SMALL WATERSHED ROTATING BASIN MONITORING PROGRAM YEAR 3: LOWER ARKANSAS, LOWER CANADIAN, AND LOWER NORTH CANADIAN BASINS

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1.0 INTRODUCTION

1.1 PROJECT BACKGROUND

The Clean Water Act has charged each state's nonpoint source (NPS) pollution agency with two primary tasks: 1) identify all waters being impacted by NPS pollution, and 2) develop a management program describing NPS pollution programs to be implemented to correct any identified problems. In addition, each state's NPS agency is charged with identification of all programs which are actively planning or enforcing NPS controls in order to reduce NPS pollution in cooperation with local, regional, and interstate entities. The state NPS agency can then report on total program status with regard to efforts to address NPS impacts and improve water quality. The Oklahoma Conservation Commission (OCC) is the organization charged by Oklahoma state statute with the task of monitoring NPS impacts to state waters. Assessment of the state's water quality is the foundation for meeting the long-term goals of the Oklahoma NPS program.

Historically, Oklahoma has not had a consistent, statewide ambient monitoring program that allowed for the identification of nonpoint source (NPS) affected waters. Instead, pollution monitoring has been confined to project-specific areas, or has been conducted on such a large scale that it has not been effective in identifying sources of impairment. Without a comprehensive approach to monitoring and evaluation of the state's waters, it has been difficult to accurately assess the impact of NPS pollution throughout the state, identify the sources of the pollution, and determine the success of measures to improve water conditions.

As the state's technical lead agency in NPS issues, the Oklahoma Conservation Commission (OCC) initiated a new monitoring program in 2000, coordinated with other monitoring programs in the state, to address NPS issues on a larger, more continuous scale than previously done. This program, referred to as the "Small Watershed Rotating Basin Monitoring Program," is based on a staggered, rotational sampling protocol such that outlets of complete watersheds at an eleven digit scale (HUC-11) are sampled for a period of two years on a five year rotational cycle, resulting in approximately 40% of the state being monitored at any given time (see Figure 1). The program was designed to accomplish the state's NPS monitoring needs in four stages. The first stage includes a comprehensive, coordinated investigation and analysis of the causes and sources of NPS pollution throughout the state—Ambient Monitoring. The second stage involves more intensive, specialized monitoring designed to identify specific causes and sources of NPS pollution—Diagnostic Monitoring. The data from diagnostic monitoring can be used to formulate an implementation plan to specifically address the sources and types of identified NPS pollution. The third stage of monitoring is designed to initiate remedial and/or mitigation efforts to address the NPS problems—Implementation Monitoring. Finally, the fourth stage evaluates the effectiveness of the implementation through assessment and post-implementation monitoring—Success Monitoring. This assessment program will provide a thorough and statistically sound evaluation of Oklahoma's waters every five years, which will help focus NPS program planning, education, and implementation efforts in areas where they can be most effective. The current project includes components of stages 1 and 2.

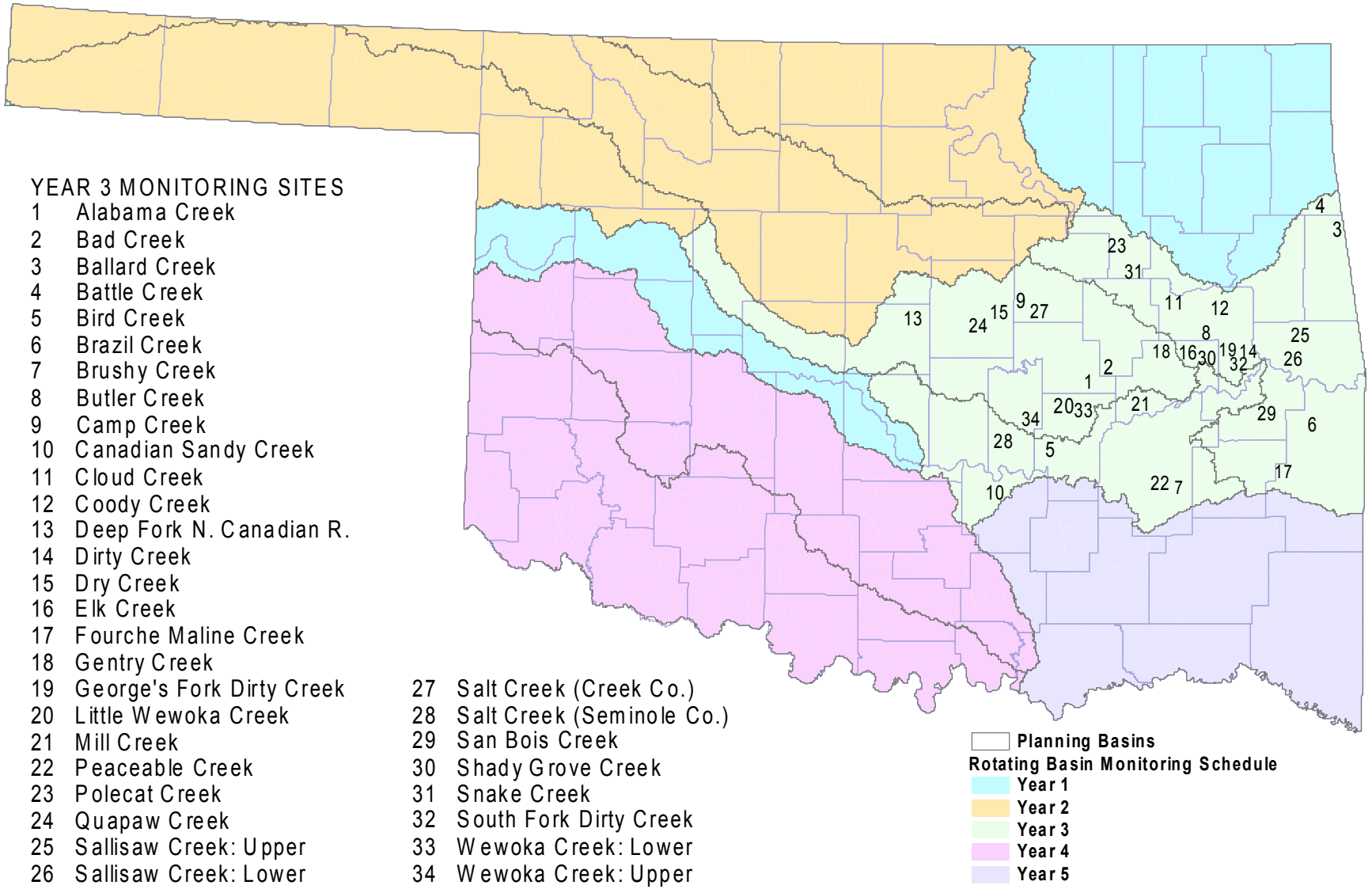


Figure 1. Monitoring Schedule and Year 3 Monitoring Sites for the Small Watershed Rotating Basin Monitoring Project.

The Small Watershed Rotating Basin Monitoring Program as a whole considers the following specific questions in the context of Oklahoma Water Quality Standards and Use Support Assessment Protocols (USAPs) to address NPS pollution:

1. Which HUC 11 waterbodies are non-supporting due to NPS or NPS+PS pollution?
2. Which waterbodies show elevated or increasing levels of NPS or NPS+PS pollutants, which may threaten water quality?
3. What are the sources and magnitude of pollution loading within threatened or impaired waterbodies?
4. Which land uses or changes in land use are sources or potential sources for pollutants causing beneficial use impairment?

This monitoring program will provide an assessment of water quality, watershed conditions, and support status for selected streams statewide with regard to NPS pollution, as well as allow planning of mitigation efforts and eventual evaluation of those efforts.

1.2 PROJECT DESCRIPTION

Oklahoma contains all or part of 414 USGS 11-digit HUC basins which have been collated into eleven planning basins for water quality management purposes. The sampling units for the Small Watershed Rotating Basin Monitoring Program are based at the outlets of HUC 11 watersheds which are located entirely in the state, with secondary sites upstream in selected watersheds. This report focuses on the third set of planning basins to be monitored, the Lower North Canadian, Lower Canadian, and Lower Arkansas basins (see Figure 1). These basins were selected to coordinate with the Oklahoma Department of Environmental Quality (ODEQ) efforts to implement whole basin planning and were monitored routinely for two consecutive years.

In this first phase of the Small Watershed Rotating Basin Monitoring Program, ambient monitoring, which consists of collecting routine physical, chemical, and biological parameters, and diagnostic monitoring, which attempts to identify causes and sources of NPS pollution, were performed. This level of assessment fulfilled three primary objectives:

1. To identify NPS and/or NPS+PS threatened and impaired waterbodies.
2. To check water bodies previously identified as affected by NPS pollution to determine if threats or impairment continue, and to verify that previously identified non-impaired streams have remained non-impaired.
3. To gather data to more intensively assess impaired streams to verify the causes of impairment, identify categorical and geographical sources, and allow planning of restoration strategies.

The implementation of the Rotating Basin Program has provided a thorough and current assessment of water quality and watershed conditions in the Lower North Canadian, Lower Canadian, and Lower Arkansas basins and assignment of beneficial use support status for the selected streams with regard to NPS pollution.

Specifically, watersheds that were located entirely within the state of Oklahoma were monitored at their outlet, and samples were collected at the outlet to allow for a general representation of

water quality for the entire watershed. Watersheds that did not have perennial water, referring specifically to the presence of water but not flow, and watersheds that were actually a segment of a larger river being sampled by another agency were not monitored. All sites were located far enough upstream of the receiving waterbody so that backwater effects were negated. This included alluvial water of the receiving waterbody as well as surface water. Where the watershed is monitored by another entity for other purposes, the site was dropped if the monitoring met the NPS assessment data quality objectives. When the designated watershed was in a large river segment, the OCC monitored a stream with perennial water that was a tributary to that large river. In addition to the main outlet stream, a lower order stream situated higher in the watershed was occasionally monitored concurrently. Secondary sites within the watershed were selected depending on available resources. When there was a choice between several streams in such a watershed, an effort was made to monitor a stream draining an area of land use different from the majority of the other streams being monitored in that region.

After reconnaissance of the watersheds within these three basins and removal of those sites which did not meet the sampling criteria, 34 sites were monitored regularly from June 2003 to June 2005 (Table 1). Water chemistry data was collected approximately 20 times over the two-year monitoring period (every five weeks), and one intensive habitat assessment and fish collection was performed for each site. Four macroinvertebrate collections were attempted per site over the monitoring period; however, lack of water or flow at some sites at certain times of the year may have prevented some of the collections.

Data was compared within ecoregions in order to account for the natural differences in physical and chemical water parameters that constitute healthy streams in a particular area. Ecoregions are the spatial framework for a number of states' water quality standards programs and allow the creation of regional criteria (Gallant et al., 1989). Data values which differ from the expected regional criteria values may used to determine attainment or non-attainment for water bodies (Gallant et al., 1989). The sites monitored in the Lower Arkansas basin occur over four level-three ecoregions: Arkansas Valley (AV), Central Irregular Plains (CIP), Ozark Highlands (OH), and Boston Mountains (BM) (Woods et al., 2005). In the Lower Canadian basin, sites are located in the Cross Timbers (CT) and Arkansas Valley ecoregions. The Lower North Canadian basin includes sites in the Cross Timbers ecoregion as well as one site in the Central Irregular Plains ecoregion. Three sites had a heavy influence from a bordering ecoregion (i.e., the sites are very close to the ecoregion border and have water originating in the other ecoregion), so they were grouped with the influencing ecoregion when compared to reference conditions: Polecat Creek and Snake Creek (located in CIP but influenced by CT) and Sallisaw Creek Lower (located in AV but influenced by BM). This is indicated by the "modified ecoregion" column in Table 1.

Table 1. Site List for Rotating Basin Monitoring Program (Year 3).

Site Name	WBID	Latitude	Longitude	Legal	County	Ecoregion	Modified Ecoregion
Alabama Creek	OK520500-01-0200D	35.337	-96.143	nw sw se 16 10n 11e	Okfuskee	CT	CT
Bad Creek	OK520500-01-0170L	35.378	-96.059	nw nw ne 5 10n 12e	Okfuskee	CT	CT
Ballard Creek	OK121700-03-0370G	36.106	-94.565	nw sw sw 20 19n 26e	Adair	OH	OH
Battle Creek	OK121700-06-0040G	36.21	-94.684	sw ne sw 18 20n 25e	Delaware	OH	OH
Bird Creek	OK520800-01-0050G	35.014	-96.391	sw se se 6 6n 9e	Hughes	CT	CT
Brazil Creek	OK220100-03-0010G	35.139	-94.769	se nw nw 27 8n 24e	LeFlore	AV	AV
Brushy Creek	OK220600-03-0010J	34.843	-95.614	nw se sw 3 4n 16e	Pittsburg	AV	AV
Butler Creek	OK120400-02-0160D	35.581	-95.418	sw sw se 20 13n 18e	Muskogee	CIP	CIP
Camp Creek	OK520700-03-0220G	35.756	-96.572	sw sw se 21 15n 7e	Creek	CT	CT
Canadian Sandy Creek	OK520600-03-0010D	34.812	-96.704	ne ne ne 18 4n 6e	Pontotoc	CT	CT
Cloud Creek	OK120410-01-0010H	35.74	-95.613	nw nw ne 33 15n 16e	Muskogee	CIP	CIP
Coody Creek	OK120400-01-0400F	35.714	-95.322	sw nw sw 5 14n 19e	Muskogee	CIP	CIP
Deep Fork N. Canadian River	OK520710-01-0010G	35.659	-97.245	nw nw sw 30 14n 1e	Oklahoma	CT	CT
Dirty Creek	OK120400-02-0010F	35.471	-95.15	se se ne 35 12n 20e	Muskogee	AV	AV
Dry Creek	OK520700-04-0020F	35.685	-96.695	s1/2 sw17 14n 6e	Lincoln	CT	CT
Elk Creek	OK120400-02-0190D	35.488	-95.522	sw sw sw 10 12n 17e	McIntosh	CIP	CIP
Fourche Maline Creek	OK220100-04-0020M	34.92	-94.945	nw nw sw 12 5n 22e	LeFlore	AV	AV
Gentry Creek	OK520700-01-0080L	35.537	-95.676	se sw sw 1 12n 15e	McIntosh	CIP	CIP
George's Fk Dirty Creek	OK120400-02-0110D	35.494	-95.245	nw ne ne 25 12n 19e	Muskogee	CIP	CIP
Little Wewoka Creek	OK520500-02-0090D	35.233	-96.293	ne nw 30 9n 10e	Okfuskee	CT	CT
Mill Creek	OK220600-01-0100P	35.231	-95.839	nw nw nw 28 9n 14e	McIntosh	AV	AV
Peaceable Creek	OK220600-03-0050F	34.852	-95.654	sw nw nw 5 4n 16e	Pittsburg	AV	AV
Polecat Creek	OK120420-02-0010D	36.01	-95.994	sw sw nw 25 18n 12e	Tulsa	CIP	CT
Quapaw Creek	OK520700-04-0260C	35.622	-96.82	se ne ne 12 13n 4e	Lincoln	CT	CT
Sallisaw Creek: Upper	OK220200-03-0010G	35.578	-94.829	ne ne ne 26 13n 23e	Sequoyah	BM	BM
Sallisaw Creek: Lower	OK220200-03-0010C	35.465	-94.862	sw se sw 34 12n 23e	Sequoyah	AV	BM
Salt Creek (Creek Co.)	OK520700-03-0100B	35.698	-96.474	nw nw nw 16 14n 8e	Creek	CT	CT
Salt Creek (Seminole Co.)	OK520800-03-0010D	35.049	-96.668	se se se 28 7n 6e	Seminole	CT	CT
San Bois Creek	OK220200-04-0010G	35.201	-95.044	nw ne nw 1 8n 21e	Haskell	AV	AV
Shady Grove Creek	OK120400-02-0240H	35.473	-95.451	ne se ne 36 12n 17e	McIntosh	CIP	CIP
Snake Creek	OK120410-01-0220G	35.886	-95.872	sw sw sw 6 16n 14e	Tulsa	CIP	CT
South Fk Dirty Creek	OK120400-02-0030F	35.459	-95.2	ne sw nw 4 11n 20e	Muskogee	CIP	CIP
Wewoka Creek: Lower	OK520500-02-0010C	35.219	-96.213	ne nw ne 30 9n 10e	Hughes	CT	CT
Wewoka Creek: Upper	OK520500-02-0010M	35.17	-96.491	se ne 18 8n 8e	Seminole	CT	CT

2.0 MATERIALS AND METHODS

All sampling and analyses performed during this project were conducted under a Quality Assurance Project Plan (QAPP) approved by EPA Region VI and on file at the OCC Water Quality Division, the Oklahoma Secretary of the Environment (OSE), and EPA Region VI in Dallas. The reader is encouraged to obtain and consult the QAPP for specific questions concerning laboratory analytical methods, detection limits, and accuracy and precision limits. All sampling and measurement activities of OCC Water Quality staff followed procedures outlined in the appropriate OCC Standard Operating Procedure (OCC SOP 2006). Water

quality chemical analyses were conducted by the Oklahoma Department of Agriculture, Food and Forestry (ODAFF) laboratory.

2.1 WATER QUALITY MONITORING

Starting in June 2003, sites were monitored for physical and chemical parameters on a fixed interval schedule of ten sampling events per year (five-week intervals) through June 2005 (usually 20 total events per site). This sampling frequency exceeds state data requirements for beneficial use assessment and meets a sample number necessary to provide a 90% level of confidence for principal water quality data (specifically phosphorus, a critical NPS concern) as determined from EPA's DEFT software. Samples were collected during both base flow and high flow conditions. All sampling and measurement activities followed procedures outlined in the appropriate OCC SOP (2006). *In-situ* water quality parameters were measured at a standard location and included the following parameters: water temperature (YSI Model 55), dissolved oxygen (YSI Model 55), pH (YSI Model 60), specific conductance (YSI Model 30), alkalinity (Hach Digital Titrator Model 16900-01), turbidity (Hach Portable Turbidimeter Model 2100P), and instantaneous discharge (Marsh-McBirney Flo-Mate Model 2000).

One water sample was collected per site per 35-day interval in two, new, sample-rinsed HDPE bottles; one was preserved to a pH <2 with H_2SO_4, and both were stored and delivered on ice or at 4^o C. Quality assurance/control samples were collected in accordance with the project QAPP. Samples were submitted to the ODAFF Laboratory for analysis of the following parameters: nitrate (NO_3), nitrite (NO_2), orthophosphate (PO_4), total phosphorous (TP), total Kjeldahl nitrogen (TKN), ammonia (NH_4), chloride (Cl), sulfate (SO_4), total suspended solids (TSS), total dissolved solids (TDS), 5-day biochemical oxygen demand (BOD_5), and total hardness. Total soluble nitrogen (excluding soluble organic nitrogen) was calculated by summing the values of nitrite, nitrate, and TKN for each sample. Available nitrogen was calculated by summing the values of ammonia, nitrite, and nitrate.

Separate samples were collected and submitted concurrently for analysis of *E. coli* and *Enterococcus* bacteria during the time period of one-month prior to, during, and after each recreational season (May 1 – September 30) so that approximately 12 samples were assessed per site over the two-year monitoring period. In addition, observations and quantities of odor, excessive bottom deposits, surface scum, oil/grease, and foam were recorded each time to facilitate assessment of the aesthetics beneficial use. All data were compiled and entered into an Access database for later analysis. Upon retrieval, data were proofed and quality assured, and the descriptive statistics were generated for each parameter using the statistical software package *Minitab V. 14*.

2.2 BIOLOGICAL MONITORING

2.2.1 Habitat Assessment

In the summers of 2003 and 2004, OCC staff conducted instream and riparian habitat assessments at sites concurrent with fish collections. All assessments were conducted in accordance with procedures outlined in the OCC Habitat Assessment SOP (OCC SOP 2006). The OCC's habitat assessment adheres to a modified version of the EPA Rapid Bioassessment Protocols (RBP) (Plafkin et al., 1989) and is designed to assess habitat quality in relation to its ability to support biological communities in the stream. The assessment is based on particular

parameters grouped into three categories for a total of eleven components (Plafkin et al., 1989). The eleven components are discussed in more detail below. The three primary categories assessed include micro scale habitat, macro scale habitat, and riparian/bank structure. Micro scale habitat includes substrate makeup, stable cover, canopy, depth, and velocity. Macro scale assesses the channel morphology, sediment deposits, and other parameters. The third category looks at the riparian zone quality, width, and general makeup (trees, shrubs, vines, and grasses) as well as bank features. Bank erosion and streamside vegetative cover are incorporated into this section.

OCC's habitat assessment components include:

(1) **Instream cover** is the component of habitat that organisms hide behind, within, or under. High quality cover consists of things like submerged logs, cobble and boulders, root wads, and beds of aquatic plants. Cover required by smaller members of the stream community will consist of gravel, cobbles, small woody debris, and dense beds of fine aquatic plants. At least 50% of the stream's area should be occupied by a mixture of stable cover types for this category to be considered optimal.

(2) **Pool bottom substrate** describes the type of stream bed found in pools. Pools are depositional areas of the stream, and as such, are easily damaged by materials that settle. A loose shifting pool bottom will not provide substrate for burrowing organisms and will not allow bottom-spawning fish to successfully spawn. It will not provide habitat to the smaller vertebrates and invertebrates that are necessary to support many of the pool dwelling fish. At least 80% of all pool bottoms must have stable substrate for a reach to be considered optimal for this habitat component.

(3) **Pool variability** describes the depth of pools. A healthy, diverse community of aquatic organisms requires both deep and shallow pools. A fairly even mix of pool depths from a few centimeters to 0.5 meters or greater is optimal.

(4) **Canopy cover** assesses the shading of the stream section. Plants lie at the base of almost all food chains. Since plants require light for growth and survival, a stream that is functioning well needs some amount of light. Moderation is optimal, however, because light is associated with heat, and most aquatic organisms are more stressed by the warmer waters and the lower oxygen solubility and higher metabolic rates that accompany the warming of water.

(5) The **percent of rocky runs and riffles** is calculated for the fifth component. Rocky runs and riffles offer a unique combination of highly oxygenated, turbulent water, flowing over high quality cover and substrate. Turbulence prevents the formation of nutrient concentration gradients from cell membranes outward so that algae and other plants grow at a much higher rate than they would at the same concentration in pools. More food means more growth. Larger crops of algae are translated into larger invertebrate crops. It is these invertebrates, reared in riffle areas, that feed many of the fish in the stream. Because turbulent water is well oxygenated, there has been no selection pressure for riffle dwelling organisms to develop tolerance to poorly oxygenated waters. These are often the first animals to disappear from the stream if oxygen

becomes scarce. The presence of rocky runs and riffles offers habitat for many highly adapted animals that will increase diversity of samples collected from the streams they occupy.

(6) **Discharge** at representative low flow reflects stream size. Water is the most basic requirement of aquatic organisms. Larger streams tend to have more water, and thus, more varied high quality habitat. Overall habitat quality should rise as streams increase in size and discharge, other factors being equal.

(7) **Channel alteration** is the seventh category. The presence of newly formed point bars and islands is very significant. Unstable streambeds support fewer types of animals than those that are stable. This is because unstable streambeds tend to have unstable pool bottom substrate, riffle areas whose cobbles are embedded in finer material, and little cover because it is continually being buried. Few or no signs of channel alteration are considered optimal.

(8) **Channel sinuosity** measures how far a channel deviates from a straight line. More sinuous channels tend to have more undercut banks, root wads, submerged logs, etc. IBI scores should be higher as channels become more sinuous. Sinuosity was calculated from digital ortho quad maps using Geographic Information System technology (GIS).

(9) The **bank erosion** index assesses the stability of the stream bank. Stable stream banks tend to increase IBI scores for many reasons. Most importantly, they do not contribute sediment to the stream channel. As a rule, channels with stable banks tend to be deeper and narrower than channels with unstable banks. Because of the increased depth and decreased width, they tend to be cooler and they also tend to grow less algae for a given amount of nutrients than do shallow, wide channels. Overall habitat quality should increase as bank stability increases.

(10) The **vegetative stability of the stream bank** is an important component. Stream banks can be stabilized with a number of materials including rock, concrete, and fabric. Banks that are stabilized with vegetation benefit the aquatic community more than those stabilized with other materials. This is because the vegetation offers several extra advantages beyond that of bank stability. The riparian plants of the stream bank offer a high quality source of food and shade to the aquatic community. Riparian vegetation stabilizes point bars and contributes greatly to structure in the form of root wads and woody debris. Overall habitat quality should improve as bank vegetative stability increases.

(11) The last category is **streamside cover**. A large part of the energy and food input to the stream comes from the terrestrial vegetation along the banks. A mixture of grasses, forbs, shrubs, vines, saplings, and large trees transfer these necessities to the stream more effectively than does any single type of vegetation. Habitat quality should increase as the form of bank vegetation increases in diversity.

Each stream segment was surveyed for 400 meters upstream or downstream of the starting point (usually a road crossing). Investigators recorded data for the described parameters for 20 stations at 20 meter intervals. Habitat data were entered, metrics were computed, and a "total habitat score" was rendered via *Access* programming. The total habitat score, which can reach a maximum of 180 points, was calculated based on quantitative weighting given to each of the

habitat parameters in relation to their biological significance. Scores were computed for each of the eleven categories, summed, and assigned as an evaluation of that stream section and riparian zone.

2.2.2 Fish

In the summers of 2003 and 2004, fish were collected from a 400-meter reach at all sites using a combination of seining and electroshocking according to procedures outlined in OCC SOP (2006). The collection of fish follows a modified version of the EPA Rapid Bioassessment Protocol V (Plafkin et al., 1989) supplemented by other documents. Specific techniques and relative advantages of seining and electrofishing vary considerably according to stream type and conductivity. Depending upon workable habitat, seining was performed first at all sites and was accomplished by use of either 6' X 10' or 6' X 20' seines of ¼ inch mesh equipped with 8' brailes. Electroshocking was undertaken at all sites with suitable conductivities (usually < 1000 µS/cm) and involved the use of a Coffelt CPS backpack shocker powered by a 300 ma, 120 V Honda generator. For sites possessing long pools too deep to seine or backpack shock, OCC field personnel employed a boat electrofishing unit consisting of a Smith-Root GPP 5 shocking unit powered by a Honda 5kw generator.

Except for those individuals readily identifiable, fish were placed in 10% formalin upon capture and identified to species by a professional taxonomist. Fish species identified and released in the field were photographed on print film for reference. All fixed fish samples were transferred to ethanol and retained for future reference.

Fish data were compiled and analyzed by site following the state biocriteria for attainment of Fish and Wildlife Propagation (see Oklahoma Water Resource Board, 2002, for specific protocol). In addition, each site was assessed using a modified version of Karr's Index of Biotic Integrity (IBI) (adapted from Plafkin et al., 1989). Descriptive statistics were determined for each metric using the *Minitab V. 14* software. The condition of the fish community was based on indices of species richness, community quality, trophic structure, and by comparison to the average scores of high-quality streams in that ecoregion. An overall fish score was calculated using the following assessed categories:

(1) The **total number of fish species** decreases with decreasing water or habitat quality.

(2) The **number of sensitive benthic species (darters, madtoms, sculpins)** decreases with increasing siltation and increasing benthic oxygen demand. Many of these fish actually live within the cobble and gravel interstices and are very good indicators of conditions that make this environment inhospitable. These species are weak swimmers that do not readily travel up and down a stream, so their presence or absence at a site relates well to both past and present habitat and water quality conditions at that site.

(3) The **number of sunfish species** decreases with decreasing pool quality and with decreasing cover. Sunfish also require a fairly stable substrate on which to spawn, so their long-term success is also tied to conditions that affect the amount of sediment that enters and leaves the stream.

(4) The **number of intolerant species** is a characteristic of the fish community that separates high quality from moderate quality sites. A high quality stream will have several members of the fish community that are intolerant to environmental stress. A stream of only moderate quality will have fish that are moderately and highly tolerant of environmental stress. The intolerant species will not be present in the moderate quality stream.

(5) The **proportion of tolerant individuals** is a characteristic that allows moderate quality streams to be separated from low quality streams. These are opportunistic, tolerant fish that dominate communities that have lost their competitors through loss of habitat or water quality.

(6) The **proportion of individuals as insectivorous cyprinids** increases as the quality and quantity of the invertebrate food base increases. These are the dominant minnows in North American streams but are replaced by either omnivorous or herbivorous minnows as the quality of the food base deteriorates. Often, as the density of aquatic invertebrates decreases, the standing crop of algae increases. This is because the aquatic invertebrates are the largest group of primary consumers. Fish that can switch their diet to algae or fish that eat only algae will replace fish that cannot adapt to the new conditions.

(7) The **proportion of individuals as lithophilic spawners** decreases as the quality of the stream decreases. Lithophilic spawners require cobble or gravel in order to spawn; hence, these fish are sensitive to siltation. This metric allows separation of excellent streams from moderate quality streams.

For each of these seven metrics, a score of 5, 3, or 1 was assigned (see Table 2, below), and these scores were summed to get a total IBI score for each site, with a maximum of 35 points. For all "proportion" metrics, the score was based on the actual metric. For all non-proportion metrics, the score was determined by dividing the monitoring site's metric by the average high quality site metric in a particular ecoregion. Each monitoring site's total score was then compared to the high quality site total score in that ecoregion and given an integrity rating (as established and suggested by the EPA RBP; see Table 3, below). IBI scores that fell between the assessment ranges were classified in the closest scoring group. This score indicates the quality of the fish community (higher scores indicate higher quality) but says nothing about whether any deficiencies are due to degraded water quality or to degraded habitat.

Table 2. Index of Biotic Integrity (IBI) scoring criteria for fish.

Metrics	*5*	*3*	*1*
Number of species	>67%	33-67%	<33%
Number of sensitive benthic species	>67%	33-67%	<33%
Number of sunfish species	>67%	33-67%	<33%
Number of intolerant species	>67%	33-67%	<33%
Proportion tolerant individuals	<10%	10-25%	>25%
Proportion insectivorous cyprinid individuals	>45%	20-45%	<20%
Proportion individuals as lithophilic spawners	>36%	18-36%	<18%

Table 3. Index of Biotic Integrity (IBI) score interpretation for fish.

% Comparison to the Reference Score	Integrity Class	Characteristics
>97%	Excellent	Comparable to pristine conditions, exceptional species assemblage
80 - 87%	Good	Decreased species richness, especially intolerant species
67 - 73%	Fair	Intolerant and sensitive species rare or absent
47 - 57%	Poor	Top carnivores and many expected species absent or rare; omnivores and tolerant species dominant
26 - 37%	Very Poor	Few species and individuals present; tolerant species dominant; diseased fish frequent

2.2.3 Macroinvertebrates

Collection of macroinvertebrates was attempted at all sites for both the winter and summer index periods of June 2003 through June 2005 according to procedures outlined in the OCC SOP (2006). Index periods represent seasons of relative community stability that afford opportunity for meaningful site comparisons. For Oklahoma, the summer index occurs from July 1 to September 15; the winter index is from January 1 to March 15. Sampling efforts included attempts to procure animals from all available habitats at a site; thus, total effort at a site may entail up to three total samples with one from each of the following habitats: rocky riffles, streamside vegetation, and woody debris.

Collection methods involved sampling each of the habitats similar to methods outlined in the EPA Rapid Bioassessment Protocols (Plafkin et al., 1989). Riffle sampling effort consisted of three, one meter squared kicknet samples in areas of rocky substrate reflecting the breadth of the velocity regime at a site. Riffles with substrates of bedrock or tight clay were not sampled. Any streamside vegetation in the current that appeared to offer fine structure was sampled by agitation within a #30 mesh dip net for three minutes total agitation time. Any dead wood with or without bark which was in current fast enough to offer suitable habitat for organisms was sampled by agitation or by scraping/brushing upstream of a #30 mesh dip net for 5 minutes. Woody debris sampled generally ranged in size from 1/4" to about 8" in diameter. Each sample type was preserved independently in quart mason jars with ethanol, labeled, and sent to a professional taxonomist for picking and identification.

Data was compiled, collated by year, season, and sample type and entered into a spreadsheet for metric calculations. The six metrics used to assess the macroinvertebrate community include the following:

(1) The **number of taxa** refers to the total number of taxonomically different types of animals in the sample. As is the case with the fish, this number rises with increasing water and/or habitat quality (Plafkin et al., 1989).

(2) The **Modified Hilsenhoff Biotic Index (HBI)** is a measure of the invertebrate community's tolerance to organic pollution. It ranges between 0 and 10 with 0 being the most pollution sensitive. The index used in the RBP Manual is based on the pollution tolerance of invertebrates from the upper midwest. The Index used here is calculated the same way, but uses tolerance values of North Carolina invertebrates (Plafkin et al., 1989).

(3) The **percent EPT** is a measure of how many individuals in the sample are members of the EPT group. This metric helps to separate high quality streams from those of moderately high quality. The highest quality streams will have many individuals of many different taxa of EPT. As conditions deteriorate, animals will begin to die or to drift downstream. At this point, the community will still have many taxa of EPT, but there will be fewer individuals (Plafkin et al., 1989).

