ILLINOIS RIVER WATERSHED MONITORING PROGRAM-
NATIONAL MONITORING PROJECT
FY 2000 319(h):
TASK 700

Post-Implementation Monitoring Summary Report- Year 1
Preliminary Evaluation of Post-Implementation Monitoring

Oklahoma Conservation Commission
Water Quality Division
September 1, 2006

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Introduction

The Illinois River is designated as a scenic river (outstanding resource water) in Oklahoma and provides a major recreational resource for many state residents and a significant benefit for the local economy. The river is a tributary to Lake Tenkiller, which has long been recognized as one of the outstanding recreational reservoirs in the state and is a popular site for scuba diving.

Nutrient loading in the Illinois River Watershed is a severe problem with the most recent documentation of source allocation indicating over eighty percent of the loading originates from nonpoint sources (0WRB 1996). This loading has resulted in degradation of water quality of the river perceived by users as decreased water clarity and increased nuisance periphyton growth. A Section 314 Clean Lakes study (0WRB 1996) reported Lake Tenkiller currently shows signs of water quality degradation. Symptoms of this degradation included periodic algal blooms, excessive algal growth, and increasing hypolimnetic anoxia (both in terms of the length of the anoxic period and the volume of anoxic waters) during stratified periods. The source of this degradation was determined to be eutrophication and sedimentation from point and nonpoint sources.

The primary nonpoint sources of nutrients and sediments include improper management of wastes from animal agriculture, poor pasture maintenance, and stream bank erosion. These problems are compounded by very poor soils composed primarily of coarse chert. Streams are becoming wider, shallower, and loaded with nutrients and soil resulting in loss of fish habitat and increased primary productivity.

The objective of this project is to monitor streams in the watershed selected as a demonstration watershed and a control site or matched pair. These watersheds were selected based upon position in the prioritization ranking, watershed size, land use, number of landowners, and willingness of landowners to participate in cost-share programs. The control watershed was chosen for its similarity to the implementation watershed based on size, geologic structure, soils, slope, population, land use, and position in the Illinois River sub-watershed. The matched sub-watershed will be monitored in an identical fashion as the demonstration watershed. The sites were also chosen for geographic proximity to decrease impacts of scattered weather patterns. This paired design allows closer examination of water quality changes and gives an indication of future water quality in demonstration sub-watersheds in the absence of implementation programs.

The paired watershed methodology requires that the following requirements be met when selecting treatment and control watersheds:

- Watersheds should be similar in size, slope, location, soils, and land cover;
- Watersheds should be small enough to obtain uniform land treatment over the entire watershed;
- Watershed outlets should have a stable channel and cross section to allow for discharge monitoring;
- Each watershed should be near steady-state with regard to land cover prior to implementation such that major changes should not be ongoing prior to onset of the project.

The paired watershed methodology has the following advantages:

- Climate and hydrologic differences over time are statistically controlled,
- Water quality changes can be attributed to a treatment,
- Control watershed eliminates need to measure all components causing change,
- Watersheds need not be identical,
- Study can be completed in a shorter time frame (5 – 10 years) than trend studies (20 + years)
- Cause-effect relationships can be indicated.

These advantages are critical to addressing many of the limitations of traditional programs where progress needs to be documentable during a project time period (five years maximum) or a legislative term (2 – 4 years).

Disadvantages of the paired watershed methodology include:

- Response to treatment likely to be gradual over time which influence the variance,
- Study vulnerable to catastrophes such as hurricanes,
- Shortened calibration may result in serially correlated data,
- Variances between time periods may not be equal due to drastic treatment,
- Changes in the control watershed are permitted,
- Requires similar watersheds in close proximity.

In summary, the paired watershed method documents a similar water quality response to weather patterns in the two watersheds prior to the onset of implementation. This relationship allows the prediction of water quality variables in one watershed, compared to observed variables in the other. This relationship can then be compared for water quality variables following implementation in the treatment watershed. Assuming that the only major change that occurred in either watershed was the implementation of best management practices (BMPs), any difference between predicted and observed water quality responses can then be attributed to affects of the implementation.

Two watersheds (Figure 1) were chosen for sampling, one of which has been chosen for an implementation program. Peacheater Creek and upper Tyner Hollow have been chosen with Peacheater Creek being selected for implementation activities. These two watersheds can be compared on the following characteristics:

	Watershed Size	**# Poultry Houses[1]**	**# Dairies**	**# Residences**
Peacheater Creek	16,209	51	9	176
Upper Tyner Creek	16,000	65	7	150

These two streams, typical of others in the Illinois River basin, are characterized by very low turbidity and a substrate composed of flint gravel. In most cases in-stream habitat is rated poor. The streams, located in the Ozark Highlands Ecoregion, (Woods et. al. 2005) are characterized by a dissected limestone plateau, forested predominantly with an oak-hickory forests.

The quality of the riparian corridor varies from good to absent in these streams. In most cases vegetation is confined to sycamore and willow trees with very limited under story growth. Under story vegetation is primarily limited by cattle grazing. Significant areas exist on each stream where riparian vegetation, other than streamside grasses, sedges, and rushes, is absent. Additional areas exist where even streamside grasses, sedges, and rushes are absent and replaced by Bermuda or fescue grass or bare soil. The primary aquatic macrophyte in each of these streams is watercress, although the extent of coverage is limited.

[1] Figure 1 documents the location of poultry houses in Peacheater Creek in order to show a relationship between 319 implementation and poultry house location. Additional BMPs were installed at many of these locations through the EQIP program. House locations are not noted in Tyner Creek, although a similar density of poultry houses exist in the Tyner Watershed.

Neither stream is violating Oklahoma Water Quality Standards (WQS) for any parameters measured during the sampling periods. However waterbody segments downstream on the Illinois River and in Lake Tenkiller violate WQS for phosphorus, dissolved oxygen, turbidity, and bacteria (ODEQ 2002). Therefore, the goal of

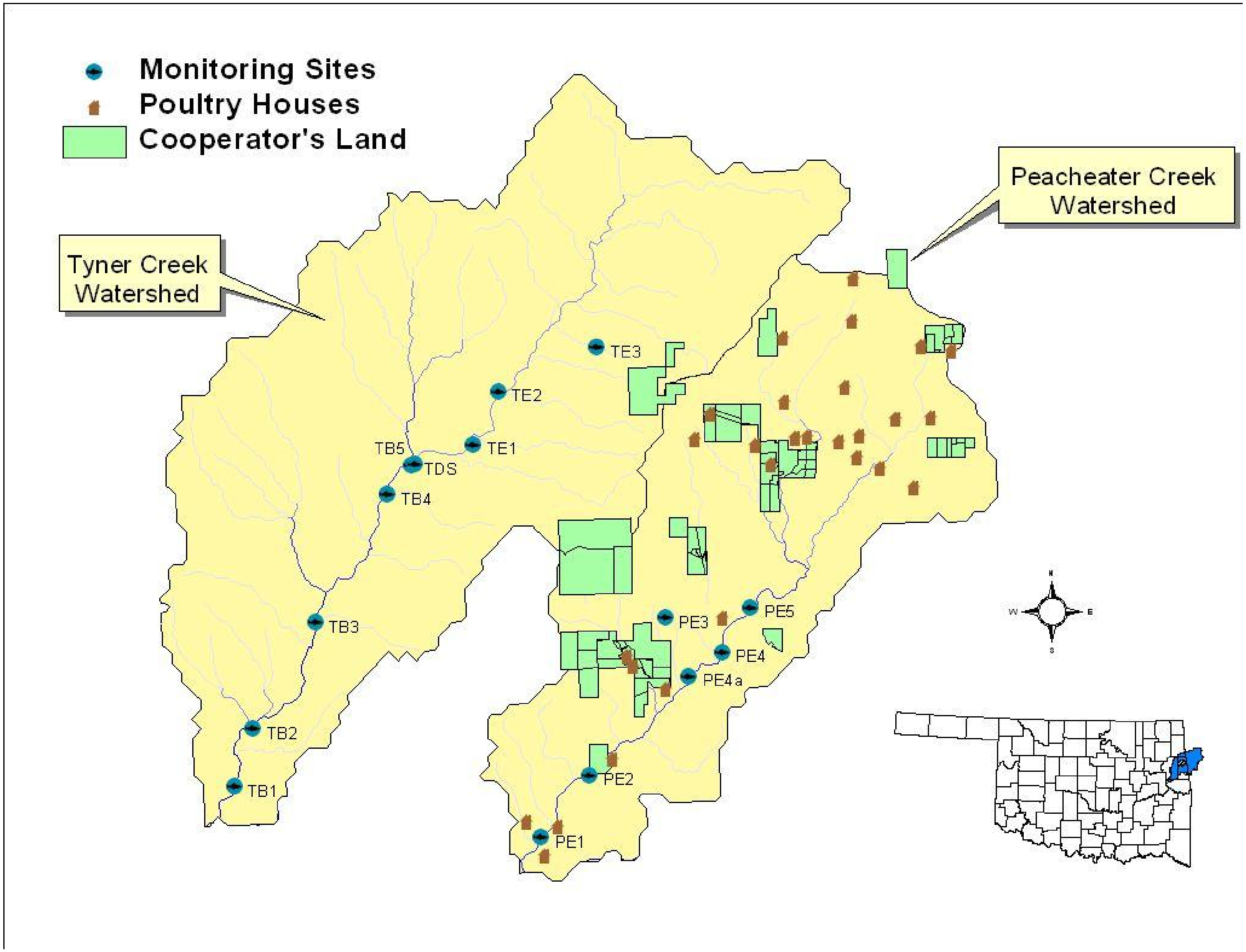


Figure 1. Peacheater and Tyner Watershed Sampling Sites.

implementation efforts in the Illinois River Watershed is to reduce delivery of nutrients, sediment, and bacteria to the Illinois River and Lake Tenkiller.

Initial data collected during the calibration phase indicated flow conditions were fairly similar between the two streams.

Stream	Average Seasonal Base Flow
Upper Tyner	4 -13 cfs
Peacheater	2 -13 cfs

Activity in this project follows a phased approach. The first phase is the calibration phase in which data is collected to verify the relationship between the watersheds and establish pre-implementation conditions. The second phase, the treatment phase, involves data collection during and after implementation of BMPs to document effects.

The calibration and implementation phases have been completed. The calibration phase indicated that the three conditions for acceptable calibration outlined in USEPA (1993) were met using data from the combined flow regimes. Significant relationships existed between Peacheater and Tyner Creek watersheds for all parameters of interest. In accordance with the guidance, the calibration was determined to be adequate to detect changes following treatment, and the residual errors of the regressions were small enough to determine changes of 24% or less following implementation of BMPS. The models did not calibrate as well when only using data from base flow or high flow conditions. This is to be expected with smaller sample sizes, the wide range of values which may result from high flow events, and values close to detection limits collected at base flow conditions. However, the models of important parameters (nutrients at base flows and nutrients and turbidity at high flows) were calibrated. Overall, data collected during calibration was adequate to proceed with the implementation or treatment phase.

The treatment phase reported on in a March 1995 *Illinois River Watershed Implementation Program* Report. Implementation was completed late in 2001, and post-implementation monitoring began in early 2002, following QAPP approval. Implementation consisted of installation of the following practices in the Peacheater Creek Watershed (Table 1 and Figure 1):

Table 1. 319 Practices Implemented in the Peacheater Creek Watershed.

Practice	Number and Units of Completed Practices
Buffer- Fence- Use Exclusion	1 landowner, 1800 ft.
Buffer Incentive	1 landowner, 7 acres
Riparian Fence	1 landowner, 4000 feet,
Riparian Incentive Haying And Limited Grazing	1 landowner, 58 acres
Freeze- Proof Tank	4 landowners, 11 tanks
Heavy Use Area Protection	3 landowners, 175 cy concrete, 648 ton gravel
Lagoon- fencing, concrete, PVC pipe	3 landowners, 1 cleanout, 1 clay liner (500 cy), 1 concrete ramp and liner (20 cy), 2 excavations (3006 cy).
Septic Tanks & Installation, lateral lines	2 landowners, 2 tanks, lateral lines, & installation
Nutrient- proper waste utilization- move litter out of watershed	2 landowners- 22,921 lbs phosphorus moved out of watershed
Pasture Management Incentive	4 landowners, 375 acres
Cross Fencing/Travel Lane Fencing	4 landowners, 12,770 feet cross fencing, 3200 ft travel lane fencing
Pond Excavations	2 ponds, 1,496 yd^3
PVC pipe, trenching, and cover- (associated with ponds, and/or freeze-proof tanks)	5 landowners, 7,200 feet
Pond Fence	400 feet
Poultry Litter Storage/cakeout house	1 landowner, 1 house
Cattle Winter Feeding / Waste Management Facility	2 landowners, 2 facilities

This report will evaluate the first year's worth of post-implementation monitoring data, and if sufficient, will utilize the information to compare to pre-implementation conditions and determine whether implementation resulted in changes in water quality. A final, more complete analysis will be completed as part of an FY 2001 project report, summarizing two years of post-implementation monitoring data. Therefore, these results must be considered as preliminary and subject to change pending inclusion of the second year of post-implementation monitoring data.

Method

The objective of the paired watershed approach is to establish a significant relationship between water quality data for the two watersheds that will hold before and after implementation of best management practices. This relationship must be sufficiently strong to detect differences between pre- and post-treatment periods. The relationship during the calibration phase was described by the simple linear regression:

$$\textbf{treated} = \mathbf{b_o} + \mathbf{b_i}(\textbf{control}) + e$$

where **treated** and **control** represent concentrations or values for the respective watersheds, $\mathbf{b_o}$ and $\mathbf{b_1}$ are regression coefficients representing intercept and slope, respectively, and **e** is the residual error.

Three questions must be addressed before shifting from the calibration phase to the treatment phase (USEPA 1993):

1. Is there a significant relationship between the paired watersheds for each parameter of interest?

2. Has the calibration period continued for a sufficient length of time?

3. Are the residual errors about the regression smaller than the expected (predicted) treatment effect?

For purposes of calibration, we evaluated the relationship between Peacheater and Tyner Creeks on data collected between December 1995 and April 1997 under three different flow regimes; all flows, high flow (> 2 * average flow), and base flow (< 0.5 * average flow). All analyses were conducted on log-transformed data to satisfy assumptions of parametric statistical analysis.

Regression Significance

The significance of the regression between paired observations was tested using analysis of variance (ANOVA). The probability (p) value associated with the resulting F statistic indicated whether the regression explained a significant amount ($P < 0.05$) of the variation in the paired data. The coefficient of determination (r^2) indicated the quality of the regression or its utility to predict y from x.

Significant ($\alpha = 0.05$) relationships between Peacheater and Tyner Creek watersheds were obtained for all water quality parameters using data from combined flow regimes. Significant ($\alpha = 0.05$) relationships between the paired watersheds were obtained for all parameters except turbidity at base flow conditions. Fewer relationships were significant during high flows; TKN, conductivity, chlorides, and hardness were not significant ($\alpha = 0.05$) during high flow events.

Calibration Duration

The ratio between the residual variance (S^2_{yx}) for the regression and the smallest worthwhile difference (d) is used to determine whether sufficient data has been collected to detect that difference. The equation used (USEPA 1993) is:

$$(S^2_{yx})/(d^2) = \{(n_1 * n_2)/(n_1 + n_2)\} * \{1/(F/(n_1 + n_2 - 2))))\}$$

where S^2_{YX} is the estimated residual variance about the regression
d is the smallest worthwhile difference in the mean in the treated watershed (e.g. for a difference of 10%, d = 0. 1 * x) n_1 and n_2 are the numbers of observations in the calibration and treatment periods, respectively
F is the table value of F ($\alpha = 0.05$) for the variance ratio at 1 and $n_1 + n_2 - 3$ degrees of freedom

If the left side of the equation is greater than the right side, an insufficient number of samples have been collected to detect the difference, based on the strength and precision of the regression relationship.

Sufficient samples had been collected during pre-implementation to detect a 10% difference for all parameters using data from combined flow types. At base flow conditions, sufficient samples had been collected to detect a 10% difference for all parameters except sulfate and turbidity. Sufficient samples had been taken to detect a 11% difference in sulfate and a 23% difference in turbidity. This was likely due to the smaller number of samples at base flow as sufficient samples were taken using data from combined flow regimes. Also, the magnitude of turbidity at base flow is much smaller than at other flow conditions, thus a 10% change would be a very small number, requiring more samples to detect a difference.

Sufficient samples were collected at high flow to detect a 10% difference for fewer parameters; insufficient samples were collected to detect a difference for TKN, sulfate, and conductivity. Sufficient samples were collected to detect a 12.5% difference in sulfate, a 20% difference in TKN, and a 13.6% difference in conductivity. Again, this was likely due to the smaller number of samples collected at high flow conditions as sufficient samples were taken using data from all flow regimes. Although sufficient samples were taken to detect a 10% difference in dissolved oxygen, chloride, and hardness, the regressions of these parameters were not significant, therefore the models for these parameters at high flows are not valid.

Residual Errors

The confidence bands for the regression allow more precise determination of the level of change needed to show a significant treatment effect. Confidence bands for the regression are determined from:

$$CI = \pm (t)(S_{yx}) (1/n)^{0.5}$$

where CI is the confidence interval
t is the table value of Student's t at n – 1 degrees of freedom
S_{yx} is the square root of S^2_{yx} from the first equation

The residual errors calculations suggested the level of change necessary to show a significant response to treatment was 24% or less using data from combined flow regimes. With the exception of nitrite, a 30% or less change was necessary to show a significant response using base flow data. Nitrite required a 47% change to show a significant response using base flow data. Of the valid regression models calculated using high flow data (excludes TKN, sulfate, dissolved oxygen, conductivity, chloride, and hardness), parameters required a 15% or less change (except nitrite which required a 50% change) to show a significant response to treatment.

Treatment

At the end of the treatment period, the significance of the effect of the BMPs is determined using analysis of covariance (ANCOVA). The analysis determines:

1. the significance of the treatment regression equation,
2. the significance of the overall regression which combines the calibration and treatment period data,
3. the difference between the slopes of the calibration and treatment regressions, and
4. the difference between the intercepts of the calibration and treatment regressions.

Item 1 is determined through an ANOVA for the treatment period regression. Items 2 – 4 are determined through an ANCOVA comparing the treatment and calibration period regressions. Using the data from the first year of post-implementation monitoring (January 2003 – January 2004), Table 2 documents the significance of the treatment regressions. All regressions were significant for at least the $\alpha = 0.05$ level, except Turbidity, Sulfate, total kjeldahl nitrogen (TKN), and discharge.

Table 2. Treatment Period Regressions.

Parameter	R^2	F Value	Significance
Total Phosphorus (mg/L)	0.78	92.69	Significant (α= 4.64 X 10^{-10})
Total Phosphorus Loading (kg/yr)	0.30	23.56	Significant (α= 1.01 X 10^{-5})
Dissolved Oxygen (mg/L)	0.45	39.89	Significant (α= 5.68 X 10^{-8})
Turbidity (NTU)	0.02	1.36	Not Significant (α= 0.25)
Nitrate (mg/L)	0.85	147.67	Significant (α= 3.17 X 10^{-12})
Nitrite (mg/L)	0.57	34.19	Significant (α= 3.65 X 10^{-6})
TKN (mg/L)	0.13	3.96	Not Significant (α= 0.057)
Total Nitrogen Loading (kg/yr)	0.35	13.42	Significant (α= 0.001)
Sulfate (mg/L)	0.02	0.422	Not Significant (α= 0.521)

pH	0.43	35.87	Significant (α= 2.79 X 10^{-7})
Conductivity (µS/cm)	0.29	19.89	Significant (α= 4.79 X 10^{-5})
Temperature (°C)	0.93	619.92	Significant (α= 1.81 X 10^{-29})
Alkalinity (mg $CaCO_3$/L)	0.67	86.20	Significant (α= 9.81 X 10^{-12})
Hardness (mg $CaCO_3$/L)	0.72	69.46	Significant (α= 6.07 X 10^{-9})
Chloride (mg/L)	0.16	4.91	Significant (α= 0.036)
Discharge (cfs)	0.06	2.96	Not Significant (α= 0.09)

This significance documents whether a correlation in these values exists between the two creeks during the post-implementation period. It is anticipated that additional data collected during the second year of post-implementation monitoring will allow a correlation to be evaluated for at least some additional parameters.

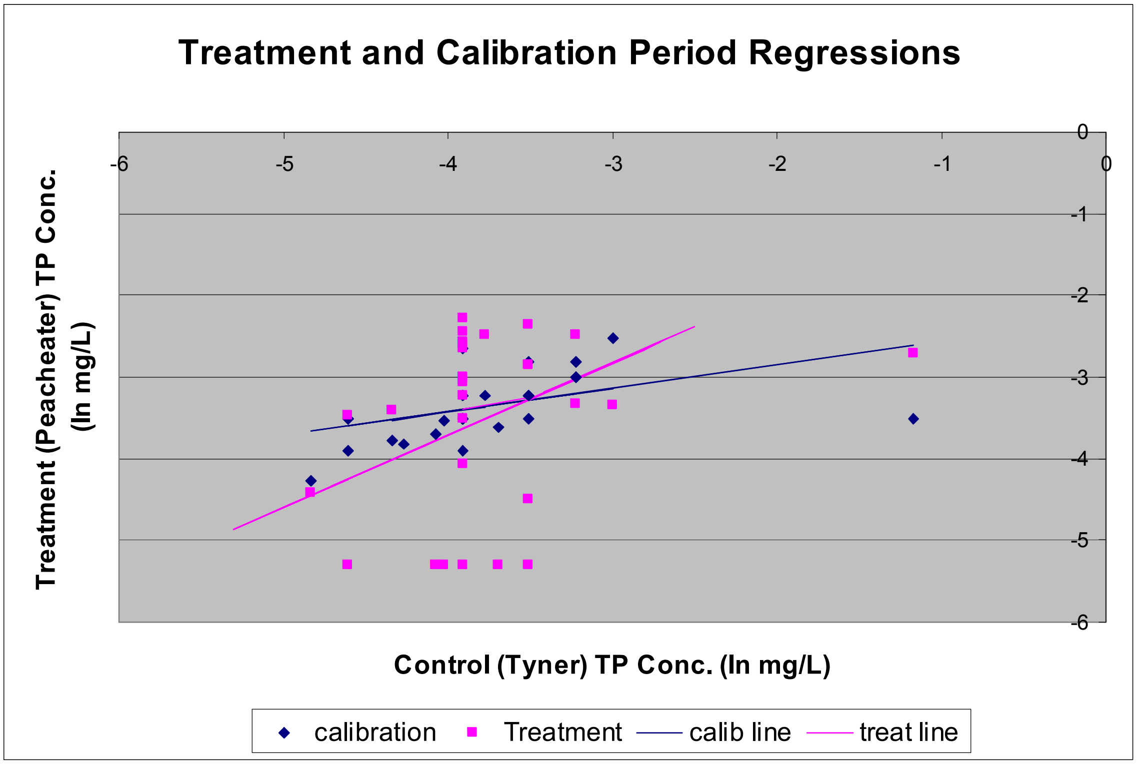
Table 3 and Figures 2 – 6 document the results of the ANCOVAs for the various parameters analyzed. Nitrate concentrations, total nitrogen loads, and total phosphorus loads indicate statistically significant results following analysis of one year of post implementation for the treatment regression, model of calibration vs. treatment, slope, and intercept. Also noted in table 3 and figures 5 and 6, results for alkalinity, hardness, and chloride indicated significantly different intercepts but not slopes which suggests an overall parallel shift in the regression equation, indicating lower than predicted hardness and chloride values increased alkalinities compared to pre-implementation values.

Comparisons between observed and predicted values are also useful for documenting a change due to implementation activities in the watershed. Figures 7 – 15 depict differences between observed and predicted values, as well as deviations from expected (predicted) values throughout the first year of the treatment period. The treatment regression equations (Table 2), and model regressions and slopes were significant for total phosphorus concentrations, Nitrite concentrations, pH, and temperature, although intercepts were not significantly different (Table 3).

Although the ANCOVA results suggested statistical significance for turbidity and discharge, the treatment regressions were not significant (Table 2), which may have been due to an insufficient number of post-implementation samples. In addition, the treatment regression, overall treatment vs. calibration model, slopes and intercepts were statistically significant for dissolved oxygen; however, the percent difference between treatment and calibration period was not sufficient to overcome sample variability. The additional data collected during the second year of post implementation monitoring may be sufficient to allow the comparison.

Table 3. ANCOVA Results for Calibration and Treatment Period Regressions.

