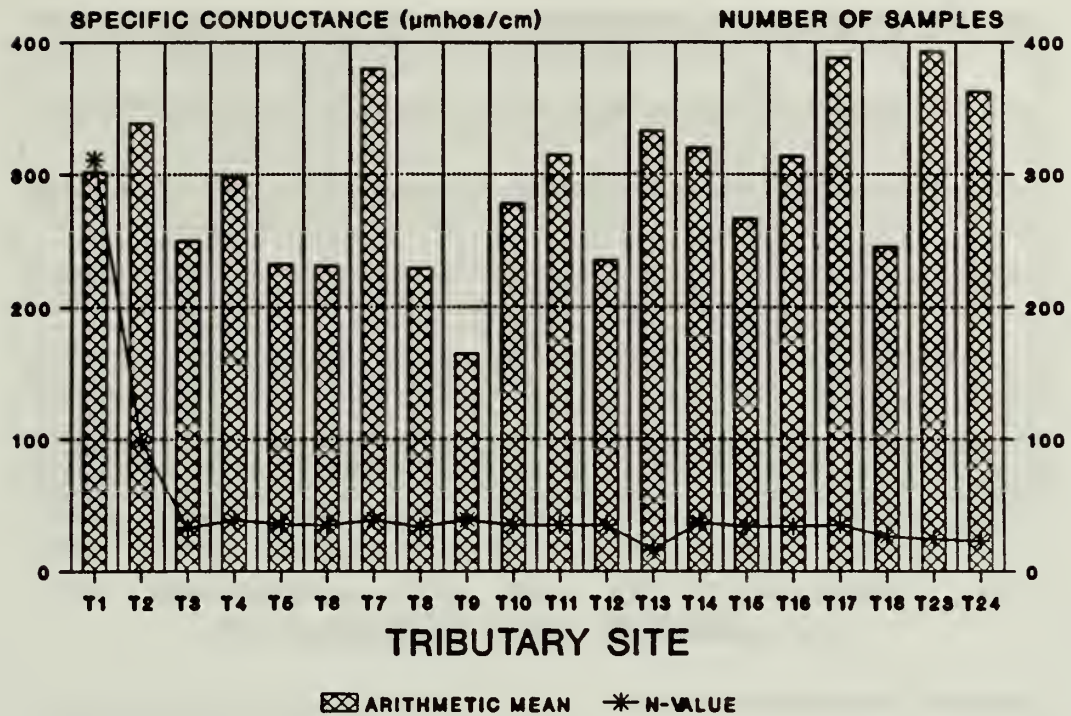


Figure 22: Tributary specific conductance mean values.

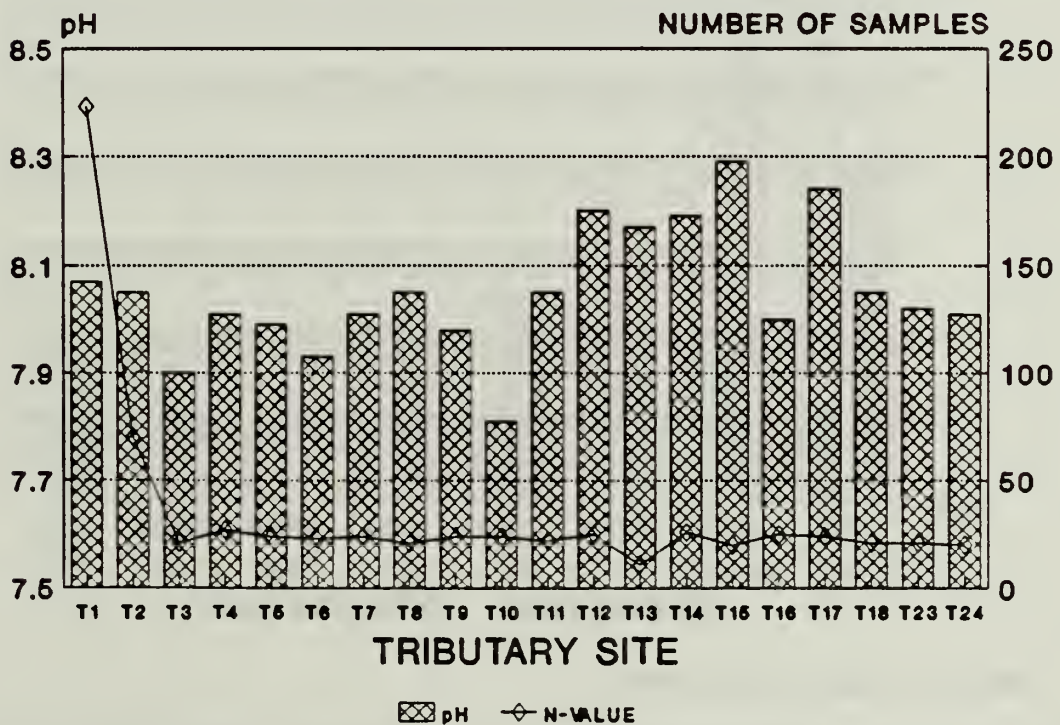


Figure 23: Tributary pH mean values.

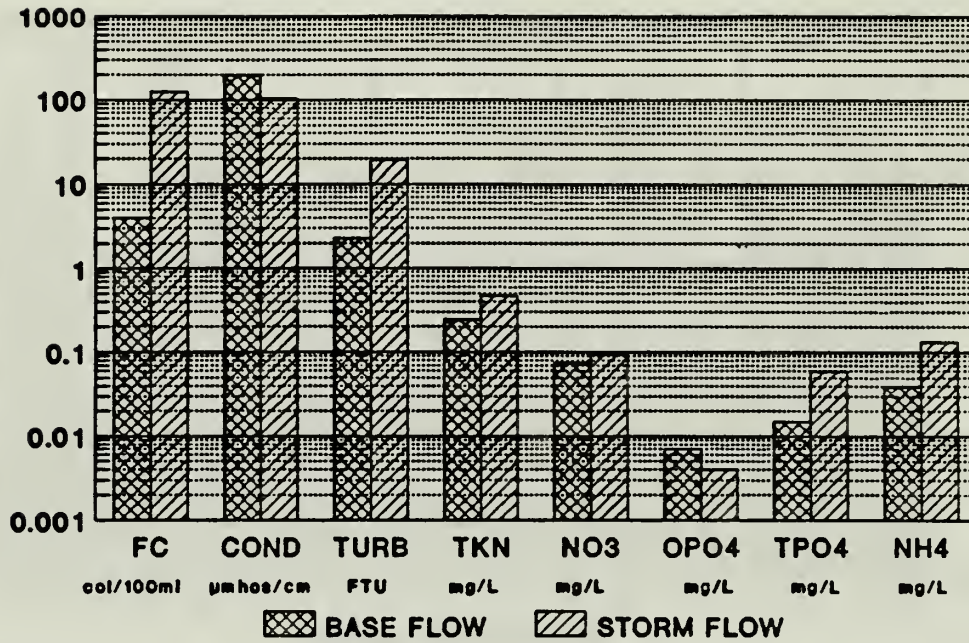


Figure 24: River corridor comparison between base and storm flow values.

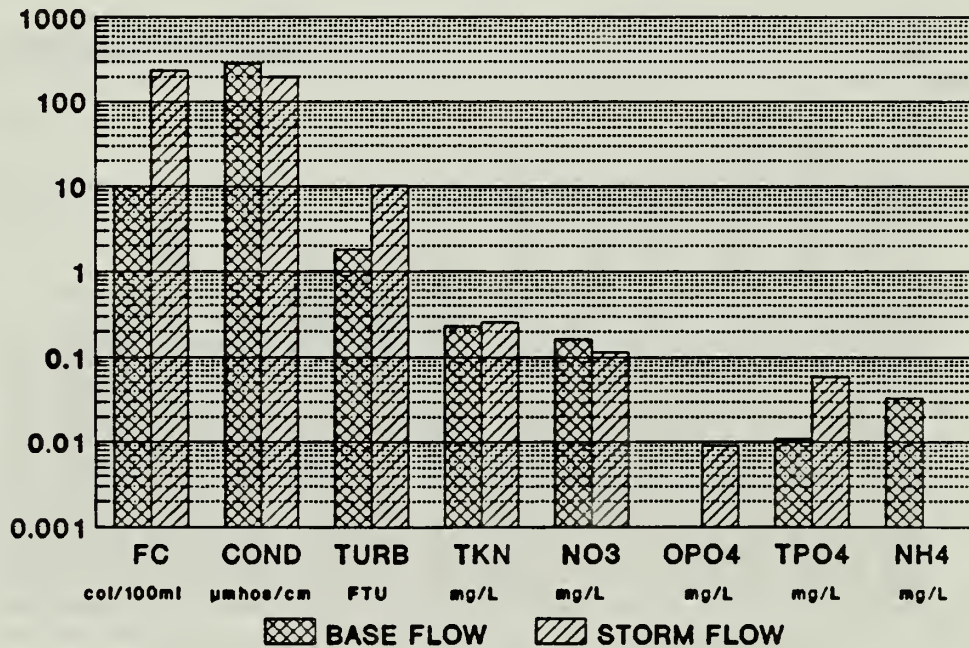
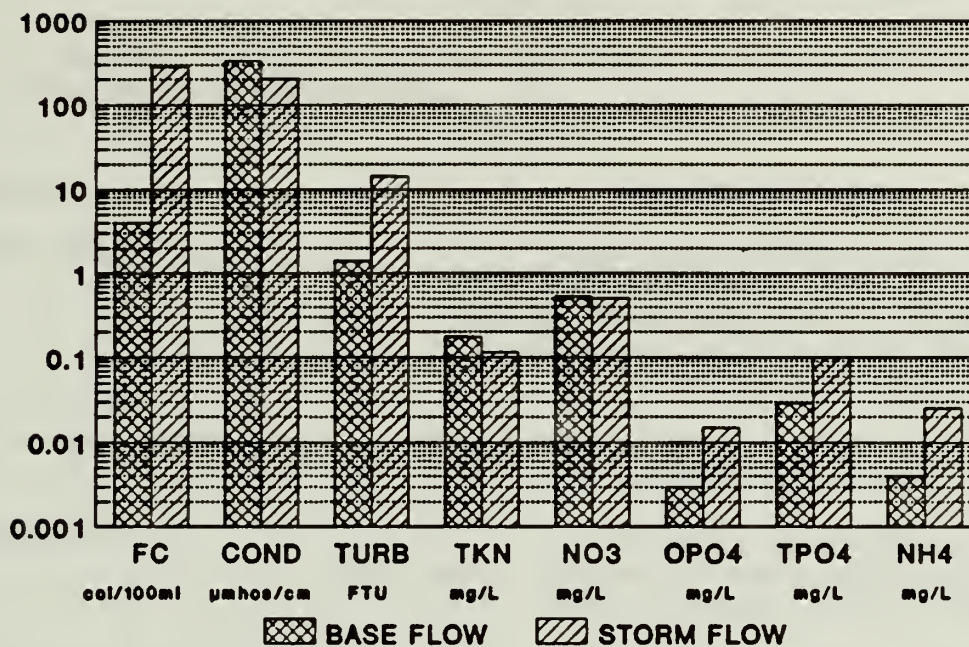


Figure 25: Tributary comparisons between base and storm flow mean values.



• Geometric mean for fecal coliform

Figure 26: Spring comparison between base and storm flow mean values.

BUFF WATER QUALITY REPORT, 1985 - 1990

Table 1: Ranking of tributaries by order of most impacted and possible sources of degradation.

<u>Tributary</u>	<u>Possible Source</u>
Mill Creek (T4) -	spring at Dogpatch trout feeding operations at Dogpatch sewage treatment plant at Dogpatch residences adjacent to the Creek 10 acre lake-bed
Tomahawk Creek (T14) -	many small dairies in this watershed cattle grazing
Davis Creek (T7) -	poultry operation residences just above the sampling station high nitrate spring water
Richland Creek (T9) -	direct access by cattle
Bear Creek (T12) -	direct access by cattle many small dairies heavy grazing throughout riparian corridor
Clabber Creek (T17) -	small dairies livestock operations
Mill Creek (T11) -	the town of St. Joe high nitrate spring water
Calf Creek (T10) -	large erosion bank high nitrate spring water livestock grazing

The remaining tributaries are ranked but show little anthropogenic contamination during base flow; therefore, sources are not listed

Middle Creek (T23)
Leatherwood Creek (T24)
Ponca Creek (T2)
Beech Creek (T1)
Cave Creek (T8)
Rush Creek (T16)
Little Buffalo River (T5)
Big Creek (T6)
Cecil Creek (T3)
Brush Creek (T13)
Big Creek (T18)
Water Creek (T15)

BUFF WATER QUALITY REPORT, 1985 - 1990

Appendix A1: River Corridor Statistics, 1985 - 1990

LOCATION :R1
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	50	0	52	0	2	6	3	6	9
TEMP (deg.C)	49	4.0	30.1	8.9	17.4	23.3	-----	16.3	7.6
COND (uMhos)	48	26.1	218.9	60.2	105.5	153.1	-----	109.0	51.0
PH	31	6.81	8.92	7.53	7.80	8.04	-----	7.81	0.42
DO (mg/L)	35	6.0	15.1	8.5	9.0	10.2	-----	9.4	1.6
TURB (FTU)	24	0.1	12.0	1.1	1.5	3.5	-----	2.8	2.7
TKN (mg/L)	27	0.000	1.390	0.065	0.260	0.420	-----	0.322	0.326
NO3 (mg/L)	29	0.000	0.450	0.010	0.030	0.040	-----	0.053	0.086
OPO4 (mg/L)	15	0.000	0.090	0.000	0.000	0.030	-----	0.019	0.029
TPO4 (mg/L)	30	0.000	0.080	0.005	0.011	0.035	-----	0.022	0.023
NH4 (mg/L)	17	0.000	0.220	0.000	0.020	0.055	-----	0.046	0.064
CL (mg/L)	12	1.000	16.000	2.000	2.500	3.000	-----	3.833	4.108
SULFATE(mg/L)	12	2.000	8.000	3.000	4.500	6.000	-----	4.750	1.765
SODIUM (mg/L)	7	0.000	1.700	0.000	1.000	1.350	-----	0.891	0.668
K (mg/L)	8	0.000	1.250	0.000	0.535	0.740	-----	0.475	0.452
CA (mg/L)	7	0.000	30.800	0.000	9.900	28.000	-----	14.871	13.670
MG (mg/L)	5	0.840	2.500	0.955	1.300	1.300	-----	1.402	0.643
FE (mg/L)	9	0.000	0.140	0.003	0.070	0.080	-----	0.060	0.056
MN (mg/L)	9	0.000	0.020	0.000	0.001	0.007	-----	0.005	0.007
CU (mg/L)	9	0.000	0.011	0.000	0.002	0.008	-----	0.004	0.005
CO (mg/L)	9	0.000	0.008	0.000	0.000	0.001	-----	0.001	0.003
NI (mg/L)	9	0.000	0.007	0.000	0.000	0.005	-----	0.003	0.003
PB (mg/L)	9	0.000	0.010	0.000	0.001	0.002	-----	0.002	0.003
CR (mg/L)	7	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	9	0.000	0.002	0.000	0.000	0.000	-----	0.000	0.001
AG (mg/L)	7	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	7	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
ZN (mg/L)	9	0.000	3.000	0.000	0.003	0.011	-----	0.669	1.321
AL (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	

LOCATION :R2
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	54	0	220	3	11	42	12	36	54
TEMP (deg.C)	55	5.2	30.0	9.7	17.4	22.4	-----	16.9	7.6
COND (uMhos)	53	32.6	276.0	89.7	164.0	206.0	-----	153.3	64.5
PH	37	7.25	8.45	7.67	7.81	7.98	-----	7.82	0.31
DO (mg/L)	38	6.4	14.7	8.8	9.2	10.7	-----	9.6	1.8
TURB (FTU)	30	0.1	12.0	0.7	1.1	2.8	-----	2.4	2.8
TKN (mg/L)	28	0.000	0.810	0.100	0.245	0.440	-----	0.281	0.231
NO3 (mg/L)	29	0.000	0.250	0.020	0.045	0.083	-----	0.058	0.052
OPO4 (mg/L)	14	0.000	0.060	0.000	0.000	0.003	-----	0.010	0.019
TPO4 (mg/L)	31	0.000	0.070	0.000	0.005	0.011	-----	0.012	0.018
NH4 (mg/L)	17	0.000	0.300	0.000	0.000	0.015	-----	0.034	0.077
CL (mg/L)	12	1.000	5.000	2.000	2.000	3.000	-----	2.458	1.157
SULFATE(mg/L)	12	2.000	10.000	3.000	4.500	6.000	-----	4.833	2.082
SODIUM (mg/L)	8	0.000	3.000	0.000	1.080	1.200	-----	0.958	1.009
K (mg/L)	8	0.000	0.750	0.000	0.300	0.630	-----	0.341	0.368
CA (mg/L)	9	0.000	42.800	0.000	11.400	16.850	-----	11.844	14.246
MG (mg/L)	5	0.930	4.250	1.115	1.480	1.480	-----	1.888	1.339
FE (mg/L)	9	0.000	0.240	0.028	0.032	0.085	-----	0.073	0.074
MN (mg/L)	9	0.000	0.020	0.000	0.006	0.010	-----	0.007	0.007
CU (mg/L)	9	0.000	0.017	0.000	0.001	0.004	-----	0.004	0.006
CO (mg/L)	9	0.000	0.008	0.000	0.000	0.000	-----	0.001	0.003
NI (mg/L)	9	0.000	0.005	0.000	0.001	0.001	-----	0.001	0.002
PB (mg/L)	9	0.000	0.010	0.000	0.000	0.000	-----	0.001	0.003
CR (mg/L)	7	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	9	0.000	0.002	0.000	0.000	0.000	-----	0.000	0.001
AG (mg/L)	7	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	7	0.000	0.002	0.000	0.000	0.001	-----	0.001	0.001
ZN (mg/L)	9	0.000	0.020	0.000	0.003	0.007	-----	0.005	0.007
AL (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	

LOCATION :R3
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	53	0	174	2	4	8	4	10	25
TEMP (deg.C)	55	4.4	32.0	8.9	17.4	24.8	-----	17.2	8.6
COND (uMhos)	54	55.6	343.0	138.7	198.1	226.9	-----	186.9	62.6
PH	38	7.41	8.41	7.75	7.98	8.08	-----	7.93	0.23
DO (mg/L)	40	6.7	15.3	8.0	9.2	10.7	-----	9.6	1.9
TURB (FTU)	31	0.1	17.0	0.7	1.0	2.8	-----	2.6	3.6
TKN (mg/L)	27	0.000	0.980	0.100	0.250	0.355	-----	0.263	0.207
NO3 (mg/L)	26	0.000	0.270	0.015	0.022	0.058	-----	0.044	0.056
OPO4 (mg/L)	12	0.000	0.050	0.000	0.000	0.000	-----	0.007	0.016
TPO4 (mg/L)	28	0.000	0.120	0.000	0.005	0.013	-----	0.017	0.029
NH4 (mg/L)	16	0.000	0.230	0.000	0.005	0.050	-----	0.039	0.064
CL (mg/L)	12	1.000	6.000	2.000	2.100	3.000	-----	2.683	1.295
SULFATE(mg/L)	11	0.000	7.000	1.500	3.000	4.000	-----	3.273	2.005
SODIUM (mg/L)	9	0.000	2.800	0.000	1.170	1.290	-----	1.083	0.990
K (mg/L)	8	0.000	0.870	0.000	0.605	0.740	-----	0.445	0.378
CA (mg/L)	9	0.000	42.800	0.000	23.000	27.750	-----	18.333	15.628
MG (mg/L)	6	1.170	4.400	1.525	2.190	2.240	-----	2.345	1.085
FE (mg/L)	8	0.013	0.100	0.026	0.050	0.079	-----	0.054	0.032
MN (mg/L)	8	0.000	0.080	0.000	0.010	0.010	-----	0.018	0.027
CU (mg/L)	7	0.000	0.006	0.001	0.004	0.005	-----	0.003	0.002
CO (mg/L)	7	0.000	0.008	0.000	0.000	0.000	-----	0.001	0.003
NI (mg/L)	7	0.000	0.009	0.000	0.001	0.003	-----	0.002	0.003
PB (mg/L)	7	0.000	0.010	0.000	0.000	0.001	-----	0.002	0.004
CR (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	7	0.000	0.002	0.000	0.000	0.000	-----	0.000	0.001
AG (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	5	0.000	0.001	0.000	0.000	0.001	-----	0.000	0.001
ZN (mg/L)	6	0.000	0.024	0.000	0.002	0.007	-----	0.006	0.009
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000

LOCATION :R4
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	53	0	90	1	4	11	5	10	16
TEMP (deg.C)	53	5.0	30.6	9.7	17.7	25.3	-----	18.1	8.4
COND (uMhos)	53	85.0	317.1	162.5	220.5	239.5	-----	203.8	53.4
PH	35	7.45	8.41	7.83	8.00	8.13	-----	7.97	0.21
DO (mg/L)	38	5.4	15.4	8.1	9.4	10.6	-----	9.5	2.2
TURB (FTU)	29	0.1	17.0	0.9	1.2	2.1	-----	2.7	3.6
TKN (mg/L)	25	0.000	0.580	0.100	0.210	0.315	-----	0.222	0.166
NO3 (mg/L)	24	0.000	0.380	0.020	0.060	0.110	-----	0.081	0.082
OPO4 (mg/L)	12	0.000	0.040	0.000	0.000	0.000	-----	0.003	0.012
TPO4 (mg/L)	26	0.000	0.070	0.000	0.005	0.021	-----	0.015	0.021
NH4 (mg/L)	14	0.000	0.230	0.000	0.025	0.090	-----	0.059	0.077
CL (mg/L)	11	2.000	6.000	2.000	3.000	3.100	-----	2.927	1.224
SULFATE(mg/L)	11	3.000	13.000	3.000	5.000	6.500	-----	5.545	2.979
SODIUM (mg/L)	9	0.000	2.300	0.000	1.340	1.370	-----	0.864	0.871
K (mg/L)	8	0.000	1.350	0.000	0.300	0.790	-----	0.441	0.517
CA (mg/L)	9	0.000	44.000	0.000	23.200	31.250	-----	18.244	18.176
MG (mg/L)	5	1.320	4.050	1.625	2.270	2.270	-----	2.368	1.017
FE (mg/L)	9	0.000	0.080	0.008	0.030	0.047	-----	0.034	0.027
MN (mg/L)	9	0.000	0.040	0.003	0.010	0.011	-----	0.011	0.012
CU (mg/L)	9	0.000	0.006	0.000	0.001	0.002	-----	0.002	0.002
CO (mg/L)	9	0.000	0.008	0.000	0.000	0.001	-----	0.001	0.003
NI (mg/L)	9	0.000	0.011	0.000	0.001	0.002	-----	0.002	0.004
PB (mg/L)	9	0.000	0.010	0.000	0.000	0.000	-----	0.001	0.003
CR (mg/L)	7	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	9	0.000	0.001	0.000	0.000	0.001	-----	0.000	0.001
AG (mg/L)	7	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	7	0.000	0.001	0.000	0.000	0.001	-----	0.000	0.001
ZN (mg/L)	9	0.000	0.016	0.000	0.000	0.002	-----	0.003	0.005
AL (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	

LOCATION :R5
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	52	0	78	0	0	4	3	8	16
TEMP (deg.C)	52	5.0	32.6	11.0	20.4	27.0	-----	19.4	8.6
COND (uMhos)	51	22.0	318.2	177.2	228.7	243.2	-----	213.0	57.2
PH	33	7.15	8.51	7.91	8.11	8.26	-----	8.07	0.27
DO (mg/L)	39	5.4	15.8	8.3	10.0	11.2	-----	10.1	2.2
TURB (FTU)	28	0.1	8.8	0.6	0.9	1.8	-----	2.0	2.4
TKN (mg/L)	23	0.000	0.490	0.100	0.220	0.350	-----	0.236	0.143
NO3 (mg/L)	22	0.000	0.730	0.009	0.060	0.110	-----	0.108	0.174
OPO4 (mg/L)	9	0.000	0.030	0.000	0.000	0.000	-----	0.003	0.010
TPO4 (mg/L)	24	0.000	0.130	0.000	0.003	0.008	-----	0.014	0.029
NH4 (mg/L)	13	0.000	0.210	0.000	0.000	0.020	-----	0.034	0.062
CL (mg/L)	9	2.000	6.000	3.000	3.000	3.000	-----	3.333	1.118
SULFATE(mg/L)	9	3.000	19.000	3.000	5.000	5.500	-----	6.222	5.069
SODIUM (mg/L)	8	0.000	2.200	0.000	1.320	1.500	-----	0.980	0.857
K (mg/L)	7	0.000	0.760	0.000	0.630	0.730	-----	0.407	0.383
CA (mg/L)	8	0.000	40.000	0.000	29.400	36.700	-----	21.525	18.242
MG (mg/L)	5	1.680	5.650	2.070	3.220	3.220	-----	3.246	1.488
FE (mg/L)	6	0.006	0.070	0.014	0.046	0.050	-----	0.040	0.023
MN (mg/L)	6	0.000	0.006	0.000	0.000	0.003	-----	0.002	0.003
CU (mg/L)	6	0.000	0.013	0.001	0.002	0.004	-----	0.004	0.005
CO (mg/L)	6	0.000	0.008	0.000	0.000	0.001	-----	0.002	0.003
NI (mg/L)	6	0.000	0.005	0.001	0.002	0.002	-----	0.002	0.002
PB (mg/L)	6	0.000	0.010	0.000	0.000	0.003	-----	0.003	0.004
CR (mg/L)	4	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	6	0.000	0.002	0.000	0.000	0.001	-----	0.001	0.001
AG (mg/L)	3	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	4	0.000	0.001	0.000	0.001	0.001	-----	0.001	0.001
ZN (mg/L)	6	0.000	0.003	0.000	0.000	0.002	-----	0.001	0.002
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :R6
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	54	0	160	0	2	6	3	9	26
TEMP (deg.C)	53	6.0	31.5	11.8	19.5	26.3	-----	19.5	8.0
COND (uMhos)	53	59.0	332.6	192.1	226.1	236.9	-----	217.0	45.3
PH	36	7.00	8.62	7.85	8.12	8.28	-----	8.05	0.32
DO (mg/L)	39	6.5	17.0	8.2	9.7	11.0	-----	10.1	2.3
TURB (FTU)	29	0.1	17.0	1.0	1.6	2.3	-----	2.6	3.4
TKN (mg/L)	23	0.000	1.710	0.100	0.200	0.340	-----	0.265	0.351
NO3 (mg/L)	21	0.000	0.590	0.025	0.055	0.135	-----	0.118	0.162
OPO4 (mg/L)	7	0.000	0.030	0.000	0.000	0.000	-----	0.004	0.011
TPO4 (mg/L)	24	0.000	0.070	0.003	0.008	0.027	-----	0.018	0.021
NH4 (mg/L)	11	0.000	0.190	0.000	0.000	0.030	-----	0.027	0.057
CL (mg/L)	7	2.000	6.000	2.000	3.000	3.000	-----	3.143	1.345
SULFATE(mg/L)	7	3.000	10.000	3.500	6.000	7.500	-----	6.286	2.360
SODIUM (mg/L)	9	0.000	2.000	0.000	1.300	1.400	-----	0.844	0.826
K (mg/L)	8	0.000	0.730	0.000	0.300	0.630	-----	0.336	0.362
CA (mg/L)	9	0.000	42.000	0.000	27.600	35.650	-----	19.800	19.157
MG (mg/L)	5	1.620	3.700	1.870	2.520	2.520	-----	2.496	0.768
FE (mg/L)	7	0.006	0.090	0.012	0.040	0.075	-----	0.049	0.032
MN (mg/L)	7	0.000	0.030	0.000	0.000	0.008	-----	0.007	0.011
CU (mg/L)	7	0.000	0.012	0.000	0.001	0.004	-----	0.003	0.004
CO (mg/L)	7	0.000	0.008	0.000	0.000	0.001	-----	0.001	0.003
NI (mg/L)	7	0.000	0.005	0.000	0.001	0.002	-----	0.002	0.002
PB (mg/L)	7	0.000	0.010	0.000	0.000	0.003	-----	0.002	0.004
CR (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	7	0.000	0.001	0.000	0.000	0.001	-----	0.000	0.000
AG (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	5	0.000	0.003	0.000	0.001	0.002	-----	0.001	0.002
ZN (mg/L)	7	0.000	0.019	0.000	0.003	0.010	-----	0.006	0.007
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :R7
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	51	0	145	0	0	4	2	6	20
TEMP (deg.C)	51	4.0	31.5	10.0	20.1	27.7	-----	19.1	8.6
COND (uMhos)	51	100.0	317.1	200.3	225.8	246.3	-----	225.1	42.0
PH	34	7.35	8.65	8.06	8.15	8.31	-----	8.17	0.25
DO (mg/L)	38	6.7	18.4	8.3	9.7	11.2	-----	10.0	2.4
TURB (FTU)	27	0.1	10.0	0.7	1.2	1.8	-----	2.0	2.3
TKN (mg/L)	25	0.000	0.510	0.100	0.120	0.270	-----	0.174	0.134
NO3 (mg/L)	24	0.000	0.500	0.007	0.055	0.120	-----	0.084	0.108
OPO4 (mg/L)	11	0.000	0.018	0.000	0.000	0.000	-----	0.002	0.005
TPO4 (mg/L)	26	0.000	0.060	0.000	0.006	0.017	-----	0.012	0.017
NH4 (mg/L)	14	0.000	0.210	0.000	0.000	0.030	-----	0.028	0.057
CL (mg/L)	10	2.000	6.000	2.000	3.000	4.000	-----	3.300	1.252
SULFATE(mg/L)	10	3.000	9.000	3.000	4.500	6.500	-----	5.300	2.452
SODIUM (mg/L)	9	0.000	2.300	0.000	1.390	1.395	-----	0.898	0.896
K (mg/L)	8	0.000	0.750	0.000	0.315	0.700	-----	0.354	0.380
CA (mg/L)	9	0.000	41.600	0.000	29.600	36.250	-----	20.244	19.489
MG (mg/L)	5	1.950	4.100	2.355	3.120	3.120	-----	3.010	0.774
FE (mg/L)	9	0.002	0.160	0.008	0.016	0.045	-----	0.043	0.053
MN (mg/L)	9	0.000	0.040	0.000	0.006	0.010	-----	0.008	0.013
CU (mg/L)	9	0.000	0.007	0.000	0.002	0.002	-----	0.002	0.003
CO (mg/L)	9	0.000	0.008	0.000	0.000	0.000	-----	0.001	0.003
NI (mg/L)	9	0.000	0.005	0.000	0.001	0.001	-----	0.002	0.002
PB (mg/L)	9	0.000	0.010	0.000	0.000	0.000	-----	0.001	0.003
CR (mg/L)	7	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	9	0.000	0.002	0.000	0.000	0.001	-----	0.000	0.001
AG (mg/L)	7	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	7	0.000	0.002	0.000	0.002	0.002	-----	0.001	0.001
ZN (mg/L)	9	0.000	0.005	0.000	0.000	0.002	-----	0.001	0.002
AL (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	

LOCATION :R8
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	50	0	50	0	2	6	3	5	8
TEMP (deg.C)	50	3.0	31.2	10.5	20.7	28.0	-----	19.5	8.7
COND (uMhos)	50	92.9	350.5	207.7	230.2	251.0	-----	231.1	43.9
PH	34	7.25	8.76	8.07	8.18	8.29	-----	8.16	0.26
DO (mg/L)	36	6.4	15.6	8.3	9.2	11.0	-----	9.9	2.1
TURB (FTU)	26	0.4	13.0	0.8	0.9	1.3	-----	1.8	2.7
TKN (mg/L)	24	0.000	0.590	0.100	0.260	0.300	-----	0.232	0.153
NO3 (mg/L)	22	0.000	0.590	0.003	0.050	0.120	-----	0.089	0.128
OPO4 (mg/L)	9	0.000	0.030	0.000	0.000	0.000	-----	0.003	0.010
TPO4 (mg/L)	25	0.000	0.060	0.001	0.008	0.019	-----	0.013	0.015
NH4 (mg/L)	13	0.000	0.190	0.000	0.000	0.040	-----	0.035	0.059
CL (mg/L)	9	2.000	7.000	2.400	3.000	3.500	-----	3.422	1.518
SULFATE(mg/L)	9	2.000	10.000	3.000	5.000	6.500	-----	5.444	2.789
SODIUM (mg/L)	9	0.000	2.300	0.000	1.420	1.460	-----	1.016	0.832
K (mg/L)	9	0.000	0.810	0.000	0.000	0.665	-----	0.328	0.392
CA (mg/L)	9	0.000	39.600	0.000	30.400	36.950	-----	20.311	19.464
MG (mg/L)	5	2.040	4.300	2.365	3.180	3.180	-----	3.078	0.828
FE (mg/L)	9	0.000	0.090	0.013	0.023	0.030	-----	0.030	0.027
MN (mg/L)	9	0.000	0.030	0.005	0.010	0.011	-----	0.011	0.009
CU (mg/L)	9	0.000	0.009	0.000	0.000	0.001	-----	0.002	0.003
CO (mg/L)	9	0.000	0.008	0.000	0.000	0.000	-----	0.001	0.003
NI (mg/L)	9	0.000	0.005	0.000	0.001	0.001	-----	0.001	0.002
PB (mg/L)	9	0.000	0.010	0.000	0.000	0.000	-----	0.001	0.003
CR (mg/L)	7	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	9	0.000	0.002	0.000	0.000	0.002	-----	0.001	0.001
AG (mg/L)	7	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	7	0.000	0.002	0.000	0.001	0.002	-----	0.001	0.001
ZN (mg/L)	9	0.000	0.009	0.000	0.001	0.002	-----	0.002	0.003
AL (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	