(4) The **EPT Index** is the number of different taxa from the orders Ephemeroptera, Plecoptera, and Trichoptera, the mayflies, stoneflies, and caddis flies respectively. With few exceptions, these insects are more sensitive to pollution than any other groups. As a stream deteriorates in quality, members of this group will be the first to disappear. This robust metric allows discrimination between all but the worst of streams (Plafkin et al., 1989).

(5) **Percent dominant two taxa** is the percentage of the collection composed of the most common two taxa. As more and more species are excluded by increasing pollution, the remaining species can increase in numbers due to the unused resources left by the excluded animals. This metric helps to separate the high quality streams from those of moderate quality (Plafkin et al., 1989).

(6) The **Shannon-Weaver Species Diversity Index** measures the evenness of the species distribution. It increases as more and more taxa are found in the collection and as individual taxa become less dominant. This metric increases with increasing biotic quality (Plafkin et al., 1989).

Descriptive statistics of each season-specific sample type (e.g., summer riffle, winter vegetation, summer woody) for each site were determined via *Minitab V. 14* and were compared to the average respective metric of high-quality streams in the ecoregion. A bioassessment score was calculated similarly to the IBI score for fish. For each site, scores of 6, 4, 2, or 0 were assigned for each metric (according to the criteria in Table 4, below) and then summed to get a total bioassessment score for each site, with a maximum of 36 points. For taxa richness and EPT taxa richness, the percentages used to assign scores were obtained by dividing each monitoring site metric by the average high quality site metric in a particular ecoregion. For the HBI metric, the high quality site value was divided by the monitoring site value (high quality site metric / monitoring site metric). For the remaining metrics, the score was based on the actual values obtained instead of being relative to the high quality site metric. Each monitoring site's total score was then compared to the average high quality sites' total score (in that ecoregion) and classified according to the condition gradient outlined in Table 5, below (adapted from Plafkin et al., 1989).

Table 4. Bioassessment scoring criteria for macroinvertebrates. *Modified HBI Using North Carolina Tolerance Values, **RBP for Use in Streams and Rivers 1989, ***Modified by OCC

Metrics	*6*	*4*	*2*	*0*
Taxa Richness**	>80%	60-80%	40-60%	<40%
Modified HBI* (**)	>85%	70-85%	50-70%	<50%
EPT/Total***	>30%	20-30%	10-20%	<10%
EPT Taxa**	>90%	80-90%	70-80%	<70%
% Dominant 2 Taxa**	<20%	20-30%	30-40%	>40%
Shannon-Weaver***	>3.5	2.5-3.5	1.5-2.5	<1.5

Table 5. Bioassessment score interpretation for macroinvertebrates.

% Comparison to the Reference Score	Biological Condition	Characteristics
>83%	Non-impaired	Comparable to the best situation expected in that ecoregion; balanced trophic and community structure for stream size
54 - 79%	Slightly Impaired	Community structure and species richness less than expected; percent contribution of tolerant forms increased and loss of some intolerant species
21 - 50%	Moderately Impaired	Fewer species due to loss of most intolerant forms; reduction in EPT index
<17%	Severely Impaired	Few species present; may have high densities of 1 or 2 taxa

2.3 WATERSHED ASSESSMENT

GIS coverage was used to determine the landuse in each watershed (USGS, 1992). The number of oil and gas wells, confined animal feeding operations, national pollution discharge elimination system permit holders, total retention sites, active municipal landfills, and biosolid land application sites was recorded for each watershed, in addition to calculating the percent landuse in terms of bare rock/sand/clay, vegetation (broken into several categories, both natural and agricultural), open water, and residential/commercial/industrial uses (divided into several categories). This data was used to determine possible sources of NPS pollution when a stream was found to be impaired.

2.4 BENEFICIAL USE SUPPORT ASSESSMENT

The support status of each stream site for agriculture, aesthetics, primary body contact, secondary body contact, public and private water supply, sensitive water supply, and fish and wildlife propagation beneficial uses was evaluated following the protocols outlined in the state's *Continuing Planning Process, Integrated Water Quality Report Listing Methodology* (Oklahoma Department of Environmental Quality, 2002) and per *Implementation of Oklahoma's Water Quality Standards, Subchapter 15: Use Support Assessment Protocols* (OAC 785:46-15; Oklahoma Water Resource Board, 2002). Streams were considered non-supporting when Oklahoma Water Quality Standards were violated as determined by criteria and rules listed in these documents. Parameters not addressed in OAC 785:46-15 were assessed using applicable state and federal rules and regulations to determine non-support. Assessment results were

submitted to the ODEQ for final assimilation in the state's 2006 Integrated Report to EPA Region VI in May 2006.

3.0 RESULTS AND DISCUSSION

3.1 WATER QUALITY MONITORING

All chemical and physical water quality data collected for the project can be found in Appendix A.1. Appendix A.2 gives all bacteria data. Table 6 (below) gives the mean values of physical water quality parameters for each site based on approximately 20 visits to each site (includes elevated and base flow). For discharge (Table 6), all elevated flow measurements were omitted so that the value given is the mean base flow. Table 7 provides the means for chemical parameters used to assess water quality. Descriptive statistics for each site for water quality parameters are presented in Appendix A.3.

Table 6. Mean Physical Water Quality Values for Year 3 Monitoring Sites.

Site Name	WBID	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	TotHardness (mg/L)	Flow	Base Flow
Coody Creek	OK120400-01-0400F	6.6	63.1	26.5	84	16.6	366.4	7.82	124.77	12.92	12.92
Dirty Creek	OK120400-02-0010F	6.7	70.3	55.4	69	19.0	347.3	7.04	80.22		
South Fk Dirty Creek	OK120400-02-0030F	5.5	53.3	36.6	86	17.0	494.0	7.86	134.90	310.00	15.98
George's Fk Dirty Creek	OK120400-02-0110D	5.5	53.0	48.9	72	16.6	248.9	7.77	75.01	288.00	8.04
Butler Creek	OK120400-02-0160D	6.3	61.6	28.7	70	17.2	362.3	7.70	97.15	7.24	7.41
Elk Creek	OK120400-02-0190D	6.9	71.3	46.8	74	18.5	448.9	7.71	166.90	58.60	13.34
Shady Grove Creek	OK120400-02-0240H	7.3	73.5	56.5	48	17.2	902.0	7.33	524.10	7.10	7.10
Snake Creek	OK120410-01-0220G	7.7	75.5	53.2	84	16.6	419.8	7.84	120.65	19.09	13.11
Cloud Creek	OK120410-01-0010H	6.4	62.8	37.4	70	17.2	379.1	7.69	97.09	271.00	7.69
Polecat Creek	OK120420-02-0010D	7.9	79.8	48.6	92	17.9	487.0	7.94	136.79	28.73	28.73
Ballard Creek	OK121700-03-0370G	9.2	90.3	2.5	101	15.9	271.4	7.67	120.81	37.90	26.04
Battle Creek	OK121700-06-0040G	9.2	89.9	2.0	79	14.9	340.0	7.24	100.02	13.61	13.61
Brazil Creek	OK220100-03-0010G	7.4	76.1	52.6	38	18.6	161.3	7.25	42.68	232.00	28.30
Fourche Maline Creek	OK220100-04-0020M	7.1	73.0	42.4	36	18.6	130.6	7.28	35.68	450.00	20.59
Sallisaw Creek: Lower	OK220200-03-0010C	9.8	102.8	15.1	67	19.4	156.5	7.71	75.26	148.80	34.90
Sallisaw Creek: Upper	OK220200-03-0010G	9.4	94.8	14.1	78	18.1	186.4	7.69	83.20	99.40	30.75
San Bois Creek	OK220200-04-0010G	7.2	74.3	72.9	97	18.5	437.1	7.51	59.02	429.00	20.99
Mill Creek	OK220600-01-0100P	6.4	62.3	45.7	61	16.9	148.4	8.01	50.29	5.72	5.72
Brushy Creek	OK220600-03-0010J	7.0	71.5	45.5	41	18.5	164.2	7.34	53.98	430.00	13.57
Peaceable Creek	OK220600-03-0050F	6.6	67.4	47.0	52	18.1	434.7	7.29	92.20	471.00	11.73
Bad Creek	OK520500-01-0170L	8.7	88.9	83.9	43	18.2	603.2	7.55	99.17	131.00	2.30
Alabama Creek	OK520500-01-0200D	8.1	80.6	66.1	58	17.5	588.4	7.33	112.10	47.90	2.94
Wewoka Creek: Lower	OK520500-02-0010C	8.9	92.4	85.3	98	18.4	1033.0	7.94	200.60	553.00	20.32
Wewoka Creek: Upper	OK520500-02-0010M	10.0	107.7	46.9	127	18.9	1277.0	8.14	198.50	50.00	16.57
Little Wewoka Creek	OK520500-02-0090D	8.8	88.6	86.8	78	17.6	695.4	7.31	143.70	13.61	9.04
Canadian Sandy Creek	OK520600-03-0010D	9.1	93.4	68.2	231	18.3	501.1	7.85	230.90	16.20	16.20
Gentry Creek	OK520700-01-0080L	6.1	58.8	65.0	74	17.1	281.7	7.83	107.66	4.77	4.77

Site Name	WBID	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	TotHardness (mg/L)	Flow	Base Flow
Salt Creek (Creek Co.)	OK520700-03-0100B	7.9	78.7	30.0	150	17.4	640.5	7.63	187.20	10.48	10.48
Camp Creek	OK520700-03-0220G	7.6	70.6	26.2	189	14.9	654.8	7.62	246.80	6.17	6.17
Dry Creek	OK520700-04-0020F	8.6	86.5	72.1	217	17.6	612.4	8.00	268.70	43.90	9.07
Quapaw Creek	OK520700-04-0260C	9.8	100.5	59.0	239	18.1	531.7	8.32	217.50	18.45	11.29
Deep Fork N. Canadian R.	OK520710-01-0010G	9.9	107.9	22.0	211	19.8	800.0	8.26	263.90	49.30	20.38
Bird Creek	OK520800-01-0050G	11.6	117.3	20.1	140	18.9	697.7	7.79	191.50	3.66	3.66
Salt Creek (Seminole Co.)	OK520800-03-0010D	9.4	98.1	29.8	222	19.0	2197.0	8.15	424.00	82.80	13.82

Since dissolved oxygen (DO) concentration is strongly dependent on time of day, which is not controlled for in OCC sampling protocol (most sampling occurs between 10:00 AM and 2:00 PM), the mean DO collected for sites may not be very informative. Instead, the absolute minimum DO concentration is the factor that influences biological communities, so Table 7 indicates the percentage of water samples which had DO concentrations below the designated use criteria for each site, as well as the actual low values. Most sites are designated as Warm Water Aquatic Communities (WWAC) and have a critical DO level of 5.0 mg/L most of the year (4.0 from June 16-October 15). Sallisaw Creek has a Cool Water Aquatic Community (CWAC) designation, so the criterion for DO is 6.0 mg/L (5.0 from June 1- October 15). Bird Creek and Wewoka Creek are Habitat Limited Aquatic Communities (HLAC), with 3.0 mg/L being the criterion for meeting the use (4.0 from April 1-June 15).

Wewoka Creek Upper and Lower, Quapaw Creek, Bird Creek, and Salt Creek Seminole Co. never had water samples with DO of less than 5.0 mg/L. George's Fork of Dirty Creek, South Fork of Dirty Creek, and Mill Creek all had 10 samples with dissolved oxygen below 5.0 mg/l (comprising 56%, 53%, and 50% of the samples, respectively) (Table 8).

Table 7. Mean Chemical Water Quality Values for Year 3 Monitoring Sites.

Site Name	WBID	Chloride (mg/L)	Sulfate (mg/L)	TotDisSolids (mg/L)	Ammonia (mg/L)	CBOD5 (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	TotOrthoPhos (mg/L)	Total Phosphorus (mg/L)	TotSusSolids (mg/L)
Coody Creek	OK120400-01-0400F	29.39	49.60	247.5	0.0459	2.7	0.1870	0.0200	0.4620	0.0361	0.1058	18.7
Dirty Creek	OK120400-02-0010F	18.94	36.71	162.0	0.0635	3.2	0.2048	0.0291	0.3836	0.0484	0.1353	33.0
South Fk Dirty Creek	OK120400-02-0030F	6.13	80.90	232.8	0.0393	3.2	0.1415	0.0225	0.3905	0.0291	0.0844	36.5
George's Fk Dirty Creek	OK120400-02-0110D	14.00	30.43	160.5	0.0546	3.2	0.1590	0.0200	0.5282	0.0326	0.1242	45.3
Butler Creek	OK120400-02-0160D	37.30	49.04	213.2	0.0447	2.9	0.1253	0.0305	0.4245	0.0281	0.0932	22.0
Elk Creek	OK120400-02-0190D	20.49	114.90	284.0	0.0553	3.6	0.2455	0.0330	0.5159	0.0888	0.1735	33.4
Shady Grove Creek	OK120400-02-0240H	9.09	514.40	833.0	0.0965	2.9	0.3437	0.0247	0.2842	0.0206	0.0707	35.5
Snake Creek	OK120410-01-0220G	54.21	30.59	253.9	0.0292	2.8	0.0795	0.0200	0.3210	0.0337	0.1331	56.8
Cloud Creek	OK120410-01-0010H	41.37	31.50	217.3	0.0501	3.1	0.1370	0.0295	0.4800	0.0315	0.1328	171.0
Polecat Creek	OK120420-02-0010D	73.24	22.27	292.2	0.1049	3.0	0.1537	0.0247	0.4550	0.0747	0.1739	66.9
Ballard Creek	OK121700-03-0370G	10.44	9.32	163.2	0.0371	2.4	1.9980	0.0200	0.1731	0.1170	0.1697	63.4
Battle Creek	OK121700-06-0040G	8.93	4.93	135.4	0.0178	2.4	3.0590	0.0200	0.1154	0.0327	0.0853	12.9
Brazil Creek	OK220100-03-0010G	5.74	24.93	97.5	0.0522	2.9	0.1505	0.0240	0.3441	0.0551	0.1414	30.7
Fourche Maline Creek	OK220100-04-0020M	8.59	13.69	80.1	0.0265	2.7	0.0965	0.0225	0.2382	0.0266	0.0964	29.7
Sallisaw Creek: Lower	OK220200-03-0010C	3.37	6.36	89.9	0.0295	2.5	0.1980	0.0200	0.1712	0.0144	0.0744	17.2
Sallisaw Creek: Upper	OK220200-03-0010G	3.13	5.92	110.4	0.0200	2.4	0.2085	0.0200	0.1373	0.0153	0.0682	18.2
San Bois Creek	OK220200-04-0010G	10.11	96.70	318.4	0.0345	2.7	0.1160	0.0215	0.3216	0.0299	0.1148	39.3
Mill Creek	OK220600-01-0100P	7.78	10.50	116.7	0.0505	2.9	0.1195	0.0270	0.4280	0.0312	0.1076	19.2
Brushy Creek	OK220600-03-0010J	7.85	18.00	105.0	0.0248	3.3	0.0525	0.0200	0.3206	0.0291	0.0990	26.1
Peaceable Creek	OK220600-03-0050F	37.37	79.90	258.4	0.0370	3.3	0.0910	0.0255	0.4700	0.0532	0.1395	28.1
Bad Creek	OK520500-01-0170L	138.40	18.83	354.8	0.0299	3.0	0.0665	0.0200	0.5111	0.0221	0.0830	115.1
Alabama Creek	OK520500-01-0200D	123.40	17.34	342.2	0.0373	3.0	0.0675	0.0200	0.4154	0.0262	0.0854	57.7
Wewoka Creek: Lower	OK520500-02-0010C	228.10	20.10	617.2	0.0294	3.5	0.1565	0.0200	0.5745	0.0624	0.1485	159.1
Wewoka Creek: Upper	OK520500-02-0010M	203.30	31.48	586.4	0.0261	3.9	0.7060	0.0310	0.7510	0.2664	0.4500	205.0
Little Wewoka Creek	OK520500-02-0090D	154.90	12.51	399.5	0.0364	3.2	0.0825	0.0200	0.5543	0.0306	0.1029	102.0
Canadian Sandy Creek	OK520600-03-0010D	35.18	20.51	299.5	0.0309	3.0	0.0995	0.0200	0.2244	0.0650	0.1458	58.6
Gentry Creek	OK520700-01-0080L	10.04	47.69	191.8	0.0494	2.9	0.1145	0.0305	0.4019	0.0268	0.1147	35.2
Salt Creek (Creek Co.)	OK520700-03-0100B	101.70	18.22	350.7	0.0539	3.1	0.1100	0.0200	0.5142	0.0320	0.0986	50.5
Camp Creek	OK520700-03-0220G	87.30	29.60	375.3	0.0612	3.2	0.0847	0.0200	0.4094	0.0184	0.0770	20.6
Dry Creek	OK520700-04-0020F	71.63	14.37	389.0	0.0580	3.3	0.1180	0.0200	0.4351	0.0389	0.1261	47.5

Site Name	WBID	Chloride (mg/L)	Sulfate (mg/L)	TotDisSolids (mg/L)	Ammonia (mg/L)	CBOD5 (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	TotOrthoPhos (mg/L)	Total Phosphorus (mg/L)	TotSusSolids (mg/L)
Quapaw Creek	OK520700-04-0260C	30.74	20.42	320.1	0.0450	3.1	0.1355	0.0265	0.4230	0.0378	0.1225	48.0
Deep Fork N. Canadian R.	OK520710-01-0010G	123.00	49.76	523.2	0.0814	3.0	1.2760	0.0779	0.5557	1.0020	1.1170	30.8
Bird Creek	OK520800-01-0050G	102.20	28.78	392.9	0.0760	3.1	2.5870	0.0840	0.6197	1.1460	1.3130	59.1
Salt Creek (Seminole Co.)	OK520800-03-0010D	514.10	27.68	1153.0	0.0985	2.9	0.0916	0.0200	0.9840	0.0441	0.1328	147.4

Table 8. Low dissolved oxygen values (DO<5.0 mg/l).

% Samples under 5 mg/L	WBID	SiteName	Date	DO (mg/L)
40%	OK120400-01-0400F	Coody Creek	7/22/2003	2.59
			8/26/2003	3.19
			11/4/2003	2.11
			6/15/2004	4.22
			7/13/2004	4.20
			9/21/2004	4.37
			10/26/2004	4.13
			5/25/2005	2.43
24%	OK120400-02-0010F	Dirty Creek	7/22/2003	2.81
			8/26/2003	3.71
			9/29/2003	3.41
			11/4/2003	1.31
			12/15/2003	4.99
53%	OK120400-02-0030F	South Fork of Dirty Creek	7/22/2003	2.52
			8/26/2003	4.03
			9/30/2003	2.72
			11/4/2003	3.03
			6/15/2004	2.41
			7/13/2004	3.66
			8/17/2004	4.45
			9/21/2004	3.53
15%	OK220100-03-0010G	Brazil Creek	7/22/2003	4.05
			9/30/2003	2.65
			11/4/2003	2.72
20%	OK220100-04-0020M	Fourche Maline Creek	7/22/2003	1.83
			11/4/2003	4.37
			8/23/2004	4.74
			9/27/2004	3.20
5%	OK220200-03-0010G	Sallisaw Creek: Upper	7/22/2003	4.87
20%	OK220200-04-0010G	San Bois Creek	7/22/2003	4.22
			11/4/2003	3.62
			5/11/2004	4.76
			5/25/2005	3.85
50%	OK220600-01-0100P	Mill Creek	7/22/2003	3.46
			8/26/2003	4.11
			9/30/2003	4.47
			11/4/2003	2.13
			6/15/2004	3.88
			7/13/2004	3.38
			8/17/2004	1.22
			9/21/2004	3.04
			10/26/2004	4.93

% Samples under 5 mg/L	WBID	SiteName	Date	DO (mg/L)
		South Fork of Dirty, cont.	10/26/2004	1.64
			5/25/2005	4.41
56%	OK120400-02-0110D	George's Fork of Dirty Creek	7/22/2003	2.33
			8/26/2003	4.42
			9/30/2003	2.05
			11/4/2003	2.03
			6/15/2004	2.94
			7/13/2004	2.71
			8/17/2004	2.59
			9/21/2004	0.85
			10/26/2004	1.21
			5/25/2005	4.37
5%	OK121700-06-0040G	Battle Creek	7/22/2003	4.80
42%	OK120400-02-0160D	Butler Creek	9/29/2003	4.69
			11/3/2003	0.83
			6/14/2004	2.65
			7/12/2004	3.83
			8/16/2004	4.02
			9/20/2004	2.09
			10/25/2004	2.83
			5/24/2005	4.56
21%	OK120400-02-0190D	Elk Creek	7/21/2003	2.59
			9/30/2003	3.99
			11/3/2003	4.81
			6/14/2004	4.30
12%	OK120400-02-0240H	Shady Grove Creek	9/29/2003	4.95
			10/25/2004	4.05
21%	OK120410-01-0220G	Snake Creek	7/21/2003	3.95
			6/14/2004	4.67
			7/12/2004	4.89
			9/20/2004	3.92
42%	OK120410-01-0010H	Cloud Creek	7/21/2003	3.03

% Samples under 5 mg/L	WBID	SiteName	Date	DO (mg/L)
		Mill, cont.	5/25/2005	4.64
25%	OK220600-03-0010J	Brushy Creek	7/22/2003	2.52
			5/11/2004	4.98
			7/19/2004	4.25
			8/23/2004	3.10
			9/27/2004	3.91
30%	OK220600-03-0050F	Peaceable Creek	7/22/2003	4.02
			11/4/2003	4.45
			5/11/2004	2.98
			7/19/2004	3.18
			8/23/2004	3.34
			9/27/2004	3.47
5%	OK520500-01-0170L	Bad Creek	7/22/2003	2.05
15%	OK520500-01-0200D	Alabama Creek	7/22/2003	2.80
			8/26/2003	4.35
			6/15/2004	4.74
15%	OK520500-02-0090D	Little Wewoka Creek	7/22/2003	3.80
			8/26/2003	3.15
			11/4/2003	4.85
5%	OK520600-03-0010D	Canadian Sandy Creek	11/3/2003	4.78
45%	OK520700-01-0080L	Gentry Creek	7/21/2003	4.80
			9/29/2003	2.62
			11/3/2003	2.19
			6/14/2004	4.54
			7/12/2004	4.51
			8/16/2004	4.70
			9/20/2004	4.60
			10/25/2004	3.44
			5/24/2005	3.56
20%	OK520700-03-0100B	Salt Creek (Creek Co.)	8/25/2003	2.36
			6/14/2004	4.80
			9/20/2004	1.40

% Samples under 5 mg/L	WBID	SiteName	Date	DO (mg/L)
			8/25/2003	4.05
		Cloud, cont.	11/3/2003	4.13
			6/1/2004	4.80
			7/12/2004	4.40
			8/16/2004	4.90
			9/20/2004	3.90
			10/25/2004	2.88
12%	OK120420-02-0050D	Polecat Creek	7/21/2003	2.86
			9/20/2004	4.17
5%	OK121700-03-0370G	Ballard Creek	8/26/2003	4.66
			5/25/2005	4.90
26%	OK520700-03-0220G	Camp Creek	7/21/2003	1.15
			8/25/2003	0.65
			11/3/2003	4.82
			10/25/2004	4.11
			5/24/2005	4.95
11%	OK520700-04-0020F	Dry Creek	8/26/2003	4.44
			10/25/2004	4.32
5%	OK520710-01-0010G	Deep Fork of the N. Canadian R.	4/20/2005	4.89

Table 9 shows the geometric mean of *Enterococcus* and *E.coli* bacteria for each site over the two-year monitoring period. Only Bird Creek was designated for Secondary Body Contact Recreation (SBCR), and it did not exceed the limits for that use. All other sites were designated for Primary Body Contact Recreation (PBCR) and exceeded the limit set for *Enterococcus,* with the exception of Dirty Creek, Shady Grove Creek, and Sallisaw Creek Upper. Sallisaw Upper had the lowest mean *E. coli* value. Only Salt Creek (Creek Co.) and Camp Creek had a mean *E. coli* value which exceeded the PBCR criterion.

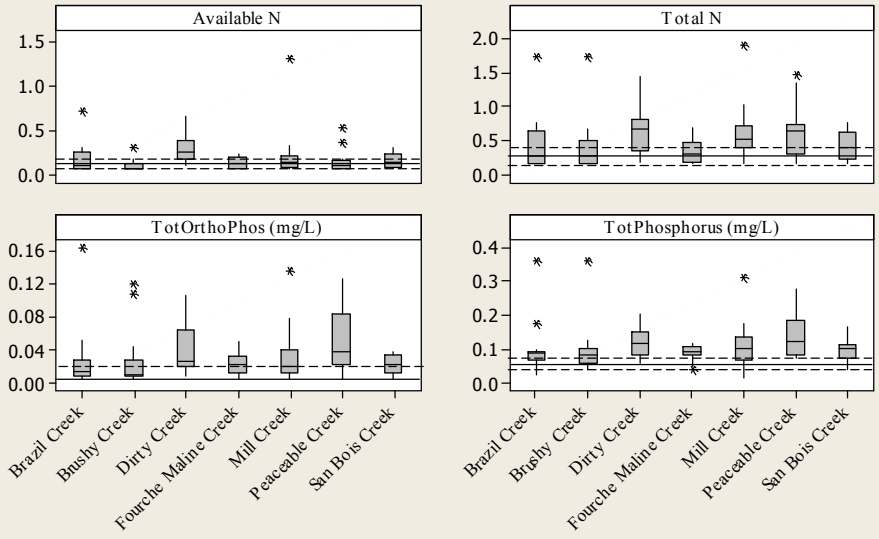
Table 9. Geometric Mean of Bacteria Values for Year 3 Monitoring Sites. Values in bold exceed PBCR levels.

WBID	Site Name	*E.Coli*	*Enterococcus*	WBID	Site Name	*E.Coli*	*Enterococcus*
OK120400-01-0400F	Coody Creek	113.11	**188.01**	OK220600-01-0100P	Mill Creek	29.03	**128.36**
OK120400-02-0010F	Dirty Creek	14.81	25.94	OK220600-03-0010J	Brushy Creek	68.33	**80.21**
OK120400-02-0030F	South Fk Dirty Creek	35.41	**200.74**	OK220600-03-0050F	Peaceable Creek	56.21	**77.69**
OK120400-02-0110D	George's Fk Dirty Creek	58.19	**137.47**	OK520500-01-0170L	Bad Creek	21.49	**41.98**
OK120400-02-0160D	Butler Creek	51.53	**50.40**	OK520500-01-0200D	Alabama Creek	52.53	**50.74**
OK120400-02-0190D	Elk Creek	75.45	**76.18**	OK520500-02-0010C	Wewoka Creek: Lower	21.02	**41.58**
OK120400-02-0240H	Shady Grove Creek	39.47	20.32	OK520500-02-0010M	Wewoka Creek: Upper	28.12	**39.54**
OK120410-01-0220G	Snake Creek	36.13	**62.76**	OK520500-02-0090D	Little Wewoka Creek	24.66	**92.26**
OK120410-01-0010H	Cloud Creek	105.29	**66.79**	OK520600-03-0010D	Canadian Sandy Creek	48.09	**90.02**
OK120420-02-0050D	Polecat Creek	50.67	**55.64**	OK520700-01-0080L	Gentry Creek	119.95	**93.61**
OK121700-03-0370G	Ballard Creek	25.73	**100.83**	OK520700-03-0100B	Salt Creek (Creek Co.)	**147.58**	**186.66**
OK121700-06-0040G	Battle Creek	17.94	**93.81**	OK520700-03-0220G	Camp Creek	**129.46**	**449.03**
OK220100-03-0010G	Brazil Creek	90.21	**103.28**	OK520700-04-0020F	Dry Creek	97.54	**185.40**
OK220100-04-0020M	Fourche Maline Creek	37.14	**64.48**	OK520700-04-0260C	Quapaw Creek	71.10	**116.50**
OK220200-03-0010C	Sallisaw Creek: Lower	8.81	15.52	OK520710-01-0010G	Deep Fork N. Canadian R.	26.58	**82.54**
OK220200-03-0010G	Sallisaw Creek: Upper	12.94	**74.82**	OK520800-01-0050G	Bird Creek	37.06	101.93
OK220200-04-0010G	San Bois Creek	57.89	**104.53**	OK520800-03-0010D	Salt Creek (Seminole Co.)	89.72	**74.55**

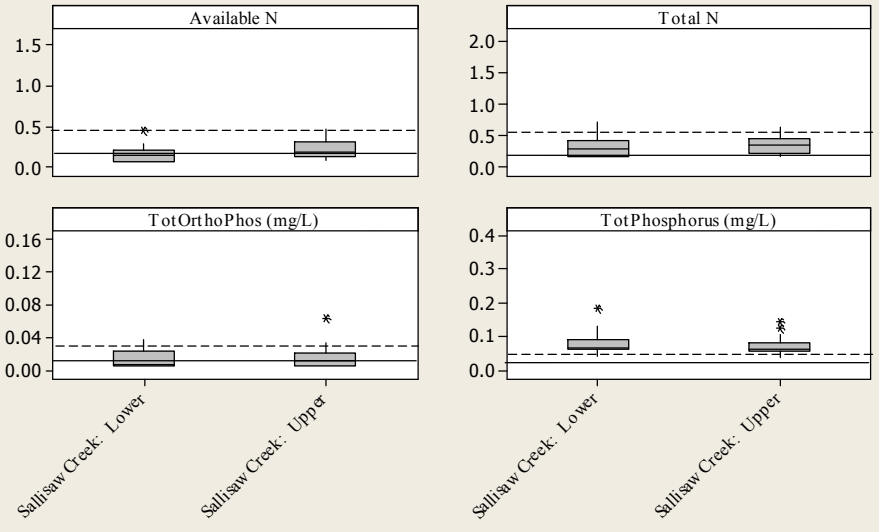
In order to account for natural regional differences in water quality, data from each monitoring site was compared within ecoregions. Additionally, rotating basin data was compared to data collected previously from streams determined to be "high quality" sites in each ecoregion (see Append. E for high quality streams details) to determine general stream condition. Figure 2 shows interquartile range plots for each site for four important indicators of pollution: available nitrogen (ammonia plus nitrate/nitrite), total nitrogen (TKN plus nitrate/nitrite), total orthophosphorous, and total phosphorous. All elevated flow data was omitted. The median of each site is shown by a line within the boxplot, and outliers are denoted by asterisks. The mean of the high quality stream sites in a particular ecoregion is represented by a solid horizontal line, while dashed lines indicate +/- two standard deviations (representing 95% of the high quality data) for high quality site parameters. No streams in the Central Irregular Plains and Ozark Highlands ecoregions showed median levels of nitrogen or phosphorous greater or less than two standard deviations of the high quality mean. However, all sites in the Ozark Highlands had very high nitrogen values, including the high quality sites. Dirty Creek, Bird Creek downstream, and Deep Fork of the North Canadian River had median values which exceeded two standard deviations of the high quality mean for all four parameters, which indicates a significant difference as compared to the high quality data. Peaceable Creek and Mill Creek had levels of total nitrogen, phosphorous, and orthophosphorous which were significantly higher than the high quality mean. In addition, Wewoka Creek Upper had high phosphorous and orthophosphorous values. All sites in the Arkansas Valley ecoregion had phosphorous levels significantly above the high quality sites, and most of them were significantly higher for total nitrogen and orthophosphorous as well. Both Sallisaw Creek sites had high total phosphorous relative to the high quality sites. In the second Cross Timbers box (Figure 2), the orthophosphorous graph does not show the high quality range due to the large scale used to accommodate the data and the small range of the data from the monitoring sites.

Figure 3 shows interquartile range plots for four physical parameters (all high flow data excluded): dissolved oxygen (percent saturation), pH, turbidity, and total suspended solids. Cold Springs Creek had a low median for percent DO saturation, but all other physical parameter medians fell within two standard deviations of the high quality mean.