Parameter	n		ANCOVA Results			Calibration Average		Treatment Average			% Difference	Min. % Difference
	Calib	Treat	model	Slope	Intercept	Tyner	Peacheater	Tyner	PE Obs.	PE Pred.		
Total Phosphorus (mg/L)	29	39	Significant	Significant	Not Significant	0.030	0.037	0.036	0.045	0.036	+24%	2.6%
Total Phosphorus Loading (kg/yr)	35	28	Significant	Significant	Significant	731.45	1145.69	341.79	308.82	425.43	-27%	6.7%
Dissolved Oxygen (mg/L)	67	55	Significant	Significant	Significant	9.41	9.38	9.53	9.11	9.02	+0.95%	1.4%
Turbidity (NTU)	68	58	Significant	Significant	Significant	1.77	1.70	2.96	0.85	2.45	-65%	23%
Nitrate (mg/L)	40	28	Significant	Significant	Significant	2.68	3.21	2.74	2.41	3.24	-26%	5.1%
Nitrite (mg/L)	35	28	Significant	Significant	Not Significant	0.004	0.008	0.009	0.006	0.013	-54%	1.8%
TKN (mg/L)	35	28	Significant	Not Significant	Not Significant	0.17	0.19	0.11	0.13	0.12	+14%	11%
Total Nitrogen Loading (kg/yr)	36	27	Significant	Significant	Significant	153,140	197,069	35,593	24,519	34,311	-29%	1.9%
Sulfate (mg/L)	32	29	Significant	Not Significant	Not Significant	4.16	5.00	4.45	5.00	4.98	+0.3%	11%
pH	69	49	Significant	Significant	Not Significant	7.39	7.44	7.27	7.30	7.34	-0.6%	0.3%
Conductivity (µS/cm)	69	51	Significant	Not Significant	Not Significant	167	149	221	206	221	-7.0%	2.3%
Temperature (°C)	69	51	Significant	Significant	Not Significant	14.3	13.6	15.3	15.9	15.1	+5.7%	1.0%
Alkalinity (mg $CaCO_3$/L)	68	44	Significant	Not Significant	Significant	62.6	51.2	83.6	70.0	61.4	+14%	0.9%
Hardness (mg $CaCO_3$/L)	40	29	Significant	Not Significant	Significant	76.86	73.25	99.09	81.91	93.71	-13%	1.6%
Chloride (mg/L)	40	28	Significant	Not Significant	Significant	7.30	7.91	7.14	7.04	7.63	-7.7%	2.1%
Discharge (cfs)	67	50	Significant	Significant	Significant	25.98	26.03	10.63	6.07	5.30	15%	17%



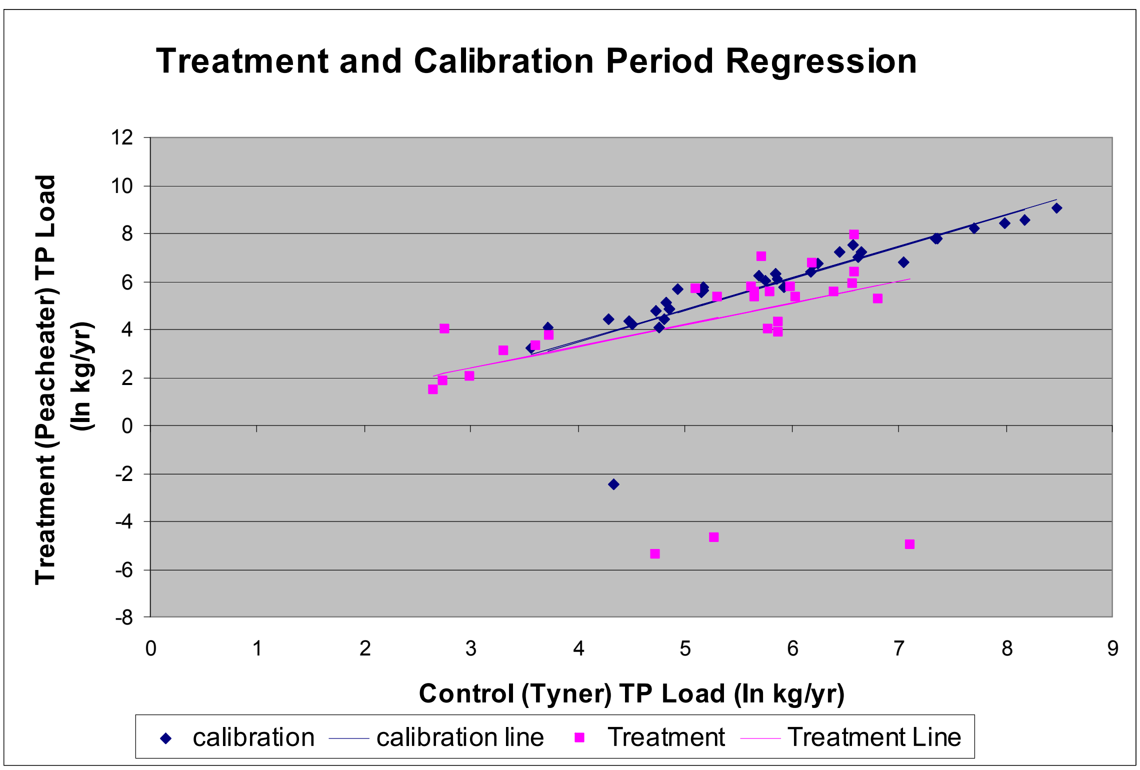
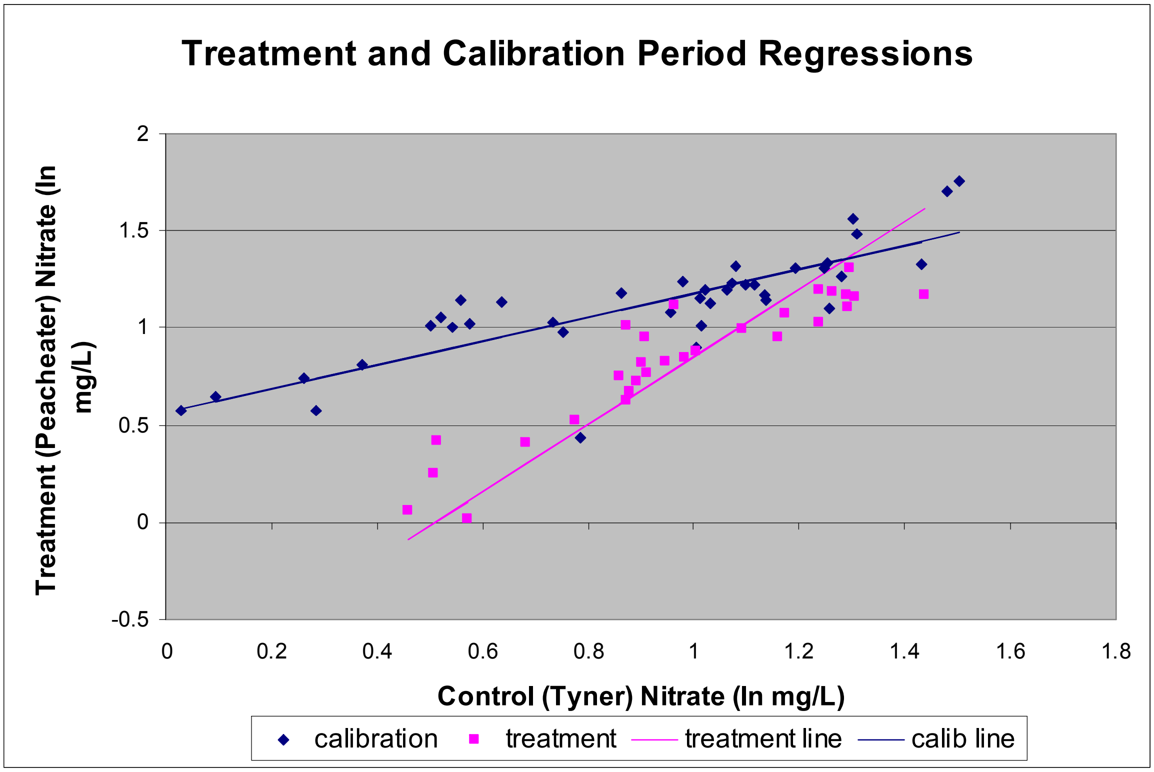


Figure 2. Treatment Vs. Calibration Regressions for TP Concentration and TP Load.



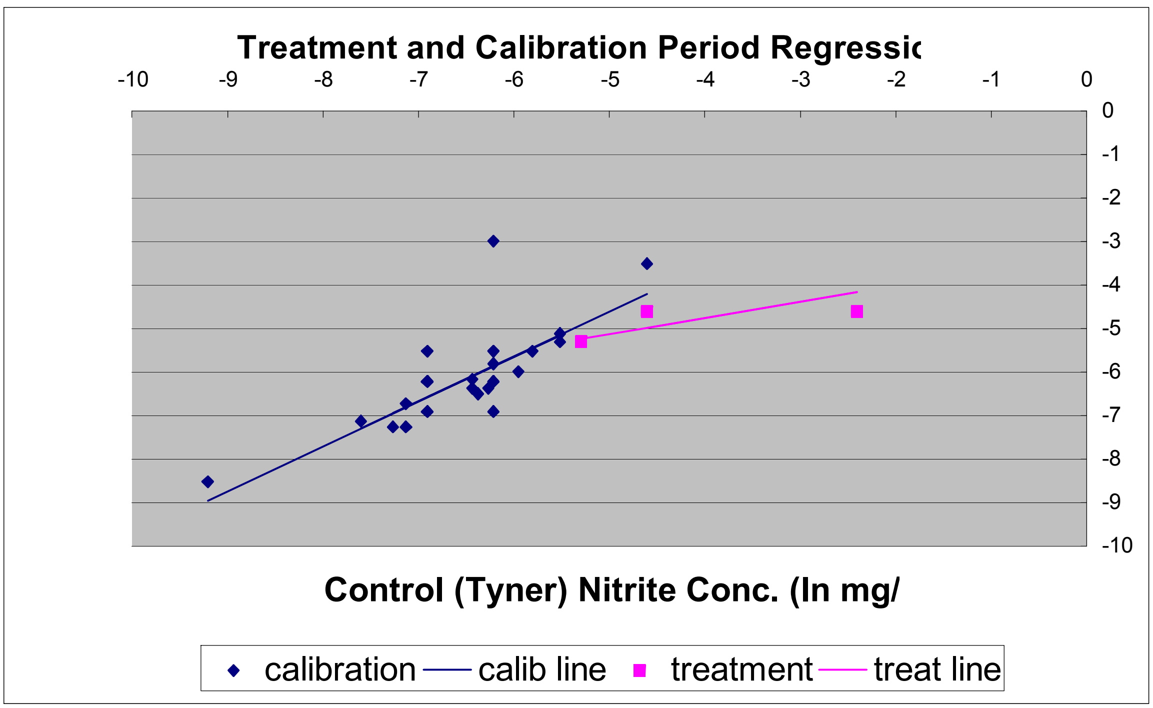
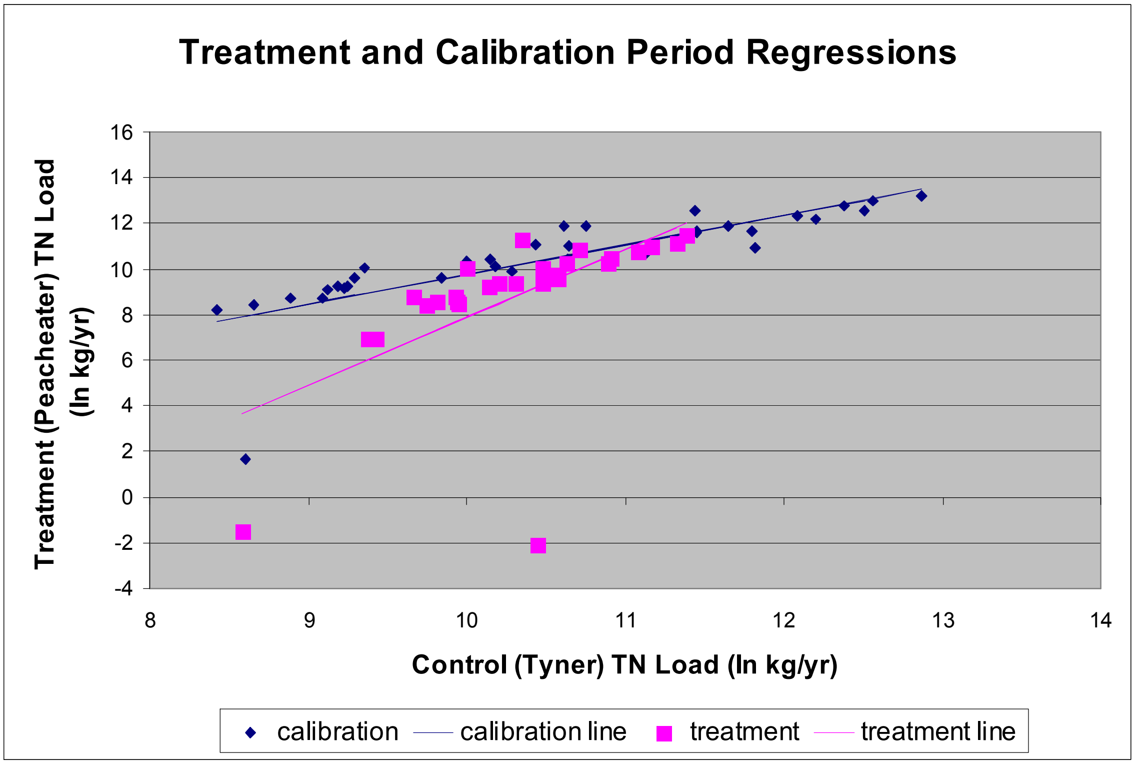


Figure 3. Treatment Vs. Calibration Regressions for Nitrate and Nitrite Concentrations.[2]

[2] Although nitrite post-implementation or treatment period nitrite values appear to be represented by only 3 points, n = 28, however, all readings were measured as one of three values (<0.01, < 0.02 or 0.09).



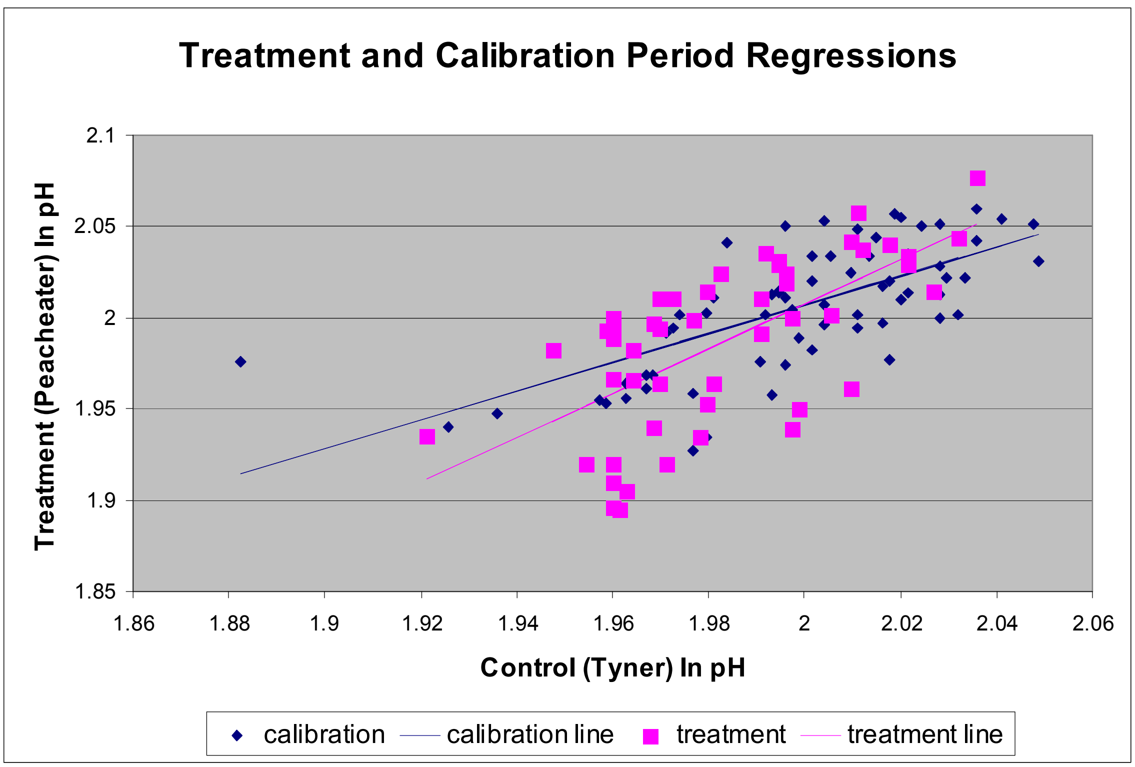
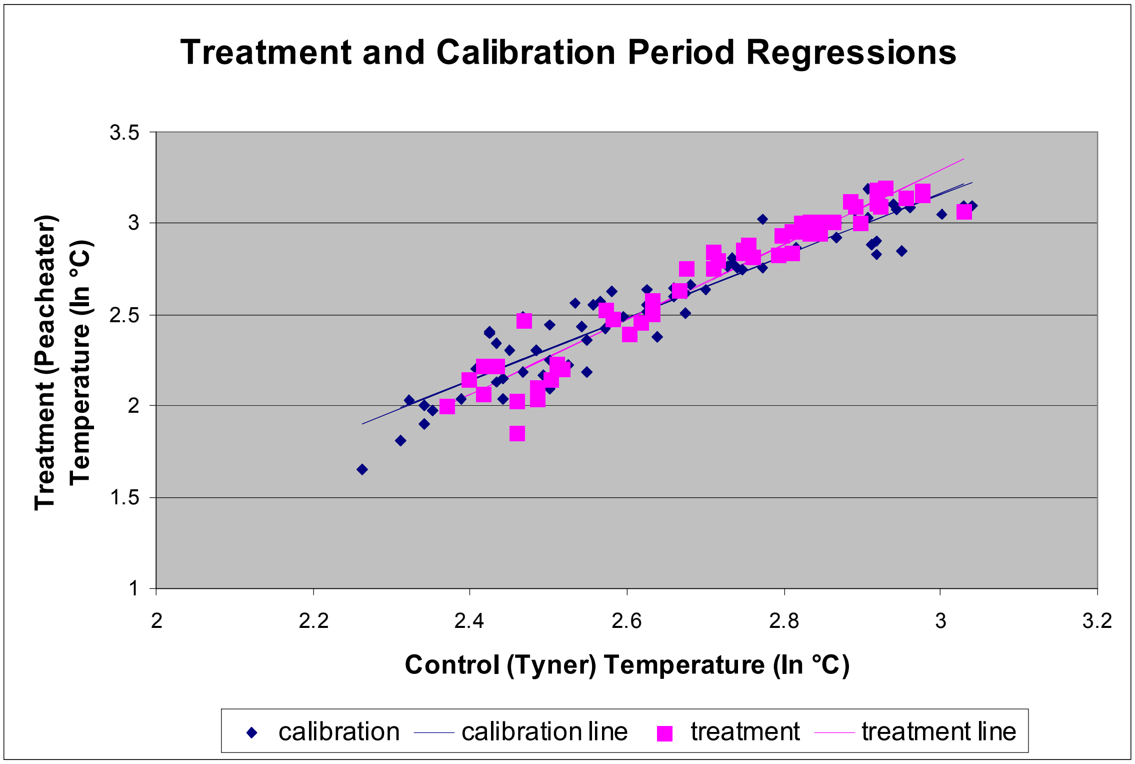


Figure 4. Treatment Vs. Calibration Regressions for Total N Load and pH.



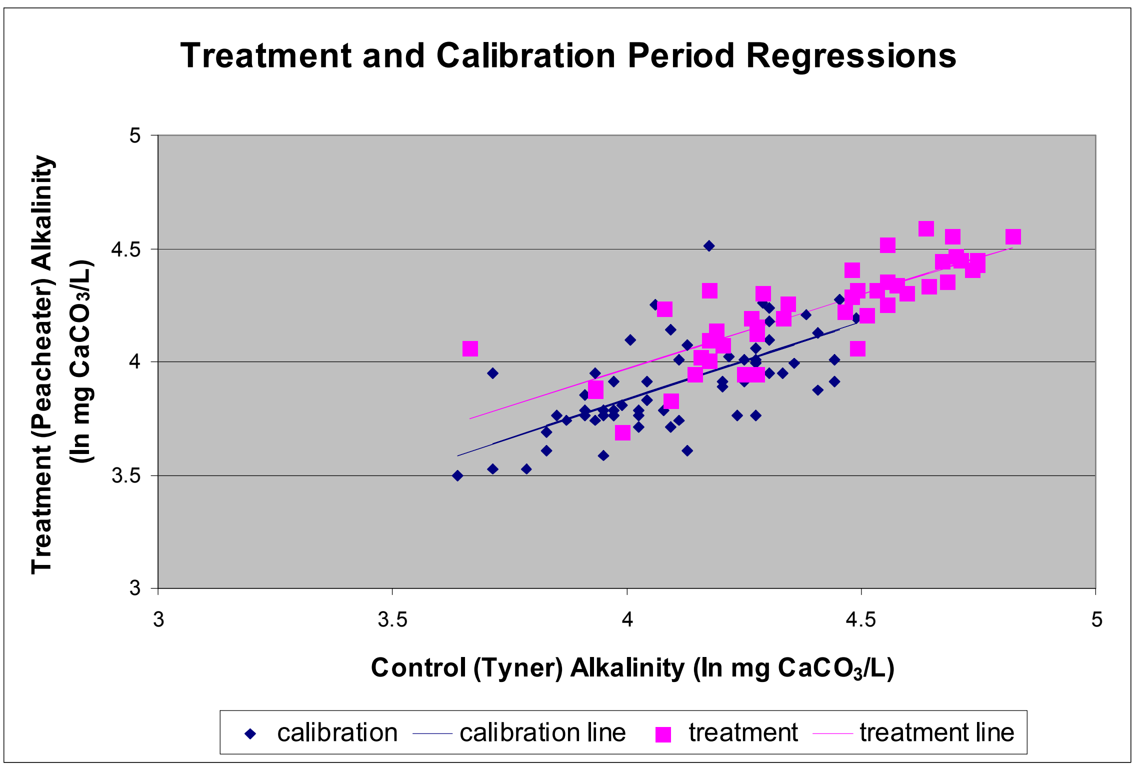
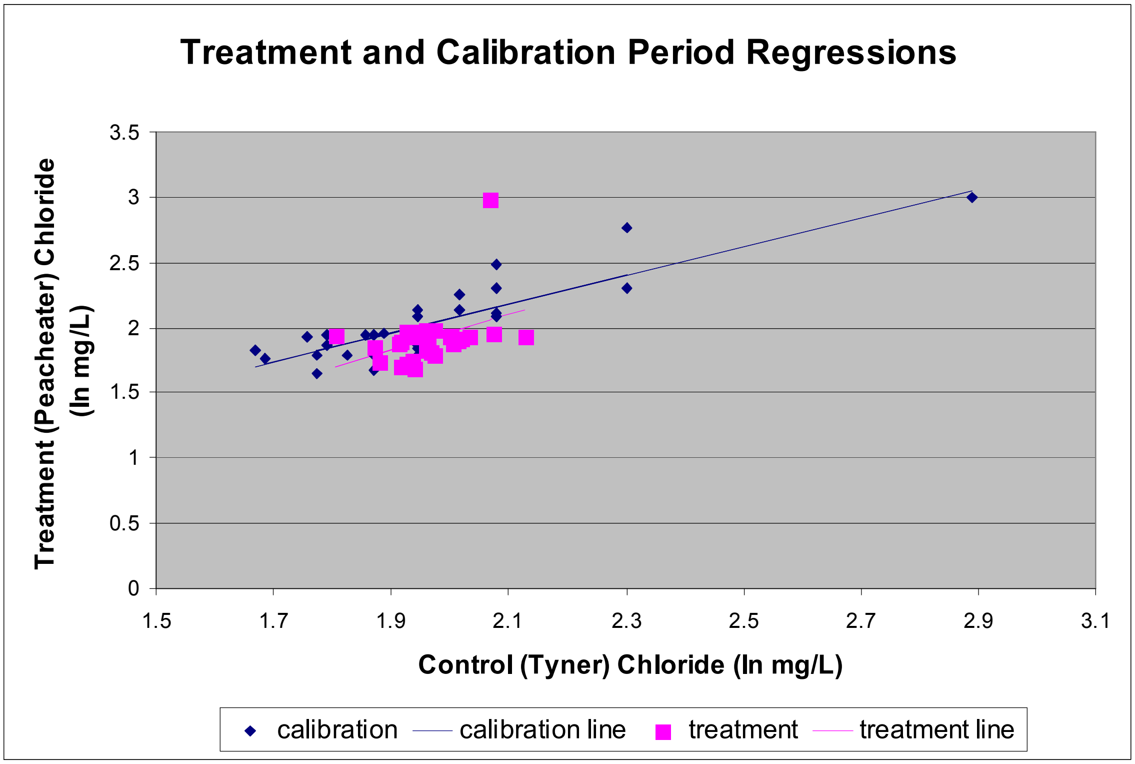


Figure 5. Treatment Vs. Calibration Regressions for Temperature and Alkalinity.



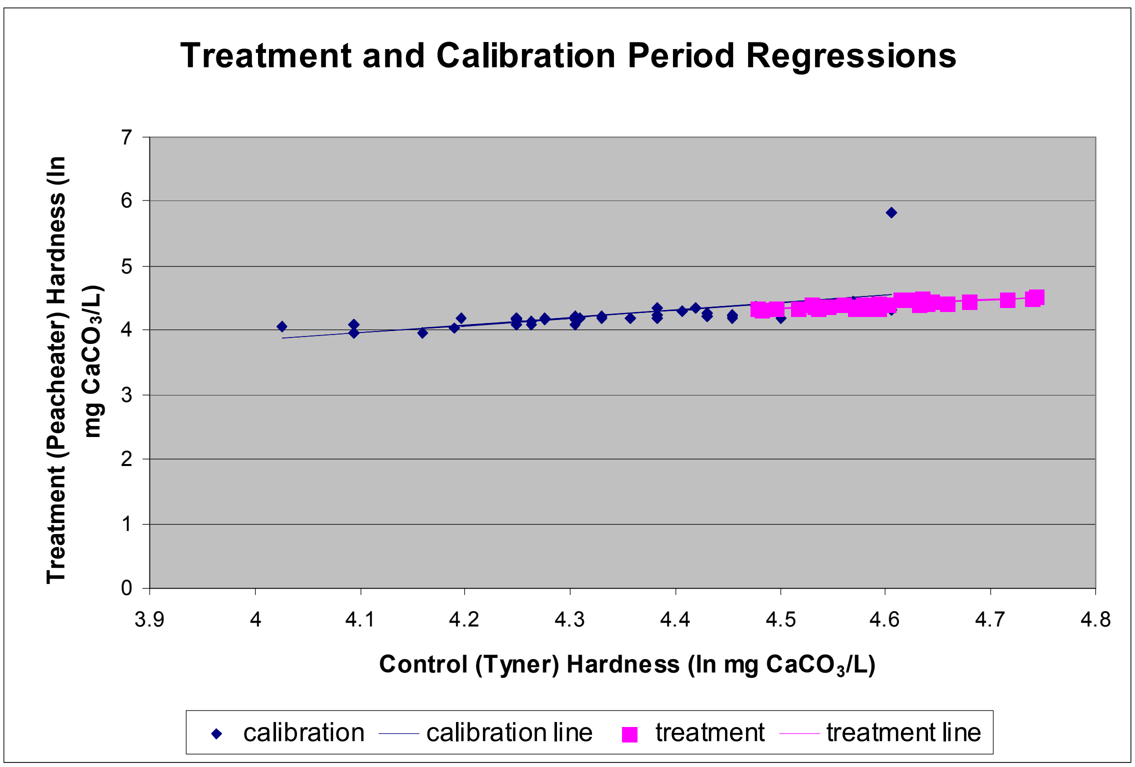


Figure 6. Treatment Vs. Calibration Regressions for Chloride and Hardness.

In summary, the analysis suggests the following statistically significant changes between calibration and the first year of the treatment period, compared to the expected (predicted) results in the absence of implementation:

- an increase in total phosphorus concentration by 24%,
- a decrease in total phosphorus loading by 27%
- a decrease in nitrate concentrations by 26%
- a decrease in total nitrogen loading by 29%
- a decrease in pH by 0.6%,
- an increase in temperature by 5.7%,
- a increase in alkalinity by 14%
- a decrease in hardness by 13%, and
- a decrease in chloride by 7%.

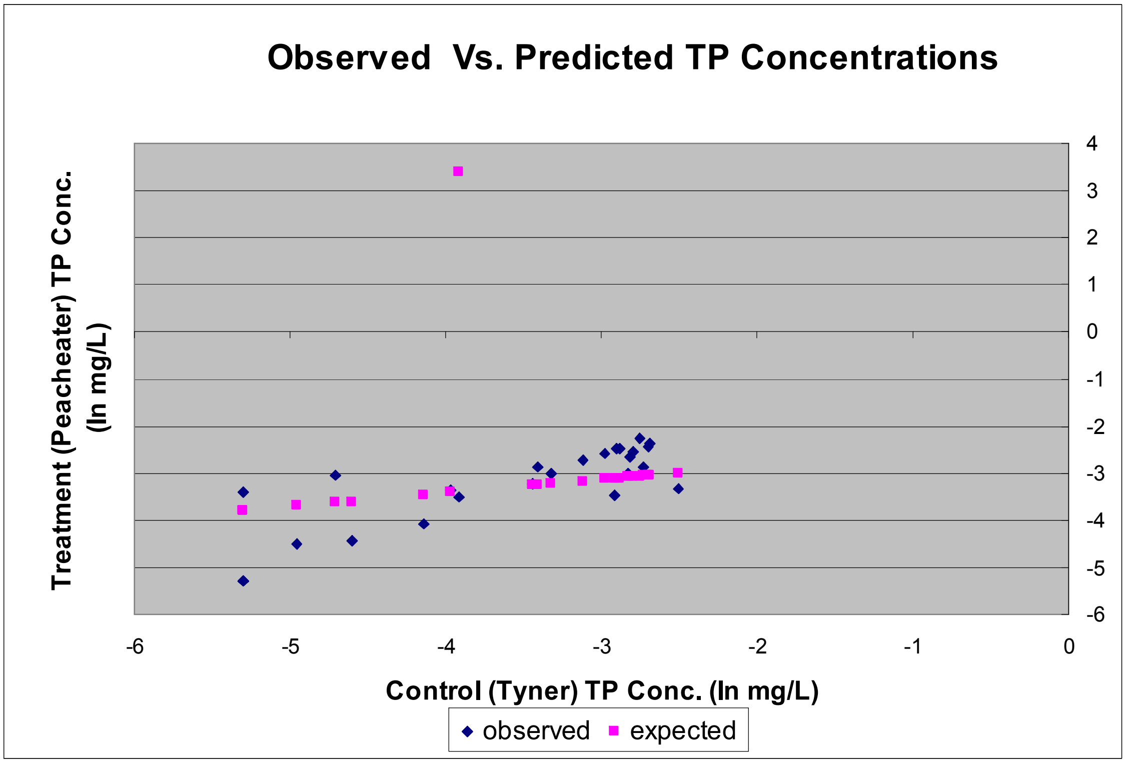
Decreasing comparative phosphorus loading appears to be related to overall lower values, but most specifically related to three events where Peacheater Creek loading was significantly lower than Tyner Creek Loading (Figures 2, 8, and12). Decreases in comparative Total Nitrogen Loading is also related to overall lower values than expected, plus two values that were significantly lower than Tyner events. Although the parameters most important for the downstream Illinois River and Lake Tenkiller (total nitrogen and total phosphorus loading) suggest improvements due to the implementation of BMPs, the increase in (predicted vs. observed) phosphorus concentration compared to the decrease in (predicted vs. observed) phosphorus loading should be discussed.