LOCATION :R9
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	41	0	44	0	2	4	3	4	8
TEMP (deg.C)	42	2.5	32.0	10.5	20.2	26.0	-----	19.0	8.4
COND (uMhos)	41	100.0	486.6	219.6	241.8	255.1	-----	245.8	50.0
PH	30	7.06	8.53	8.03	8.22	8.33	-----	8.13	0.30
DO (mg/L)	30	5.9	16.7	8.1	9.4	11.0	-----	9.9	2.4
TURB (FTU)	22	0.6	11.0	0.8	1.3	1.9	-----	2.0	2.4
TKN (mg/L)	14	0.000	0.560	0.065	0.165	0.200	-----	0.176	0.149
NO3 (mg/L)	13	0.000	0.170	0.009	0.030	0.040	-----	0.043	0.052
OPO4 (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
TPO4 (mg/L)	14	0.000	0.060	0.000	0.008	0.012	-----	0.012	0.016
NH4 (mg/L)	5	0.000	0.260	0.000	0.010	0.020	-----	0.060	0.112
CL (mg/L)	2	2.000	3.000	0.000	0.000	0.000	-----	2.500	0.707
SULFATE(mg/L)	2	0.000	4.000	0.000	0.000	0.000	-----	2.000	2.828
SODIUM (mg/L)	6	1.500	2.100	1.500	1.500	1.535	-----	1.612	0.241
K (mg/L)	5	0.700	0.890	0.700	0.850	0.850	-----	0.798	0.091
CA (mg/L)	6	31.000	40.400	33.000	36.800	39.000	-----	36.733	3.579
MG (mg/L)	5	2.040	5.800	3.090	4.710	4.710	-----	4.280	1.389
FE (mg/L)	8	0.000	0.120	0.006	0.011	0.023	-----	0.028	0.039
MN (mg/L)	8	0.000	0.020	0.000	0.000	0.006	-----	0.004	0.007
CU (mg/L)	8	0.000	0.011	0.001	0.005	0.006	-----	0.005	0.004
CO (mg/L)	8	0.000	0.008	0.000	0.000	0.000	-----	0.001	0.003
NI (mg/L)	8	0.000	0.005	0.000	0.001	0.002	-----	0.001	0.002
PB (mg/L)	8	0.000	0.010	0.000	0.001	0.001	-----	0.002	0.003
CR (mg/L)	6	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	8	0.000	0.002	0.000	0.000	0.001	-----	0.001	0.001
AG (mg/L)	6	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	6	0.000	0.004	0.000	0.001	0.003	-----	0.002	0.002
ZN (mg/L)	8	0.000	0.140	0.000	0.003	0.010	-----	0.021	0.048
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

BUFF WATER QUALITY REPORT, 1985 - 1990

**Appendix A2: River corridor statistics, all sites lumped,
analyzed by year**

LOCATION :R
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/85

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	73	0	174	0	2	4	3	9	29
TEMP (deg.C)	73	2.5	31.5	15.9	23.0	26.0	-----	20.6	7.8
COND (uMhos)	73	50.1	280.0	145.6	206.9	225.1	-----	185.8	55.5
PH	0	99.99	0.00	0.00	0.00	0.00	-----	*****	0.00
DO (mg/L)	37	6.0	14.0	9.0	10.0	11.0	-----	10.1	1.8
TURB (FTU)	2	3.0	5.0	0.0	0.0	0.0	-----	4.0	1.4
TKN (mg/L)	35	0.000	0.400	0.000	0.100	0.200	-----	0.131	0.121
NO3 (mg/L)	35	0.000	0.180	0.010	0.030	0.100	-----	0.055	0.058
OPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TPO4 (mg/L)	35	0.002	0.030	0.004	0.006	0.008	-----	0.007	0.006
NH4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	1	1.000	1.000	0.000	0.000	0.000	-----	1.000*****	
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	11	0.000	0.032	0.000	0.000	0.015	-----	0.009	0.013
MN (mg/L)	11	0.000	0.010	0.001	0.006	0.010	-----	0.006	0.004
CU (mg/L)	11	0.000	0.001	0.000	0.001	0.001	-----	0.000	0.000
CO (mg/L)	11	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
NI (mg/L)	11	0.000	0.001	0.000	0.000	0.001	-----	0.000	0.000
PB (mg/L)	11	0.000	0.001	0.000	0.000	0.000	-----	0.000	0.000
CR (mg/L)	11	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	11	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AG (mg/L)	11	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	11	0.000	0.002	0.000	0.000	0.001	-----	0.001	0.001
ZN (mg/L)	11	0.000	0.001	0.000	0.000	0.000	-----	0.000	0.000
AL (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000

LOCATION :R
 BEGINNING DATE:01/01/86
 ENDING DATE:12/31/86

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	52	0	128	0	2	6	3	6	18
TEMP (deg.C)	52	6.0	31.5	20.5	24.8	29.5	-----	22.8	8.3
COND (uMhos)	52	79.4	486.6	167.9	221.9	234.2	-----	210.2	64.4
PH	8	7.35	8.36	7.80	8.26	8.30	-----	8.06	0.37
DO (mg/L)	17	8.0	10.0	8.5	9.0	9.0	-----	9.0	0.7
TURB (FTU)	0	100.0	0.0	0.0	0.0	0.0	-----	*****	0.0
TKN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NO3 (mg/L)	12	0.005	0.095	0.030	0.038	0.055	-----	0.043	0.027
OPO4 (mg/L)	7	0.000	0.018	0.000	0.003	0.007	-----	0.005	0.007
TPO4 (mg/L)	12	0.003	0.020	0.004	0.008	0.009	-----	0.009	0.006
NH4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :R
 BEGINNING DATE:01/01/87
 ENDING DATE:12/31/87

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	63	0	114	0	2	7	3	10	23
TEMP (deg.C)	63	4.0	32.0	12.3	22.5	27.9	-----	20.5	8.2
COND (uMhos)	63	58.4	274.5	158.0	198.6	216.8	-----	185.8	46.1
PH	35	7.40	8.92	8.01	8.17	8.39	-----	8.20	0.29
DO (mg/L)	34	5.9	14.0	7.2	7.8	9.3	-----	8.6	2.1
TURB (FTU)	0	100.0	0.0	0.0	0.0	0.0	-----	*****	0.0
TKN (mg/L)	32	0.000	0.300	0.000	0.100	0.200	-----	0.109	0.096
NO3 (mg/L)	23	0.000	0.730	0.000	0.040	0.065	-----	0.113	0.199
OPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TPO4 (mg/L)	32	0.000	0.130	0.004	0.012	0.015	-----	0.014	0.022
NH4 (mg/L)	7	0.000	0.070	0.005	0.020	0.030	-----	0.024	0.024
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	2	1.410	1.570	0.000	0.000	0.000	-----	1.490	0.113
K (mg/L)	2	0.870	0.890	0.000	0.000	0.000	-----	0.880	0.014
CA (mg/L)	2	26.000	35.000	0.000	0.000	0.000	-----	30.500	6.364
MG (mg/L)	1	2.140	2.140	0.000	0.000	0.000	-----	2.140*****	
FE (mg/L)	18	0.011	0.100	0.021	0.037	0.085	-----	0.052	0.034
MN (mg/L)	18	0.004	0.080	0.007	0.017	0.030	-----	0.021	0.019
CU (mg/L)	17	0.000	0.017	0.000	0.007	0.011	-----	0.007	0.005
CO (mg/L)	17	0.000	0.001	0.000	0.000	0.000	-----	0.000	0.000
NI (mg/L)	17	0.000	0.011	0.000	0.001	0.003	-----	0.002	0.003
PB (mg/L)	17	0.000	0.006	0.000	0.001	0.001	-----	0.001	0.002
CR (mg/L)	17	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	17	0.000	0.002	0.000	0.000	0.001	-----	0.000	0.001
AG (mg/L)	17	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	17	0.000	0.002	0.000	0.000	0.000	-----	0.000	0.001
ZN (mg/L)	17	0.000	0.140	0.000	0.001	0.013	-----	0.013	0.033
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :R
 BEGINNING DATE:01/01/88
 ENDING DATE:12/31/88

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	77	0	220	0	4	12	5	12	33
TEMP (deg.C)	77	5.8	31.1	9.0	16.4	25.3	-----	17.2	8.2
COND (uMhos)	75	26.7	336.7	176.7	229.5	275.5	-----	219.3	75.4
PH	70	7.00	8.60	7.64	7.86	8.11	-----	7.86	0.36
DO (mg/L)	54	6.5	15.4	9.6	11.0	13.0	-----	11.2	2.1
TURB (FTU)	50	0.4	17.0	0.6	0.8	3.6	-----	2.7	3.8
TKN (mg/L)	38	0.000	0.650	0.055	0.100	0.160	-----	0.183	0.198
NO3 (mg/L)	29	0.000	0.180	0.008	0.030	0.070	-----	0.055	0.062
OPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TPO4 (mg/L)	38	0.000	0.016	0.002	0.005	0.006	-----	0.004	0.003
NH4 (mg/L)	9	0.000	0.050	0.000	0.000	0.010	-----	0.011	0.018
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
SODIUM (mg/L)	27	1.000	2.800	1.250	1.350	1.500	-----	1.398	0.317
K (mg/L)	27	0.500	0.850	0.700	0.740	0.760	-----	0.724	0.082
CA (mg/L)	27	9.900	40.400	28.000	34.500	37.300	-----	31.552	8.166
MG (mg/L)	27	1.070	4.710	1.680	2.460	3.150	-----	2.534	0.977
FE (mg/L)	27	0.010	0.240	0.030	0.040	0.070	-----	0.061	0.055
MN (mg/L)	27	0.000	0.010	0.000	0.000	0.005	-----	0.003	0.004
CU (mg/L)	27	0.000	0.009	0.001	0.002	0.002	-----	0.002	0.002
CO (mg/L)	27	0.000	0.001	0.000	0.000	0.000	-----	0.000	0.000
NI (mg/L)	27	0.000	0.007	0.001	0.001	0.002	-----	0.002	0.002
PB (mg/L)	27	0.000	0.002	0.000	0.000	0.000	-----	0.000	0.001
CR (mg/L)	27	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	27	0.000	0.001	0.000	0.000	0.000	-----	0.000	0.000
AG (mg/L)	26	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	27	0.000	0.004	0.001	0.001	0.002	-----	0.001	0.001
ZN (mg/L)	26	0.000	3.000	0.000	0.005	0.010	-----	0.236	0.814
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :R
 BEGINNING DATE:01/01/89
 ENDING DATE:12/31/89

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	98	0	112	0	4	8	4	8	15
TEMP (deg.C)	99	4.4	27.5	7.0	17.4	19.9	-----	15.0	7.1
COND (uMhos)	99	68.4	343.0	191.2	234.7	251.6	-----	217.7	54.5
PH	99	7.50	8.50	7.99	8.11	8.20	-----	8.09	0.18
DO (mg/L)	99	6.6	18.4	8.5	9.5	11.1	-----	10.2	2.3
TURB (FTU)	98	0.4	8.0	0.8	1.2	2.2	-----	2.0	1.9
TKN (mg/L)	28	0.050	1.710	0.200	0.290	0.480	-----	0.460	0.404
NO3 (mg/L)	28	0.000	0.060	0.007	0.022	0.040	-----	0.025	0.019
OPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TPO4 (mg/L)	28	0.000	0.070	0.000	0.013	0.027	-----	0.017	0.017
NH4 (mg/L)	28	0.000	0.300	0.000	0.010	0.190	-----	0.076	0.105
CL (mg/L)	9	2.200	6.000	2.650	3.000	3.000	-----	3.189	1.098
SULFATE(mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	18	0.840	3.000	1.400	1.600	2.200	-----	1.780	0.550
K (mg/L)	10	0.570	1.350	0.620	0.630	0.665	-----	0.763	0.286
CA (mg/L)	18	7.400	44.000	25.000	30.900	40.800	-----	31.267	11.360
MG (mg/L)	18	0.840	5.800	1.470	2.270	4.175	-----	2.908	1.621
FE (mg/L)	18	0.006	0.130	0.006	0.023	0.065	-----	0.039	0.038
MN (mg/L)	18	0.000	0.014	0.000	0.006	0.009	-----	0.005	0.005
CU (mg/L)	18	0.000	0.006	0.000	0.003	0.006	-----	0.003	0.003
CO (mg/L)	18	0.000	0.008	0.000	0.004	0.008	-----	0.004	0.004
NI (mg/L)	18	0.000	0.005	0.000	0.003	0.005	-----	0.003	0.003
PB (mg/L)	18	0.000	0.010	0.000	0.005	0.010	-----	0.005	0.005
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	18	0.000	0.002	0.001	0.001	0.002	-----	0.001	0.001
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	18	0.000	0.003	0.000	0.002	0.003	-----	0.002	0.002
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :R
 BEGINNING DATE:01/01/90
 ENDING DATE:012/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	96	0	227	0	4	14	5	18	39
TEMP (deg.C)	97	6.8	32.6	9.8	15.0	24.6	-----	17.0	8.3
COND (uMhos)	93	22.0	280.4	98.5	184.6	232.5	-----	168.7	73.9
PH	97	6.81	8.76	7.76	7.99	8.18	-----	7.96	0.32
DO (mg/L)	93	5.4	12.1	8.0	9.3	10.2	-----	9.1	1.5
TURB (FTU)	97	0.1	17.0	0.8	1.2	2.1	-----	2.4	3.2
TKN (mg/L)	83	0.000	0.600	0.240	0.300	0.370	-----	0.303	0.132
NO3 (mg/L)	83	0.000	0.590	0.035	0.080	0.120	-----	0.100	0.118
OPO4 (mg/L)	83	0.000	0.090	0.000	0.000	0.000	-----	0.007	0.018
TPO4 (mg/L)	83	0.000	0.120	0.000	0.000	0.045	-----	0.024	0.029
NH4 (mg/L)	76	0.000	0.230	0.000	0.000	0.060	-----	0.030	0.047
CL (mg/L)	75	1.000	16.000	2.000	3.000	3.000	-----	3.093	1.994
SULFATE(mg/L)	82	0.000	19.000	3.000	4.000	6.000	-----	5.098	2.792
SODIUM (mg/L)	26	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
K (mg/L)	30	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CA (mg/L)	28	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000

BUFF WATER QUALITY REPORT, 1985 - 1990

**Appendix A3: River corridor statistics, all sites lumped,
analyzed by month**

LOCATION :R
DATA FOR MONTH OF:01

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	30	0	227	0	0	7	3	22	57
TEMP (deg.C)	30	4.0	24.0	5.9	7.0	8.2	-----	8.2	4.5
COND (uMhos)	30	26.1	259.8	92.2	144.5	187.2	-----	144.7	66.9
PH	19	6.81	8.50	7.52	7.76	8.03	-----	7.79	0.42
DO (mg/L)	28	8.6	18.4	10.0	12.0	15.1	-----	12.4	2.9
TURB (FTU)	19	0.1	1.8	0.1	0.7	1.0	-----	0.6	0.5
TKN (mg/L)	16	0.000	0.390	0.000	0.285	0.310	-----	0.196	0.158
NO3 (mg/L)	9	0.000	0.590	0.185	0.380	0.495	-----	0.350	0.204
OPO4 (mg/L)	8	0.000	0.060	0.000	0.015	0.030	-----	0.019	0.022
TPO4 (mg/L)	16	0.000	0.040	0.001	0.019	0.030	-----	0.018	0.018
NH4 (mg/L)	8	0.000	0.230	0.000	0.000	0.000	-----	0.035	0.081
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	8	6.000	9.000	6.000	8.000	8.000	-----	7.500	1.069
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	9	0.011	0.033	0.017	0.022	0.025	-----	0.022	0.006
MN (mg/L)	9	0.004	0.014	0.006	0.007	0.009	-----	0.008	0.003
CU (mg/L)	9	0.004	0.013	0.006	0.009	0.011	-----	0.009	0.003
CO (mg/L)	9	0.000	0.001	0.000	0.000	0.001	-----	0.000	0.001
NI (mg/L)	9	0.001	0.011	0.002	0.003	0.005	-----	0.004	0.004
PB (mg/L)	9	0.000	0.006	0.000	0.001	0.002	-----	0.002	0.002
CR (mg/L)	9	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	9	0.000	0.002	0.000	0.000	0.000	-----	0.000	0.001
AG (mg/L)	9	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	9	0.000	0.002	0.000	0.000	0.000	-----	0.000	0.001
ZN (mg/L)	9	0.000	0.001	0.000	0.000	0.000	-----	0.000	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :R
DATA FOR MONTH OF:02

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	25	0	30	0	0	1	2	3	8
TEMP (deg.C)	25	5.1	10.0	5.8	7.2	7.7	-----	7.0	1.4
COND (uMhos)	24	44.4	262.9	105.4	147.4	183.3	-----	150.0	62.7
PH	25	7.11	8.30	7.76	7.96	8.13	-----	7.91	0.28
DO (mg/L)	21	9.8	13.1	10.3	10.8	11.4	-----	11.1	0.9
TURB (FTU)	16	2.1	4.1	2.4	2.9	3.3	-----	3.0	0.6
TKN (mg/L)	17	0.010	0.480	0.030	0.120	0.335	-----	0.197	0.181
NO3 (mg/L)	17	0.000	0.180	0.015	0.060	0.170	-----	0.085	0.075
OPO4 (mg/L)	8	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	17	0.000	0.080	0.003	0.004	0.060	-----	0.032	0.033
NH4 (mg/L)	8	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CL (mg/L)	8	2.000	2.000	2.000	2.000	2.000	-----	2.000	0.000
SULFATE(mg/L)	8	3.000	6.000	3.000	3.000	4.000	-----	3.625	1.061
SODIUM (mg/L)	9	1.000	2.800	1.300	1.500	1.500	-----	1.556	0.503
K (mg/L)	9	0.500	0.700	0.600	0.600	0.700	-----	0.633	0.071
CA (mg/L)	9	9.900	36.000	19.000	32.000	34.000	-----	27.433	9.485
MG (mg/L)	9	1.070	4.140	1.590	2.120	2.575	-----	2.261	0.910
FE (mg/L)	9	0.050	0.240	0.065	0.070	0.100	-----	0.102	0.062
MN (mg/L)	9	0.000	0.010	0.000	0.000	0.000	-----	0.001	0.003
CU (mg/L)	9	0.002	0.005	0.002	0.002	0.002	-----	0.003	0.001
CO (mg/L)	9	0.000	0.001	0.000	0.001	0.001	-----	0.001	0.001
NI (mg/L)	9	0.000	0.002	0.001	0.001	0.001	-----	0.001	0.001
PB (mg/L)	9	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CR (mg/L)	9	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	9	0.000	0.001	0.000	0.000	0.000	-----	0.000	0.000
AG (mg/L)	9	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	9	0.000	0.001	0.000	0.001	0.001	-----	0.001	0.001
ZN (mg/L)	9	0.003	0.024	0.003	0.004	0.005	-----	0.006	0.007
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000

LOCATION :R
DATA FOR MONTH OF:03

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	29	0	48	0	2	6	3	6	10
TEMP (deg.C)	30	7.4	15.0	8.9	10.0	13.5	-----	11.1	2.6
COND (uMhos)	30	26.7	241.6	81.6	138.8	171.5	-----	132.9	60.1
PH	27	7.69	8.76	8.00	8.20	8.35	-----	8.18	0.24
DO (mg/L)	30	9.0	13.0	10.5	11.3	12.0	-----	11.3	1.1
TURB (FTU)	18	1.4	8.6	1.7	5.7	6.5	-----	4.7	2.7
TKN (mg/L)	25	0.000	1.390	0.100	0.210	0.255	-----	0.269	0.285
NO3 (mg/L)	25	0.000	0.170	0.025	0.040	0.060	-----	0.054	0.047
OPO4 (mg/L)	7	0.000	0.090	0.000	0.040	0.055	-----	0.039	0.032
TPO4 (mg/L)	25	0.000	0.034	0.000	0.005	0.027	-----	0.013	0.014
NH4 (mg/L)	16	0.050	0.300	0.060	0.190	0.210	-----	0.157	0.083
CL (mg/L)	16	1.000	6.000	2.000	2.650	3.000	-----	2.544	1.201
SULFATE(mg/L)	8	0.000	6.000	4.000	4.500	5.000	-----	4.250	1.909
SODIUM (mg/L)	18	0.840	1.500	1.235	1.370	1.460	-----	1.323	0.189
K (mg/L)	18	0.570	1.350	0.630	0.735	0.755	-----	0.739	0.172
CA (mg/L)	18	7.400	40.400	20.950	29.550	35.600	-----	28.006	9.727
MG (mg/L)	18	0.840	4.710	1.310	1.995	2.395	-----	2.091	0.982
FE (mg/L)	18	0.010	0.140	0.027	0.041	0.065	-----	0.049	0.032
MN (mg/L)	18	0.000	0.010	0.000	0.000	0.000	-----	0.002	0.004
CU (mg/L)	18	0.000	0.009	0.000	0.000	0.001	-----	0.001	0.002
CO (mg/L)	18	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
NI (mg/L)	18	0.000	0.007	0.000	0.001	0.001	-----	0.001	0.002
PB (mg/L)	18	0.000	0.002	0.000	0.000	0.000	-----	0.000	0.001
CR (mg/L)	9	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	18	0.000	0.002	0.000	0.000	0.001	-----	0.000	0.001
AG (mg/L)	9	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	9	0.000	0.004	0.001	0.001	0.002	-----	0.002	0.001
ZN (mg/L)	18	0.000	3.000	0.000	0.000	0.005	-----	0.169	0.707
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000

LOCATION :R
DATA FOR MONTH OF:04

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	29	0	145	0	6	30	7	22	35
TEMP (deg.C)	27	13.0	20.7	15.1	17.1	18.0	-----	16.9	2.1
COND (uMhos)	27	29.7	304.1	84.4	144.3	217.3	-----	154.7	81.4
PH	15	7.34	8.44	7.82	7.99	8.28	-----	8.01	0.32
DO (mg/L)	22	6.0	11.9	8.9	9.3	10.2	-----	9.4	1.3
TURB (FTU)	17	0.7	17.0	1.1	2.5	6.9	-----	5.0	4.9
TKN (mg/L)	13	0.000	0.600	0.050	0.200	0.455	-----	0.251	0.227
NO3 (mg/L)	13	0.020	0.180	0.045	0.100	0.110	-----	0.090	0.047
OPO4 (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	13	0.004	0.120	0.005	0.008	0.040	-----	0.027	0.034
NH4 (mg/L)	5	0.000	0.080	0.000	0.000	0.000	-----	0.016	0.036
CL (mg/L)	5	2.000	3.000	2.000	2.000	2.000	-----	2.200	0.447
SULFATE(mg/L)	5	4.000	6.000	4.000	4.000	4.000	-----	4.400	0.894
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	5	0.000	0.032	0.000	0.002	0.006	-----	0.009	0.014
MN (mg/L)	5	0.001	0.010	0.002	0.006	0.006	-----	0.005	0.003
CU (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CO (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
NI (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
PB (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CR (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AG (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
ZN (mg/L)	5	0.000	0.001	0.000	0.000	0.000	-----	0.000	0.000
AL (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000

LOCATION :R
DATA FOR MONTH OF:05

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	44	0	128	2	5	16	6	16	28
TEMP (deg.C)	45	13.5	25.0	18.0	20.3	22.3	-----	20.4	2.7
COND (uMhos)	45	22.0	252.8	112.3	166.5	201.4	-----	159.5	59.3
PH	20	7.35	8.60	7.89	8.12	8.31	-----	8.09	0.33
DO (mg/L)	19	7.1	9.8	8.0	8.4	8.6	-----	8.5	0.7
TURB (FTU)	11	0.7	17.0	0.8	1.3	7.2	-----	4.6	5.1
TKN (mg/L)	20	0.000	0.600	0.000	0.100	0.100	-----	0.124	0.159
NO3 (mg/L)	11	0.030	0.730	0.035	0.090	0.310	-----	0.218	0.251
OPO4 (mg/L)	3	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	20	0.000	0.060	0.004	0.007	0.020	-----	0.016	0.018
NH4 (mg/L)	10	0.000	0.170	0.010	0.030	0.065	-----	0.053	0.057
CL (mg/L)	3	2.000	16.000	0.000	0.000	0.000	-----	6.667	8.083
SULFATE(mg/L)	3	5.000	7.000	0.000	0.000	0.000	-----	6.000	1.000
SODIUM (mg/L)	9	1.080	1.500	1.235	1.340	1.370	-----	1.319	0.127
K (mg/L)	9	0.730	0.850	0.740	0.750	0.775	-----	0.769	0.040
CA (mg/L)	9	18.700	40.400	28.750	36.700	37.900	-----	33.611	7.006
MG (mg/L)	9	1.300	4.710	1.860	2.520	3.150	-----	2.671	1.036
FE (mg/L)	9	0.010	0.140	0.020	0.030	0.035	-----	0.041	0.039
MN (mg/L)	9	0.000	0.010	0.000	0.000	0.005	-----	0.003	0.005
CU (mg/L)	9	0.000	0.009	0.001	0.001	0.002	-----	0.002	0.003
CO (mg/L)	9	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
NI (mg/L)	9	0.001	0.007	0.001	0.001	0.002	-----	0.002	0.002
PB (mg/L)	9	0.000	0.002	0.000	0.000	0.000	-----	0.000	0.001
CR (mg/L)	9	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	9	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AG (mg/L)	8	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	9	0.000	0.004	0.001	0.001	0.002	-----	0.002	0.001
ZN (mg/L)	8	0.000	3.000	0.000	0.005	0.010	-----	0.379	1.059
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :R
DATA FOR MONTH OF:06

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	47	0	114	2	4	12	5	13	24
TEMP (deg.C)	47	15.1	30.5	24.5	27.0	29.0	-----	26.2	3.7
COND (uMhos)	46	77.7	280.0	177.2	218.7	239.8	-----	203.5	54.2
PH	29	7.56	8.38	7.75	7.90	8.10	-----	7.93	0.22
DO (mg/L)	22	6.6	10.0	7.2	8.0	9.0	-----	8.1	1.1
TURB (FTU)	20	0.7	17.0	0.9	1.4	7.7	-----	4.7	5.1
TKN (mg/L)	7	0.300	0.430	0.305	0.370	0.380	-----	0.354	0.049
NO3 (mg/L)	15	0.010	0.150	0.030	0.060	0.083	-----	0.065	0.035
OPO4 (mg/L)	10	0.000	0.018	0.000	0.000	0.001	-----	0.002	0.006
TPO4 (mg/L)	15	0.000	0.020	0.000	0.004	0.009	-----	0.005	0.006
NH4 (mg/L)	7	0.000	0.050	0.000	0.000	0.000	-----	0.007	0.019
CL (mg/L)	7	2.000	3.000	2.000	2.000	3.000	-----	2.429	0.535
SULFATE(mg/L)	7	2.000	3.000	2.000	3.000	3.000	-----	2.571	0.535
SODIUM (mg/L)	2	1.410	1.570	0.000	0.000	0.000	-----	1.490	0.113
K (mg/L)	2	0.870	0.890	0.000	0.000	0.000	-----	0.880	0.014
CA (mg/L)	2	26.000	35.000	0.000	0.000	0.000	-----	30.500	6.364
MG (mg/L)	1	2.140	2.140	0.000	0.000	0.000	-----	2.140*****	
FE (mg/L)	1	0.080	0.080	0.000	0.000	0.000	-----	0.080*****	
MN (mg/L)	1	0.080	0.080	0.000	0.000	0.000	-----	0.080*****	
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :R
DATA FOR MONTH OF:07

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	48	0	174	0	2	8	3	10	27
TEMP (deg.C)	49	18.8	32.0	25.3	28.5	30.0	-----	27.2	3.8
COND (uMhos)	46	100.0	281.5	200.3	229.6	245.7	-----	219.4	37.7
PH	29	7.72	8.92	8.02	8.11	8.33	-----	8.19	0.28
DO (mg/L)	33	5.4	10.0	7.2	8.0	9.0	-----	8.0	1.3
TURB (FTU)	20	1.0	2.4	1.1	1.3	1.4	-----	1.4	0.5
TKN (mg/L)	35	0.050	0.460	0.160	0.200	0.300	-----	0.238	0.104
NO3 (mg/L)	35	0.000	0.120	0.000	0.020	0.043	-----	0.035	0.040
OPO4 (mg/L)	7	0.000	0.030	0.000	0.000	0.000	-----	0.004	0.011
TPO4 (mg/L)	35	0.000	0.130	0.000	0.008	0.013	-----	0.011	0.022
NH4 (mg/L)	8	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CL (mg/L)	7	1.000	3.000	1.000	2.000	2.000	-----	1.857	0.690
SULFATE(mg/L)	7	3.000	4.000	3.000	3.000	4.000	-----	3.429	0.535
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :R
DATA FOR MONTH OF:08

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	53	0	112	2	4	10	5	9	17
TEMP (deg.C)	53	20.0	32.6	26.9	28.0	29.6	-----	28.0	2.4
COND (uMhos)	53	100.0	260.0	204.6	218.3	233.6	-----	215.0	27.8
PH	34	7.52	8.44	7.75	8.00	8.15	-----	7.98	0.26
DO (mg/L)	35	5.9	10.2	7.1	8.1	9.0	-----	8.2	1.2
TURB (FTU)	26	0.5	7.8	1.0	1.6	2.1	-----	2.3	2.0
TKN (mg/L)	7	0.260	0.500	0.280	0.370	0.440	-----	0.376	0.088
NO3 (mg/L)	9	0.000	0.090	0.010	0.030	0.038	-----	0.031	0.027
OPO4 (mg/L)	9	0.000	0.060	0.000	0.000	0.005	-----	0.012	0.022
TPO4 (mg/L)	9	0.000	0.030	0.000	0.000	0.002	-----	0.006	0.011
NH4 (mg/L)	7	0.000	0.080	0.000	0.000	0.030	-----	0.020	0.035
CL (mg/L)	7	3.000	4.000	3.000	3.000	3.500	-----	3.286	0.488
SULFATE(mg/L)	7	4.000	5.000	4.000	5.000	5.000	-----	4.571	0.535
SODIUM (mg/L)	1	1.000	1.000	0.000	0.000	0.000	-----	1.000*****	
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000