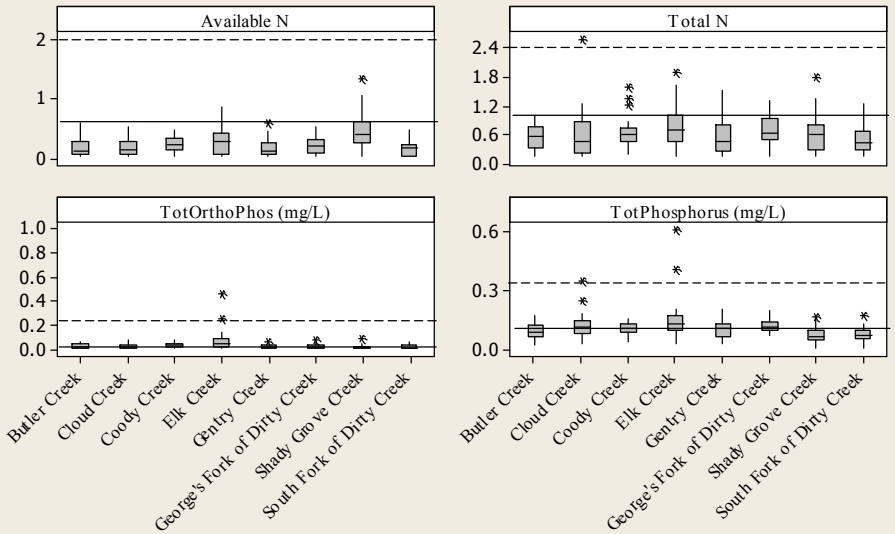
ARKANSAS VALLEY



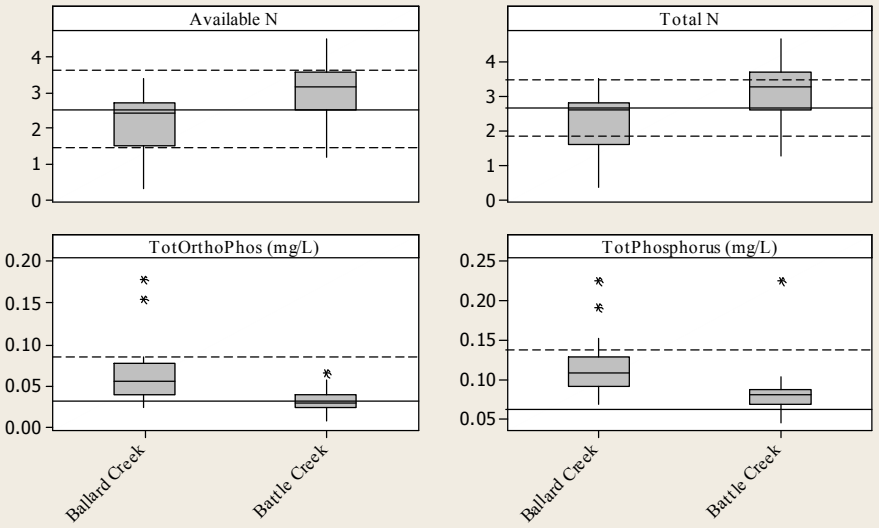
BOSTON MOUNTAINS



CENTRAL IRREGULAR PLAINS



OZARK HIGHLANDS



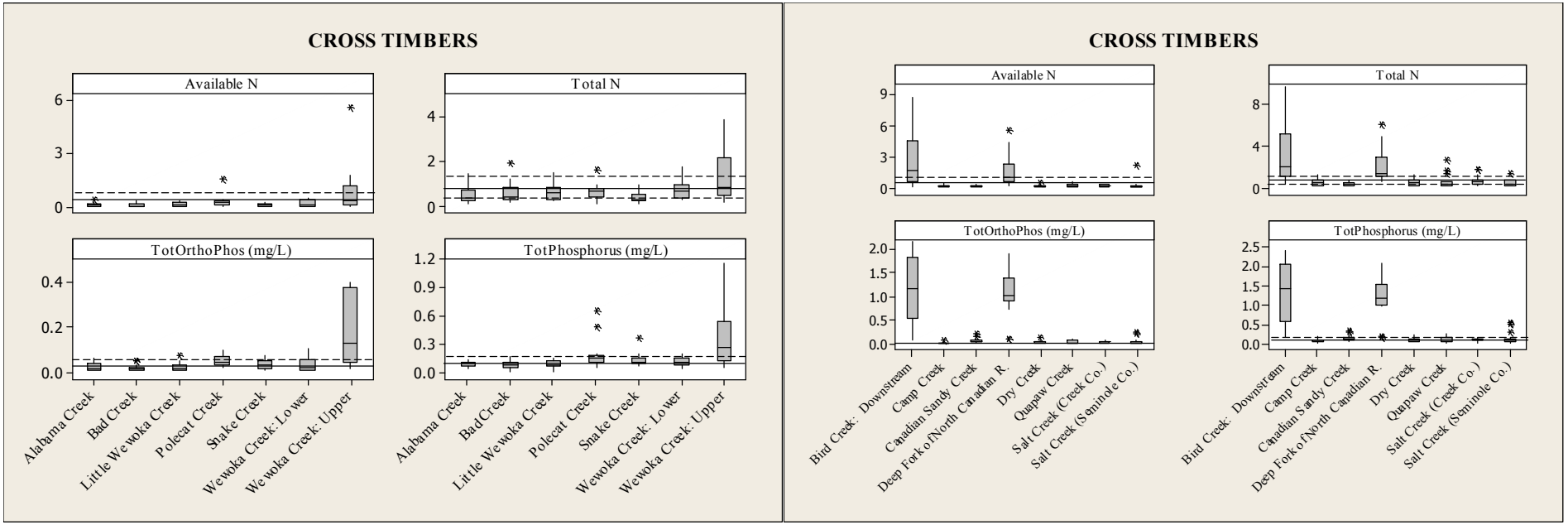
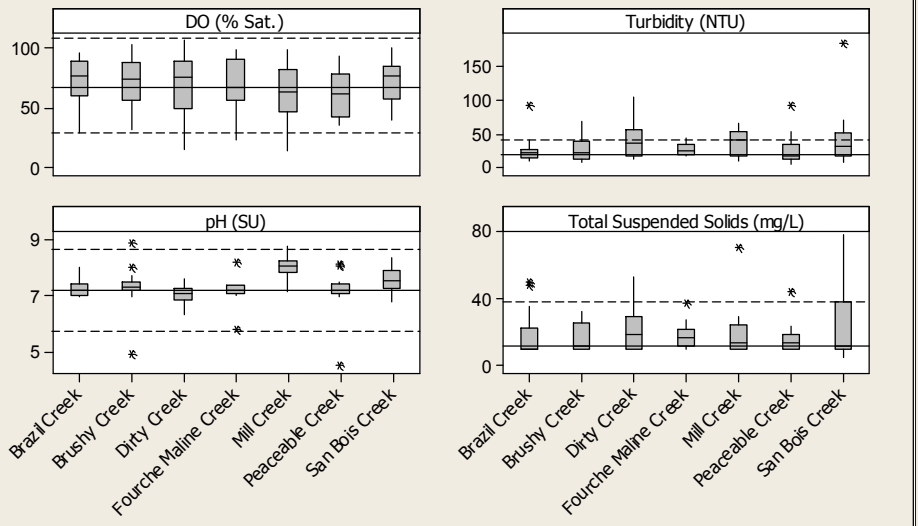
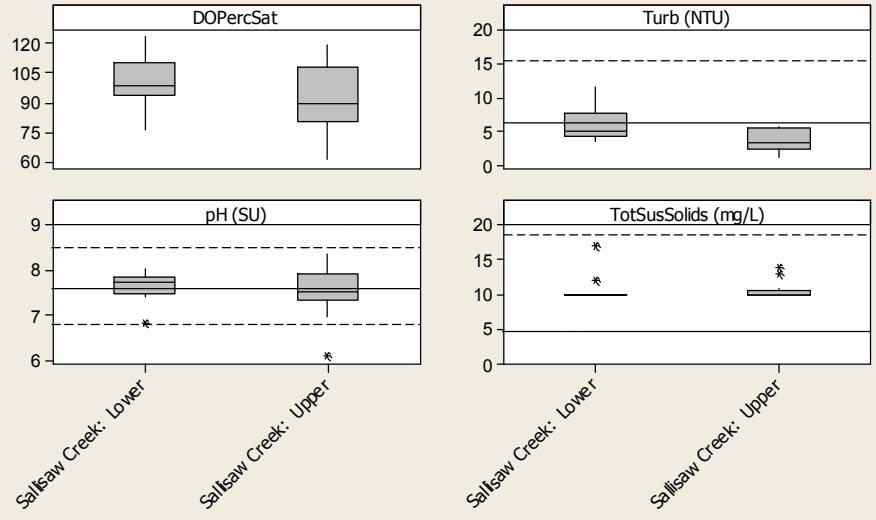


Figure 2. Selected chemical water quality parameters for each site by ecoregion. Solid lines indicate the mean value of high quality sites in each ecoregion; dashed lines represent +/- two standard deviations (if only one dashed line, the lower standard deviation was below zero).

ARKANSAS VALLEY



BOSTON MOUNTAINS



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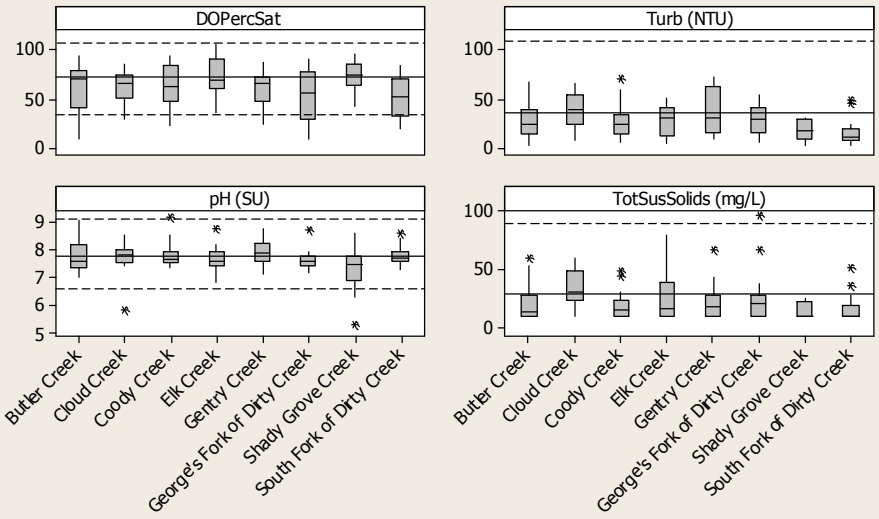

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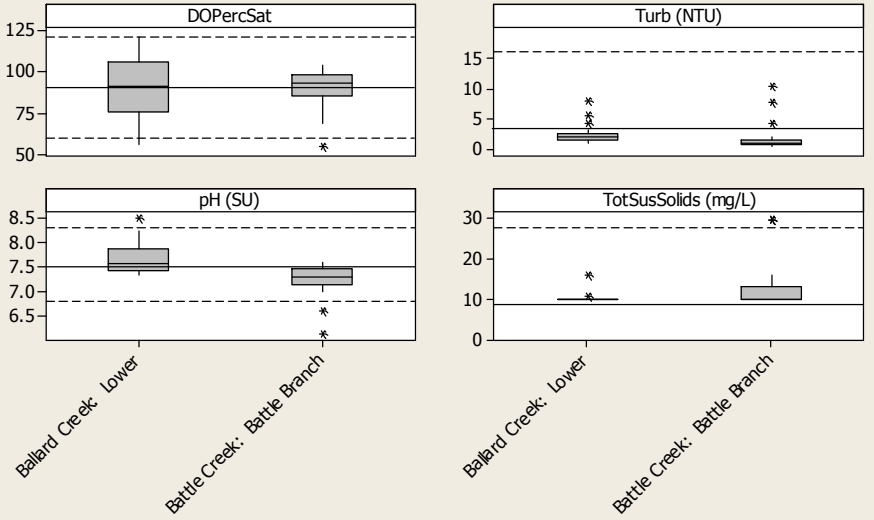


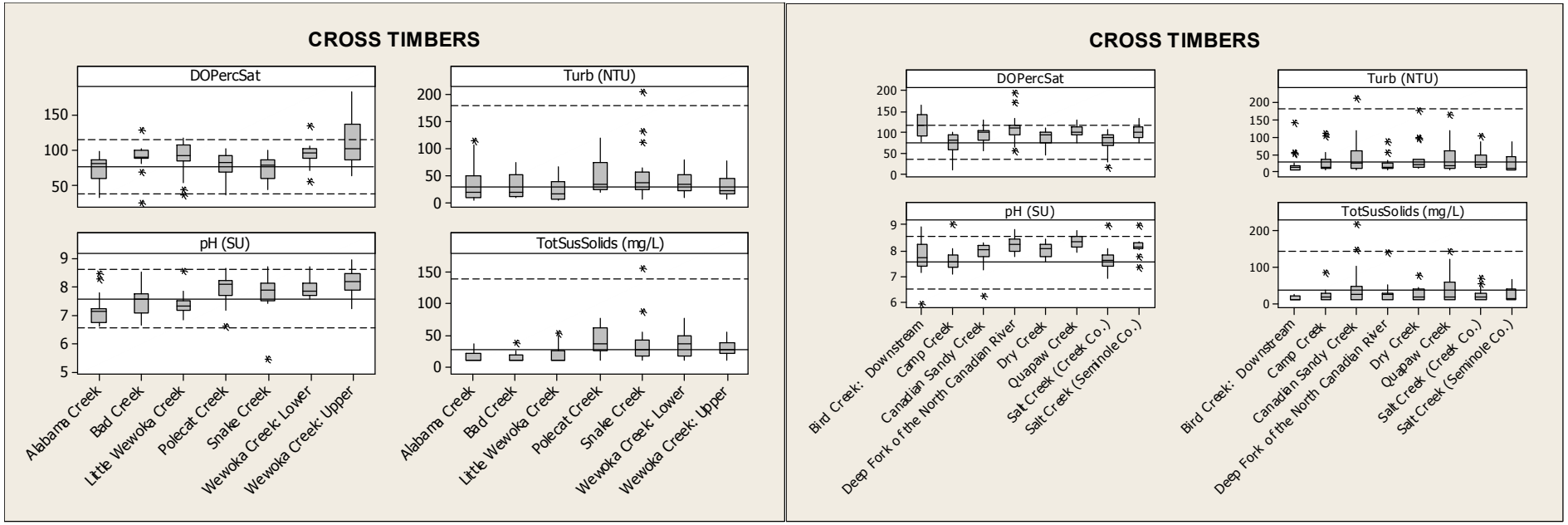


Figure 3. Selected physical water quality parameters for each site by ecoregion. Solid lines indicate the mean value of high quality sites in each ecoregion; dashed lines represent +/- two standard deviations (if only one dashed line, the lower standard deviation was below zero).

Table 10 shows a comparison between water quality data collected in previous projects and the rotating basin project in order to examine whether water conditions have improved, worsened, or remained the same at a particular site. Many of the rotating basin sites had not been previously monitored; only 7 sites could be compared with past data. One-way ANOVAs were performed for each set of data after all high flow data had been excluded. Only statistically significant differences between the means of each parameter in past projects and the means collected during this project are shown in the table. Level of significance is indicated by p-values, with any $p<0.05$ denoted by three asterisks (significant) and $p<0.10$ marked with one asterisk (marginally significant).

Table 10. Comparison of water quality data from previous projects to the Rotating Basin Year 3 project (2003-2005).

WBID	Site Name	Parameter	Date of Collection	N	Mean	Standard Deviation	p value	Comments
OK121700-03-0370G	Ballard Creek	Turbidity	1990-1992	12	11.35	18.1	0.035***	decreased
			2003-2005	20	2.46	1.68		
		TKN	1990-1992	15	0.5121	0.4552	0.002***	decreased
			2003-2005	19	0.1469	0.1317		
		OrthoPhosphorous	1990-1992	7	0.1271	0.0879	0.022***	decreased
			2003-2005	19	0.0666	0.04		
		Chloride	1990-1992	14	9.611	2.504	0.090*	increased
			2003-2005	19	10.721	1.029		
		Alkalinity	1990-1992	11	82.49	20.06	0.001***	increased
			2003-2005	19	103.42	12.31		
		Conductivity	1990-1992	13	233.92	55.25	0.003***	increased
			2003-2005	20	278.18	22.78		
		Hardness	1990-1992	13	105.08	26.79	0.007***	increased
			2003-2005	19	124.75	10.19		
OK121700-06-0040G	Battle Creek	Ammonia	1990-1994	30	0.0490	0.0531	0.012***	decreased
			2003-2005	20	0.0178	0.0045		
		Nitrate	1990-1994	46	2.3389	0.8483	0.003***	increased
			2003-2005	20	3.0590	0.8722		
		Total Nitrogen	1990-1994	14	2.5929	0.677	0.039***	increased
			2003-2005	20	3.1944	0.878		
		Available Nitrogen	1990-1994	9	2.3522	0.7959	0.038***	increased
			2003-2005	20	3.0968	0.8713		
		Total Phosphorous	1990-1994	58	0.0591	0.0587	0.065*	increased
			2003-2005	20	0.0853	0.0356		
		Total Suspended Solids	1990-1994	53	5.326	8.259	0.000***	increased
			2003-2005	20	12.85	6.15		
		Sulfate	1990-1994	49	15.56	24.31	0.056*	decreased
			2003-2005	20	4.93	0.91		
		Conductivity	1990-1994	47	174.4	41.6	0.000***	increased
			2003-2005	21	224.35	43.08		
		Hardness	1990-1994	49	80.94	23.47	0.003***	increased
			2003-2005	20	100.02	23.47		
OK520800-01-0050G	Bird Creek	TKN	1995-1997	8	2.4513	1.7668	0.000***	decreased
			2003-2005	19	0.6465	0.3109		
		OrthoPhosphorous	1995-1997	5	0.2756	0.1124	0.009***	increased
			2003-2005	19	1.1959	0.7056		
		Total Phosphorous	1995-1997	8	0.6271	0.3856	0.013***	increased
			2003-2005	19	1.3672	0.7362		
		Sulfate	1995-1997	8	37.60	11.88	0.097*	decreased
			2003-2005	19	30.05	9.75		
		Alkalinity	1995-1997	9	195.44	55.02	0.002***	decreased
			2003-2005	20	140.20	32.44		
		Hardness	1995-1997	8	251.50	64.95	0.089*	decreased
			2003-2005	19	199.83	70.86		

WBID	Site Name	Parameter	Date of Collection	N	Mean	Standard Deviation	p value	Comments
OK220100-03-0010G	Brazil Creek	Total Phosphorous	1999-2001	17	0.0525	0.0277	0.021***	increased
			2003-2005	14	0.1036	0.081		
		Sulfate	1999-2001	17	38.26	23.42	0.039***	decreased
			2003-2005	14	24.16	7.09		
		Conductivity	1999-2001	18	225.21	106.41	0.049***	decreased
			2003-2005	15	167.31	27.18		
OK220600-01-0100P	Mill Creek	TKN	1999-2001	20	0.5675	0.2113	0.076*	decreased
			2003-2005	20	0.4280	0.2688		
		Nitrate	1999-2001	12	0.2718	0.2156	0.032***	decreased
			2003-2005	20	0.1195	0.1655		
		Total Nitrogen	1999-2001	20	0.7899	0.3278	0.067*	decreased
			2003-2005	20	0.5745	0.3907		
		Sulfate	1999-2001	20	16.822	10.057	0.023***	decreased
			2003-2005	20	10.500	6.391		
OK220200-03-0010G	Sallisaw Creek: Upper	Total Phosphorous	1991-1997	15	0.0147	0.0094	0.000***	increased
			2003-2005	16	0.0703	0.0295		
		Total Suspended Solids	1991-1997	15	2.68	2.99	0.091*	increased
			2003-2005	16	20.19	38.64		
		Chloride	1991-1997	15	5.005	1.899	0.001***	decreased
			2003-2005	16	3.179	0.806		
OK120400-02-0030F	South Fk Dirty Creek	OrthoPhosphorous	1999-2000	13	0.0109	0.01	0.026***	increased
			2003-2005	19	0.0247	0.02		
		Turbidity	1999-2000	14	28.31	25.77	0.073*	decreased
			2003-2005	18	15.37	12.87		

Ballard Creek showed significant decreases in TKN, orthophosphorous, and turbidity, and Mill Creek had significant reductions in nitrogen. The other creeks, however, all had significant increases in phosphorous and / or orthophosphorous. Conductivity, hardness, sulfate, alkalinity, and chloride are other parameters which had significant changes for some sites.

3.2 BIOLOGICAL MONITORING

3.2.1 Habitat Assessment

Total habitat scores for each site and computed metric scores are listed below (Table 11). The highest habitat score possible is 180, which represents the best habitat. Battle Creek had the highest habitat score of all the sites, while Snake and Little Wewoka Creeks had the lowest habitat scores.

Table 11. Habitat assessment values for monitoring sites in the Rotating Basin Project Year 3.

Site Name	WBID	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**
Coody Creek	OK120400-01-0400F	11	6.1	20	18.4	0	0	7.7	0.8	9	2.5	4.2	**80.1**
Dirty Creek	OK120400-02-0010F	2.6	0.4	15	11.2	0	0	16.5	2.7	8	4.8	9.6	**70.2**
South Fk Dirty Creek	OK120400-02-0030F	14	9.4	14	19	0	0	15.1	0.1	9	3	9.6	**93.1**
George's Fk Dirty Creek	OK120400-02-0110D	16	12.3	14	16.2	0	0	16.5	1.6	9	6.7	9.5	**100.4**
Butler Creek	OK120400-02-0160D	13	1.8	9.9	19.9	0	0	9.9	3.2	10	3.1	4	**74.2**
Elk Creek	OK120400-02-0190D	5.5	2.1	19	16.5	2.2	1.6	11.1	0.8	10	2.9	5	**76.3**
Shady Grove Creek	OK120400-02-0240H	7.1	5.3	20	19.5	4.1	0	7.7	5.4	10	2.8	4.4	**86.0**
Snake Creek	OK120410-01-0220G	1.6	4.4	6.6	2.8	0	0	12.3	1	3	2.7	9.2	**44.0**
Cloud Creek	OK120410-01-0010H	5.9	8.3	19	12.5	0	0	7.7	0.1	7	5.8	9.2	**75.4**
Polecat Creek	OK120420-02-0050D	5.5	6.3	20	3.6	5.9	16	3.5	2.8	4	2.5	9.6	**78.3**
Ballard Creek	OK121700-03-0370G	17	16.9	20	11.5	11.4	12	2.3	0.5	8	4.3	9.7	**113.8**
Battle Creek	OK121700-06-0040G	19	15	17	18.7	15.9	5.4	11.1	0.8	9	7.2	10	**129.1**
Brazil Creek	OK220100-03-0010G	9.7	12.4	14	14.3	5.9	4.4	5	0.6	8	4.4	9.7	**87.5**
Fourche Maline Creek	OK220100-04-0020M	4.4	3.8	13	14.3	7.5	20	11.1	0.6	8	4.3	9.7	**96.8**
Sallisaw Creek: Lower	OK220200-03-0010C	14	6.9	13	4	11.4	19	16.5	0.3	10	7.3	8.9	**111.8**
Sallisaw Creek: Upper	OK220200-03-0010G	19	16.3	13	5.1	12.4	15	12.3	0.3	9	5	10	**118.4**
San Bois Creek	OK220200-04-0010G	5.4	8.3	14	12.7	2.2	12	16.5	1	7	5.5	10	**93.5**
Mill Creek	OK220600-01-0100P	10	6	20	19.1	5.9	1.2	4.2	3.2	10	3.6	9.2	**92.7**
Brushy Creek	OK220600-03-0010P	4.8	5.2	13	11.6	7.5	16	8.7	2.3	6	4.5	9.9	**89.1**
Peaceable Creek	OK220600-03-0050F	4	6.2	14	14.9	2.2	11	7.7	4.4	7	5.2	9.9	**86.5**
Bad Creek	OK520500-01-0170L	14	4.6	7.1	2.5	0	20	13.7	4.2	5	3.2	8.9	**83.6**
Alabama Creek	OK520500-01-0200D	6.1	10.4	13	15.9	4.1	0	8.7	1.5	9	6.7	9.9	**84.8**
Wewoka Creek: Lower	OK520500-02-0010C	0.7	2.5	19	0	0	1.2	9.9	4.1	4	3.2	10	**54.6**
Wewoka Creek: Upper	OK520500-02-0010M	5.5	1.4	0	7.6	5.9	12	11.1	0.1	10	6.1	9.9	**69.3**
Little Wewoka Creek	OK520500-02-0090D	1.5	1.1	0	1.4	0	0	16.5	3.5	5	6	9.2	**44.5**
Canadian Sandy Creek	OK520600-03-0010D	1.9	4.7	0	14.1	4.1	17	0.5	3.4	8	4.7	9.9	**68.0**
Gentry Creek	OK520700-01-0080L	5.2	6.8	5	18.7	0	0	11.1	1.6	10	3.1	8.8	**69.8**
Salt Creek (Creek Co.)	OK520700-03-0100B	1.5	0.7	20	20	0	18	8.7	0.5	7	5.1	9.6	**90.8**
Camp Creek	OK520700-03-0220G	1.2	0.9	0	19.9	0	12	4.2	7.3	7	4.4	9.1	**65.4**
Dry Creek	OK520700-04-0020F	1.7	0.4	14	18.5	0	15	9.9	0.3	4	3.3	8.8	**75.5**
Quapaw Creek	OK520700-04-0260C	0.9	0.6	0	4.9	0	17	5.8	0	8	6.4	10	**52.9**
Deep Fork N. Canadian R.	OK520710-01-0010G	2.2	4.1	15	3	0	19	8.7	0.8	9	7.2	9.9	**78.4**
Bird Creek	OK520800-01-0050G	4	1.7	2.6	5.1	0	5	1.8	0	10	7.4	10	**47.5**
Salt Creek (Seminole Co.)	OK520800-03-0010D	1.2	1.4	0	12.1	0	14	0.4	1.3	7	4.2	9.6	**50.6**

Sites were compared relative to the mean total habitat score of high quality sites in the respective ecoregion (Figure 4). For the Boston Mountains ecoregion, only one high quality site was available for reference, and both rotating basin sites in this ecoregion were below the high quality value. Bird, Little Wewoka, Salt (Seminole Co.), and Snake Creeks had scores which were significantly below the high quality mean for the Cross Timbers ecoregion. None of the sites in the other ecoregions were significantly different than the high quality mean for total habitat score. Sites with scores that are within +/- two standard deviations of the mean of the high quality sites do not necessarily have "reference" conditions; rather, sites outside of these values have either extremely good or extremely poor conditions which merit further investigation. Low habitat scores could be the result of anthropogenic activities or could be naturally occurring. The potential impact of good or poor habitat on the biological community at each site is discussed in Section 3.2.4.

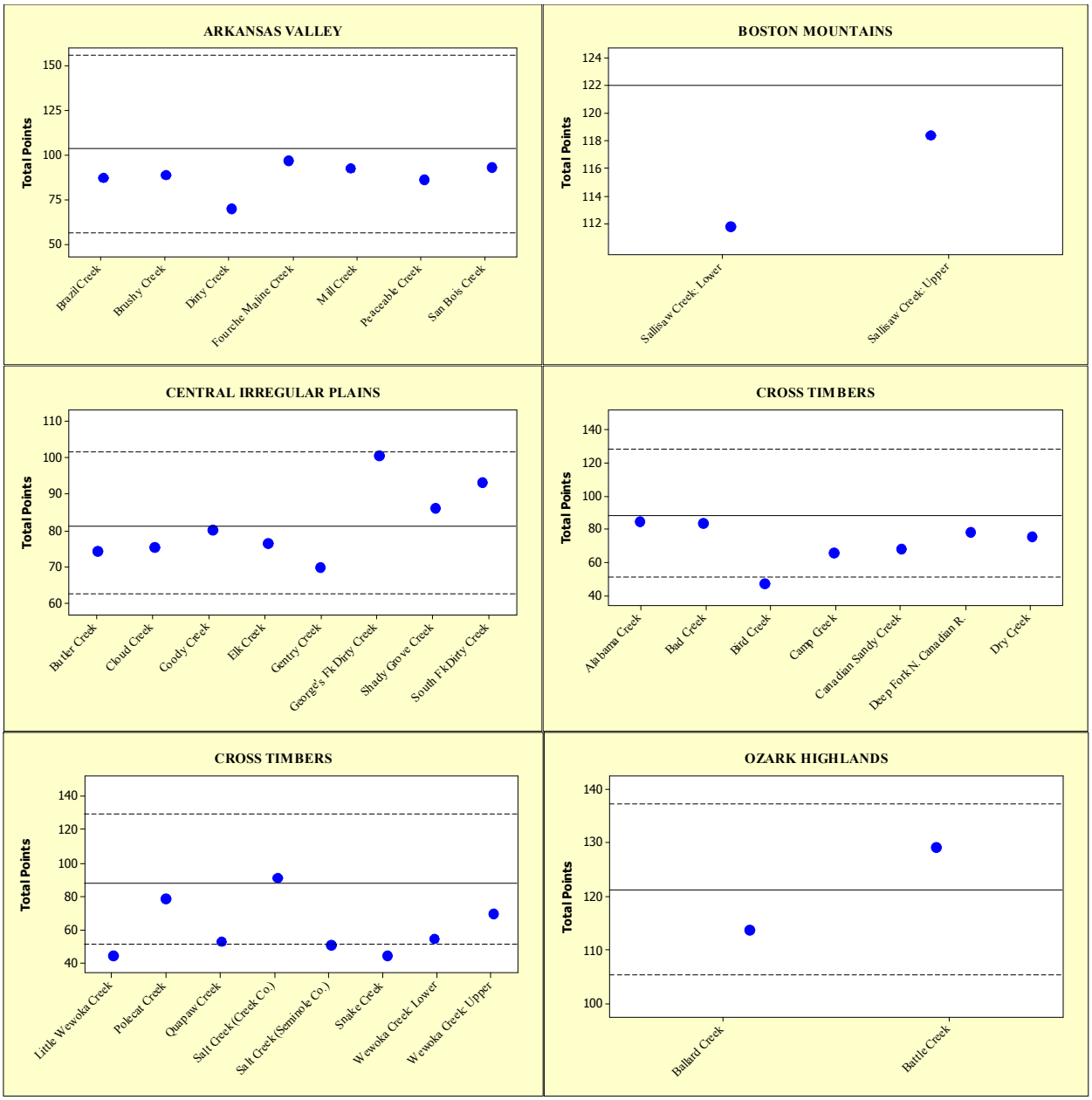


Figure 4. Habitat score for each site by ecoregion. Solid lines indicate the mean value of high quality sites in each ecoregion; dashed lines represent +/- two standard deviations.

3.2.2 Fish Collections

Fish metrics used to compute IBI scores for the Year 3 Rotating Basin sites using the OCC method, as described in Section 2.2.2, are listed in Table 12. For a complete listing of fish data, including species and numbers caught, consult Appendix B. Table 13 presents the results of fish assessment based on the OCC's modified RBP method compared with the fish assessment based on Oklahoma state biocriteria (as described in Oklahoma Water Resource Board, *Implementation of Oklahoma's Water Quality Standards, Subchapter 15: Use Support Assessment Protocols* (USAP), OAC 785:46-15).

Table 12. Fish metrics for calculation of IBI scores (OCC method) for Rotating Basin Year 3 monitoring sites.