Several possible explanations exist for this increase in relative concentration concurrent with a relative decrease in loading. Such an occurrence could be due to lower dilution of runoff during the comparatively dry first year of the treatment period. Fewer, smaller runoff events could result in higher concentrations, but lower loading than during years with more frequent runoff events.

Another possible explanation is that implementation addressing some major sources of nutrient loading may cause remaining sources to become increasingly significant. For example, substantial improvements in upland animal waste management in the watershed may increase the relative impacts of septic systems or nonparticipating landowners who have yet to fence livestock out of the stream. A more likely explanation, which was realized throughout the duration of the project, may also be related to the behavior of a nonparticipating landowner adjacent to the downstream Peacheater sampling site. In defiance of the program's objectives, this landowner cleared his riparian areas and increased herd densities near the sampling. He maintained herd densities upwards of 3.5 to 4 cattle per acre contributing to significant overgrazing year-round. On several sampling occasions, cow plop densities in the stream channel were approximately 8-10 per m^2. Fewer runoff events may have increased the effects of this landowner's management on phosphorus concentrations at this monitoring site although overall, implementation resulted in comparatively lower phosphorus loadings than expected.

In other words, implementation may have been more effective at addressing highflow-driven phosphorus loading and less effective at addressing low-flow driven water quality problems. The idea that implementation affected highflow-driven phosphorus loading more effectively than low-flow driven loading is further illustrated by the bottom graph in figure 2. Lower loadings do not differ significantly between Treatment and Calibration Periods, but as loadings increase in both creeks, Treatment Period loadings become significantly lower than Calibration Period loadings. On average, the treatment period loading is 27 % ($\alpha = 0.001$) lower than as predicted, based on calibration period loading.

Conversely, the top graph in Figure 4 shows that low flow total nitrogen loadings were more greatly affected by implementation than high flow nitrogen loading. This difference may be related to the fact that, especially in this system, phosphorus in runoff is largely sediment bound, while nitrogen in runoff is primarily in soluble form (as nitrate). BMPs installed were largely selected to intercept or filter runoff, either increasing infiltration of runoff before it reached channels or at a minimum, intercepting particulate matter as it flowed past. Total nitrogen loading at comparatively low flows may have been reduced by the implementation of improved manure management systems and overall reduced livestock presence in the stream channels compared to pre-implementation. However, during runoff events, highly soluble nitrogen was still easily carried to streams at similar levels to those during the pre-implementation period. On average, comparative total nitrogen loading was significantly lower than pre-implementation loading, but different BMPs may be needed to significantly decrease high flow total nitrogen loading.



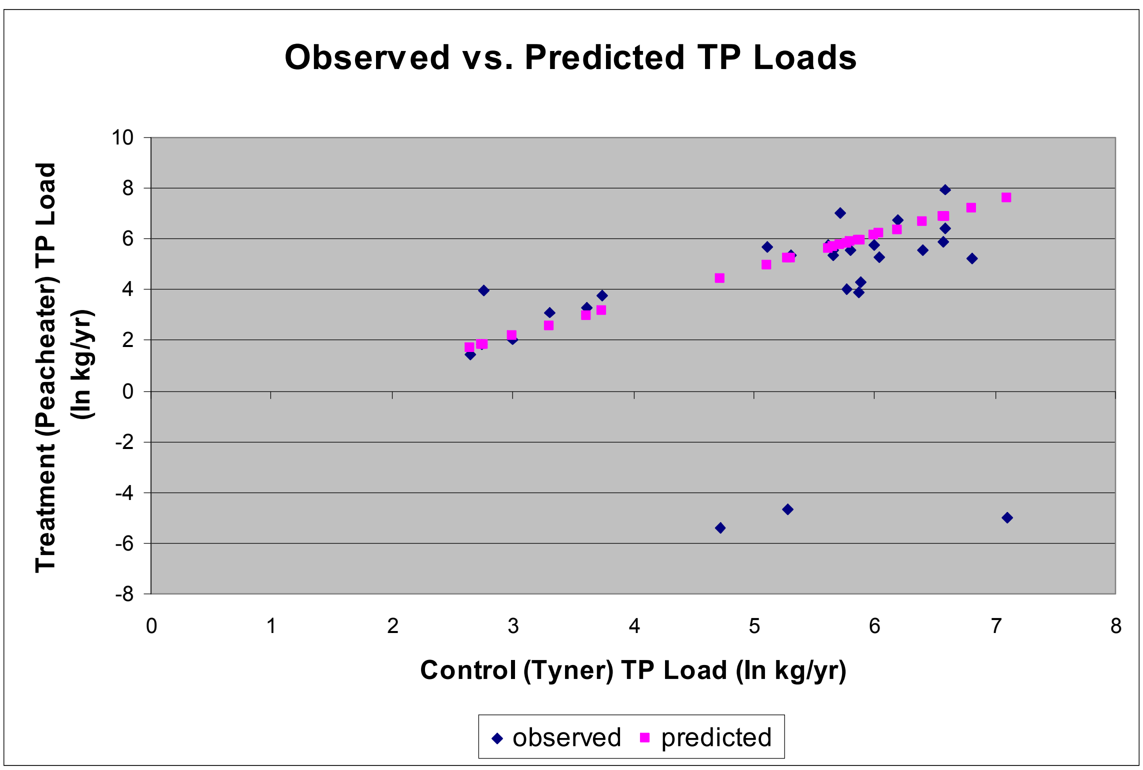
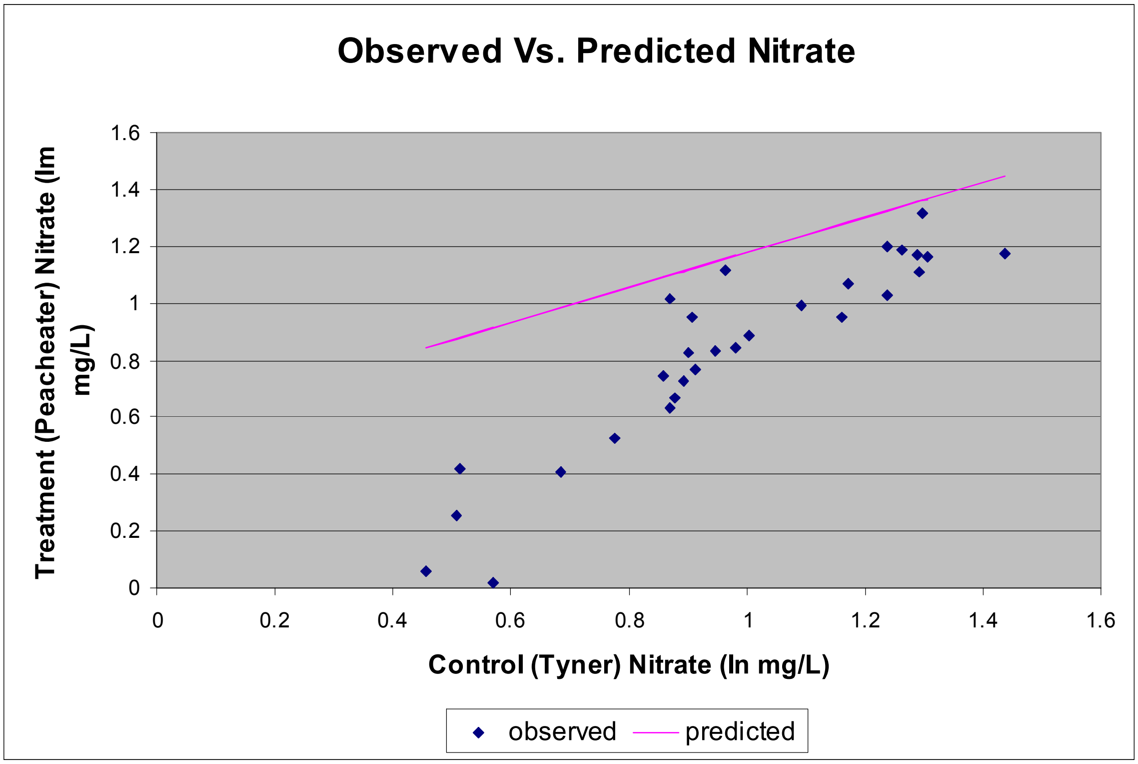


Figure 7. Comparison of Observed Vs. Predicted TP Concentrations and Loading.



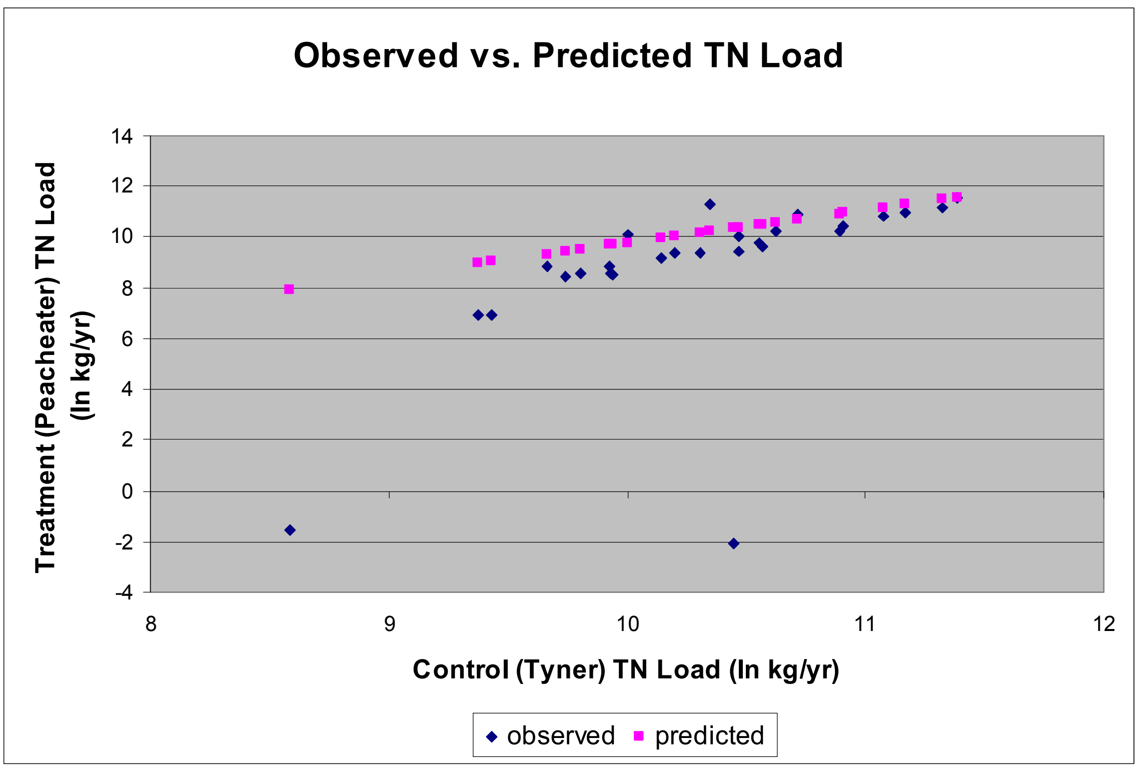
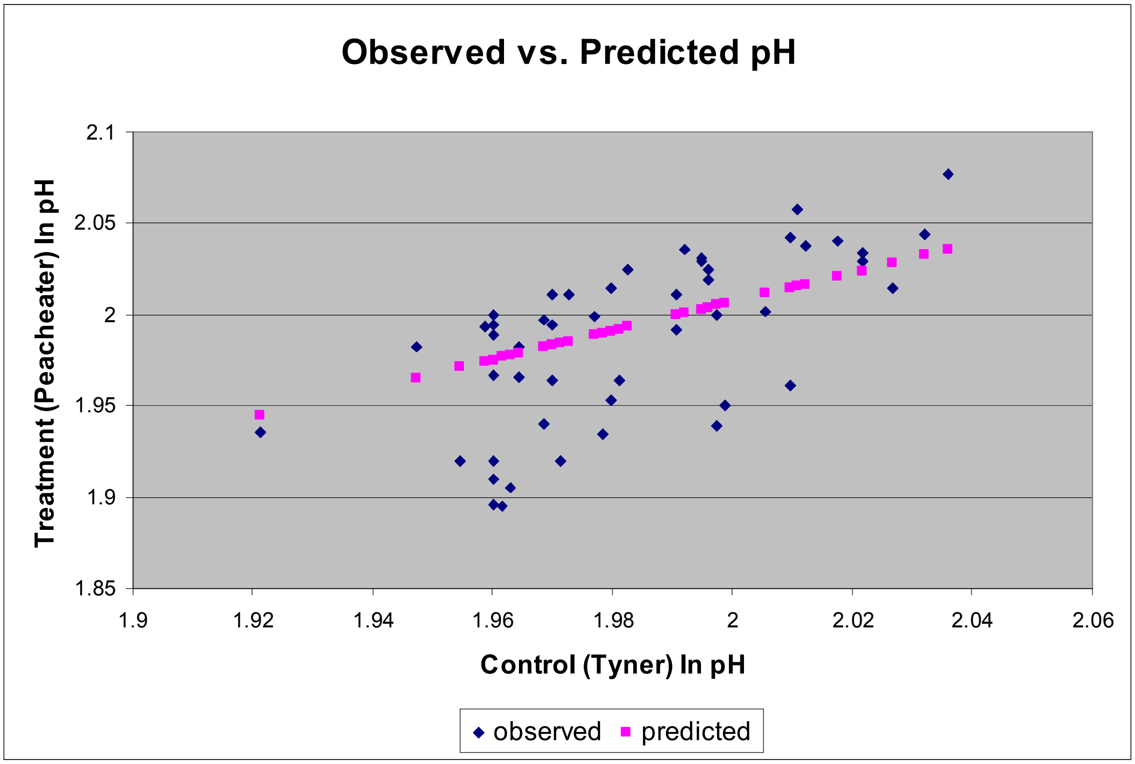


Figure 8. Comparisons between observed vs. predicted Nitrate Concentrations and Total N Loading.



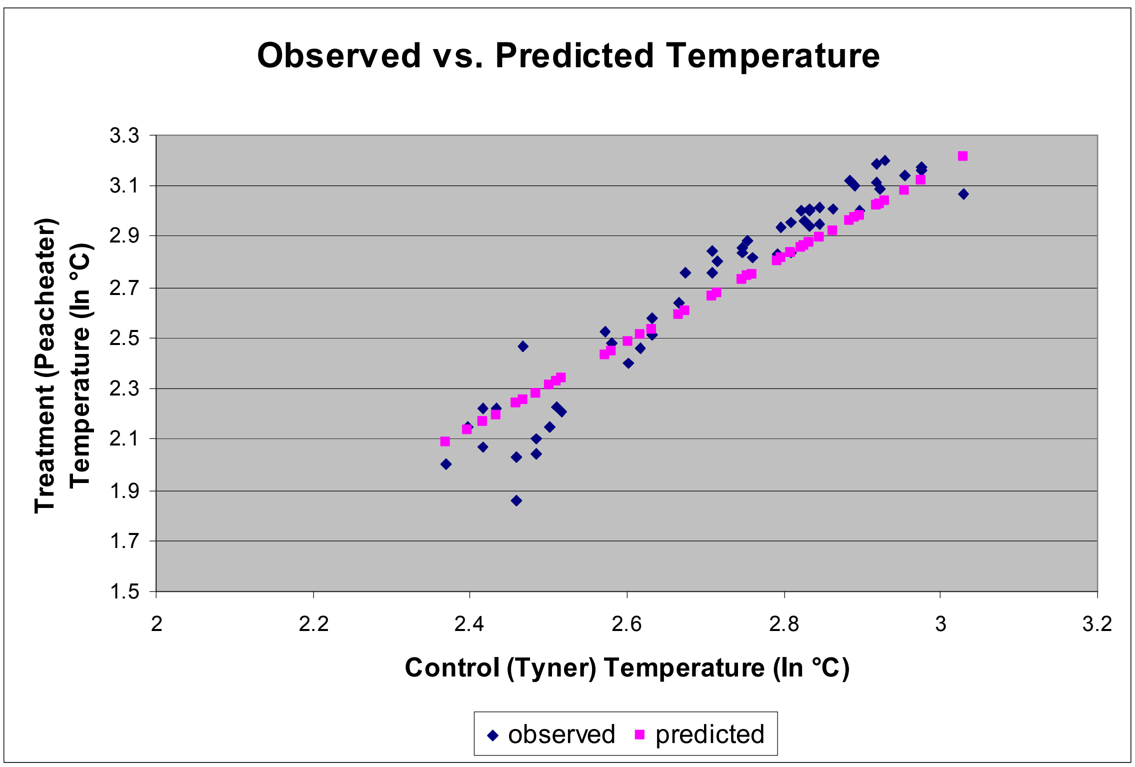
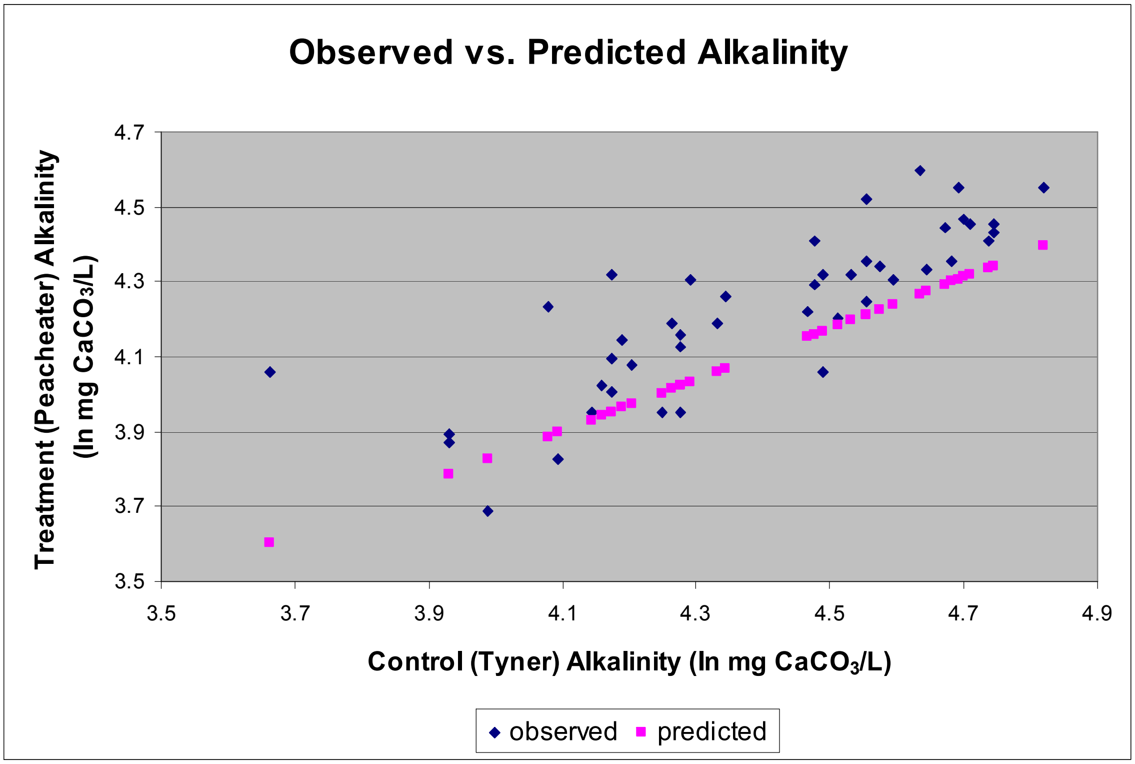


Figure 9. Comparisons between observed and predicted pH and Temperature.



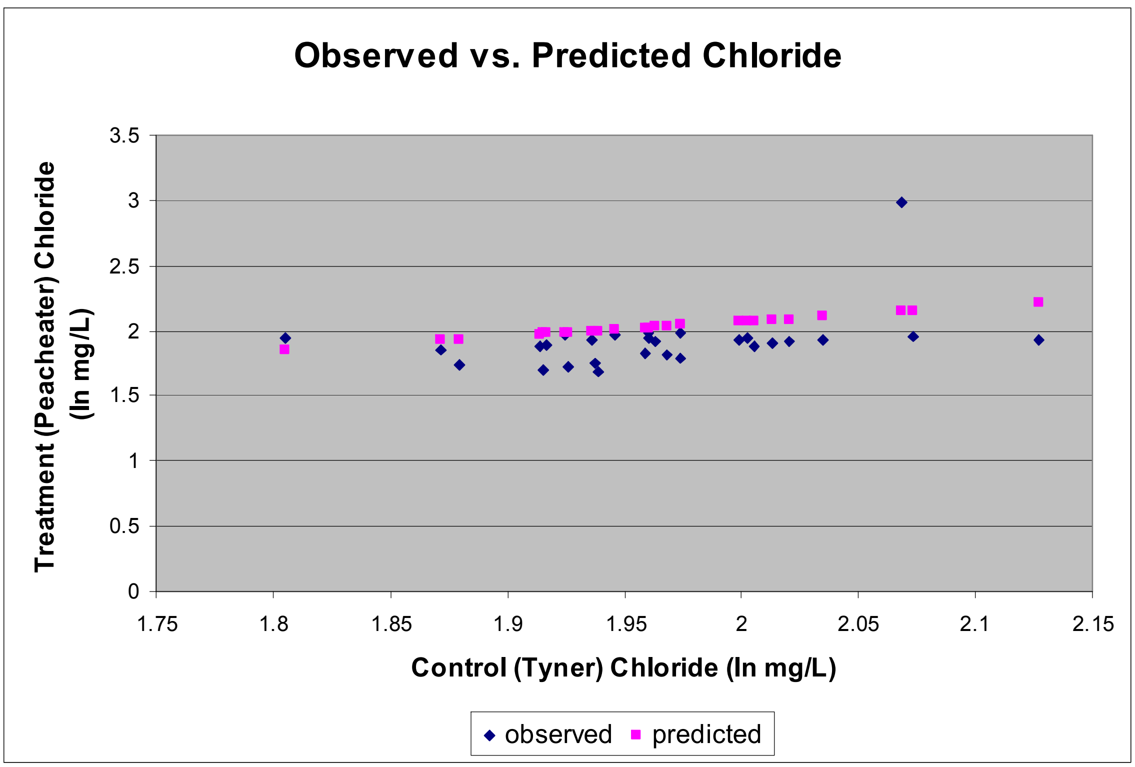
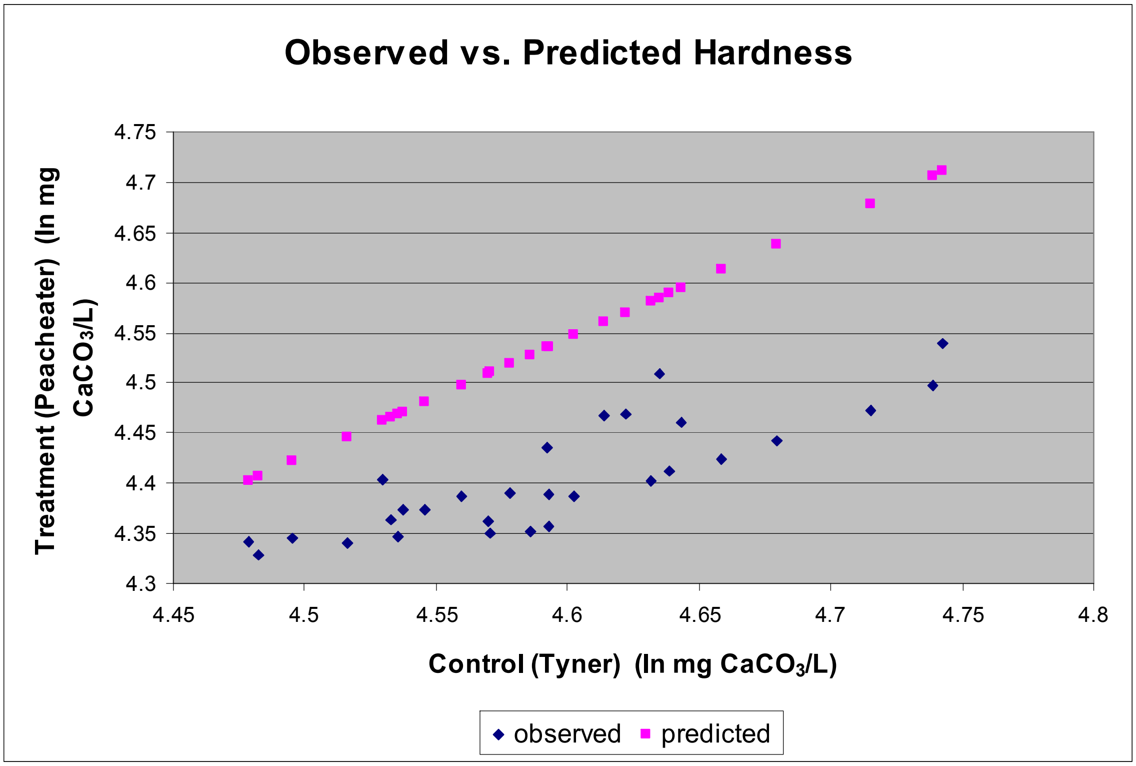


Figure 10. Comparisons between observed and predictedalkalinity and chloride.