LOCATION :R
DATA FOR MONTH OF:09

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	53	0	220	0	2	6	3	9	30
TEMP (deg.C)	53	13.5	27.0	19.8	22.7	24.0	-----	22.0	3.0
COND (uMhos)	53	100.0	265.1	214.4	225.9	234.0	-----	222.1	20.1
PH	35	7.00	8.53	7.85	8.03	8.16	-----	7.98	0.30
DO (mg/L)	40	5.9	11.0	8.0	9.0	9.1	-----	8.6	1.0
TURB (FTU)	26	0.6	2.6	0.8	0.9	1.2	-----	1.2	0.6
TKN (mg/L)	24	0.100	0.400	0.100	0.200	0.230	-----	0.183	0.083
NO3 (mg/L)	24	0.000	0.170	0.005	0.030	0.050	-----	0.036	0.038
OPO4 (mg/L)	10	0.000	0.030	0.000	0.000	0.000	-----	0.003	0.009
TPO4 (mg/L)	26	0.000	0.040	0.003	0.005	0.014	-----	0.010	0.011
NH4 (mg/L)	8	0.000	0.130	0.000	0.050	0.060	-----	0.045	0.045
CL (mg/L)	8	3.000	4.000	3.000	3.000	4.000	-----	3.375	0.518
SULFATE(mg/L)	8	3.000	4.000	3.000	3.000	3.000	-----	3.125	0.354
SODIUM (mg/L)	7	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
K (mg/L)	7	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CA (mg/L)	7	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	14	0.000	0.100	0.000	0.060	0.090	-----	0.051	0.041
MN (mg/L)	14	0.000	0.040	0.010	0.020	0.030	-----	0.019	0.013
CU (mg/L)	14	0.000	0.017	0.000	0.001	0.001	-----	0.003	0.005
CO (mg/L)	14	0.000	0.001	0.000	0.000	0.000	-----	0.000	0.000
NI (mg/L)	14	0.000	0.001	0.000	0.000	0.000	-----	0.000	0.000
PB (mg/L)	14	0.000	0.001	0.000	0.000	0.001	-----	0.000	0.000
CR (mg/L)	14	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	14	0.000	0.001	0.000	0.000	0.001	-----	0.000	0.000
AG (mg/L)	14	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	14	0.000	0.002	0.000	0.000	0.001	-----	0.001	0.001
ZN (mg/L)	14	0.000	0.140	0.000	0.003	0.016	-----	0.016	0.037
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :R
DATA FOR MONTH OF:10

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	25	0	180	0	4	6	4	12	35
TEMP (deg.C)	26	7.1	19.9	14.0	15.6	17.1	-----	15.7	2.8
COND (uMhos)	26	100.0	336.7	229.5	247.8	296.4	-----	254.5	52.9
PH	26	7.30	8.38	7.79	8.06	8.20	-----	7.98	0.28
DO (mg/L)	26	7.7	15.4	8.9	9.6	11.0	-----	10.3	2.1
TURB (FTU)	26	0.5	1.5	0.6	0.8	1.1	-----	0.9	0.3
TKN (mg/L)	17	0.190	1.710	0.270	0.340	0.555	-----	0.524	0.406
NO3 (mg/L)	17	0.000	0.140	0.005	0.007	0.080	-----	0.039	0.049
OPO4 (mg/L)	8	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	17	0.000	0.070	0.000	0.007	0.017	-----	0.014	0.020
NH4 (mg/L)	17	0.000	0.110	0.000	0.010	0.010	-----	0.020	0.032
CL (mg/L)	8	3.000	4.000	3.000	3.500	4.000	-----	3.500	0.535
SULFATE(mg/L)	8	0.000	6.000	4.000	5.000	5.000	-----	4.375	1.847
SODIUM (mg/L)	17	0.000	3.000	0.000	1.700	2.200	-----	1.182	1.175
K (mg/L)	9	0.000	1.250	0.000	0.000	0.000	-----	0.139	0.417
CA (mg/L)	17	0.000	44.000	0.000	30.800	40.800	-----	21.247	20.842
MG (mg/L)	9	2.500	5.800	3.875	4.250	4.350	-----	4.306	0.987
FE (mg/L)	9	0.006	0.130	0.006	0.006	0.006	-----	0.021	0.041
MN (mg/L)	9	0.006	0.014	0.008	0.009	0.010	-----	0.009	0.003
CU (mg/L)	9	0.006	0.006	0.006	0.006	0.006	-----	0.006	0.000
CO (mg/L)	9	0.008	0.008	0.008	0.008	0.008	-----	0.008	0.000
NI (mg/L)	9	0.005	0.005	0.005	0.005	0.005	-----	0.005	0.000
PB (mg/L)	9	0.010	0.010	0.010	0.010	0.010	-----	0.010	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	9	0.001	0.002	0.002	0.002	0.002	-----	0.002	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	9	0.003	0.003	0.003	0.003	0.003	-----	0.003	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :R
DATA FOR MONTH OF:11

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	35	0	40	0	2	6	3	4	7
TEMP (deg.C)	35	5.0	19.7	9.7	11.3	13.0	-----	11.7	2.8
COND (uMhos)	34	100.0	343.0	229.9	249.3	271.3	-----	248.1	53.7
PH	26	7.06	8.34	7.52	8.07	8.20	-----	7.90	0.39
DO (mg/L)	26	8.7	11.2	9.3	10.3	10.8	-----	10.1	0.8
TURB (FTU)	26	0.4	1.8	0.6	0.7	0.8	-----	0.8	0.3
TKN (mg/L)	19	0.000	0.650	0.200	0.310	0.500	-----	0.335	0.207
NO3 (mg/L)	19	0.000	0.140	0.003	0.020	0.075	-----	0.042	0.045
OPO4 (mg/L)	8	0.000	0.030	0.000	0.000	0.000	-----	0.004	0.011
TPO4 (mg/L)	19	0.000	0.040	0.000	0.006	0.008	-----	0.007	0.009
NH4 (mg/L)	19	0.000	0.090	0.000	0.000	0.025	-----	0.018	0.030
CL (mg/L)	8	5.000	7.000	5.000	6.000	6.000	-----	5.875	0.641
SULFATE(mg/L)	8	0.000	19.000	8.000	10.000	10.000	-----	9.875	5.276
SODIUM (mg/L)	6	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
K (mg/L)	8	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CA (mg/L)	7	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000

LOCATION :R
DATA FOR MONTH OF:12

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	41	0	160	0	0	5	3	9	29
TEMP (deg.C)	41	2.5	11.3	5.8	6.6	7.5	-----	6.7	1.9
COND (uMhos)	41	50.1	486.6	177.4	219.2	257.0	-----	218.0	78.6
PH	24	7.35	8.36	7.91	8.18	8.30	-----	8.11	0.25
DO (mg/L)	32	9.0	14.2	10.6	12.1	13.1	-----	11.9	1.5
TURB (FTU)	22	0.4	6.5	0.7	0.9	1.1	-----	1.7	1.9
TKN (mg/L)	16	0.000	0.400	0.000	0.000	0.000	-----	0.067	0.126
NO3 (mg/L)	16	0.010	0.180	0.040	0.065	0.140	-----	0.086	0.058
OPO4 (mg/L)	7	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	16	0.004	0.080	0.005	0.010	0.060	-----	0.032	0.031
NH4 (mg/L)	7	0.000	0.060	0.000	0.000	0.000	-----	0.009	0.023
CL (mg/L)	7	2.000	3.000	2.000	3.000	3.000	-----	2.571	0.535
SULFATE(mg/L)	6	6.000	9.000	6.000	7.000	7.000	-----	7.000	1.095
SODIUM (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
K (mg/L)	6	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CA (mg/L)	6	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000

BUFF WATER QUALITY REPORT, 1985 - 1990

Appendix A4: Tributary statistics, 1985 - 1990

LOCATION :T1
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	319	0	405	4	12	26	10	24	44
TEMP (deg.C)	325	8.0	31.2	18.6	22.0	25.0	-----	21.5	4.7
COND (uMhos)	311	51.9	479.2	262.6	308.6	343.1	-----	302.2	67.4
PH	223	0.75	8.89	7.96	8.12	8.27	-----	8.07	0.56
DO (mg/L)	170	5.6	12.8	8.6	9.3	10.0	-----	9.3	1.2
TURB (FTU)	189	0.2	55.0	0.5	0.7	1.4	-----	1.5	4.2
TKN (mg/L)	46	0.000	0.600	0.100	0.200	0.250	-----	0.179	0.150
NO3 (mg/L)	46	0.000	1.120	0.035	0.085	0.155	-----	0.136	0.177
OPO4 (mg/L)	19	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	46	0.000	0.040	0.000	0.000	0.010	-----	0.008	0.012
NH4 (mg/L)	44	0.000	0.110	0.000	0.020	0.060	-----	0.031	0.037
CL (mg/L)	19	1.000	7.000	2.000	3.000	4.000	-----	3.474	1.775
SULFATE(mg/L)	19	2.000	10.000	3.500	5.000	6.000	-----	5.105	2.183
SODIUM (mg/L)	6	0.000	1.000	0.000	0.000	0.000	-----	0.167	0.408
K (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CA (mg/L)	6	0.000	1.000	0.000	0.000	0.000	-----	0.167	0.408
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :T2
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	100	0	500	4	14	24	11	26	55
TEMP (deg.C)	100	6.2	27.0	18.7	21.3	24.1	-----	20.7	4.6
COND (uMhos)	98	97.9	465.0	287.7	356.9	390.0	-----	338.7	69.2
PH	70	7.42	8.66	7.94	8.07	8.18	-----	8.05	0.20
DO (mg/L)	47	5.3	18.0	7.6	8.2	9.2	-----	8.5	1.9
TURB (FTU)	55	0.2	12.0	0.4	0.8	1.5	-----	1.5	2.0
TKN (mg/L)	20	0.000	0.600	0.100	0.195	0.210	-----	0.191	0.148
NO3 (mg/L)	20	0.000	0.290	0.020	0.030	0.040	-----	0.046	0.061
OPO4 (mg/L)	6	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	20	0.000	0.040	0.000	0.000	0.004	-----	0.005	0.011
NH4 (mg/L)	20	0.000	0.090	0.000	0.015	0.040	-----	0.026	0.030
CL (mg/L)	6	0.000	6.000	1.000	2.000	3.000	-----	2.667	2.066
SULFATE(mg/L)	6	0.000	13.000	3.000	8.000	9.500	-----	7.500	4.416
SODIUM (mg/L)	4	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
K (mg/L)	4	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CA (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
MG (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
FE (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
MN (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
CU (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
CO (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
NI (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
PB (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
CR (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
CD (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
AG (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
AS (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
ZN (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
AL (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	

LOCATION :T3
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	33	0	108	4	8	22	9	18	23
TEMP (deg.C)	33	9.5	28.5	16.7	20.5	24.0	-----	20.6	4.8
COND (uMhos)	33	100.0	337.1	222.0	270.2	285.2	-----	250.3	58.3
PH	20	6.91	8.06	7.70	7.86	7.96	-----	7.79	0.27
DO (mg/L)	18	4.3	10.0	7.5	8.6	9.1	-----	8.3	1.3
TURB (FTU)	19	0.7	13.5	1.3	1.7	2.0	-----	2.7	3.0
TKN (mg/L)	7	0.100	0.400	0.150	0.300	0.320	-----	0.264	0.101
NO3 (mg/L)	7	0.000	0.120	0.005	0.020	0.040	-----	0.036	0.040
OPO4 (mg/L)	2	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	7	0.000	0.040	0.001	0.004	0.023	-----	0.013	0.018
NH4 (mg/L)	7	0.000	0.030	0.000	0.000	0.020	-----	0.010	0.013
CL (mg/L)	2	2.000	2.000	0.000	0.000	0.000	-----	2.000	0.000
SULFATE(mg/L)	2	7.000	8.000	0.000	0.000	0.000	-----	7.500	0.707
SODIUM (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000	*****
K (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000	*****
CA (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000	*****
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :T4
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	40	0	165	5	14	30	13	26	33
TEMP (deg.C)	40	9.7	29.0	17.1	22.0	24.5	-----	21.1	5.3
COND (uMhos)	39	100.0	350.4	276.6	297.7	313.7	-----	297.6	28.5
PH	27	7.63	8.41	7.85	8.02	8.15	-----	8.01	0.20
DO (mg/L)	22	6.3	11.4	8.0	8.8	9.4	-----	8.8	1.1
TURB (FTU)	25	0.3	10.7	0.9	1.5	3.6	-----	2.7	2.6
TKN (mg/L)	12	0.000	0.440	0.200	0.285	0.340	-----	0.268	0.118
NO3 (mg/L)	13	0.140	0.750	0.185	0.510	0.595	-----	0.439	0.219
OPO4 (mg/L)	8	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	13	0.000	0.060	0.000	0.007	0.035	-----	0.020	0.023
NH4 (mg/L)	11	0.000	0.550	0.000	0.010	0.025	-----	0.063	0.163
CL (mg/L)	7	3.000	7.000	3.000	4.000	4.500	-----	4.286	1.380
SULFATE(mg/L)	7	2.000	10.000	4.000	8.000	8.000	-----	6.857	2.545
SODIUM (mg/L)	2	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
K (mg/L)	2	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CA (mg/L)	2	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000

LOCATION :T5
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	36	0	56	4	10	18	8	13	12
TEMP (deg.C)	36	9.7	30.5	21.2	24.5	26.4	-----	23.3	5.3
COND (uMhos)	36	100.0	258.6	190.0	219.2	232.8	-----	209.6	34.8
PH	24	7.46	8.49	7.86	8.01	8.10	-----	7.99	0.23
DO (mg/L)	18	5.9	11.3	7.9	8.9	9.9	-----	8.8	1.4
TURB (FTU)	22	0.4	14.0	0.8	1.2	1.5	-----	2.0	3.0
TKN (mg/L)	8	0.000	0.700	0.100	0.290	0.300	-----	0.303	0.226
NO3 (mg/L)	8	0.000	0.210	0.010	0.060	0.120	-----	0.078	0.074
OPO4 (mg/L)	3	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	8	0.000	0.060	0.000	0.006	0.008	-----	0.011	0.020
NH4 (mg/L)	7	0.000	0.090	0.000	0.020	0.030	-----	0.026	0.032
CL (mg/L)	3	3.000	3.000	0.000	0.000	0.000	-----	3.000	0.000
SULFATE(mg/L)	3	4.000	8.000	0.000	0.000	0.000	-----	5.667	2.082
SODIUM (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
K (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
CA (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000

LOCATION :T6
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	35	0	48	2	8	12	6	10	11
TEMP (deg.C)	35	10.5	29.9	21.4	25.0	27.0	-----	23.5	4.8
COND (uMhos)	35	94.7	282.3	211.7	237.1	250.0	-----	231.3	37.5
PH	23	7.40	8.40	7.74	7.94	8.05	-----	7.93	0.25
DO (mg/L)	18	5.8	11.2	7.1	9.0	9.6	-----	8.6	1.6
TURB (FTU)	21	0.6	12.7	1.3	1.7	2.7	-----	2.5	2.6
TKN (mg/L)	9	0.000	0.600	0.150	0.250	0.280	-----	0.260	0.171
NO3 (mg/L)	9	0.010	0.210	0.040	0.140	0.155	-----	0.117	0.069
OPO4 (mg/L)	4	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	8	0.000	0.070	0.000	0.010	0.012	-----	0.019	0.024
NH4 (mg/L)	7	0.000	0.020	0.000	0.000	0.015	-----	0.007	0.010
CL (mg/L)	4	2.000	3.000	2.000	2.500	3.000	-----	2.500	0.577
SULFATE(mg/L)	4	4.000	10.000	4.000	5.000	5.000	-----	6.000	2.708
SODIUM (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000	*****
K (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000	*****
CA (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000	*****
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :T7
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	38	0	150	7	16	26	15	24	27
TEMP (deg.C)	39	10.4	27.0	17.1	19.1	21.8	-----	19.2	3.9
COND (uMhos)	39	100.0	476.4	356.0	377.7	398.9	-----	379.7	38.3
PH	24	7.55	8.25	7.92	8.08	8.11	-----	8.01	0.17
DO (mg/L)	22	6.1	10.3	7.8	9.2	9.8	-----	8.7	1.3
TURB (FTU)	23	0.3	4.0	0.4	0.6	1.0	-----	0.9	0.8
TKN (mg/L)	7	0.000	0.400	0.000	0.100	0.240	-----	0.140	0.159
NO3 (mg/L)	7	0.140	0.340	0.155	0.170	0.315	-----	0.231	0.088
OPO4 (mg/L)	2	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	7	0.000	0.070	0.000	0.000	0.001	-----	0.010	0.026
NH4 (mg/L)	6	0.020	0.110	0.020	0.030	0.050	-----	0.047	0.036
CL (mg/L)	2	0.000	3.000	0.000	0.000	0.000	-----	1.500	2.121
SULFATE(mg/L)	2	3.000	8.000	0.000	0.000	0.000	-----	5.500	3.536
SODIUM (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000	*****
K (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000	*****
CA (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000	*****
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :T8
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	33	0	74	6	8	19	9	15	16
TEMP (deg.C)	34	9.2	30.0	18.7	23.5	26.6	-----	22.5	5.4
COND (uMhos)	34	100.0	411.5	213.7	227.1	240.2	-----	229.4	40.5
PH	21	7.45	8.41	7.95	8.06	8.17	-----	8.05	0.23
DO (mg/L)	18	7.0	10.6	7.8	8.5	9.3	-----	8.6	1.0
TURB (FTU)	20	0.5	14.0	0.8	1.1	1.6	-----	2.0	3.0
TKN (mg/L)	5	0.100	0.700	0.150	0.200	0.300	-----	0.320	0.239
NO3 (mg/L)	5	0.010	0.060	0.010	0.020	0.035	-----	0.030	0.023
OPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TPO4 (mg/L)	5	0.007	0.009	0.008	0.008	0.008	-----	0.008	0.001
NH4 (mg/L)	5	0.010	0.120	0.015	0.050	0.055	-----	0.052	0.043
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :T9
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	37	0	610	6	18	38	15	58	135
TEMP (deg.C)	39	10.9	30.0	19.5	24.0	26.5	-----	22.8	5.3
COND (uMhos)	39	67.8	270.5	119.2	171.9	205.3	-----	164.7	51.7
PH	24	7.52	8.94	7.72	7.94	8.14	-----	7.98	0.35
DO (mg/L)	19	6.7	13.8	8.7	9.8	10.2	-----	9.7	1.5
TURB (FTU)	20	0.9	19.6	1.3	2.5	4.4	-----	4.0	4.5
TKN (mg/L)	7	0.100	0.400	0.160	0.300	0.370	-----	0.294	0.106
NO3 (mg/L)	7	0.010	0.400	0.015	0.040	0.115	-----	0.104	0.141
OPO4 (mg/L)	2	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	7	0.000	0.021	0.000	0.008	0.016	-----	0.010	0.009
NH4 (mg/L)	5	0.010	0.060	0.015	0.030	0.040	-----	0.034	0.021
CL (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
SULFATE(mg/L)	1	5.000	5.000	0.000	0.000	0.000	-----	5.000*****	
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :T10
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	34	0	84	3	12	20	9	19	22
TEMP (deg.C)	35	11.1	28.0	19.4	22.6	24.8	-----	21.9	4.1
COND (uMhos)	33	100.0	345.7	280.2	296.0	307.6	-----	294.6	22.8
PH	24	7.21	8.29	7.70	7.80	7.91	-----	7.81	0.20
DO (mg/L)	18	6.3	11.3	8.2	9.2	9.4	-----	8.9	1.1
TURB (FTU)	21	0.5	17.5	1.5	2.1	2.6	-----	2.8	3.5
TKN (mg/L)	5	0.100	0.400	0.100	0.100	0.150	-----	0.180	0.130
NO3 (mg/L)	5	0.130	0.300	0.130	0.180	0.185	-----	0.186	0.069
OPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TPO4 (mg/L)	5	0.024	0.043	0.027	0.030	0.032	-----	0.032	0.007
NH4 (mg/L)	5	0.020	0.100	0.025	0.050	0.060	-----	0.054	0.032
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	1	1.000	1.000	0.000	0.000	0.000	-----	1.000*****	
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION : T11
 BEGINNING DATE: 01/01/85
 ENDING DATE: 12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC (col/100mL)	34	0	144	4	10	24	9	17	26
TEMP (deg.C)	35	10.2	25.0	17.1	19.0	20.6	-----	19.0	3.0
COND (uMhos)	34	100.0	407.4	316.7	330.0	334.8	-----	324.0	45.4
PH	22	7.47	8.31	7.99	8.10	8.14	-----	8.05	0.19
DO (mg/L)	18	7.6	10.6	9.0	9.6	10.2	-----	9.6	0.8
TURB (FTU)	21	0.2	1.8	0.4	0.6	0.8	-----	0.7	0.4
TKN (mg/L)	5	0.100	0.400	0.100	0.100	0.150	-----	0.180	0.130
NO3 (mg/L)	5	0.140	0.300	0.175	0.210	0.210	-----	0.214	0.057
OPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TPO4 (mg/L)	5	0.000	0.010	0.002	0.004	0.005	-----	0.004	0.004
NH4 (mg/L)	5	0.010	0.100	0.015	0.020	0.040	-----	0.042	0.038
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :T12
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	34	0	405	14	18	27	18	31	67
TEMP (deg.C)	35	12.5	29.7	21.0	24.0	26.1	-----	23.0	4.8
COND (uMhos)	33	100.0	305.2	237.8	250.0	262.6	-----	249.3	24.7
PH	24	7.45	8.89	8.05	8.22	8.33	-----	8.17	0.39
DO (mg/L)	20	7.1	12.3	8.2	9.4	10.0	-----	9.4	1.4
TURB (FTU)	22	0.5	3.7	0.8	1.2	1.5	-----	1.4	0.8
TKN (mg/L)	5	0.000	0.300	0.050	0.100	0.100	-----	0.120	0.110
NO3 (mg/L)	5	0.030	0.080	0.035	0.040	0.055	-----	0.052	0.022
OPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TPO4 (mg/L)	5	0.000	0.024	0.007	0.020	0.021	-----	0.016	0.010
NH4 (mg/L)	5	0.010	0.070	0.015	0.040	0.050	-----	0.040	0.025
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :T13
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	17	0	74	1	4	11	4	11	19
TEMP (deg.C)	17	11.2	23.6	15.3	19.5	20.1	-----	18.4	3.5
COND (uMhos)	16	100.0	385.3	309.4	337.5	342.7	-----	332.5	24.4
PH	11	7.85	8.55	8.07	8.15	8.22	-----	8.17	0.19
DO (mg/L)	10	6.5	12.8	8.2	9.5	10.0	-----	9.5	1.7
TURB (FTU)	10	0.3	0.8	0.3	0.5	0.7	-----	0.5	0.2
TKN (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
NO3 (mg/L)	1	0.310	0.310	0.000	0.000	0.000	-----	0.310*****	
OPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TPO4 (mg/L)	1	0.014	0.014	0.000	0.000	0.000	-----	0.014*****	
NH4 (mg/L)	1	0.090	0.090	0.000	0.000	0.000	-----	0.090*****	
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :T14
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	37	0	398	22	48	71	37	65	82
TEMP (deg.C)	38	13.7	27.1	19.2	23.2	25.0	-----	22.1	4.1
COND (uMhos)	36	100.0	373.0	315.2	325.7	344.3	-----	328.9	20.5
PH	26	7.76	8.55	8.10	8.22	8.29	-----	8.19	0.18
DO (mg/L)	20	8.1	11.9	8.9	9.5	9.8	-----	9.5	0.9
TURB (FTU)	21	0.4	1.9	0.6	0.7	1.1	-----	0.9	0.5
TKN (mg/L)	7	0.000	0.280	0.000	0.100	0.150	-----	0.097	0.110
NO3 (mg/L)	7	0.060	0.350	0.065	0.110	0.175	-----	0.144	0.106
OPO4 (mg/L)	2	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	6	0.000	0.003	0.000	0.000	0.002	-----	0.001	0.002
NH4 (mg/L)	7	0.000	0.140	0.005	0.070	0.090	-----	0.060	0.053
CL (mg/L)	2	5.000	7.000	0.000	0.000	0.000	-----	6.000	1.414
SULFATE(mg/L)	2	6.000	91.000	0.000	0.000	0.000	-----	48.500	60.104
SODIUM (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
K (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
CA (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000

LOCATION :T15
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	34	0	32	1	4	10	4	7	8
TEMP (deg.C)	34	10.0	28.0	20.0	23.3	26.3	-----	22.9	4.4
COND (uMhos)	33	100.0	479.2	250.8	270.5	278.3	-----	274.9	43.4
PH	20	8.01	8.72	8.21	8.26	8.36	-----	8.29	0.16
DO (mg/L)	17	8.1	12.0	9.0	9.5	9.7	-----	9.5	0.9
TURB (FTU)	19	0.3	0.9	0.4	0.6	0.7	-----	0.6	0.2
TKN (mg/L)	5	0.000	0.200	0.050	0.100	0.150	-----	0.120	0.084
NO3 (mg/L)	5	0.020	0.090	0.025	0.040	0.040	-----	0.044	0.027
OPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TPO4 (mg/L)	5	0.000	0.001	0.000	0.000	0.001	-----	0.000	0.001
NH4 (mg/L)	5	0.000	0.070	0.005	0.060	0.060	-----	0.040	0.032
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :T16
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	36	0	106	2	7	20	7	16	24
TEMP (deg.C)	36	11.9	24.0	15.8	19.1	21.0	-----	18.6	3.2
COND (uMhos)	34	100.0	385.8	298.6	320.1	336.8	-----	313.9	43.3
PH	25	6.88	8.31	7.98	8.07	8.19	-----	8.00	0.31
DO (mg/L)	20	7.6	10.8	8.7	9.4	10.0	-----	9.3	0.8
TURB (FTU)	21	0.4	1.8	0.5	0.7	0.7	-----	0.8	0.4
TKN (mg/L)	11	0.000	0.350	0.000	0.100	0.250	-----	0.140	0.120
NO3 (mg/L)	11	0.040	0.320	0.080	0.110	0.115	-----	0.123	0.076
OPO4 (mg/L)	8	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	11	0.000	0.030	0.000	0.000	0.000	-----	0.003	0.009
NH4 (mg/L)	10	0.000	0.030	0.000	0.000	0.000	-----	0.005	0.011
CL (mg/L)	8	1.000	7.000	2.000	3.500	4.000	-----	3.500	1.773
SULFATE(mg/L)	8	2.000	8.000	3.000	4.500	5.000	-----	4.625	1.847
SODIUM (mg/L)	2	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
K (mg/L)	2	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CA (mg/L)	2	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000

LOCATION :T17
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	36	0	180	4	16	28	12	26	36
TEMP (deg.C)	36	10.8	31.0	21.0	24.8	26.5	-----	23.4	5.2
COND (uMhos)	35	100.0	454.4	368.7	386.2	403.9	-----	387.9	30.7
PH	24	7.75	8.56	8.15	8.29	8.35	-----	8.24	0.22
DO (mg/L)	19	8.0	11.0	8.6	9.4	10.4	-----	9.5	1.0
TURB (FTU)	21	0.3	2.6	0.5	0.6	0.9	-----	0.8	0.6
TKN (mg/L)	9	0.000	0.320	0.000	0.200	0.230	-----	0.163	0.129
NO3 (mg/L)	9	0.000	0.300	0.010	0.030	0.100	-----	0.090	0.113
OPO4 (mg/L)	6	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	9	0.000	0.030	0.000	0.000	0.000	-----	0.004	0.010
NH4 (mg/L)	8	0.000	0.050	0.000	0.000	0.000	-----	0.008	0.018
CL (mg/L)	6	2.000	6.000	2.500	3.000	3.500	-----	3.500	1.378
SULFATE(mg/L)	6	2.000	10.000	2.500	5.000	6.000	-----	5.167	2.858
SODIUM (mg/L)	2	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
K (mg/L)	2	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CA (mg/L)	2	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****	0.000	0.000

LOCATION :T18
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	25	0	32	2	6	12	5	10	11
TEMP (deg.C)	26	11.5	31.2	21.4	25.0	27.5	-----	24.1	4.9
COND (uMhos)	25	100.0	308.2	235.9	250.0	268.4	-----	255.1	26.4
PH	21	7.75	8.50	7.97	8.03	8.11	-----	8.05	0.16
DO (mg/L)	14	5.6	11.9	6.9	7.8	9.0	-----	8.2	1.6
TURB (FTU)	17	0.3	1.5	0.5	0.6	0.9	-----	0.7	0.3
TKN (mg/L)	5	0.100	0.200	0.100	0.100	0.100	-----	0.120	0.045
NO3 (mg/L)	5	0.030	0.090	0.030	0.040	0.050	-----	0.050	0.025
OPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TPO4 (mg/L)	5	0.005	0.011	0.006	0.008	0.009	-----	0.008	0.002
NH4 (mg/L)	5	0.000	0.060	0.010	0.020	0.030	-----	0.028	0.023
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :T23
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	25	0	124	6	14	23	11	22	28
TEMP (deg.C)	25	11.5	26.5	18.6	21.0	23.5	-----	20.6	4.2
COND (uMhos)	24	100.0	446.1	376.4	393.6	407.0	-----	393.0	26.5
PH	21	7.53	8.26	7.93	8.04	8.15	-----	8.02	0.18
DO (mg/L)	14	5.3	18.0	7.4	8.2	8.4	-----	8.6	2.9
TURB (FTU)	17	0.2	1.8	0.4	0.5	0.8	-----	0.7	0.4
TKN (mg/L)	5	0.100	0.200	0.100	0.100	0.150	-----	0.140	0.055
NO3 (mg/L)	5	0.010	0.030	0.015	0.020	0.020	-----	0.020	0.007
OPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TPO4 (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
NH4 (mg/L)	5	0.000	0.090	0.005	0.020	0.025	-----	0.030	0.035
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :T24
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	24	4	164	10	22	34	20	31	35
TEMP (deg.C)	24	11.0	27.0	20.6	22.9	24.5	-----	21.8	3.8
COND (uMhos)	23	100.0	411.4	338.9	367.1	378.2	-----	362.3	26.4
PH	20	7.68	8.22	7.93	8.03	8.15	-----	8.01	0.15
DO (mg/L)	13	5.7	11.1	7.3	7.6	8.0	-----	7.8	1.2
TURB (FTU)	16	0.3	3.1	0.4	0.5	0.9	-----	0.8	0.7
TKN (mg/L)	4	0.100	0.200	0.100	0.100	0.100	-----	0.125	0.050
NO3 (mg/L)	4	0.020	0.080	0.020	0.035	0.040	-----	0.043	0.026
OPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TPO4 (mg/L)	4	0.000	0.004	0.000	0.001	0.001	-----	0.001	0.002
NH4 (mg/L)	4	0.020	0.080	0.020	0.035	0.050	-----	0.043	0.029
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

BUFF WATER QUALITY REPORT, 1985 - 1990

Appendix A5: Tributary statistics, all sites lumped, analyzed by year

LOCATION :T
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/85

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	194	0	150	4	10	19	8	16	23
TEMP (deg.C)	194	13.3	31.0	19.5	22.5	25.0	-----	22.1	4.1
COND (uMhos)	194	85.5	422.3	235.5	285.4	323.9	-----	279.9	69.5
PH	0	99.99	0.00	0.00	0.00	0.00	-----	*****	0.00
DO (mg/L)	10	7.0	12.0	8.5	10.0	10.0	-----	9.6	1.4
TURB (FTU)	3	3.0	4.0	0.0	0.0	0.0	-----	3.3	0.6
TKN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NO3 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
OPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NH4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION : T
 BEGINNING DATE: 01/01/86
 ENDING DATE: 12/31/86

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	1	30	30	0	0	0	30	30*****	
TEMP (deg.C)	1	22.0	22.0	0.0	0.0	0.0	-----	22.0*****	
COND (uMhos)	1	100.0	297.0	0.0	0.0	0.0	-----	297.0*****	
PH	1	8.09	8.09	0.00	0.00	0.00	-----	8.09*****	
DO (mg/L)	0	100.0	0.0	0.0	0.0	0.0	-----	*****	0.0
TURB (FTU)	0	100.0	0.0	0.0	0.0	0.0	-----	*****	0.0
TKN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NO3 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
OP04 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TP04 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NH4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :T
 BEGINNING DATE:01/01/87
 ENDING DATE:12/31/87

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	84	0	108	2	14	26	9	19	22
TEMP (deg.C)	91	16.0	31.0	21.0	25.0	26.0	-----	23.9	3.2
COND (uMhos)	91	100.0	465.0	229.9	308.2	366.0	-----	296.0	83.1
PH	76	7.21	8.94	7.95	8.14	8.25	-----	8.10	0.29
DO (mg/L)	0	100.0	0.0	0.0	0.0	0.0	-----	*****	0.0
TURB (FTU)	0	100.0	0.0	0.0	0.0	0.0	-----	*****	0.0
TKN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NO3 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
OPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NH4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION : T
 BEGINNING DATE: 01/01/88
 ENDING DATE: 12/31/88