SiteName	WBID	Modified Ecoregion	SAMPLEID	Date	Total Spp.	# Sensitive Benthic Spp.	# Sunfish Spp.	# Intolorant Spp.	Proportion Tolerant Individuals	Proportion Insect. Cyprinid Individuals	Proportion Lithophilic Spawner Individuals
Coody Creek	OK120400-01-0400F	CIP	27863	7/22/2003	18	1	6	0	71.56	3.67	7.80
Dirty Creek	OK120400-02-0010F	AV	30243	5/26/2004	17	0	5	0	96.53	0.00	0.00
South Fk Dirty Creek	OK120400-02-0030F	CIP	27978	7/31/2003	32	2	9	3	54.80	0.00	7.06
George's Fk Dirty Creek	OK120400-02-0110D	CIP	27864	7/22/2003	19	1	7	0	84.71	0.00	3.72
Butler Creek	OK120400-02-0160D	CIP	27976	7/23/2003	15	2	5	2	78.00	0.00	6.00
Elk Creek	OK120400-02-0190D	CIP	27974	7/8/2003	18	1	8	1	66.23	0.87	21.65
Shady Grove Creek	OK120400-02-0240H	CIP	27973	7/8/2003	8	1	5	0	58.06	0.00	37.10
Snake Creek	OK120410-01-0220G	CT	28060	8/19/2003	25	1	7	2	61.59	3.09	13.69
Cloud Creek	OK120410-01-0010H	CIP	27859	7/21/2003	28	3	9	3	83.13	2.49	8.02
Polecat Creek	OK120420-02-0050D	CT	31002	9/14/2004	23	4	5	3	91.93	30.94	3.81
Ballard Creek	OK121700-03-0370G	OH	28051	8/5/2003	23	3	6	12	2.97	43.96	96.92
Battle Creek	OK121700-06-0040G	OH	28052	8/5/2003	15	3	1	12	0.00	34.63	100.00
Brazil Creek	OK220100-03-0010G	AV	31212	10/22/2004	26	5	7	5	30.87	17.28	52.62
Fourche Maline Creek	OK220100-04-0020M	AV	31200	10/13/2004	39	7	9	9	43.53	26.41	40.62
Sallisaw Creek: Lower	OK220200-03-0010C	BM	28053	8/6/2003	31	5	7	11	21.16	29.77	60.70
Sallisaw Creek: Upper	OK220200-03-0010G	BM	28054	8/6/2003	21	6	4	13	4.93	53.87	90.85
San Bois Creek	OK220200-04-0010G	AV	31003	9/16/2004	11	0	4	1	20.00	16.25	15.00
Mill Creek	OK220600-01-0100P	AV	27972	7/7/2003	16	1	6	2	44.63	0.00	52.89
Brushy Creek	OK220600-03-0010J	AV	31201	10/18/2004	28	4	9	3	41.34	11.25	25.53
Peaceable Creek	OK220600-03-0050F	AV	31202	10/18/2004	19	4	6	2	40.61	7.86	26.64
Bad Creek	OK520500-01-0170L	CT	28044	7/31/2003	20	1	8	1	41.47	1.15	18.43
Alabama Creek	OK520500-01-0200D	CT	27719	6/23/2003	13	0	5	0	95.58	0.00	1.77
Wewoka Creek: Lower	OK520500-02-0010C	CT	28045	7/31/2003	16	1	4	1	99.36	11.58	0.16
Wewoka Creek: Upper	OK520500-02-0010M	CT	27971	7/1/2003	15	0	6	1	98.68	0.94	0.38
Little Wewoka Creek	OK520500-02-0090D	CT	28043	7/29/2003	8	0	5	0	93.66	0.00	5.97
Canadian Sandy Creek	OK520600-03-0010D	CT	27715	6/24/2003	14	0	5	0	93.16	6.40	0.66
Gentry Creek	OK520700-01-0080L	CIP	27975	7/9/2003	24	4	9	2	83.81	0.00	5.22
Salt Creek (Creek Co.)	OK520700-03-0100B	CT	27714	6/11/2003	15	1	3	2	97.96	0.68	0.68
Camp Creek	OK520700-03-0220G	CT	27713	6/9/2003	14	1	4	0	94.12	4.48	0.28
Dry Creek	OK520700-04-0020F	CT	27718	6/20/2003	15	1	4	0	98.96	0.00	1.04
Quapaw Creek	OK520700-04-0260C	CT	27717	6/19/2003	18	1	6	0	91.82	5.68	0.23
Deep Fork N. Canadian River	OK520710-01-0010G	CT	27670	6/30/2003	7	0	4	0	95.51	4.49	0.00
Bird Creek	OK520800-01-0050G	CT	28042	7/29/2003	16	0	4	1	77.09	16.01	0.25
Salt Creek (Seminole Co.)	OK520800-03-0010D	CT	27716	6/25/2003	8	0	1	1	94.09	16.26	0.00

The OCC methodology allowed assessment of streams which were lacking definite support assignment under the state biocriteria. There was good consensus between the IBI scores that resulted from the two different assessment methods. Sites which were “excellent” or “good” in the OCC scoring were “supporting” under the state biocriteria scoring method, and sites which

were "fair," "poor," or "very poor" were "nonsupporting." There was one exception: George's Fork of Dirty Creek ranked "fair," yet was "supporting" under the biocriteria. Any streams with IBI scores equal to or better than the high quality streams will be examined further for possible inclusion into the high quality sites list.

Table 13. IBI scores based on Use Support Assessment Protocol biocriteria (ODEQ 2002) and OCC's modified RBP method. WWAC=warm water aquatic community, HLAC=habitat limited aquatic community, CWAC=cold water aquatic community. S=supporting, NS=not supporting, U=undetermined.

SiteName	WBID	Modified Ecoregion	FWProp	IBI Total Score (USAP)	FWProp Support (USAP)	IBI Total Score (OCC)	Percent of Reference	Score Interpretation (OCC)
Coody Creek	OK120400-01-0400F	CIP	WWAC	26	U	34	0.85	good
Dirty Creek	OK120400-02-0010F	AV	WWAC	20	NS	26	0.65	fair
South Fk Dirty Creek	OK120400-02-0030F	CIP	WWAC	30	S	40	1.00	excellent
George's Fk Dirty Creek	OK120400-02-0110D	CIP	WWAC	26	U	30	0.75	fair
Butler Creek	OK120400-02-0160D	CIP	WWAC	24	U	38	0.95	excellent
Elk Creek	OK120400-02-0190D	CIP	WWAC	26	U	32	0.80	good
Shady Grove Creek	OK120400-02-0240H	CIP	WWAC	20	NS	26	0.65	fair
Snake Creek	OK120410-01-0220G	CT	WWAC	32	S	38	0.95	excellent
Cloud Creek	OK120410-02-0010H	CIP	WWAC	32	S	38	0.95	excellent
Polecat Creek	OK120420-02-0050D	CT	WWAC	28	U	36	0.90	good
Ballard Creek	OK121700-03-0370G	OH	WWAC	36	S	44	0.96	excellent
Battle Creek	OK121700-06-0040G	OH	WWAC	30	U	40	0.91	good
Brazil Creek	OK220100-03-0010G	AV	WWAC	38	S	40	1.00	excellent
Fourche Maline Creek	OK220100-04-0010M	AV	WWAC	38	S	42	1.05	excellent
Sallisaw Creek: Lower	OK220200-03-0010C	BM	CWAC	36	S	42	0.91	good
Sallisaw Creek: Upper	OK220200-03-0010G	BM	CWAC	36	U	40	0.87	good
San Bois Creek	OK220200-04-0010G	AV	WWAC	24	NS	24	0.60	poor
Mill Creek	OK220600-01-0100P	AV	WWAC	28	U	36	0.90	good
Brushy Creek	OK220600-03-0010J	AV	WWAC	36	S	42	1.05	excellent
Peaceable Creek	OK220600-03-0050F	AV	WWAC	32	U	38	0.95	excellent
Bad Creek	OK520500-01-0170L	CT	WWAC	30	S	32	0.80	good
Alabama Creek	OK520500-01-0200D	CT	WWAC	24	U	26	0.65	fair
Wewoka Creek: Lower	OK520500-02-0010C	CT	HLAC	20	U	26	0.65	fair
Wewoka Creek: Upper	OK520500-02-0010M	CT	HLAC	18	NS	28	0.70	fair
Little Wewoka Creek	OK520500-02-0090D	CT	WWAC	20	U	26	0.65	fair
Canadian Sandy Creek	OK520600-03-0010D	CT	WWAC	18	NS	24	0.60	poor
Gentry Creek	OK520700-01-0080L	CIP	WWAC	30	S	36	0.90	good
Salt Creek (Creek Co.)	OK520700-03-0100B	CT	WWAC	18	NS	26	0.65	fair
Camp Creek	OK520700-03-0220G	CT	WWAC	22	U	22	0.55	poor
Dry Creek	OK520700-04-0020F	CT	WWAC	18	NS	24	0.60	poor
Quapaw Creek	OK520700-04-0260C	CT	WWAC	20	U	26	0.65	fair
Deep Fork N. Canadian River	OK520710-01-0010G	CT	WWAC	16	NS	18	0.45	poor
Bird Creek	OK520800-01-0050G	CT	HLAC	24	U	28	0.70	fair
Salt Creek (Seminole Co.)	OK520800-03-0010D	CT	WWAC	12	NS	16	0.40	very poor

Figure 5 shows the IBI score for each site (indicated by a blue dot) relative to the mean value for the high quality sites in that ecoregion (indicated by a solid line). The dashed lines in each graph represent +/- two standard deviations of the high quality site data for each parameter. There was only one high quality site in the BM ecoregion. In the OH ecoregion, all high quality sites had the same score, so there are no standard deviation lines. In the Rotating Basin Year 3 data set, sites within two standard deviations of the high quality mean corresponded to those with an "excellent" IBI score in Table 13 (except Bad Creek is "good" in the CT ecoregion). In the CIP ecoregion, no sites were "excellent" or within the high quality range. Any sites with IBI scores equal to or better than the mean of the high quality streams will be examined for possible inclusion in the high quality sites list.

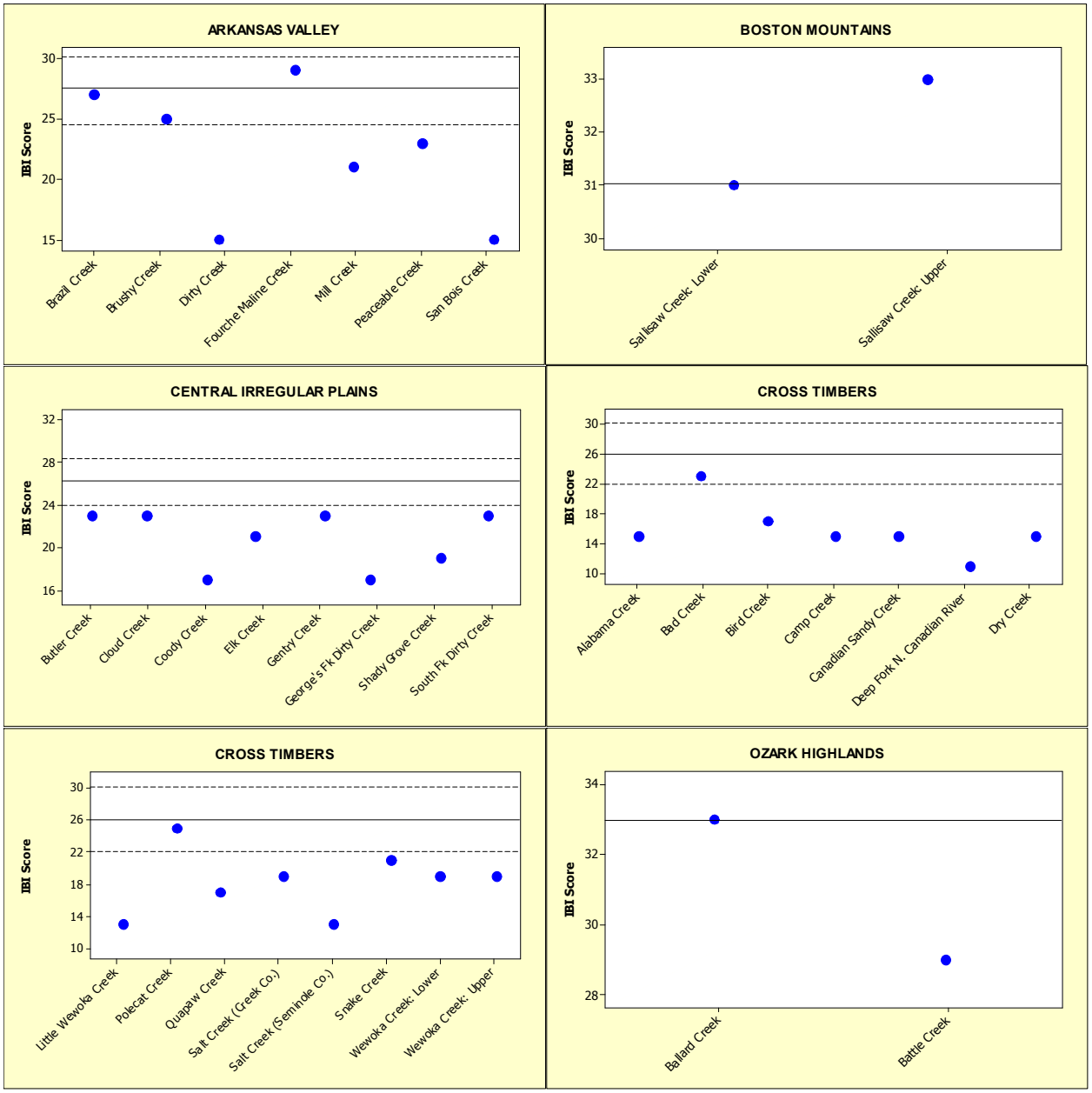


Figure 5. IBI score (fish) for each site by ecoregion. Solid lines indicate the mean value of high quality sites in each ecoregion; dashed lines represent +/- two standard deviations.

Table 14 shows a comparison between fish data collected in previous projects and the rotating basin project in order to examine whether biological conditions have improved, worsened, or remained the same at a particular site. Many of the rotating basin sites had not been previously monitored; only seven sites could be compared with past data. The fish community remained in approximately the same condition for the seven sites which were compared. In future reports, all sites will compared with the data collected during the first years of the rotating basin project in order to track changes. All data was compared relative to the same mean of the high quality sites for the respective ecoregion in order to obtain the IBI (OCC method). Although, ideally, one would use collections from the same years for comparison, multiyear collections at sites deemed "high quality" were not available.

Table 14. Comparison of fish data from previous projects to the Rotating Basin Year 3 project (2003-2004).

SiteName	WBID	Year	Total Individuals	Total Species	# Darter Spp.	# Sunfish Spp.	# Intolerant Spp.	Proportion Tolerant Individuals	Proportion Insect. Cyprinid Individuals	Proportion Lithophilic Spawners	Total Score	IBI	Condition
Battle Creek	OK121700-06-0040G	1991	403	19	2	2	12	1.74	27.30	98.26	29	0.88	good
		1996	590	16	3	2	12	1.36	34.07	98.64	31	0.94	excellent
		2003	566	15	3	1	12	0.00	34.63	100.00	29	0.88	good
Bird Creek	OK520800-01-0050G	1996	1796	19	0	5	1	99.72	16.93	0.06	19	0.73	fair
		2003	406	16	0	4	1	77.09	16.01	0.25	17	0.65	fair
Brazil Creek	OK220100-03-0010G	2000	492	33	3	8	4	64.63	2.64	26.63	25	0.93	excellent
		2004	515	26	5	7	5	30.87	17.28	52.62	27	1.00	excellent
Fourche Maline Creek	OK220100-04-0010M	1993	409	35	7	9	9	50.61	22.98	32.76	27	1.00	excellent
		1998	776	37	5	9	6	51.68	18.81	36.34	27	1.00	excellent
		2004	549	39	7	9	9	43.53	26.41	40.62	29	1.07	excellent
Mill Creek	OK220600-01-0100P	1999	453	19	2	7	2	39.74	0.22	56.73	23	0.85	good
		2003	242	16	1	6	2	44.63	0.00	52.89	21	0.78	good
Sallisaw Creek: Upper	OK220200-03-0010G	1995	392	17	4	3	9	5.61	58.93	93.37	33	1.00	excellent
		1996	871	21	4	5	12	4.71	54.08	94.72	35	1.06	excellent
		2003	284	21	6	4	13	4.93	53.87	90.85	33	1.00	excellent
South Fk Dirty Creek	OK120400-02-0030F	1998	315	20	2	9	1	54.60	0.00	31.43	23	0.88	good
		2003	354	32	2	9	3	54.80	0.00	7.06	23	0.88	good

3.2.3 Macroinvertebrate Collections

The complete macroinvertebrate dataset, including species and numbers captured per site, can be found in Appendix C. Macroinvertebrates were not collected for Dirty Creek or Gentry Creek due to lack of flow during the collection period each year. Table 15 presents the mean values, by season and sample type, for each metric at each site for the two-year monitoring period. Riffle samples were collected at most sites and generally reflect the macroinvertebrate community adequately (Plafkin et al., 1989). Summer samples, as opposed to winter samples, represent the harshest time for macroinvertebrates, thus constituting a more conservative approach in assessing the communities. Table 16 shows the overall bioassessment scores assigned to each monitoring site, calculated as described in the Methods section 2.2.3 and then averaged over sample types and seasons.

Table 15. Macroinvertebrate data from each monitoring site, averaged per season and habitat.

Site	WBID	Winter or Summer	Sample Type	Total Species	EPT Taxa	Percent EPT	Shannon Diversity	HBI	% Dominant 2 Taxa	**Total Points**	**% of Reference**
Coody Creek	OK120400-01-0400F	S	Riffle	5	0	0.0000	0.6119	1.7941	0.2647	10	0.38
		W	Riffle	9.5	2	0.0871	1.1591	6.1453	0.7533	6	0.26
South Fk Dirty Creek	OK120400-02-0030F	W	Veg	9	3	0.8714	0.7448	3.8714	0.8857	22	1.00
George's Fk of Dirty Creek	OK120400-02-0110D	S	Riffle	10	3	0.5144	1.2067	3.4611	0.8388	16	0.62
		W	Riffle	13.5	4	0.1686	1.4184	4.8049	0.6571	16	0.68
		S	Wood	9	3	0.4149	1.3702	2.7128	0.7872	16	0.67
Butler Creek	OK120400-02-0160D	W	Riffle	8.5	2	0.1823	1.5249	4.1886	0.4166	12	0.51
Elk Creek	OK120400-02-0190D	S	Riffle	8	1	0.0566	0.9129	3.1226	0.7642	8	0.31
		W	Riffle	13.5	4	0.2824	1.7571	4.8998	0.5412	20	0.85
Shady Grove Creek	OK120400-02-0240H	W	Riffle	8	2	0.0230	0.8210	0.7701	0.1724	14	0.60
Snake Creek	OK120410-01-0220G	S	Riffle	6.5	3	0.7088	0.8032	2.6697	0.7390	12	0.44
		W	Riffle	8.5	3	0.0311	0.9140	4.4746	0.6397	8	0.32
Cloud Creek	OK120410-01-0010H	W	Riffle	14	5	0.0957	1.3518	6.0247	0.7531	18	0.77
Polecat Creek	OK120420-02-0050D	S	Riffle	12	5	0.8128	1.1887	2.6424	0.7745	16	0.59
		W	Riffle	9	5	0.2235	1.1894	3.3970	0.4830	14	0.56
Ballard Creek	OK121700-03-0370G	S	Riffle	19.5	9	0.6538	2.4473	4.5255	0.3822	28	1.04
		W	Riffle	14.5	10	0.4077	1.9304	2.7027	0.3871	20	0.67
Battle Creek	OK121700-06-0040G	S	Riffle	16	8	0.5805	2.1519	4.5129	0.4757	26	0.96
		W	Riffle	19.5	8	0.2782	2.1984	4.5313	0.4633	18	0.60
Brazil Creek	OK220100-03-0010G	S	Riffle	23	10	0.7556	2.5261	4.9852	0.3630	30	1.15
		W	Riffle	13.5	5	0.1651	1.4046	2.9808	0.3346	14	0.54
Fourche Maline Creek	OK220100-04-0020M	S	Riffle	16	8	0.7417	2.0986	4.4167	0.5000	26	1.00
		W	Riffle	18	7	0.2139	2.2450	4.0542	0.3961	24	0.92
		S	Veg	17	7	0.6774	2.1977	5.1075	0.4946	26	0.93
		W	Veg	18	7	0.3762	2.4120	4.8218	0.3960	24	0.89
		W	Wood	4	1	0.0625	0.6886	3.9375	0.8750	6	0.24
Sallisaw Creek: Lower	OK220200-03-0010C	S	Riffle	19.5	10	0.5708	2.4383	5.3774	0.3945	28	0.93
		W	Riffle	15.5	7	0.4130	1.5663	4.9165	0.7074	16	0.62
San Bois Creek	OK220200-04-0010G	S	Riffle	15	9	0.4800	2.1552	4.7100	0.4300	26	1.00
		W	Riffle	14	6	0.2075	1.7854	2.7264	0.2830	24	0.92
		S	Wood	18	7	0.4886	2.3204	4.5341	0.4091	26	1.00
		W	Wood	12	6	0.4516	2.2873	5.0968	0.3871	26	1.04
Mill Creek	OK220600-01-0100P	W	Riffle	13.5	4	0.1631	1.7668	3.1911	0.4863	14	0.54
Peaceable Creek	OK220600-03-0050F	S	Riffle	14	6	0.7727	1.3784	4.1591	0.7803	24	0.92
		W	Riffle	14.5	2	0.0913	1.7800	4.7095	0.6494	14	0.54
		S	Veg	15	9	0.8085	1.8759	4.6383	0.5745	26	0.93
		W	Veg	16	4	0.0603	2.0808	6.7241	0.5000	12	0.44
Bad Creek	OK520500-01-0170L	S	Riffle	10	3	0.4124	1.6562	5.3814	0.5361	16	0.59
		W	Riffle	9.5	4	0.3915	0.8669	3.9145	0.8203	14	0.56

Site	WBID	Winter or Summer	Sample Type	Total Species	EPT Taxa	Percent EPT	Shannon Diversity	HBI	% Dominant 2 Taxa	**Total Points**	**% of Reference**
Alabama Creek	OK520500-01-0200D	S	Riffle	17	8	0.7034	2.0133	4.5085	0.5254	26	0.96
		W	Riffle	14.5	3	0.2494	2.3348	7.7275	0.6106	12	0.48
		W	Veg	16	6	0.0656	1.6742	7.2951	0.7213	16	0.66
		S	Wood	16	6	0.3119	2.1075	6.3578	0.4771	26	1.02
Wewoka Creek: Lower	OK520500-02-0010C	W	Riffle	11.5	5	0.2025	1.8372	4.9334	0.4324	18	0.72
		S	Wood	12	6	0.2225	1.5443	6.5193	0.7161	20	0.78
Little Wewoka Creek	OK520500-02-0090D	W	Riffle	12	4	0.1042	1.0577	2.7813	0.4063	12	0.48
		S	Veg	17	7	0.5798	1.7905	4.9832	0.6387	26	0.98
		S	Wood	12	5	0.2083	2.0615	6.1458	0.4271	18	0.70
		W	Wood	9	3	0.3830	1.7772	4.6596	0.5957	18	0.82
Canadian Sandy Creek	OK520600-03-0010D	S	Riffle	18	8	0.6828	2.1321	4.8359	0.5322	26	0.96
		W	Riffle	18	6	0.4257	2.3649	5.1683	0.3168	28	1.12
		S	Wood	11	4	0.3182	1.6072	5.5273	0.6909	18	0.70
		W	Wood	17	5	0.1771	2.3869	5.6771	0.3229	24	1.09
Salt Creek (Creek Co.)	OK520700-03-0100B	S	Veg	12	4	0.1446	2.0062	5.9759	0.5301	14	0.53
		S	Wood	6	3	0.5144	1.1482	5.1219	0.7821	12	0.47
		W	Wood	6	2	0.0334	0.7710	6.7201	0.9114	8	0.36
Camp Creek	OK520700-03-0220G	W	Veg	6	0	0.0000	1.3971	6.2034	0.7458	6	0.25
		S	Wood	11	3	0.1111	1.3126	7.0778	0.7778	10	0.39
		W	Wood	8	2	0.1000	1.4106	5.7244	0.6778	8	0.36
Dry Creek	OK520700-04-0020F	W	Riffle	10	3	0.0138	0.6596	3.3586	0.8874	8	0.32
		S	Wood	13.5	6	0.1932	1.9956	5.9867	0.5329	20	0.78
		W	Wood	7.5	2	0.0176	1.0602	4.6763	0.8688	8	0.36
Quapaw Creek	OK520700-04-0260C	S	Veg	13	5	0.5849	1.8161	6.3113	0.5377	18	0.68
		W	Veg	13	2	0.0215	1.7398	4.9247	0.6022	12	0.49
		W	Wood	8	1	0.0049	1.4434	5.9958	0.7196	8	0.36
Deep Fork of N. Canadian River	OK520710-01-0010G	S	Riffle	5	1	0.0917	0.9582	3.4128	0.5872	6	0.22
		W	Riffle	14.5	3	0.3080	1.9098	5.3586	0.5487	18	0.72
		S	Veg	14.5	3	0.2058	2.1805	6.0497	0.4557	16	0.60
		W	Veg	7	0	0.0000	0.9675	6.3333	0.8291	6	0.25
Bird Creek	OK520800-01-0050G	S	Wood	14	3	0.0386	1.6356	7.2945	0.6810	12	0.47
		W	Wood	12.5	2	0.1820	2.1854	6.2653	0.4048	16	0.73
Salt Creek (Seminole Co.)	OK520800-03-0010D	W	Veg	16	5	0.4762	2.2946	4.8730	0.4286	22	0.90
		S	Wood	15	5	0.4500	2.1843	4.1167	0.4667	22	0.86
		W	Wood	12	3	0.4561	2.0017	5.5088	0.4737	20	0.91
Brushy Creek	OK220600-03-0010J	W	Riffle	5	1	0.6087	1.1675	2.8261	0.7826	12	0.46
		S	Veg	13	5	0.1125	1.1089	7.4625	0.8125	10	0.36
		W	Veg	12	2	0.0659	1.6385	7.3956	0.6703	8	0.30
		S	Wood	15	3	0.1026	2.3372	6.8205	0.4359	14	0.54
		W	Wood	10	2	0.0275	1.5408	7.2752	0.6697	10	0.40

Site	WBID	Winter or Summer	Sample Type	Total Species	EPT Taxa	Percent EPT	Shannon Diversity	HBI	% Dominant 2 Taxa	**Total Points**	**% of Reference**
Wewoka Creek: Upper	OK520500-02-0010M	W	Riffle	10	7	0.49038	1.48178	2.11538	0.3077	22	0.88
		S	Veg	8	1	0.38462	1.56246	6.46154	0.7179	14	0.53
		W	Veg	13	10	0.80328	1.88636	3.13115	0.5902	24	0.98
		S	Wood	4	0	0	0.38274	7.88889	0.9722	4	0.16
Sallisaw Creek: Upper	OK220200-03-0010G	S	Riffle	17.5	10	0.6768	2.4088	4.5204	0.3648	26	0.87
		W	Riffle	19	9	0.4496	2.1063	3.5624	0.5479	22	0.85

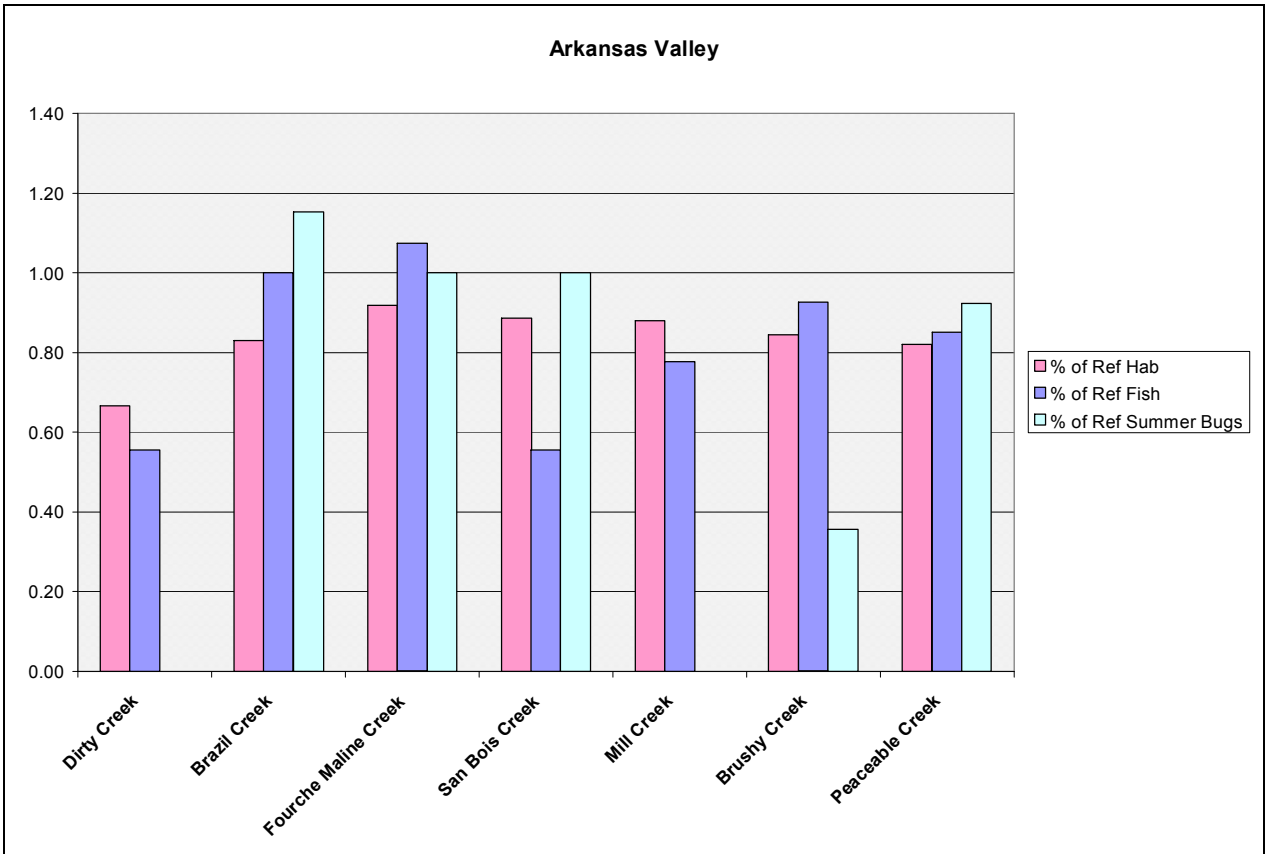
Table 16. Overall bioassessment of sites based on all macroinvertebrate collections at a site (averaged per season and habitat type). NI=non-impaired, SI=slightly impaired, MI=moderately impaired.