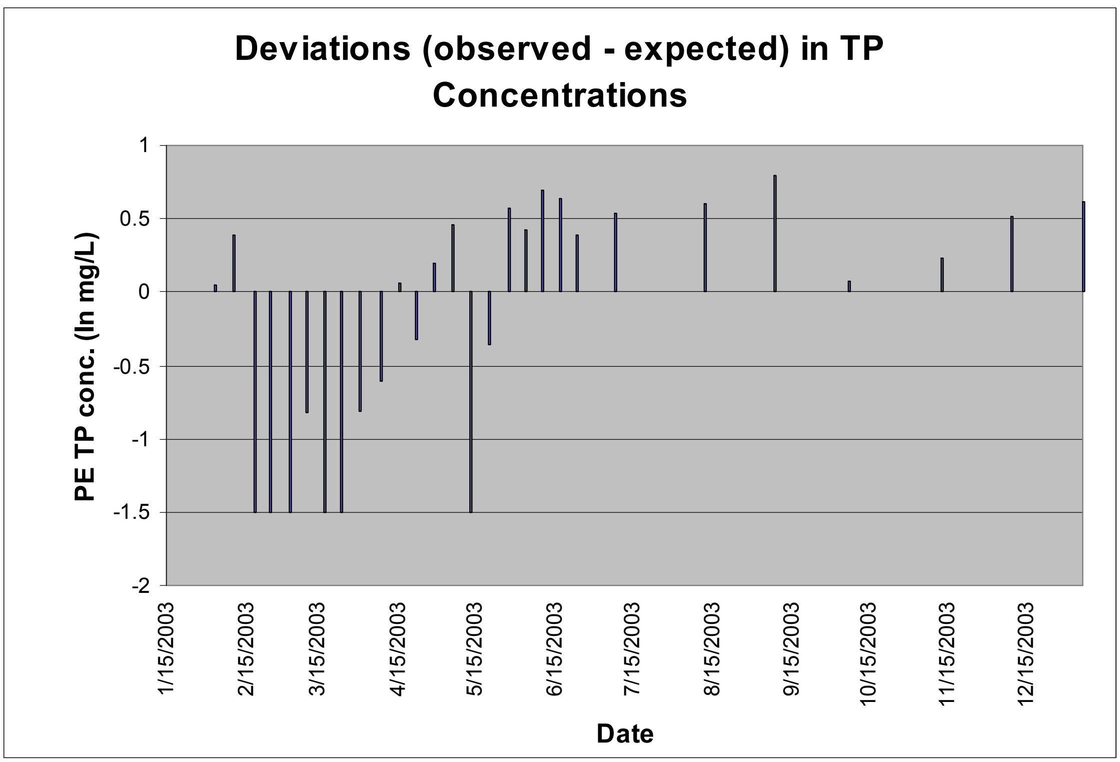
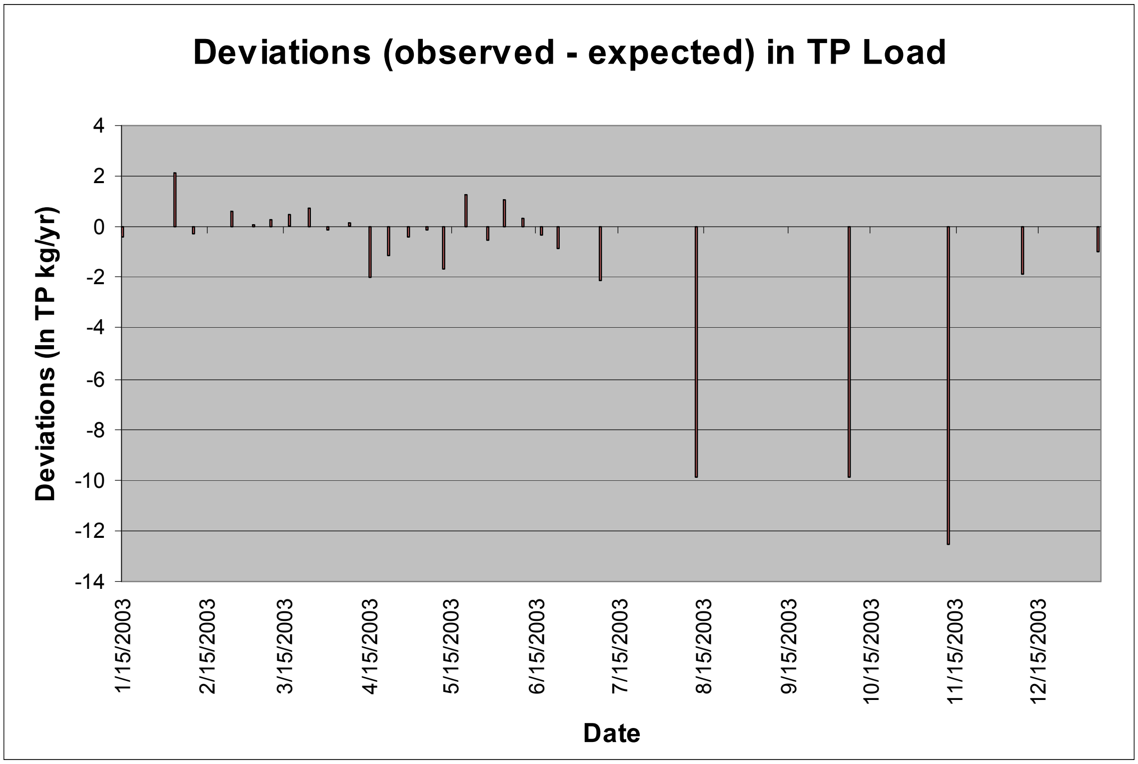


Figure 11. Comparison between observed and predicted hardness and deviations in TP Conc.



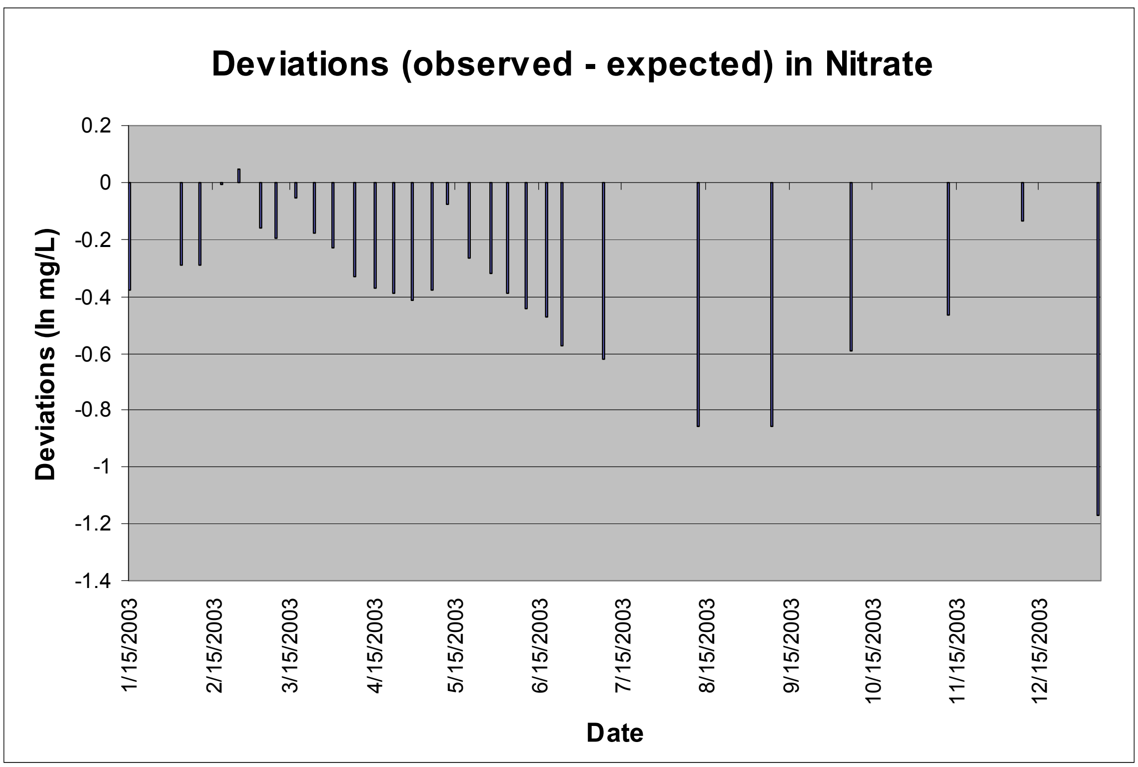


Figure 12. Deviations between observed and expected P loading and Nitrate in Peacheater Creek.

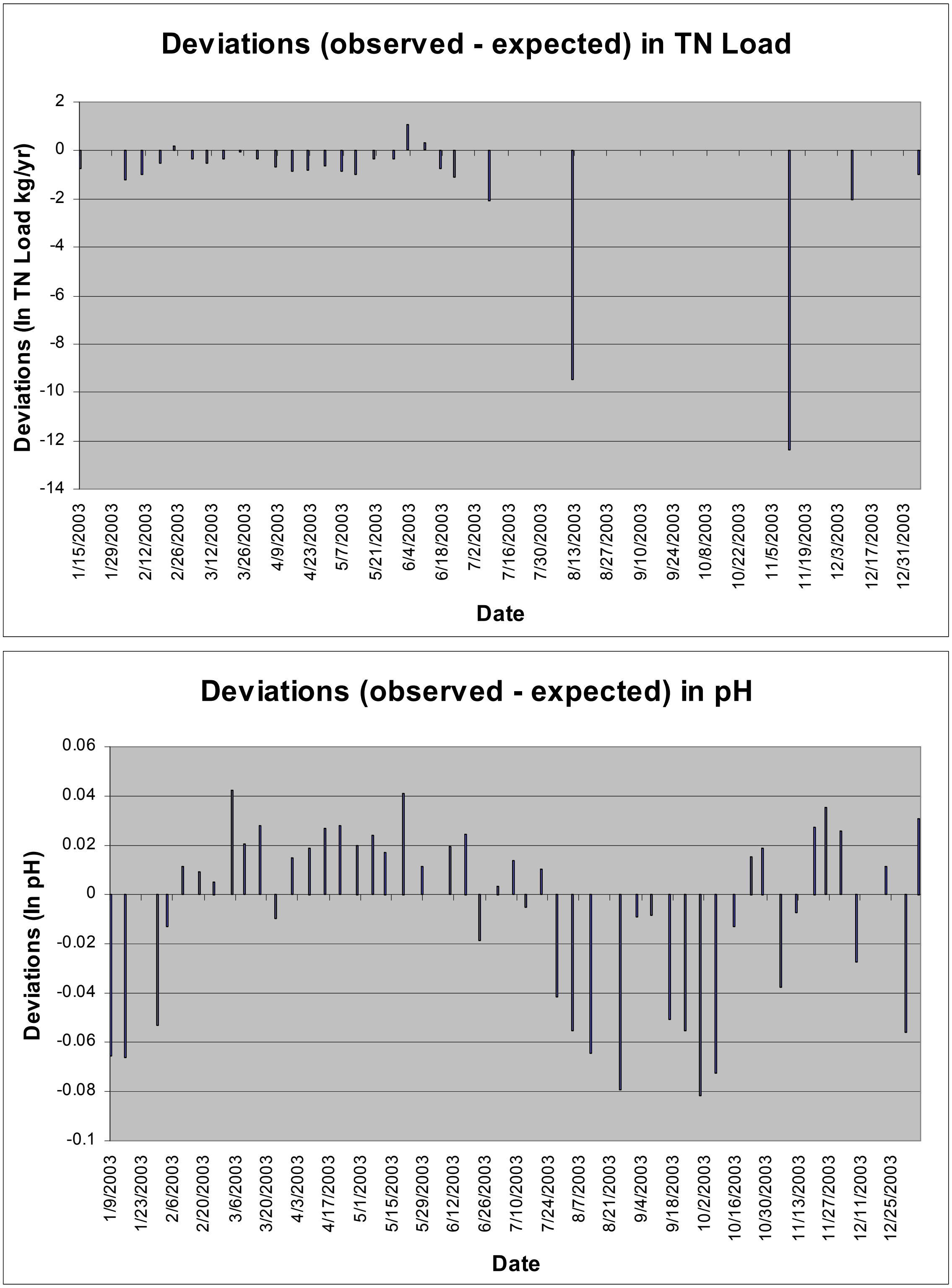
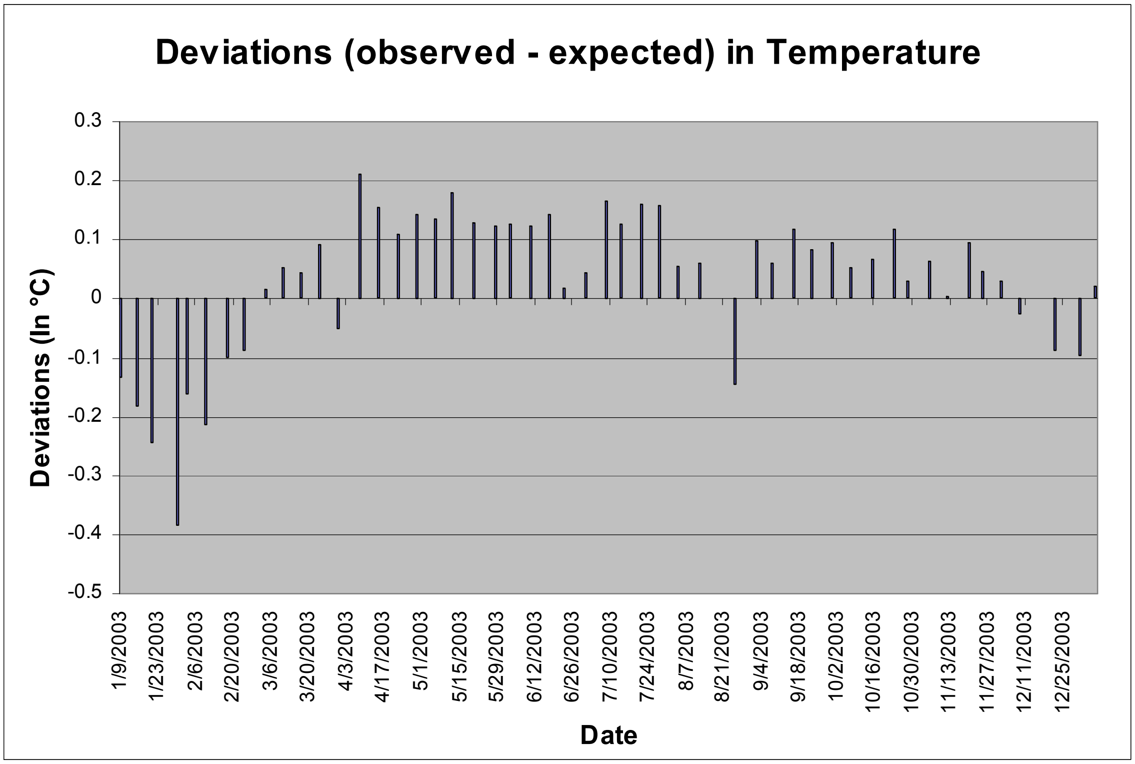


Figure 13. Deviations between observed and expected TN Loading and pH in Peacheater Creek.



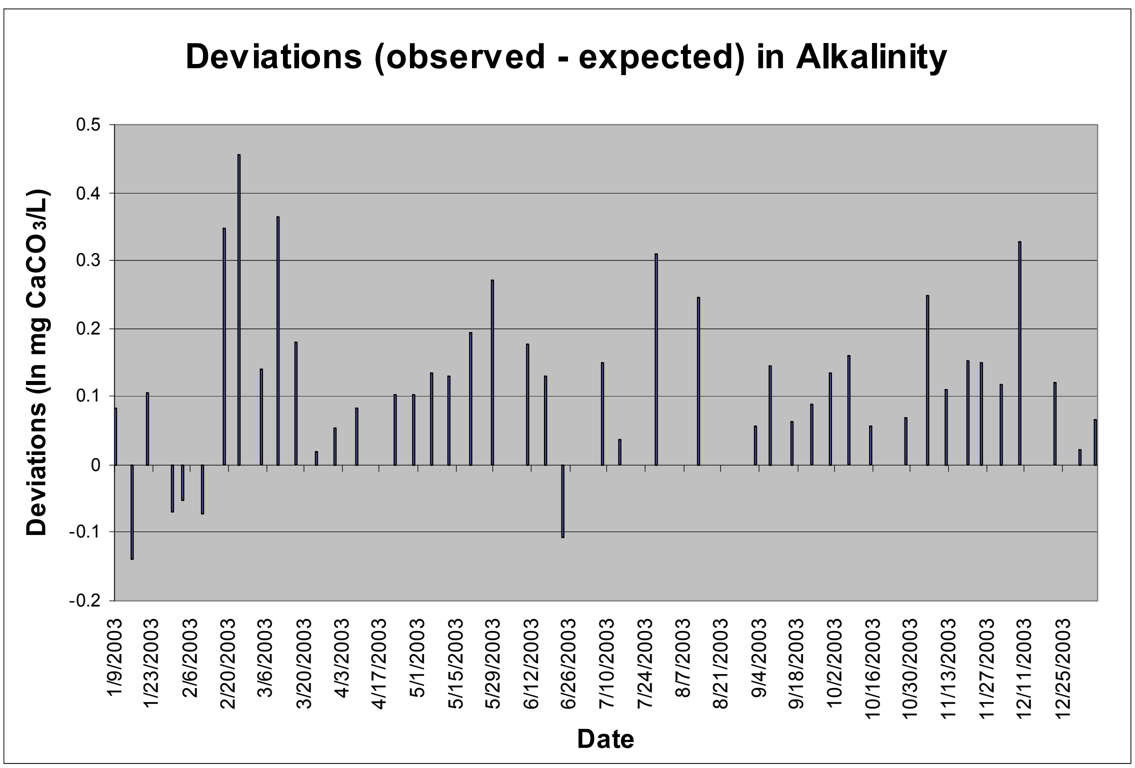
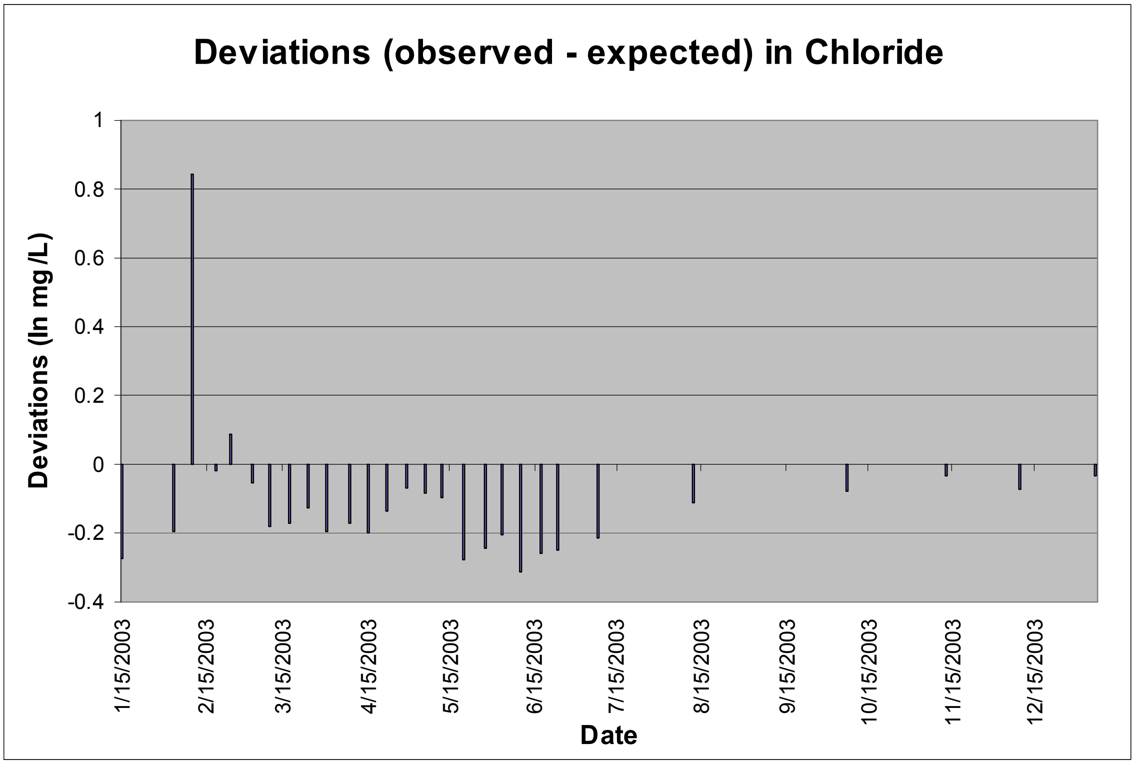


Figure 14. Deviations between observed and expected temperature and alkalinity in Peacheater Cr.



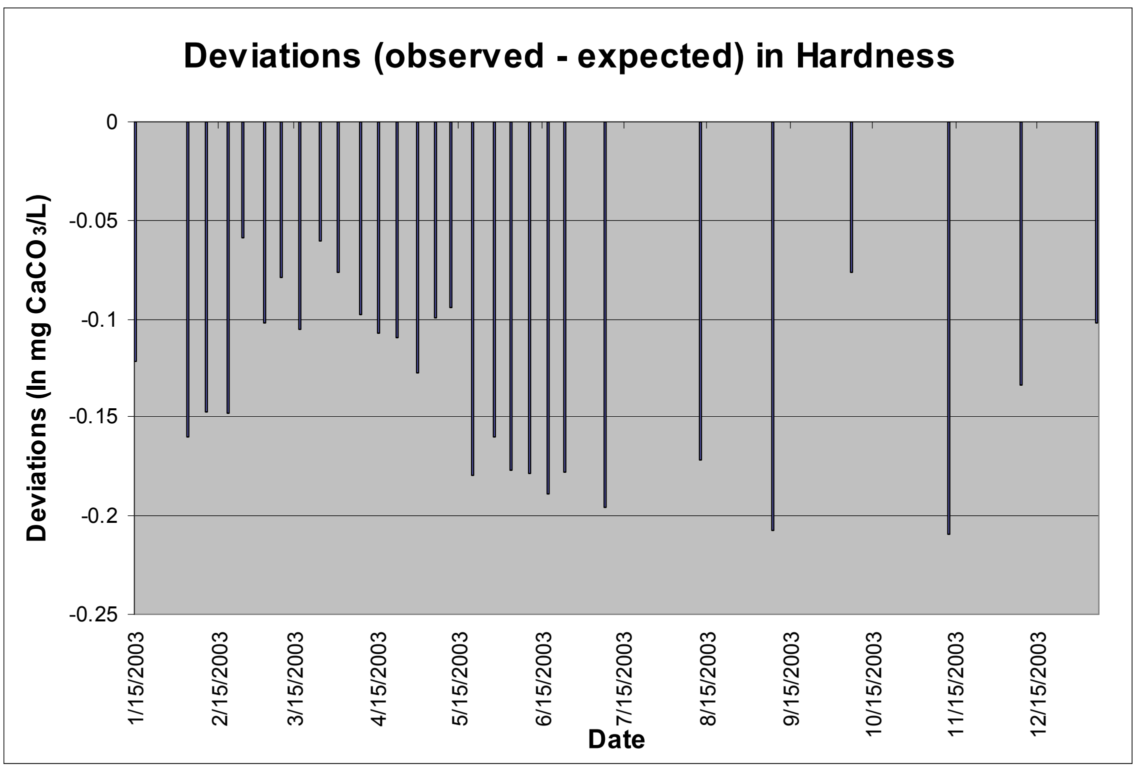


Figure 15. Deviations between observed and expected chloride and hardness in Peacheater Creek.

Additional data from the second year of post-implementation monitoring may clarify the reason behind the increased concentrations yet decreased loading or the discrepancy may be eliminated following the second year worth of monitoring.

COMPARISON OF IN-STREAM HABITAT

The presence of suitable habitat is critical to the survival of biological communities in streams. Comparison of habitat available and biota present may provide insight to whether water quality, habitat availability, or some other factor limits the biological community.

Poor habitat related to large gravel bedloads are one of the main sources of water quality impact to many of the smaller, headwater streams in the Illinois River Watershed. Gravel from streambank and upland erosion fills in pools and smothers stable habitat as it moves downstream during high flow events. Gravel alters the hydrology of the system to lead to further downstream bank erosion and greater downstream gravel inputs. Therefore, one goal of the implementation will be to improve the quality of habitat in the stream by stabilizing streambanks and reducing upland erosion. Over time, these changes should result in more stable gravel in the streams, and in better habitat overall.

Comparison of the habitat metrics (**Table 4**) suggests little difference between overall habitat measurements in Peacheater and Tyner Creeks during either pre- or post-implementation periods, and no statistically significant differences between pre- and post-implementation monitoring results. **Table 5** documents quartile distributions for pre- and post-implementation habitat scores. Tyner Creek demonstrated a significantly lower median habitat score than Peacheater Creek during the pre-implementation period; however during the first year of post-implementation monitoring, median values are no longer significantly different. Additional data collected during the second year of post-implementation monitoring should allow additional conclusions to be drawn related to this data.

.Table 4. Summary of Habitat Metric Scores of Peacheater and Tyner Creeks.

Stream	Date	In-stream Cover	Pool Bottom Substrate	Pool Variability	Canopy Cover Shading	Rocky Runs and Riffles	Channel Alteration	Bank Stability	Bank Vegetation Stability	Streamside Cover	Total Score
Peacheater	11/30/93	15.4	19.5	14.8	13.9	16.5	7.1	7.1	4.2	4.9	103.4
Tyner	12/22/93	14.5	18.4	14.9	12.6	16.5	8.2	7.0	4.0	4.9	101
Peacheater	8/22/96	18.4	19.5	10.3	8.1	15.0	10.6	7.6	6.8	4.0	100.3
Tyner	8/30/96	17.1	18.2	8.8	12.4	11.0	10.5	6.4	4.8	5.7	94.9
Tyner	9/24/96	17.0	19.0	5.9	11.8	9.5	10.9	4.7	4.2	4.6	87.6
Peacheater	10/24/96	18.8	19.5	18.2	14.0	15.6	0.8	5.8	2.5	6.0	101.2
Tyner	10/24/96	18.1	18.2	14.5	11.3	14.1	3.5	6.1	3.3	6.9	96
Peacheater	12/27/96	19.2	19.3	14.6	13.9	18.5	1.2	5.8	2.2	4.9	99.6
Tyner	12/30/96	18.9	17.8	14.8	11.5	17.9	4.2	6.3	2.8	4.6	98.8
Peacheater	1/23/97	19.2	19.2	18.2	13.9	16.8	1.2	5.5	2.2	4.9	101.1
Tyner	1/24/97	18.3	18.0	14.4	11.4	14.6	2.9	5.4	2.7	4.6	92.3
Peacheater	3/19/97	19.2	20.0	14.7	13.8	20.0	1.2	8.5	4.4	4.9	106.7
Tyner	3/18/97	18.8	18.6	13.1	11.4	19.8	3.2	6.6	2.3	4.5	98.3
Peacheater	4/29/97	19.0	19.6	13.4	14.3	17.7	0.3	6.8	2.5	6.4	100
Tyner	4/30/97	18.9	19.0	13.6	11.3	19.3	1.1	6.7	2.3	4.5	96.7
Peacheater	5/28/97	18.9	19.5	13.2	14.5	17.4	0.0	6.8	2.5	6.4	99.2
Tyner	5/23/97	18.3	19.4	13.5	11.3	16.1	1.0	5.7	2.4	4.5	92.2
TB1	6/19/03	17.6	18.4	18.8	19.9	16.2	11.1	8.7	4.1	9.1	123.9
PE1	6/23/03	18.7	18.2	19.4	5.3	15.2	2.8	8.8	3.3	4.2	95.9
Tyner-Downstream	7/14/03	18.4	16.7	17.2	17.4	16.3	0.7	9.1	5.5	10	111.3
TB5	7/15/03	19.1	18.1	16.5	12.1	14.1	5	6.9	5.6	9.3	106.7
TB2	7/15/03	18.5	15.5	19.3	4.6	16.2	1	7	0.8	3	85.9
PE3	7/16/03	19	19.1	14.6	16	16.2	2.8	8.8	1.2	9.1	106.8
PE2	7/16/03	19.2	18.6	14.6	15	16.3	1.4	9.2	3.5	7.8	105.6
PE5	7/16/03	12.9	18.3	20.2	14.6	11.4	0.4	5.3	2.3	5.8	91.2
PE4a	7/23/03	18.6	17.9	17.2	10.6	14.7	0.4	7.4	3.5	8.4	98.7
TB4	7/28/03	18.9	15.7	15.9	4	15.6	0.7	8.3	5.4	10	94.5

Table 5. Quartile Distributions for Pre-and Post-Implementation Habitat Scores.