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	88	0	610	8	16	30	15	42	104
TEMP (deg.C)	88	6.2	31.2	22.3	24.5	26.5	-----	24.0	3.7
COND (uMhos)	77	100.0	442.8	244.8	292.8	352.4	-----	296.7	71.5
PH	86	6.88	8.81	7.68	7.84	8.02	-----	7.84	0.28
DO (mg/L)	41	5.9	13.8	7.8	8.5	9.5	-----	8.8	1.5
TURB (FTU)	87	0.2	19.6	0.4	0.6	1.1	-----	2.1	4.0
TKN (mg/L)	2	0.000	0.500	0.000	0.000	0.000	-----	0.250	0.354
NO3 (mg/L)	2	0.000	0.030	0.000	0.000	0.000	-----	0.015	0.021
OPO4 (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
TPO4 (mg/L)	2	0.000	0.010	0.000	0.000	0.000	-----	0.005	0.007
NH4 (mg/L)	2	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CL (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
SULFATE(mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
SODIUM (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
K (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
CA (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
MG (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
FE (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
MN (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
CU (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
CO (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
NI (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
PB (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
CR (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
CD (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
AG (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
AS (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
ZN (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
AL (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	

LOCATION : T
 BEGINNING DATE: 01/01/89
 ENDING DATE: 12/31/89

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	148	0	144	6	14	28	13	22	24
TEMP (deg.C)	151	10.7	29.7	18.7	21.5	24.0	-----	21.3	3.7
COND (uMhos)	151	80.1	454.4	242.2	295.4	350.9	-----	296.0	78.1
PH	138	7.52	8.58	7.96	8.07	8.24	-----	8.09	0.20
DO (mg/L)	151	6.2	18.0	8.3	9.0	9.5	-----	8.9	1.2
TURB (FTU)	151	0.3	55.0	0.7	1.1	1.6	-----	1.6	4.5
TKN (mg/L)	89	0.000	0.700	0.100	0.200	0.300	-----	0.202	0.154
NO3 (mg/L)	89	0.000	1.120	0.025	0.060	0.160	-----	0.110	0.144
OPO4 (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
TPO4 (mg/L)	87	0.000	0.043	0.000	0.004	0.009	-----	0.007	0.009
NH4 (mg/L)	88	0.000	0.140	0.010	0.020	0.050	-----	0.034	0.032
CL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SULFATE(mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
SODIUM (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
K (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CA (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION : T
 BEGINNING DATE: 01/01/90
 ENDING DATE: 12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	156	0	405	4	12	26	11	28	57
TEMP (deg.C)	156	8.0	29.6	12.4	17.0	22.8	-----	18.0	6.0
COND (uMhos)	150	51.9	479.2	235.9	292.0	342.6	-----	284.2	88.2
PH	155	7.36	8.72	7.97	8.11	8.23	-----	8.09	0.24
DO (mg/L)	150	4.3	12.8	8.2	9.3	10.2	-----	9.1	1.5
TURB (FTU)	153	0.3	14.0	0.6	1.0	2.0	-----	1.8	1.9
TKN (mg/L)	44	0.000	0.600	0.000	0.250	0.290	-----	0.212	0.153
NO3 (mg/L)	45	0.000	0.750	0.050	0.120	0.225	-----	0.195	0.208
OPO4 (mg/L)	45	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	45	0.000	0.070	0.000	0.000	0.040	-----	0.017	0.023
NH4 (mg/L)	36	0.000	0.550	0.000	0.000	0.000	-----	0.030	0.095
CL (mg/L)	43	0.000	7.000	2.000	3.000	4.000	-----	3.209	1.670
SULFATE(mg/L)	43	2.000	91.000	4.000	6.000	8.000	-----	8.000	13.196
SODIUM (mg/L)	15	0.000	1.000	0.000	0.000	0.000	-----	0.067	0.258
K (mg/L)	14	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CA (mg/L)	15	0.000	1.000	0.000	0.000	0.000	-----	0.067	0.258
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000



BUFF WATER QUALITY REPORT, 1985 - 1990

Appendix A6: Spring statistics, 1985 - 1990

LOCATION :S2
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	40	0	46	0	5	12	4	9	12
TEMP (deg.C)	37	10.8	22.5	13.0	14.0	14.0	-----	14.0	1.8
COND (uMhos)	37	90.0	322.5	231.1	259.6	265.9	-----	244.3	44.2
PH	21	7.04	8.08	7.26	7.35	7.48	-----	7.39	0.24
DO (mg/L)	13	8.0	10.0	8.6	9.3	9.6	-----	9.1	0.6
TURB (FTU)	16	0.5	15.0	0.6	1.1	2.2	-----	2.5	3.7
TKN (mg/L)	9	0.000	0.540	0.050	0.210	0.225	-----	0.187	0.167
NO3 (mg/L)	9	0.130	0.470	0.180	0.390	0.420	-----	0.316	0.137
OPO4 (mg/L)	7	0.000	0.030	0.000	0.000	0.000	-----	0.004	0.011
TPO4 (mg/L)	9	0.000	0.060	0.015	0.030	0.040	-----	0.031	0.019
NH4 (mg/L)	9	0.000	0.020	0.000	0.000	0.000	-----	0.003	0.007
CL (mg/L)	7	2.000	5.000	2.000	2.000	2.500	-----	2.571	1.134
SULFATE(mg/L)	7	3.000	38.000	3.500	6.000	12.500	-----	11.571	12.286
SODIUM (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000	*****
K (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000	*****
CA (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000	*****
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000

LOCATION :S33
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	34	0	42	0	2	4	3	4	7
TEMP (deg.C)	37	11.9	17.8	14.1	15.8	16.3	-----	15.3	1.5
COND (uMhos)	37	100.0	452.1	362.2	390.6	398.5	-----	386.4	30.5
PH	25	6.30	7.68	7.21	7.33	7.41	-----	7.30	0.27
DO (mg/L)	18	5.7	9.8	7.3	8.0	8.3	-----	8.0	1.0
TURB (FTU)	21	0.3	2.3	0.6	0.7	1.1	-----	0.9	0.5
TKN (mg/L)	5	0.000	0.400	0.000	0.000	0.135	-----	0.134	0.189
NO3 (mg/L)	5	0.500	1.200	0.505	0.740	0.815	-----	0.768	0.292
OPO4 (mg/L)	3	0.000	0.004	0.000	0.000	0.000	-----	0.001	0.002
TP04 (mg/L)	5	0.000	0.060	0.001	0.003	0.004	-----	0.014	0.026
NH4 (mg/L)	4	0.000	0.010	0.000	0.010	0.010	-----	0.008	0.005
CL (mg/L)	5	0.850	3.000	1.345	2.000	2.420	-----	2.106	0.866
SULFATE(mg/L)	5	1.970	8.000	2.985	5.230	5.340	-----	4.930	2.203
SODIUM (mg/L)	4	0.000	1.900	0.000	1.685	1.740	-----	1.318	0.885
K (mg/L)	4	0.000	0.940	0.000	0.905	0.920	-----	0.688	0.459
CA (mg/L)	4	0.000	71.000	0.000	38.350	40.300	-----	36.925	29.076
MG (mg/L)	3	6.200	7.900	0.000	0.000	0.000	-----	7.333	0.981
FE (mg/L)	3	0.000	0.090	0.000	0.000	0.000	-----	0.050	0.046
MN (mg/L)	3	0.010	0.080	0.000	0.000	0.000	-----	0.033	0.040
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :S41
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	20	0	92	2	5	26	7	19	25
TEMP (deg.C)	21	13.1	19.0	14.2	16.7	17.0	-----	16.1	1.8
COND (uMhos)	21	100.0	465.9	373.1	389.5	405.4	-----	390.6	36.7
PH	20	7.08	7.86	7.48	7.57	7.70	-----	7.57	0.17
DO (mg/L)	15	7.5	9.5	8.2	8.7	9.0	-----	8.6	0.6
TURB (FTU)	18	0.4	2.3	0.7	0.9	1.1	-----	0.9	0.4
TKN (mg/L)	3	0.000	0.430	0.000	0.000	0.000	-----	0.213	0.215
NO3 (mg/L)	3	0.700	1.040	0.000	0.000	0.000	-----	0.817	0.193
OPO4 (mg/L)	3	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	3	0.040	0.060	0.000	0.000	0.000	-----	0.050	0.010
NH4 (mg/L)	3	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CL (mg/L)	3	4.000	7.000	0.000	0.000	0.000	-----	5.000	1.732
SULFATE(mg/L)	3	3.000	8.000	0.000	0.000	0.000	-----	5.667	2.517
SODIUM (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000	*****
K (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000	*****
CA (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000	*****
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

BUFF WATER QUALITY REPORT, 1985 - 1990

**Appendix B1: Base Flow statistics for the river, tributaries,
and springs**

LOCATION :R
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	459	0	227	0	2	8	4	11	28
TEMP (deg.C)	461	2.5	32.6	10.0	19.0	26.0	-----	18.3	8.3
COND (uMhos)	455	22.0	486.6	155.3	214.7	239.9	-----	197.6	65.7
PH	309	6.81	8.92	7.81	8.05	8.21	-----	8.01	0.31
DO (mg/L)	334	5.4	18.4	8.4	9.5	10.9	-----	9.8	2.1
TURB (FTU)	247	0.1	17.0	0.8	1.2	2.3	-----	2.3	2.9
TKN (mg/L)	216	0.000	1.710	0.100	0.220	0.340	-----	0.246	0.224
NO3 (mg/L)	210	0.000	0.730	0.013	0.040	0.098	-----	0.075	0.108
OPO4 (mg/L)	90	0.000	0.090	0.000	0.000	0.000	-----	0.007	0.017
TPO4 (mg/L)	228	0.000	0.130	0.000	0.006	0.020	-----	0.015	0.022
NH4 (mg/L)	120	0.000	0.300	0.000	0.000	0.050	-----	0.039	0.066
CL (mg/L)	84	1.000	16.000	2.000	3.000	3.000	-----	3.104	1.914
SULFATE(mg/L)	83	0.000	19.000	3.000	4.000	6.000	-----	5.036	2.830
SODIUM (mg/L)	74	0.000	3.000	0.000	1.300	1.500	-----	0.997	0.823
K (mg/L)	69	0.000	1.350	0.000	0.600	0.740	-----	0.419	0.389
CA (mg/L)	75	0.000	44.000	0.000	26.000	35.500	-----	19.676	16.953
MG (mg/L)	46	0.840	5.800	1.650	2.365	3.220	-----	2.672	1.259
FE (mg/L)	74	0.000	0.240	0.010	0.030	0.070	-----	0.046	0.045
MN (mg/L)	74	0.000	0.080	0.000	0.006	0.010	-----	0.008	0.012
CU (mg/L)	73	0.000	0.017	0.000	0.001	0.006	-----	0.003	0.004
CO (mg/L)	73	0.000	0.008	0.000	0.000	0.000	-----	0.001	0.003
NI (mg/L)	73	0.000	0.011	0.000	0.001	0.002	-----	0.002	0.002
PB (mg/L)	73	0.000	0.010	0.000	0.000	0.001	-----	0.002	0.003
CR (mg/L)	55	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CD (mg/L)	73	0.000	0.002	0.000	0.000	0.001	-----	0.000	0.001
AG (mg/L)	54	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	55	0.000	0.004	0.000	0.001	0.001	-----	0.001	0.001
ZN (mg/L)	72	0.000	3.000	0.000	0.001	0.005	-----	0.089	0.496
AL (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000

LOCATION :T
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	671	0	610	4	12	26	10	24	51
TEMP (deg.C)	681	6.2	31.2	18.5	22.0	25.0	-----	21.5	4.9
COND (uMhos)	664	51.9	479.2	236.9	291.3	344.3	-----	288.7	78.2
PH	456	0.75	8.94	7.90	8.06	8.21	-----	8.03	0.43
DO (mg/L)	352	4.3	18.0	8.1	9.1	9.8	-----	9.0	1.4
TURB (FTU)	394	0.2	55.0	0.6	0.9	1.7	-----	1.8	3.6
TKN (mg/L)	105	0.000	0.700	0.100	0.200	0.300	-----	0.229	0.164
NO3 (mg/L)	105	0.000	1.120	0.030	0.100	0.185	-----	0.163	0.207
OPO4 (mg/L)	45	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
TPO4 (mg/L)	105	0.000	0.070	0.000	0.001	0.011	-----	0.011	0.017
NH4 (mg/L)	96	0.000	0.550	0.000	0.015	0.050	-----	0.033	0.063
CL (mg/L)	43	0.000	7.000	2.000	3.000	4.000	-----	3.209	1.670
SULFATE(mg/L)	43	2.000	13.000	4.000	6.000	8.000	-----	6.093	2.534
SODIUM (mg/L)	15	0.000	1.000	0.000	0.000	0.000	-----	0.067	0.258
K (mg/L)	14	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CA (mg/L)	16	0.000	1.000	0.000	0.000	0.000	-----	0.063	0.250
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000

LOCATION :S
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	94	0	92	0	4	9	4	9	15
TEMP (deg.C)	95	10.8	22.5	14.0	14.5	16.1	-----	15.0	1.9
COND (uMhos)	95	90.0	465.9	264.9	356.2	393.3	-----	332.0	79.7
PH	66	6.30	8.08	7.29	7.40	7.56	-----	7.41	0.25
DO (mg/L)	46	5.7	10.0	8.0	8.5	9.2	-----	8.5	0.9
TURB (FTU)	55	0.3	15.0	0.6	0.8	1.3	-----	1.4	2.1
TKN (mg/L)	17	0.000	0.540	0.000	0.210	0.255	-----	0.176	0.172
NO3 (mg/L)	17	0.130	1.200	0.300	0.470	0.705	-----	0.537	0.307
OPO4 (mg/L)	13	0.000	0.030	0.000	0.000	0.000	-----	0.003	0.008
TPO4 (mg/L)	17	0.000	0.060	0.004	0.030	0.045	-----	0.029	0.023
NH4 (mg/L)	16	0.000	0.020	0.000	0.000	0.010	-----	0.004	0.006
CL (mg/L)	15	0.850	7.000	2.000	2.000	3.500	-----	2.902	1.555
SULFATE(mg/L)	15	1.970	38.000	3.500	5.450	8.000	-----	8.177	8.824
SODIUM (mg/L)	6	0.000	1.900	0.000	0.815	1.685	-----	0.878	0.966
K (mg/L)	6	0.000	0.940	0.000	0.445	0.905	-----	0.458	0.502
CA (mg/L)	6	0.000	71.000	0.000	18.200	38.350	-----	24.617	29.510
MG (mg/L)	3	6.200	7.900	0.000	0.000	0.000	-----	7.333	0.981
FE (mg/L)	3	0.000	0.090	0.000	0.000	0.000	-----	0.050	0.046
MN (mg/L)	3	0.010	0.080	0.000	0.000	0.000	-----	0.033	0.040
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

BUFF WATER QUALITY REPORT, 1985 - 1990

**Appendix B2: Storm flow statistics for the river, tributaries
and springs**

LOCATION :R
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	39	0	790	60	172	332	125	224	211
TEMP (deg.C)	39	6.4	27.8	9.9	17.0	19.5	-----	16.5	6.0
COND (uMhos)	36	10.0	265.0	48.0	82.0	141.0	-----	104.9	69.1
PH	34	7.02	8.35	7.68	7.81	7.93	-----	7.80	0.26
DO (mg/L)	31	7.9	13.2	8.7	9.1	10.7	-----	9.8	1.4
TURB (FTU)	31	0.8	81.0	8.3	12.5	20.0	-----	19.2	20.4
TKN (mg/L)	23	0.100	1.200	0.250	0.370	0.550	-----	0.466	0.301
NO3 (mg/L)	15	0.030	0.190	0.045	0.080	0.140	-----	0.096	0.053
OPO4 (mg/L)	8	0.000	0.030	0.000	0.000	0.000	-----	0.004	0.011
TPO4 (mg/L)	23	0.007	0.117	0.029	0.060	0.086	-----	0.059	0.034
NH4 (mg/L)	8	0.000	1.000	0.000	0.000	0.000	-----	0.133	0.351
CL (mg/L)	7	2.000	2.000	2.000	2.000	2.000	-----	2.000	0.000
SULFATE(mg/L)	7	4.000	6.000	4.000	5.000	5.000	-----	4.857	0.690
SODIUM (mg/L)	8	0.560	1.140	0.790	0.890	0.980	-----	0.891	0.183
K (mg/L)	8	0.590	1.350	0.600	0.925	1.180	-----	0.949	0.279
CA (mg/L)	8	3.870	23.500	8.160	13.600	17.000	-----	14.229	6.496
MG (mg/L)	8	0.790	2.100	0.800	1.030	1.120	-----	1.156	0.433
FE (mg/L)	8	0.039	0.860	0.120	0.320	0.470	-----	0.391	0.329
MN (mg/L)	8	0.014	0.160	0.020	0.030	0.060	-----	0.051	0.049
CU (mg/L)	8	0.001	0.004	0.002	0.003	0.003	-----	0.003	0.001
CO (mg/L)	8	0.000	0.007	0.000	0.003	0.004	-----	0.003	0.002
NI (mg/L)	8	0.000	0.017	0.001	0.008	0.008	-----	0.008	0.006
PB (mg/L)	8	0.000	0.002	0.000	0.001	0.001	-----	0.001	0.001
CR (mg/L)	8	0.000	0.012	0.001	0.003	0.004	-----	0.004	0.004
CD (mg/L)	8	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AG (mg/L)	8	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
AS (mg/L)	8	0.000	0.049	0.004	0.015	0.022	-----	0.019	0.018
ZN (mg/L)	8	0.003	0.016	0.004	0.008	0.009	-----	0.008	0.004
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

LOCATION :T
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	40	20	3760	104	234	550	236	575	911
TEMP (deg.C)	41	8.1	23.0	14.6	16.9	18.8	-----	16.2	3.9
COND (uMhos)	41	14.0	430.0	140.5	210.0	254.0	-----	196.5	86.7
PH	28	7.23	8.48	7.88	7.97	8.26	-----	8.03	0.27
DO (mg/L)	36	7.0	10.6	8.4	8.9	9.7	-----	9.0	1.0
TURB (FTU)	31	0.6	68.0	2.7	8.2	12.5	-----	10.2	12.6
TKN (mg/L)	10	0.000	0.520	0.050	0.270	0.365	-----	0.255	0.182
NO3 (mg/L)	10	0.000	0.390	0.010	0.055	0.145	-----	0.114	0.135
OPO4 (mg/L)	8	0.000	0.040	0.000	0.000	0.000	-----	0.009	0.016
TPO4 (mg/L)	10	0.000	0.140	0.024	0.060	0.065	-----	0.059	0.041
NH4 (mg/L)	10	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CL (mg/L)	8	2.000	5.000	2.000	3.000	4.000	-----	3.250	1.035
SULFATE(mg/L)	8	2.000	12.000	6.000	7.500	9.000	-----	7.625	3.159
SODIUM (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
K (mg/L)	5	0.000	0.000	0.000	0.000	0.000	-----	0.000	0.000
CA (mg/L)	6	0.000	1.000	0.000	0.000	0.000	-----	0.167	0.408
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----*****		0.000

LOCATION :S
 BEGINNING DATE:01/01/85
 ENDING DATE:12/31/90

PARAMETER	N VALUE	MIN	MAX	25%	50%	75%	GEOM. MEAN	ARITH. MEAN	STND. DEV.
FC(col/100mL)	9	32	1163	147	356	565	288	444	371
TEMP (deg.C)	8	12.1	16.0	13.2	13.9	14.0	-----	14.0	1.2
COND (uMhos)	8	100.0	285.0	161.0	190.5	225.0	-----	203.1	51.7
PH	5	7.26	7.79	7.29	7.48	7.58	-----	7.51	0.23
DO (mg/L)	3	7.5	8.8	0.0	0.0	0.0	-----	8.4	0.8
TURB (FTU)	6	4.0	26.0	5.0	14.3	22.0	-----	14.4	9.9
TKN (mg/L)	2	0.000	0.230	0.000	0.000	0.000	-----	0.115	0.163
NO3 (mg/L)	2	0.120	0.890	0.000	0.000	0.000	-----	0.505	0.544
OPO4 (mg/L)	2	0.000	0.030	0.000	0.000	0.000	-----	0.015	0.021
TPO4 (mg/L)	2	0.100	0.100	0.000	0.000	0.000	-----	0.100	0.000
NH4 (mg/L)	2	0.000	0.050	0.000	0.000	0.000	-----	0.025	0.035
CL (mg/L)	2	3.000	4.000	0.000	0.000	0.000	-----	3.500	0.707
SULFATE(mg/L)	2	7.000	19.000	0.000	0.000	0.000	-----	13.000	8.485
SODIUM (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
K (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
CA (mg/L)	1	0.000	0.000	0.000	0.000	0.000	-----	0.000*****	
MG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
FE (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
MN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CU (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CO (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
NI (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
PB (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CR (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
CD (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AG (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AS (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
ZN (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000
AL (mg/L)	0	99.999	0.000	0.000	0.000	0.000	-----	*****	0.000

BUFF WATER QUALITY REPORT, 1985 - 1990

Appendix C1: Water quality data, base flow, 1985 - 1990

- * Note: -1 indicates no data collected
- 99.99 indicates staff gage reading not recorded
- see Figure 1 for site locations

Buffalo National River
Water Quality Data
1985-1990
RIVER LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
** BOXLEY BRIDGE													
R1	03/25/85	13.0	51.9	-1.00	11.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	4.00
R1	04/08/85	13.0	55.8	-1.00	-1.0	5.0	2	0.020	0.000	-1.000	0.004	-1.000	3.80
R1	04/23/85	-1.0	-1.0	-1.00	6.0	-1.0	52	-1.000	-1.000	-1.000	-1.000	-1.000	6.00
R1	05/15/85	17.1	75.4	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	2.80
R1	06/14/85	19.0	102.8	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	2.00
R1	07/01/85	26.0	135.4	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R1	07/09/85	30.0	145.1	-1.00	10.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R1	07/20/85	30.1	154.9	-1.00	10.0	-1.0	0	0.030	0.100	-1.000	0.007	-1.000	-99.99
R1	08/24/85	26.0	161.9	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R1	09/21/85	24.0	176.4	-1.00	9.0	-1.0	4	0.010	0.200	-1.000	0.004	-1.000	-99.99
R1	12/21/85	4.0	50.1	-1.00	12.0	-1.0	6	0.010	0.000	-1.000	0.004	-1.000	3.50
R1	05/07/86	17.5	79.4	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	2.80
R1	06/30/86	23.5	108.1	-1.00	9.0	-1.0	14	0.030	-1.000	0.003	0.009	-1.000	1.60
R1	07/19/86	25.5	141.6	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	1.10
R1	08/19/86	25.5	128.8	-1.00	9.0	-1.0	2	0.035	-1.000	0.009	0.018	-1.000	0.70
R1	09/13/86	23.0	156.0	-1.00	-1.0	-1.0	0	0.040	-1.000	0.000	0.003	-1.000	0.60
R1	12/23/86	6.0	83.2	7.35	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.60
R1	01/26/87	4.0	58.4	-1.00	11.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.90
R1	05/27/87	20.0	74.1	-1.00	8.5	-1.0	0	0.450	0.000	-1.000	0.008	0.020	2.00
R1	06/11/87	20.5	67.5	7.90	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	1.60
R1	07/21/87	27.0	149.3	8.92	7.3	-1.0	2	0.030	0.300	-1.000	0.015	-1.000	1.10
R1	08/03/87	26.0	171.7	7.80	-1.0	-1.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	1.00
R1	09/30/87	14.5	218.9	7.40	7.9	-1.0	0	0.040	0.200	-1.000	0.012	-1.000	0.80
R1	11/15/87	12.5	118.2	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.90
R1	02/03/88	5.9	45.7	7.88	-1.0	-1.0	2	0.030	0.080	-1.000	0.004	-1.000	2.00
R1	03/30/88	8.0	26.7	6.21	10.0	-1.0	15	0.010	0.000	-1.000	0.006	-1.000	3.90
R1	05/03/88	18.0	58.9	8.60	-1.0	-1.0	2	-1.000	0.000	-1.000	0.006	-1.000	1.86
R1	11/18/88	9.9	154.6	7.72	10.7	1.5	5	0.000	0.580	-1.000	0.006	0.000	3.05
R1	01/20/89	4.8	74.9	7.50	15.1	1.5	0	-1.000	-1.000	-1.000	-1.000	-1.000	3.02
R1	02/11/89	5.3	77.0	7.74	10.7	4.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	3.40
R1	03/12/89	8.6	68.4	7.81	9.0	6.4	6	0.040	1.390	-1.000	0.027	0.220	-99.99
** WILDERNESS BOUNDARY													
R1	04/21/89	17.5	101.5	7.88	8.9	2.5	5	-1.000	-1.000	-1.000	-1.000	-1.000	2.15
R1	07/21/89	18.8	153.1	8.09	9.6	1.1	8	0.015	0.050	-1.000	0.000	0.000	0.00
R1	08/24/89	20.0	152.6	7.92	8.5	1.4	20	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R1	09/19/89	17.4	157.9	7.99	9.3	1.1	20	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R1	10/17/89	14.2	162.7	8.22	9.9	0.9	2	0.005	1.060	-1.000	0.005	0.010	-99.99
R1	11/14/89	19.7	166.9	8.34	9.7	1.2	4	0.030	0.200	-1.000	0.010	0.000	-99.99
R1	12/06/89	7.0	162.9	8.10	11.1	0.6	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.00
R1	01/22/90	6.6	26.1	6.81	6.7	0.1	4	0.120	0.340	0.060	0.040	-0.050	2.50
R1	02/22/90	8.0	44.4	7.11	10.3	4.1	0	0.000	0.430	0.000	0.080	0.000	2.58
R1	03/26/90	6.0	47.4	7.69	10.6	3.5	0	0.000	0.210	0.090	0.030	0.050	2.40
R1	04/23/90	15.0	29.7	7.34	9.0	12.0	30	0.050	0.600	0.000	0.060	0.000	3.60

Buffalo National River
Water Quality Data
1985-1990
RIVER LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
R1	05/07/90	13.5	60.2	7.35	9.5	7.2	6	0.030	0.600	0.000	0.060	0.170	3.20
R1	06/27/90	24.1	147.5	7.69	7.1	1.6	2	0.040	0.500	0.060	0.030	0.000	-99.99
R1	06/18/90	23.5	78.2	7.62	7.4	1.5	10	0.050	0.310	0.000	0.000	0.050	-99.99
R1	07/30/90	25.0	-1.0	7.72	-1.0	1.8	12	0.100	0.350	0.030	0.030	-1.000	1.70
R1	09/24/90	18.6	184.6	7.85	7.9	1.2	2	0.170	0.280	0.000	0.040	0.070	-99.99
R1	10/22/90	12.4	115.9	7.56	8.5	1.2	6	0.000	0.410	0.000	0.040	0.090	-1.00
R1	11/18/90	10.5	128.6	8.11	9.0	0.9	2	0.120	0.260	0.030	0.040	0.000	-1.00
R1	12/17/90	9.2	77.3	7.76	9.0	3.5	0	0.040	0.230	0.000	0.080	0.060	2.22
R1	01/28/91	4.8	52.1	7.78	10.8	3.2	2	0.000	0.000	0.000	0.000	0.000	2.40
** PONCA													
R2	03/25/85	13.0	77.8	-1.00	11.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	4.00
R2	04/08/85	13.3	89.7	-1.00	-1.0	3.0	2	0.040	0.100	-1.000	0.005	-1.000	3.80
R2	04/23/85	17.4	86.6	-1.00	9.0	-1.0	94	-1.000	-1.000	-1.000	-1.000	-1.000	6.00
R2	05/15/85	19.9	121.9	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	2.80
R2	06/14/85	20.0	154.8	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	2.00
R2	07/20/85	27.0	226.4	-1.00	9.0	-1.0	0	0.000	0.100	-1.000	0.009	-1.000	-99.99
R2	08/24/85	25.9	197.8	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R2	09/21/85	22.2	237.7	-1.00	9.0	-1.0	12	0.040	0.300	-1.000	0.002	-1.000	-99.99
R2	12/21/85	6.0	94.2	-1.00	13.0	-1.0	2	0.050	0.000	-1.000	0.004	-1.000	3.50
R2	05/07/86	16.0	102.7	-1.00	-1.0	-1.0	128	-1.000	-1.000	-1.000	-1.000	-1.000	2.80
R2	06/30/86	27.0	163.7	-1.00	9.0	-1.0	10	0.085	-1.000	-1.000	0.007	-1.000	1.50
R2	07/19/86	30.0	205.4	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.10
R2	08/19/86	26.9	164.0	-1.00	9.0	-1.0	16	0.045	-1.000	0.000	0.004	-1.000	0.70
R2	09/13/86	24.0	214.1	-1.00	-1.0	-1.0	20	0.005	-1.000	0.005	0.005	-1.000	0.60
R2	12/23/86	7.0	134.1	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.60
R2	01/28/87	5.3	88.2	-1.00	10.0	-1.0	0	-1.000	0.000	-1.000	0.003	-1.000	1.90
R2	05/27/87	21.0	99.6	-1.00	8.6	-1.0	94	0.050	0.000	-1.000	0.004	0.000	2.00
R2	06/11/87	22.5	126.0	8.17	-1.0	-1.0	114	-1.000	-1.000	-1.000	-1.000	-1.000	1.60
R2	07/21/87	22.0	170.2	8.45	7.4	-1.0	4	0.020	0.200	-1.000	0.012	-1.000	1.10
R2	08/03/87	28.0	198.6	7.76	-1.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	1.00
R2	09/19/87	21.5	205.8	8.01	-1.0	-1.0	30	-1.000	-1.000	-1.000	-1.000	-1.000	0.80
R2	09/30/87	13.5	217.9	8.00	-1.0	-1.0	4	0.060	0.100	-1.000	0.008	-1.000	0.80
R2	11/15/87	11.5	175.2	-1.00	-1.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	0.90
R2	02/03/88	5.8	75.8	7.71	-1.0	-1.0	16	0.030	0.010	-1.000	0.004	-1.000	2.00
R2	03/30/88	8.0	32.6	8.20	13.0	-1.0	12	0.040	0.100	-1.000	0.005	-1.000	3.90
R2	05/03/88	18.0	91.2	8.45	-1.0	-1.0	8	-1.000	0.100	-1.000	0.005	-1.000	1.85
R2	06/21/88	29.0	195.1	7.69	-1.0	0.7	12	-1.000	-1.000	-1.000	-1.000	-1.000	1.32
R2	06/15/88	29.0	206.2	7.74	10.2	0.5	14	-1.000	-1.000	-1.000	-1.000	-1.000	1.32
R2	09/11/88	21.1	197.7	7.41	7.6	0.7	220	-1.000	-1.000	-1.000	-1.000	-1.000	1.36
R2	10/23/88	14.0	276.0	7.30	11.0	0.6	180	-1.000	-1.000	-1.000	-1.000	-1.000	1.42
R2	11/16/88	9.6	233.6	7.70	10.6	0.7	40	0.007	0.650	-1.000	0.002	0.000	1.81
R2	01/20/89	5.2	114.2	7.64	14.7	1.8	6	-1.000	-1.000	-1.000	-1.000	-1.000	1.62
R2	02/11/89	7.0	111.2	7.77	10.7	3.5	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.80
R2	03/12/89	10.0	66.6	7.93	9.2	6.0	6	0.020	0.780	-1.000	0.016	0.000	2.70