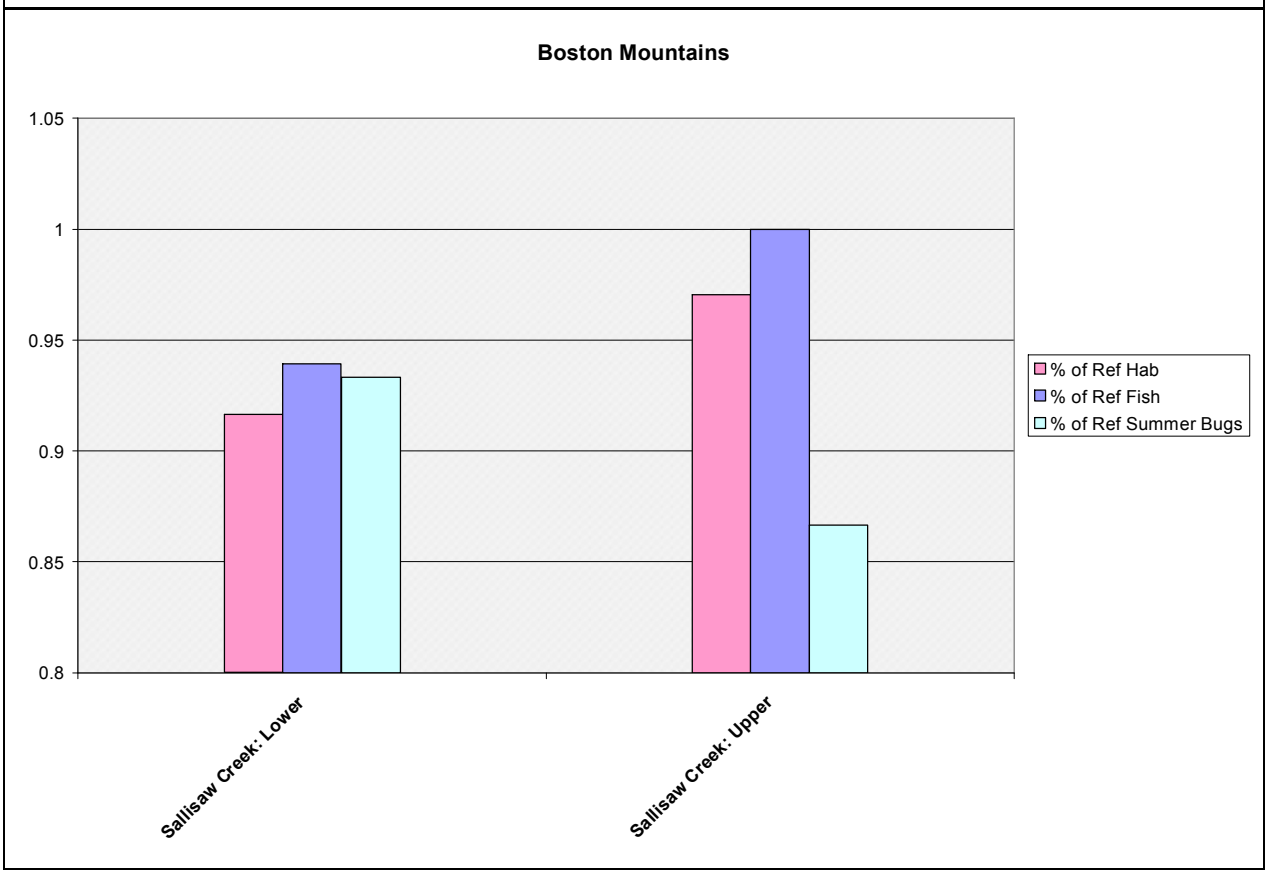
Site	WBID	Overall Biological Condition	Site	WBID	Overall Biological Condition
Coody Creek	OK120400-01-0400F	MI	Peaceable Creek	OK220600-03-0050F	NI
South Fk Dirty Creek	OK120400-02-0030F	NI	Bad Creek	OK520500-01-0170L	SI
George's Fk Dirty Creek	OK120400-02-0110D	SI	Alabama Creek	OK520500-01-0200D	NI
Butler Creek	OK120400-02-0160D	MI	Wewoka Creek: Lower	OK520500-02-0010C	SI
Elk Creek	OK120400-02-0190D	SI	Little Wewoka Creek	OK520500-02-0090D	NI
Shady Grove Creek	OK120400-02-0240H	SI	Canadian Sandy Creek	OK520600-03-0010D	NI
Snake Creek	OK120410-01-0220G	MI	Salt Creek (Creek Co.)	OK520700-03-0100B	SI
Cloud Creek	OK120410-01-0010H	SI	Camp Creek	OK520700-03-0220G	MI
Polecat Creek	OK120420-02-0050D	SI	Dry Creek	OK520700-04-0020F	MI
Ballard Creek	OK121700-03-0370G	NI	Quapaw Creek	OK520700-04-0260C	SI
Battle Creek	OK121700-06-0040G	NI	Deep Fork N. Canadian River	OK520710-01-0010G	MI
Brazil Creek	OK220100-03-0010G	NI	Bird Creek	OK520800-01-0050G	SI
Fourche Maline Creek	OK220100-04-0020M	NI	Salt Creek (Seminole Co.)	OK520800-03-0010D	NI
Sallisaw Creek: Lower	OK220200-03-0010C	NI	Brushy Creek	OK220600-03-0010J	MI
San Bois Creek	OK220200-04-0010G	NI	Wewoka Creek: Upper	OK520500-02-0010M	SI
Mill Creek	OK220600-01-0100P	SI	Sallisaw Creek: Upper	OK220200-03-0010G	NI

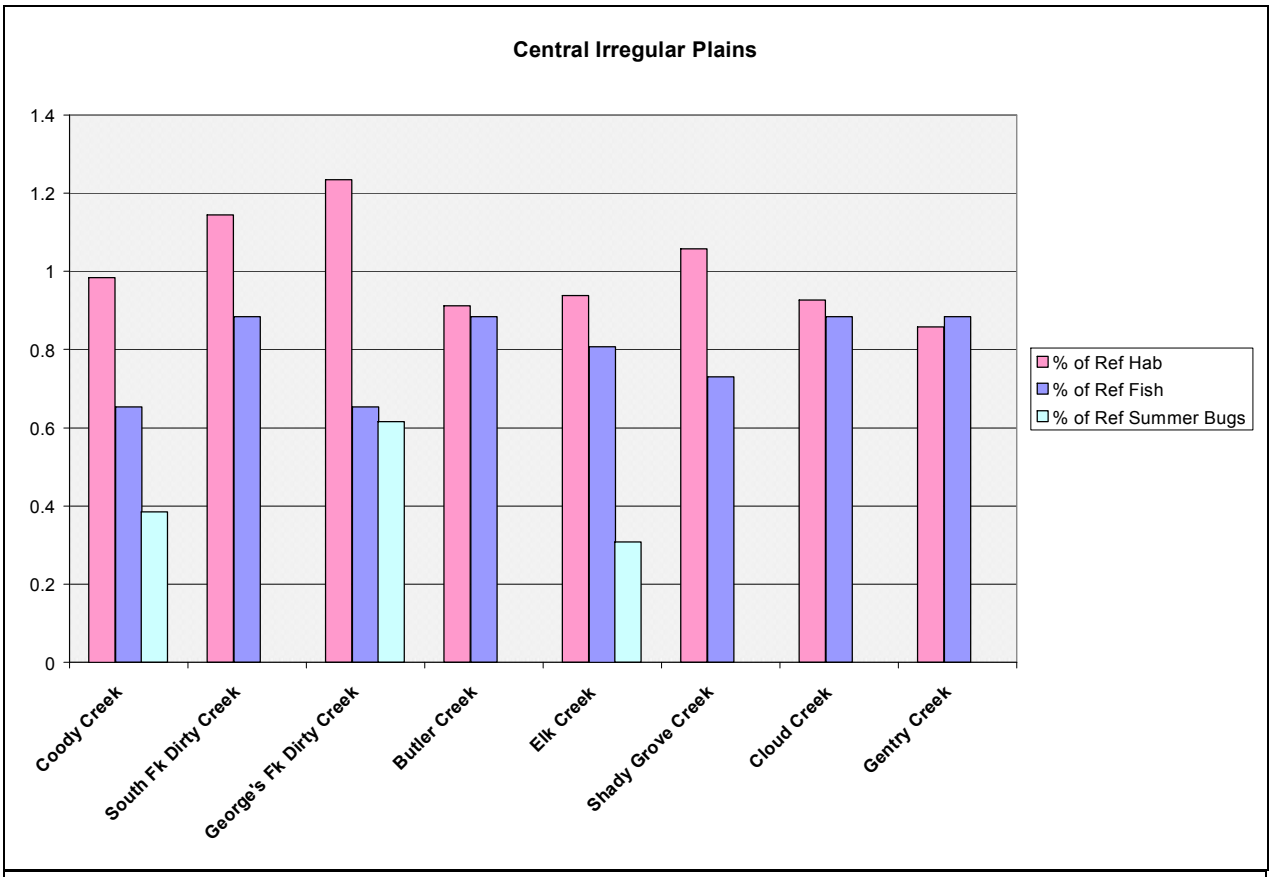
Poor macroinvertebrate scores could indicate water quality problems; however, it is possible that the macroinvertebrate collection was not taken at a time or from a location which would best represent the community there. Hence, the macroinvertebrate scores should be examined in conjunction with habitat and fish scores to better represent the general health of the stream.

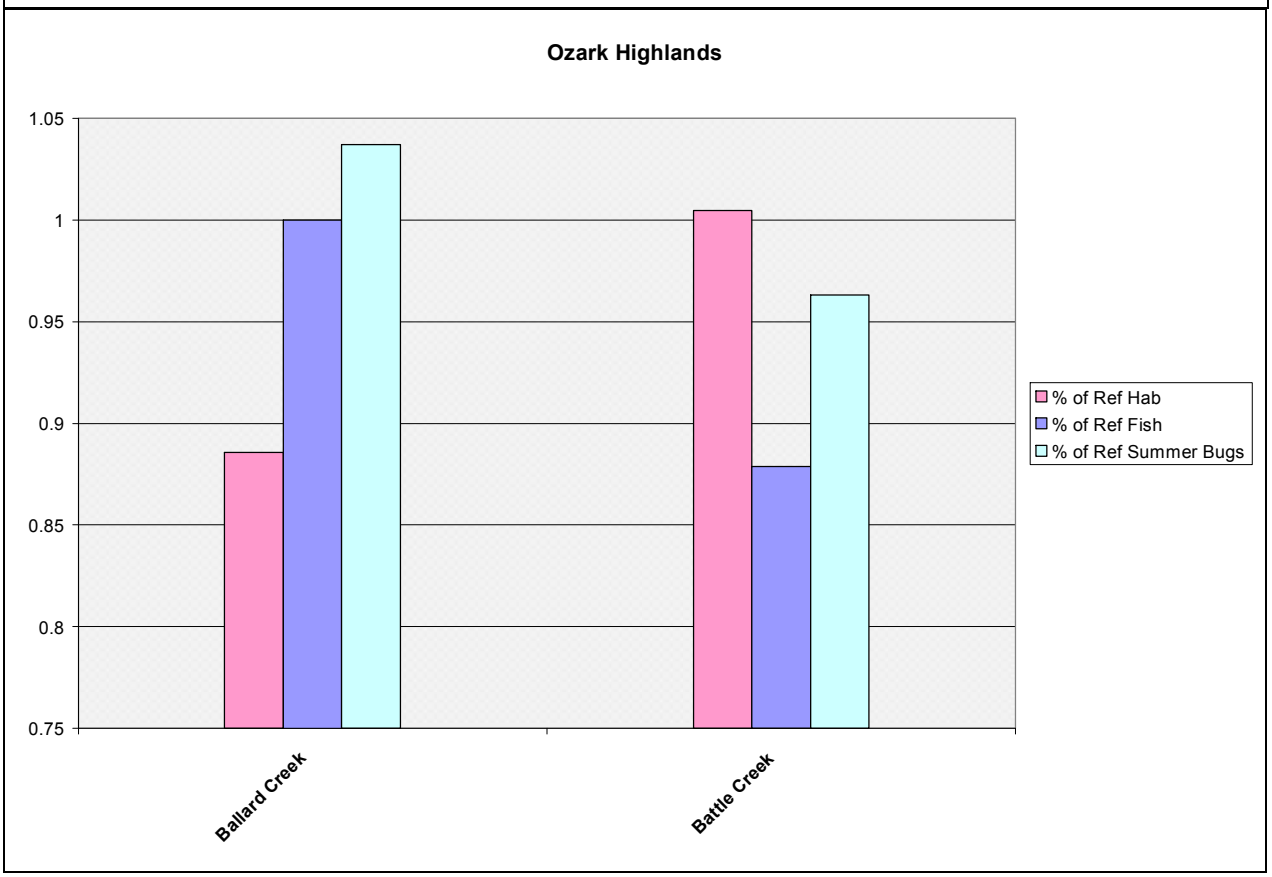
3.2.4 Overall Biological Assessment

In order to synthesize the biological findings into a meaningful representation of the quality of each site, habitat, fish, and macroinvertebrate scores (relative to the mean of high quality sites in the respective ecoregions) were examined in concert with one another (Figure 6). Healthy sites are those with a relatively high score for all three parameters. It is generally recognized that fish communities are especially sensitive to habitat degradation and that macroinvertebrates often suffer when water quality declines. Thus, sites with a high habitat and/or fish score yet a low macroinvertebrate score could indicate water quality impairments. The Deep Fork of the North Canadian, for example, has a good habitat score yet low fish and bug scores. Referring back to Figure 2, this site has significantly high levels of phosphorous and orthophosphorous. Low habitat scores correlated with low fish scores yet high bug scores could indicate habitat impairments despite good water quality, such as at Little Wewoka Creek and Salt Creek (Seminole Co.). Hence, it is useful to consider all of these factors at once in order to attempt to determine the overall stream quality and to illuminate potential problems which require further investigation.


Arkansas Valley
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
Dirty Creek
Brazil Creek
Fourche Maline Creek
San Bois Creek
Mill Creek
Brushy Creek
Peaceable Creek
% of Ref Hab
% of Ref Fish
% of Ref Summer Bugs


Boston Mountains
1.05
1
0.95
0.9
0.85
0.8
Sallisaw Creek: Lower
Sallisaw Creek: Upper
% of Ref Hab
% of Ref Fish
% of Ref Summer Bugs


Central Irregular Plains
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Coody Creek
South Fk Dirty Creek
George's Fk Dirty Creek
Butler Creek
Elk Creek
Shady Grove Creek
Cloud Creek
Gentry Creek
% of Ref Hab
% of Ref Fish
% of Ref Summer Bugs


Ozark Highlands
1.05
1
0.95
0.9
0.85
0.8
0.75
Ballard Creek
Battle Creek
% of Ref Hab
% of Ref Fish
% of Ref Summer Bugs

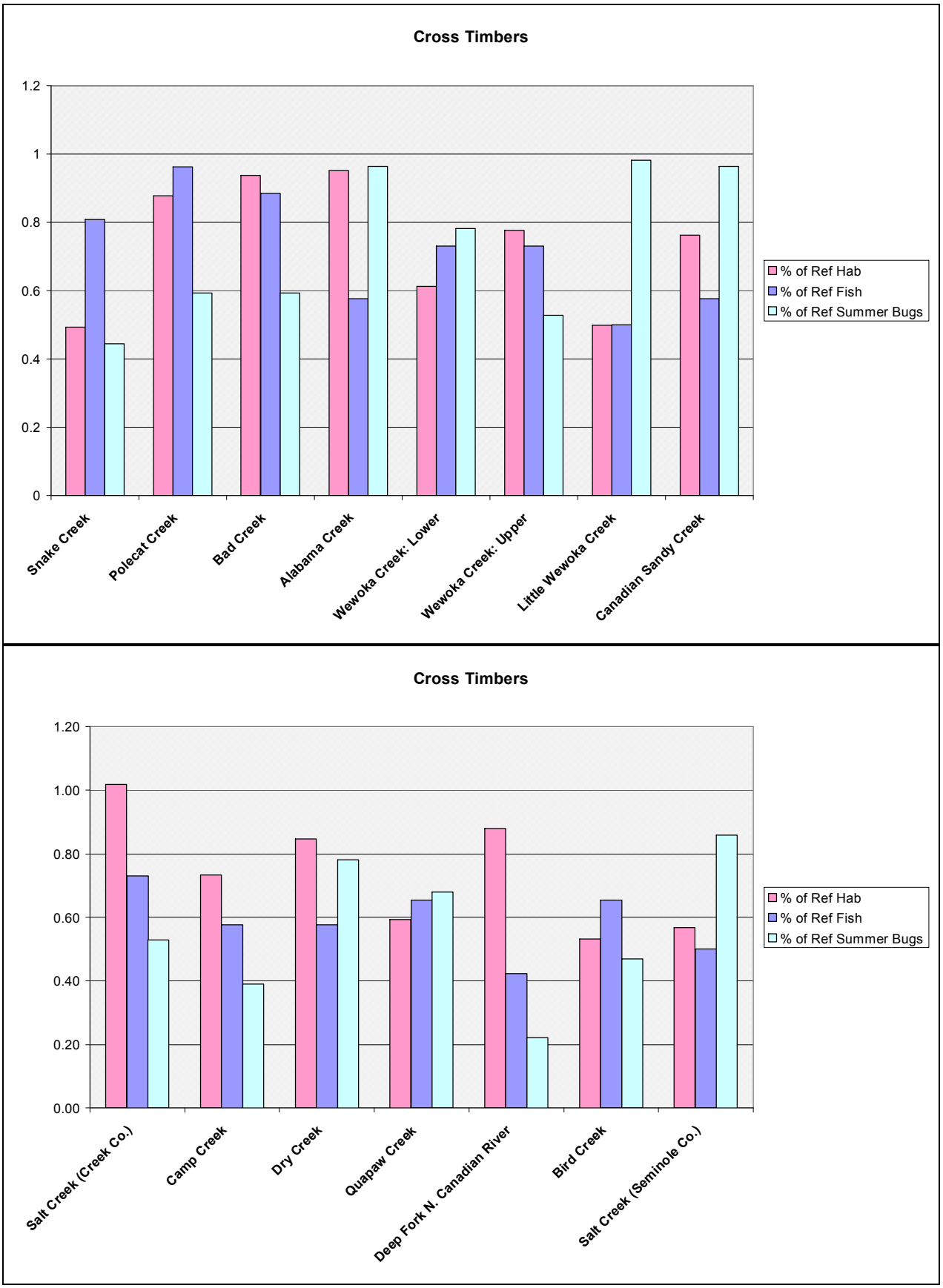


Figure 6. Comparison of habitat, fish, and bug scores relative to the average high quality site in each ecoregion.

3.3 WATERSHED ASSESSMENT

Table 17 shows the landuse upstream of each monitoring site as obtained through GIS using the 1992 NRCS National Land Cover Dataset. There is little landuse data for Battle Creek (<67%) and for Ballard Creek (<49%). Table 18 presents the types and number of permitted activities that occur upstream of each site.

Eighteen sites had national pollution discharge elimination systems (NPDES) in the watershed. NPDES are classified as either major or minor based upon their size and/or their potential to impact the receiving stream, with majors having larger effects than minors. Of the sites in this project, six sites had at least one major NPDES, while the other sites only had minor NPDES (Table 18). To examine the effects of point source versus non-point source pollution on nutrient levels at the monitoring sites, one-way ANOVAs were performed comparing: 1) sites with a major NPDES to sites with minor NPDES and 2) sites with minor NPDES to sites with no NPDES. Table 19 presents the results of these analyses. Sites with a major NPDES had significantly higher values for total phosphorous and total orthophosphorous as compared to sites with minor NPDES (as indicated by $p<0.05$). Sites with only minor NPDES had significantly higher levels of total phosphorous, total orthophosphate, TKN, and total suspended solids than sites with no NPDES (as indicated by $p<0.05$).

Table 17. Watershed landuse for each Year 3 monitoring site.

Site Name	Bare Rock/Sand/Clay	Commercial/Industrial/ Transportation	Deciduous Forest	Emergent Herbaceous Wetlands	Evergreen Forest	Grasslands/ Herbaceous	High Intensity Residential	Low Intensity Residential	Mixed Forest	Open Water	Pasture/Hay	Quarries/Strip Mines/Gravel Pits	Row Crops	Shrubland	Small Grains	Transitional	Urban/Recreational Grasses	Woody Wetlands	No Data	Total Acres
Alabama Creek	<0.01%	0.32%	40.41%	0.01%	0.28%	34.13%	0.08%	1.47%	0.63%	0.48%	21.54%		0.25%	0.33%	0.08%		<0.01%			13740
Bad Creek		0.81%	36.47%	0.10%	0.09%	44.51%		0.05%	0.44%	0.65%	15.98%		0.46%	0.38%	0.06%					15516
Ballard Creek	<0.01%	0.07%	11.57%	0.01%	0.87%	<0.01%	0.03%	0.27%	1.46%	0.14%	34.96%		0.96%	0.16%	0.62%	<0.01%	0.04%	0.10%	48.74%	29276
Battle Creek	<0.01%	0.06%	11.90%	0.01%	0.19%	<0.01%	0.07%	0.15%	0.61%	0.06%	18.27%		0.76%	0.25%	0.60%	0.03%	0.03%	0.05%	66.95%	54445
Bird Creek	<0.01%	0.24%	35.98%	0.00%	0.85%	30.16%	0.17%	2.51%	1.30%	0.77%	12.86%		0.03%	0.45%	14.65%		0.03%			22289
Brazil Creek		0.06%	63.32%	0.05%	1.79%			<0.01%	8.08%	0.18%	25.26%	0.52%	0.37%			<0.01%		0.37%		117566
Brushy Creek		0.30%	38.92%		0.75%	28.47%		0.03%	2.51%	0.42%	27.04%		0.56%	0.13%	<0.01%	0.85%	0.00%			94110
Butler Creek		1.25%	8.02%	0.43%	0.62%	11.76%	0.02%	0.23%	4.07%	0.78%	70.68%			0.27%	0.37%		0.05%	1.45%		24824
Camp Creek	<0.01%	0.47%	42.64%	0.03%	0.22%	37.36%		0.01%	0.51%	4.27%	11.89%		0.62%	0.47%	1.51%					17751
Canadian Sandy Creek	<0.01%	0.31%	21.90%	0.00%	0.59%	42.39%	0.05%	1.00%	0.14%	1.38%	27.25%	<0.01%	2.40%	0.65%	1.93%		0.01%			129607
Cloud Creek	<0.01%	0.11%	9.48%	0.34%	0.86%	27.59%	<0.01%	0.25%	3.18%	1.49%	50.27%	0.01%	3.09%	0.39%	1.80%	0.67%	0.01%	0.46%		98783
Coody Creek	0.05%	4.52%	2.41%	0.03%	0.71%	3.86%	8.19%	9.40%	2.85%	0.76%	62.49%	<0.01%	0.15%	0.11%	0.41%	<0.01%	3.56%	0.49%		26011
Deep Fork N. Canadian River	0.04%	4.96%	28.43%	0.01%	0.26%	30.56%	6.77%	11.81%	0.37%	2.29%	8.17%		2.13%	0.67%	2.95%	0.06%	0.50%			121173
Dirty Creek	<0.01%	0.82%	15.48%	0.67%	0.86%	8.98%	0.09%	0.74%	2.98%	1.35%	62.69%	0.03%	0.86%	0.59%	0.90%	0.03%	0.13%	2.81%		240682
Dry Creek	<0.01%	0.32%	23.92%	0.01%	1.02%	51.92%	0.01%	0.44%	0.47%	0.91%	16.35%		1.71%	0.36%	2.52%		0.01%	0.02%		111495
Elk Creek		2.64%	4.59%	0.59%	1.30%	8.64%	0.17%	3.64%	1.09%	1.53%	72.27%		<0.01%	0.05%	2.69%		0.07%	0.73%		9296
Fourche Maline Creek	<0.01%	0.15%	66.84%	0.08%	1.05%		0.03%	0.41%	11.14%	0.41%	18.07%	0.02%	0.14%			0.19%	0.01%	1.47%		170688
Gentry Creek		0.02%	10.92%	0.27%	0.73%	26.72%			3.38%	0.94%	48.20%		6.62%	0.53%	1.02%			0.64%		8135
George's Fk Dirty Creek	<0.01%	0.95%	19.20%	0.92%	0.34%	5.41%	0.25%	0.78%	2.78%	1.25%	66.02%		<0.01%	0.45%	0.25%	<0.01%	0.38%	1.01%		33449
Little Wewoka Creek		0.06%	27.04%	0.12%	0.67%	42.38%	<0.01%	0.04%	1.05%	1.74%	22.91%		0.03%	0.27%	3.69%		<0.01%			39625
Mill Creek	<0.01%	0.39%	50.27%	0.04%	0.74%	28.24%	<0.01%	0.27%	0.06%	0.51%	18.32%		0.37%	0.53%	0.26%		0.01%			42261
Peaceable Creek	0.01%	2.12%	32.72%		0.91%	28.04%	0.02%	0.65%	0.23%	1.40%	32.79%	0.04%	0.48%	0.40%	0.16%		0.03%	0.02%		85155
Polecat Creek	0.02%	0.82%	52.39%	0.01%	0.35%	23.25%	0.28%	3.76%	0.75%	1.08%	13.17%	0.04%	0.32%	0.59%	0.69%	2.38%	0.08%	0.01%		222502
Quapaw Creek	<0.01%	0.11%	23.35%	0.06%	0.12%	51.86%	0.02%	0.34%	0.42%	1.67%	12.87%		1.77%	0.26%	7.13%		0.01%	<0.01%		95521
Sallisaw Creek: Lower	<0.01%	0.08%	59.83%	0.05%	1.15%	<0.01%	0.03%	0.17%	6.10%	1.14%	28.41%	0.09%	0.93%	1.05%	0.17%	0.30%	0.11%	0.38%		115989
Sallisaw Creek: Upper	1.36%	0.83%	42.06%	0.76%	1.44%	0.56%	0.76%	2.11%	1.88%	3.62%	21.72%	10.22%	0.91%	1.50%	2.85%	4.60%	1.84%	0.98%		49
Salt Creek (Creek Co.)	<0.01%	0.58%	37.06%	0.01%	0.24%	39.36%	0.07%	0.74%	0.49%	1.89%	13.88%		1.01%	0.43%	4.23%	<0.01%	<0.01%			59319
Salt Creek (Seminole Co.)	<0.01%	0.01%	30.03%	0.02%	0.60%	45.15%	0.01%	0.21%	1.00%	1.99%	10.22%		0.94%	0.29%	9.46%		0.01%	0.06%		134932
San Bois Creek	<0.01%	0.26%	55.67%	0.13%	1.49%	1.03%	0.01%	0.13%	8.57%	0.28%	30.84%	0.62%	0.26%			0.09%	<0.01%	0.62%		187710
Shady Grove Creek		0.31%	21.62%	1.01%	0.10%	10.39%	0.10%	0.02%	0.84%	2.64%	59.35%	0.25%		2.15%	0.59%		0.06%	0.58%		9386
Snake Creek	<0.01%	0.17%	34.19%	0.11%	0.46%	25.92%	0.01%	0.59%	1.37%	0.75%	31.06%		0.63%	0.50%	0.97%	3.13%	0.02%	0.11%		104312

Site Name	Bare Rock/Sand/Clay	Commercial/Industrial/ Transportation	Deciduous Forest	Emergent Herbaceous Wetlands	Evergreen Forest	Grasslands/ Herbaceous	High Intensity Residential	Low Intensity Residential	Mixed Forest	Open Water	Pasture/Hay	Quarries/Strip Mines/Gravel Pits	Row Crops	Shrubland	Small Grains	Transitional	Urban/Recreational Grasses	Woody Wetlands	No Data	Total Acres
South Fk Dirty Creek	<0.01%	0.15%	22.29%	0.06%	1.66%	3.35%	0.03%	0.86%	3.67%	1.45%	63.82%	0.05%	0.63%	0.32%	0.49%	0.24%	0.02%	0.90%		30160
Wewoka Creek: Lower	<0.01%	0.18%	25.78%	0.02%	1.29%	31.74%	0.11%	1.46%	1.37%	2.30%	17.96%	0.02%	0.15%	0.36%	17.20%		0.05%			269113
Wewoka Creek: Upper	0.01%	0.39%	34.73%	0.01%	1.17%	29.22%	0.19%	2.37%	1.57%	2.82%	13.04%	0.05%	0.40%	0.44%	13.52%		0.10%			89814

Table 18. Permitted landuse for each Year 3 monitoring site. For the NPDES category, the total number of NPDES in the watershed is given, followed by the number of major NPDES in parentheses, if applicable.

Site Name	WBID	# Oil and Gas	# CAFO	# NPDES	# Tot. Retention	# Active Municipal Landfills	# Land Apps.	Site Name	WBID	# Oil and Gas	# CAFO	# NPDES	# Tot. Retention	# Active Municipal Landfills	# Land Apps.
Coody Creek	OK120400-01-0400F	194		1		1	7	Mill Creek	OK220600-01-0100P	113					
Dirty Creek	OK120400-02-0010F	525		6 (1M)	2		2	Brushy Creek	OK220600-03-0010J	218					
South Fk Dirty Creek	OK120400-02-0030F	41		1				Peaceable Creek	OK220600-03-0050F	218		4 (2M)			
George's Fk Dirty Ck.	OK120400-02-0110D	78						Bad Creek	OK520500-01-0170L	216					
Butler Creek	OK120400-02-0160D	54					2	Alabama Creek	OK520500-01-0200D	129					
Elk Creek	OK120400-02-0190D	8		1				Wewoka Creek: Lower	OK520500-02-0010C	4005	14	7 (1M)	2	1	1
Shady Grove Creek	OK120400-02-0240H	3						Wewoka Creek: Upper	OK520500-02-0010M	1447		5 (1M)	2	1	1
Snake Creek	OK120410-01-0220G	1637			2		22	Little Wewoka Creek	OK520500-02-0090D	547	5				
Cloud Creek	OK120410-01-0010H	1927		1			1	Canadian Sandy Creek	OK520600-03-0010D	863		2		1	1
Polecat Creek	OK120420-02-0010D	4674		6 (1M)	10		21	Gentry Creek	OK520700-01-0080L	64					
Ballard Creek	OK121700-03-0370G							Salt Creek (Creek Co.)	OK520700-03-0100B	707	1	1	1		2
Battle Creek	OK121700-06-0040G		1					Camp Creek	OK520700-03-0220G	143			1		
Brazil Creek	OK220100-03-0010G	818						Dry Creek	OK520700-04-0020F	1266		1	3		1
Fourche Maline Creek	OK220100-04-0020M	498		5		1		Quapaw Creek	OK520700-04-0260C	419		2	1		
Sallisaw Creek: Lower	OK220200-03-0010C	6	1		1			Deep Fork N. Canadian R.	OK520710-01-0010G	1158		6 (1M)	6		34
Sallisaw Creek: Upper	OK220200-03-0010G	3	1					Bird Creek	OK520800-01-0050G	318	3	1			2
San Bois Creek	OK220200-04-0010G	1753		2				Salt Creek (Seminole Co.)	OK520800-03-0010D	1862	1	1			

Table 19. Comparison of NPDES types on nutrient levels. Significant differences are indicated by p values < 0.05 (in bold, with asterisks).

Parameter	NPDES type	N	Mean	Standard Deviation	p value
Ammonia	Major	104	0.061	0.149	0.582
	Minor	220	0.052	0.117	
	Minor	220	0.052	0.117	0.209
	None	281	0.042	0.059	
TKN	Major	104	0.549	0.461	0.367
	Minor	220	0.466	0.879	
	Minor	220	0.466	0.879	**0.032*** **
	None	281	0.345	0.303	
Nitrate	Major	104	0.456	0.954	0.381
	Minor	220	0.350	1.037	
	Minor	220	0.350	1.037	0.233
	None	281	0.456	0.943	
Total Nitrogen (soluble)	Major	104	1.041	1.202	0.231
	Minor	220	0.845	1.441	
	Minor	220	0.845	1.441	0.838
	None	281	0.824	0.914	
Available Nitrogen	Major	104	0.553	0.972	0.329
	Minor	220	0.431	1.075	
	Minor	220	0.431	1.075	0.322
	None	281	0.521	0.939	
Total Phosphorous	Major	104	0.373	0.559	**0.008*** **
	Minor	220	0.224	0.418	
	Minor	220	0.224	0.418	**0.000*** **
	None	281	0.093	0.050	
Total OrthoPhosphate	Major	104	0.264	0.515	**0.016*** **
	Minor	220	0.140	0.386	
	Minor	220	0.140	0.386	**0.000*** **
	None	281	0.027	0.026	
Total Suspended Solids	Major	104	51.200	179.000	0.711
	Minor	220	44.500	134.300	
	Minor	220	44.540	134.310	**0.008*** **
	None	281	22.130	35.190	

3.4 BENEFICIAL USE SUPPORT ASSESSMENT

The beneficial uses assigned to the Rotating Basin Year 3 monitoring sites include fish and wildlife propagation: habitat limited, cold water, and warm water aquatic community, agriculture, primary body contact recreation, secondary body contact recreation, aesthetics, industry, emergency water supply, and public and private water supply. In addition, Ballard Creek is designated an Outstanding Resource Water (ORW). The beneficial uses assessed for the monitoring sites are presented below, along with the attainment status of each use (based only on OCC data submitted for the 2006 Integrated Report). The causes and potential source(s) (if known) of any impairments are presented in Appendix D.1, and the key for the cause and source codes is given in Appendix D.2.

Table 20. Beneficial use support assessment. F=supporting, N=not supporting, I=insufficient information.

OKWBID	Name	WARM WATER AQ. COMM.	COOL WATER AQ. COMM.	HABITAT LIM. AQ. COMM.	PRIMARY CONTACT (RECR)	SECONDARY CONTACT (RECR)	PUBLIC/PRIVATE WATER SUP.	AESTHETICS	AGRICULTURE	INDUSTRIAL
OK120400010400	Coody Creek	N			I		I	F	F	F
OK120400020010	Dirty Creek	N			I		I	I	F	F
OK120400020030	Dirty Creek, South Fork							I		F
OK120400020110	Dirty Creek, Georges Fork	N			I		I	F	F	F
OK120400020160	Butler Creek	N			I			F	F	F
OK120400020190	Elk Creek	N			I			F	N	N
OK120400020240	Shady Grove Creek	N			I			F	N	N
OK120410010100	Cloud Creek	N			I		I	F	F	F
OK120410010220	Snake Creek	N			I		I	F	F	F
OK120420020010	Polecat Creek				I			I		
OK121700030370	Ballard Creek	F			I			F	N	N
OK121700060040	Battle Creek (Battle Branch)				I			F	N	N
OK220100030010	Brazil Creek						I		F	F
OK220100040020	Fourche Maline Creek				I			F		
OK220200030010	Sallisaw Creek		F		I		I	I	F	F
OK220200040010	Sans Bois Creek	N			I		I	F	N	N
OK220600010100	Mill Creek						I			
OK220600030010	Brushy Creek				I		N	N		
OK220600030050	Peaceable Creek				I		I	I		
OK520500010170	Bad Creek				I			I	F	F
OK520500010200	Alabama Creek	N			I		I		F	
OK520500020010	Wewoka Creek				F					N
OK520500020090	Little Wewoka Creek				I		I	F		
OK520600030010	Canadian Sandy Creek				I		I	F	F	F
OK520700010080	Gentry Creek	N			I			F	F	F
OK520700030100	Salt Creek	N			I		I	F		
OK520700030220	Camp Creek	N			I		I	F	F	F
OK520700040020	Dry Creek				I		I	F	F	F
OK520700040260	Quapaw Creek	I			I		I	F	F	F
OK520710010010	Canadian River, Deep Fork				I		I	F	F	F
OK520800010050	Bird Creek			F		I		F	F	F
OK520800030010	Salt Creek	N			I			F		N

4.0 LITERATURE CITED

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Appendix A.1 Raw chemical and physical water quality data.