Period	Watershed	25% quartile	Median	75% Quartile
Preimplementation	Peacheater	99.9	101	101.75
	Tyner	92.3	96	98.3
Postimplementation	Peacheater	95.9	99	105.6
	Tyner	94.5	107	111.3

COMPARISON OF FISHERIES

The primary objective of the Peacheater Creek Implementation Project is to monitor water quality in Peacheater and Tyner Creeks to provide baseline data to support implementation of best management practices and verify results of that implementation. A primary goal of the Peacheater project and other projects in the Illinois River Basin is to improve water quality and habitat for biota in the river, its tributaries, and Lake Tenkiller. The design of the paired watershed project necessitates verification of preimplementation similarities in aquatic communities in the two creeks to ensure postimplementation differences result from implementation rather than some other factor. Thus, fish populations were surveyed in Peacheater and Tyner Creeks using seining and electrofishing techniques for purposed of comparison between the two systems. Types and numbers of fish collected were analyzed using an index of biological integrity (IBI) to give the populations an overall rating as compared to a pooled reference condition of high quality sites in the same ecoregion.

To minimize depletionary impacts of collection on indigenous populations, fish were collected from riffles, runs, and pools every other year and from pools only on a quarterly basis. This report summarizes the results of the full fish surveys only; a more comprehensive report following the completion of the full two years of post-implementation monitoring will also compare the results of the pool dwelling fish surveys.

Results of the collections are shown in **Table 6**. IBI scores are estimated Both creeks appear to have slightly improved IBIs during the post-implementation period compared to the pre-implementation period. Peacheater IBIs (average increase of 7.8 units) may have improved slightly more than Tyner Creek IBIs (average increase of 5.4 units), although the results are not statistically significant. The communities in both creeks improved most in their proportion of insectivores and total individuals collected.

Table 6. Fish IBI Scores for Peacheater and Tyner Creeks- Pre and Post-implementation.

Metric	Pre-implementation Score				Post-Implementation Score									
	15- Oct- 91		19-Jul-93	15-Jul-93	1-Jun-03		14-Jul-03			16-Jul-03			23-Jul-03	28-Jul-03
	TB1	PE1	TB5	PE2	TB1	PE1	T-DS	TB5	TB2	PE3	PE2	PE5	PE4a	TB4
# 1- Total # of species	5	5	5	5	3	5	3	3	5	5	5	3	3	3
#2- # of Darter Species	5	5	5	5	5	5	5	5	5	5	5	5	5	5
# 3 # of sunfish species	1	3	3	3	5	5	3	1	1	3	3	1	1	1
#4 # of Sucker Species	3	3	5	1	3	3	1	1	5	5	3	1	1	1
# 5- # of Intolerant Species	5	5	5	5	5	5	5	5	5	5	5	5	5	5
#6 proportion of individuals as tolerant species	5	5	5	5	5	5	5	5	5	5	5	5	5	5
#7 Proportion of individuals as omnivores	5	5	5	5	5	5	5	5	5	5	5	5	5	5
#8- Proportion of individuals as insectivores	3	1	1	5	5	5	5	5	5	5	5	5	5	5
#9- Proportion of individuals as top carnivores	1	1	5	3	1	3	1	1	1	1	1	1	1	1
#10 – Total # individuals	1	1	5	3	3	5	5	5	5	5	5	5	5	5
IBI Score	31	31	35	35	40	46	38	36	42	44	42	36	36	36
IBI Rating	fair	fair	fair	fair	good	excellent	good	fair	good	good	good	fair	fair	fair

The comparison of additional data collected during the second year of post-implementation monitoring and a full complement of pool-dwelling fish surveys may allow a more statistically significant comparison between the fish communities documented with pre- and post-implementation monitoring.

Conclusions:

The Illinois River and Lake Tenkiller Watershed is one of Oklahoma's highest priority watersheds. The river is a State Scenic River and the lake and river have been prized as a water source, natural resource, and for the recreational opportunities they support. Lake Tenkiller and segments of the Illinois River are impaired by excess phosphorus and other causes related to eutrophication such as low dissolved oxygen. Although Peacheater Creek does not currently violate Oklahoma Water Quality Standards, land use in the watershed and potential sources of NPS pollution are typical for the Illinois River Watershed.

Peacheater's watershed size, landuse characteristics, and location entirely within the State of Oklahoma made it a good candidate for demonstrating the types of practices that would be necessary to reduce the impacts of nonpoint source pollution in the Illinois River Watershed and improve water quality. Implementation of best management practices occurred between 1999 and 2002. Water quality monitoring prior to and following the installation of these practices allowed a comparison of the affects of the practices on water quality.

Preliminary comparisons between observed and expected values in water quality parameters in the Peacheater Creek Watershed suggest some positive results of BMP implementation. These improvements include the following results in Peacheater Creek:

- 27% lower than expected phosphorus loading,
- 26% lower than expected nitrate concentrations, and
- 29% lower than expected total nitrogen loading.

However, some potentially negative impacts were also observed including higher than expected temperatures and phosphorus concentrations.

Results were not statistically significant (either because of lack of sufficient data or lack of significant change) for comparisons of several important parameters including turbidity, dissolved oxygen, habitat scores, and Fish IBI scores. It is anticipated that the addition of the second year of post-implementation monitoring data will result in a more robust set of conclusions.

The use of the paired watershed method allows us to conclude that these differences in water quality were due to differences in management practices in the watershed between pre- and post-implementation periods. Given that there were not significant changes in the watershed other than installation of best management practices through this 319 program and through NRCS's EQIP program, (i.e. there was no major construction in the watershed, there wasn't a new discharger in the watershed, etc.), it is reasonable to make that assumption.

Although it is possible that the measured "improvements" in Peacheater water quality are due to implementation of poorer management practices in the Tyner watershed, it is unlikely. Throughout the project period, both the Tyner and Peacheater Creek watersheds were part of a special emphasis area through the NRCS EQIP program. Therefore, in addition to the updated animal waste management and conservation plans and BMPs implemented in the Peacheater Creek Watershed through the 319 Program, EQIP implemented additional plans and practices in both Peacheater and Tyner.

Unfortunately, we cannot summarize the EQIP program level of implementation due to the confidentiality clause associated with Farm Bill Programs. However, the fact that some BMPs were also implemented in the control watershed suggests that, if anything, the measured improvements in water quality in Peacheater underestimated the effects of the BMPs implemented there. Also, any activities outside of the project such as litter movement from one watershed to the next that could have resulted in improvement in one watershed and decreases in the other are just as likely to move the opposite direction. In other words, a landowner not participating in the program in the Tyner Creek watershed was just as likely to sell his litter to a landowner in the Peacheater Creek watershed as a Peacheater grower was to sell litter to a Tyner landowner.

In addition, there was a significant landholder in the Peacheater watershed who chose not to participate in the program, and seemingly made changes in land management practices to go directly against the recommendations of the program by dozing riparian areas, increasing stocking rates, and allowing his pastures to be over-grazed, when prior to the program, his land management had been similar to that of his neighbors in the watershed.

These facts further suggest that the improvements measured in Peacheater Creek underestimated the effects of the BMPs installed in the watershed through the 319 and NRCS EQIP programs.

A second year of post-implementation monitoring data has been collected and is currently being evaluated for compilation of a more complete report on the effects of BMPs in this watershed. This report is expected to be completed in September 2006.

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APPENDIX A: POST-IMPLEMENTATION DATA

Field Measured Water Quality Data.

WBID	SiteName	Date	Time	Type	DORun (mg/L)	DO % Saturation (Run)	DORiff (mg/L)	DO % Saturation (Riffle)	DO Pool Top (mg/L)	DO % Saturation (Pool Top)	DO Pool Bottom (mg/L)	DO % Saturation (Pool Bottom)	pH (SU)	Cond (uS/cm)	Temp (°C)	Turb (NTU)	Turbidity Cause?	Alkalinity (CaCO3)
OK121700-05-0120B	Peacheater Creek: PE1	09-Jan-03	10:00 AM	Routine Sample	11.16								6.75	190.4	9.1	0.47		48
OK121700-05-0120B	Peacheater Creek: PE1	21-Jan-03	11:00 AM	Routine Sample	12.61									187.1	7.7	0.36	Inorganic	49
OK121700-05-0120B	Peacheater Creek: PE1	30-Jan-03	9:45 AM	Routine Sample			12.22						7.11	186.3	6.4	0.62		46
OK121700-05-0120B	Peacheater Creek: PE1	13-Feb-03	10:00 AM	Routine Sample	13.02								7.68	123.3	7.3	0.85		
OK121700-05-0120B	Peacheater Creek: PE1	27-Feb-03	10:00 AM	Routine Sample			13.62						7.56	125.9	7.3	0.69	Organic	60
OK121700-05-0120B	Peacheater Creek: PE1	04-Mar-03	12:15 PM	Field Duplicate												0.42		61
OK121700-05-0120B	Peacheater Creek: PE1	04-Mar-03	12:15 PM	Field Replicate	12.7													
OK121700-05-0120B	Peacheater Creek: PE1	04-Mar-03	12:15 PM	Routine Sample	12.71								7.83	128.1	8.6	0.45	Organic	60
OK121700-05-0120B	Peacheater Creek: PE1	13-Mar-03	9:30 AM	Routine Sample	12.02								7.56	187	10.2	0.61	Organic	64
OK121700-05-0120B	Peacheater Creek: PE1	06-May-03	2:00 PM	Field Duplicate														63
OK121700-05-0120B	Peacheater Creek: PE1	06-May-03	2:00 PM	Field Replicate	9.72								7.47	193.9		0.5		63
OK121700-05-0120B	Peacheater Creek: PE1	06-May-03	2:00 PM	Routine Sample	9.71	107.6							7.5	193.8	20.3	0.51	Organic	64
OK121700-05-0120B	Peacheater Creek: PE1	23-Jun-03	8:30 AM	Routine Sample	8.27	91.4							7.13	196	20.1	0.61	Organic	58
OK121700-05-0120B	Peacheater Creek: PE1	01-Jul-03	1:00 PM	Routine Sample	8.16	96.7							7.26	190	23.6	0.76		
OK121700-05-0120B	Peacheater Creek: PE1	14-Jul-03	9:00 AM	Routine Sample			6.54						7.39	202	22.2	1.31	Organic	70
OK121700-05-0120B	Peacheater Creek: PE1	17-Jul-03	9:00 AM	Routine Sample	6.16	69.9							7.09	203.8	22.7	1.03	Organic	78
OK121700-05-0120B	Peacheater Creek: PE1	21-Jul-03	8:30 AM	Routine Sample	8.25	98.8							7.38	203.6	24.5	1.69		0.02
OK121700-05-0120B	Peacheater Creek: PE1	28-Jul-03	8:15 AM	Routine Sample					3.6	41.4			6.96	237.3	22.7	5.21	Organic	92
OK121700-05-0120B	Peacheater Creek: PE1	31-Jul-03	8:30 AM	Routine Sample	4.16	48.8							6.99	228	23.3	0.39	Organic	
OK121700-05-0120B	Peacheater Creek: PE1	04-Aug-03	2:45 PM	Routine Sample					5.15	61.4	4.92		6.92	202	23.9	0.63	Organic	
OK121700-05-0120B	Peacheater Creek: PE1	14-Aug-03	9:00 AM	Routine Sample					3.72	42.8	4.09		6.94	209	22.3	1.26	Organic	88
OK121700-05-0120B	Peacheater Creek: PE1	25-Aug-03	2:15 PM	Routine Sample					7.21	23.1	6.85		6.66	213	21.5	1.03	Organic	
OK121700-05-0120B	Peacheater Creek: PE1	28-Aug-03	9:20 AM	Routine Sample					5.41	61.6	5.5		6.68	208	20	1.28	Organic	82
OK121700-05-0120B	Peacheater Creek: PE1	02-Sep-03	9:10 AM	Routine Sample	5.49	63.6							6.93	204	22.6	1.34		76
OK121700-05-0120B	Peacheater Creek: PE1	08-Sep-03	2:15 PM	Field Duplicate									7.05			0.42		74
OK121700-05-0120B	Peacheater Creek: PE1	08-Sep-03	2:15 PM	Routine Sample									7.15	169	23.2	0.58	Organic	78
OK121700-05-0120B	Peacheater Creek: PE1	16-Sep-03	9:00 AM	Routine Sample					5.84	65	5.37		6.82	207.8	20.4	0.39	Organic	74
OK121700-05-0120B	Peacheater Creek: PE1	23-Sep-03	9:00 AM	Routine Sample					4.55	50.5	3.7		6.82	215.9	20.3	0.54	Organic	84
OK121700-05-0120B	Peacheater Creek: PE1	30-Sep-03	9:30 AM	Routine Sample					4.62	50.2	3.95		6.65	209.5	19.3	0.69	Organic	86
OK121700-05-0120B	Peacheater Creek: PE1	07-Oct-03	10:30 AM	Routine Sample					5.41	58.6	5.06		6.72	205.8	19.1	1.07	Organic	95
OK121700-05-0120B	Peacheater Creek: PE1	15-Oct-03	12:45 PM	Routine Sample	8.47	91.4							7.14	199.5	19	0.46	Organic	78

OK121700-05-0120B	Peacheater Creek: PE1	23-Oct-03	1:30 PM	Routine Sample	9.32	101			7.37	204.3	19.2	0.52	Organic	
OK121700-05-0120B	Peacheater Creek: PE1	28-Oct-03	1:20 PM	Field Duplicate					7.34	121.5		0.41		83
OK121700-05-0120B	Peacheater Creek: PE1	28-Oct-03	1:20 PM	Routine Sample	9.39	97.2			7.34	1232	17	0.49	Organic	82
OK121700-05-0120B	Peacheater Creek: PE1	05-Nov-03	11:15 AM	Routine Sample	7.74	79.4			7.05	206.6	16.7	0.47		95
OK121700-05-0120B	Peacheater Creek: PE1	12-Nov-03	10:15 AM	Routine Sample	8.71	90.2			7.33	206.2	17.1	0.55	Organic	86
OK121700-05-0120B	Peacheater Creek: PE1	20-Nov-03	1:30 PM	Routine Sample			8.61	86.7	7.47	202.4	15.8	0.75	Organic	87
OK121700-05-0120B	Peacheater Creek: PE1	25-Nov-03	1:10 PM	Routine Sample	9.69				7.66	202.7	13.2	0.71	Organic	85
OK121700-05-0120B	Peacheater Creek: PE1	02-Dec-03	1:00 PM	Routine Sample	9.53	88.2			7.47	201.8	11.9	0.47	Organic	77
OK121700-05-0120B	Peacheater Creek: PE1	09-Dec-03	10:00 AM	Field Replicate	8.35				7.3	198.7		1.46		97
OK121700-05-0120B	Peacheater Creek: PE1	09-Dec-03	10:00 AM	Routine Sample	7.8	72.8			7.13	200.5	12.3	2.45	Organic	99
OK121700-05-0120B	Peacheater Creek: PE1	22-Dec-03	2:20 PM	Routine Sample	10.15	92.2			7.47	182.9	11	0.54	Organic	75
OK121700-05-0120B	Peacheater Creek: PE1	31-Dec-03	10:20 AM	Routine Sample	11.44	99.7			7.03	179.3	9.3	0.3	Organic	67
OK121700-05-0120B	Peacheater Creek: PE1	13-Jan-04	1:00 PM	Routine Sample	11.14	98.9			7.55	191.7	10	0.3	Organic	70
OK121700-05-0120G	PE1 (Auto-Sampler)	15-Jan-03	1:00 PM	Routine Sample	13.73				6.95	187.7	8.2	1.38		40
OK121700-05-0120G	PE1 (Auto-Sampler)	03-Feb-03	12:00 PM	Routine Sample	11.78				7.5	127.6	8.6	0.39	Inorganic	52
OK121700-05-0120G	PE1 (Auto-Sampler)	10-Feb-03	11:00 AM	Routine Sample	12.7				7.72	123.2	7.6	0.38	Organic	52
OK121700-05-0120G	PE1 (Auto-Sampler)	18-Feb-03	10:30 AM	Routine Sample	12.95				7.64	125.9	7.9	0.7	Organic	69
OK121700-05-0120G	PE1 (Auto-Sampler)	24-Feb-03	12:30 PM	Field Replicate										
OK121700-05-0120G	PE1 (Auto-Sampler)	24-Feb-03	12:30 PM	Routine Sample	12.92				7.61	127.3	7.4	0.43		58
OK121700-05-0120G	PE1 (Auto-Sampler)	10-Mar-03	11:30 AM	Routine Sample	12.48				7.67	130.2	9.2	0.6	Organic	75
OK121700-05-0120G	PE1 (Auto-Sampler)	17-Mar-03	1:36 PM	Field Replicate	13.23				7.93	185.5		0.49		65
OK121700-05-0120G	PE1 (Auto-Sampler)	17-Mar-03	1:36 PM	Routine Sample	13.03				7.71	182.3	14	0.45	Organic	63
OK121700-05-0120G	PE1 (Auto-Sampler)	24-Mar-03	9:30 AM	Routine Sample	10.71				7.4	186.2	12.5	0.78	Organic	52
OK121700-05-0120G	PE1 (Auto-Sampler)	31-Mar-03	10:00 AM	Routine Sample	11				7.53	186.1	11.7	0.44	Organic	55
OK121700-05-0120G	PE1 (Auto-Sampler)	08-Apr-03	1:30 PM	Routine Sample	11.8				7.69	189.4	11.8	0.43	Organic	56
OK121700-05-0120G	PE1 (Auto-Sampler)	15-Apr-03	12:00 PM	Routine Sample	11.62				7.61	188.1	15.8	0.72	Organic	
OK121700-05-0120G	PE1 (Auto-Sampler)	22-Apr-03	1:45 PM	Field Replicate	11.03	114.3			7.62	174.1		0.61		59
OK121700-05-0120G	PE1 (Auto-Sampler)	22-Apr-03	1:45 PM	Routine Sample	11.02	114.2			7.62	174	17.1	0.57	Organic	59
OK121700-05-0120G	PE1 (Auto-Sampler)	29-Apr-03	1:30 PM	Field Replicate	11.19				7.57	129.2		0.79		63
OK121700-05-0120G	PE1 (Auto-Sampler)	29-Apr-03	1:30 PM	Routine Sample	11.2	118			7.57	129	17.9	0.8	Organic	62
OK121700-05-0120G	PE1 (Auto-Sampler)	12-May-03	1:40 PM	Routine Sample	7.04	73			7.26	201.1	17.2	0.56		66
OK121700-05-0120G	PE1 (Auto-Sampler)	20-May-03	8:30 AM	Field Replicate			8.9	91.2	7.68	186.2		1.24		73
OK121700-05-0120G	PE1 (Auto-Sampler)	20-May-03	8:30 AM	Routine Sample			9.16	89.4	7.98	185.7	16.5	1.55	Organic	71
OK121700-05-0120G	PE1 (Auto-Sampler)	28-May-03	1:50 PM	Field Duplicate					7.35	181		0.62		74
OK121700-05-0120G	PE1 (Auto-Sampler)	28-May-03	1:50 PM	Routine Sample	10.48	112.8			7.35	181	18.9	0.67	Organic	74
OK121700-05-0120G	PE1 (Auto-Sampler)	03-Jun-03	10:30 AM	Routine Sample	8.48	88.4			7.12	177	17.4	1.14	Organic	

OK121700-05-0120G	PE1 (Auto-Sampler)	10-Jun-03	1:15 PM	Routine Sample	9.48	104.4					7.35	187	20.1	0.52	Organic	66
OK121700-05-0120G	PE1 (Auto-Sampler)	17-Jun-03	1:30 PM	Field Blank										0.11		2
OK121700-05-0120G	PE1 (Auto-Sampler)	17-Jun-03	1:30 PM	Routine Sample	9.76	107.2					7.39	186	20.1	0.45	Organic	73
OK121700-05-0120G	PE1 (Auto-Sampler)	08-Jul-03	12:50 PM	Field Duplicate							7.5	193		0.69		74
OK121700-05-0120G	PE1 (Auto-Sampler)	08-Jul-03	12:50 PM	Routine Sample	8.14	97.1					7.31	193	24.2	0.9	Organic	75
OK121700-05-0120G	PE1 (Auto-Sampler)	12-Aug-03	11:40 AM	Routine Sample				3.43		3.63	6.82	212	22	3.13		82
OK121700-05-0120G	PE1 (Auto-Sampler)	06-Jan-04	1:00 PM	Field Replicate	10.65						7.58	180.8		1.82		72
OK121700-05-0120G	PE1 (Auto-Sampler)	06-Jan-04	1:00 PM	Routine Sample	10.37	90.2					7.57	181	9.2	0.41	Organic	68
OK121700-05-0120F	Peacheater Creek: PE2	30-Jan-03	10:30 AM	Routine Sample			12.03				7.39	188	7.2	0.24		
OK121700-05-0120F	Peacheater Creek: PE2	13-Feb-03	11:00 AM	Routine Sample	11.52						7.6	125.1	8.1	0.94		
OK121700-05-0120F	Peacheater Creek: PE2	27-Feb-03	10:41 AM	Routine Sample			13.13				6.75	125.8	7.6	12.3		61
OK121700-05-0120F	Peacheater Creek: PE2	13-Mar-03	10:00 AM	Routine Sample	11.96						7.61	189.2	10.4	0.64	Organic	65
OK121700-05-0120F	Peacheater Creek: PE2	16-Jul-03	10:30 AM	Routine Sample							7.11	199.5	22.2	0.48	Organic	71
OK121700-05-0120F	Peacheater Creek: PE2	17-Jul-03	9:20 AM	Routine Sample	6.16	69.9					7.03	201.8	21.4	0.37	Organic	
OK121700-05-0120F	Peacheater Creek: PE2	31-Jul-03	9:30 AM	Routine Sample	6.58	74.3					7	199	21.4	0.31		
OK121700-05-0120F	Peacheater Creek: PE2	14-Aug-03	10:00 AM	Routine Sample	6.07	68.3					7.15	197	21.3	0.52	Organic	87
OK121700-05-0120F	Peacheater Creek: PE2	28-Aug-03	10:15 AM	Routine Sample	5.19	59.8					7.02	198	22.5	0.76	Organic	
OK121700-05-0120I	Peacheater Creek: PE3	30-Jan-03	11:10 AM	Routine Sample	11.86						7.45	129.4	7.2	0.49		
OK121700-05-0120I	Peacheater Creek: PE3	13-Feb-03	11:45 AM	Routine Sample	12.53						7.56	133	8.3	0.64		
OK121700-05-0120I	Peacheater Creek: PE3	27-Feb-03	11:14 AM	Routine Sample			13.51				7.55	130.3	8.2	3.18	Organic	60
OK121700-05-0120I	Peacheater Creek: PE3	13-Mar-03	10:20 AM	Routine Sample	11.49						7.65	194.9	11.1	2.98	Organic	61
OK121700-05-0120I	Peacheater Creek: PE3	16-Jul-03	7:30 AM	Routine Sample	5.13	57.6					7.03	205.8	21.4	0.84	Organic	73
OK121700-05-0120I	Peacheater Creek: PE3	17-Jul-03	9:45 AM	Routine Sample	6.12	70.1					7	204.8	21	0.61	Organic	
OK121700-05-0120I	Peacheater Creek: PE3	31-Jul-03	10:20 AM	Routine Sample	6.53	75.6					7.04	198	22.5	0.77	Organic	
OK121700-05-0120I	Peacheater Creek: PE3	14-Aug-03	10:30 AM	Routine Sample	6.7	77.4					7.14	195	22.4	0.78	Organic	86
OK121700-05-0120I	Peacheater Creek: PE3	28-Aug-03	11:35 AM	Routine Sample				2.61	32.5	4.03	6.65	183	23.8	0.51	Organic	
OK121700-05-0120L	Peacheater Creek: PE4a	30-Jan-03	12:00 PM	Routine Sample	12.08						7.72	139.4	7	0.5		
OK121700-05-0120L	Peacheater Creek: PE4a	13-Feb-03	12:15 PM	Routine Sample	12.75						7.84	142.3	8.7	0.34		
OK121700-05-0120L	Peacheater Creek: PE4a	27-Feb-03	12:00 PM	Routine Sample			13.47				7.43	132.8	8.9	1.96		62
OK121700-05-0120L	Peacheater Creek: PE4a	13-Mar-03	10:45 AM	Routine Sample	11.31						7.66	195.2	11.3	3.62	Organic	63
OK121700-05-0120L	Peacheater Creek: PE4a	17-Jul-03	10:50 AM	Routine Sample	7.56	87.4					7.32	213.2	22.4	0.66	Organic	83
OK121700-05-0120L	Peacheater Creek: PE4a	23-Jul-03	8:00 AM	Routine Sample	5.24	59					7.1	215.3	20.9	1.08		71
OK121700-05-0120L	Peacheater Creek: PE4a	31-Jul-03	11:00 AM	Routine Sample	7.45	87.4					7.38	211	23.3	0.67	Organic	
OK121700-05-0120L	Peacheater Creek: PE4a	14-Aug-03	11:00 AM	Routine Sample	8.11	93.8					7.51	211	22.6	0.59	Organic	89
OK121700-05-0120L	Peacheater Creek: PE4a	28-Aug-03	11:15 AM	Routine Sample	6.17	74.5					7.42	213	24.87	1.37	Organic	
OK121700-05-0120Q	Peacheater Creek: PE5	16-Jul-03	12:50 PM	Routine Sample	9999						7.66	213.5	23	1	Organic	76