Buffalo National River
Water Quality Data
1985-1990
RIVER LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
R2	04/21/89	18.7	179.6	8.44	11.9	2.3	6	-1.000	-1.000	-1.000	-1.000	-1.000	2.05
R2	06/15/89	15.1	77.7	7.86	10.0	7.7	60	-1.000	-1.000	-1.000	-1.000	-1.000	2.80
R2	07/21/89	19.5	206.7	8.13	8.7	1.1	36	0.000	0.260	-1.000	0.000	0.000	1.55
R2	08/24/89	21.5	219.7	7.77	6.6	1.2	112	-1.000	-1.000	-1.000	-1.000	-1.000	1.35
R2	09/19/89	18.5	211.2	7.81	8.1	0.8	36	-1.000	-1.000	-1.000	-1.000	-1.000	0.40
R2	10/17/89	15.7	246.8	7.78	8.9	0.6	-1	0.018	0.810	-1.000	0.019	0.010	1.32
R2	11/14/89	16.9	242.5	7.90	9.0	0.8	8	0.020	0.200	-1.000	0.006	0.020	1.35
R2	12/06/89	6.1	242.6	7.82	10.8	1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	1.32
R2	01/22/90	7.7	40.3	7.42	8.8	0.1	8	0.250	0.360	0.030	0.030	0.000	2.38
R2	01/18/90	8.9	99.6	7.25	11.4	0.1	217	-1.000	-1.000	-1.000	-1.000	-1.000	2.30
R2	02/22/90	7.2	68.2	7.31	10.2	3.4	0	0.000	0.480	0.000	0.060	0.000	2.49
R2	03/26/90	8.8	79.6	7.95	11.7	2.6	6	0.040	0.250	0.060	0.000	0.060	2.30
R2	04/23/90	16.0	50.7	7.48	9.4	12.0	46	0.080	0.450	0.000	0.040	0.000	4.00
R2	05/07/90	15.0	76.6	7.43	9.5	7.1	6	0.090	0.480	0.000	0.050	0.130	4.70
R2	08/27/90	25.9	211.4	7.64	6.4	0.9	44	0.090	0.320	0.040	0.000	0.060	1.44
R2	06/18/90	26.0	-1.0	7.74	7.0	0.8	96	0.080	0.390	0.000	0.000	0.000	-99.99
R2	07/30/90	27.0	-1.0	8.11	-1.0	1.3	48	0.110	0.440	0.000	0.000	-1.000	1.75
R2	09/24/90	19.0	205.6	7.84	8.2	2.1	18	0.100	0.240	0.000	0.000	0.000	1.57
R2	10/22/90	12.2	181.3	7.85	9.1	0.8	2	0.090	0.520	0.000	0.000	0.000	1.80
R2	11/18/90	9.7	195.0	8.04	9.8	0.6	10	0.140	0.240	0.000	0.000	0.000	1.70
R2	12/17/90	9.9	129.3	7.91	9.2	6.5	100	0.070	0.000	0.000	0.070	0.000	2.30
R2	01/28/91	5.5	92.4	7.94	11.0	2.7	4	0.000	0.000	0.000	0.000	0.000	2.30
** PRUITT													
R3	03/25/85	14.0	126.6	-1.00	11.0	-1.0	-1	-1.000	-1.000	-1.000	-1.000	-1.000	2.40
R3	04/06/85	14.0	127.9	-1.00	-1.0	-1.0	2	0.020	0.100	-1.000	0.004	-1.000	2.10
R3	01/15/85	23.0	173.6	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.80
R3	06/14/85	24.0	190.6	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.70
R3	07/20/85	29.0	239.7	-1.00	9.0	-1.0	174	0.010	0.200	-1.000	0.012	-1.000	0.70
R3	08/24/85	27.1	225.0	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.70
R3	09/21/85	22.5	246.8	-1.00	9.0	-1.0	10	0.030	0.100	-1.000	0.004	-1.000	0.70
R3	12/21/85	5.0	145.6	-1.00	14.0	-1.0	4	0.040	0.000	-1.000	0.006	-1.000	1.10
R3	05/07/86	20.5	155.4	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.00
R3	06/30/86	27.0	197.5	-1.00	8.0	-1.0	4	0.055	-1.000	-1.000	0.004	-1.000	0.70
R3	07/19/86	29.0	232.3	-1.00	-1.0	-1.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	0.60
R3	08/19/86	28.5	214.7	-1.00	9.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	0.50
R3	09/14/86	24.0	229.4	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.50
R3	12/23/86	6.0	167.9	7.80	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.80
R3	01/28/87	4.5	123.3	-1.00	12.0	-1.0	0	-1.000	0.000	-1.000	0.000	-1.000	1.00
R3	05/27/87	24.0	158.0	-1.00	8.3	-1.0	36	0.030	0.000	-1.000	0.004	0.010	2.00
R3	06/09/87	27.0	144.5	7.94	7.5	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.80
R3	07/21/87	27.8	204.1	8.24	6.7	-1.0	4	0.020	0.200	-1.000	0.013	-1.000	0.70
R3	09/30/87	15.0	228.7	8.20	-1.0	-1.0	2	0.070	0.100	-1.000	0.012	-1.000	0.40
R3	11/15/87	10.5	219.9	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.40
R3	02/03/87	32.0	202.9	8.14	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.40

Buffalo National River
Water Quality Data
1985-1990
RIVER LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
R3	02/03/88	6.2	117.0	7.82	-1.0	-1.0	22	0.070	0.120	-1.000	0.001	-1.000	2.00
R3	03/28/88	14.0	94.9	8.41	12.0	-1.0	0	0.020	0.100	-1.000	0.005	-1.000	1.50
R3	05/03/88	20.0	145.9	8.19	-1.0	-1.0	4	-1.000	0.100	-1.000	0.005	-1.000	2.20
R3	06/22/88	25.5	230.8	7.56	-1.0	0.9	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.50
R3	08/15/88	30.4	204.0	7.67	10.0	0.6	6	-1.000	-1.000	-1.000	-1.000	-1.000	0.30
R3	09/10/88	23.7	219.4	7.65	8.6	0.8	6	-1.000	-1.000	-1.000	-1.000	-1.000	0.40
R3	10/23/88	14.4	280.9	7.41	11.0	0.6	4	-1.000	-1.000	-1.000	-1.000	-1.000	-0.50
R3	11/18/88	9.0	309.6	7.51	10.7	0.7	6	0.000	0.490	-1.000	0.007	0.000	0.50
R3	12/23/88	6.6	218.9	-1.00	13.2	5.8	8	-1.000	-1.000	-1.000	-1.000	-1.000	0.80
R3	01/20/89	4.4	145.1	7.83	15.3	1.1	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.50
R3	02/11/89	5.1	150.0	7.96	11.0	3.3	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.40
R3	03/11/89	9.5	122.2	8.07	12.0	8.0	6	0.020	0.480	-1.000	0.033	0.230	1.40
R3	04/22/89	15.8	219.6	7.99	9.2	2.3	4	-1.000	-1.000	-1.000	-1.000	-1.000	1.00
R3	05/17/89	17.4	177.8	7.90	8.1	1.0	32	-1.000	-1.000	-1.000	-1.000	-1.000	0.80
R3	07/21/89	20.2	247.7	8.02	8.0	1.4	16	0.024	0.390	-1.000	0.000	0.000	0.50
R3	08/24/89	26.0	235.5	8.00	7.6	0.6	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.40
R3	09/19/89	21.1	205.3	8.02	8.4	0.8	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R3	10/17/89	7.1	315.1	7.99	8.8	0.6	12	0.005	0.980	-1.000	0.022	0.010	0.30
R3	11/14/89	5.0	343.0	8.04	9.2	0.7	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R3	12/06/89	4.9	262.9	8.15	10.9	0.7	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.20
R3	01/22/90	7.5	55.6	7.53	8.7	0.1	22	0.270	0.280	0.030	0.030	0.000	1.30
R3	02/26/90	7.4	105.4	7.67	10.2	3.2	0	0.000	0.340	0.000	0.080	0.000	1.30
R3	03/08/90	13.0	97.3	7.75	9.9	8.6	48	-1.000	-1.000	-1.000	-1.000	-1.000	3.00
R3	03/26/90	9.0	83.5	8.10	10.2	2.0	2	0.000	0.250	0.050	0.000	0.050	1.50
R3	04/25/90	18.0	115.6	7.75	7.9	5.1	16	0.100	0.520	0.000	0.120	0.080	2.00
R3	05/07/90	16.0	132.8	7.93	9.4	7.3	6	-1.000	-1.000	-1.000	-1.000	-1.000	2.40
R3	05/21/90	18.0	67.0	7.75	8.0	17.0	-1	0.040	0.300	0.000	0.050	0.060	3.50
R3	08/27/90	29.2	214.8	7.86	6.8	1.3	8	0.020	0.370	0.000	0.000	0.000	0.10
R3	06/18/90	28.0	195.6	7.83	7.0	0.9	2	0.060	0.430	0.000	0.000	0.000	0.70
R3	07/30/90	27.5	-1.0	8.05	-1.0	1.0	8	0.110	0.280	0.000	0.000	-1.000	-99.99
R3	09/24/90	21.1	210.7	8.03	7.8	0.8	2	0.020	0.260	0.000	0.000	0.130	0.50
R3	10/22/90	14.0	193.7	8.08	9.1	1.1	10	0.000	0.250	0.000	0.000	0.050	0.40
R3	11/18/90	9.8	242.4	8.20	10.2	0.6	2	0.090	0.230	0.000	0.000	0.000	-0.50
R3	12/17/90	6.7	174.2	8.14	9.7	1.1	16	0.020	0.220	0.000	0.060	0.000	1.00
R3	01/28/91	5.3	149.1	8.13	11.0	2.4	2	0.000	0.000	0.000	0.000	0.000	1.50
R3	09/05/89	26.8	227.2	7.85	6.8	2.4	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.40

** HASTY

R4	04/08/85	14.0	145.6	-1.00	-1.0	-1.0	0	0.100	0.200	-1.000	0.004	-1.000	2.10
R4	04/23/85	16.8	94.6	-1.00	8.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	4.50
R4	05/15/85	22.5	199.5	-1.00	-1.0	-1.0	15	-1.000	-1.000	-1.000	-1.000	-1.000	0.30
R4	06/14/85	24.0	200.8	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.70
R4	07/15/85	30.1	247.9	-1.00	10.0	-1.0	0	0.000	0.100	-1.000	0.009	-1.000	0.70
R4	08/24/85	27.0	239.6	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.70
R4	09/21/85	23.0	239.1	-1.00	-1.0	-1.0	4	0.020	0.200	-1.000	0.003	-1.000	0.70

Buffalo National River
Water Quality Data
1985-1990
RIVER LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
R4	12/21/85	5.0	161.8	-1.00	14.0	-1.0	6	0.110	0.000	-1.000	0.004	-1.000	1.10
R4	05/07/86	20.0	122.7	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	1.00
R4	06/30/86	29.0	232.3	-1.00	9.0	-1.0	8	0.095	-1.000	0.001	0.005	-1.000	0.70
R4	07/19/86	30.0	241.9	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.60
R4	08/19/86	29.5	222.8	-1.00	10.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	0.50
R4	09/14/86	24.5	234.2	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.50
R4	12/23/86	6.0	204.0	7.80	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.80
R4	01/28/87	6.5	143.8	-1.00	12.0	-1.0	0	-1.000	0.000	-1.000	0.000	-1.000	1.00
R4	05/27/87	24.0	163.1	-1.00	8.0	-1.0	90	0.060	0.000	-1.000	0.010	0.040	2.00
R4	06/15/87	27.0	192.6	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	0.70
R4	07/21/87	29.0	165.4	8.31	6.9	-1.0	6	0.000	0.200	-1.000	0.011	-1.000	0.70
R4	08/06/87	29.0	213.7	8.15	-1.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	0.40
R4	09/30/87	17.5	220.6	8.00	5.9	-1.0	4	0.050	0.100	-1.000	0.005	-1.000	0.40
R4	11/15/87	11.3	230.2	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.40
R4	02/03/88	6.5	143.8	7.75	-1.0	-1.0	30	0.180	0.030	-1.000	0.004	-1.000	2.00
R4	03/28/88	15.0	123.6	8.41	12.0	-1.0	0	0.040	0.100	-1.000	0.008	-1.000	1.50
R4	05/03/88	19.5	166.5	8.09	-1.0	-1.0	14	-1.000	0.100	-1.000	0.008	-1.000	2.20
R4	06/22/88	26.4	246.4	7.62	-1.0	17.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	0.50
R4	08/16/88	28.4	217.9	7.56	6.8	7.8	14	-1.000	-1.000	-1.000	-1.000	-1.000	0.30
R4	09/10/88	23.7	220.5	8.00	9.3	1.2	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.40
R4	10/22/88	15.4	315.9	7.87	12.8	0.7	2	-1.000	-1.000	-1.000	-1.000	-1.000	-0.50
R4	11/18/88	9.3	317.1	7.45	10.7	0.5	2	0.000	0.580	-1.000	0.005	0.000	0.50
R4	12/23/88	7.5	246.3	-1.00	12.8	1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	0.80
R4	01/20/89	5.7	190.1	7.89	15.4	1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.50
R4	02/11/89	5.7	198.0	8.02	11.3	2.8	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.40
R4	03/11/89	7.4	141.6	7.94	10.5	7.8	24	0.030	0.390	-1.000	0.033	0.200	1.40
R4	04/22/89	17.3	246.2	8.01	10.1	2.1	6	-1.000	-1.000	-1.000	-1.000	-1.000	1.00
R4	05/17/89	17.6	203.6	7.88	8.4	0.8	22	-1.000	-1.000	-1.000	-1.000	-1.000	0.80
R4	06/15/89	17.7	137.1	8.01	9.5	6.6	38	-1.000	-1.000	-1.000	-1.000	-1.000	1.80
R4	07/20/89	19.6	259.8	8.02	8.1	1.4	10	-1.000	-1.000	-1.000	-1.000	-1.000	0.50
R4	08/24/89	26.0	260.0	7.93	7.6	1.3	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.40
R4	09/19/89	22.2	227.1	8.13	9.4	0.9	8	-1.000	-1.000	-1.000	-1.000	-1.000	0.40
R4	10/17/89	18.4	251.7	8.17	9.3	1.2	6	0.007	0.230	-1.000	0.070	0.010	0.30
R4	11/14/89	15.2	273.1	8.13	9.4	1.5	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R4	12/06/89	5.5	239.0	8.17	10.9	0.7	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R4	01/22/90	7.6	91.4	7.74	8.7	0.1	55	0.380	0.300	0.000	0.030	0.230	1.30
R4	02/22/90	7.8	134.0	7.97	9.8	3.2	0	0.050	0.330	0.000	0.050	0.000	1.30
R4	03/26/90	10.0	147.2	8.14	10.7	2.1	2	0.130	0.210	0.040	0.000	0.090	-99.99
R4	04/23/90	17.0	85.0	7.89	9.3	8.7	44	0.140	0.530	0.000	0.040	0.000	3.20
R4	06/27/90	30.6	230.4	7.78	6.3	1.0	2	0.000	0.450	0.000	0.000	0.000	0.10
R4	06/18/90	23.0	228.9	7.81	6.6	1.3	12	0.150	0.370	0.000	0.000	0.000	0.70
R4	07/30/90	29.2	225.0	7.65	5.4	1.2	8	0.110	0.380	0.000	0.000	-1.000	-99.99
R4	09/24/90	21.3	242.1	8.06	8.1	0.9	6	0.060	0.230	0.000	0.030	0.060	0.50
R4	10/22/90	15.1	231.8	8.06	9.0	1.1	4	0.070	0.290	0.000	0.000	0.110	0.40
R4	11/16/90	10.0	255.1	8.20	10.0	0.8	4	0.100	0.240	0.000	0.000	0.090	-0.60

Buffalo National River
Water Quality Data
1985-1990
RIVER LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
R4	12/17/90	9.3	185.7	8.18	9.7	0.8	12	0.050	0.000	0.000	0.060	0.000	1.00
R4	01/28/91	6.8	167.1	8.20	10.8	1.8	0	0.000	0.000	0.000	0.000	0.000	1.50
** WOOLUH													
R5	04/10/85	14.1	183.1	-1.00	-1.0	-1.0	0	0.100	0.200	-1.000	0.008	-1.000	4.20
R5	04/22/85	-1.0	-1.0	-1.00	8.0	-1.0	-1	-1.000	-1.000	-1.000	-1.000	-1.000	3.30
R5	04/25/85	18.0	143.1	-1.00	10.0	-1.0	30	-1.000	-1.000	-1.000	-1.000	-1.000	6.70
R5	05/13/85	23.0	228.7	-1.00	-1.0	-1.0	5	-1.000	-1.000	-1.000	-1.000	-1.000	2.80
R5	05/17/85	21.0	225.2	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	2.70
R5	06/12/85	25.1	224.6	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	2.10
R5	07/19/85	31.0	236.0	-1.00	9.0	-1.0	0	0.000	0.200	-1.000	0.003	-1.000	1.10
R5	08/21/85	28.0	242.3	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.90
R5	09/22/85	25.0	225.0	-1.00	10.0	-1.0	2	0.020	0.100	-1.000	0.004	-1.000	1.10
R5	12/21/85	5.0	184.5	-1.00	14.0	-1.0	0	0.150	0.000	-1.000	0.006	-1.000	2.90
R5	05/07/86	21.0	200.3	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.70
R5	06/30/86	30.5	239.8	-1.00	10.0	-1.0	2	0.010	-1.000	-1.000	0.008	-1.000	1.50
R5	07/19/86	30.0	237.3	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.00
R5	08/19/86	30.1	227.8	-1.00	10.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.00
R5	09/14/86	27.0	237.9	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.90
R5	12/23/86	6.0	227.6	8.30	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.40
R5	01/28/87	6.5	170.1	-1.00	12.0	-1.0	0	-1.000	0.100	-1.000	0.001	-1.000	1.50
R5	05/27/87	25.0	156.0	-1.00	7.8	-1.0	78	0.730	0.000	-1.000	0.019	0.020	3.50
R5	06/18/87	29.0	204.4	8.06	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	1.20
R5	07/21/87	30.0	200.8	8.51	7.2	-1.0	0	0.000	0.200	-1.000	0.130	-1.000	0.80
R5	08/29/87	29.0	171.9	-1.00	-1.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	0.50
R5	11/15/87	11.5	240.7	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	1.70
R5	02/03/88	7.3	-1.0	7.85	13.1	-1.0	0	0.120	0.030	-1.000	0.000	-1.000	2.50
R5	03/28/88	15.0	136.0	8.31	13.0	-1.0	0	0.030	0.100	-1.000	0.003	-1.000	2.00
R5	05/03/88	21.8	182.1	7.89	-1.0	-1.0	0	-1.000	0.100	-1.000	0.003	-1.000	2.50
R5	06/22/88	27.4	265.8	7.63	-1.0	0.7	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.80
R5	08/15/88	28.9	242.0	7.66	7.4	4.8	25	-1.000	-1.000	-1.000	-1.000	-1.000	0.50
R5	09/10/88	25.1	217.6	8.11	9.9	0.6	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.70
R5	10/22/88	16.8	311.8	7.91	13.5	0.6	12	-1.000	-1.000	-1.000	-1.000	-1.000	0.90
R5	11/18/88	9.5	318.2	7.15	10.8	0.5	2	0.007	0.490	-1.000	0.008	0.020	0.80
R5	12/23/88	7.3	279.5	-1.00	13.1	0.7	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.20
R5	01/20/89	6.0	246.4	8.16	15.8	0.7	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.30
R5	02/11/89	5.8	236.9	8.18	11.4	2.4	0	-1.000	-1.000	-1.000	-1.000	-1.000	3.40
R5	03/11/89	6.5	172.3	8.04	10.2	7.4	16	0.060	0.430	-1.000	0.034	0.210	3.90
R5	04/22/89	19.7	269.3	8.28	10.9	1.2	0	-1.000	-1.000	-1.000	-1.000	-1.000	4.00
R5	05/15/89	18.4	146.5	8.15	9.7	6.2	35	-1.000	-1.000	-1.000	-1.000	-1.000	4.50
R5	07/20/89	20.5	262.6	8.02	7.7	1.1	0	0.036	0.300	-1.000	0.000	0.000	1.10
R5	08/24/89	27.0	255.2	8.03	7.8	1.6	22	-1.000	-1.000	-1.000	-1.000	-1.000	0.50
R5	09/20/89	23.7	233.8	8.19	9.3	0.8	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R5	10/17/89	19.0	254.1	8.30	9.6	0.6	20	0.005	0.360	-1.000	0.007	0.010	-99.99
R5	11/14/89	16.1	259.0	8.23	10.1	0.6	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99

Buffalo National River
Water Quality Data
1985-1990
RIVER LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
R5	12/05/89	7.5	213.3	8.20	12.7	0.5	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R5	01/22/90	8.5	93.5	7.77	8.6	0.1	62	0.490	0.290	0.000	0.030	0.000	3.00
R5	02/26/90	8.8	144.8	8.15	10.2	2.8	0	0.060	0.360	0.000	0.060	0.000	2.90
R5	03/27/90	11.0	170.6	8.42	11.7	1.4	0	0.140	0.190	0.030	0.000	0.100	2.80
R5	04/24/90	18.0	53.1	7.97	9.3	8.8	36	-1.000	-1.000	-1.000	-1.000	-1.000	7.00
R5	05/23/90	20.3	22.0	8.07	9.8	6.2	20	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R5	08/27/90	32.6	229.7	8.09	7.8	1.0	0	0.030	0.430	0.000	0.000	0.080	1.00
R5	06/18/90	29.0	239.7	7.90	7.2	1.2	0	0.100	0.370	0.000	0.000	0.000	1.80
R5	07/30/90	31.0	244.0	7.82	5.4	1.0	0	0.120	0.310	0.000	0.000	-1.000	-99.99
R5	09/24/90	22.7	238.5	8.31	9.1	0.6	0	0.000	0.220	0.000	0.000	0.000	1.50
R5	10/22/90	15.9	249.1	8.24	10.2	0.8	0	0.090	0.340	0.000	0.000	0.000	2.70
R5	11/18/90	11.1	266.2	8.27	10.3	0.5	0	0.080	0.310	0.000	0.000	0.000	1.20
R5	01/28/91	7.3	193.4	8.35	11.3	1.5	2	0.000	0.000	0.000	0.000	0.000	2.60
** GILBERT													
R6	04/12/85	15.2	187.0	-1.00	-1.0	-1.0	10	0.160	0.000	-1.000	0.006	-1.000	4.00
R6	04/24/85	-1.0	-1.0	-1.00	9.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	9.50
R6	05/17/85	21.0	212.2	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	2.70
R6	06/09/85	25.9	226.1	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.10
R6	01/12/85	24.0	215.1	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	2.10
R6	07/19/85	30.0	235.5	-1.00	9.0	-1.0	0	0.060	0.200	-1.000	0.006	-1.000	1.10
R6	08/25/85	27.5	219.5	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	1.70
R6	09/22/85	25.0	222.0	-1.00	11.0	-1.0	0	0.030	0.160	-1.000	0.005	-1.000	1.10
R6	12/21/85	6.0	180.5	-1.00	13.0	-1.0	0	0.170	0.000	-1.000	0.006	-1.000	2.90
R6	05/07/86	22.0	192.0	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	2.70
R6	06/30/86	30.5	226.2	-1.00	8.0	-1.0	8	0.055	-1.000	-1.000	0.014	-1.000	1.50
R6	07/18/86	31.5	235.7	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	1.00
R6	08/18/86	30.1	214.1	-1.00	10.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	1.00
R6	09/14/86	25.0	236.0	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.90
R6	12/23/86	8.0	222.1	8.30	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	1.40
R6	01/28/87	7.0	170.7	-1.00	14.0	-1.0	0	-1.000	0.100	-1.000	0.000	-1.000	1.60
R6	05/27/87	25.0	145.0	-1.00	8.1	-1.0	0	0.590	0.100	-1.000	0.027	-1.000	3.50
R6	06/16/87	26.0	191.3	8.05	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.20
R6	07/21/87	29.0	199.7	8.62	7.4	-1.0	0	0.000	0.300	-1.000	0.013	-1.000	0.70
R6	08/06/87	29.0	216.3	8.15	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	0.70
R6	09/30/87	19.0	214.6	7.90	7.2	-1.0	0	-1.000	0.100	-1.000	0.015	-1.000	1.00
R6	11/15/87	12.0	242.1	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.70
R6	02/03/89	6.0	174.7	7.80	12.1	-1.0	6	0.170	0.020	-1.000	0.003	-1.000	2.50
R6	03/28/88	15.0	146.3	8.21	13.0	-1.0	0	0.050	0.100	-1.000	0.004	-1.000	2.00
R6	05/03/88	19.5	190.0	8.46	-1.0	-1.0	16	-1.000	0.100	-1.000	0.004	-1.000	2.50
R6	06/22/88	27.3	253.6	7.74	-1.0	-1.0	68	-1.000	-1.000	-1.000	-1.000	-1.000	0.60
R6	07/20/88	26.6	250.3	7.90	-1.0	-1.0	0	0.070	0.100	-1.000	0.000	-1.000	2.40
R6	08/16/88	26.3	252.1	7.62	6.5	6.2	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.60
R6	09/10/88	24.4	229.6	7.00	8.7	2.6	10	-1.000	-1.000	-1.000	-1.000	-1.000	0.70
R6	10/22/88	16.4	332.6	7.77	14.1	0.7	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.90

Buffalo National River
Water Quality Data
1985-1990
RIVER LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
R6	11/18/88	9.8	317.0	7.53	10.8	0.7	10	0.020	0.430	-1.000	0.008	0.000	0.80
R6	12/23/88	8.0	276.9	-1.00	13.1	1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	1.20
R6	01/20/89	6.9	227.7	8.22	17.0	1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.30
R6	03/11/89	9.0	208.8	8.12	10.7	6.2	4	0.050	0.210	-1.000	0.019	0.190	3.90
R6	04/22/89	19.0	265.4	8.30	11.0	0.9	0	-1.000	-1.000	-1.000	-1.000	-1.000	4.00
R6	05/17/89	17.6	192.2	8.03	8.3	0.8	34	-1.000	-1.000	-1.000	-1.000	-1.000	1.40
R6	07/20/89	19.5	223.5	8.11	8.0	2.3	8	0.045	0.460	-1.000	0.000	0.000	1.10
R6	08/24/89	27.1	240.4	8.30	9.2	1.7	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.80
R6	09/20/89	23.5	226.5	8.20	9.1	2.2	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R6	10/17/89	19.3	233.4	8.08	8.4	1.3	0	0.005	1.710	-1.000	0.042	0.010	-99.99
R6	11/14/89	14.9	247.8	8.12	9.1	0.9	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R6	12/05/89	6.7	253.7	8.22	13.3	0.6	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R6	01/23/90	8.4	108.4	7.75	10.1	0.1	6	0.550	0.370	0.030	0.040	0.030	2.80
R6	02/27/90	9.5	142.1	7.98	10.5	3.0	2	0.180	0.460	0.000	0.060	0.000	2.90
R6	03/27/90	11.5	161.7	8.47	12.1	1.4	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.80
R6	04/24/90	17.0	59.0	7.94	8.9	17.0	88	0.180	0.460	0.000	0.060	0.000	7.00
R6	06/21/90	26.0	247.3	7.76	6.8	1.3	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.80
R6	09/21/90	30.2	229.2	8.04	8.1	1.8	2	-1.000	-1.000	-1.000	-1.000	-1.000	1.00
R6	07/18/90	29.4	235.2	8.39	9.7	1.4	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R6	09/25/90	21.7	233.7	8.29	10.2	2.0	0	0.000	0.240	0.000	0.030	0.050	1.50
R6	10/23/90	15.1	233.1	8.28	9.6	1.0	4	0.090	0.310	0.000	0.000	0.000	2.70
R6	11/19/90	13.0	256.9	8.18	10.6	1.8	0	0.070	0.000	0.000	0.000	0.050	1.20
R6	12/18/90	11.3	216.7	8.33	10.8	1.6	160	0.050	0.220	0.000	0.070	0.000	2.70
R6	01/29/91	8.2	237.1	6.28	11.6	1.5	6	0.000	0.000	0.000	0.000	0.300	2.60

** HIGHWAY 14

R7	04/12/85	17.1	200.2	-1.00	-1.0	-1.0	6	0.120	0.100	-1.000	0.007	-1.000	5.70
R7	04/25/85	18.0	144.3	-1.00	10.0	-1.0	145	-1.000	-1.000	-1.000	-1.000	-1.000	8.50
R7	05/17/85	21.9	231.7	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	4.20
R7	06/09/85	27.6	237.3	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	4.00
R7	07/23/85	31.5	209.0	-1.00	9.0	-1.0	0	0.000	0.300	-1.000	0.013	-1.000	2.80
R7	08/25/85	27.9	217.0	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	3.30
R7	09/20/85	25.0	215.0	-1.00	9.0	-1.0	2	0.030	0.100	-1.000	0.004	-1.000	2.70
R7	12/20/85	4.0	200.4	-1.00	10.0	-1.0	0	0.180	0.000	-1.000	0.014	-1.000	4.60
R7	05/07/86	24.0	198.8	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	4.40
R7	06/30/86	30.5	221.7	-1.00	8.0	-1.0	2	0.030	-1.000	0.018	0.020	-1.000	3.10
R7	07/16/86	31.5	226.8	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	2.50
R7	08/19/86	30.5	217.2	-1.00	9.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.90
R7	09/14/86	22.9	222.9	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	2.60
R7	12/22/86	7.0	281.9	8.36	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	3.60
R7	01/29/87	11.0	180.2	-1.00	12.0	-1.0	0	-1.000	0.000	-1.000	0.00	-1.000	4.20
R7	05/26/87	22.5	144.9	-1.00	7.1	-1.0	16	0.160	0.100	-1.000	0.020	0.010	6.30
R7	06/17/87	28.0	206.1	8.14	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	3.00
R7	07/21/87	23.5	186.1	8.65	7.2	-1.0	0	0.000	0.100	-1.000	0.015	-1.000	2.40
R7	08/20/87	27.5	206.2	8.69	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	3.50

Buffalo National River
Water Quality Data
1985-1990
RIVER LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
R7	09/30/87	19.5	223.5	8.20	7.1	-1.0	0	0.050	0.100	-1.000	0.019	-1.000	2.30
R7	11/15/87	13.0	253.0	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.50
R7	02/03/88	7.5	183.3	8.02	13.1	-1.0	0	0.180	0.010	-1.000	0.002	-1.000	5.00
R7	03/28/88	15.0	153.3	8.25	12.0	-1.0	0	0.030	0.100	-1.000	0.002	-1.000	3.00
R7	05/03/88	22.0	193.1	8.49	-1.0	-1.0	4	-1.000	0.100	-1.000	0.002	-1.000	4.10
R7	06/22/88	28.4	271.4	7.81	-1.0	10.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.80
R7	08/16/88	29.2	242.5	8.22	7.7	5.3	2	-1.000	-1.000	-1.000	-1.000	-1.000	3.20
R7	09/10/88	25.5	232.8	8.04	8.9	0.7	16	-1.000	-1.000	-1.000	-1.000	-1.000	3.00
R7	10/22/88	16.9	317.1	7.80	15.4	0.5	0	-1.000	-1.000	-1.000	-1.000	-1.000	3.00
R7	11/18/88	8.8	311.3	7.35	11.2	0.4	4	0.000	0.510	-1.000	0.008	0.050	3.20
R7	12/23/88	7.2	300.0	-1.00	13.1	6.3	2	-1.000	-1.000	-1.000	-1.000	-1.000	4.00
R7	01/20/89	6.7	246.0	8.50	18.4	1.1	0	-1.000	-1.000	-1.000	-1.000	-1.000	4.20
R7	02/11/89	6.2	241.8	8.21	11.5	2.1	0	-1.000	-1.000	-1.000	-1.000	-1.000	5.10
R7	03/11/89	9.5	215.9	8.15	11.5	6.6	4	0.060	0.250	-1.000	0.033	0.210	7.50
R7	04/22/89	20.7	277.8	8.38	11.1	0.8	0	-1.000	-1.000	-1.000	-1.000	-1.000	4.75
R7	05/17/89	18.3	223.6	8.15	8.5	1.3	4	-1.000	-1.000	-1.000	-1.000	-1.000	3.90
R7	07/20/89	21.0	281.5	8.14	8.2	1.4	8	0.040	0.120	-1.000	0.000	0.000	3.75
R7	08/24/89	27.3	234.7	8.44	9.7	2.2	0	-1.000	-1.000	-1.000	-1.000	-1.000	3.00
R7	09/20/89	23.2	240.3	8.13	8.7	1.2	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.90
R7	10/17/89	16.7	239.9	8.08	8.3	1.2	0	0.007	0.280	-1.000	0.015	0.010	2.70
R7	11/14/89	14.7	249.0	8.09	8.9	0.6	8	-1.000	-1.000	-1.000	-1.000	-1.000	2.70
R7	12/05/89	6.1	262.9	8.15	12.1	0.4	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.72
R7	01/23/90	7.9	109.9	7.74	10.3	0.1	20	0.500	0.310	0.000	0.040	0.000	5.00
R7	02/27/90	9.1	155.1	8.30	10.3	2.7	0	0.000	0.260	0.000	0.060	0.000	4.90
R7	03/27/90	9.8	183.2	8.39	10.6	1.4	0	0.160	0.200	0.030	0.000	0.060	4.80
R7	06/26/90	31.5	221.5	8.11	7.0	1.3	2	0.020	0.260	0.030	0.000	0.300	3.05
R7	06/19/90	30.0	246.5	8.05	8.0	0.7	2	0.080	0.310	0.000	0.000	0.000	3.80
R7	07/31/90	28.2	249.7	8.05	6.7	1.2	2	0.100	0.340	0.000	0.000	-1.000	3.34
R7	09/25/90	20.1	239.4	8.07	9.4	1.2	4	0.000	0.220	0.000	0.000	0.050	3.10
R7	10/23/90	14.0	244.3	8.30	9.6	0.8	0	0.140	0.290	0.000	0.000	0.000	3.50
R7	11/19/90	11.6	264.8	8.25	10.8	0.7	2	0.060	0.000	0.000	0.000	0.000	3.15
R7	12/18/90	10.2	225.6	8.31	10.6	1.1	14	0.070	0.000	0.000	0.050	0.000	4.10
** HIGHWAY													
R7	01/29/91	7.5	198.3	8.28	11.2	1.5	8	0.000	0.000	0.000	0.000	0.000	4.60
** RUSH													
R8	04/12/85	16.5	214.9	-1.00	-1.0	-1.0	2	0.120	0.000	-1.000	0.008	-1.000	5.70
R8	05/17/85	22.9	231.3	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	4.20
R8	06/19/85	25.0	280.0	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	4.00
R8	07/23/85	30.0	220.9	-1.00	9.0	-1.0	0	0.000	0.300	-1.000	0.030	-1.000	2.80
R8	08/25/85	28.0	209.0	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	3.80
R8	09/20/85	25.0	232.0	-1.00	9.0	-1.0	0	0.000	0.400	-1.000	0.004	-1.000	2.70
R8	12/20/85	3.0	207.0	-1.00	12.0	-1.0	0	0.170	0.400	-1.000	0.006	-1.000	4.60
R8	05/07/86	24.0	200.9	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	4.40