WBID	SiteName	SAMPLEID	DateActivityStart	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Available Nitrogen	Total Nitrogen	TotHardness (mg/L as CaCO3)	TotDisSolids (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OK120400-01-0400F	Coody Creek	27863	22-Jul-03	2.59	33.0	15.1	126.0	27.0	566.0	7.37	2.4	49.1	55.9	0.10	**0.02**	0.598	0.164	0.284	0.718	151.3	311	0.020	0.136	44	0.00
OK120400-01-0400F	Coody Creek	28167	26-Aug-03	3.19	39.9	23.6	117.0	26.7	467.0	8.53	3.1	37.0	51.7	0.08	**0.02**	0.517	0.059	0.159	0.617	147.7	265	0.030	0.086	31	0.00
OK120400-01-0400F	Coody Creek	28333	30-Sep-03	5.85	60.0	17.4	92.0	16.5	353.5	7.69	2.5	21.9	35.6	0.12	**0.02**	0.552	0.029	0.169	0.692	113.3	210	0.026	0.100	15	1.04
OK120400-01-0400F	Coody Creek	28478	04-Nov-03	2.11	22.5	17.7	99.0	18.6	438.5	7.76	2.1	30.5	36.7	**0.02**	**0.02**	0.502	0.017	0.057	0.542	140.3	281	0.026	0.138	14	0.97
OK120400-01-0400F	Coody Creek	28634	16-Dec-03	9.52	76.3	29.3	94.0	5.9	348.0	7.55	3.6	16.8	42.6	0.11	**0.02**	0.460	**0.015**	0.145	0.590	100.0	180	0.034	0.109	16	8.87
OK120400-01-0400F	Coody Creek	29482	21-Jan-04	12.69	93.7	58.6	46.0	2.8	309.3	7.53		13.4	43.1	0.39	**0.02**	0.827	0.081	0.491	1.237	88.6	190	0.070	0.140	24	9.57
OK120400-01-0400F	Coody Creek	29693	24-Feb-04	10.65	92.2	13.7	92.0	9.5	368.5	7.93	3.5	28.2	85.6	0.17	**0.02**	0.269	0.040	0.230	0.459	157.3	285	0.029	0.088	15	8.77
OK120400-01-0400F	Coody Creek	29832	30-Mar-04	7.85	78.1	26.2	65.0	15.1	413.8	7.63	2.6	17.0	76.7	0.27	**0.02**	1.313	0.042	0.332	1.603	130.4	268	0.031	0.107	**10**	3.04
OK120400-01-0400F	Coody Creek	30192	04-May-04	7.21	72.3	29.0	44.0	15.8	363.1	7.59	**2.0**	15.1	52.5	0.29	**0.02**	0.432	0.028	0.338	0.742	120.3	251	0.026	0.121	18	10.73
OK120400-01-0400F	Coody Creek	30417	15-Jun-04	4.22	52.8	25.0	94.0	26.7	341.3	7.53	2.1	18.1	35.7	0.34	**0.02**	0.200	0.075	0.435	0.560	114.1	221	0.047	0.155	16	2.90
OK120400-01-0400F	Coody Creek	30578	13-Jul-04	4.20	52.8	34.4	67.0	27.2	303.9	7.49	**2.0**	13.2	39.1	0.31	**0.02**	0.270	0.038	0.368	0.600	88.4	194	0.065	0.105	**10**	9.91
OK120400-01-0400F	Coody Creek	30803	17-Aug-04	5.27	61.3	12.8	68.0	22.3	350.4	7.61	**2.0**	36.7	23.0	0.19	**0.02**	0.390	**0.015**	0.225	0.600	106.0	227	0.071	0.106	19	
OK120400-01-0400F	Coody Creek	31019	21-Sep-04	4.37	51.2	6.4	119.0	22.6	395.7	7.77	**2.0**	27.9	43.8	0.15	**0.02**	**0.110**	**0.015**	0.185	0.280	131.4	221	**0.005**	0.069	**10**	
OK120400-01-0400F	Coody Creek	31241	26-Oct-04	4.13	45.3	33.2	80.0	19.9	314.4	7.70	4.7	17.1	28.9	0.07	**0.02**	0.270	**0.015**	0.105	0.360	112.3	183	0.072	0.159	48	33.57
OK120400-01-0400F	Coody Creek	31362	30-Nov-04	10.02	84.9	70.9	98.0	8.2	322.5	8.49	4.1	14.0	47.0	0.22	**0.02**	0.630	**0.015**	0.255	0.870	102.4	227	0.050	0.126	29	32.02
OK120400-01-0400F	Coody Creek	31807	10-Jan-05	11.29	94.1	35.7	43.0	7.5	356.3	8.40	**2.0**	16.3	48.0	0.38	**0.02**	**0.110**	0.047	0.447	0.510	102.8	203	0.032	0.098	13	39.27
OK120400-01-0400F	Coody Creek	31949	08-Feb-05	10.44	86.0		49.0	6.9	382.0	9.18	3.9	23.8	52.5	0.20	**0.02**	1.130	**0.015**	0.235	1.350	99.0	236	0.028	0.114	**10**	42.58
OK120400-01-0400F	Coody Creek	32097	15-Mar-05	8.32	74.5	8.4	61.0	10.4	7.0		2.3	110.8	97.5	0.05	**0.02**	0.120	**0.015**	0.085	0.190	212.5	482	0.007	0.056	10	14.22
OK120400-01-0400F	Coody Creek	32277	19-Apr-05	5.77	62.3	19.7	68.0	19.1	419.2	7.41	**2.0**	30.6	61.6	0.05	**0.02**	**0.110**	0.027	0.097	0.180	140.0	259	0.016	0.039	**10**	8.76
OK120400-01-0400F	Coody Creek	32649	25-May-05	2.43	28.3		161.0	22.3	507.0	7.33	**2.0**	50.2	34.4	0.23	**0.02**	0.430	0.166	0.416	0.680	137.3	256	0.036	0.064	11	6.31
OK120400-02-0010F	Dirty Creek	27879	22-Jul-03	2.81	41.1	19.7	69.0	29.9	317.0	7.16	2.6	23.7	38.5	0.07	**0.02**	**0.110**	0.163	0.253	0.200	97.9	173	0.021	0.116	17	0.00
OK120400-02-0010F	Dirty Creek	28180	26-Aug-03	3.71	50.9	15.4	108.0	32.4	407.6		**2.0**	43.1	39.4	0.09	0.08	0.352	0.055	0.225	0.522	117.2	241	0.014	0.085	22	0.00
OK120400-02-0010F	Dirty Creek	28313	29-Sep-03	3.41	38.9	59.8	40.3	21.8	217.1	6.86	4.3	15.2	21.3	0.20	**0.02**	0.592	0.027	0.247	0.812	71.4	136	0.056	0.181	53	
OK120400-02-0010F	Dirty Creek	28465	04-Nov-03	1.31	13.8	75.8	380.0	18.6	1982.0	6.77	2.3	12.3	21.6	0.15	0.07	0.621	0.247	0.467	0.841	68.1	146	0.068	0.203	41	
OK120400-02-0010F	Dirty Creek	28618	15-Dec-03	4.99	41.2	53.9	65.0	7.7	262.5	7.08	3.6	16.1	36.3	0.36	**0.02**	0.617	0.160	0.540	0.997	81.1	158	0.065	0.152	19	
OK120400-02-0010F	Dirty Creek	29461	20-Jan-04	10.01	79.4	104.0	39.0	5.5	164.5	7.15		5.8	24.6	0.50	**0.02**	0.924	0.085	0.605	1.444	44.4	134	0.081	0.183	53	
OK120400-02-0010F	Dirty Creek	29664	23-Feb-04	8.92	78.1	51.2	20.3	9.6	279.6	7.13	4.6	16.1	50.1	0.51	**0.02**	0.608	0.122	0.652	1.138	78.9	130	0.066	0.152	31	
OK120400-02-0010F	Dirty Creek	30040	05-Apr-04	7.73	91.3	32.4	49.0		253.5	7.50	3.6	13.7	45.5	0.17	**0.02**	0.602	0.052	0.242	0.792	81.2	180	0.048	0.114	29	
OK120400-02-0010F	Dirty Creek	30217	11-May-04	6.95	84.5	12.8	41.0	25.4	289.5	6.98	2.6	16.7	52.1	0.26	0.07	**0.110**	0.043	0.373	0.440	91.7	133	0.008	0.080	**10**	
OK120400-02-0010F	Dirty Creek	30430	15-Jun-04	8.87	89.0	32.4	65.0	29.8	370.7	6.87	6.1	44.4	40.8	0.22	**0.02**	0.410	0.021	0.261	0.650	102.5	247	0.023	0.129	**10**	
OK120400-02-0010F	Dirty Creek	30594	19-Jul-04	7.73	106.9	16.1	63.0	28.9	244.9	6.82	4.9	17.0	32.8	0.06	**0.02**	0.480	**0.015**	0.095	0.560	78.7	101	0.047	0.130	**10**	
OK120400-02-0010F	Dirty Creek	30823	23-Aug-04	5.57	71.5		57.0	28.1	258.9	7.37	**2.0**	16.9	26.4	0.07	**0.02**	**0.110**	**0.015**	0.105	0.200	86.0	162	0.023	0.100	16	
OK120400-02-0010F	Dirty Creek	31081	28-Sep-04	5.40	65.5	11.7	62.0	25.1	340.0	6.35	2.1	28.3	28.0	**0.02**	0.05	**0.110**	0.035	0.105	0.180	105.5	195	0.027	0.068	**10**	
OK120400-02-0010F	Dirty Creek	31295	03-Nov-04	5.11	51.6	80.8	24.0	15.7	60.2	6.63	2.2	1.6	6.3	0.17	**0.02**	0.460	**0.015**	0.205	0.650	20.6	84	0.107	0.183	**10**	
OK120400-02-0010F	Dirty Creek	31409	06-Dec-04	10.68	88.1	40.4	57.0	7.0	222.0	7.60	2.2	12.4	41.2	0.24	**0.02**	0.390	0.024	0.284	0.650	70.5	151	0.048	0.099	24	
OK120400-02-0010F	Dirty Creek	31415	08-Dec-04	8.71	77.9	205.0	31.0	10.4	126.9	6.95	5.3	4.8	22.3	0.25	**0.02**	0.470	0.020	0.290	0.740	39.1	158	0.138	0.279	151	2093.45
OK120400-02-0010F	Dirty Creek	31723	04-Jan-05	7.68	71.6	190.0	25.0	12.2	103.8	6.75		4.5	14.7	0.28	**0.02**	**0.110**	0.031	0.331	0.410	32.9	97	0.096	0.204	113	
OK120400-02-0010F	Dirty Creek	31959	14-Feb-05	11.50	102.2	36.9	40.0	10.1	239.3	7.26	2.1	12.3	48.0	0.26	**0.02**	0.420	**0.015**	0.295	0.700	74.3	128	0.024	0.116	30	
OK120400-02-0010F	Dirty Creek	32081	14-Mar-05	9.18	98.4	11.0	58.0	14.6	388.9	7.60	3.4	28.4	72.9	0.10	**0.02**	0.190	0.048	0.168	0.310	117.7	220	0.020	0.065	**10**	
OK120400-02-0010F	Dirty Creek	32254	18-Apr-05	5.90	64.1	39.6	56.0	19.9	297.3	6.95	**2.0**	16.3	49.3	0.25	**0.02**	**0.110**	0.082	0.352	0.380	92.0	161	0.023	0.057	**10**	
OK120400-02-0010F	Dirty Creek	32633	24-May-05	5.02		18.8	88.0	26.4	466.8	7.08	3.0	48.2	58.9	0.07	**0.02**	0.260	0.058	0.148	0.350	133.0	266	0.013	0.146	23	
OK120400-02-0030F	South Fork of Dirty Creek	27865	22-Jul-03	2.52	32.2	12.6	101.0	27.7	523.0	7.69	2.5	5.7	122.7	0.05	**0.02**	0.540	0.180	0.250	0.610	176.4	318	0.008	0.066	13	0.00
OK120400-02-0030F	South Fork of Dirty Creek	28169	26-Aug-03	4.03	50.5	13.3	119.0	27.6	546.0	7.89	2.7	5.8	109.9	0.08	**0.02**	0.451	0.058	0.158	0.551	181.6	227	0.011	0.063	28	0.00
OK120400-02-0030F	South Fork of Dirty Creek	28335	30-Sep-03	2.72	28.2	3.2	99.0	17.5	473.9	7.59	2.9	4.1	106.3	**0.02**	**0.02**	0.458	0.019	0.059	0.498	163.2	283	**0.005**	0.005	**10**	

Appendix A.1 Raw chemical and physical water quality data.

WBID	SiteName	SAMPLEID	DateActivityStart	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Available Nitrogen	Total Nitrogen	TotHardness (mg/L as CaCO3)	TotDisSolids (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OK120400-02-0030F	South Fork of Dirty Creek	28480	04-Nov-03	3.03	30.2	8.8	97.0	17.6	403.6	7.88		4.9	72.9	**0.02**	**0.02**	1.075	0.015	0.055	1.115	180.6	360	0.037	0.172	19	
OK120400-02-0030F	South Fork of Dirty Creek	28632	16-Dec-03	8.70	70.4	11.1	141.0	6.1	578.0	7.56	3.1	7.0	117.0	**0.02**	**0.02**	0.246	**0.015**	0.055	0.286	170.5	280	0.010	0.060	**10**	
OK120400-02-0030F	South Fork of Dirty Creek	29484	21-Jan-04	11.17	83.6	45.9	38.0	3.4	265.1	7.38		6.1	49.0	0.42	**0.02**	0.826	0.036	0.476	1.266	77.1	162	0.055	0.130	15	9.75
OK120400-02-0030F	South Fork of Dirty Creek	29691	24-Feb-04	8.06	71.3	17.9	43.0	9.9	213.9	7.56	4.1	6.6	49.0	0.17	**0.02**	0.208	0.050	0.240	0.398	81.5	127	0.021	0.085	15	3.19
OK120400-02-0030F	South Fork of Dirty Creek	29830	30-Mar-04	6.81	70.1	20.4	87.0	16.9	315.0	7.74	3.4	6.7	61.1	0.32	0.07	0.827	0.066	0.456	1.217	104.7	158	0.027	0.096	19	
OK120400-02-0030F	South Fork of Dirty Creek	30190	04-May-04	6.57	67.4	49.1	49.0	16.9	247.4	7.60	**2.0**	6.8	49.5	0.16	**0.02**	0.189	0.042	0.222	0.369	86.6	161	0.015	0.101	10	19.41
OK120400-02-0030F	South Fork of Dirty Creek	30415	15-Jun-04	2.41	30.0	8.8	90.0	26.4	658.0	7.62	2.5	7.9	158.8	0.15	**0.02**	**0.110**	0.075	0.245	0.280	231.2	394	0.070	0.072	**10**	
OK120400-02-0030F	South Fork of Dirty Creek	30576	13-Jul-04	3.66	45.8	12.7	66.0	27.3	286.6	7.74	**2.0**	6.2	52.9	0.11	**0.02**	**0.110**	0.041	0.171	0.240	99.5	174	0.057	0.101	**10**	
OK120400-02-0030F	South Fork of Dirty Creek	30801	17-Aug-04	4.45	51.8	6.5	82.0	23.0	358.1	7.82	**2.0**	5.3	70.8	0.07	**0.02**	0.340	**0.015**	0.105	0.430	126.1	229	0.041	0.077	**10**	
OK120400-02-0030F	South Fork of Dirty Creek	31017	21-Sep-04	3.53	38.6	10.5	127.0	20.0	512.0	8.07	2.2	7.2	99.2	0.06	**0.02**	0.340	**0.015**	0.095	0.420	185.1	302	0.012	0.090	36	
OK120400-02-0030F	South Fork of Dirty Creek	31239	26-Oct-04	1.64	18.5	6.0	125.0	20.0	270.3	7.99	5.2	5.7	34.5	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	115.5	183	0.012	0.057	**10**	
OK120400-02-0030F	South Fork of Dirty Creek	31360	30-Nov-04	8.26	70.5	24.9	69.0	8.7	2445.0	8.62	3.9	5.4	35.8	0.19	**0.02**	0.330	**0.015**	0.225	0.540	65.2	133	0.012	0.069	**10**	20.47
OK120400-02-0030F	South Fork of Dirty Creek	31717	04-Jan-05			392.0	40.0	9.8	89.8	9.36	6.4	2.7	9.2	0.34	**0.02**	**0.110**	0.056	0.416	0.470	23.9	83	0.111	0.197	423	2370.95
OK120400-02-0030F	South Fork of Dirty Creek	31947	08-Feb-05	9.67	81.0		43.0	7.6	229.8	8.43	4.1	5.6	42.0	0.26	**0.02**	0.950	**0.015**	0.295	1.230	62.4	160	0.027	0.123	10	59.04
OK120400-02-0030F	South Fork of Dirty Creek	32095	15-Mar-05	7.31	66.3	5.7	79.0	10.6	346.1		2.7	8.3	104.8	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	162.8	290	**0.005**	0.041	**10**	
OK120400-02-0030F	South Fork of Dirty Creek	32275	19-Apr-05	5.04	55.2	8.8	60.0	19.9	306.8	7.27	**2.0**	6.5	57.4	0.05	**0.02**	**0.110**	0.027	0.097	0.180	99.2	147	0.007	0.017	**10**	
OK120400-02-0030F	South Fork of Dirty Creek	32647	25-May-05	4.41	50.7		163.0	22.2	806.0	7.48	4.6	8.1	216.0	0.30	**0.02**	0.370	**0.015**	0.335	0.690	305.3	484	0.038	0.065	51	
OK120400-02-0110D	George's Fork of Dirty Creek	27864	22-Jul-03	2.33	33.1	33.7	108.0	26.4	289.1	7.93	2.7	16.9	20.5	0.06	**0.02**	0.652	0.210	0.290	0.732	82.5	175	0.017	0.107	18	0.00
OK120400-02-0110D	George's Fork of Dirty Creek	28168	26-Aug-03	4.42	66.4	19.9	99.0	26.8	317.4	7.95	2.8	18.5	12.1	**0.02**	**0.02**	1.051	0.093	0.133	1.091	94.6	92	0.019	0.093	10	0.00
OK120400-02-0110D	George's Fork of Dirty Creek	28334	30-Sep-03	2.05	21.1	20.6	95.0	16.8	316.3	7.78	3.1	18.9	24.4	0.06	**0.02**	0.939	0.077	0.157	1.019	97.1	203	0.021	0.115	22	
OK120400-02-0110D	George's Fork of Dirty Creek	28479	04-Nov-03	2.03	25.3	9.3	96.0	18.8	398.1	7.60	2.5	27.4	38.4	**0.02**	**0.02**	0.637	0.037	0.077	0.677	112.7	255	0.006	0.098	37	
OK120400-02-0110D	George's Fork of Dirty Creek	28633	16-Dec-03	7.74	61.4	19.7	101.0	5.5	295.2	7.69	3.5	15.2	41.0	0.02	**0.02**	0.679	0.030	0.070	0.719	114.6	133	0.033	0.133	14	0.13
OK120400-02-0110D	George's Fork of Dirty Creek	29483	21-Jan-04	12.24	91.2	44.6	42.0	3.0	167.1	7.40		6.7	22.5	0.44	**0.02**	0.863	0.082	0.542	1.323	42.6	117	0.050	0.144	20	15.60
OK120400-02-0110D	George's Fork of Dirty Creek	29692	24-Feb-04	9.73	86.4	29.6	39.0	10.1	184.5	7.55	4.1	12.7	45.4	0.26	**0.02**	0.318	0.038	0.318	0.598	67.7	128	0.031	0.104	20	8.11
OK120400-02-0110D	George's Fork of Dirty Creek	29831	30-Mar-04	6.54	65.6	45.7	41.0	15.3	198.8	7.59	3.2	8.4	28.5	0.23	**0.02**	0.986	0.064	0.314	1.236	58.7	126	0.039	0.140	36	5.92
OK120400-02-0110D	George's Fork of Dirty Creek	30191	04-May-04	7.50	76.9	33.0	37.0	16.6	167.3	7.50	2.2	7.1	23.8	0.17	**0.02**	0.391	0.031	0.221	0.581	51.0	125	0.025	0.126	24	7.41
OK120400-02-0110D	George's Fork of Dirty Creek	30416	15-Jun-04	2.94	33.7	37.9		25.7	251.5	7.37	2.8	14.1	27.3	0.20	**0.02**	0.380	0.151	0.371	0.600	76.2	164	0.030	0.158	23	1.83
OK120400-02-0110D	George's Fork of Dirty Creek	30577	13-Jul-04	2.71	34.3	35.9	81.0	27.5	193.9	7.76	**2.0**	8.6	22.3	0.19	**0.02**	0.340	0.066	0.276	0.550	58.5	133	0.080	0.127	23	8.54
OK120400-02-0110D	George's Fork of Dirty Creek	30802	17-Aug-04	2.59	29.7	53.6	80.0	21.9	273.8	7.31	3.3	13.5	32.1	0.18	**0.02**	0.098	**0.015**	0.215	0.298	83.3	223	0.062	0.149	66	0.10
OK120400-02-0110D	George's Fork of Dirty Creek	31018	21-Sep-04	0.85	9.6	13.0	107.0	21.4	356.7	7.73	2.0	27.5	33.6	0.04	**0.02**	0.540	**0.015**	0.075	0.600	102.4	216	0.014	0.108	10	
OK120400-02-0110D	George's Fork of Dirty Creek	31240	26-Oct-04	1.21	10.4	5.4	124.0	19.0	341.8	7.69	**2.0**	28.0	29.4	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	101.9	223	0.014	0.072	**10**	
OK120400-02-0110D	George's Fork of Dirty Creek	31361	30-Nov-04	9.18	78.6	44.6	34.0	8.4	181.7	8.71	3.6	7.2	26.2	0.23	**0.02**	0.690	**0.015**	0.265	0.940	52.1	145	0.033	0.104	**10**	16.92
OK120400-02-0110D	George's Fork of Dirty Creek	31718	04-Jan-05			399.0	43.0	9.4	94.2	9.21	7.0	3.1	8.4	0.27	**0.02**	0.200	0.074	0.364	0.490	21.2	134	0.131	0.203	420	4410.04
OK120400-02-0110D	George's Fork of Dirty Creek	31948	08-Feb-05	10.28	85.7		47.0	7.4	215.9	8.29	4.4	7.2	37.0	0.27	**0.02**	1.180	0.015	0.305	1.470	56.6	159	0.026	0.156	15	78.87
OK120400-02-0110D	George's Fork of Dirty Creek	32096	15-Mar-05	9.52	86.2	6.5	59.0	10.9	242.5		3.2	15.8	60.9	0.09	**0.02**	**0.110**	**0.015**	0.125	0.220	90.4	193	0.007	0.077	**10**	6.60
OK120400-02-0110D	George's Fork of Dirty Creek	32276	19-Apr-05	6.28	60.1	28.0	40.0	19.3	263.3	7.15	**2.0**	11.7	41.1	0.07	**0.02**	**0.110**	0.034	0.124	0.200	70.1	132	0.007	0.071	22	9.70
OK120400-02-0110D	George's Fork of Dirty Creek	32648	25-May-05	4.37	50.6		94.0	22.6	229.5	7.37	5.1	11.4	33.7	0.34	**0.02**	0.290	**0.015**	0.375	0.650	65.9	133	0.006	0.199	96	31.64
OK120400-02-0160D	Butler Creek	28166	25-Aug-03	5.41	69.4	19.3	109.0	30.1	309.6	8.16	3.8	3.9	12.9	0.09	0.12	0.816	0.110	0.320	1.026	116.6	23	0.015	0.084	52	0.00
OK120400-02-0160D	Butler Creek	28332	29-Sep-03	4.69	43.9	31.6	91.0	15.3	243.1	7.59	2.6	13.2	29.4	0.08	**0.02**	0.674	0.042	0.142	0.774	117.2	151	0.014	0.104	47	1.67
OK120400-02-0160D	Butler Creek	28477	03-Nov-03	0.83	9.3	13.8	84.0	19.8	253.2	7.28	3.8	13.1	12.8	**0.02**	**0.02**	0.756	0.027	0.067	0.796	77.3	76	0.031	0.125	**10**	
OK120400-02-0160D	Butler Creek	28630	15-Dec-03	8.11	71.5	39.9	93.0	9.2	245.5	6.99	3.1	15.8	29.9	0.03	**0.02**	0.499	0.016	0.066	0.549	68.9	155	0.045	0.136	14	2.43
OK120400-02-0160D	Butler Creek	29485	21-Jan-04	11.75	88.5	52.8	44.0	3.4	211.3	7.26		6.8	42.8	0.30	**0.02**	0.535	0.052	0.372	0.855	54.4	147	0.042	0.086	30	4.98
OK120400-02-0160D	Butler Creek	29689	23-Feb-04	9.45	84.1	21.3	36.0	10.8	248.1	7.45	6.4	13.2	87.9	0.04	**0.02**	0.274	0.048	0.108	0.334	98.6	187	0.032	0.081	**10**	1.03
OK120400-02-0160D	Butler Creek	29828	29-Mar-04	7.30	76.4	66.8	48.0	16.8	357.2	7.61	3.1	10.6	98.1	0.20	**0.02**	**0.110**	0.064	0.284	0.330	114.5	218	0.046	0.132	59	9.82

Appendix A.1 Raw chemical and physical water quality data.

WBID	SiteName	SAMPLEID	DateActivityStart	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Available Nitrogen	Total Nitrogen	TotHardness (mg/L as CaCO3)	TotDisSolids (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OK120400-02-0160D	Butler Creek	30188	03-May-04	7.41	75.2	26.6	71.0	16.0	303.9	7.73	**2.0**	13.9	62.9	0.16	**0.02**	0.382	0.061	0.241	0.562	93.7	221	0.026	0.105	20	7.32
OK120400-02-0160D	Butler Creek	30413	14-Jun-04	2.65	33.7	33.9	71.0	27.3	250.9	7.48	2.3	13.6	42.6	0.29	0.12	0.570	0.185	0.595	0.980	74.1	172	0.059	0.176	13	1.48
OK120400-02-0160D	Butler Creek	30574	12-Jul-04	3.83	49.5	37.2	77.0	28.6	283.1	7.66	**2.0**	21.8	46.1	0.23	**0.02**	0.270	0.054	0.304	0.520	84.3	209	0.061	0.098	31	2.55
OK120400-02-0160D	Butler Creek	30799	16-Aug-04	4.02	46.1	21.5	78.0	22.7	676.0	7.44	**2.0**	138.1	22.8	0.07	**0.02**	0.720	**0.015**	0.105	0.810	110.4	392	0.051	0.077	22	
OK120400-02-0160D	Butler Creek	31015	20-Sep-04	2.09	24.8	9.2	88.0	23.3	643.0	7.68	**2.0**	123.6	8.1	**0.02**	**0.02**	0.580	**0.015**	0.055	0.620	118.5	340	0.014	0.072	10	
OK120400-02-0160D	Butler Creek	31237	25-Oct-04	2.83	30.4	3.3	99.0	18.8	487.0	8.16	2.1	101.2	7.4	0.04	**0.02**	**0.110**	**0.015**	0.075	0.170	109.6	310	0.013	0.069	**10**	
OK120400-02-0160D	Butler Creek	31358	29-Nov-04	8.43	73.4	39.2	43.0	9.3	229.7	8.43	3.5	12.4	42.8	0.18	**0.02**	0.550	**0.015**	0.215	0.750	63.3	172	0.021	0.098	14	13.98
OK120400-02-0160D	Butler Creek	31806	10-Jan-05	10.04	83.5	39.4	43.0	7.3	272.2	9.08	**2.0**	14.1	50.4	0.33	**0.02**	**0.110**	0.036	0.386	0.460	65.5	163	0.016	0.058	**10**	23.98
OK120400-02-0160D	Butler Creek	31945	07-Feb-05	10.08	86.2		33.0	8.1	234.2	8.39	4.6	6.4	48.5	0.15	**0.02**	0.510	**0.050**	0.220	0.680	60.1	170	0.025	0.149	27	28.86
OK120400-02-0160D	Butler Creek	32093	14-Mar-05	10.03	94.3	14.0	43.0	12.6	421.4		2.0	44.4	111.6	0.05	**0.02**	**0.110**	**0.015**	0.085	0.180	146.7	312	0.008	0.054	11	1.59
OK120400-02-0160D	Butler Creek	32273	18-Apr-05	6.67	73.6	17.2		20.6	424.4	7.18	**2.0**	34.5	73.1	0.05	**0.02**	**0.110**	**0.015**	0.085	0.180	111.2	238	0.006	0.044	**10**	1.62
OK120400-02-0160D	Butler Creek	32645	24-May-05	4.56	55.6		100.0	26.5	789.0	6.99	2.6	107.8	101.7	0.05	**0.02**	0.380	**0.015**	0.085	0.450	160.9	394	0.008	0.023	18	
OK120400-02-0190D	Elk Creek	27862	21-Jul-03	2.59	36.5	20.5	76.0	29.7	247.0	7.53	3.3	11.7	13.4	0.04	**0.02**	0.630	0.233	0.293	0.690	126.5	152	0.031	0.165	16	0.00
OK120400-02-0190D	Elk Creek	28165	25-Aug-03	5.46	71.0	51.2	146.0	30.6	282.1	8.10	3.6	13.8	3.6	**0.02**	0.15	1.068	0.195	0.365	1.238	98.7	214	0.023	0.123	79	0.00
OK120400-02-0190D	Elk Creek	28336	30-Sep-03	3.99	41.0	19.8	116.0	16.8	639.0	7.68	4.0	71.8	58.5	**0.02**	**0.02**	0.684	**0.015**	0.055	0.724	148.8	337	0.057	0.169	33	0.21
OK120400-02-0190D	Elk Creek	28476	03-Nov-03	4.81	61.5	36.7	88.0	21.6	350.0	8.78		7.8	9.1	**0.02**	**0.02**	1.879	0.036	0.076	1.919	183.7	170	0.469	0.612	68	3.96
OK120400-02-0190D	Elk Creek	28629	15-Dec-03	7.08	60.1	18.7	88.0	8.8	240.4	7.55	3.4	11.9	23.3	**0.02**	**0.02**	0.486	0.023	0.063	0.526	207.7	143	0.043	0.134	16	4.50
OK120400-02-0190D	Elk Creek	29480	20-Jan-04	9.70	74.0	40.1	75.0	4.0	332.0	6.94		7.6	92.5	0.80	**0.02**	0.803	0.052	0.872	1.623	107.7	183	0.073	0.161	53	43.86
OK120400-02-0190D	Elk Creek	29688	23-Feb-04	11.77	105.9	195.0	27.0	10.7	391.3	7.37	7.3	17.0	168.9	0.73	**0.02**	0.120	0.030	0.780	0.870	192.5	304	0.057	0.105	11	3.52
OK120400-02-0190D	Elk Creek	29827	29-Mar-04	7.43	76.1	32.7	64.0	16.9	500.0	7.59	3.8	16.3	148.7	0.22	**0.02**	0.517	0.062	0.302	0.757	186.6	338	0.131	0.205	17	12.45
OK120400-02-0190D	Elk Creek	30187	03-May-04	6.57	67.5	30.4	66.0	16.6	296.5	8.02	2.6	9.1	77.6	0.29	**0.02**	0.611	0.055	0.365	0.921	110.6	205	0.056	0.155	30	27.67
OK120400-02-0190D	Elk Creek	30412	14-Jun-04	4.30	43.3	43.1	63.0	26.8	419.0	7.61	2.4	14.9	111.0	0.57	0.12	0.450	0.160	0.850	1.140	156.7	260	0.250	0.410	56	10.10
OK120400-02-0190D	Elk Creek	30572	12-Jul-04	5.15	66.4	12.4	64.0	28.8	508.0	7.66	3.2	10.9	178.0	0.36	**0.02**	0.250	0.029	0.409	0.630	209.1	364	0.067	0.112	**10**	13.94
OK120400-02-0190D	Elk Creek	30798	16-Aug-04	7.90	91.8	132.0	71.0	22.7	708.0	7.43	**2.0**	43.3	172.5	0.33	**0.02**	0.330	**0.015**	0.365	0.680	232.0	451	0.075	0.128	16	7.26
OK120400-02-0190D	Elk Creek	31014	20-Sep-04	5.16	60.8	8.7		22.9	806.0	7.81	**2.0**	32.1	252.1	**0.02**	**0.02**	0.300	**0.015**	0.055	0.340	321.3	528	0.010	0.061	**10**	
OK120400-02-0190D	Elk Creek	31236	25-Oct-04	8.13	89.9	6.5	106.0	20.4	470.0	8.17	**2.0**	51.4	50.1	0.20	**0.02**	**0.110**	**0.015**	0.235	0.330	144.0	256	0.153	0.211	18	4.81
OK120400-02-0190D	Elk Creek	31357	29-Nov-04	8.66	76.2	30.2	37.0	9.6	326.8	7.17	4.4	9.1	91.4	0.43	**0.02**	0.510	**0.015**	0.465	0.960	114.1	146	0.051	0.132	10	69.12
OK120400-02-0190D	Elk Creek	31716	03-Jan-05			146.0	52.0	14.1	142.6	8.32	9.2	5.5	17.9	0.35	0.05	**0.110**	0.084	0.484	0.510	33.9	104	0.157	0.262	113	732.18
OK120400-02-0190D	Elk Creek	31944	07-Feb-05	9.45	81.1		49.0	8.7	242.8	8.18	4.9	7.8	49.5	0.30	**0.02**	0.850	**0.015**	0.335	1.170	68.9	175	0.026	0.181	73	109.10
OK120400-02-0190D	Elk Creek	32092	14-Mar-05	9.84	94.6	4.9	69.0	13.5	639.0		2.1	19.5	269.5	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	288.6	462	0.016	0.065	**10**	3.33
OK120400-02-0190D	Elk Creek	32272	18-Apr-05	8.19	91.6	14.3		21.0	503.0	7.68	**2.0**	14.0	148.1	0.06	**0.02**	**0.110**	0.027	0.107	0.190	61.2	295	0.019	0.051	**10**	8.70
OK120400-02-0190D	Elk Creek	32644	24-May-05	5.29	64.7		82.0	25.9	934.0	6.82	**2.0**	34.2	361.8	0.11	**0.02**	0.390	**0.015**	0.145	0.520	346.2	592	0.012	0.027	19	
OK120400-02-0240H	Shady Grove Creek	27861	21-Jul-03	6.06	77.2	213.0	47.0	30.9	2031.0	6.93	2.1	14.0	1228.3	0.04	**0.02**	1.089	0.284	0.344	1.149	1251.1	1993	0.007	0.090	24	0.00
OK120400-02-0240H	Shady Grove Creek	28331	29-Sep-03	4.95	52.7	18.7	94.0	18.6	1470.0	7.48	**2.0**	10.6	762.7	0.07	**0.02**	0.262	0.085	0.175	0.352	683.0	1176	**0.005**	0.059	**10**	
OK120400-02-0240H	Shady Grove Creek	28475	03-Nov-03	6.18	66.7	17.7	13.0	19.2	220.5	8.59	**2.0**	11.4	1442.4	**0.02**	**0.02**	0.126	0.021	0.061	0.166	1267.1	2008	**0.005**	0.051	17	
OK120400-02-0240H	Shady Grove Creek	28628	15-Dec-03	8.05	66.3	11.5	29.0	7.1	1317.0	6.29	2.5	11.0	479.0	0.50	**0.02**	0.214	0.255	0.775	0.734	606.8	970	0.019	0.057	25	
OK120400-02-0240H	Shady Grove Creek	29479	20-Jan-04	11.35	85.3	28.1	74.0	3.0	388.7	6.75		6.3	120.7	1.27	**0.02**	0.506	0.059	1.349	1.796	130.9	251	0.020	0.075	10	15.02
OK120400-02-0240H	Shady Grove Creek	29687	23-Feb-04	7.99	72.0	3.5	22.0	10.6	478.0	6.88	4.9	10.6	258.8	0.92	**0.02**	**0.110**	0.124	1.064	1.050	273.5	422	0.019	0.075	**10**	2.81
OK120400-02-0240H	Shady Grove Creek	29826	29-Mar-04	9.03	89.1	31.1	50.0	15.1	375.5	7.41	2.6	7.3	125.6	0.24	**0.02**	0.406	0.038	0.298	0.666	150.5	265	0.023	0.095	23	6.23
OK120400-02-0240H	Shady Grove Creek	30186	03-May-04	7.73	76.8	24.9	38.0	14.9	417.9	7.62	**2.0**	6.1	150.5	0.35	**0.02**	0.436	0.062	0.432	0.806	174.3	285	0.018	0.096	22	22.63
OK120400-02-0240H	Shady Grove Creek	30411	14-Jun-04	5.32	63.6	238.0	83.0	26.9	834.0	7.49	2.9	7.3	372.0	0.48	0.11	0.160	0.240	0.830	0.750	379.9	638	0.027	0.155	11	2.77
OK120400-02-0240H	Shady Grove Creek	30573	12-Jul-04	6.24	78.1	19.5	55.0	26.7	700.1	7.33	**2.0**	7.7	284.8	0.31	**0.02**	**0.110**	0.092	0.422	0.440	314.4	538	0.045	0.053	**10**	2.03
OK120400-02-0240H	Shady Grove Creek	30797	16-Aug-04	5.21	60.7	12.2	40.0	22.8	837.0	7.14	**2.0**	10.6	345.4	0.38	**0.02**	0.210	**0.015**	0.415	0.610	369.6	638	0.049	0.061	**10**	
OK120400-02-0240H	Shady Grove Creek	31013	20-Sep-04	5.55	66.3	8.9	52.0	24.4	1696.0	7.58	2.7	12.2	943.5	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	960.8	1459	**0.005**	0.066	**10**	

Appendix A.1 Raw chemical and physical water quality data.