OK121700-05-0120Q	Peacheater Creek: PE5	17-Jul-03	10:15 AM	Routine Sample	8.17	90.8	7.52	212.3	20.1	1.2	Organic	
OK121700-05-0120Q	Peacheater Creek: PE5	31-Jul-03	11:45 AM	Routine Sample	9.13	104.5	7.62	215	22.1	1.26	Organic	
OK121700-05-0120Q	Peacheater Creek: PE5	14-Aug-03	11:30 AM	Routine Sample	8.1	91.2	7.7	218	21.3	1.44	Organic	91
OK121700-05-0120Q	Peacheater Creek: PE5	28-Aug-03	10:45 AM	Routine Sample	7.42	87.4	7.64	220	23.4	1.36	Organic	82
OK121700-05-0090N	Tyner Creek: Downstream	09-Jan-03	12:45 PM	Routine Sample	10.4		7.1	210.9	12.4	1.39		51
OK121700-05-0090N	Tyner Creek: Downstream	15-Jan-03	1:45 PM	Field Replicate								
OK121700-05-0090N	Tyner Creek: Downstream	15-Jan-03	1:45 PM	Routine Sample	10.82		7.37	217.6	12	1.39		54
OK121700-05-0090N	Tyner Creek: Downstream	21-Jan-03	1:25 PM	Routine Sample	10.5			221.1	12	0.62		51
OK121700-05-0090N	Tyner Creek: Downstream	30-Jan-03	1:00 PM	Routine Sample	10.66		7.46	166	11.7	98		60
OK121700-05-0090N	Tyner Creek: Downstream	03-Feb-03	1:00 PM	Field Duplicate						0.85		68
OK121700-05-0090N	Tyner Creek: Downstream	03-Feb-03	1:00 PM	Routine Sample	9.79		7.59	163.4	12.2	0.88	Inorganic	70
OK121700-05-0090N	Tyner Creek: Downstream	10-Feb-03	12:15 PM	Field Replicate								
OK121700-05-0090N	Tyner Creek: Downstream	10-Feb-03	12:15 PM	Routine Sample	10.44		7.63	165	11.7	0.66	Organic	72
OK121700-05-0090N	Tyner Creek: Downstream	18-Feb-03	11:30 AM	Field Duplicate						0.7		58
OK121700-05-0090N	Tyner Creek: Downstream	18-Feb-03	11:30 AM	Routine Sample	10.48		7.55	160.7	11.2	0.71	Organic	59
OK121700-05-0090N	Tyner Creek: Downstream	24-Feb-03	1:34 PM	Routine Sample	10.43		7.55	150.2	10.7	1.16	Organic	39
OK121700-05-0090N	Tyner Creek: Downstream	04-Mar-03	1:00 PM	Routine Sample	10.66		7.47	148.4	11	0.77	Organic	65
OK121700-05-0090N	Tyner Creek: Downstream	10-Mar-03	12:30 PM	Field Blank						0.26		-1
OK121700-05-0090N	Tyner Creek: Downstream	10-Mar-03	12:30 PM	Field Replicate	10.49		7.47	156.2		0.68		66
OK121700-05-0090N	Tyner Creek: Downstream	10-Mar-03	12:30 PM	Routine Sample	10.47		7.48	154.3	11.2	0.66	Organic	65
OK121700-05-0090N	Tyner Creek: Downstream	17-Mar-03	3:00 PM	Routine Sample	12.22		7.46	211.8	14.4	0.77	Organic	66
OK121700-05-0090N	Tyner Creek: Downstream	24-Mar-03	10:30 AM	Field Duplicate						1.32		64
OK121700-05-0090N	Tyner Creek: Downstream	24-Mar-03	10:30 AM	Field Replicate	10.89		7.42	206.1		1.76		64
OK121700-05-0090N	Tyner Creek: Downstream	24-Mar-03	10:30 AM	Routine Sample	10.87		7.43	205.5	13.1	1.38	Organic	63
OK121700-05-0090N	Tyner Creek: Downstream	31-Mar-03	12:30 PM	Field Blank						0.09		-1
OK121700-05-0090N	Tyner Creek: Downstream	31-Mar-03	12:30 PM	Field Replicate	10.63		7.37	205.9		0.66		66
OK121700-05-0090N	Tyner Creek: Downstream	31-Mar-03	12:30 PM	Routine Sample	10.66		7.36	206.4	13.7	0.68	Organic	65
OK121700-05-0090N	Tyner Creek: Downstream	08-Apr-03	12:30 PM	Field Replicate	9.42			7.53	21.7	0.63		62
OK121700-05-0090N	Tyner Creek: Downstream	08-Apr-03	12:30 PM	Routine Sample	9.4		7.52	216.3	11.8	0.62	Organic	64
OK121700-05-0090N	Tyner Creek: Downstream	15-Apr-03	11:00 AM	Field Duplicate						0.86		77
OK121700-05-0090N	Tyner Creek: Downstream	15-Apr-03	11:00 AM	Field Replicate	11.16		7.37	195.6		0.77		76
OK121700-05-0090N	Tyner Creek: Downstream	15-Apr-03	11:00 AM	Routine Sample	11.14		7.35	195.2	14.5	0.88	Organic	77
OK121700-05-0090N	Tyner Creek: Downstream	22-Apr-03	12:45 PM	Routine Sample	11.57	116.1	7.35	212.2	15.6	0.68	Organic	67
OK121700-05-0090N	Tyner Creek: Downstream	29-Apr-03	12:30 PM	Routine Sample	11.56	116.6	7.36	218.1	15.7	0.79	Organic	72
OK121700-05-0090N	Tyner Creek: Downstream	06-May-03	1:00 PM	Routine Sample	11.08	114.8	7.24	217.9	17	0.91	Organic	72
OK121700-05-0090N	Tyner Creek: Downstream	13-May-03	12:30 PM	Field Replicate	8.25		7.18	226.4		0.55		77

OK121700-05-0090N	Tyner Creek: Downstream	13-May-03	12:30 PM	Routine Sample	9.05	89.6			7.01	226.1	15	0.55	Organic	76
OK121700-05-0090N	Tyner Creek: Downstream	20-May-03	10:00 AM	Routine Sample			9.51	94.6	7.66	224.5	15.1	5.68	Inorganic	77
OK121700-05-0090N	Tyner Creek: Downstream	28-May-03	12:50 PM	Routine Sample	10.71	109.2			7.17	218	16.4	0.77	Organic	73
OK121700-05-0090N	Tyner Creek: Downstream	03-Jun-03	11:45 AM	Field Blank								0.24		-1
OK121700-05-0090N	Tyner Creek: Downstream	03-Jun-03	11:45 AM	Field Replicate	9.01					220				
OK121700-05-0090N	Tyner Creek: Downstream	03-Jun-03	11:45 AM	Routine Sample	9.01	90.4				220	15.6	1.16	Organic	64
OK121700-05-0090N	Tyner Creek: Downstream	10-Jun-03	12:05 PM	Field Replicate	9.57				7	225		0.75		78
OK121700-05-0090N	Tyner Creek: Downstream	10-Jun-03	12:05 PM	Routine Sample	9.75	100.6			7.1	224	17	10.68	Organic	71
OK121700-05-0090N	Tyner Creek: Downstream	17-Jun-03	12:10 PM	Routine Sample	9.97	102.8			7.1	228	16.8	0.57	Organic	88
OK121700-05-0090N	Tyner Creek: Downstream	23-Jun-03	1:20 PM	Field Replicate	9.93				7.22	236		0.74		90
OK121700-05-0090N	Tyner Creek: Downstream	23-Jun-03	1:20 PM	Routine Sample	9.84	104.3			7.17	235	18.1	0.89	Organic	89
OK121700-05-0090N	Tyner Creek: Downstream	01-Jul-03	1:50 PM	Routine Sample	8.75	94.7			7.13	235	19.6	0.63		
OK121700-05-0090N	Tyner Creek: Downstream	08-Jul-03	11:50 AM	Routine Sample	8.99	96.2			7.1	238	18.5	0.78	Organic	89
OK121700-05-0090N	Tyner Creek: Downstream	14-Jul-03	10:00 AM	Routine Sample	8.13	85.8			7.37	245	18	0.94	Organic	95
OK121700-05-0090N	Tyner Creek: Downstream	21-Jul-03	12:45 PM	Routine Sample	8.26	88.4			7.22	247.7	187	1.57	Organic	
OK121700-05-0090N	Tyner Creek: Downstream	28-Jul-03	8:50 AM	Routine Sample	7.29	76.8			7.16	214.5	17.9	0.85	Organic	95
OK121700-05-0090N	Tyner Creek: Downstream	04-Aug-03	1:30 PM	Routine Sample	8.74	95.3			7.23	250	19.6	0.73	Organic	
OK121700-05-0090N	Tyner Creek: Downstream	12-Aug-03	10:30 AM	Field Replicate	7.5				7.2	251		0.75		92
OK121700-05-0090N	Tyner Creek: Downstream	12-Aug-03	10:30 AM	Routine Sample	7.42	79.3			7.18	252	18.6	1.34	Organic	88
OK121700-05-0090N	Tyner Creek: Downstream	25-Aug-03	1:30 PM	Routine Sample	8.87	99			7.1	254	20.7	2.19	Organic	
OK121700-05-0090N	Tyner Creek: Downstream	02-Sep-03	10:00 AM	Routine Sample	6.29	67			6.83	259	18.5	2.11	Organic	104
OK121700-05-0090N	Tyner Creek: Downstream	08-Sep-03	1:30 PM	Routine Sample					7.1	208	19.2	2.58	Organic	95
OK121700-05-0090N	Tyner Creek: Downstream	16-Sep-03	9:40 AM	Routine Sample	7.29	75.9			7.06	256.4	17.2	0.74	Organic	99
OK121700-05-0090N	Tyner Creek: Downstream	23-Sep-03	9:35 AM	Routine Sample	6.91	72.3			7.1	257.6	17.5	1.13	Organic	115
OK121700-05-0090N	Tyner Creek: Downstream	30-Sep-03	10:15 AM	Routine Sample	7.6	78.5			7.11	256.9	16.9	1.28	Organic	111
OK121700-05-0090N	Tyner Creek: Downstream	07-Oct-03	11:15 AM	Field Blank								0.19		3
OK121700-05-0090N	Tyner Creek: Downstream	07-Oct-03	11:15 AM	Routine Sample	7.64	79.3			7.12	256.3	17.2	1.27	Organic	124
OK121700-05-0090N	Tyner Creek: Downstream	14-Oct-03	1:50 PM	Routine Sample	8.72	91.2			7.31	224.1	17.2	0.58	Organic	80
OK121700-05-0090N	Tyner Creek: Downstream	15-Oct-03	12:00 PM	Routine Sample	8.48	91.5			7.13	250.2	17	1.66	Organic	108
OK121700-05-0090N	Tyner Creek: Downstream	23-Oct-03	11:30 AM	Routine Sample	8.31	85.3			7.16	248.5	16.6	0.66	Organic	
OK121700-05-0090N	Tyner Creek: Downstream	28-Oct-03	12:30 PM	Routine Sample	8.4	85.5			7.09	250	16.3	1.96	Organic	114
OK121700-05-0090N	Tyner Creek: Downstream	05-Nov-03	12:00 PM	Routine Sample	7.49	75.6			7.24	253.1	15.8	1	Organic	1.09
OK121700-05-0090N	Tyner Creek: Downstream	12-Nov-03	10:50 AM	Routine Sample	8.77	89.8			7.32	250.5	16.6	1.55	Organic	115
OK121700-05-0090N	Tyner Creek: Downstream	20-Nov-03	11:00 AM	Routine Sample			8.83	87.5	7.17	246.7	15	1	Organic	110
OK121700-05-0090N	Tyner Creek: Downstream	25-Nov-03	12:15 PM	Routine Sample	10.88	105.4			7.33	241.1	13.9	0.91	Organic	107
OK121700-05-0090N	Tyner Creek: Downstream	02-Dec-03	12:15 PM	Routine Sample	9.18	87.6			7.19	240.2	13.2	0.69	Organic	97

OK121700-05-0090N	Tyner Creek: Downstream	09-Dec-03	11:00 AM	Routine Sample	8.03	77.7					7.25	241	13.9	2.42	Inorganic	103
OK121700-05-0090N	Tyner Creek: Downstream	22-Dec-03	1:40 PM	Routine Sample	9.02	86.6					7.32	213.5	13.5	0.61	Organic	93
OK121700-05-0090N	Tyner Creek: Downstream	31-Dec-03	11:00 AM	Routine Sample	9.94	92.8					7.38	207.9	12.3	0.71	Organic	91
OK121700-05-0090N	Tyner Creek: Downstream	06-Jan-04	12:00 PM	Routine Sample	9.02	82.6					7.26	204.1	11.4	1.31	Organic	87
OK121700-05-0090G	Tyner Creek: TB1	30-Jan-03	3:15 PM	Routine Sample	11.71						8.01	135.4	9.6	0.75		
OK121700-05-0090G	Tyner Creek: TB1	13-Feb-03	3:00 PM	Routine Sample	11.03						8.13	125.8	9.2	0.74		
OK121700-05-0090G	Tyner Creek: TB1	27-Feb-03	1:57 PM	Routine Sample			14.03				8.04	136.2	9	1.27	Organic	68
OK121700-05-0090G	Tyner Creek: TB1	13-Mar-03	1:10 PM	Routine Sample	11.84						8.05	179.6	11.5	0.77	Organic	66
OK121700-05-0090G	Tyner Creek: TB1	19-Jun-03	8:15 AM	Routine Sample	8.5	89					7.28	221	17.6	0.58	Organic	
OK121700-05-0090G	Tyner Creek: TB1	17-Jul-03	1:00 PM	Routine Sample	8.19	95					7.46	220.1	22.8	0.53	Organic	87
OK121700-05-0090G	Tyner Creek: TB1	31-Jul-03	2:40 PM	Routine Sample	7.94	94.1					7.5	220	24.2	0.68	Organic	
OK121700-05-0090G	Tyner Creek: TB1	14-Aug-03	1:50 PM	Routine Sample	8.39	97.1					7.51	227	22.6	0.87	Organic	83
OK121700-05-0090G	Tyner Creek: TB1	28-Aug-03	2:00 PM	Routine Sample				6.14	77.4	5.7	7.35	223	25.4	2	Organic	93
OK121700-05-0090I	Tyner Creek: TB2	15-Jul-03	12:45 PM	Routine Sample	7.87	90.6					7.24	213	22.5	0.82		82
OK121700-05-0090I	Tyner Creek: TB2	17-Jul-03	1:00 PM	Routine Sample	7.84	89.1					7.35	222.9	21.7	0.61	Organic	
OK121700-05-0090I	Tyner Creek: TB2	31-Jul-03	2:15 PM	Routine Sample	9.08	106.5					7.27	221	23.3	0.61	Organic	
OK121700-05-0090I	Tyner Creek: TB2	14-Aug-03	1:20 PM	Routine Sample	7.75	89.1					7.16	222	22.4	0.87	Organic	84
OK121700-05-0090I	Tyner Creek: TB2	28-Aug-03	1:30 PM	Routine Sample	6.94	81.8					7.18	222	23.6	1.3	Organic	89
OK121700-05-0090M	Tyner Creek: TB4	30-Jan-03	2:00 PM	Routine Sample	12.11						7.41	159	11.2	0.39		
OK121700-05-0090M	Tyner Creek: TB4	13-Feb-03	1:30 PM	Routine Sample	12.2						7.93	156.2	10.6	0.52		
OK121700-05-0090M	Tyner Creek: TB4	27-Feb-03	1:13 PM	Routine Sample			12.63				7.73	94.4	10.5	0.97		65
OK121700-05-0090M	Tyner Creek: TB4	13-Mar-03	12:15 PM	Routine Sample	10.97						7.45	212.4	12.6	0.88	Organic	67
OK121700-05-0090M	Tyner Creek: TB4	17-Jul-03	12:15 PM	Routine Sample	11.04	123.4					7.63	240.3	20	0.8	Organic	89
OK121700-05-0090M	Tyner Creek: TB4	28-Jul-03	9:25 AM	Routine Sample	8.78	95.4					7.57	235.7	19.5	0.47	Organic	101
OK121700-05-0090M	Tyner Creek: TB4	31-Jul-03	1:20 PM	Routine Sample	10.8	126.4					7.69	243	23.2	1.07	Organic	
OK121700-05-0090M	Tyner Creek: TB4	14-Aug-03	12:45 PM	Routine Sample	10.24	116					7.71	252	21.9	0.84	Organic	89
OK121700-05-0090M	Tyner Creek: TB4	28-Aug-03	12:50 PM	Routine Sample	8.77	104.5					7.7	244	24.1	0.81	Organic	
OK121700-05-0090P	Tyner Creek: TB5	30-Jan-03	1:20 PM	Routine Sample	10.33						7.28	165	11.8	91		59
OK121700-05-0090P	Tyner Creek: TB5	13-Feb-03	1:00 PM	Routine Sample	10.71						7.53	164.5	11.6	0.86		
OK121700-05-0090P	Tyner Creek: TB5	27-Feb-03	12:30 PM	Routine Sample			12.35				7.47	150.2	11	4.77	Organic	66
OK121700-05-0090P	Tyner Creek: TB5	13-Mar-03	11:30 AM	Routine Sample	10.38						7.47	215.1	12.4	0.92	Organic	65
OK121700-05-0090P	Tyner Creek: TB5	15-Jul-03	7:30 AM	Routine Sample	4.95	52					7.04	242.9	17.9	0.38	Organic	90
OK121700-05-0090P	Tyner Creek: TB5	17-Jul-03	11:35 AM	Routine Sample	8.79	93.7					7.14	244.8	18.5	1.62	Organic	95
OK121700-05-0090P	Tyner Creek: TB5	31-Jul-03	12:40 PM	Routine Sample	9.42	102.7					7.14	249	19.6	1.14	Organic	
OK121700-05-0090P	Tyner Creek: TB5	14-Aug-03	12:00 PM	Routine Sample	7.58	81.1					7.25	253	18.8	0.8	Organic	89
OK121700-05-0090P	Tyner Creek: TB5	28-Aug-03	12:15 PM	Routine Sample	8.85	97.5					7.19	254	20.5	0.52	Organic	93

Laboratory Measured Water Quality Chemical Data.

WBID	SiteName	Date	Time	Type	Chloride (mg/L)	Sulfate (mg/L)	Tot Hardness (mg/L as CaCO3)	Tot Sus Solids (mg/L)	Ammonia (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Tot o-Phos (mg/L)	Tot Phos (mg/L)	CBOD5 (mg/L)	ChemComments
OK121700-05-0120B	Peacheater Creek: PE1	09-Jan-03	10:00 AM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	21-Jan-03	11:00 AM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	30-Jan-03	9:45 AM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	13-Feb-03	10:00 AM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	27-Feb-03	10:00 AM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	04-Mar-03	12:15 PM	Field Duplicate	6.92	5.22	79.32	-10		3.28	-0.01	-0.11		0.008		Holding times exceeded on TSS.
OK121700-05-0120B	Peacheater Creek: PE1	04-Mar-03	12:15 PM	Field Replicate												
OK121700-05-0120B	Peacheater Creek: PE1	04-Mar-03	12:15 PM	Routine Sample	7.27	5.37	78.53	-10		3.32	-0.01	-0.11		0.012		Holding times exceeded on TSS.
OK121700-05-0120B	Peacheater Creek: PE1	13-Mar-03	9:30 AM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	06-May-03	2:00 PM	Field Duplicate	6.57	4.79	84.04	-10		2.14	-0.01	-0.11		-0.005		
OK121700-05-0120B	Peacheater Creek: PE1	06-May-03	2:00 PM	Field Replicate												
OK121700-05-0120B	Peacheater Creek: PE1	06-May-03	2:00 PM	Routine Sample	6.65	4.79	84.42	-10		2.15	-0.01	-0.11		-0.005		
OK121700-05-0120B	Peacheater Creek: PE1	23-Jun-03	8:30 AM	Routine Sample	6	5.13	82.4	-10		1.88	-0.01	0.123		0.075		Holding times exceeded on all parameters except Hardness, TKN, and T-Phos.
OK121700-05-0120B	Peacheater Creek: PE1	01-Jul-03	1:00 PM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	14-Jul-03	9:00 AM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	17-Jul-03	9:00 AM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	21-Jul-03	8:30 AM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	28-Jul-03	8:15 AM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	31-Jul-03	8:30 AM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	04-Aug-03	2:45 PM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	14-Aug-03	9:00 AM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	25-Aug-03	2:15 PM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	28-Aug-03	9:20 AM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	02-Sep-03	9:10 AM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	08-Sep-03	2:15 PM	Field Duplicate	6.8	4.6	87.5	-10		0.99	-0.02	-0.11		0.049		Holding times exceeded on Nitrate, Nitrite and TSS.
OK121700-05-0120B	Peacheater Creek: PE1	08-Sep-03	2:15 PM	Routine Sample	6.9	4.5	87.5	-10		1.02	-0.02	-0.11	0.084			Holding times exceeded on Nitrate, Nitrite and TSS.
OK121700-05-0120B	Peacheater Creek: PE1	16-Sep-03	9:00 AM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	23-Sep-03	9:00 AM	Routine Sample												
OK121700-05-0120B	Peacheater Creek: PE1	30-Sep-03	9:30 AM	Routine Sample												

OK121700-05-0120B	Peacheater Creek: PE1	07-Oct-03	10:30 AM	Routine Sample	7	4.2	90.8	-10	1.06	-0.02	0.124	0.05	TSS - holding times exceeded.
OK121700-05-0120B	Peacheater Creek: PE1	15-Oct-03	12:45 PM	Routine Sample									
OK121700-05-0120B	Peacheater Creek: PE1	23-Oct-03	1:30 PM	Routine Sample									
OK121700-05-0120B	Peacheater Creek: PE1	28-Oct-03	1:20 PM	Field Duplicate									
OK121700-05-0120B	Peacheater Creek: PE1	28-Oct-03	1:20 PM	Routine Sample									
OK121700-05-0120B	Peacheater Creek: PE1	05-Nov-03	11:15 AM	Routine Sample									
OK121700-05-0120B	Peacheater Creek: PE1	12-Nov-03	10:15 AM	Routine Sample	7.2	11.4	89.8	-10	1.29	-0.02	0.133	0.077	
OK121700-05-0120B	Peacheater Creek: PE1	20-Nov-03	1:30 PM	Routine Sample									
OK121700-05-0120B	Peacheater Creek: PE1	25-Nov-03	1:10 PM	Routine Sample									
OK121700-05-0120B	Peacheater Creek: PE1	02-Dec-03	1:00 PM	Routine Sample									
OK121700-05-0120B	Peacheater Creek: PE1	09-Dec-03	10:00 AM	Field Replicate	6.6	4.4	86.6	-10	1.49	-0.02	-0.11	0.067	
OK121700-05-0120B	Peacheater Creek: PE1	09-Dec-03	10:00 AM	Routine Sample	6.4	4.5	86.6	-10	1.5	-0.02	-0.11	0.083	
OK121700-05-0120B	Peacheater Creek: PE1	22-Dec-03	2:20 PM	Routine Sample									
OK121700-05-0120B	Peacheater Creek: PE1	31-Dec-03	10:20 AM	Routine Sample									
OK121700-05-0120B	Peacheater Creek: PE1	13-Jan-04	1:00 PM	Routine Sample									
OK121700-05-0120G	PE1 (Auto-Sampler)	15-Jan-03	1:00 PM	Routine Sample	6.91	4.68	77.26	-10	3.23	-0.01	-0.11	0.04	Holding times exceeded on Chlorides, Total Hardness, Nitrate, Nitrite, TSS and Sulfates.
OK121700-05-0120G	PE1 (Auto-Sampler)	03-Feb-03	12:00 PM	Routine Sample	7.06	7.35	77.52	-10	2.92	-0.01	-0.11	0.033	Holding times exceeded on Hardness and TSS.
OK121700-05-0120G	PE1 (Auto-Sampler)	10-Feb-03	11:00 AM	Routine Sample	19.79	8.01	78.38	-10	2.7	-0.01	-0.11	-0.005	
OK121700-05-0120G	PE1 (Auto-Sampler)	18-Feb-03	10:30 AM	Routine Sample	7.14	4.54	80.48	16	2.58	-0.01	-0.11	-0.005	
OK121700-05-0120G	PE1 (Auto-Sampler)	24-Feb-03	12:30 PM	Field Replicate					3.19		-0.11	-0.005	Holding times exceeded on all parameters except TKN. Unable to run Nitrite on acidified sample.
OK121700-05-0120G	PE1 (Auto-Sampler)	24-Feb-03	12:30 PM	Routine Sample	6.98	4.92	81.73	-10	3.05	-0.01	-0.11	-0.005	Holding times exceeded on all parameters except TKN.
OK121700-05-0120G	PE1 (Auto-Sampler)	10-Mar-03	11:30 AM	Routine Sample	6.71	5.48	75.77	-10	3.21	-0.01	-0.11	-0.005	Holding times exceeded on TSS.
OK121700-05-0120G	PE1 (Auto-Sampler)	17-Mar-03	1:36 PM	Field Replicate	6.94	5.2	76.57	-10	3.2	-0.01	-0.11	0.007	Holding times exceeded on all parameters except TKN.
OK121700-05-0120G	PE1 (Auto-Sampler)	17-Mar-03	1:36 PM	Routine Sample	6.93	5.18	76.74	-10	3.2	-0.01	-0.11	-0.005	Holding times exceeded on all parameters except TKN.
OK121700-05-0120G	PE1 (Auto-Sampler)	24-Mar-03	9:30 AM	Routine Sample	6.98	6.22	76.86	-10	3.72	-0.01	-0.11	0.011	Holding times exceeded on all parameters except TKN.
OK121700-05-0120G	PE1 (Auto-Sampler)	31-Mar-03	10:00 AM	Routine Sample	6.22	5.41	77.05	-10	3.27	-0.01	-0.11	0.017	Holding times exceeded on all parameters except TKN.
OK121700-05-0120G	PE1 (Auto-Sampler)	08-Apr-03	1:30 PM	Routine Sample	6.81	5.45	79.32	-10	3.03	-0.01	-0.11	0.035	Holding times exceeded on TSS.
OK121700-05-0120G	PE1 (Auto-Sampler)	15-Apr-03	12:00 PM	Routine Sample	6.52	5.21	79.33	-10	2.8	-0.01	0.13	0.036	
OK121700-05-0120G	PE1 (Auto-Sampler)	22-Apr-03	1:45 PM	Field Replicate	6.7	5.24	80.27	-10	2.6	-0.01	-0.11	0.067	
OK121700-05-0120G	PE1 (Auto-Sampler)	22-Apr-03	1:45 PM	Routine Sample	6.88	6.14	80.39	-10	2.59	-0.01	-0.11	0.057	
OK121700-05-0120G	PE1 (Auto-Sampler)	29-Apr-03	1:30 PM	Field Replicate	6.85	5.11	82.3	-10	2.43	-0.01	-0.11	0.072	Holding times exceeded on Chlorides, Total Hardness, Nitrate, Nitrite and Sulfates.
OK121700-05-0120G	PE1 (Auto-Sampler)	29-Apr-03	1:30 PM	Routine Sample	6.9	4.95	80.7	-10	2.42	-0.01	-0.11	0.066	Holding times exceeded on Chlorides, Total Hardness, Nitrate, Nitrite and Sulfates.