Buffalo National River
Water Quality Data
1985-1990
RIVER LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
R8	06/30/86	30.0	228.2	-1.00	8.0	-1.0	22	0.030	-1.000	-1.000	0.009	-1.000	3.10
R8	07/18/86	30.0	269.3	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	2.50
R8	08/19/86	28.5	234.3	-1.00	9.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.90
R8	09/14/86	23.0	265.1	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.80
R8	12/22/86	7.0	350.5	8.21	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	3.60
R8	01/29/87	11.0	184.3	-1.00	10.0	-1.0	0	-1.000	0.300	-1.000	0.001	-1.000	4.20
R8	05/26/87	24.0	147.8	-1.00	7.7	-1.0	0	0.170	0.100	-1.000	0.026	0.070	5.90
R8	06/17/87	28.5	215.6	8.16	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	3.00
R8	07/21/87	29.0	193.2	8.63	7.1	-1.0	2	0.000	0.200	-1.000	0.012	-1.000	2.40
R8	08/20/87	28.0	199.6	8.14	-1.0	-1.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	3.50
R8	09/30/87	19.5	225.7	8.20	7.4	-1.0	0	-1.000	0.100	-1.000	0.021	-1.000	2.30
R8	11/15/87	11.5	269.5	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.50
RE	02/03/88	7.5	178.7	8.10	12.2	-1.0	6	0.170	0.030	-1.000	0.003	-1.000	5.00
R8	03/28/88	15.0	154.5	8.33	13.0	-1.0	0	0.030	0.100	-1.000	0.005	-1.000	3.00
R8	05/03/88	20.3	195.7	8.31	-1.0	-1.0	8	-1.000	0.100	-1.000	0.005	-1.000	4.50
R8	06/22/88	29.2	259.2	7.87	-1.0	13.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	3.00
R8	08/16/88	31.1	246.3	7.74	8.6	5.4	4	-1.000	-1.000	-1.000	-1.000	-1.000	3.20
R8	09/10/88	25.4	208.4	8.03	9.0	0.8	0	-1.000	-1.000	-1.000	-1.000	-1.000	3.00
R8	10/22/88	17.1	318.0	7.88	14.0	0.6	0	-1.000	-1.000	-1.000	-1.000	-1.000	3.00
RE	11/18/88	9.6	317.3	7.25	11.0	0.4	0	0.025	0.390	-1.000	0.016	0.000	3.20
R6	12/23/88	7.1	296.3	-1.00	13.2	0.8	4	-1.000	-1.000	-1.000	-1.000	-1.000	4.00
RE	01/20/89	7.0	246.9	8.36	15.6	0.8	0	-1.000	-1.000	-1.000	-1.000	-1.000	4.20
R2	02/11/89	5.6	249.4	8.15	11.3	2.3	0	-1.000	-1.000	-1.000	-1.000	-1.000	5.10
R8	03/11/89	9.6	225.5	8.19	11.8	6.2	8	0.060	0.280	-1.000	0.033	0.190	7.50
R8	04/22/89	19.9	252.6	8.25	10.3	0.9	12	-1.000	-1.000	-1.000	-1.000	-1.000	4.75
R6	05/17/89	19.0	219.1	8.14	8.6	0.6	6	-1.000	-1.000	-1.000	-1.000	-1.000	3.90
R8	07/20/89	21.0	262.0	7.90	7.6	2.0	8	0.028	0.220	-1.000	0.009	0.000	3.75
R8	08/24/89	27.5	233.8	8.37	8.3	2.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	3.00
R8	09/20/89	24.1	239.1	8.23	9.0	1.2	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R8	10/17/89	19.1	222.0	8.15	8.8	1.0	6	0.007	0.590	-1.000	0.011	0.010	2.70
R8	11/14/89	13.9	243.7	8.22	9.7	0.6	2	-1.000	-1.000	-1.000	-1.000	-1.000	2.70
R8	12/05/89	6.3	256.7	8.20	12.3	0.4	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.72
R8	01/23/90	7.6	92.9	7.81	10.2	0.7	15	0.590	0.390	0.000	0.040	0.000	5.00
R6	03/27/90	10.0	182.2	8.76	10.6	1.4	6	0.170	0.260	0.000	0.300	0.090	4.80
R6	08/28/90	31.2	212.6	8.17	7.5	0.8	4	0.000	0.300	0.000	0.000	0.000	3.05
R8	06/19/90	30.0	227.3	8.14	7.2	1.1	0	0.060	0.300	0.000	0.000	0.000	3.80
R8	07/31/90	28.5	247.5	7.99	6.4	1.1	50	0.030	0.330	0.000	0.000	-1.000	3.34
R8	09/25/90	21.1	232.3	8.11	9.1	0.6	0	0.000	0.210	0.030	0.030	0.000	3.10
R8	10/23/90	13.7	247.4	8.37	9.3	0.9	4	0.120	0.260	0.300	0.000	0.000	3.50
R6	11/19/90	11.3	280.4	8.26	10.9	0.6	0	0.040	0.000	0.000	0.000	0.000	3.15
RE	12/18/90	9.9	229.1	8.35	10.3	0.9	8	0.040	0.000	0.000	0.060	0.000	4.10
RE	01/29/91	7.1	212.7	8.25	11.2	1.7	2	0.000	0.000	0.000	0.000	0.000	4.60

** MOUTH

R8	05/19/85	24.0	252.8	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	4.20
----	----------	------	-------	-------	------	------	---	--------	--------	--------	--------	--------	------

Buffalo National River
Water Quality Data
1985-1990
RIVER LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (cc/100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
R9	06/18/85	26.0	206.1	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	3.70
R9	07/23/85	28.0	222.3	-1.00	9.0	-1.0	-1	0.010	0.300	-1.000	0.027	-1.000	2.80
R9	08/16/85	25.0	220.0	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	3.20
R9	09/14/85	22.0	206.9	-1.00	10.0	-1.0	2	0.030	0.200	-1.000	0.009	-1.000	3.30
R9	12/20/85	2.5	219.2	-1.00	11.0	-1.0	4	0.140	0.000	-1.000	0.005	-1.000	4.60
R9	07/18/86	23.0	244.3	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.50
R9	08/19/86	26.0	215.9	-1.00	9.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	2.90
R9	09/14/86	22.9	229.2	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	2.80
R9	12/22/86	6.0	486.6	8.35	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	3.60
R9	01/29/87	8.0	207.3	-1.00	13.0	-1.0	0	0.000	0.000	-1.000	0.008	-1.000	4.20
R9	06/09/87	27.0	207.1	8.38	7.8	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	3.50
R9	06/24/87	27.0	274.5	8.29	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	3.20
R9	07/21/87	24.0	212.1	8.33	7.1	-1.0	0	0.010	0.200	-1.000	0.012	-1.000	2.40
R9	09/30/87	19.0	225.9	8.53	8.2	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	3.00
R9	11/15/87	12.5	249.6	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.50
R9	02/03/88	7.5	196.3	8.05	10.8	-1.0	0	0.170	0.030	-1.000	0.000	-1.000	5.00
R9	03/28/88	14.0	225.3	8.36	12.8	-1.0	0	0.030	0.100	-1.000	0.000	-1.000	3.00
R9	05/03/88	19.2	202.4	8.32	-1.0	-1.0	18	-1.000	0.100	-1.000	0.000	-1.000	4.50
R9	06/22/88	29.6	274.9	7.92	-1.0	11.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	3.00
R9	07/20/88	28.5	243.7	8.03	-1.0	1.0	4	0.040	0.200	-1.000	0.005	-1.000	3.30
R9	08/16/88	29.6	241.8	8.00	8.5	4.6	14	-1.000	-1.000	-1.000	-1.000	-1.000	3.20
R9	09/10/88	18.4	246.0	7.45	8.0	0.7	4	-1.000	-1.000	-1.000	-1.000	-1.000	3.00
R9	10/22/88	15.4	336.7	7.72	12.5	0.8	6	-1.000	-1.000	-1.000	-1.000	-1.000	3.00
R9	11/16/88	9.6	-1.0	7.06	10.9	0.6	0	0.008	0.560	-1.000	0.006	0.030	3.20
R9	12/22/88	9.0	306.2	-1.00	14.2	0.8	4	-1.000	-1.000	-1.000	-1.000	-1.000	4.00
R9	01/20/89	6.9	259.8	8.42	16.7	0.9	0	-1.000	-1.000	-1.000	-1.000	-1.000	4.20
R9	02/11/89	5.5	262.9	8.15	11.2	2.1	0	-1.000	-1.000	-1.000	-1.000	-1.000	5.10
R9	03/11/89	11.0	241.6	8.27	12.8	5.3	2	0.030	0.140	-1.000	0.027	0.260	7.50
R9	04/22/89	20.5	304.1	8.27	10.2	0.7	0	-1.000	-1.000	-1.000	-1.000	-1.000	4.75
R9	05/17/89	19.5	251.4	8.28	8.5	0.7	4	-1.000	-1.000	-1.000	-1.000	-1.000	3.90
R9	07/20/89	23.8	264.1	8.07	7.6	2.4	4	0.040	0.110	-1.000	0.000	0.000	3.75
R9	08/24/89	26.5	233.3	8.26	7.9	1.6	4	-1.000	-1.000	-1.000	-1.000	-1.000	3.00
R9	09/20/89	22.5	235.2	8.10	8.3	1.4	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R9	10/17/89	19.9	227.1	8.05	7.7	1.0	0	0.005	0.190	-1.000	0.011	0.010	2.70
R9	11/14/89	15.1	246.6	8.03	8.7	0.7	12	-1.000	-1.000	-1.000	-1.000	-1.000	2.70
R9	12/05/89	5.2	257.3	8.06	10.6	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.72
R9	02/27/90	10.0	161.2	8.20	10.5	2.8	0	0.040	0.330	0.000	0.060	0.000	4.90
P9	06/14/90	30.0	241.9	8.24	8.4	1.5	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R9	08/23/90	29.6	228.0	7.92	5.9	1.7	44	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
P9	07/11/90	32.0	247.0	8.33	-1.0	1.2	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R9	10/19/90	17.0	259.7	8.36	9.8	1.5	8	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
R9	01/23/91	5.9	202.4	8.24	11.2	2.5	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
R9	08/19/91	30.0	195.3	8.42	-1.0	-1.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	3.50

[illegible]

RIVER LOCATIONS

[illegible][illegible]

Buffalo National River
Water Quality Data
1985-1990
RIVER LOCATIONS

[illegible]

** PRUITT

[illegible]

RIVER LOCATIONS

[illegible]

** HASTY

[illegible]

RIVER LOCATIONS

[illegible]

RIVER LOCATIONS

[illegible]

Buffalo National River
Water Quality Data
1985-1990
RIVER LOCATIONS

[illegible]

Buffalo National River
Water Quality Data
1985-1990
RIVER LOCATIONS

SITE NUMBER	DATE	CL (mg/L)	SO4 (mg/L)	NA (mg/L)	K (mg/L)	CA (mg/L)	MG (mg/L)	FE (mg/L)	MN (mg/L)	CU (mg/L)	NI (mg/L)	PB (mg/L)	CR (mg/L)	CD (mg/L)	AS (mg/L)	ZN (mg/L)
R6	04/22/89	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	05/17/89	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	07/20/89	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	08/24/89	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	09/20/89	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	10/17/89	-1.000	-1.000	2.000	-1.000	42.000	3.7000	0.0060	0.0090	0.0060	0.0050	0.0100	-1.0000	0.0010	-1.0000	0.0030
R6	11/14/89	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	12/05/89	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	01/23/90	-1.000	8.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	02/27/90	2.000	6.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	03/27/90	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	04/24/90	2.000	6.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	06/21/90	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	08/21/90	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	07/18/90	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	09/25/90	3.000	3.000	0.000	0.000	0.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	10/23/90	3.000	4.000	0.000	0.000	0.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	11/19/90	6.000	10.000	0.000	0.000	0.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R6	12/18/90	3.000	7.000	0.000	0.000	0.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000

** HIGHWAY 14

R7	04/12/85	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	0.0020	0.0050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R7	04/25/85	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R7	05/17/85	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R7	06/09/85	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R7	07/23/85	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R7	08/25/85	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R7	09/20/85	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	0.0300	0.0100	0.0007	0.0007	0.0000	0.0003	0.0001	0.0021	0.0000
R7	12/20/85	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R7	05/07/86	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R7	06/30/86	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R7	07/18/86	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R7	08/19/86	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R7	09/14/86	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R7	12/22/86	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R7	01/29/87	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	0.0160	0.0100	0.0070	0.0050	0.0000	0.0000	0.0001	0.0020	0.0000
F7	05/26/87	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
F7	06/17/87	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
F7	07/21/87	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
F7	08/20/87	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
F7	09/30/87	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	0.0900	0.0400	0.0000	0.0000	0.0010	0.0000	0.0010	0.0000	0.0040
F7	11/15/87	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
R7	02/03/88	-1.000	-1.000	1.600	0.700	34.000	2.7600	0.1600	0.0800	0.0020	0.0010	0.0000	0.0000	0.0000	0.0000	0.0050
R7	03/28/88	-1.000	-1.000	1.390	0.750	35.500	3.1200	0.0100	0.0300	0.0020	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000
F7	05/03/88	-1.000	-1.000	1.350	0.750	35.500	3.1200	0.0100	0.0300	0.0020	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000

[illegible]

[illegible]

[illegible]

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
** BEECH CREEK													
T1	05/15/85	20.0	110.6	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	1.34
T1	05/28/85	19.9	101.9	-1.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	1.44
T1	06/11/87	21.5	132.9	8.00	-1.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T1	07/09/87	27.0	192.6	7.83	-1.0	-1.0	40	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T1	07/23/87	26.0	211.0	7.91	-1.0	-1.0	30	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T1	08/03/87	27.0	204.2	8.11	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T1	08/25/87	24.0	173.3	7.94	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T1	09/19/87	18.9	209.4	7.89	-1.0	-1.0	22	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T1	07/25/88	29.6	200.4	8.32	-1.0	1.5	16	-1.000	-1.000	-1.000	-1.000	-1.000	0.00
T1	06/19/89	16.9	82.8	8.28	9.6	5.5	12	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T1	07/05/89	23.5	130.7	8.47	9.1	1.3	12	1.120	0.400	-1.000	0.002	0.000	-0.40
T1	07/24/89	20.5	194.7	8.58	10.3	1.1	22	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T1	03/05/90	8.0	59.2	7.36	10.4	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.40
T1	03/26/90	8.1	72.4	7.96	10.7	3.2	2	0.000	0.220	0.000	0.000	0.110	-99.99
T1	04/23/90	15.0	51.9	7.69	9.0	7.1	6	0.050	0.240	0.000	0.040	0.000	0.80
T1	05/07/90	14.5	66.3	7.63	9.5	6.7	8	0.050	0.600	0.000	0.040	0.090	0.90
** Calf Creek													
T10	04/10/85	16.0	263.3	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T10	05/13/85	22.0	259.9	-1.00	-1.0	-1.0	72	-1.000	-1.000	-1.000	-1.000	-1.000	0.16
T10	05/30/85	19.8	275.3	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-0.08
T10	06/12/85	22.7	262.4	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	-0.16
T10	06/26/85	23.0	301.5	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-0.32
T10	07/19/85	22.0	296.0	-1.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	-0.34
T10	08/21/85	25.9	307.3	-1.00	-1.0	-1.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	-0.12
T10	08/02/86	24.0	307.9	-1.00	-1.0	-1.0	18	-1.000	-1.000	-1.000	-1.000	-1.000	-0.20
T10	09/01/86	26.0	312.1	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-0.34
T10	09/22/86	25.0	302.0	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-0.40
T10	06/18/87	23.0	265.9	7.91	-1.0	-1.0	28	-1.000	-1.000	-1.000	-1.000	-1.000	-0.14
T10	07/14/87	26.0	314.0	7.96	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	-0.44
T10	08/06/87	27.0	308.2	7.95	-1.0	-1.0	84	-1.000	-1.000	-1.000	-1.000	-1.000	-2.50
T10	09/20/87	22.0	316.2	7.21	-1.0	-1.0	-1	-1.000	-1.000	-1.000	-1.000	-1.000	-2.62
T10	06/14/88	21.0	211.0	7.79	-1.0	1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T10	06/29/88	23.2	321.0	7.70	-1.0	17.5	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T10	07/23/88	24.5	292.8	7.69	-1.0	2.4	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T10	08/18/88	24.1	330.7	7.84	9.3	2.6	20	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T10	05/07/89	18.5	260.3	-1.00	9.3	1.4	10	0.130	0.100	-1.000	0.024	0.020	0.00
T10	06/21/89	21.8	239.6	7.82	8.0	1.4	20	-1.000	-1.000	-1.000	-1.000	-1.000	-0.06
T10	07/10/89	26.0	263.3	7.75	9.2	1.5	12	0.330	0.430	-1.000	0.029	0.100	-99.99
T10	07/28/89	20.6	345.7	7.51	9.2	1.4	0	-1.000	-1.000	-1.000	-1.000	-1.000	-0.20
T10	08/03/89	22.6	285.5	7.78	8.4	2.1	0	0.130	0.200	-1.000	0.034	0.030	-99.99
T10	08/23/89	23.6	322.4	7.75	8.7	2.7	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T10	09/06/89	25.2	288.9	7.77	8.6	2.5	46	0.160	0.100	-1.000	0.030	0.030	-99.99
T10	09/25/89	19.0	307.2	7.81	9.5	2.3	12	0.190	0.100	-1.000	0.043	0.070	-99.99

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TAN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
T10	04/04/90	11.1	-1.0	8.29	11.3	1.7	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T10	06/25/90	22.2	277.9	7.67	7.5	1.9	12	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T10	05/14/90	17.0	283.3	8.01	9.4	2.7	24	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T10	08/24/90	26.9	304.0	7.78	8.2	2.0	18	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T10	07/18/90	25.4	302.7	7.80	9.4	1.8	12	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T10	09/17/90	22.0	302.3	7.69	6.3	4.2	29	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T10	10/12/90	18.2	289.6	7.63	8.2	3.1	66	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T10	11/08/90	14.3	291.6	8.07	9.4	0.5	2	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T10	12/05/90	11.3	264.1	8.05	9.7	2.5	64	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00

** MILL CREEK/M

T11	04/10/85	16.1	306.0	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T11	05/13/85	19.7	319.3	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	0.70
T11	05/29/85	20.0	311.8	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.58
T11	06/12/85	18.5	319.7	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.56
T11	06/26/85	19.5	333.0	-1.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	0.42
T11	07/19/85	19.0	333.2	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.38
T11	08/02/85	20.0	326.1	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.36
T11	08/23/85	23.5	257.4	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	0.38
T11	09/01/85	22.5	325.5	-1.00	-1.0	-1.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	0.36
T11	09/22/85	20.5	317.3	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.36
T11	06/22/87	22.0	325.8	8.16	-1.0	-1.0	32	-1.000	-1.000	-1.000	-1.000	-1.000	0.35
T11	07/14/87	25.0	311.0	8.12	-1.0	-1.0	24	-1.000	-1.000	-1.000	-1.000	-1.000	0.28
T11	08/29/87	19.5	324.0	-1.00	-1.0	-1.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	0.27
T11	09/20/87	19.0	355.8	-1.00	-1.0	-1.0	-1	-1.000	-1.000	-1.000	-1.000	-1.000	0.34
T11	06/14/88	22.2	-1.0	7.83	-1.0	0.4	58	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T11	06/29/88	16.8	349.4	7.81	-1.0	0.5	12	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T11	07/23/88	20.6	103.7	7.94	-1.0	0.2	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T11	08/18/88	16.9	359.8	7.71	10.6	0.2	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T11	09/03/88	17.2	349.0	7.47	10.6	0.3	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T11	06/07/89	16.6	331.1	-1.00	9.7	0.6	6	0.140	0.200	-1.000	0.003	0.010	-99.99
T11	06/20/89	22.0	316.1	8.24	10.2	0.7	24	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T11	07/10/89	22.5	315.0	8.17	10.3	0.9	24	0.300	0.400	-1.000	0.000	0.100	-99.99
T11	07/25/89	16.7	407.4	8.14	9.7	0.7	144	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T11	08/08/89	17.3	334.1	8.10	9.0	0.9	2	0.210	0.100	-1.000	0.004	0.020	-99.99
T11	08/23/89	17.8	371.0	8.07	9.2	0.7	24	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T11	09/06/89	19.5	324.0	8.09	9.0	0.6	2	0.210	0.100	-1.000	0.005	0.020	-99.99
T11	09/25/89	14.7	342.4	8.09	10.0	0.6	10	0.210	0.100	-1.000	0.010	0.060	0.15
T11	06/25/90	16.8	333.5	8.10	8.8	1.0	26	-1.000	-1.000	-1.000	-1.000	-1.000	0.60
T11	05/14/90	16.0	323.6	8.13	9.3	1.8	25	-1.000	-1.000	-1.000	-1.000	-1.000	0.75
T11	06/21/90	22.4	339.9	8.04	9.4	0.6	6	-1.000	-1.000	-1.000	-1.000	-1.000	0.48
T11	07/18/90	21.5	332.2	8.12	9.9	0.4	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.50
T11	09/17/90	19.0	333.2	8.04	7.6	1.6	12	-1.000	-1.000	-1.000	-1.000	-1.000	0.44
T11	10/12/90	16.5	314.2	8.08	9.2	1.5	42	-1.000	-1.000	-1.000	-1.000	-1.000	0.33
T11	11/08/90	12.5	335.0	8.31	10.2	0.4	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.80

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
T11	12/05/90	10.2	334.6	8.22	10.2	0.5	20	-1.000	-1.000	-1.000	-1.000	-1.000	0.36
** BEAR CREEK													
T12	04/10/85	16.2	205.5	-1.00	-1.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	1.88
T12	05/13/85	23.3	222.2	-1.00	-1.0	-1.0	30	-1.000	-1.000	-1.000	-1.000	-1.000	1.06
T12	05/27/85	23.9	243.1	-1.00	-1.0	-1.0	22	-1.000	-1.000	-1.000	-1.000	-1.000	0.84
T12	06/12/85	21.9	253.0	-1.00	-1.0	-1.0	48	-1.000	-1.000	-1.000	-1.000	-1.000	0.66
T12	06/26/85	27.0	269.7	-1.00	-1.0	-1.0	44	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	07/19/85	26.0	264.9	-1.00	-1.0	-1.0	28	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	08/04/85	25.0	250.0	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	08/22/85	26.0	235.5	-1.00	-1.0	-1.0	20	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	09/02/85	27.0	245.6	-1.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	06/17/87	25.0	240.0	8.15	-1.0	-1.0	42	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	07/15/87	26.0	245.3	8.25	-1.0	-1.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	08/12/87	29.5	211.8	8.71	-1.0	-1.0	22	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	09/20/87	22.0	254.6	8.89	-1.0	-1.0	-1	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	06/14/88	29.0	-1.0	7.82	-1.0	0.9	20	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	07/05/88	24.5	305.2	7.53	-1.0	1.1	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	07/29/88	26.1	262.5	7.47	7.1	0.5	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	08/03/88	27.8	242.1	8.10	8.1	0.5	14	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	09/04/88	21.0	225.2	7.45	8.1	0.5	20	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	06/07/89	20.9	227.8	-1.00	10.0	1.1	20	0.080	0.100	-1.000	0.020	0.020	0.00
T12	06/21/89	24.0	185.5	8.32	9.0	2.0	35	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	07/11/89	29.7	266.1	8.54	9.4	1.5	10	0.040	0.300	-1.000	0.000	0.060	-99.99
T12	07/26/89	23.1	285.4	8.44	9.5	3.7	15	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	08/09/89	21.5	245.0	8.27	10.0	1.6	14	0.070	0.100	-1.000	0.022	0.070	-99.99
T12	08/22/89	24.6	279.1	8.25	9.2	1.5	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	09/11/89	22.5	257.3	8.05	8.3	1.2	18	0.040	0.100	-1.000	0.024	0.040	-99.99
T12	09/26/89	16.1	262.6	-1.00	10.1	0.9	4	0.030	0.000	-1.000	0.014	0.010	-99.99
T12	04/04/90	12.5	-1.0	8.45	11.5	2.5	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	06/21/90	24.3	254.1	7.50	7.3	1.3	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	05/14/90	15.0	220.0	8.27	9.9	2.8	25	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	08/21/90	26.3	249.3	8.18	10.5	1.1	14	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	07/19/90	26.6	261.0	8.19	9.2	0.7	28	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T12	09/17/90	22.6	250.5	8.17	8.2	1.4	405	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T12	10/16/90	17.2	279.7	8.11	9.2	1.5	16	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T12	11/01/90	14.1	264.2	8.33	11.5	0.6	36	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T12	12/12/90	12.5	243.0	8.71	12.3	1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
** BRUSH CREEK													
T13	04/10/85	15.5	305.4	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	1.88
T13	05/13/85	19.9	332.4	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	1.06
T13	05/27/85	20.0	331.7	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.84
T13	06/12/85	19.5	335.2	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.66
T13	06/26/85	22.0	350.1	-1.00	-1.0	-1.0	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OPO4 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
T13	05/27/85	19.0	282.4	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T13	06/23/87	20.0	342.7	8.13	-1.0	-1.0	74	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T13	08/09/89	18.2	347.1	8.16	9.4	0.5	0	0.310	0.000	-1.000	0.014	0.090	-99.99
T13	04/04/90	15.0	-1.0	8.41	10.3	0.5	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T13	06/21/90	20.2	385.3	8.08	8.8	0.5	36	-1.000	-1.000	-1.000	-1.000	-1.000	0.00
T13	05/14/90	15.0	339.9	8.15	9.5	0.8	12	-1.000	-1.000	-1.000	-1.000	-1.000	0.86
T13	08/21/90	23.6	341.1	8.05	9.6	0.3	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T13	07/19/90	22.5	349.7	8.08	7.6	0.7	10	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T13	09/17/90	21.2	339.7	7.85	6.5	0.7	2	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T13	10/16/90	16.3	309.4	8.26	9.5	0.7	4	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T13	11/01/90	13.0	330.8	8.17	10.8	0.3	2	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T13	12/12/90	11.2	297.4	8.55	12.8	0.3	2	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00

** TOMAHAWK CREEK

T14	04/12/85	15.9	308.6	-1.00	-1.0	-1.0	32	-1.000	-1.000	-1.000	-1.000	-1.000	1.20
T14	04/24/85	17.5	277.8	-1.00	9.0	-1.0	62	-1.000	-1.000	-1.000	-1.000	-1.000	1.50
T14	05/17/85	23.0	296.3	-1.00	-1.0	-1.0	114	-1.000	-1.000	-1.000	-1.000	-1.000	0.46
T14	05/30/85	19.8	322.0	-1.00	-1.0	-1.0	79	-1.000	-1.000	-1.000	-1.000	-1.000	0.40
T14	06/09/85	21.0	335.6	-1.00	-1.0	-1.0	88	-1.000	-1.000	-1.000	-1.000	-1.000	0.20
T14	06/26/85	26.1	313.4	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	0.14
T14	07/16/85	25.0	320.0	-1.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	0.02
T14	08/02/85	25.0	320.0	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	0.00
T14	08/21/85	24.5	318.0	-1.00	-1.0	-1.0	24	-1.000	-1.000	-1.000	-1.000	-1.000	-0.02
T14	09/02/85	24.0	321.1	-1.00	-1.0	-1.0	24	-1.000	-1.000	-1.000	-1.000	-1.000	-0.06
T14	09/22/85	23.0	322.3	-1.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	-0.06
T14	06/16/87	24.0	303.8	8.31	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	07/14/87	25.0	330.0	8.13	-1.0	-1.0	54	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	07/30/87	26.5	330.5	8.35	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	08/06/87	27.0	327.5	8.25	-1.0	-1.0	56	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	08/20/87	27.0	322.7	8.21	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	09/20/87	21.0	346.5	7.76	-1.0	-1.0	-1	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	06/14/88	27.0	-1.0	8.12	-1.0	0.6	34	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	07/05/88	23.6	373.0	7.83	-1.0	0.5	60	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	07/29/88	23.3	332.0	7.92	8.4	0.5	64	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	08/08/88	26.7	314.8	8.07	8.4	0.5	87	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	08/07/89	16.8	332.7	-1.00	9.6	0.5	38	0.130	0.100	-1.000	-1.000	0.020	-99.99
T14	08/21/89	24.0	319.1	8.33	9.8	0.7	44	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	07/11/89	27.0	351.6	8.39	9.1	1.3	54	0.110	0.230	-1.000	0.030	0.070	-99.99
T14	07/26/89	21.0	362.7	8.27	9.6	1.2	45	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	08/09/89	23.0	314.0	8.36	9.4	0.9	22	0.050	0.000	-1.000	0.000	0.110	-99.99
T14	08/22/89	23.3	349.3	8.23	9.2	1.2	26	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	08/11/89	21.9	302.9	8.20	9.0	0.9	48	0.070	0.100	-1.000	0.000	0.140	-99.99
T14	09/26/89	15.1	335.4	8.22	9.8	0.5	22	0.070	0.000	-1.000	0.000	0.010	-99.99
T14	04/04/90	16.0	-1.0	8.55	11.4	0.7	12	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	06/21/90	21.6	355.3	8.06	8.1	0.6	346	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
T14	05/14/90	15.0	315.2	8.22	9.6	1.8	84	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	08/24/90	27.1	326.9	8.16	8.9	1.0	104	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	07/18/90	24.6	324.5	8.02	8.8	0.6	60	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T14	10/01/90	19.8	346.4	8.24	9.8	1.7	94	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T14	10/23/90	13.7	344.3	8.39	10.3	0.4	51	0.350	0.000	0.000	0.000	0.000	-1.00
T14	10/16/90	17.8	357.1	8.22	9.8	0.8	398	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T14	11/19/90	14.0	364.6	8.24	11.9	1.2	127	0.220	0.280	0.000	0.000	0.070	-1.00