WBID	SiteName	SAMPLEID	DateActivityStart	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Available Nitrogen	Total Nitrogen	TotHardness (mg/L as CaCO3)	TotDisSolids (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OK120400-02-0240H	Shady Grove Creek	31235	25-Oct-04	4.05	43.0	15.3	28.0	19.2	1815.0	7.54	2.1	12.0	1185.9	**0.02**	**0.02**	**0.110**	0.094	0.134	0.150	1148.9	1793	0.008	0.044	**10**	
OK120400-02-0240H	Shady Grove Creek	31356	29-Nov-04	9.30	81.7	13.8	47.0	9.6	535.0	8.16	4.4	7.7	204.7	0.58	**0.02**	0.180	**0.015**	0.615	0.780	210.0	163	0.011	0.055	22	9.73
OK120400-02-0240H	Shady Grove Creek	31715	03-Jan-05			291.0	23.0	14.0	198.6	8.52	7.3	4.2	48.4	0.44	**0.02**	**0.110**	0.085	0.545	0.570	61.9	132	0.093	0.162	417	
OK120400-02-0240H	Shady Grove Creek	31943	07-Feb-05	10.28	88.9		31.0	8.6	363.1	8.43	4.3	6.2	109.1	0.43	**0.02**	0.910	**0.015**	0.465	1.360	127.7	243	0.022	0.096	13	18.74
OK120400-02-0240H	Shady Grove Creek	32091	14-Mar-05	10.51	95.9	8.7	77.0	11.2	879.0		2.1	9.1	524.3	0.20	**0.02**	**0.110**	0.103	0.323	0.330	494.5	801	**0.005**	0.037	**10**	1.28
OK120400-02-0240H	Shady Grove Creek	32271	18-Apr-05	8.69	93.9	4.8	79.0	19.1	785.0	6.53	**2.0**	7.3	306.9	0.17	**0.02**	**0.110**	0.078	0.268	0.300	329.7	510	**0.005**	0.012	**10**	3.37
OK120400-02-0240H	Shady Grove Creek	32643	24-May-05	5.36	64.5		32.0	24.7	1796.0	5.30	**2.0**	11.1	880.2	0.09	**0.02**	0.130	0.154	0.264	0.240	1022.7	1536	**0.005**	**0.005**	**10**	0.55
OK120410-01-0220G	Snake Creek	27858	21-Jul-03	3.95	49.6	36.3	110.0	26.6	768.0	8.06	**2.0**	103.4	87.5	0.08	**0.02**	0.373	0.140	0.240	0.473	199.3	437	0.014	0.104	11	0.00
OK120410-01-0220G	Snake Creek	28161	25-Aug-03	5.27	64.6	37.7	134.0	25.8	622.0	8.48	2.1	27.0	113.3	**0.02**	**0.02**	0.484	0.084	0.124	0.524	202.5	323	0.017	0.089	30	0.00
OK120410-01-0220G	Snake Creek	28328	30-Sep-03	8.25	82.2	63.7	93.0	16.0	276.4	7.99	2.7	22.7	14.1	0.08	**0.02**	0.663	0.026	0.126	0.763	93.6	161	0.023	0.120	89	1.06
OK120410-01-0220G	Snake Creek	28472	03-Nov-03	5.42	57.9	6.6	99.0	18.2	369.1	7.88	2.3	29.8	19.4	**0.02**	**0.02**	0.203	**0.015**	0.055	0.243	129.3	215	0.016	0.099	55	1.32
OK120410-01-0220G	Snake Creek	28625	15-Dec-03	12.98	99.9	49.9	74.0	4.3	464.1	5.45	3.1	68.3	24.0	0.06	**0.02**	0.208	0.021	0.101	0.288	124.3	269	0.028	0.107	17	23.84
OK120410-01-0220G	Snake Creek	29476	20-Jan-04	12.50	92.6	112.0	56.0	2.8	253.6	7.42		24.6	19.2	0.14	**0.02**	0.643	0.033	0.193	0.803	61.6	198	0.047	0.139	16	28.48
OK120410-01-0220G	Snake Creek	29684	23-Feb-04	10.61	93.1	21.4	60.0	9.6	388.5	8.01	3.1	85.0	36.3	**0.02**	**0.02**	**0.110**	0.026	0.066	0.150	126.8	283	0.057	0.076	21	6.08
OK120410-01-0220G	Snake Creek	29823	29-Mar-04	8.13	80.5	131.0	46.0	15.0	320.5	7.85	3.0	30.4	27.1	0.16	**0.02**	0.788	0.018	0.198	0.968	98.8	206	0.058	0.186	156	68.17
OK120410-01-0220G	Snake Creek	30183	03-May-04	8.50	85.8	36.6	82.0	15.8	303.4	8.01	**2.0**	42.7	22.6	0.06	**0.02**	0.167	0.029	0.109	0.247	106.0	204	0.016	0.098	22	15.80
OK120410-01-0220G	Snake Creek	30408	14-Jun-04	4.67	56.8	31.1	161.0	25.6	907.0	7.90	2.0	179.6	21.9	0.10	**0.02**	0.250	0.017	0.137	0.370	190.6	499	0.007	0.093	17	0.59
OK120410-01-0220G	Snake Creek	30569	12-Jul-04	4.89	61.1	55.2	72.0	26.8	320.6	7.87	2.0	29.4	18.0	0.20	**0.02**	**0.110**	0.031	0.251	0.330	101.4	214	0.071	0.153	31	8.54
OK120410-01-0220G	Snake Creek	30794	16-Aug-04	7.01	78.2	31.5	68.0	22.1	528.0	7.87	2.3	81.9	19.4	**0.02**	**0.02**	0.310	**0.015**	0.055	0.350	144.0	322	0.051	0.095	43	1.06
OK120410-01-0220G	Snake Creek	31010	20-Sep-04	3.92	44.4	30.2	120.0	21.2	576.0	8.37	2.0	88.5	17.4	**0.02**	**0.02**	0.280	**0.015**	0.055	0.320	144.7	331	0.009	0.081	32	
OK120410-01-0220G	Snake Creek	31232	25-Oct-04	6.95	74.6	23.4	131.0	18.8	352.5	8.31	**2.0**	38.2	19.0	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	126.3	241	0.028	0.127	28	0.18
OK120410-01-0220G	Snake Creek	31353	29-Nov-04	10.27	87.9	46.1	38.0	8.5	269.1	7.45	6.3	31.4	19.0	0.14	**0.02**	0.400	**0.015**	0.175	0.560	72.8	163	0.031	0.113	14	16.94
OK120410-01-0220G	Snake Creek	31713	03-Jan-05			204.0	88.0	12.1	386.4	8.72	5.6	47.3	21.5	0.10	**0.02**	**0.110**	0.023	0.143	0.230	96.8	204	0.058	0.120	217	32.88
OK120410-01-0220G	Snake Creek	31940	07-Feb-05	10.19	86.5		50.0	8.1	233.5	8.37	4.4	16.4	23.7	0.15	**0.02**	0.560	**0.015**	0.185	0.730	65.7	169	0.073	0.305	253	126.74
OK120410-01-0220G	Snake Creek	32088	14-Mar-05	9.51	85.7	21.2	64.0	10.7	291.1		2.1	40.4	34.0	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	113.1	197	0.014	0.057	22	10.83
OK120410-01-0220G	Snake Creek	32268	18-Apr-05	8.10	86.8	20.2	48.0	18.6	336.1	7.56	**2.0**	40.7	26.5	0.04	**0.02**	**0.110**	**0.015**	0.075	0.170	94.5	190	0.007	0.360	26	15.52
OK120410-01-0220G	Snake Creek	32640	24-May-05	5.43	65.5		82.0	24.8	430.7	7.45	**2.0**	56.4	27.9	0.14	**0.02**	0.430	**0.015**	0.175	0.590	120.8	252	0.049	0.139	35	4.77
OK120410-02-0010H	Cloud Creek	27859	21-Jul-03	3.03	35.8	57.1	96.0	27.2	437.3	7.88	2.4	40.8	29.8	0.05	**0.02**	0.503	0.222	0.292	0.573	125.5	245	0.019	0.174	52	0.00
OK120410-02-0010H	Cloud Creek	28162	25-Aug-03	4.05	51.7	39.0	117.0	28.4	441.1	8.16	2.5	38.2	26.8	0.10	0.14	0.433	0.141	0.381	0.673	129.0	209	0.031	0.101	56	0.00
OK120410-02-0010H	Cloud Creek	28329	30-Sep-03	5.99	67.2	59.2	49.0	17.3	239.1	7.95	2.5	17.9	17.9	0.17	0.05	0.822	0.144	0.364	1.042	64.7	165	0.047	0.083	49	0.99
OK120410-02-0010H	Cloud Creek	28473	03-Nov-03	4.13	44.8	19.4	81.0	19.3	322.1	7.90	2.6	24.1	23.2	**0.02**	**0.02**	0.305	**0.015**	0.055	0.345	101.1	173	**0.005**	0.092	29	0.52
OK120410-02-0010H	Cloud Creek	28626	15-Dec-03	9.32	74.2	17.1	86.0	5.7	385.6	5.79	3.3	35.3	33.6	0.07	**0.02**	0.150	0.018	0.108	0.240	103.7	205	0.022	0.085	**10**	3.34
OK120410-02-0010H	Cloud Creek	29477	20-Jan-04	11.70	84.8	65.0	42.0	1.9		7.40		51.2	40.8	0.46	**0.02**	0.776	0.064	0.544	1.256	84.8	274	0.044	0.148	23	4.53
OK120410-02-0010H	Cloud Creek	29685	23-Feb-04	7.36	66.4	29.9	40.0	10.4	308.7	7.39	4.2	47.5	53.7	0.05	**0.02**	0.351	0.035	0.105	0.421	104.3	240	0.030	0.084	26	2.26
OK120410-02-0010H	Cloud Creek	29824	29-Mar-04	6.33	66.1	56.1	34.0	14.9	368.4	7.76	3.4	39.8	37.3	0.13	**0.02**	0.508	0.019	0.169	0.658	95.5	193	0.030	0.124	48	
OK120410-02-0010H	Cloud Creek	30184	03-May-04	7.13	71.1	39.0	50.0	15.1	277.0	8.00	**2.0**	29.4	25.9	0.29	0.06	0.546	0.042	0.392	0.896	76.0	182	0.029	0.143	33	16.21
OK120410-02-0010H	Cloud Creek	30409	01-Jun-04	4.80	50.1	42.2	88.0	26.5	400.1	7.66	**2.0**	52.2	27.9	0.23	**0.02**	**0.110**	0.054	0.304	0.360	108.4	221	0.012	0.145	26	8.16
OK120410-02-0010H	Cloud Creek	30570	12-Jul-04	4.40	55.6	41.9	35.0	27.4	1357.0	7.82	2.7	11.9	10.0	0.17	**0.02**	0.290	0.051	0.241	0.480	41.7	88	0.077	0.179	29	
OK120410-02-0010H	Cloud Creek	30795	16-Aug-04	4.90	57.0	29.8	86.0	23.0	354.6	7.73	2.6	36.0	27.7	**0.02**	**0.02**	0.280	**0.015**	0.055	0.320	102.0	211	0.048	0.114	33	0.48
OK120410-02-0010H	Cloud Creek	31011	20-Sep-04	3.90	44.9	38.7	46.0	22.5	360.9	7.97	5.7	34.7	25.0	**0.02**	**0.02**	0.180	**0.015**	0.055	0.220	104.5	212	0.013	0.108	59	
OK120410-02-0010H	Cloud Creek	31233	25-Oct-04	2.88	29.0	13.5	141.0	18.7	288.0	8.02	**2.0**	26.0	17.4	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	101.8	183	0.016	0.082	24	
OK120410-02-0010H	Cloud Creek	31354	29-Nov-04	9.61	83.6	51.3	51.0	8.9	217.5	8.53	3.7	20.6	21.2	0.23	**0.02**	0.610	**0.015**	0.265	0.860	56.9	**10**	0.037	0.134	12	36.15
OK120410-02-0010H	Cloud Creek	31714	03-Jan-05				84.0	14.0	212.8	7.02	6.6	23.4	17.6	0.28	**0.02**	**0.110**	0.061	0.361	0.410	44.3	357	0.102	0.186	2603	3952.69
OK120410-02-0010H	Cloud Creek	31941	07-Feb-05	10.05	85.8		39.0	8.3	346.6	8.18	4.8	35.7	40.8	0.25	**0.02**	0.770	0.019	0.289	1.040	80.4	267	0.040	0.247	228	

Appendix A.1 Raw chemical and physical water quality data.

WBID	SiteName	SAMPLEID	DateActivityStart	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Available Nitrogen	Total Nitrogen	TotHardness (mg/L as CaCO3)	TotDisSolids (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OK120410-02-0010H	Cloud Creek	32089	14-Mar-05	8.39	74.2	8.3	63.0	9.9	419.7		2.3	80.1	59.4	0.08	**0.02**	**0.110**	**0.015**	0.115	0.210	139.1	293	0.006	0.044	**10**	21.09
OK120410-02-0010H	Cloud Creek	32269	18-Apr-05	7.58	84.3	28.6	82.0	18.4	459.9	7.56	**2.0**	60.4	48.1	0.05	**0.02**	**0.110**	0.026	0.096	0.180	116.9	237	0.013	0.033	42	12.73
OK120410-02-0010H	Cloud Creek	32641	24-May-05	5.48	66.2		89.0	25.3	7.4	7.46	**2.0**	122.2	45.9	0.05	**0.02**	2.530	**0.015**	0.085	2.600	161.2	381	0.009	0.350	30	1.20
OK120420-02-0050D	Polecat Creek	27857	21-Jul-03	2.86	37.5	22.4	39.0	29.8	735.0	8.08	2.2	128.1	18.7	0.05	**0.02**	0.640	0.164	0.234	0.710	188.6	374	0.032	0.125	**10**	3.42
OK120420-02-0050D	Polecat Creek	28160	25-Aug-03	5.08	66.9	19.1	96.0	29.9	489.0	8.60	2.0	68.9	16.0	**0.02**	**0.02**	0.492	0.055	0.095	0.532	130.7	221	0.028	0.108	24	11.22
OK120420-02-0050D	Polecat Creek	28327	29-Sep-03	8.90	97.9	37.3	59.0	20.0	413.5	7.69	3.5	53.3	16.6	0.16	**0.02**	0.800	0.032	0.212	0.980	121.7	204	0.041	0.140	31	20.38
OK120420-02-0050D	Polecat Creek	28471	03-Nov-03	7.32	75.3	21.4	111.0	16.6	576.0	8.20	2.2	87.1	25.3	0.25	**0.02**	0.406	0.017	0.287	0.676	167.1	310	0.016	0.098	34	13.94
OK120420-02-0050D	Polecat Creek	28624	15-Dec-03	13.30	102.4	22.9	193.0	4.4	749.0	6.63	3.4	118.8	35.2	0.21	**0.02**	0.499	0.144	0.374	0.729	173.6	392	0.072	0.156	19	61.68
OK120420-02-0050D	Polecat Creek	29475	20-Jan-04	11.84	91.0	106.0	47.0	4.3	281.8	7.17		29.2	16.4	0.22	**0.02**	0.557	0.035	0.275	0.797	77.9	204	0.061	0.150	62	47.23
OK120420-02-0050D	Polecat Creek	29683	23-Feb-04	10.11	89.9	48.4	75.0	10.1	367.1	8.03	4.2	70.5	28.8	0.02	**0.02**	**0.110**	0.028	0.068	0.150	135.2	266	0.038	0.107	36	24.10
OK120420-02-0050D	Polecat Creek	30182	03-May-04	7.68	79.0	109.0	86.0	16.8	245.5	8.08	**2.0**	30.1	16.4	0.24	0.06	0.501	0.055	0.355	0.801	105.2	193	0.054	0.190	77	53.74
OK120420-02-0050D	Polecat Creek	30407	14-Jun-04	5.81	72.8	118.0	73.0	26.8	273.4	8.11	**2.0**	33.0	11.8	0.30	**0.02**	**0.110**	0.033	0.353	0.430	70.9	185	0.032	0.180	70	63.72
OK120420-02-0050D	Polecat Creek	30568	12-Jul-04	5.64	71.3	97.0	81.0	27.2	225.6	8.00	2.0	23.7	9.8	0.20	**0.02**	**0.110**	0.028	0.248	0.330	75.1	190	0.067	0.170	67	
OK120420-02-0050D	Polecat Creek	30793	16-Aug-04	8.57	102.3	40.2	104.0	24.1	669.0	7.91	2.7	111.5	21.3	**0.02**	**0.02**	0.730	**0.015**	0.055	0.770	168.3	396	0.061	0.141	44	14.04
OK120420-02-0050D	Polecat Creek	31009	20-Sep-04	4.17	49.9	25.9	92.0	24.4	691.0	8.02	4.0	114.1	18.5	**0.02**	**0.02**	0.440	0.023	0.063	0.480	176.0	403	0.025	0.109	25	3.00
OK120420-02-0050D	Polecat Creek	31231	25-Oct-04	8.08	87.5	17.5	188.0	19.0	615.0	8.67	3.4	103.4	29.8	0.28	**0.02**	0.270	**0.015**	0.315	0.570	181.0	398	0.016	0.089	16	12.41
OK120420-02-0050D	Polecat Creek	31352	29-Nov-04	9.73	84.8	48.2	44.0	9.2	417.6	8.44	3.7	49.8	25.2	0.26	**0.02**	0.420	**0.015**	0.295	0.700	130.3	347	0.100	0.157	26	38.13
OK120420-02-0050D	Polecat Creek	31712	03-Jan-05			33.0	93.0	11.9	737.0	8.12	5.0	101.7	28.5	0.20	0.07	1.350	1.275	1.545	1.620	171.0	334	0.612	0.655	36	36.11
OK120420-02-0050D	Polecat Creek	31939	07-Feb-05	10.43	87.4		79.0	7.3	404.8	8.29	4.8	51.2	28.0	0.18	**0.02**	0.700	**0.015**	0.215	0.900	106.0	333	0.067	0.478	567	
OK120420-02-0050D	Polecat Creek	32087	14-Mar-05	10.53	96.8	26.6	90.0	11.6	446.1	8.25	2.9	91.6	30.6	0.05	**0.02**	**0.110**	**0.015**	0.085	0.180	159.0	301	0.024	0.085	25	32.78
OK120420-02-0050D	Polecat Creek	32267	18-Apr-05	7.31	79.8	33.2	85.0	20.1	480.4	7.32	**2.0**	77.0	26.8	0.09	**0.02**	**0.110**	**0.015**	0.125	0.220	140.4	259	0.029	0.045	48	26.24
OK120420-02-0050D	Polecat Creek	32639	24-May-05	5.22	64.3		118.0	27.4	435.5	7.24	2.2	48.5	19.4	0.15	**0.02**	0.290	**0.015**	0.185	0.460	121.0	241	0.045	0.121	54	26.35
OK121700-03-0370G	Ballard Creek: Lower	27876	22-Jul-03	5.25	63.6	2.0		24.6	272.3	7.51	2.5	10.2	6.7	0.50	**0.02**	0.684	0.197	0.717	1.204	124.4	105	0.056	0.153	**10**	5.39
OK121700-03-0370G	Ballard Creek: Lower	28177	26-Aug-03	4.66	55.6	1.7	113.0	24.5	286.6		**2.0**	10.7	5.3	0.23	**0.02**	**0.110**	0.026	0.276	0.360	128.8	191	0.077	0.114	16	0.95
OK121700-03-0370G	Ballard Creek: Lower	28310	29-Sep-03	7.44	75.3	1.1	125.0	16.0	288.4	7.55	3.5	11.0	6.1	0.29	**0.02**	**0.110**	0.022	0.332	0.420	133.2	154	0.045	0.104	**10**	2.97
OK121700-03-0370G	Ballard Creek: Lower	28462	03-Nov-03	9.13	97.5	0.9	116.0	18.5	302.6	7.60	**2.0**	11.4	8.3	0.42	**0.02**	**0.110**	**0.015**	0.455	0.550	128.1	196	0.038	0.092	11	3.54
OK121700-03-0370G	Ballard Creek: Lower	28615	15-Dec-03	12.69	105.6	2.0	109.0	7.4	293.1	7.92	2.6	12.4	15.5	2.53	**0.02**	**0.110**	**0.015**	2.565	2.660	120.1	152	0.060	0.114	**10**	27.55
OK121700-03-0370G	Ballard Creek: Lower	29458	20-Jan-04	14.06	112.4	5.5	79.0	5.8	246.6	7.84		11.5	14.3	2.39	**0.02**	0.193	**0.015**	2.425	2.603	102.2	145	0.086	0.126	**10**	53.31
OK121700-03-0370G	Ballard Creek: Lower	29661	23-Feb-04	13.93	120.9	1.6	110.0	9.0	333.1	8.49	4.3	12.4	13.2	2.44	**0.02**	**0.110**	0.030	2.490	2.570	139.5	208	0.032	0.095	**10**	19.77
OK121700-03-0370G	Ballard Creek: Lower	30037	05-Apr-04	11.37	109.2	2.2	102.0	13.4	278.3	8.25	2.0	10.3	11.0	2.12	**0.02**	0.154	0.030	2.170	2.294	126.8	193	0.057	0.092	**10**	19.52
OK121700-03-0370G	Ballard Creek: Lower	30214	11-May-04	8.46	91.4	2.1	115.0	19.1	250.5	7.44	**2.0**	10.1	7.9	3.29	**0.02**	**0.110**	**0.015**	3.325	3.420	124.2	154	0.040	0.105	**10**	38.54
OK121700-03-0370G	Ballard Creek: Lower	30427	15-Jun-04	7.37	86.9	2.1	111.0	23.5	271.0	7.38	**2.0**	10.4	7.1	1.95	**0.02**	**0.110**	**0.015**	1.985	2.080	126.3	204	0.046	0.126	**10**	10.24
OK121700-03-0370G	Ballard Creek: Lower	30591	19-Jul-04	7.42	96.0	1.1	104.0	22.5	265.0	7.46	**2.0**	10.5	7.8	2.05	**0.02**	**0.110**	**0.015**	2.085	2.180	125.0	123	0.179	0.144	**10**	14.79
OK121700-03-0370G	Ballard Creek: Lower	30820	23-Aug-04	7.26	83.2	2.1	98.0	22.1	265.6	7.55	**2.0**	10.8	7.3	2.64	**0.02**	**0.110**	**0.015**	2.675	2.770	137.8	194	0.070	0.130	**10**	13.50
OK121700-03-0370G	Ballard Creek: Lower	31078	28-Sep-04	7.07	75.4	1.7	113.0	18.4	293.0	7.35	**2.0**	11.2	5.7	1.45	**0.02**	**0.110**	0.024	1.494	1.580	125.4	172	0.070	0.108	**10**	5.15
OK121700-03-0370G	Ballard Creek: Lower	31292	03-Nov-04	7.65	75.6	7.9	75.0	14.8	224.1	7.33	2.2	7.5	9.3	3.19	**0.02**	**0.110**	**0.015**	3.225	3.320	96.4	152	0.156	0.193	**10**	89.18
OK121700-03-0370G	Ballard Creek: Lower	31406	06-Dec-04	10.50	84.6	4.3	98.0	10.6	297.0	7.80	**2.0**	10.5	12.8	3.36	**0.02**	**0.110**	**0.015**	3.395	3.490	129.2	164	0.084	0.104	**10**	78.31
OK121700-03-0370G	Ballard Creek: Lower	31720	04-Jan-05	10.54	94.7		51.0	10.6	144.1	7.28		5.0	6.5	1.29	**0.02**	0.670	0.218	1.528	1.980	45.9	103	1.074	1.159	1070	262.30
OK121700-03-0370G	Ballard Creek: Lower	31956	14-Feb-05	10.87	95.3	2.0	97.0	9.6	285.1	7.59	**2.0**	11.3	12.4	2.80	**0.02**	**0.110**	**0.015**	2.835	2.930	127.1	158	0.030	0.070	**10**	42.06
OK121700-03-0370G	Ballard Creek: Lower	32078	14-Mar-05	12.67	111.0	1.5	94.0	9.5	282.5	8.13	3.4	10.7	10.2	2.59	**0.02**	**0.110**	**0.015**	2.625	2.720	127.3	178	0.025	0.068	**10**	23.17
OK121700-03-0370G	Ballard Creek: Lower	32251	18-Apr-05	9.26	93.7	2.6	96.0	16.2	268.5	7.70	**2.0**	10.2	11.6	2.66	**0.02**	**0.110**	**0.015**	2.695	2.790	122.0	148	0.046	0.070	**10**	34.86
OK121700-03-0370G	Ballard Creek: Lower	32630	24-May-05	6.94	77.9	3.1	105.0	20.8	280.6	7.49	**2.0**	10.6	7.3	1.77	**0.02**	**0.110**	**0.015**	1.805	1.900	126.4	169	0.068	0.226	**10**	11.95
OK121700-06-0040G	Battle Creek: Battle Branch	27875	22-Jul-03	4.80	54.4	0.5	94.0	21.1	273.4	7.31	**2.0**	8.5	4.4	2.30	**0.02**	**0.110**	0.020	2.340	2.430	123.0	124	0.027	0.076	**10**	1.77
OK121700-06-0040G	Battle Creek: Battle Branch	28176	26-Aug-03	6.02	68.7	7.7	114.0	22.5	287.9		**2.0**	7.8	3.8	1.10	**0.02**	**0.110**	0.026	1.146	1.230	132.7	225	0.034	0.091	14	0.86

Appendix A.1 Raw chemical and physical water quality data.