OK121700-05-0120G	PE1 (Auto-Sampler)	12-May-03	1:40 PM	Routine Sample	6.54	4.64	87.05	-10	2.11	-0.01	-0.11	0.031	
OK121700-05-0120G	PE1 (Auto-Sampler)	20-May-03	8:30 AM	Field Replicate	5.51	5.4	77.84	-10	2.75	-0.01	0.11	0.056	
OK121700-05-0120G	PE1 (Auto-Sampler)	20-May-03	8:30 AM	Routine Sample	5.46	5.38	78.01	-10	2.76	-0.01	0.128	0.047	
OK121700-05-0120G	PE1 (Auto-Sampler)	28-May-03	1:50 PM	Field Duplicate	5.51	5.17	80.16	-10	2.31	-0.01	0.454	0.077	
OK121700-05-0120G	PE1 (Auto-Sampler)	28-May-03	1:50 PM	Routine Sample	5.79	5.29	80.36	-10	2.3	-0.01	0.401	0.07	
OK121700-05-0120G	PE1 (Auto-Sampler)	03-Jun-03	10:30 AM	Routine Sample	5.65	5.46	77.56	-10	2.28	-0.01	0.321	0.095	
OK121700-05-0120G	PE1 (Auto-Sampler)	10-Jun-03	1:15 PM	Routine Sample	5.41	5.09	81.67	-10	2.07	-0.01	0.239	0.084	
OK121700-05-0120G	PE1 (Auto-Sampler)	17-Jun-03	1:30 PM	Field Blank	-0.5	-0.2	-5	-10	-0.01	-0.01	-0.11	0.007	Holding times exceeded on TDS.
OK121700-05-0120G	PE1 (Auto-Sampler)	17-Jun-03	1:30 PM	Routine Sample	5.64	4.99	83.48	-10	1.95	-0.01	0.214	0.057	Holding times exceeded on TDS.
OK121700-05-0120G	PE1 (Auto-Sampler)	08-Jul-03	12:50 PM	Field Duplicate	6.16	4.96	85.5	-10	1.7	-0.01	0.143	0.07	
OK121700-05-0120G	PE1 (Auto-Sampler)	08-Jul-03	12:50 PM	Routine Sample	6.17	4.85	84.9	-10	1.69	-0.01	0.133	0.086	
OK121700-05-0120G	PE1 (Auto-Sampler)	12-Aug-03	11:40 AM	Routine Sample	6.78	4.69	93.6	-10	1.52	-0.02	0.893	0.103	Holding times exceeded on Nitrate, Nitrite and TSS.
OK121700-05-0120G	PE1 (Auto-Sampler)	06-Jan-04	1:00 PM	Field Replicate	7.3	5	86.5	-10	2.32	-0.02	-0.11	0.061	
OK121700-05-0120G	PE1 (Auto-Sampler)	06-Jan-04	1:00 PM	Routine Sample	7.3	5	87.2	-10	2.33	-0.02	-0.11	0.069	
OK121700-05-0120F	Peacheater Creek: PE2	30-Jan-03	10:30 AM	Routine Sample									
OK121700-05-0120F	Peacheater Creek: PE2	13-Feb-03	11:00 AM	Routine Sample									
OK121700-05-0120F	Peacheater Creek: PE2	27-Feb-03	10:41 AM	Routine Sample									
OK121700-05-0120F	Peacheater Creek: PE2	13-Mar-03	10:00 AM	Routine Sample									
OK121700-05-0120F	Peacheater Creek: PE2	16-Jul-03	10:30 AM	Routine Sample									
OK121700-05-0120F	Peacheater Creek: PE2	17-Jul-03	9:20 AM	Routine Sample									
OK121700-05-0120F	Peacheater Creek: PE2	31-Jul-03	9:30 AM	Routine Sample									
OK121700-05-0120F	Peacheater Creek: PE2	14-Aug-03	10:00 AM	Routine Sample									
OK121700-05-0120F	Peacheater Creek: PE2	28-Aug-03	10:15 AM	Routine Sample									
OK121700-05-0120I	Peacheater Creek: PE3	30-Jan-03	11:10 AM	Routine Sample									
OK121700-05-0120I	Peacheater Creek: PE3	13-Feb-03	11:45 AM	Routine Sample									
OK121700-05-0120I	Peacheater Creek: PE3	27-Feb-03	11:14 AM	Routine Sample									
OK121700-05-0120I	Peacheater Creek: PE3	13-Mar-03	10:20 AM	Routine Sample									
OK121700-05-0120I	Peacheater Creek: PE3	16-Jul-03	7:30 AM	Routine Sample									
OK121700-05-0120I	Peacheater Creek: PE3	17-Jul-03	9:45 AM	Routine Sample									
OK121700-05-0120I	Peacheater Creek: PE3	31-Jul-03	10:20 AM	Routine Sample									
OK121700-05-0120I	Peacheater Creek: PE3	14-Aug-03	10:30 AM	Routine Sample									
OK121700-05-0120I	Peacheater Creek: PE3	28-Aug-03	11:35 AM	Routine Sample									
OK121700-05-0120L	Peacheater Creek: PE4a	30-Jan-03	12:00 PM	Routine Sample									
OK121700-05-0120L	Peacheater Creek: PE4a	13-Feb-03	12:15 PM	Routine Sample									

OK121700-05-0120L	Peacheater Creek: PE4a	27-Feb-03	12:00 PM	Routine Sample										
OK121700-05-0120L	Peacheater Creek: PE4a	13-Mar-03	10:45 AM	Routine Sample										
OK121700-05-0120L	Peacheater Creek: PE4a	17-Jul-03	10:50 AM	Routine Sample										
OK121700-05-0120L	Peacheater Creek: PE4a	23-Jul-03	8:00 AM	Routine Sample										
OK121700-05-0120L	Peacheater Creek: PE4a	31-Jul-03	11:00 AM	Routine Sample										
OK121700-05-0120L	Peacheater Creek: PE4a	14-Aug-03	11:00 AM	Routine Sample										
OK121700-05-0120L	Peacheater Creek: PE4a	28-Aug-03	11:15 AM	Routine Sample										
OK121700-05-0120Q	Peacheater Creek: PE5	16-Jul-03	12:50 PM	Routine Sample										DO meter malfunctioned, no results.
OK121700-05-0120Q	Peacheater Creek: PE5	17-Jul-03	10:15 AM	Routine Sample										
OK121700-05-0120Q	Peacheater Creek: PE5	31-Jul-03	11:45 AM	Routine Sample										
OK121700-05-0120Q	Peacheater Creek: PE5	14-Aug-03	11:30 AM	Routine Sample										
OK121700-05-0120Q	Peacheater Creek: PE5	28-Aug-03	10:45 AM	Routine Sample										
OK121700-05-0090N	Tyner Creek: Downstream	09-Jan-03	12:45 PM	Routine Sample										
OK121700-05-0090N	Tyner Creek: Downstream	15-Jan-03	1:45 PM	Field Replicate						4.44	-0.01	-0.11	0.034	Holding times exceeded on Nitrate, and Nitrite.
OK121700-05-0090N	Tyner Creek: Downstream	15-Jan-03	1:45 PM	Routine Sample	8.39	4.85	93.29	-10		4.21	-0.01	-0.11	0.032	Holding times exceeded on Chlorides, Total Hardness, Nitrate, Nitrite, TSS and Sulfates.
OK121700-05-0090N	Tyner Creek: Downstream	21-Jan-03	1:25 PM	Routine Sample										
OK121700-05-0090N	Tyner Creek: Downstream	30-Jan-03	1:00 PM	Routine Sample										
OK121700-05-0090N	Tyner Creek: Downstream	03-Feb-03	1:00 PM	Field Duplicate						3.25	-0.01	-0.11	-0.005	
OK121700-05-0090N	Tyner Creek: Downstream	03-Feb-03	1:00 PM	Routine Sample	7.95	4.99	96.62	-10		3.23	-0.01	-0.11	-0.005	Holding times exceeded on Hardness and TSS.
OK121700-05-0090N	Tyner Creek: Downstream	10-Feb-03	12:15 PM	Field Replicate	7.81	4.11	97.22	-10						Holding times exceeded on TSS.
OK121700-05-0090N	Tyner Creek: Downstream	10-Feb-03	12:15 PM	Routine Sample	7.91	4.33	96.54	-10		2.98	-0.01	-0.11	-0.005	Holding times exceeded on TSS.
OK121700-05-0090N	Tyner Creek: Downstream	18-Feb-03	11:30 AM	Field Duplicate	6.82	4.05	98.83	14						
OK121700-05-0090N	Tyner Creek: Downstream	18-Feb-03	11:30 AM	Routine Sample	6.85	4.23	98.78	15		2.48	-0.01	-0.11	-0.005	
OK121700-05-0090N	Tyner Creek: Downstream	24-Feb-03	1:34 PM	Routine Sample	6.08	4.47	92.73	-10		2.62	-0.01	-0.11	-0.005	Holding times exceeded on all parameters except TKN.
OK121700-05-0090N	Tyner Creek: Downstream	04-Mar-03	1:00 PM	Routine Sample	7.2	4.71	93.04	-10		3.45	-0.01	-0.11	0.01	Holding times exceeded on TSS.
OK121700-05-0090N	Tyner Creek: Downstream	10-Mar-03	12:30 PM	Field Blank		-0.2	-5	-10	-0.5	-0.01	-0.01	-0.11	-0.005	Holding times exceeded on TSS.
OK121700-05-0090N	Tyner Creek: Downstream	10-Mar-03	12:30 PM	Field Replicate										
OK121700-05-0090N	Tyner Creek: Downstream	10-Mar-03	12:30 PM	Routine Sample	7.49	4.66	88.43	-10		3.63	-0.01	-0.11	-0.005	Holding times exceeded on TSS.
OK121700-05-0090N	Tyner Creek: Downstream	17-Mar-03	3:00 PM	Routine Sample	7.65	4.6	91.48	-10		3.69	-0.01	-0.11	-0.005	Holding times exceeded on all parameters except TKN.
OK121700-05-0090N	Tyner Creek: Downstream	24-Mar-03	10:30 AM	Field Duplicate	7.49	5.11	88.39	-10		3.65	-0.01	-0.11	0.013	Holding times exceeded on all parameters except TKN.
OK121700-05-0090N	Tyner Creek: Downstream	24-Mar-03	10:30 AM	Field Replicate										
OK121700-05-0090N	Tyner Creek: Downstream	24-Mar-03	10:30 AM	Routine Sample	7.41	5.12	88.1	-10		3.66	-0.01	-0.11	0.007	Holding times exceeded on all parameters except TKN.
OK121700-05-0090N	Tyner Creek: Downstream	31-Mar-03	12:30 PM	Field Blank	-0.5	0.31	-5	-10		-0.01	-0.01	-0.11	-0.005	Holding times exceeded on all parameters except TKN.

OK121700-05-0090N	Tyner Creek: Downstream	31-Mar-03	12:30 PM	Field Replicate										
OK121700-05-0090N	Tyner Creek: Downstream	31-Mar-03	12:30 PM	Routine Sample	7.09	4.77	89.57	13		3.54	-0.01	-0.11	0.016	Holding times exceeded on all parameters except TKN.
OK121700-05-0090N	Tyner Creek: Downstream	08-Apr-03	12:30 PM	Field Replicate	7.45	4.74	93.59	-10		3.63	-0.01	0.11	0.022	Holding times exceeded on TSS.
OK121700-05-0090N	Tyner Creek: Downstream	08-Apr-03	12:30 PM	Routine Sample	7.54	4.7	93.44	-10		3.64	-0.01	-0.11	0.019	Holding times exceeded on TSS.
OK121700-05-0090N	Tyner Creek: Downstream	15-Apr-03	11:00 AM	Field Duplicate	10.41	6.82	94.17	-10		4.67	0.07	-0.11	0.082	
OK121700-05-0090N	Tyner Creek: Downstream	15-Apr-03	11:00 AM	Field Replicate										
OK121700-05-0090N	Tyner Creek: Downstream	15-Apr-03	11:00 AM	Routine Sample	7.43	4.85	94.2	-10		3.45	-0.01	-0.11	0.082	
OK121700-05-0090N	Tyner Creek: Downstream	22-Apr-03	12:45 PM	Routine Sample	7.38	4.83	95.52	-10		3.19	-0.01	-0.11	0.065	
OK121700-05-0090N	Tyner Creek: Downstream	29-Apr-03	12:30 PM	Routine Sample	6.93	4.17	97.32	-10		2.73	-0.01	0.215	0.044	Holding times exceeded on Chlorides, Total Hardness, Nitrate, Nitrite and Sulfates.
OK121700-05-0090N	Tyner Creek: Downstream	06-May-03	1:00 PM	Routine Sample	6.8	4.17	98.72	-10		2.49	-0.01	-0.11	-0.005	
OK121700-05-0090N	Tyner Creek: Downstream	13-May-03	12:30 PM	Field Replicate	6.69	4.15	101.1	-10		2.35	-0.01	0.418	0.057	
OK121700-05-0090N	Tyner Creek: Downstream	13-May-03	12:30 PM	Routine Sample	6.78	4.17	100.9	-10		2.36	-0.01	0.37	0.054	
OK121700-05-0090N	Tyner Creek: Downstream	20-May-03	10:00 AM	Routine Sample	6.79	4.5	98.8	-10		2.39	-0.01	-0.11	0.009	
OK121700-05-0090N	Tyner Creek: Downstream	28-May-03	12:50 PM	Routine Sample	6.94	4.47	99.7	-10		2.58	-0.01	0.342	0.06	
OK121700-05-0090N	Tyner Creek: Downstream	03-Jun-03	11:45 AM	Field Blank	-0.5	-0.2	-5	-10		-0.01	-0.01	-0.11	0.042	
OK121700-05-0090N	Tyner Creek: Downstream	03-Jun-03	11:45 AM	Field Replicate										
OK121700-05-0090N	Tyner Creek: Downstream	03-Jun-03	11:45 AM	Routine Sample	6.55	4.27	98.07	-10		2.46	-0.01	0.451	0.068	
OK121700-05-0090N	Tyner Creek: Downstream	10-Jun-03	12:05 PM	Field Replicate	7.04	4.4	103.8	-10		2.49	-0.01	-0.11	0.054	
OK121700-05-0090N	Tyner Creek: Downstream	10-Jun-03	12:05 PM	Routine Sample	6.95	4.41	102.7	-10		2.44	-0.01	-0.11	0.055	
OK121700-05-0090N	Tyner Creek: Downstream	17-Jun-03	12:10 PM	Routine Sample	6.86	4.45	105.5	-10		2.41	-0.01	0.102	0.033	Holding times exceeded on TDS.
OK121700-05-0090N	Tyner Creek: Downstream	23-Jun-03	1:20 PM	Field Replicate	7.1	4.41	104.2	-10		2.42	-0.01	0.15	0.047	Holding times exceeded on all parameters except Hardness, TKN, and T-Phos.
OK121700-05-0090N	Tyner Creek: Downstream	23-Jun-03	1:20 PM	Routine Sample	7.2	4.45	103.4	-10		2.39	-0.01	0.112	0.051	Holding times exceeded on all parameters except Hardness, TKN, and T-Phos.
OK121700-05-0090N	Tyner Creek: Downstream	01-Jul-03	1:50 PM	Routine Sample										
OK121700-05-0090N	Tyner Creek: Downstream	08-Jul-03	11:50 AM	Routine Sample	7.16	420	107.7	-10		2.17	-0.01	0.18	0.067	
OK121700-05-0090N	Tyner Creek: Downstream	14-Jul-03	10:00 AM	Routine Sample										
OK121700-05-0090N	Tyner Creek: Downstream	21-Jul-03	12:45 PM	Routine Sample										
OK121700-05-0090N	Tyner Creek: Downstream	28-Jul-03	8:50 AM	Routine Sample										
OK121700-05-0090N	Tyner Creek: Downstream	04-Aug-03	1:30 PM	Routine Sample										
OK121700-05-0090N	Tyner Creek: Downstream	12-Aug-03	10:30 AM	Field Replicate	7.13	3.89	114.9	-10		1.68	-0.02	-0.11	0.065	Holding times exceeded on Nitrate, Nitrite and TSS.
OK121700-05-0090N	Tyner Creek: Downstream	12-Aug-03	10:30 AM	Routine Sample	7.12	3.89	114.7	-10		1.67	-0.02	-0.11	0.064	Holding times exceeded on Nitrate, Nitrite and TSS.
OK121700-05-0090N	Tyner Creek: Downstream	25-Aug-03	1:30 PM	Routine Sample										
OK121700-05-0090N	Tyner Creek: Downstream	02-Sep-03	10:00 AM	Routine Sample										
OK121700-05-0090N	Tyner Creek: Downstream	08-Sep-03	1:30 PM	Routine Sample		4.4	111.6	-10	7.4	1.77	-0.02	-0.11	0.059	Holding times exceeded on Nitrate, Nitrite and TSS.

OK121700-05-0090N	Tyner Creek: Downstream	16-Sep-03	9:40 AM	Routine Sample									
OK121700-05-0090N	Tyner Creek: Downstream	23-Sep-03	9:35 AM	Routine Sample									
OK121700-05-0090N	Tyner Creek: Downstream	30-Sep-03	10:15 AM	Routine Sample									
OK121700-05-0090N	Tyner Creek: Downstream	07-Oct-03	11:15 AM	Field Blank	-0.5	-0.2	-5	-10	-0.02	-0.02	-0.11	-0.005	TSS - holding times exceeded.
OK121700-05-0090N	Tyner Creek: Downstream	07-Oct-03	11:15 AM	Routine Sample	7.1	3.8	103	-10	1.58	0.09	0.149	0.036	TSS - holding times exceeded.
OK121700-05-0090N	Tyner Creek: Downstream	14-Oct-03	1:50 PM	Routine Sample									
OK121700-05-0090N	Tyner Creek: Downstream	15-Oct-03	12:00 PM	Routine Sample									
OK121700-05-0090N	Tyner Creek: Downstream	23-Oct-03	11:30 AM	Routine Sample									
OK121700-05-0090N	Tyner Creek: Downstream	28-Oct-03	12:30 PM	Routine Sample									
OK121700-05-0090N	Tyner Creek: Downstream	05-Nov-03	12:00 PM	Routine Sample									
OK121700-05-0090N	Tyner Creek: Downstream	12-Nov-03	10:50 AM	Routine Sample	7	3.9	114.3	-10	1.66	-0.02	-0.11	0.061	
OK121700-05-0090N	Tyner Creek: Downstream	20-Nov-03	11:00 AM	Routine Sample									
OK121700-05-0090N	Tyner Creek: Downstream	25-Nov-03	12:15 PM	Routine Sample									
OK121700-05-0090N	Tyner Creek: Downstream	02-Dec-03	12:15 PM	Routine Sample									
OK121700-05-0090N	Tyner Creek: Downstream	09-Dec-03	11:00 AM	Routine Sample	6.5	4.1	103.9	-10	1.98	-0.02	-0.11	0.056	
OK121700-05-0090N	Tyner Creek: Downstream	22-Dec-03	1:40 PM	Routine Sample									
OK121700-05-0090N	Tyner Creek: Downstream	31-Dec-03	11:00 AM	Routine Sample									
OK121700-05-0090N	Tyner Creek: Downstream	06-Jan-04	12:00 PM	Routine Sample	7.1	4.5	101.7	-10	2.67	-0.02	-0.11	0.055	
OK121700-05-0090G	Tyner Creek: TB1	30-Jan-03	3:15 PM	Routine Sample									
OK121700-05-0090G	Tyner Creek: TB1	13-Feb-03	3:00 PM	Routine Sample									
OK121700-05-0090G	Tyner Creek: TB1	27-Feb-03	1:57 PM	Routine Sample									
OK121700-05-0090G	Tyner Creek: TB1	13-Mar-03	1:10 PM	Routine Sample									
OK121700-05-0090G	Tyner Creek: TB1	19-Jun-03	8:15 AM	Routine Sample									
OK121700-05-0090G	Tyner Creek: TB1	17-Jul-03	1:00 PM	Routine Sample									
OK121700-05-0090G	Tyner Creek: TB1	31-Jul-03	2:40 PM	Routine Sample									
OK121700-05-0090G	Tyner Creek: TB1	14-Aug-03	1:50 PM	Routine Sample									
OK121700-05-0090G	Tyner Creek: TB1	28-Aug-03	2:00 PM	Routine Sample									
OK121700-05-0090I	Tyner Creek: TB2	15-Jul-03	12:45 PM	Routine Sample									
OK121700-05-0090I	Tyner Creek: TB2	17-Jul-03	1:00 PM	Routine Sample									
OK121700-05-0090I	Tyner Creek: TB2	31-Jul-03	2:15 PM	Routine Sample									
OK121700-05-0090I	Tyner Creek: TB2	14-Aug-03	1:20 PM	Routine Sample									
OK121700-05-0090I	Tyner Creek: TB2	28-Aug-03	1:30 PM	Routine Sample									
OK121700-05-0090M	Tyner Creek: TB4	30-Jan-03	2:00 PM	Routine Sample									
OK121700-05-0090M	Tyner Creek: TB4	13-Feb-03	1:30 PM	Routine Sample									

OK121700-05-0090M	Tyner Creek: TB4	27-Feb-03	1:13 PM	Routine Sample
OK121700-05-0090M	Tyner Creek: TB4	13-Mar-03	12:15 PM	Routine Sample
OK121700-05-0090M	Tyner Creek: TB4	17-Jul-03	12:15 PM	Routine Sample
OK121700-05-0090M	Tyner Creek: TB4	28-Jul-03	9:25 AM	Routine Sample
OK121700-05-0090M	Tyner Creek: TB4	31-Jul-03	1:20 PM	Routine Sample
OK121700-05-0090M	Tyner Creek: TB4	14-Aug-03	12:45 PM	Routine Sample
OK121700-05-0090M	Tyner Creek: TB4	28-Aug-03	12:50 PM	Routine Sample
OK121700-05-0090P	Tyner Creek: TB5	30-Jan-03	1:20 PM	Routine Sample
OK121700-05-0090P	Tyner Creek: TB5	13-Feb-03	1:00 PM	Routine Sample
OK121700-05-0090P	Tyner Creek: TB5	27-Feb-03	12:30 PM	Routine Sample
OK121700-05-0090P	Tyner Creek: TB5	13-Mar-03	11:30 AM	Routine Sample
OK121700-05-0090P	Tyner Creek: TB5	15-Jul-03	7:30 AM	Routine Sample
OK121700-05-0090P	Tyner Creek: TB5	17-Jul-03	11:35 AM	Routine Sample
OK121700-05-0090P	Tyner Creek: TB5	31-Jul-03	12:40 PM	Routine Sample
OK121700-05-0090P	Tyner Creek: TB5	14-Aug-03	12:00 PM	Routine Sample
OK121700-05-0090P	Tyner Creek: TB5	28-Aug-03	12:15 PM	Routine Sample

Post-Implementation Bacteria Level.

WBID	SiteName	Date	Time	Type	EC Operand	E.Coli	EN Operand	Enterococcus	Comments
OK121700-05-0090N	Tyner Creek: Downstream	15-Apr-03	11:00 AM	Routine Sample	<	20	<	20	
OK121700-05-0120G	PE1 (Auto-Sampler)	15-Apr-03	12:00 PM	Routine Sample	<	20	<	20	
OK121700-05-0090N	Tyner Creek: Downstream	22-Apr-03	12:45 PM	Routine Sample		10		35	
OK121700-05-0120G	PE1 (Auto-Sampler)	22-Apr-03	1:45 PM	Field Replicate	<	10		10	
OK121700-05-0120G	PE1 (Auto-Sampler)	22-Apr-03	1:45 PM	Routine Sample		10	<	10	
OK121700-05-0090N	Tyner Creek: Downstream	29-Apr-03	12:30 PM	Routine Sample		80		150	
OK121700-05-0120G	PE1 (Auto-Sampler)	29-Apr-03	1:30 PM	Field Replicate	<	1		30	
OK121700-05-0120G	PE1 (Auto-Sampler)	29-Apr-03	1:30 PM	Routine Sample		20		20	
OK121700-05-0090N	Tyner Creek: Downstream	08-Apr-03	12:30 PM	Field Replicate		50		30	
OK121700-05-0090N	Tyner Creek: Downstream	08-Apr-03	12:30 PM	Routine Sample		10		20	
OK121700-05-0120G	PE1 (Auto-Sampler)	08-Apr-03	1:30 PM	Routine Sample		10		30	
OK121700-05-0120B	Peacheater Creek: PE1	06-May-03	2:00 PM	Routine Sample		60		50	
OK121700-05-0090N	Tyner Creek: Downstream	06-May-03	1:00 PM	Routine Sample	<	10		110	
OK121700-05-0090N	Tyner Creek: Downstream	13-May-03	12:30 PM	Field Replicate		20		280	
OK121700-05-0090N	Tyner Creek: Downstream	13-May-03	12:30 PM	Routine Sample		20		350	
OK121700-05-0120G	PE1 (Auto-Sampler)	12-May-03	1:40 PM	Routine Sample	<	10		210	
OK121700-05-0090N	Tyner Creek: Downstream	20-May-03	10:00 AM	Routine Sample		150		320	
OK121700-05-0120G	PE1 (Auto-Sampler)	20-May-03	8:30 AM	Field Replicate		70		360	
OK121700-05-0120G	PE1 (Auto-Sampler)	20-May-03	8:30 AM	Routine Sample		70		270	
OK121700-05-0090N	Tyner Creek: Downstream	28-May-03	12:50 PM	Routine Sample		30		40	
OK121700-05-0120G	PE1 (Auto-Sampler)	28-May-03	1:50 PM	Routine Sample		10		58	
OK121700-05-0120G	PE1 (Auto-Sampler)	03-Jun-03	10:30 AM	Routine Sample		110		410	
OK121700-05-0090N	Tyner Creek: Downstream	03-Jun-03	11:45 AM	Routine Sample		60		320	
OK121700-05-0090N	Tyner Creek: Downstream	10-Jun-03	12:05 PM	Field Replicate		20		35	
OK121700-05-0090N	Tyner Creek: Downstream	10-Jun-03	12:05 PM	Routine Sample		10		150	
OK121700-05-0120G	PE1 (Auto-Sampler)	10-Jun-03	1:15 PM	Routine Sample	<	10		30	
OK121700-05-0090N	Tyner Creek: Downstream	17-Jun-03	12:10 PM	Routine Sample		40		290	
OK121700-05-0120G	PE1 (Auto-Sampler)	17-Jun-03	1:30 PM	Routine Sample		40		60	
OK121700-05-0120B	Peacheater Creek: PE1	23-Jun-03	8:30 AM	Routine Sample		40		100	
OK121700-05-0090N	Tyner Creek: Downstream	23-Jun-03	1:20 PM	Field Replicate		40		1080	
OK121700-05-0090N	Tyner Creek: Downstream	23-Jun-03	1:20 PM	Routine Sample		30		1240	
OK121700-05-0120G	PE1 (Auto-Sampler)	08-Jul-03	12:50 PM	Routine Sample		10		130	
OK121700-05-0090N	Tyner Creek: Downstream	08-Jul-03	11:50 AM	Routine Sample		25		370	
OK121700-05-0090N	Tyner Creek: Downstream	12-Aug-03	10:30 AM	Field Replicate		25		110	
OK121700-05-0090N	Tyner Creek: Downstream	12-Aug-03	10:30 AM	Routine Sample		40		80	

OK121700-05-0120G	PE1 (Auto-Sampler)	12-Aug-03	11:40 AM	Routine Sample		10	60	
OK121700-05-0120B	Peacheater Creek: PE1	08-Sep-03	2:15 PM	Routine Sample	**	**		Container leaked in transit, no results.
OK121700-05-0090N	Tyner Creek: Downstream	08-Sep-03	1:30 PM	Routine Sample		10	260	
OK121700-05-0120B	Peacheater Creek: PE1	07-Oct-03	10:30 AM	Routine Sample		10	40	
OK121700-05-0090N	Tyner Creek: Downstream	07-Oct-03	11:15 AM	Routine Sample		10	10	