** WATER CREEK

T15	04/12/85	17.8	252.8	-1.00	-1.0	-1.0	5	-1.000	-1.000	-1.000	-1.000	-1.000	1.20
T15	04/25/85	18.0	241.3	-1.00	12.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	1.50
T15	05/17/85	20.9	279.9	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	0.46
T15	05/31/85	22.0	270.5	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.40
T15	06/09/85	23.0	265.1	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.20
T15	06/28/85	25.0	275.0	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	0.14
T15	07/16/85	28.0	256.3	-1.00	-1.0	-1.0	1	-1.000	-1.000	-1.000	-1.000	-1.000	0.02
T15	08/04/85	24.8	250.0	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	0.00
T15	08/23/85	26.0	245.3	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-0.02
T15	09/20/85	23.0	233.9	-1.00	-1.0	-1.0	16	-1.000	-1.000	-1.000	-1.000	-1.000	-0.06
T15	09/02/85	27.5	248.2	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-0.06
T15	06/17/87	26.5	272.2	8.21	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T15	07/15/87	25.0	265.0	8.23	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T15	08/20/87	25.5	247.6	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T15	09/26/87	23.5	226.5	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T15	06/14/88	23.0	-1.0	8.25	-1.0	0.5	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T15	07/05/88	26.5	286.8	8.04	-1.0	0.6	32	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T15	07/29/88	26.5	275.1	8.16	9.1	0.4	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T15	08/06/88	25.6	274.9	8.12	8.1	0.3	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T15	06/07/89	18.3	292.4	-1.00	9.0	0.6	26	0.090	0.100	-1.000	0.001	0.010	-99.99
T15	06/21/89	27.0	264.9	8.45	9.7	0.3	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T15	07/11/89	27.0	310.2	8.43	9.0	0.8	0	0.040	0.200	-1.000	0.000	0.070	-99.99
T15	07/26/89	22.2	343.4	8.29	9.6	0.6	28	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T15	08/09/89	22.9	276.1	8.36	10.0	0.7	4	0.020	0.000	-1.000	0.000	0.060	-99.99
T15	08/22/89	23.0	294.2	8.25	8.9	0.8	14	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T15	09/11/89	22.6	251.5	8.31	9.5	0.5	0	0.040	0.200	-1.000	0.000	0.060	-99.99
T15	09/26/89	13.7	284.4	8.27	9.7	0.3	4	0.030	0.100	-1.000	0.001	0.000	-99.99
T15	03/06/90	10.0	245.3	8.01	10.8	0.4	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T15	04/30/90	15.0	265.8	8.72	-1.0	0.9	5	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T15	05/07/90	22.9	473.2	8.51	9.7	0.3	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T15	05/24/90	28.0	265.4	8.25	8.7	0.7	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T15	07/18/90	24.9	272.5	8.23	8.8	0.7	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T15	10/01/90	19.0	276.7	8.24	9.1	0.9	2	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T15	10/16/90	17.6	234.6	8.39	9.5	0.7	18	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
** RUSH CREEK													
T16	04/12/85	15.0	284.3	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.48
T16	04/25/85	16.0	253.6	-1.00	10.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	3.18
T16	05/17/87	19.0	248.5	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	0.09
T16	05/31/85	19.0	304.9	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.14
T16	06/09/85	22.0	320.4	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-0.01
T16	06/28/85	22.5	325.5	-1.00	-1.0	-1.0	7	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T16	07/23/85	24.0	300.7	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T16	08/04/85	21.0	314.0	-1.00	-1.0	-1.0	60	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T16	08/23/85	23.9	308.5	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T16	09/20/85	21.0	303.2	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	-0.28
T16	09/02/85	22.5	315.0	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T16	06/17/87	20.5	339.1	8.03	-1.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	0.10
T16	07/15/87	19.0	344.5	8.06	-1.0	-1.0	32	-1.000	-1.000	-1.000	-1.000	-1.000	-0.34
T16	08/20/87	20.0	337.2	8.20	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-0.36
T16	09/26/87	17.0	265.6	8.18	-1.0	-1.0	3	-1.000	-1.000	-1.000	-1.000	-1.000	-0.30
T16	06/16/88	17.2	-1.0	7.65	-1.0	1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T16	07/06/88	17.6	376.8	7.67	-1.0	0.4	22	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T16	07/27/88	16.2	350.5	7.62	8.7	0.4	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T16	08/10/88	19.3	319.3	6.83	7.6	1.8	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T16	09/10/88	19.3	317.6	7.63	9.3	0.5	22	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T16	06/04/89	15.0	336.2	8.02	8.4	0.4	48	0.080	0.100	-1.000	0.000	0.000	0.12
T16	06/22/89	22.0	323.5	8.28	9.9	0.9	16	-1.000	-1.000	-1.000	-1.000	-1.000	-0.20
T16	07/11/89	19.2	376.7	8.15	9.4	0.7	36	0.320	0.100	-1.000	0.000	0.030	-0.30
T16	07/26/89	16.6	366.6	8.12	9.5	0.7	80	-1.000	-1.000	-1.000	-1.000	-1.000	-0.30
T16	08/16/89	21.2	304.1	8.22	10.0	0.7	20	0.040	0.100	-1.000	0.000	0.020	0.45
T16	08/30/89	20.6	336.3	8.17	9.0	1.4	6	-1.000	-1.000	-1.000	-1.000	-1.000	-0.40
T16	09/13/89	16.2	296.6	8.19	8.9	0.7	16	0.070	0.100	-1.000	0.000	0.010	-0.36
T16	03/06/90	12.0	279.4	8.15	10.6	0.5	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T16	04/24/90	15.0	154.5	8.00	9.0	1.8	2	0.110	0.140	0.000	0.000	0.000	-99.99
T16	05/22/90	15.1	-1.0	7.96	8.9	0.5	10	0.080	0.350	0.000	0.000	0.000	-99.99
T16	08/26/90	21.4	327.5	8.01	8.0	0.7	0	0.120	0.250	0.000	0.000	0.000	-0.40
T16	06/19/90	19.7	267.0	8.24	9.6	0.5	2	0.200	0.250	0.000	0.000	0.000	-0.06
T16	07/31/90	19.6	323.4	8.04	6.7	0.7	26	0.110	0.250	0.000	0.000	-1.000	-99.99
T16	09/26/90	15.2	332.2	8.07	10.2	0.6	6	0.090	0.000	0.000	0.030	0.000	-1.00
T16	10/23/90	11.9	344.1	8.31	10.0	0.6	105	0.110	0.000	0.000	0.000	0.000	-1.00
T16	11/19/90	12.6	356.4	8.20	10.8	0.7	2	0.100	0.000	0.000	0.000	0.000	-1.00
** CLABBER CREEK													
T17	04/12/85	16.9	372.4	-1.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	0.48
T17	04/25/85	16.9	376.2	-1.00	11.0	-1.0	56	-1.000	-1.000	-1.000	-1.000	-1.000	3.18
T17	05/17/87	22.9	394.8	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.09
T17	05/31/85	23.0	385.0	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.14
T17	06/09/85	26.0	397.0	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.00
T17	06/28/85	26.2	396.1	-1.00	-1.0	-1.0	21	-1.000	-1.000	-1.000	-1.000	-1.000	26.20

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
T17	07/23/85	30.0	365.1	-1.00	-1.0	-1.0	20	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T17	08/04/85	24.5	348.3	-1.00	-1.0	-1.0	20	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T17	08/23/85	31.0	358.9	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T17	09/02/85	30.5	375.5	-1.00	-1.0	-1.0	40	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T17	09/20/85	24.5	363.5	-1.00	-1.0	-1.0	16	-1.000	-1.000	-1.000	-1.000	-1.000	-0.28
T17	06/17/87	26.0	407.2	8.36	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.10
T17	07/15/87	25.5	411.1	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	-0.34
T17	08/20/87	26.5	374.3	8.30	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-0.36
T17	09/26/87	21.0	400.6	8.29	-1.0	-1.0	15	-1.000	-1.000	-1.000	-1.000	-1.000	-0.30
T17	06/16/88	22.9	-1.0	8.05	-1.0	1.0	34	-1.000	-1.000	-1.000	-1.000	-1.000	-0.34
T17	07/06/88	24.2	409.3	7.84	-1.0	0.7	180	-1.000	-1.000	-1.000	-1.000	-1.000	-0.34
T17	07/27/88	24.2	391.0	7.86	8.8	0.5	30	-1.000	-1.000	-1.000	-1.000	-1.000	-0.34
T17	08/10/88	26.7	368.0	7.75	8.1	0.4	10	-1.000	-1.000	-1.000	-1.000	-1.000	-0.40
T17	09/10/88	25.5	380.4	7.84	10.3	0.4	12	-1.000	-1.000	-1.000	-1.000	-1.000	-0.36
T17	06/04/89	20.5	426.7	8.28	8.2	0.6	106	0.030	0.200	-1.000	0.000	0.000	0.12
T17	06/27/89	28.5	386.2	8.42	9.0	0.8	12	-1.000	-1.000	-1.000	-1.000	-1.000	-0.20
T17	07/11/89	26.8	454.4	8.27	8.6	1.1	16	0.300	0.200	-1.000	0.000	0.010	-0.30
T17	07/26/89	22.8	445.7	8.28	10.3	2.6	0	-1.000	-1.000	-1.000	-1.000	-1.000	-0.30
T17	08/16/89	26.5	374.3	8.34	10.4	0.9	2	0.020	0.200	-1.000	0.000	0.050	-0.45
T17	08/30/89	26.3	393.2	8.33	9.4	1.9	108	-1.000	-1.000	-1.000	-1.000	-1.000	-0.40
T17	09/13/89	21.3	355.1	8.35	9.3	0.5	22	0.020	0.100	-1.000	0.000	0.020	-0.35
T17	03/06/90	11.5	390.8	8.55	10.5	0.3	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T17	04/30/90	17.0	350.0	8.53	-1.0	0.6	10	-1.000	-1.000	-1.000	-1.000	-1.000	1.70
T17	05/24/90	21.0	292.3	8.55	9.5	0.5	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T17	08/28/90	28.2	369.4	8.15	8.0	0.8	15	0.030	0.320	0.030	0.000	0.000	-0.40
T17	08/19/90	27.4	392.0	8.25	8.7	1.2	38	0.170	0.290	0.000	0.000	0.000	-0.06
T17	07/31/90	25.0	392.0	8.21	8.6	0.7	20	0.230	0.260	0.000	0.000	-1.000	-0.32
T17	09/25/90	16.5	411.9	8.19	10.2	0.6	34	0.000	0.000	0.000	0.030	0.000	-0.20
T17	10/23/90	10.8	429.5	8.30	10.4	0.4	28	0.030	0.000	0.000	0.000	0.000	-0.20
T17	11/19/90	11.2	436.6	8.36	11.0	0.6	21	0.000	0.000	0.000	0.000	0.000	-0.26

** BIG CREEK/L

T18	05/19/85	18.0	279.3	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	2.94
T18	06/18/85	22.5	264.6	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.92
T18	07/23/85	25.0	240.4	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	2.62
T18	08/16/85	25.1	227.6	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	3.05
T18	09/14/85	20.5	262.6	-1.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	2.69
T18	06/24/86	22.0	297.0	8.09	-1.0	-1.0	30	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T18	07/28/87	31.0	233.3	8.07	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T18	08/19/87	25.0	240.0	8.04	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T18	09/27/87	21.0	249.0	8.34	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.65
T18	06/18/88	23.0	-1.0	8.03	-1.0	0.5	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T18	07/06/88	23.5	272.2	8.01	-1.0	0.9	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T18	07/27/88	25.2	245.9	8.18	10.0	0.6	32	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T18	08/10/88	31.2	214.6	8.17	9.9	0.3	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
T18	06/04/89	28.9	260.6	8.01	6.8	0.6	-1	0.030	0.100	-1.000	0.011	0.000	-99.99
T18	06/23/89	25.0	250.0	8.12	7.7	0.5	12	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T18	07/11/89	27.0	308.2	7.98	6.8	0.9	4	0.060	0.200	-1.000	0.005	0.060	-99.99
T18	07/27/89	22.2	301.1	8.04	7.5	0.6	20	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T18	08/11/89	24.8	235.9	7.95	7.9	0.7	2	0.030	0.100	-1.000	0.008	0.040	-99.99
T18	08/30/89	26.3	246.8	7.87	7.0	1.1	30	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T18	09/13/89	21.8	232.2	7.97	8.0	0.8	32	0.090	0.100	-1.000	0.009	0.020	-99.99
T18	09/27/89	17.2	258.5	7.97	8.7	0.6	4	0.040	0.100	-1.000	0.007	0.020	-99.99
T18	03/05/90	11.5	235.8	8.50	11.9	0.5	12	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T18	06/14/90	24.0	277.3	8.02	7.3	0.8	10	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T18	08/23/90	26.0	201.2	7.75	5.6	1.5	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T18	07/11/90	28.6	255.5	7.68	-1.0	1.1	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T18	10/19/90	14.5	263.9	8.12	9.2	0.5	8	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00

** CEDAR CREEK

T19	05/18/85	15.0	382.0	-1.00	-1.0	-1.0	110	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T19	06/17/85	21.5	191.8	-1.00	-1.0	-1.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T19	07/22/85	24.0	367.0	-1.00	-1.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T19	08/15/85	25.0	350.0	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T19	09/13/85	20.1	364.1	-1.00	-1.0	-1.0	48	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T19	06/23/87	20.0	420.1	8.32	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T19	08/18/87	25.5	346.7	8.29	-1.0	-1.0	66	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T19	09/26/87	19.5	374.3	8.25	-1.0	-1.0	22	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T19	05/16/88	23.5	-1.0	8.10	-1.0	0.9	14	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T19	07/06/88	22.3	417.5	7.68	-1.0	0.9	40	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T19	07/27/88	22.7	387.0	7.96	8.3	5.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T19	08/10/88	24.0	356.8	7.80	7.6	0.4	18	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T19	06/04/89	17.0	342.3	8.22	6.5	55.0	-1	0.010	0.500	-1.000	0.023	0.020	-99.99
T19	07/27/89	18.9	450.5	8.24	8.3	1.2	40	-1.000	-1.000	-1.000	-1.000	-1.000	-0.30
T19	08/16/89	19.3	375.9	8.03	8.1	0.9	20	-1.000	-1.000	-1.000	-1.000	-1.000	-0.45
T19	08/30/89	23.0	389.9	8.02	7.2	1.7	30	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T19	09/27/89	10.7	433.4	8.05	9.5	0.6	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99

** PONCA CREEK

T2	04/08/85	14.9	97.9	-1.00	-1.0	3.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	1.08
T2	04/23/85	19.1	190.0	-1.00	-1.0	-1.0	26	-1.000	-1.000	-1.000	-1.000	-1.000	0.72
T2	04/29/85	16.9	233.1	-1.00	-1.0	-1.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	0.54
T2	05/15/85	21.0	272.6	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.30
T2	05/28/85	22.9	275.1	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.22
T2	06/14/85	20.0	276.4	-1.00	-1.0	-1.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	0.26
T2	06/24/85	25.0	291.0	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.12
T2	07/05/85	23.6	287.2	-1.00	-1.0	-1.0	24	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T2	07/20/85	27.0	289.0	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T2	07/30/85	27.0	289.0	-1.00	-1.0	-1.0	20	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T2	08/20/85	23.1	260.2	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
T2	08/31/85	26.0	294.4	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T2	09/21/85	24.0	249.8	-1.00	-1.0	-1.0	20	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T2	06/11/87	21.5	310.8	-1.00	-1.0	-1.0	36	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T2	02/03/88	6.2	216.9	8.04	-1.0	-1.0	16	0.000	0.000	0.000	0.000	0.000	2.00
T2	06/28/88	23.2	314.8	7.63	-1.0	12.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T2	07/25/88	24.5	247.4	7.90	-1.0	1.7	8	-1.000	-1.000	-1.000	-1.000	-1.000	0.23
T2	08/09/88	25.2	323.8	7.42	5.9	1.6	10	-1.000	-1.000	-1.000	-1.000	-1.000	0.16
T2	08/30/88	19.6	301.1	7.52	8.1	1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.16
T2	06/05/88	15.7	231.0	-1.00	8.5	7.6	500	0.030	0.500	-1.000	0.010	0.000	1.00
T2	06/14/89	18.7	220.5	8.30	9.1	4.5	40	-1.000	-1.000	-1.000	-1.000	-1.000	1.00
T2	06/19/89	19.1	247.9	8.25	9.2	1.1	14	-1.000	-1.000	-1.000	-1.000	-1.000	0.84
T2	07/05/89	24.0	280.4	8.16	8.5	0.7	4	0.290	0.300	-1.000	0.000	0.000	0.74
T2	07/24/89	18.7	354.7	8.27	9.7	1.3	98	-1.000	-1.000	-1.000	-1.000	-1.000	0.75
T2	08/07/89	20.7	324.7	8.15	9.2	1.7	6	0.050	0.200	-1.000	0.004	0.010	0.72
T2	08/21/89	20.5	350.1	8.04	8.1	0.9	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.70
T2	09/05/89	22.6	283.2	8.01	8.1	1.3	2	0.040	0.600	-1.000	0.006	0.010	0.68
T2	09/18/89	18.9	283.0	8.07	9.2	0.7	2	0.040	0.100	-1.000	0.001	0.040	0.70
T2	03/05/90	8.5	197.1	7.97	10.2	3.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.82
T2	03/26/90	9.0	208.8	8.40	12.1	2.2	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.80
T2	04/23/90	17.0	206.6	8.23	9.2	4.3	4	0.060	0.190	0.000	0.030	0.000	1.25
T2	05/07/90	16.0	216.2	8.18	9.4	5.6	26	0.070	0.270	0.000	0.040	0.050	1.55
T2	06/18/90	26.0	274.6	8.13	7.5	0.5	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T2	09/24/90	17.6	284.1	8.14	8.1	0.9	12	0.040	0.210	0.000	0.000	0.000	-99.99
T2	10/22/90	10.6	285.9	8.19	9.9	0.4	4	0.000	0.250	0.000	0.000	0.080	-1.00
T2	11/18/90	6.5	303.7	8.23	10.2	0.6	8	0.030	0.000	0.000	0.000	0.000	-1.00
** CABIN CREEK													
T20	07/22/85	14.0	284.8	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T20	08/15/85	22.0	309.7	-1.00	-1.0	-1.0	122	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T20	09/13/85	19.0	363.7	-1.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T20	07/28/87	25.0	390.0	8.66	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
** BOAT CREEK													
T21	07/22/85	21.0	384.4	-1.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T21	08/15/85	23.0	374.3	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T21	09/13/85	19.0	395.3	-1.00	-1.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T21	05/23/87	21.0	345.5	8.20	-1.0	-1.0	28	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T21	07/28/87	26.0	402.3	8.08	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T21	08/18/87	25.0	390.0	8.11	-1.0	-1.0	24	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T21	09/26/87	16.5	399.6	8.15	-1.0	-1.0	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
** MIDDLE CREEK													
T23	06/18/85	19.5	340.6	-1.00	-1.0	-1.0	46	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	07/23/85	23.0	389.9	-1.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	08/16/85	23.0	376.4	-1.00	-1.0	-1.0	28	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
T23	09/14/85	18.1	400.8	-1.00	-1.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	06/24/87	19.0	406.6	8.26	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	07/29/87	26.5	388.9	8.25	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	08/19/87	24.0	372.1	8.15	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	09/27/87	20.0	409.1	8.15	-1.0	-1.0	7	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	06/16/88	24.1	-1.0	8.15	-1.0	0.4	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	07/06/88	24.8	416.6	7.93	-1.0	0.3	12	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	07/27/88	25.0	384.0	7.94	8.5	0.2	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	08/10/88	25.5	376.4	7.53	7.7	0.3	26	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	06/04/89	16.9	390.4	7.90	8.3	0.5	74	0.010	0.200	-1.000	0.000	0.000	-99.99
T23	06/23/89	17.0	401.3	8.24	8.5	0.3	20	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	07/11/89	23.0	436.7	8.07	7.7	0.8	14	0.020	0.100	-1.000	0.000	0.090	-99.99
T23	07/27/89	19.0	446.1	8.04	18.0	1.0	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	08/16/89	20.6	382.1	8.04	7.7	1.0	16	0.020	0.200	-1.000	0.000	0.030	-99.99
T23	08/30/89	22.9	401.1	7.89	6.2	1.8	124	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	09/13/89	19.3	359.1	7.93	7.1	0.7	52	0.020	0.100	-1.000	0.000	0.010	-99.99
T23	09/27/89	13.0	408.7	7.97	8.3	1.2	12	0.030	0.100	-1.000	0.000	0.020	-99.99
T23	03/06/90	11.5	330.1	8.15	10.3	0.4	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	06/14/90	21.0	389.8	8.12	8.1	0.5	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	08/23/90	22.6	396.7	7.73	5.3	0.6	32	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	07/11/90	24.1	407.0	7.93	-1.0	0.8	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T23	10/19/90	11.9	420.1	8.10	8.3	0.5	6	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00

** LEATHERWOOD CREEK

T24	05/19/85	16.5	384.1	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	07/23/85	25.0	340.0	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	08/16/85	23.0	337.9	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	09/14/85	20.0	348.3	-1.00	-1.0	-1.0	40	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	05/24/87	21.0	411.4	8.17	-1.0	-1.0	66	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	07/29/87	24.5	376.6	8.04	-1.0	-1.0	28	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	08/19/87	23.0	363.9	8.15	-1.0	-1.0	24	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	09/27/87	21.0	366.1	8.18	-1.0	-1.0	15	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	06/16/88	23.1	-1.0	8.18	-1.0	0.4	164	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	07/06/88	24.9	380.7	7.94	-1.0	0.3	54	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	07/27/88	24.7	367.1	7.93	7.6	0.4	28	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	08/10/88	27.0	357.1	7.68	7.6	0.3	10	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	06/23/89	24.0	336.4	8.19	7.6	0.4	34	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	07/11/89	25.5	396.2	8.06	7.4	0.7	10	0.060	0.200	-1.000	0.000	0.080	-99.99
T24	07/27/89	21.6	365.0	8.05	7.6	0.9	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	08/16/89	22.7	339.9	7.97	6.4	0.5	22	0.030	0.100	-1.000	0.000	0.050	-99.99
T24	08/30/89	21.7	373.6	7.63	6.6	1.5	5	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	09/13/89	20.6	373.1	7.95	7.3	0.5	42	0.020	0.100	-1.000	0.000	0.020	-99.99
T24	09/27/89	17.0	371.8	8.01	8.1	0.4	18	0.040	0.100	-1.000	0.000	0.020	-99.99
T24	03/06/90	11.0	357.1	8.22	11.1	0.4	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	06/14/90	25.0	370.0	7.97	7.2	1.1	22	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
T24	08/23/90	22.8	398.8	7.83	5.7	3.1	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	07/11/90	24.2	385.9	7.78	-1.0	1.5	26	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T24	10/19/90	14.5	377.8	8.10	8.2	0.8	80	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
** COW CREEK													
T25	06/18/85	21.0	422.3	-1.00	-1.0	-1.0	20	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T25	06/24/87	20.0	442.2	8.18	-1.0	-1.0	24	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T25	07/29/87	27.0	462.3	7.93	-1.0	-1.0	18	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T25	08/19/87	25.0	465.0	8.05	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
** CECIL CREEK													
T3	03/27/85	15.0	142.2	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T3	04/08/85	14.5	163.9	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T3	04/23/85	17.2	134.0	-1.00	9.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.50
T3	05/15/85	16.2	250.0	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	1.94
T3	05/28/85	20.5	229.7	-1.00	-1.0	-1.0	42	-1.000	-1.000	-1.000	-1.000	-1.000	1.88
T3	06/14/85	17.5	220.6	-1.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	1.86
T3	06/24/85	22.8	255.4	-1.00	-1.0	-1.0	24	-1.000	-1.000	-1.000	-1.000	-1.000	1.90
T3	07/20/85	25.0	300.0	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	1.86
T3	08/20/85	22.0	296.0	-1.00	-1.0	-1.0	22	-1.000	-1.000	-1.000	-1.000	-1.000	1.95
T3	08/31/85	23.9	286.0	-1.00	-1.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	1.85
T3	09/21/85	24.0	284.4	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	1.52
T3	06/15/87	24.0	270.2	7.60	-1.0	-1.0	54	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T3	07/13/87	21.5	321.5	7.35	-1.0	-1.0	108	-1.000	-1.000	-1.000	-1.000	-1.000	0.14
T3	08/03/87	25.0	310.0	-1.00	-1.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	0.82
T3	06/28/88	28.5	312.1	7.61	-1.0	13.5	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.05
T3	07/25/88	28.7	278.0	7.70	-1.0	1.7	10	-1.000	-1.000	-1.000	-1.000	-1.000	1.18
T3	08/09/88	28.2	275.3	7.81	7.4	1.4	36	-1.000	-1.000	-1.000	-1.000	-1.000	0.15
T3	08/30/88	20.0	296.5	6.91	8.1	1.7	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T3	06/04/89	17.2	223.3	-1.00	8.5	1.5	74	0.010	0.100	-1.000	0.005	0.000	0.20
T3	06/19/89	18.2	206.9	7.99	9.4	1.8	30	-1.000	-1.000	-1.000	-1.000	-1.000	2.06
T3	07/05/89	25.0	250.0	7.88	8.3	1.8	16	0.120	0.400	-1.000	0.000	0.000	1.40
T3	07/24/89	19.8	264.2	8.05	9.8	1.7	4	-1.000	-1.000	-1.000	-1.000	-1.000	1.80
T3	09/07/89	22.4	271.5	7.95	8.6	1.6	12	0.030	0.200	-1.000	0.003	0.020	1.30
T3	08/21/89	20.2	306.1	7.77	7.0	1.4	6	-1.000	-1.000	-1.000	-1.000	-1.000	1.15
T3	09/05/89	23.0	270.3	7.65	7.8	1.2	28	0.020	0.300	-1.000	0.004	0.030	1.10
T3	09/18/89	18.5	262.5	7.61	6.8	1.2	14	0.020	0.300	-1.000	0.002	0.020	1.15
T3	03/05/90	9.5	127.8	7.98	10.0	4.4	4	-1.000	-1.000	-1.000	-1.000	-1.000	2.30
T3	04/25/90	15.0	143.4	7.93	8.6	5.3	14	-1.000	-1.000	-1.000	-1.000	-1.000	2.45
T3	05/07/90	15.0	155.6	8.02	9.2	5.5	0	0.050	0.340	0.000	0.040	0.000	2.45
T3	05/20/90	26.5	275.2	7.77	4.3	1.4	22	-1.000	-1.000	-1.000	-1.000	-1.000	1.90
T3	06/18/90	27.0	337.1	7.33	7.6	1.1	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.93
T3	08/24/90	15.2	270.5	7.67	7.1	2.2	8	0.000	0.210	0.000	0.040	0.000	2.00
T3	11/15/90	11.5	269.5	8.06	9.3	0.7	4	-1.000	-1.000	-1.000	-1.000	-1.000	1.95

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
** MILL CREEK/U													
T4	03/27/85	16.0	289.8	-1.00	-1.0	-1.0	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T4	04/08/85	14.5	294.0	-1.00	-1.0	4.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	2.70
T4	05/15/85	23.0	313.0	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	2.04
T4	05/28/85	22.0	307.6	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	1.96
T4	06/14/85	24.0	297.7	-1.00	-1.0	-1.0	5	-1.000	-1.000	-1.000	-1.000	-1.000	1.92
T4	06/24/85	28.0	293.2	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	1.88
T4	07/20/85	29.0	301.9	-1.00	-1.0	-1.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	1.82
T4	07/30/85	29.0	297.3	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	1.82
T4	08/20/85	24.5	313.0	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	1.82
T4	08/31/85	23.0	327.5	-1.00	-1.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	1.74
T4	09/21/85	20.0	243.2	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	1.70
T4	06/16/87	22.5	278.3	8.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	1.52
T4	07/13/87	25.0	274.8	7.78	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	1.44
T4	08/06/87	25.0	285.0	8.06	-1.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	1.38
T4	09/19/87	23.0	249.5	7.76	-1.0	-1.0	16	-1.000	-1.000	-1.000	-1.000	-1.000	1.35
T4	06/28/88	26.7	297.3	7.73	-1.0	10.7	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T4	07/25/88	24.2	309.7	7.88	-1.0	0.5	20	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T4	08/09/88	27.8	265.6	7.63	8.8	0.3	18	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T4	09/03/88	24.3	285.8	7.82	8.7	0.3	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T4	06/04/89	19.6	301.1	-1.00	7.3	1.4	30	0.180	0.200	-1.000	0.011	0.000	-99.99
T4	05/14/89	17.1	323.9	8.05	9.0	5.0	65	-1.000	-1.000	-1.000	-1.000	-1.000	0.84
T4	06/19/89	20.5	295.4	8.11	9.4	1.3	14	-1.000	-1.000	-1.000	-1.000	-1.000	0.50
T4	07/05/89	25.5	257.5	7.99	7.8	1.1	42	0.190	0.400	-1.000	0.000	0.000	0.34
T4	07/24/89	20.8	325.3	8.04	9.2	1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.32
T4	08/07/89	22.0	281.1	8.05	8.5	0.6	14	0.160	0.200	-1.000	0.005	0.020	0.40
T4	08/21/89	21.0	305.3	7.97	8.2	0.7	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T4	09/05/89	24.4	273.1	7.95	7.6	0.9	20	0.140	0.200	-1.000	0.007	0.010	0.30
T4	09/18/89	19.9	254.8	7.90	8.6	0.6	26	0.290	0.200	-1.000	0.003	0.020	0.25
T4	03/05/90	11.0	275.0	9.33	10.4	3.1	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.80
T4	03/26/90	11.4	313.4	8.41	11.4	1.5	10	0.600	0.270	0.000	0.000	0.060	0.90
T4	04/23/90	18.0	230.9	8.36	9.3	2.8	52	0.420	-1.000	0.000	0.040	0.550	1.30
T4	04/26/90	17.0	304.5	8.24	8.3	3.2	71	-1.000	-1.000	-1.000	-1.000	-1.000	1.05
T4	05/07/90	16.0	314.0	8.23	9.4	4.8	34	0.640	0.340	0.000	0.050	0.000	-99.99
T4	06/20/90	26.7	315.6	7.70	6.3	8.5	52	-1.000	-1.000	-1.000	-1.000	-1.000	0.40
T4	06/18/90	22.0	337.3	7.89	7.6	-1.0	30	0.750	0.350	0.000	0.300	-1.000	0.70
T4	07/30/90	25.0	-1.0	-1.00	-1.0	4.5	28	0.590	0.440	0.000	0.000	-1.000	0.50
T4	09/18/90	21.9	322.1	8.02	8.2	5.4	165	-1.000	-1.000	-1.000	-1.000	-1.000	0.40
T4	10/22/90	13.4	348.0	8.14	9.7	2.2	106	0.650	0.310	0.000	0.030	0.000	0.45
T4	11/16/90	9.7	350.4	8.15	10.3	0.9	18	0.510	0.300	0.000	0.030	0.000	0.30
T4	12/17/90	9.7	345.2	8.17	9.8	3.0	52	0.560	0.000	0.000	0.060	0.000	0.65
** LITTLE BUFFALO RIVER													
T8	03/27/85	16.0	138.8	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T8	04/08/85	14.0	148.4	-1.00	-1.0	3.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
T5	05/15/85	23.0	187.1	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.16
T5	05/28/85	22.5	212.1	-1.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	0.08
T5	06/14/85	24.0	188.6	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	0.00
T5	06/24/85	29.0	211.8	-1.00	-1.0	-1.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	-0.28
T5	07/15/85	30.5	209.0	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-0.56
T5	07/30/85	30.0	227.3	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-0.46
T5	08/20/85	24.9	228.4	-1.00	-1.0	-1.0	16	-1.000	-1.000	-1.000	-1.000	-1.000	-0.39
T5	08/31/85	27.9	218.9	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	-1.52
T5	09/21/85	21.0	232.8	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-0.64
T5	06/16/87	25.0	202.0	8.09	-1.0	-1.0	22	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T5	07/13/87	27.5	195.7	7.62	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T5	08/06/87	26.0	220.8	8.07	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T5	09/19/87	22.5	220.5	7.86	-1.0	-1.0	20	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T5	06/02/88	22.8	190.0	7.92	-1.0	0.8	56	-1.000	-1.000	-1.000	-1.000	-1.000	-0.30
T5	06/29/88	26.3	253.6	7.78	-1.0	1.0	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T5	07/26/88	26.2	239.5	7.92	-1.0	0.9	10	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T5	08/18/88	26.4	235.7	7.46	7.0	0.5	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T5	09/03/88	26.0	216.8	8.17	11.3	0.4	30	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T5	06/08/89	18.4	185.4	-1.00	8.8	1.5	30	0.070	0.700	-1.000	0.006	0.020	-99.99
T5	06/19/89	23.4	175.4	8.12	9.0	1.5	22	-1.000	-1.000	-1.000	-1.000	-1.000	-0.50
T5	07/05/89	27.2	209.2	8.15	8.6	2.1	14	0.240	0.330	-1.000	0.003	0.090	-0.30
T5	07/24/89	21.5	233.6	8.10	9.3	1.7	22	-1.000	-1.000	-1.000	-1.000	-1.000	-0.20
T5	08/07/89	26.3	219.5	8.49	10.1	1.5	8	0.009	0.200	-1.000	0.006	0.010	-0.60
T5	08/21/89	24.0	254.9	7.97	8.5	1.2	0	-1.000	-1.000	-1.000	-1.000	-1.000	-0.50
T5	09/05/89	27.1	221.1	8.19	9.4	1.0	10	0.016	0.300	-1.000	0.003	0.020	-0.80
T5	09/18/89	21.2	231.6	8.10	9.9	1.4	6	0.020	0.100	-1.000	0.005	0.040	-0.70
T5	03/08/90	12.0	105.4	7.59	10.2	14.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	2.50
T5	04/26/90	17.5	134.2	7.97	8.3	6.6	20	-1.000	-1.000	-1.000	-1.000	-1.000	1.55
T5	08/20/90	29.6	231.6	7.96	6.8	0.9	16	-1.000	-1.000	-1.000	-1.000	-1.000	-0.99
T5	06/16/90	25.0	235.0	7.65	7.4	1.3	6	0.140	0.540	0.000	0.000	0.000	-0.40
T5	07/30/90	28.7	235.4	7.90	5.9	0.8	2	0.120	0.280	0.000	0.000	-1.000	-1.20
T5	09/18/90	24.0	236.5	8.05	6.5	0.7	8	-1.000	-1.000	-1.000	-1.000	-1.000	-1.20
T5	11/15/90	11.9	257.4	8.10	9.9	0.6	12	-1.000	-1.000	-1.000	-1.000	-1.000	-0.70
T5	12/17/90	9.7	190.7	8.26	10.3	1.2	34	0.050	0.000	0.000	0.050	0.000	-0.05