Post-Implementation Fish Collections

WBID	SiteName	Date	Time	Seine Time (min)	Seine Size	Backpack Shocker Time (sec)	Backpack Shocker Volts	Backpack Shocker Amps	Field Shock	Field Seine	Lab Shock	Lab Seine	Common Name	Species
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15 AM	85	6x20	4070	450	0.3 - 0.6			16	10	Central stoneroller	Campostoma anomalum
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15 AM	85	6x20	4070	450	0.3 - 0.6	29		68	55	Cardinal shiner	Luxilus cardinalis
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15 AM	85	6x20	4070	450	0.3 - 0.6	27		1	3	Redspot chub	Nocomis asper
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15 AM	85	6x20	4070	450	0.3 - 0.6			2	1	Ozark minnow	Notropis nubilus
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15 AM	85	6x20	4070	450	0.3 - 0.6			2		Southern redbelly dace	Phoxinus erythrogaster
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15 AM	85	6x20	4070	450	0.3 - 0.6	13		13		Creek chub	Semotilus atromaculatus
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15 AM	85	6x20	4070	450	0.3 - 0.6			2		Northern hog sucker	Hypentelium nigricans
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15 AM	85	6x20	4070	450	0.3 - 0.6			18		Slender madtom	Noturus exilis
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15 AM	85	6x20	4070	450	0.3 - 0.6	33		4		Banded sculpin	Cottus carolinae
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15 AM	85	6x20	4070	450	0.3 - 0.6	5				Shadow bass	Amboplites ariommus
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15 AM	85	6x20	4070	450	0.3 - 0.6	2				Longear sunfish	Lepomis megalotis
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15 AM	85	6x20	4070	450	0.3 - 0.6	1		1		Smallmouth bass	Micropterus dolomieui
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15 AM	85	6x20	4070	450	0.3 - 0.6			4		Greenside darter	Etheostoma blennioides
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15 AM	85	6x20	4070	450	0.3 - 0.6			65		Fantail darter	Etheostoma flabellare
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15 AM	85	6x20	4070	450	0.3 - 0.6			20		Stippled darter	Etheostoma punctulatum
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15 AM	85	6x20	4070	450	0.3 - 0.6			60	2	Orangethroat darter	Etheostoma spectabile
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7	135		23	2	Central stoneroller	Campostoma anomalum
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7	146	76	60	5	Cardinal shiner	Luxilus cardinalis
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7	14	2	2	2	Redspot chub	Nocomis asper
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7			4	10	Ozark minnow	Notropis nubilus
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7			2		Southern redbelly dace	Phoxinus erythrogaster
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7	9		2		Creek chub	Semotilus atromaculatus
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7			1		Northern hog sucker	Hypentelium nigricans
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7			26		Slender madtom	Noturus exilis
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7		38	8	4	Mosquitofish	Gambusia affinis
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7	62		28		Banded sculpin	Cottus carolinae
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7	1		1		Shadow bass	Amboplites ariommus
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7			1		Green sunfish	Lepomis cyanellus
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7	1		2	1	Bluegill sunfish	Lepomis macrochirus
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7	4		1		Longear sunfish	Lepomis megalotis
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7		3		1	Redear sunfish	Lepomis microlophus
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7	7		1		Smallmouth bass	Micropterus dolomieui
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7				1	Largemouth bass	Micropterus salmoides
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7			10		Fantail darter	Etheostoma flabellare
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7			2		Stippled darter	Etheostoma punctulatum
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30 AM	55	6x20	3860	500	0.3 - 0.7			72	1	Orangethroat darter	Etheostoma spectabile
OK121700-05-0090N	Tyner Creek: Downstream	7/14/2003	10:00 AM	90	6x10	3852	5000	0.4	8	10	8		Central stoneroller	Campostoma anomalum
OK121700-05-0090N	Tyner Creek: Downstream	7/14/2003	10:00 AM	90	6x10	3852	5000	0.4	54	39	5	4	Cardinal shiner	Luxilus cardinalis

OK121700-05-0090N	Tyner Creek: Downstream	7/14/2003	10:00 AM	90	6x10	3852	5000	0.4	19	4			Redspot chub	Nocomis asper
OK121700-05-0090N	Tyner Creek: Downstream	7/14/2003	10:00 AM	90	6x10	3852	5000	0.4		148	96	5	Southern redbelly dace	Phoxinus erythrogaster
OK121700-05-0090N	Tyner Creek: Downstream	7/14/2003	10:00 AM	90	6x10	3852	5000	0.4	26	6	6		Creek chub	Semotilus atromaculatus
OK121700-05-0090N	Tyner Creek: Downstream	7/14/2003	10:00 AM	90	6x10	3852	5000	0.4			8		Slender madtom	Noturus exilis
OK121700-05-0090N	Tyner Creek: Downstream	7/14/2003	10:00 AM	90	6x10	3852	5000	0.4	189	2	25		Banded sculpin	Cottus carolinae
OK121700-05-0090N	Tyner Creek: Downstream	7/14/2003	10:00 AM	90	6x10	3852	5000	0.4	5		1		Green sunfish	Lepomis cyanellus
OK121700-05-0090N	Tyner Creek: Downstream	7/14/2003	10:00 AM	90	6x10	3852	5000	0.4	2		1		Bluegill sunfish	Lepomis macrochirus
OK121700-05-0090N	Tyner Creek: Downstream	7/14/2003	10:00 AM	90	6x10	3852	5000	0.4			1		Largemouth bass	Micropterus salmoides
OK121700-05-0090N	Tyner Creek: Downstream	7/14/2003	10:00 AM	90	6x10	3852	5000	0.4			93	2	Fantail darter	Etheostoma flabellare
OK121700-05-0090N	Tyner Creek: Downstream	7/14/2003	10:00 AM	90	6x10	3852	5000	0.4			1		Stippled darter	Etheostoma punctulatum
OK121700-05-0090N	Tyner Creek: Downstream	7/14/2003	10:00 AM	90	6x10	3852	5000	0.4			5	3	Orangethroat darter	Etheostoma spectabile
OK121700-05-0090P	Tyner Creek: TB5	7/15/2003	7:30 AM	75	6x10 & 6x20	3840	450	0.4 - 0.5	16	7	2		Central stoneroller	Campostoma anomalum
OK121700-05-0090P	Tyner Creek: TB5	7/15/2003	7:30 AM	75	6x10 & 6x20	3840	450	0.4 - 0.5	74	50	2	20	Cardinal shiner	Luxilus cardinalis
OK121700-05-0090P	Tyner Creek: TB5	7/15/2003	7:30 AM	75	6x10 & 6x20	3840	450	0.4 - 0.5	6		1	1	Redspot chub	Nocomis asper
OK121700-05-0090P	Tyner Creek: TB5	7/15/2003	7:30 AM	75	6x10 & 6x20	3840	450	0.4 - 0.5	233	75	14	2	Southern redbelly dace	Phoxinus erythrogaster
OK121700-05-0090P	Tyner Creek: TB5	7/15/2003	7:30 AM	75	6x10 & 6x20	3840	450	0.4 - 0.5	76		5	1	Creek chub	Semotilus atromaculatus
OK121700-05-0090P	Tyner Creek: TB5	7/15/2003	7:30 AM	75	6x10 & 6x20	3840	450	0.4 - 0.5	1		1		White sucker	Catostomus commersoni
OK121700-05-0090P	Tyner Creek: TB5	7/15/2003	7:30 AM	75	6x10 & 6x20	3840	450	0.4 - 0.5			1		Slender madtom	Noturus exilis
OK121700-05-0090P	Tyner Creek: TB5	7/15/2003	7:30 AM	75	6x10 & 6x20	3840	450	0.4 - 0.5	455	4	8		Banded sculpin	Cottus carolinae
OK121700-05-0090P	Tyner Creek: TB5	7/15/2003	7:30 AM	75	6x10 & 6x20	3840	450	0.4 - 0.5	29		1		Green sunfish	Lepomis cyanellus
OK121700-05-0090P	Tyner Creek: TB5	7/15/2003	7:30 AM	75	6x10 & 6x20	3840	450	0.4 - 0.5	5		1		Bluegill sunfish	Lepomis macrochirus
OK121700-05-0090P	Tyner Creek: TB5	7/15/2003	7:30 AM	75	6x10 & 6x20	3840	450	0.4 - 0.5			77		Fantail darter	Etheostoma flabellare
OK121700-05-0090P	Tyner Creek: TB5	7/15/2003	7:30 AM	75	6x10 & 6x20	3840	450	0.4 - 0.5			2		Stippled darter	Etheostoma punctulatum
OK121700-05-0090P	Tyner Creek: TB5	7/15/2003	7:30 AM	75	6x10 & 6x20	3840	450	0.4 - 0.5			6	1	Orangethroat darter	Etheostoma spectabile
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45 PM	85	6x10 & 6x20	3749	500	0.4 - 0.6	202	23	8	5	Central stoneroller	Campostoma anomalum
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45 PM	85	6x10 & 6x20	3749	500	0.4 - 0.6	132	264	10	39	Cardinal shiner	Luxilus cardinalis
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45 PM	85	6x10 & 6x20	3749	500	0.4 - 0.6	43	3	1	5	Redspot chub	Nocomis asper
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45 PM	85	6x10 & 6x20	3749	500	0.4 - 0.6			1	32	Ozark minnow	Notropis nubilus
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45 PM	85	6x10 & 6x20	3749	500	0.4 - 0.6			3	2	Southern redbelly dace	Phoxinus erythrogaster
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45 PM	85	6x10 & 6x20	3749	500	0.4 - 0.6	12		1	1	Creek chub	Semotilus atromaculatus
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45 PM	85	6x10 & 6x20	3749	500	0.4 - 0.6	8		1		Northern hog sucker	Hypentelium nigricans
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45 PM	85	6x10 & 6x20	3749	500	0.4 - 0.6				1	Black redhorse	Moxostoma duquesnei
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45 PM	85	6x10 & 6x20	3749	500	0.4 - 0.6			23		Slender madtom	Noturus exilis
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45 PM	85	6x10 & 6x20	3749	500	0.4 - 0.6			1	3	Mosquitofish	Gambusia affinis
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45 PM	85	6x10 & 6x20	3749	500	0.4 - 0.6	38		3		Banded sculpin	Cottus carolinae
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45 PM	85	6x10 & 6x20	3749	500	0.4 - 0.6	1		1		Green sunfish	Lepomis cyanellus
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45 PM	85	6x10 & 6x20	3749	500	0.4 - 0.6		2		1	Smallmouth bass	Micropterus dolomieui
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45 PM	85	6x10 & 6x20	3749	500	0.4 - 0.6			102		Fantail darter	Etheostoma flabellare
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45 PM	85	6x10 & 6x20	3749	500	0.4 - 0.6			5		Stippled darter	Etheostoma punctulatum
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45 PM	85	6x10 & 6x20	3749	500	0.4 - 0.6			67	2	Orangethroat darter	Etheostoma spectabile
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6	32		5	2	Central stoneroller	Campostoma anomalum
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6	325	62	19		Cardinal shiner	Luxilus cardinalis

OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6	36		2	3	Redspot chub	Nocomis asper
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6			1	3	Ozark minnow	Notropis nubilus
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6	166		28	22	Southern redbelly dace	Phoxinus erythrogaster
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6	46		3	3	Creek chub	Semotilus atromaculatus
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6	1				Northern hog sucker	Hypentelium nigricans
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6	8		1		Yellow bullhead catfish	Ameiurus natalis
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6	65		52		Slender madtom	Noturus exilis
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6			15	1	Mosquitofish	Gambusia affinis
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6	28		20		Banded sculpin	Cottus carolinae
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6				6	Bluegill sunfish	Lepomis macrochirus
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6	1		2	5	Redear sunfish	Lepomis microlophus
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6	1				Smallmouth bass	Micropterus dolomieui
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6			1		Fantail darter	Etheostoma flabellare
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6			1		Stippled darter	Etheostoma punctulatum
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30 AM	80	6x10	3568	500	0.4 - 0.6			2	1	Orangethroat darter	Etheostoma spectabile
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6	62		14	7	Central stoneroller	Campostoma anomalum
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6	249	90	156	16	Cardinal shiner	Luxilus cardinalis
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6	49		44	2	Redspot chub	Nocomis asper
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6			1	1	Ozark minnow	Notropis nubilus
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6	16		16	1	Southern redbelly dace	Phoxinus erythrogaster
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6	28		3	1	Creek chub	Semotilus atromaculatus
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6				1	White sucker	Catostomus commersoni
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6	1		75		Northern hog sucker	Hypentelium nigricans
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6	50		3		Slender madtom	Noturus exilis
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6			3	3	Mosquitofish	Gambusia affinis
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6	33		5		Banded sculpin	Cottus carolinae
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6				1	Bluegill sunfish	Lepomis macrochirus
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6			13	4	Redear sunfish	Lepomis microlophus
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6	10	2	4	1	Smallmouth bass	Micropterus dolomieui
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6			42		Fantail darter	Etheostoma flabellare
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6			21		Stippled darter	Etheostoma punctulatum
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30 AM	85	6x10	3747	500	0.4 - 0.6			12	3	Orangethroat darter	Etheostoma spectabile
OK121700-05-0120Q	Peacheater Creek: PE5	7/16/2003	12:50 PM	70	6x10	2434	500	0.4 - 0.6	16		1		Central stoneroller	Campostoma anomalum
OK121700-05-0120Q	Peacheater Creek: PE5	7/16/2003	12:50 PM	70	6x10	2434	500	0.4 - 0.6	99	57	73	18	Cardinal shiner	Luxilus cardinalis
OK121700-05-0120Q	Peacheater Creek: PE5	7/16/2003	12:50 PM	70	6x10	2434	500	0.4 - 0.6	3		4		Redspot chub	Nocomis asper
OK121700-05-0120Q	Peacheater Creek: PE5	7/16/2003	12:50 PM	70	6x10	2434	500	0.4 - 0.6	198	34	2	101	Southern redbelly dace	Phoxinus erythrogaster
OK121700-05-0120Q	Peacheater Creek: PE5	7/16/2003	12:50 PM	70	6x10	2434	500	0.4 - 0.6	47		2	2	Creek chub	Semotilus atromaculatus
OK121700-05-0120Q	Peacheater Creek: PE5	7/16/2003	12:50 PM	70	6x10	2434	500	0.4 - 0.6	40		1		Slender madtom	Noturus exilis
OK121700-05-0120Q	Peacheater Creek: PE5	7/16/2003	12:50 PM	70	6x10	2434	500	0.4 - 0.6	68		36		Banded sculpin	Cottus carolinae
OK121700-05-0120Q	Peacheater Creek: PE5	7/16/2003	12:50 PM	70	6x10	2434	500	0.4 - 0.6			1		Fantail darter	Etheostoma flabellare
OK121700-05-0120Q	Peacheater Creek: PE5	7/16/2003	12:50 PM	70	6x10	2434	500	0.4 - 0.6			3		Stippled darter	Etheostoma punctulatum
OK121700-05-0120Q	Peacheater Creek: PE5	7/16/2003	12:50 PM	70	6x10	2434	500	0.4 - 0.6			2	1	Orangethroat darter	Etheostoma spectabile

OK121700-05-0120L	Peacheater Creek: PE4a	7/23/2003	8:00 AM	6x10	5185	500	0.4 - 0.6	42		5	3	Central stoneroller	Campostoma anomalum
OK121700-05-0120L	Peacheater Creek: PE4a	7/23/2003	8:00 AM	6x10	5185	500	0.4 - 0.6	115	183	2	11	Cardinal shiner	Luxilus cardinalis
OK121700-05-0120L	Peacheater Creek: PE4a	7/23/2003	8:00 AM	6x10	5185	500	0.4 - 0.6	35	24	39	3	Redspot chub	Nocomis asper
OK121700-05-0120L	Peacheater Creek: PE4a	7/23/2003	8:00 AM	6x10	5185	500	0.4 - 0.6	133	194	3	7	Southern redbelly dace	Phoxinus erythrogaster
OK121700-05-0120L	Peacheater Creek: PE4a	7/23/2003	8:00 AM	6x10	5185	500	0.4 - 0.6	57	2	8		Creek chub	Semotilus atromaculatus
OK121700-05-0120L	Peacheater Creek: PE4a	7/23/2003	8:00 AM	6x10	5185	500	0.4 - 0.6	5		12		White sucker	Catostomus commersoni
OK121700-05-0120L	Peacheater Creek: PE4a	7/23/2003	8:00 AM	6x10	5185	500	0.4 - 0.6	34		1		Slender madtom	Noturus exilis
OK121700-05-0120L	Peacheater Creek: PE4a	7/23/2003	8:00 AM	6x10	5185	500	0.4 - 0.6		10	17	1	Mosquitofish	Gambusia affinis
OK121700-05-0120L	Peacheater Creek: PE4a	7/23/2003	8:00 AM	6x10	5185	500	0.4 - 0.6	35	2	14		Banded sculpin	Cottus carolinae
OK121700-05-0120L	Peacheater Creek: PE4a	7/23/2003	8:00 AM	6x10	5185	500	0.4 - 0.6			7		Fantail darter	Etheostoma flabellare
OK121700-05-0120L	Peacheater Creek: PE4a	7/23/2003	8:00 AM	6x10	5185	500	0.4 - 0.6			7	1	Stippled darter	Etheostoma punctulatum
OK121700-05-0120L	Peacheater Creek: PE4a	7/23/2003	8:00 AM	6x10	5185	500	0.4 - 0.6			11	6	Orangethroat darter	Etheostoma spectabile
OK121700-05-0090M	Tyner Creek: TB4	7/28/2003	9:25 AM	75 6x10	3815	500	0.4 - 0.6	184		1	4	Central stoneroller	Campostoma anomalum
OK121700-05-0090M	Tyner Creek: TB4	7/28/2003	9:25 AM	75 6x10	3815	500	0.4 - 0.6	228	39	65	15	Cardinal shiner	Luxilus cardinalis
OK121700-05-0090M	Tyner Creek: TB4	7/28/2003	9:25 AM	75 6x10	3815	500	0.4 - 0.6	20	2	77	1	Redspot chub	Nocomis asper
OK121700-05-0090M	Tyner Creek: TB4	7/28/2003	9:25 AM	75 6x10	3815	500	0.4 - 0.6	199	170	3		Southern redbelly dace	Phoxinus erythrogaster
OK121700-05-0090M	Tyner Creek: TB4	7/28/2003	9:25 AM	75 6x10	3815	500	0.4 - 0.6	31	5	2	1	Creek chub	Semotilus atromaculatus
OK121700-05-0090M	Tyner Creek: TB4	7/28/2003	9:25 AM	75 6x10	3815	500	0.4 - 0.6	52		310		Slender madtom	Noturus exilis
OK121700-05-0090M	Tyner Creek: TB4	7/28/2003	9:25 AM	75 6x10	3815	500	0.4 - 0.6	58		2	1	Banded sculpin	Cottus carolinae
OK121700-05-0090M	Tyner Creek: TB4	7/28/2003	9:25 AM	75 6x10	3815	500	0.4 - 0.6			4		Green sunfish	Lepomis cyanellus
OK121700-05-0090M	Tyner Creek: TB4	7/28/2003	9:25 AM	75 6x10	3815	500	0.4 - 0.6			62		Bluegill sunfish	Lepomis macrochirus
OK121700-05-0090M	Tyner Creek: TB4	7/28/2003	9:25 AM	75 6x10	3815	500	0.4 - 0.6			2	1	Fantail darter	Etheostoma flabellare
OK121700-05-0090M	Tyner Creek: TB4	7/28/2003	9:25 AM	75 6x10	3815	500	0.4 - 0.6			3		Stippled darter	Etheostoma punctulatum
OK121700-05-0090M	Tyner Creek: TB4	7/28/2003	9:25 AM	75 6x10	3815	500	0.4 - 0.6			5	2	Orangethroat darter	Etheostoma spectabile
OK121700-05-0120G	PE1 (Auto-Sampler)	11/13/2003	10:30 AM		1904	350-450	3	11				Redspot chub	Nocomis asper
OK121700-05-0120G	PE1 (Auto-Sampler)	11/13/2003	10:30 AM		1904	350-450	3	16				Creek chub	Semotilus atromaculatus
OK121700-05-0120G	PE1 (Auto-Sampler)	11/13/2003	10:30 AM		1904	350-450	3	2				Northern hog sucker	Hypentelium nigricans
OK121700-05-0120G	PE1 (Auto-Sampler)	11/13/2003	10:30 AM		1904	350-450	3	3				Green sunfish	Lepomis cyanellus
OK121700-05-0120G	PE1 (Auto-Sampler)	11/13/2003	10:30 AM		1904	350-450	3	1				Longear sunfish	Lepomis megalotis
OK121700-05-0120G	PE1 (Auto-Sampler)	11/13/2003	10:30 AM		1904	350-450	3	5				Smallmouth bass	Micropterus dolomieui
OK121700-05-0090P	Tyner Creek: TB5	11/20/2003	11:15 AM		2845	350	4	2				Redspot chub	Nocomis asper
OK121700-05-0090P	Tyner Creek: TB5	11/20/2003	11:15 AM		2845	350	4	40				Creek chub	Semotilus atromaculatus
OK121700-05-0090P	Tyner Creek: TB5	11/20/2003	11:15 AM		2845	350	4	3				White sucker	Catostomus commersoni
OK121700-05-0090P	Tyner Creek: TB5	11/20/2003	11:15 AM		2845	350	4	19				Green sunfish	Lepomis cyanellus
OK121700-05-0090P	Tyner Creek: TB5	11/20/2003	11:15 AM		2845	350	4	3				Bluegill sunfish	Lepomis macrochirus
OK121700-05-0090M	Tyner Creek: TB4	11/21/2003	9:30 AM		1349	450	0.4	5				Redspot chub	Nocomis asper
OK121700-05-0090M	Tyner Creek: TB4	11/21/2003	9:30 AM		1349	450	0.4	14				Creek chub	Semotilus atromaculatus
OK121700-05-0090M	Tyner Creek: TB4	11/21/2003	9:30 AM		1349	450	0.4	4				Green sunfish	Lepomis cyanellus
OK121700-05-0090M	Tyner Creek: TB4	11/21/2003	9:30 AM		1349	450	0.4	2				Bluegill sunfish	Lepomis macrochirus
OK121700-05-0120Q	Peacheater Creek: PE5	11/21/2003	11:00 AM		608	450	4	3				Redspot chub	Nocomis asper
OK121700-05-0120Q	Peacheater Creek: PE5	11/21/2003	11:00 AM		608	450	4	44				Creek chub	Semotilus atromaculatus

OK121700-05-0120L	Peacheater Creek: PE4a	12/4/2003	9:30 AM	1140	400-450	4	21	Redspot chub	Nocomis asper
OK121700-05-0120L	Peacheater Creek: PE4a	12/4/2003	9:30 AM	1140	400-450	4	32	Creek chub	Semotilus atromaculatus
OK121700-05-0090I	Tyner Creek: TB2	12/4/2003	11:30 AM	1160	450	4	22	Redspot chub	Nocomis asper
OK121700-05-0090I	Tyner Creek: TB2	12/4/2003	11:30 AM	1160	450	4	15	Creek chub	Semotilus atromaculatus
OK121700-05-0090I	Tyner Creek: TB2	12/4/2003	11:30 AM	1160	450	4	7	Northern hog sucker	Hypentelium nigricans
OK121700-05-0090I	Tyner Creek: TB2	12/4/2003	11:30 AM	1160	450	4	26	Black redhorse	Moxostoma duquesnei
OK121700-05-0090I	Tyner Creek: TB2	12/4/2003	11:30 AM	1160	450	4	1	Shadow bass	Amboplites ariommus
OK121700-05-0090I	Tyner Creek: TB2	12/4/2003	11:30 AM	1160	450	4	4	Smallmouth bass	Micropterus dolomieui
OK121700-05-0090G	Tyner Creek: TB1	12/4/2003	12:30 PM	951	450	4	8	Redspot chub	Nocomis asper
OK121700-05-0090G	Tyner Creek: TB1	12/4/2003	12:30 PM	951	450	4	10	Creek chub	Semotilus atromaculatus
OK121700-05-0090G	Tyner Creek: TB1	12/4/2003	12:30 PM	951	450	4	7	Northern hog sucker	Hypentelium nigricans
OK121700-05-0090G	Tyner Creek: TB1	12/4/2003	12:30 PM	951	450	4	3	Black redhorse	Moxostoma duquesnei
OK121700-05-0090G	Tyner Creek: TB1	12/4/2003	12:30 PM	951	450	4	3	Shadow bass	Amboplites ariommus
OK121700-05-0120I	Peacheater Creek: PE3	12/17/2003	12:15 PM	1549	450	4	28	Redspot chub	Nocomis asper
OK121700-05-0120I	Peacheater Creek: PE3	12/17/2003	12:15 PM	1549	450	4	52	Creek chub	Semotilus atromaculatus
OK121700-05-0120I	Peacheater Creek: PE3	12/17/2003	12:15 PM	1549	450	4	2	Yellow bullhead catfish	Ameiurus natalis
OK121700-05-0120I	Peacheater Creek: PE3	12/17/2003	12:15 PM	1549	450	4	3	Bluegill sunfish	Lepomis macrochirus
OK121700-05-0120I	Peacheater Creek: PE3	12/17/2003	12:15 PM	1549	450	4	6	Redear sunfish	Lepomis microlophus
OK121700-05-0120F	Peacheater Creek: PE2	12/17/2003	2:00 PM	1159	450	4	16	Redspot chub	Nocomis asper
OK121700-05-0120F	Peacheater Creek: PE2	12/17/2003	2:00 PM	1159	450	4	30	Creek chub	Semotilus atromaculatus
OK121700-05-0120F	Peacheater Creek: PE2	12/17/2003	2:00 PM	1159	450	4	1	Northern hog sucker	Hypentelium nigricans
OK121700-05-0120F	Peacheater Creek: PE2	12/17/2003	2:00 PM	1159	450	4	1	Shadow bass	Amboplites ariommus
OK121700-05-0120F	Peacheater Creek: PE2	12/17/2003	2:00 PM	1159	450	4	3	Green sunfish	Lepomis cyanellus
OK121700-05-0120F	Peacheater Creek: PE2	12/17/2003	2:00 PM	1159	450	4	1	Redear sunfish	Lepomis microlophus
OK121700-05-0120F	Peacheater Creek: PE2	12/17/2003	2:00 PM	1159	450	4	4	Smallmouth bass	Micropterus dolomieui

Post-Implementation Habitat Scores.

WBID	SiteName	Date	Time	Instream Cover	Pool Bottom Substrate	Pool Variability	Canopy Cover Shading	Presence of Rocky Runs or Riffles	Flow	Channel Alteration	Channel Sinuosity	Bank Stability	Bank Vegetation Stability	Streamside Cover	Total Points	Comments
OK121700-05-0090G	Tyner Creek: TB1	6/19/2003	8:15:00 AM	17.6	18.4	18.8	19.9	16.2	18.4	11.1	0.3	8.7	4.1	9.1	142.6	
OK121700-05-0120B	Peacheater Creek: PE1	6/23/2003	8:30:00 AM	18.7	18.2	19.4	5.3	15.2	11.7	2.8	0.1	8.8	3.3	4.2	107.7	
OK121700-05-0090N	Tyner Creek: Downstream	7/14/2003	10:00:00 AM	18.4	16.7	17.2	17.4	16.3	15.3	0.7	0.5	9.1	5.5	10	127.1	
OK121700-05-0090P	Tyner Creek: TB5	7/15/2003	7:30:00 AM	19.1	18.1	16.5	12.1	14.1	3.8	5	1.5	6.9	5.6	9.3	112	
OK121700-05-0090I	Tyner Creek: TB2	7/15/2003	12:45:00 PM	18.5	15.5	19.3	4.6	16.2	16.1	1	1.7	7	0.8	3	103.7	
OK121700-05-0120I	Peacheater Creek: PE3	7/16/2003	7:30:00 AM	19	19.1	14.6	16	16.2	6.8	2.8	0.3	8.8	4.2	9.1	116.9	
OK121700-05-0120F	Peacheater Creek: PE2	7/16/2003	10:30:00 AM	19.2	18.6	14.6	15	16.3	13	1.4	0.8	9.2	3.5	7.8	119.4	
OK121700-05-0120Q	Peacheater Creek: PE5	7/16/2003	12:50:00 PM	12.9	18.3	20.2	14.6	11.4	6.8	0.4	1.2	5.3	2.3	5.8	99.2	
OK121700-05-0120L	Peacheater Creek: PE4a	7/23/2003	8:00:00 AM	18.6	17.9	17.2	10.6	14.7	10.7	0.4	3.5	7.4	3.5	8.4	112.9	
OK121700-05-0090M	Tyner Creek: TB4	7/28/2003	9:25:00 AM	18.9	15.7	15.9	4	15.6	11.7	0.7	0.5	8.3	5.4	10	106.7	