** BIG CREEK/0

T6	04/11/85	15.5	165.3	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T6	05/15/85	21.0	211.1	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	0.16
T6	05/28/85	22.5	212.1	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	0.04
T6	06/14/85	23.8	235.4	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	-0.16
T6	06/24/85	27.2	240.9	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-0.36
T6	07/15/85	29.0	214.6	-1.00	-1.0	-1.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	-0.64
T6	07/30/85	29.9	243.7	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-0.62
T6	08/20/85	24.1	269.6	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-0.12
T6	08/31/85	25.0	244.3	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	-0.34

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhcs)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
T6	09/21/85	22.0	249.3	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	-0.40
T6	06/15/87	25.0	211.0	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-0.14
T6	07/13/87	26.0	235.5	7.56	-1.0	-1.0	30	-1.000	-1.000	-1.000	-1.000	-1.000	-0.44
T6	08/06/87	27.5	233.8	8.28	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-2.30
T6	09/19/87	23.0	244.3	7.61	-1.0	-1.0	16	-1.000	-1.000	-1.000	-1.000	-1.000	-2.62
T6	06/02/88	22.9	218.8	7.88	-1.0	0.9	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T6	06/29/88	25.6	274.9	7.65	-1.0	12.7	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T6	07/26/88	25.5	282.3	7.73	-1.0	3.2	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T6	08/18/88	26.0	256.1	7.40	6.3	0.9	26	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T6	09/03/88	25.8	268.9	7.96	9.6	0.6	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T6	06/06/89	18.0	211.2	-1.00	9.4	1.7	12	0.160	0.600	-1.000	0.007	0.020	-99.99
T6	06/19/89	21.1	170.7	8.02	9.4	2.7	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T6	07/05/89	27.0	233.1	7.62	7.9	3.8	18	0.210	0.400	-1.000	-1.000	0.000	-99.99
T6	08/07/89	26.3	245.6	7.94	8.6	2.7	8	0.060	0.300	-1.000	0.012	-1.000	2.10
T6	08/21/89	24.5	270.6	8.25	11.2	1.9	8	-1.000	-1.000	-1.000	-1.000	-1.000	2.00
T6	09/05/89	27.2	244.7	7.93	8.5	1.3	18	0.010	0.200	-1.000	0.010	0.010	1.95
T6	09/01/89	26.4	256.4	8.00	8.6	1.7	12	-1.000	-1.000	-1.000	-1.000	-1.000	1.92
T6	09/18/89	21.7	224.1	7.98	9.5	1.4	12	0.020	0.100	-1.000	0.009	0.020	1.94
T6	03/05/90	10.5	152.1	8.28	10.5	2.6	40	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T6	04/23/90	18.0	94.7	8.40	9.3	5.9	22	0.150	0.230	0.000	0.040	0.030	-99.99
T6	06/20/90	28.6	245.1	7.79	7.7	1.5	4	-1.000	-1.000	-1.000	-1.000	-1.000	3.00
T6	06/18/90	27.0	236.0	7.74	6.5	1.7	9	0.140	0.260	0.000	0.000	0.000	-99.99
T6	07/30/90	27.4	237.1	8.05	5.8	1.7	6	0.140	0.250	0.000	0.000	-1.000	-99.99
T6	09/18/90	23.2	250.6	7.76	6.4	1.3	2	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T6	11/15/90	14.2	278.4	8.05	9.9	0.8	2	-1.000	-1.000	-1.000	-1.000	-1.000	1.75
T6	12/17/90	11.1	211.0	8.21	10.0	1.7	48	0.160	0.030	0.000	0.070	0.000	2.10

** DAVIS CREEK

T7	04/10/85	13.3	321.9	-1.00	-1.0	-1.0	16	-1.000	-1.000	-1.000	-1.000	-1.000	1.02
T7	04/22/85	16.3	337.0	-1.00	5.0	-1.0	20	-1.000	-1.000	-1.000	-1.000	-1.000	0.80
T7	04/24/85	19.0	299.3	-1.00	10.0	-1.0	25	-1.000	-1.000	-1.000	-1.000	-1.000	1.38
T7	05/13/85	17.9	344.8	-1.00	-1.0	-1.0	15	-1.000	-1.000	-1.000	-1.000	-1.000	0.34
T7	05/29/85	20.0	353.8	-1.00	-1.0	-1.0	26	-1.000	-1.000	-1.000	-1.000	-1.000	0.30
T7	06/12/85	21.0	366.0	-1.00	-1.0	-1.0	16	-1.000	-1.000	-1.000	-1.000	-1.000	0.06
T7	06/28/85	17.7	377.7	-1.00	-1.0	-1.0	150	-1.000	-1.000	-1.000	-1.000	-1.000	0.04
T7	07/19/85	25.0	401.0	-1.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	0.00
T7	07/31/85	27.0	375.7	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	-0.02
T7	08/21/85	17.2	387.8	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.14
T7	09/22/85	18.9	395.2	-1.00	-1.0	-1.0	28	-1.000	-1.000	-1.000	-1.000	-1.000	-0.08
T7	09/30/85	23.0	392.5	-1.00	-1.0	-1.0	65	-1.000	-1.000	-1.000	-1.000	-1.000	-0.01
T7	08/15/87	24.0	366.8	-1.00	-1.0	-1.0	62	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T7	07/14/87	21.9	366.0	8.02	-1.0	-1.0	55	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T7	08/12/87	26.0	382.7	8.22	-1.0	-1.0	28	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T7	09/20/87	19.5	379.9	-1.00	-1.0	-1.0	11	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T7	06/02/88	18.3	364.3	8.08	-1.0	0.3	14	-1.000	-1.000	-1.000	-1.000	-1.000	0.30

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
T7	06/29/88	20.9	425.3	7.73	-1.0	0.6	30	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T7	07/26/88	21.6	403.2	7.85	-1.0	0.3	18	-1.000	-1.000	-1.000	-1.000	-1.000	2.20
T7	08/18/88	22.3	442.8	7.69	7.9	0.3	12	-1.000	-1.000	-1.000	-1.000	-1.000	2.02
T7	09/03/88	21.6	401.0	7.55	9.8	0.3	22	-1.000	-1.000	-1.000	-1.000	-1.000	2.08
T7	06/06/89	17.3	355.2	-1.00	10.3	0.5	30	0.140	0.400	-1.000	0.000	0.020	-99.99
T7	06/20/89	18.2	370.1	8.12	9.3	0.6	14	-1.000	-1.000	-1.000	-1.000	-1.000	2.26
T7	07/10/89	21.5	396.5	7.95	8.7	0.5	64	0.340	0.200	-1.000	0.000	0.110	2.15
T7	07/25/89	16.7	445.6	8.10	8.6	0.7	4	-1.000	-1.000	-1.000	-1.000	-1.000	2.20
T7	08/08/89	17.3	375.2	8.11	8.7	0.4	38	0.170	0.000	-1.000	0.000	0.030	1.15
T7	08/23/89	19.0	446.1	7.94	6.5	0.6	0	-1.000	-1.000	-1.000	-1.000	-1.000	2.10
T7	09/06/89	21.9	359.3	7.93	6.7	0.9	4	0.170	0.000	-1.000	0.000	0.020	2.10
T7	09/25/89	11.0	413.6	8.10	9.7	0.3	8	0.170	0.100	-1.000	0.001	0.030	2.10
T7	03/05/90	12.0	306.0	8.10	10.2	0.9	6	-1.000	-1.000	-1.000	-1.000	-1.000	2.85
T7	04/25/90	17.0	316.7	8.12	9.2	1.5	8	-1.000	-1.000	-1.000	-1.000	-1.000	3.05
T7	06/20/90	19.1	356.4	7.92	10.0	1.5	6	-1.000	-1.000	-1.000	-1.000	-1.000	2.80
T7	05/23/90	16.6	476.4	8.14	9.2	1.2	10	-1.000	-1.000	-1.000	-1.000	-1.000	3.20
T7	08/20/90	24.8	393.5	8.08	7.7	1.0	16	-1.000	-1.000	-1.000	-1.000	-1.000	2.48
T7	06/20/90	19.1	356.4	7.92	10.0	1.5	6	-1.000	-1.000	-1.000	-1.000	-1.000	2.80
T7	07/30/90	22.8	395.7	8.08	6.1	1.0	6	0.290	0.280	0.300	0.000	-1.000	2.48
T7	09/18/90	19.3	415.2	8.04	6.4	0.9	24	-1.000	-1.000	-1.000	-1.000	-1.000	2.48
T7	11/16/90	10.4	374.4	8.17	9.4	4.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T7	12/17/90	13.6	360.0	8.25	9.7	0.4	16	0.340	0.000	0.000	0.070	0.070	-1.00

** CAVE CREEK

T8	04/10/85	16.8	176.1	-1.00	-1.0	-1.0	15	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T8	04/22/85	17.7	196.4	-1.00	7.0	-1.0	20	-1.000	-1.000	-1.000	-1.000	-1.000	0.25
T8	05/13/85	19.7	213.6	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	0.16
T8	05/27/85	22.0	221.7	-1.00	-1.0	-1.0	30	-1.000	-1.000	-1.000	-1.000	-1.000	-0.08
T8	06/12/85	25.0	228.0	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-0.16
T8	06/26/85	24.0	249.8	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	-0.32
T8	07/31/85	30.0	239.2	-1.00	-1.0	-1.0	20	-1.000	-1.000	-1.000	-1.000	-1.000	-0.32
T8	08/21/85	26.0	227.7	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-0.12
T8	09/01/85	27.0	236.0	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-0.34
T8	09/22/85	22.5	231.0	-1.00	-1.0	-1.0	16	-1.000	-1.000	-1.000	-1.000	-1.000	-0.40
T8	05/22/87	16.0	259.8	7.52	-1.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	-0.14
T8	07/14/87	26.0	194.3	8.18	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-0.44
T8	06/06/87	29.0	213.7	8.23	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-2.30
T8	09/20/87	23.5	226.5	-1.00	-1.0	-1.0	-1	-1.000	-1.000	-1.000	-1.000	-1.000	-2.62
T8	06/02/89	23.5	216.3	-1.00	-1.0	0.9	74	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T8	06/29/89	26.7	255.7	7.91	-1.0	14.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T8	07/26/89	26.5	247.9	7.94	-1.0	0.9	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T8	08/18/89	27.0	247.6	8.41	9.2	0.5	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T8	09/03/89	24.4	224.6	8.04	9.6	0.5	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T8	06/06/89	30.2	201.5	-1.00	10.1	1.3	6	0.060	0.700	-1.000	0.007	0.000	0.00
T8	06/20/89	23.5	164.7	8.22	9.2	1.9	6	-1.000	-1.000	-1.000	-1.000	-1.000	-0.05

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
T8	07/10/89	27.0	219.6	7.87	7.9	1.6	50	0.050	0.400	-1.000	0.008	0.120	-99.99
T8	08/08/89	20.6	238.0	8.14	8.6	1.4	6	0.020	0.200	-1.000	0.008	0.060	-99.99
T8	08/23/89	23.2	264.1	7.95	7.7	1.1	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T8	09/06/89	25.2	214.2	8.05	7.8	1.2	26	0.010	0.200	-1.000	0.009	0.010	-99.99
T8	09/25/89	14.0	238.0	8.13	9.4	0.7	12	0.010	0.100	-1.000	0.008	0.050	-99.99
T8	06/20/90	29.0	213.7	7.99	7.9	1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T8	05/23/90	16.3	221.9	8.18	9.2	4.4	22	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T8	08/20/90	29.5	230.2	8.06	8.2	1.1	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T8	07/19/90	28.0	241.2	8.18	8.3	0.8	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T8	09/18/90	22.3	205.6	8.02	7.6	0.8	8	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T8	10/12/90	15.9	411.5	7.45	7.4	2.5	34	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T8	11/16/90	12.2	258.1	8.14	9.5	0.5	8	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T8	12/05/90	9.2	167.6	8.38	10.6	3.5	36	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
** RICHLAND CREEK													
T9	04/10/85	14.9	85.5	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T9	04/22/85	16.0	102.6	-1.00	10.0	-1.0	50	-1.000	-1.000	-1.000	-1.000	-1.000	0.26
T9	05/13/85	20.0	110.6	-1.00	-1.0	-1.0	78	-1.000	-1.000	-1.000	-1.000	-1.000	0.16
T9	05/27/85	20.0	134.9	-1.00	-1.0	-1.0	44	-1.000	-1.000	-1.000	-1.000	-1.000	-0.08
T9	06/12/85	24.0	151.9	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-0.16
T9	06/28/85	24.9	270.5	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-0.32
T9	07/16/85	25.0	212.0	-1.00	-1.0	-1.0	30	-1.000	-1.000	-1.000	-1.000	-1.000	-0.34
T9	07/31/85	30.0	228.2	-1.00	-1.0	-1.0	28	-1.000	-1.000	-1.000	-1.000	-1.000	-0.32
T9	08/21/85	28.3	175.6	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	-0.12
T9	09/01/85	29.5	184.2	-1.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	-0.34
T9	09/22/85	24.0	195.7	-1.00	-1.0	-1.0	66	-1.000	-1.000	-1.000	-1.000	-1.000	-0.40
T9	07/30/87	29.0	171.9	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-2.52
T9	07/15/87	29.0	167.2	8.25	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	-0.44
T9	06/29/87	29.0	137.5	-1.00	-1.0	-1.0	16	-1.000	-1.000	-1.000	-1.000	-1.000	-0.20
T9	06/18/87	25.5	123.8	8.36	-1.0	-1.0	34	-1.000	-1.000	-1.000	-1.000	-1.000	-0.14
T9	08/12/87	30.0	141.5	8.94	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-2.30
T9	08/29/87	27.5	171.8	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T9	09/20/87	21.5	235.6	7.95	-1.0	-1.0	-1	-1.000	-1.000	-1.000	-1.000	-1.000	-2.62
T9	06/02/88	19.7	114.6	7.60	-1.0	1.1	54	-1.000	-1.000	-1.000	-1.000	-1.000	-0.08
T9	05/29/88	25.0	220.0	7.77	-1.0	19.6	109	-1.000	-1.000	-1.000	-1.000	-1.000	-0.98
T9	07/26/88	23.9	211.4	7.76	-1.0	1.0	40	-1.000	-1.000	-1.000	-1.000	-1.000	-2.40
T9	08/18/88	27.9	236.9	8.81	13.8	11.9	610	-1.000	-1.000	-1.000	-1.000	-1.000	-3.27
T9	09/03/88	24.6	190.7	8.08	11.6	4.5	594	-1.000	-1.000	-1.000	-1.000	-1.000	-3.60
T9	06/06/89	20.3	90.1	-1.00	9.6	4.7	30	0.030	0.400	-1.000	0.007	0.010	0.00
T9	06/20/89	23.6	80.1	8.21	10.2	3.1	6	-1.000	-1.000	-1.000	-1.000	-1.000	-0.66
T9	07/10/89	24.3	131.6	7.52	8.6	1.6	6	0.400	0.400	-1.000	0.008	0.060	-99.99
T9	07/25/89	19.2	202.4	7.88	9.6	1.4	0	-1.000	-1.000	-1.000	-1.000	-1.000	-0.20
T9	08/03/89	18.3	177.7	7.61	8.3	2.4	18	0.020	0.100	-1.000	0.011	0.020	-99.99
T9	08/23/89	24.0	229.4	7.80	8.9	1.2	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T9	09/01/89	25.7	208.2	7.64	7.8	1.8	20	-1.000	-1.000	-1.000	-1.000	-1.000	-0.90

Buffalo National River
Water Quality Data
1985-1990
TRIBUTARY LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
T9	09/06/89	25.8	199.9	7.83	8.5	3.3	36	0.010	0.300	-1.000	0.020	0.030	-1.68
T9	09/25/89	14.9	220.5	7.96	9.3	2.5	-1	0.060	0.300	-1.000	0.021	0.050	-1.52
T9	04/05/90	12.0	67.8	7.72	10.2	3.5	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T9	05/23/90	19.8	111.0	7.68	10.3	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
T9	06/18/90	25.0	130.0	8.03	9.8	1.8	6	0.040	0.220	0.000	0.000	-1.000	-99.99
T9	07/30/90	27.6	179.1	7.93	6.7	1.3	142	0.170	0.340	0.000	0.000	-1.000	-99.99
T9	10/12/90	17.5	149.4	7.86	9.7	4.4	12	-1.000	-1.000	-1.000	-1.000	-1.000	-0.05
T9	11/08/90	11.8	187.2	8.17	10.6	0.9	33	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
T9	12/05/90	10.9	84.9	8.14	9.9	7.5	32	-1.000	-1.000	-1.000	-1.000	-1.000	0.50

Buffalo National River
Water Quality Data
1985-1990
SPRING LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
** LUAllen SPRING													
S2	07/01/85	16.0	241.5	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	07/09/85	15.0	246.0	-1.00	10.0	-1.0	1	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	08/05/86	14.8	259.6	-1.00	-1.0	-1.0	13	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	05/07/86	-1.0	-1.0	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	05/13/86	-1.0	-1.0	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	05/21/86	-1.0	-1.0	-1.00	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	08/24/85	15.0	269.5	-1.00	-1.0	-1.0	26	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	06/09/86	-1.0	-1.0	-1.00	-1.0	-1.0	30	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	06/17/86	15.0	228.7	-1.00	-1.0	-1.0	16	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	09/13/86	14.0	263.3	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	06/29/86	14.0	253.2	-1.00	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	07/06/86	14.0	253.2	-1.00	-1.0	-1.0	5	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	08/12/86	14.0	272.2	-1.00	-1.0	-1.0	14	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	06/11/87	14.0	265.9	7.30	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	08/25/87	14.0	253.2	7.57	-1.0	-1.0	46	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	09/19/87	14.0	265.9	7.64	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	09/19/86	14.2	274.7	-1.00	-1.0	-1.0	12	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	06/23/86	22.5	246.6	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	07/20/86	14.0	265.9	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	08/09/86	14.0	265.9	-1.00	-1.0	-1.0	25	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	08/23/86	14.0	265.9	-1.00	-1.0	-1.0	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	09/06/86	14.0	272.2	-1.00	-1.0	-1.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	09/20/86	14.0	272.2	-1.00	-1.0	-1.0	5	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	07/09/87	14.5	265.9	7.42	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	05/11/86	15.5	223.3	8.08	-1.0	1.2	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	06/28/86	13.0	275.0	7.65	-1.0	0.5	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	07/25/86	13.7	233.4	7.33	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	06/15/89	12.3	182.2	7.34	9.7	4.0	30	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	07/24/89	10.6	322.5	7.12	9.7	1.0	34	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	08/07/89	12.0	275.4	7.04	9.6	1.3	2	0.430	0.160	-1.000	0.015	0.020	-99.99
S2	08/21/89	12.6	262.1	7.05	9.4	0.6	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	09/05/89	13.6	216.3	7.23	8.9	0.7	0	0.470	0.100	-1.000	0.014	0.010	-99.99
S2	09/19/89	13.0	256.9	7.37	9.3	0.7	8	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	01/22/90	12.2	90.0	7.14	8.1	0.6	-1	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S2	03/25/90	12.0	210.9	7.55	-1.0	2.2	0	0.210	0.210	0.000	0.030	0.000	-99.99
S2	04/23/90	14.0	106.3	7.35	8.7	6.5	2	0.130	0.240	0.000	0.040	0.000	-99.99
S2	05/07/90	13.0	190.7	7.37	9.5	3.4	2	0.200	0.540	0.000	0.050	0.000	-99.99
S2	05/21/90	14.0	206.9	7.42	-1.0	15.0	30	0.150	0.280	0.000	0.060	0.000	-99.99
S2	08/24/90	13.9	260.2	7.38	8.0	0.5	6	0.410	0.210	0.030	0.040	0.000	-1.00
S2	10/22/90	13.0	266.9	7.31	8.4	1.4	0	0.390	0.090	0.000	0.000	0.000	-1.00
S2	11/16/90	13.3	267.9	7.54	6.8	0.6	0	0.440	0.000	0.000	0.030	0.000	-1.00

** MITCH- HILL SPRING

S33	08/21/86	16.0	355.2	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
-----	----------	------	-------	-------	------	------	---	--------	--------	--------	--------	--------	--------

Buffalo National River
Water Quality Data
1985-1990
SPRING LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
S33	07/19/85	17.0	358.3	-1.00	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	06/12/85	-1.0	-1.0	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	08/30/86	16.0	398.5	-1.00	-1.0	-1.0	-1	-1.000	-1.000	-1.000	-1.000	-1.000	0.26
S33	08/10/86	16.0	398.5	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.40
S33	08/03/86	17.5	385.2	-1.00	-1.0	-1.0	-1	-1.000	-1.000	-1.000	-1.000	-1.000	0.44
S33	07/21/86	16.0	392.5	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.40
S33	07/15/86	16.5	405.9	-1.00	-1.0	-1.0	-1	-1.000	-1.000	-1.000	-1.000	-1.000	0.44
S33	07/08/86	16.0	390.0	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.50
S33	06/15/87	16.0	392.5	7.30	-1.0	-1.0	4	0.510	0.400	0.004	0.003	0.010	0.42
S33	06/15/87	15.0	398.0	-1.00	-1.0	-1.0	10	-1.000	-1.000	-1.000	-1.000	-1.000	0.44
S33	06/22/87	16.0	356.2	-1.00	-1.0	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.72
S33	07/14/87	16.5	394.0	7.51	-1.0	-1.0	6	-1.000	-1.000	-1.000	-1.000	-1.000	0.30
S33	07/21/87	14.0	430.4	7.50	-1.0	-1.0	2	1.200	0.000	-1.000	0.005	0.010	0.30
S33	08/12/87	17.0	395.4	7.68	9.5	-1.0	0	-1.000	-1.000	-1.000	-1.000	-1.000	0.28
S33	08/19/87	16.7	380.3	-1.00	-1.0	-1.0	2	0.740	0.000	-1.000	0.002	0.010	0.26
S33	09/20/87	16.3	389.8	-1.00	-1.0	-1.0	-1	-1.000	-1.000	-1.000	-1.000	-1.000	0.26
S33	05/11/88	15.0	352.3	7.64	-1.0	0.9	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	06/29/88	14.6	418.0	7.33	-1.0	0.6	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	07/26/88	14.9	394.0	7.38	-1.0	0.4	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	08/18/88	13.6	432.1	6.30	9.1	0.3	11	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	09/03/88	14.2	352.8	6.94	9.4	0.3	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	06/02/88	15.3	360.9	7.55	-1.0	0.8	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	06/20/89	13.8	366.0	7.37	7.2	0.7	12	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	07/10/89	15.8	390.6	7.16	8.4	1.2	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	07/25/89	11.9	452.1	7.34	8.0	0.5	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	08/08/89	13.3	405.7	7.30	8.2	1.3	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	08/23/89	12.5	440.1	7.22	8.0	0.6	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	09/06/89	14.0	392.5	7.33	8.2	0.6	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	09/25/89	14.1	410.5	7.21	7.8	0.4	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	03/05/90	13.0	304.9	7.50	9.8	1.6	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	04/25/90	14.0	319.0	7.27	8.1	1.3	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	06/20/90	17.0	354.1	7.44	7.6	1.6	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	06/20/90	17.8	361.7	7.20	7.0	2.3	42	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S33	07/30/90	17.5	373.5	7.20	5.7	0.5	0	0.890	0.270	0.000	0.000	-1.000	-99.99
S33	09/18/90	16.3	389.8	7.16	7.1	0.8	3	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
S33	11/18/90	15.2	409.7	7.33	7.5	0.6	8	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
S33	12/17/90	14.5	362.7	7.38	7.4	1.0	4	0.500	0.000	0.000	0.060	0.000	-1.00

** GILBERT SPRING

S41	06/16/87	17.0	329.5	7.76	-1.0	-1.0	-1	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S41	07/14/87	17.0	401.3	7.63	-1.0	-1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S41	08/08/87	19.0	355.8	7.70	-1.0	-1.0	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S41	08/11/88	16.2	352.2	7.66	-1.0	0.7	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S41	06/29/88	17.0	406.0	7.52	-1.0	0.4	26	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S41	07/26/88	16.0	346.3	7.53	-1.0	0.4	66	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99

Buffalo National River
Water Quality Data
1985-1990
SPRING LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)
S41	09/04/88	16.9	376.2	7.08	9.4	0.6	92	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S41	06/07/89	13.8	384.2	-1.00	8.5	0.7	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S41	06/15/89	14.2	378.0	7.58	9.1	0.9	6	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S41	07/25/89	13.1	465.9	7.52	8.8	1.4	44	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S41	08/09/89	14.8	459.5	7.74	9.0	1.0	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S41	08/22/89	14.2	428.4	7.58	8.9	0.7	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S41	09/11/89	16.7	389.8	7.48	8.1	1.1	4	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S41	09/26/89	15.1	403.3	7.57	8.8	0.7	0	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S41	05/08/90	14.0	303.8	7.40	8.7	1.5	32	1.040	0.430	0.000	0.660	0.000	-99.99
S41	06/21/90	17.0	413.1	7.48	8.2	1.1	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S41	08/21/90	18.9	373.5	7.57	7.5	1.0	26	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S41	07/18/90	18.3	404.8	7.54	7.6	0.7	2	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99
S41	09/25/90	17.0	383.6	7.39	8.4	0.9	32	0.710	0.210	0.000	0.050	0.000	-99.99
S41	10/23/90	15.5	372.6	7.80	8.4	0.9	26	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00
S41	11/19/90	13.5	413.9	7.72	9.5	2.3	1	0.760	0.000	0.000	0.040	0.000	-1.00

BUFF WATER QUALITY REPORT, 1985 - 1990

Appendix C2: Water quality data, storm flow, 1985 -1990

- * Note: -1 indicates no data collected
- 99.99 indicates staff gage reading not recorded
- see Figure 1 for site locations

Buffalo National River
Water Quality Data
1985-1990
RIVER LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF GAUGE (FT)	HYDRO- GRAPH
** BOXLEY BRIDGE														
R1	08/05/85	24.2	141.0	-1.00	-1.0	-1.0	338	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99	R
R1	12/20/87	8.0	10.0	7.68	11.7	15.0	16	-1.000	0.200	-1.000	0.029	-1.000	4.40	R
R1	07/20/88	20.7	100.0	7.02	-1.0	23.0	567	0.040	0.300	-1.000	0.029	-1.000	-99.99	R
R1	12/23/88	6.9	61.0	-1.00	13.2	12.0	40	-1.000	-1.000	-1.000	-1.000	-1.000	3.55	R
** WILDERNESS BOUNDARY														
R1	05/18/89	14.2	42.0	7.70	9.1	13.0	225	-1.000	-1.000	-1.000	-1.000	-1.000	2.70	R
R1	06/15/89	15.7	45.0	7.67	9.8	9.3	18	-1.000	-1.000	-1.000	-1.000	-1.000	2.70	F
** BOXLEY BRIDGE														
R1	05/21/90	15.0	53.0	7.53	9.0	15.0	184	0.030	0.450	0.000	0.050	0.000	4.60	R
** PONCA														
R2	08/05/85	22.9	150.0	-1.00	-1.0	-1.0	200	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99	R
R2	12/20/87	8.0	20.0	7.66	11.3	19.0	200	-1.000	0.300	-1.000	0.040	-1.000	4.40	R
R2	07/20/88	20.6	125.0	7.28	-1.0	21.5	540	0.060	0.300	-1.000	0.034	-1.000	3.55	F
R2	12/23/88	6.4	80.0	-1.00	13.2	13.0	115	-1.000	-1.000	-1.000	-1.000	-1.000	2.50	F
R2	05/18/89	14.6	75.0	7.63	9.0	5.5	325	-1.000	-1.000	-1.000	-1.000	-1.000	2.55	R
R2	05/21/90	15.0	48.0	7.66	8.2	17.0	210	0.030	0.370	0.000	0.050	0.000	5.90	R
** PRUITT														
R3	04/23/85	17.6	112.0	-1.00	9.0	-1.0	-1	-1.000	-1.000	-1.000	-1.000	-1.000	4.50	R
R3	12/20/87	8.0	30.0	7.77	11.0	81.0	64	-1.000	0.600	-1.000	0.079	-1.000	2.50	F
R3	07/20/88	25.5	155.0	7.47	-1.0	78.0	120	0.130	1.000	-1.000	0.062	1.000	1.70	R
R3	06/15/89	16.9	98.0	7.94	9.5	7.8	56	-1.000	-1.000	-1.000	-1.000	-1.000	1.80	R
R3	04/23/90	16.0	58.0	7.72	9.0	29.0	606	-1.000	-1.000	-1.000	-1.000	-1.000	3.20	R
** HASTY														
R4	12/20/87	8.9	42.0	7.60	10.9	72.0	172	-1.000	0.500	-1.000	0.078	-1.000	2.50	R
R4	07/20/88	27.0	230.0	7.51	-1.0	12.0	72	0.110	0.200	-1.000	0.009	-1.000	1.70	R
R4	05/21/90	16.0	63.0	7.82	7.9	29.0	790	0.080	0.370	0.030	0.110	0.060	3.50	R
** WOOLUM														
R5	12/20/87	9.0	48.0	7.79	11.8	-1.0	8	-1.000	0.700	-1.000	0.084	-1.000	9.10	R
P5	07/20/88	27.6	268.0	7.73	-1.0	1.3	0	0.070	0.200	-1.000	0.016	-1.000	2.40	R
R5	05/17/89	16.1	190.0	7.95	8.4	0.8	52	-1.000	-1.000	-1.000	-1.000	-1.000	1.40	R
** GILBERT														
P6	12/20/87	9.3	60.0	7.78	11.0	-1.0	564	-1.000	0.800	-1.000	0.094	-1.000	9.10	F
P6	06/14/89	16.6	112.0	8.06	9.7	8.4	106	-1.000	-1.000	-1.000	-1.000	-1.000	4.50	F
R6	05/22/90	16.2	-1.0	7.87	8.6	16.0	308	0.140	0.350	0.000	0.060	0.000	5.00	F
** HIGHWAY 14														
R7	12/20/87	9.5	67.0	7.76	10.4	-1.0	366	-1.000	1.200	-1.000	0.117	-1.000	10.30	R

RIVER LOCATIONS

[illegible]

Buffalo National River
Water Quality Data
1985-1990
SPRING LOCATIONS

SITE NUMBER	DATE	WATER TEMP. (deg.C)	SPECIFIC COND. (umhos)	pH	DISSOLVED OXYGEN (mg/L)	TURBIDITY (FTU)	F.C. (col/ 100mL)	NO3/ NO2-N (mg/L)	TKN (mg/L)	OP04 (mg/L)	TP (mg/L)	NH4-N (mg/L)	STAFF HYDRO- GAUGE GRAPH (FT)
** LUALLEN SPRING													
S2	08/05/85	16.0	161.0	-1.00	-1.0	4.0	424	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99 R
S2	05/01/86	-1.0	-1.0	-1.00	-1.0	-1.0	240	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99 R
S2	08/02/86	14.0	195.0	-1.00	-1.0	-1.0	1163	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99 R
S2	08/16/86	14.0	225.0	-1.00	-1.0	-1.0	356	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99 R
S2	05/23/88	13.4	129.0	7.79	-1.0	22.0	705	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99 R
S2	07/12/88	13.8	186.0	7.32	-1.0	22.0	780	-1.000	-1.000	-1.000	-1.000	-1.000	-99.99 R
S2	12/17/90	12.1	182.0	7.48	8.8	26.0	32	0.120	0.230	0.000	0.100	0.000	-1.00 R
** MITCH HILL SPRING													
S33	10/11/90	15.3	262.0	7.26	7.5	5.0	206	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00 F
** GILBERT SPRING													
S41	12/18/90	13.2	285.0	7.68	8.8	6.5	88	0.890	0.000	0.030	0.100	0.050	-1.00 R