WBID	SiteName	SAMPLEID	DateActivityStart	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Available Nitrogen	Total Nitrogen	TotHardness (mg/L as CaCO3)	TotDisSolids (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OK121700-06-0040G	Battle Creek: Battle Branch	28309	29-Sep-03	8.79	88.0	0.7	116.0	15.6	283.9	7.29	3.5	17.2	4.5	1.95	**0.02**	**0.110**	0.016	1.986	2.080	130.6	158	0.058	0.104	15	1.08
OK121700-06-0040G	Battle Creek: Battle Branch	28461	03-Nov-03	8.98	94.4	0.7	108.0	17.8	284.6	7.61	2.3	8.1	3.7	1.65	**0.02**	**0.110**	**0.015**	1.685	1.780	105.8	181	0.008	0.059	30	1.17
OK121700-06-0040G	Battle Creek: Battle Branch	28614	15-Dec-03	11.06	99.5	0.4	79.0	10.6	2621.0	7.46	2.6	9.3	5.7	4.15	**0.02**	**0.110**	**0.015**	4.185	4.280	153.0	155	0.008	0.083	**10**	5.64
OK121700-06-0040G	Battle Creek: Battle Branch	29457	20-Jan-04	11.20	98.6	2.1	50.0	9.7	202.6	7.43		6.2	6.0	4.47	**0.02**	0.157	**0.015**	4.505	4.647	75.9	113	0.028	0.081	**10**	27.69
OK121700-06-0040G	Battle Creek: Battle Branch	29660	23-Feb-04	11.90	104.2	0.3	76.0	9.6	248.2	7.12	5.0	8.2	5.0	4.11	**0.02**	**0.110**	0.027	4.157	4.240	104.4	175	0.032	0.082	12	5.08
OK121700-06-0040G	Battle Creek: Battle Branch	30036	05-Apr-04	10.12	93.7	1.1	79.0	11.6	181.5	7.48	**2.0**	6.1	5.0	3.49	**0.02**	**0.110**	0.025	3.535	3.620	76.3	139	0.054	0.081	**10**	2.16
OK121700-06-0040G	Battle Creek: Battle Branch	30213	11-May-04	9.64	97.0	1.2	53.0	15.6	147.1	7.19	**2.0**	6.4	4.8	3.14	**0.02**	**0.110**	**0.015**	3.175	3.270	78.8	94	0.027	0.083	**10**	10.69
OK121700-06-0040G	Battle Creek: Battle Branch	30426	15-Jun-04	7.95	84.5	0.7	87.0	18.5	224.7	7.60	2.2	7.5	4.2	2.71	**0.02**	**0.110**	**0.015**	2.745	2.840	101.6	187	0.020	0.093	16	3.30
OK121700-06-0040G	Battle Creek: Battle Branch	30590	19-Jul-04	9.05	96.2	0.7	85.0	18.4	207.4	7.31	3.2	8.2	4.9	3.51	**0.02**	0.150	**0.015**	3.545	3.680	87.3	121	0.042	0.083	**10**	8.48
OK121700-06-0040G	Battle Creek: Battle Branch	30819	23-Aug-04	8.21	89.2	1.6	92.0	19.4	229.2	7.36	**2.0**	7.6	6.6	3.14	**0.02**	**0.110**	**0.015**	3.175	3.270	124.2	158	0.035	0.078	**10**	4.78
OK121700-06-0040G	Battle Creek: Battle Branch	31077	28-Sep-04	7.90	82.4	1.0	89.0	17.5	263.0	6.15	**2.0**	8.8	4.1	2.38	**0.02**	**0.110**	0.021	2.421	2.510	118.9	149	0.034	0.065	30	1.32
OK121700-06-0040G	Battle Creek: Battle Branch	31291	02-Nov-04	9.28	94.5	4.3	56.0	16.3	185.5	7.33	**2.0**	5.6	4.7	3.51	**0.02**	0.130	**0.015**	3.545	3.660	79.4	111	0.066	0.083	**10**	23.06
OK121700-06-0040G	Battle Creek: Battle Branch	31405	06-Dec-04	8.34	88.4	1.4	77.0	12.9	189.3	7.00	**2.0**	6.6	5.2	4.04	**0.02**	**0.110**	**0.015**	4.075	4.170	79.3	119	0.037	0.068	**10**	20.46
OK121700-06-0040G	Battle Creek: Battle Branch	31719	04-Jan-05	10.10	92.8	10.5	64.0	11.6	180.2	7.15		5.8	4.8	3.21	**0.02**	**0.110**	**0.015**	3.245	3.340	76.3	101	0.045	0.088	**10**	52.32
OK121700-06-0040G	Battle Creek: Battle Branch	31955	14-Feb-05	10.31	90.1	0.9	58.0	9.3	172.0	6.62	**2.0**	6.7	4.5	3.56	**0.02**	**0.110**	**0.015**	3.595	3.690	79.6	112	0.026	0.074	**10**	8.19
OK121700-06-0040G	Battle Creek: Battle Branch	32077	14-Mar-05	11.26	98.9	1.0	57.0	9.7	200.6	7.49	2.4	7.1	4.2	3.09	**0.02**	**0.110**	**0.015**	3.125	3.220	86.8	79	0.025	0.061	**10**	6.37
OK121700-06-0040G	Battle Creek: Battle Branch	32250	18-Apr-05	10.47	101.2	1.4	61.0	13.8	189.0	7.45	**2.0**	6.2	5.2	2.92	**0.02**	**0.110**	0.026	2.966	3.050	81.6	73	0.020	0.046	**10**	11.39
OK121700-06-0040G	Battle Creek: Battle Branch	32629	24-May-05	8.01	82.0	0.9	80.0	16.3	228.2	7.19	**2.0**	30.7	7.3	2.75	**0.02**	**0.110**	**0.015**	2.785	2.880	104.8	134	0.027	0.226	**10**	76.35
OK220100-03-0010G	Brazil Creek	27883	22-Jul-03	4.05	50.3	12.7	33.6	29.1	165.5	6.98	2.5	4.8	18.2	**0.02**	**0.02**	**0.110**	0.058	0.098	0.150	42.3	107	0.010	0.094	**10**	
OK220100-03-0010G	Brazil Creek	29548	26-Aug-03	6.45	88.8	8.4		31.0	154.0	7.07	2.5	4.8	15.6	**0.02**	**0.02**	0.664	0.041	0.081	0.704	40.9	160	0.008	0.068	**10**	
OK220100-03-0010G	Brazil Creek	28315	30-Sep-03	2.65	28.9	20.4	42.0	19.6	155.7	7.20	3.2	5.5	15.9	0.05	**0.02**	0.326	0.032	0.102	0.396	45.2	75	0.008	0.081	35	
OK220100-03-0010G	Brazil Creek	28467	04-Nov-03	2.72	29.4	19.8	48.1	19.7	174.0	7.02	2.4	5.7	16.9	**0.02**	**0.02**	0.498	**0.015**	0.055	0.538	66.8	93	**0.005**	0.089	18	
OK220100-03-0010G	Brazil Creek	28620	16-Dec-03	9.80	79.9	24.8	43.0	6.6	205.3	7.46	3.7	8.3	35.2	0.06	**0.02**	**0.110**	**0.015**	0.095	0.190	53.5	120	0.028	0.094	10	12.92
OK220100-03-0010G	Brazil Creek	29463	21-Jan-04	13.14	102.1	56.0	30.8	4.7	169.0	7.44		5.3	23.9	0.41	**0.02**	0.496	0.027	0.457	0.926	29.0	97	0.032	0.109	**10**	123.18
OK220100-03-0010G	Brazil Creek	29666	24-Feb-04	10.05	90.1	20.9	13.6	10.5	164.4	7.29	4.1	6.9	26.7	0.22	**0.02**	**0.110**	0.035	0.275	0.350	39.7	65	0.024	0.098	**10**	36.86
OK220100-03-0010G	Brazil Creek	29842	30-Mar-04	6.13	63.1	40.6	33.0	16.7	180.9	6.96	4.2	8.5	31.1	0.33	0.06	1.328	0.319	0.709	1.718	55.5	119	0.165	0.359	48	61.94
OK220100-03-0010G	Brazil Creek	30211	11-May-04	6.67	79.4	25.7	37.0	24.1	135.5	7.46	**2.0**	4.9	20.0	0.08	**0.02**	**0.110**	0.021	0.121	0.210	37.3	44	0.012	0.093	**10**	17.93
OK220100-03-0010G	Brazil Creek	30460	21-Jun-04	5.44	75.2	90.8		23.1	112.8	6.99	2.5	3.6	14.7	0.22	**0.02**	0.520	0.068	0.308	0.760	30.0	96	0.053	0.177	50	
OK220100-03-0010G	Brazil Creek	30598	19-Jul-04	6.71	88.9	21.0	55.0	29.6	162.6	7.23	2.3	4.5	29.3	0.16	**0.02**	0.440	0.046	0.226	0.620	47.6	106	0.031	0.060	**10**	30.59
OK220100-03-0010G	Brazil Creek	30865	23-Aug-04	5.49	72.6	13.6	43.0	29.9	196.0	7.59	**2.0**	6.0	28.1	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	48.5	128	0.020	0.075	13	2.69
OK220100-03-0010G	Brazil Creek	31075	27-Sep-04	5.33	64.1	8.8	59.0	25.1	220.8	8.01	2.0	7.1	31.4	**0.02**	**0.02**	**0.110**	0.032	0.072	0.150	56.2	105	0.016	0.091	**10**	
OK220100-03-0010G	Brazil Creek	31693	02-Nov-04	7.19	72.6	233.0	40.0	17.6	176.6	7.72	**2.0**	3.7	22.9	0.19	**0.02**	0.450	**0.015**	0.225	0.660	33.6	168	0.071	0.219	107	1360.94
OK220100-03-0010G	Brazil Creek	31411	07-Dec-04	9.76	88.5	139.0	19.0	10.9	101.0	7.05	2.8	4.7	14.7	0.25	**0.02**	**0.110**	0.030	0.300	0.380	26.6	65	0.129	0.244	73	954.22
OK220100-03-0010G	Brazil Creek	31812	11-Jan-05	11.06	98.0	28.1	28.0	10.1	116.3	7.15	**2.0**	4.5	18.3	0.37	**0.02**	**0.110**	**0.015**	0.405	0.500	30.5	85	0.018	0.063	**10**	205.43
OK220100-03-0010G	Brazil Creek	31961	15-Feb-05	11.60	107.5	21.2	39.0	12.0	149.4	7.19	**2.0**	7.6	28.1	0.10	**0.02**	**0.110**	**0.015**	0.135	0.230	36.5	111	0.014	0.077	**10**	112.68
OK220100-03-0010G	Brazil Creek	32083	15-Mar-05	9.23	95.9	9.4	43.0	12.1	179.3	7.33	2.6	6.7	31.0	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	48.5	101	0.006	0.047	**10**	31.92
OK220100-03-0010G	Brazil Creek	32293	26-Apr-05	8.34	86.8	14.7	37.0	17.3	153.2	7.17	3.3	5.9	24.2	0.06	**0.02**	**0.110**	**0.015**	0.095	0.190	41.7	50	0.011	0.025	**10**	31.53
OK220100-03-0010G	Brazil Creek	32635	25-May-05	5.20	58.9	244.0	34.0	21.4	152.8	6.75	7.2	5.7	52.3	0.39	0.06	0.950	0.214	0.664	1.400	43.7	54	0.440	0.665	150	259.65
OK220100-04-0010M	Fourche Maline Creek: Leflore	27882	22-Jul-03	1.83	22.6	19.1	41.9	27.8	183.4	7.40	2.1	8.5	12.6	0.06	**0.02**	**0.110**	0.069	0.149	0.190	50.0	126	0.011	0.090	**10**	0.00
OK220100-04-0010M	Fourche Maline Creek: Leflore	29549	26-Aug-03	6.10	80.8	17.0		28.8	169.0	7.07	2.6	10.6	8.3	**0.02**	**0.02**	0.643	0.019	0.059	0.683	48.3	144	0.012	0.095	12	
OK220100-04-0010M	Fourche Maline Creek: Leflore	28316	30-Sep-03	5.79	59.5	13.9	35.7	19.3	162.8	7.19	5.5	7.7	14.5	0.05	**0.02**	0.437	0.019	0.089	0.507	42.4	83	0.050	0.083	17	
OK220100-04-0010M	Fourche Maline Creek: Leflore	28468	04-Nov-03	4.37	50.1	21.3	45.8	22.1	171.5	7.11	3.1	7.8	12.8	**0.02**	**0.02**	0.426	**0.015**	0.055	0.466	47.4	85	**0.005**	0.077	37	
OK220100-04-0010M	Fourche Maline Creek: Leflore	28621	16-Dec-03	8.23	67.0	19.6	23.7	6.5	135.1	7.37	3.4	8.4	13.8	0.02	**0.02**	**0.110**	**0.015**	0.055	0.150	33.1	66	0.012	0.105	13	19.11
OK220100-04-0010M	Fourche Maline Creek: Leflore	29464	21-Jan-04	12.11	96.3	58.8	20.3	5.6	113.0	7.05		5.9	14.0	0.25	0.07	0.680	0.021	0.341	1.000	27.7	127	0.026	0.112	**10**	247.07

Appendix A.1 Raw chemical and physical water quality data.

WBID	SiteName	SAMPLEID	DateActivityStart	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Available Nitrogen	Total Nitrogen	TotHardness (mg/L as CaCO3)	TotDisSolids (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OK220100-04-0010M	Fourche Maline Creek: Leflore	29667	24-Feb-04	10.58	96.1	25.0	9.8	11.0	113.8	7.07	4.0	6.7	16.8	**0.10**	**0.02**	**0.110**	0.035	0.155	0.230	30.6	55	0.030	0.102	16	52.43
OK220100-04-0010M	Fourche Maline Creek: Leflore	29843	30-Mar-04	8.36	89.3	29.6	28.0	18.5	129.5	5.82	2.1	7.2	18.4	0.09	**0.02**	0.208	0.023	0.133	0.318	35.7	85	0.031	0.090	22	
OK220100-04-0010M	Fourche Maline Creek: Leflore	30210	11-May-04	5.74	67.8	43.0	42.0	23.8	100.6	7.37	**2.0**	5.3	11.4	0.17	**0.02**	**0.110**	0.038	0.228	0.300	28.3	42	0.027	0.119	**10**	16.91
OK220100-04-0010M	Fourche Maline Creek: Leflore	30461	22-Jun-04	5.30	73.8	68.9	37.0	23.4	132.4	6.90	**2.0**	5.7	16.5	0.18	**0.02**	0.390	0.074	0.274	0.590	34.0	94	0.044	0.163	58	302.26
OK220100-04-0010M	Fourche Maline Creek: Leflore	30597	19-Jul-04	5.26	66.9	35.8	52.0	27.6	104.6	7.03	2.8	43.0	10.4	0.13	**0.02**	0.310	0.052	0.202	0.460	32.5	81	0.036	0.105	12	21.76
OK220100-04-0010M	Fourche Maline Creek: Leflore	30864	23-Aug-04	4.74	58.3	17.7	55.0	25.8	122.1	7.30	**2.0**	5.5	8.7	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	39.3	76	0.039	0.092	15	3.61
OK220100-04-0010M	Fourche Maline Creek: Leflore	31074	27-Sep-04	3.20	36.6	14.9	71.0	22.6	159.0	8.19	**2.0**	7.0	9.7	**0.02**	**0.02**	**0.110**	0.030	0.070	0.150	48.6	57	0.018	0.105	21	
OK220100-04-0010M	Fourche Maline Creek: Leflore	31692	02-Nov-04	6.46	68.7	242.0	33.0	18.3	86.3	8.28	**2.0**	4.4	7.5	0.14	**0.02**	0.290	0.015	0.175	0.450	22.3	117	0.073	0.183	213	3900.36
OK220100-04-0010M	Fourche Maline Creek: Leflore	31412	07-Dec-04	9.52	86.2	56.6	18.0	10.9	83.3	6.97	2.5	4.6	10.9	0.15	**0.02**	**0.110**	**0.015**	0.185	0.280	24.3	37	0.039	0.095	43	971.55
OK220100-04-0010M	Fourche Maline Creek: Leflore	31810	11-Jan-05	10.19	93.5		34.0	11.0	86.1	7.37	**2.0**	3.7	10.2	0.14	**0.02**	**0.110**	**0.015**	0.175	0.270	20.4	66	0.015	0.051	17	
OK220100-04-0010M	Fourche Maline Creek: Leflore	31987	15-Feb-05	10.13	94.3		36.0	12.2	132.5	8.54	**2.0**	6.6	17.4	0.10	**0.02**	**0.110**	**0.015**	0.135	0.230	32.5	60	0.014	0.070	**10**	334.00
OK220100-04-0010M	Fourche Maline Creek: Leflore	32084	15-Mar-05	9.91	92.9	14.7	29.0	12.5	145.6	7.25	3.5	7.8	21.6	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	39.8	82	0.007	0.045	**10**	386.92
OK220100-04-0010M	Fourche Maline Creek: Leflore	32294	26-Apr-05	9.40	98.4	31.2	29.0	17.5	121.0	7.20	3.3	6.3	17.0	0.08	**0.02**	**0.110**	**0.015**	0.115	0.210	34.4	42	0.018	0.038	20	42.46
OK220100-04-0010M	Fourche Maline Creek: Leflore	32636	25-May-05	5.00	61.2	33.3	36.0	25.8	159.6	7.03	**2.0**	9.0	21.3	0.17	**0.02**	0.170	**0.015**	0.205	0.360	42.0	76	0.025	0.107	28	8.46
OK220200-03-0010C	Sallisaw Creek: Lower	27878	22-Jul-03	5.69	75.4	4.1	58.0	30.0	160.4	7.44	2.6	4.0	5.1	0.05	**0.02**	0.648	0.077	0.147	0.718	70.0	66	0.011	0.085	**10**	7.53
OK220200-03-0010C	Sallisaw Creek: Lower	28179	26-Aug-03	6.60	93.2	3.4	86.0	33.9	189.1		2.8	4.2	4.9	0.09	**0.02**	0.274	0.099	0.209	0.384	83.8	136	0.016	0.096	12	0.19
OK220200-03-0010C	Sallisaw Creek: Lower	28312	29-Sep-03	8.22	93.4	5.6	85.0	21.9	210.2	7.75	4.3	4.7	6.0	**0.02**	**0.02**	**0.110**	0.016	0.056	0.150	97.9	108	**0.005**	0.065	**10**	1.12
OK220200-03-0010C	Sallisaw Creek: Lower	28464	03-Nov-03	10.54	117.5	3.9	87.0	20.4	215.3	7.94	2.0	4.7	6.9	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	99.8	87	**0.005**	0.059	**10**	3.67
OK220200-03-0010C	Sallisaw Creek: Lower	28617	15-Dec-03	12.67	106.7	3.7	61.0	7.9	8.0		3.6	4.1	7.8	0.34	**0.02**	**0.110**	**0.015**	0.375	0.470	74.3	1	**0.005**	0.071	**10**	154.16
OK220200-03-0010C	Sallisaw Creek: Lower	29460	20-Jan-04	12.38	98.3	9.7	41.0	5.6	151.9	7.79		3.7	7.5	0.37	**0.02**	0.173	0.033	0.423	0.563	58.1	84	0.010	0.070	11	357.08
OK220200-03-0010C	Sallisaw Creek: Lower	29663	23-Feb-04	10.84	97.1	4.4	57.0	10.5	161.9	7.74	4.4	4.1	8.5	0.23	**0.02**	**0.110**	0.029	0.279	0.360	73.5	65	0.037	0.058	**10**	
OK220200-03-0010C	Sallisaw Creek: Lower	30039	05-Apr-04	11.45	115.9	6.2	77.0	16.0	148.8	8.34	2.1	3.0	7.1	0.08	**0.02**	0.119	0.025	0.125	0.219	70.1	130	0.015	0.082	12	157.35
OK220200-03-0010C	Sallisaw Creek: Lower	30216	11-May-04	10.60	123.3	5.1	79.0	23.0	150.8	7.63	**2.0**	2.7	5.9	0.16	**0.02**	**0.110**	0.019	0.199	0.290	74.3	80	**0.005**	0.059	**10**	79.61
OK220200-03-0010C	Sallisaw Creek: Lower	30429	15-Jun-04	8.06	105.1	4.8	76.0	28.9	192.6	7.63	2.5	2.7	5.7	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	93.1	138	**0.005**	0.067	**10**	48.88
OK220200-03-0010C	Sallisaw Creek: Lower	30593	19-Jul-04	9.22	103.6	11.5	54.0	27.3	140.5	7.74	**2.0**	2.5	4.4	0.14	**0.02**	0.280	**0.015**	0.175	0.440	64.9	61	0.027	0.064	**10**	86.13
OK220200-03-0010C	Sallisaw Creek: Lower	30822	23-Aug-04	7.71	98.6		74.0	28.8	192.0	7.83	**2.0**	2.6	4.8	0.09	**0.02**	**0.110**	**0.015**	0.125	0.220	95.8	125	0.017	0.066	**10**	35.41
OK220200-03-0010C	Sallisaw Creek: Lower	31080	28-Sep-04	9.12	112.5	8.0	97.0	26.1	206.4	6.85	**2.0**	3.9	5.2	**0.02**	**0.02**	**0.110**	0.022	0.062	0.150	92.3	117	0.007	0.053	**10**	5.01
OK220200-03-0010C	Sallisaw Creek: Lower	31294	03-Nov-04	9.62	98.2	37.7	41.0	16.5	108.5	7.41	2.3	2.2	4.5	0.38	**0.02**	**0.110**	0.041	0.441	0.510	46.7	78	0.031	0.183	17	
OK220200-03-0010C	Sallisaw Creek: Lower	31408	06-Dec-04	11.17	89.3	11.5	64.0	10.1	136.4	7.86	**2.0**	3.8	7.8	0.30	**0.02**	**0.110**	**0.015**	0.335	0.430	59.7	81	0.011	0.048	12	319.06
OK220200-03-0010C	Sallisaw Creek: Lower	31722	04-Jan-05	10.76	98.6	141.0	40.0	11.5	94.9	7.36		2.0	4.9	0.31	**0.02**	0.390	0.078	0.408	0.720	43.2	78	0.058	0.120	139	
OK220200-03-0010C	Sallisaw Creek: Lower	31958	14-Feb-05	13.03	118.2	9.7	48.0	11.1	143.8	7.79	2.0	3.2	8.3	0.21	**0.02**	**0.110**	**0.015**	0.245	0.340	65.3	51	0.005	0.056	**10**	979.82
OK220200-03-0010C	Sallisaw Creek: Lower	32080	14-Mar-05	11.48	108.1	4.6	57.0	12.7	166.9	8.04	2.9	3.4	7.8	0.16	**0.02**	**0.110**	**0.015**	0.195	0.290	77.3	87	**0.005**	0.038	**10**	83.84
OK220200-03-0010C	Sallisaw Creek: Lower	32253	18-Apr-05	10.30	110.2	6.0	59.0	18.6	154.3	7.76	**2.0**	2.9	7.1	0.90	**0.02**	**0.110**	**0.015**	0.935	1.030	72.3	50	**0.005**	0.018	**10**	177.70
OK220200-03-0010C	Sallisaw Creek: Lower	32632	24-May-05	7.46	93.4	6.3	91.0	27.3	196.5	7.87	**2.0**	2.9	6.9	0.07	**0.02**	**0.110**	**0.015**	0.105	0.200	92.8	174	0.007	0.130	**10**	32.77
OK220200-03-0010G	Sallisaw Creek: Upper	27877	22-Jul-03	4.87	60.4	1.5	121.0	26.2	219.7	7.41	**2.0**	3.2	4.6	0.07	**0.02**	0.545	0.062	0.152	0.635	105.4	115	0.015	0.072	**10**	4.32
OK220200-03-0010G	Sallisaw Creek: Upper	28178	26-Aug-03	6.43	81.3	1.5	100.0	27.5	230.3		2.1	3.8	4.1	0.07	**0.02**	**0.110**	0.025	0.115	0.200	110.1	146	0.011	0.059	10	3.11
OK220200-03-0010G	Sallisaw Creek: Upper	28311	20-Sep-03	6.20	68.1	2.4	95.0	19.9	229.8	7.22	2.3	4.6	5.2	0.06	**0.02**	**0.110**	0.015	0.095	0.190	110.5	117	**0.005**	0.053	14	2.12
OK220200-03-0010G	Sallisaw Creek: Upper	28463	03-Nov-03	9.40	105.2	1.0	95.0	21.3	206.6	7.58	2.6	4.7	6.0	0.07	**0.02**	**0.110**	**0.015**	0.105	0.200	113.4	151	**0.005**	0.060	**10**	
OK220200-03-0010G	Sallisaw Creek: Upper	28616	15-Dec-03	13.34	119.4	3.8	64.0	10.4	180.8	8.38	3.6	3.8	7.7	0.40	**0.02**	**0.110**	**0.015**	0.435	0.530	80.3	100	0.008	0.058	**10**	
OK220200-03-0010G	Sallisaw Creek: Upper	29459	20-Jan-04	10.04	82.3	8.5	64.0	6.6	176.6	8.00		3.1	7.4	0.41	**0.02**	**0.110**	**0.015**	0.445	0.540	71.8	93	0.008	0.068	**10**	248.38
OK220200-03-0010G	Sallisaw Creek: Upper	29662	23-Feb-04	12.16	108.5	2.6	63.0	10.3	193.0	7.93	4.9	3.6	8.1	0.27	**0.02**	**0.110**	0.025	0.315	0.400	8.7	118	0.020	0.058	**10**	71.58
OK220200-03-0010G	Sallisaw Creek: Upper	30038	05-Apr-04	11.51	116.4	5.4	83.0	15.9	158.6	8.60	**2.0**	2.7	6.7	0.15	**0.02**	**0.110**	0.028	0.198	0.280	77.0	124	0.019	0.054	**10**	112.99
OK220200-03-0010G	Sallisaw Creek: Upper	30215	11-May-04	9.46	106.0	3.2	62.0	20.9	164.5	7.55	**2.0**	2.7	6.0	0.27	**0.02**	**0.110**	0.020	0.310	0.400	84.3	93	0.009	0.105	**10**	63.82
OK220200-03-0010G	Sallisaw Creek: Upper	30428	15-Jun-04	8.67	85.7	2.4	94.0	25.6	207.8	6.97	**2.0**	2.6	5.2	0.12	**0.02**	**0.110**	**0.015**	0.155	0.250	102.5	152	**0.005**	0.056	**10**	31.86

Appendix A.1 Raw chemical and physical water quality data.

WBID	SiteName	SAMPLEID	DateActivityStart	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Available Nitrogen	Total Nitrogen	TotHardness (mg/L as CaCO3)	TotDisSolids (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OK220200-03-0010G	Sallisaw Creek: Upper	30592	19-Jul-04	9.23	99.8	3.7	89.0	25.8	188.7	7.70	**2.0**	2.7	4.8	0.16	**0.02**	0.220	**0.015**	0.195	0.400	90.8	85	0.032	0.069	**10**	39.77
OK220200-03-0010G	Sallisaw Creek: Upper	30821	23-Aug-04	7.22	88.9		89.0	25.9	207.2	7.41	2.3	2.6	4.7	0.15	**0.02**	**0.110**	**0.015**	0.185	0.280	102.7	131	0.019	0.054	**10**	19.47
OK220200-03-0010G	Sallisaw Creek: Upper	31079	28-Sep-04	6.20	70.0	4.2	89.0	21.0	233.0	6.10	**2.0**	3.7	4.5	0.04	**0.02**	**0.110**	0.030	0.090	0.170	107.1	129	0.031	0.049	11	4.14
OK220200-03-0010G	Sallisaw Creek: Upper	31293	03-Nov-04	7.73	79.0	36.7	53.0	16.4	182.4	7.41	2.3	2.2	4.5	0.43	**0.02**	**0.110**	**0.015**	0.465	0.560	52.2	132	0.021	0.082	13	
OK220200-03-0010G	Sallisaw Creek: Upper	31407	06-Dec-04	10.70	88.2	7.4	69.0	11.5	147.6	8.05	**2.0**	3.1	6.8	0.32	**0.02**	**0.110**	**0.015**	0.355	0.450	69.0	86	0.008	0.040	**10**	221.92
OK220200-03-0010G	Sallisaw Creek: Upper	31721	04-Jan-05	9.85	90.2	165.0	45.0	11.5	96.5	7.34		1.9	4.4	0.34	**0.02**	**0.110**	**0.015**	0.375	0.470	42.2	79	0.063	0.142	165	0.00
OK220200-03-0010G	Sallisaw Creek: Upper	31957	14-Feb-05	14.30	129.3	5.5	59.0	10.8	155.7	8.14	**2.0**	2.9	7.4	0.25	**0.02**	**0.110**	**0.015**	0.285	0.380	72.7	74	0.006	0.078	**10**	707.31
OK220200-03-0010G	Sallisaw Creek: Upper	32079	14-Mar-05	12.01	112.0	2.7	71.0	12.5	179.3	8.35	2.9	3.2	7.6	0.24	**0.02**	**0.110**	**0.015**	0.275	0.370	86.3	91	0.005	0.033	**10**	56.84
OK220200-03-0010G	Sallisaw Creek: Upper	32252	18-Apr-05	11.04	117.4	5.4	76.0	18.2	164.7	8.35	**2.0**	2.5	6.3	0.15	**0.02**	**0.110**	**0.015**	0.185	0.280	77.2	77	**0.005**	0.049	**10**	60.90
OK220200-03-0010G	Sallisaw Creek: Upper	32631	24-May-05	6.92	87.5	5.8	88.0	24.2	205.8	7.52	**2.0**	3.1	6.4	0.20	**0.02**	**0.110**	**0.015**	0.235	0.330	99.8	114	0.011	0.125	**10**	41.86
OK220200-04-0010G	San Bois Creek	27884	22-Jul-03	4.22	56.2	29.8	135.0	29.4	479.0	7.33	2.3	8.8	75.9	0.06	**0.02**	0.498	0.039	0.119	0.578	66.2	288	0.015	0.110	16	3.90
OK220200-04-0010G	San Bois Creek	29547	26-Aug-03	6.35	85.5	37.3	161.0	30.9	1028.0	8.01	2.3	13.5	162.3	**0.02**	**0.02**	0.707	0.037	0.077	0.747	62.9	738	0.027	0.113	5	0.18
OK220200-04-0010G	San Bois Creek	28314	30-Sep-03	5.82	62.6	34.2	130.0	17.9	497.6	7.59	3.1	10.5	89.8	0.06	**0.02**	0.671	0.024	0.104	0.751	56.4	312	0.014	0.110	22	2.22
OK220200-04-0010G	San Bois Creek	28466	04-Nov-03	3.62	39.8	9.4	387.0	19.6	1291.0	7.91	2.2	16.9	303.5	**0.02**	**0.02**	0.506	0.022	0.062	0.546	81.4	828	**0.005**	0.094	**10**	24.00
OK220200-04-0010G	San Bois Creek	28619	16-Dec-03	9.16	76.3	16.1	97.0	7.4	409.2	7.84	3.0	12.4	66.4	0.05	**0.02**	0.222	0.018	0.088	0.292	67.6	275	**0.005**	0.091	**10**	14.28
OK220200-04-0010G	San Bois Creek	29462	21-Jan-04	12.88	99.9	65.5	18.5	4.7	129.1	7.09		7.6	15.6	0.28	**0.02**	0.535	0.032	0.332	0.835	25.1	143	0.036	0.134	13	166.56
OK220200-04-0010G	San Bois Creek	29665	24-Feb-04	9.53	84.7	29.5	46.0	10.1	243.8	7.42	4.8	10.8	40.2	0.16	**0.02**	**0.110**	0.093	0.273	0.290	42.0	126	0.036	0.112	**10**	39.55
OK220200-04-0010G	San Bois Creek	29841	30-Mar-04	7.07	72.1	59.8	52.0	16.2	199.7	7.05	2.9	10.5	28.1	0.20	0.05	0.499	0.045	0.295	0.749	39.9	134	0.037	0.147	78	
OK220200-04-0010G	San Bois Creek	30212	11-May-04	4.76	58.1	35.6	63.0	25.0	316.8	7.55	**2.0**	8.2	57.6	0.13	**0.02**	**0.110**	0.033	0.183	0.260	47.3	210	0.022	0.107	12	14.61
OK220200-04-0010G	San Bois Creek	30459	21-Jun-04	5.16	52.4	69.6	70.0	24.8	24.8	7.16	3.2	7.4	35.1	0.14	**0.02**	0.420	0.091	0.251	0.580	44.8	133	0.038	0.154	55	92.90
OK220200-04-0010G	San Bois Creek	30599	19-Jul-04	6.30	83.6	321.0	61.0	30.5	405.1	7.65	2.8	8.0	76.5	0.17	**0.02**	0.450	**0.015**	0.205	0.640	55.4	209	0.025	0.102	**10**	16.18
OK220200-04-0010G	San Bois Creek	30866	23-Aug-04	6.11	78.7	15.9	41.0	28.7	112.5	8.00	**2.0**	12.2	237.1	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	112.8	703	0.037	0.079	79	4.39
OK220200-04-0010G	San Bois Creek	31076	27-Sep-04	7.20	85.2	5.3	84.0	23.8	1364.0	8.36	2.0	16.9	325.5	**0.02**	**0.02**	**0.110**	0.022	0.062	0.150	132.3	876	0.020	0.074	**10**	0.64
OK220200-04-0010G	San Bois Creek	31694	02-Nov-04	5.36	54.8	256.0	48.0	17.1	67.6	7.99	2.4	3.5	5.9	0.14	**0.02**	0.520	**0.015**	0.175	0.680	15.7	90	0.082	0.238	118	4960.10
OK220200-04-0010G	San Bois Creek	31410	07-Dec-04	8.66	85.6	180.0	31.0	10.0	130.6	6.87	3.0	8.1	14.5	0.22	**0.02**	0.183	0.044	0.284	0.423	30.6	112	0.104	0.241	158	1875.67
OK220200-04-0010G	San Bois Creek	31811	11-Jan-05	9.88	97.6	39.2	28.0	9.9	142.9	6.96	**2.0**	5.3	22.4	0.27	**0.02**	**0.110**	**0.015**	0.305	0.400	29.9	104	0.025	0.077	14	
OK220200-04-0010G	San Bois Creek	31960	15-Feb-05	10.99	100.4	29.9	38.0	11.3	171.4	6.82	**2.0**	5.7	25.5	0.09	**0.02**	**0.110**	**0.015**	0.125	0.220	37.9	63	0.009	0.062	18	
OK220200-04-0010G	San Bois Creek	32082	15-Mar-05	9.28	96.3	10.7	90.0	12.1	356.2	7.54	3.5	10.9	67.3	0.10	**0.02**	**0.110**	0.078	0.198	0.230	61.8	216	0.010	0.045	**10**	35.17
OK220200-04-0010G	San Bois Creek	32292	26-Apr-05	6.91	70.4	28.4	101.0	16.4	378.1	7.34	3.5	8.6	71.6	0.06	**0.02**	**0.110**	**0.015**	0.095	0.190	62.7	191	0.019	0.041	**10**	35.85
OK220200-04-0010G	San Bois Creek	32634	25-May-05	3.85	45.7	185.0	253.0	24.2	994.0	7.76	2.2	16.3	213.0	0.11	**0.02**	0.340	0.021	0.151	0.470	107.7	616	0.032	0.165	127	9.96
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	27866	22-Jul-03	3.46	45.6	15.7	71.0	29.8	46.0	8.23	2.6	8.4	5.5	0.08	**0.02**	0.617	0.045	0.145	0.717	42.9	71	0.013	0.116	11	0.02
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	28170	26-Aug-03	4.11	54.5	26.8	133.0	27.7	117.0	8.28	**2.0**	5.0	7.2	0.08	**0.02**	0.569	0.042	0.142	0.669	36.3	178	0.016	0.068	21	0.05
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	28337	30-Sep-03	4.47	49.3	27.2	76.0	17.2	161.8	8.10	2.6	12.1	7.3	0.05	**0.02**	0.321	0.018	0.088	0.391	43.3	105	0.011	0.083	19	0.98
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	28481	04-Nov-03	2.13	26.5	16.2	80.0	20.8	218.8	7.69	4.0	12.7	5.6	**0.02**	**0.02**	0.583	**0.015**	0.055	0.623	55.9	51	0.016	0.099	**10**	0.22
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	28631	16-Dec-03	10.22	81.0	10.0	53.0	5.5	167.1	8.28	3.4	5.9	8.9	**0.02**	**0.02**	0.404	**0.015**	0.055	0.444	56.9	126	**0.005**	0.067	**10**	0.38
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	29481	20-Jan-04	10.16	77.8	214.0	39.0	4.1	146.2	7.17		6.4	8.3	0.13	0.06	0.781	0.045	0.235	0.971	44.0	205	0.136	0.310	71	7.22
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	29690	24-Feb-04	9.18	79.4	62.7	36.0	8.8	111.4	7.83	6.8	10.1	16.5	0.07	**0.02**	0.288	0.051	0.141	0.378	45.9	133	0.036	0.140	10	0.75
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	29829	30-Mar-04	6.97	69.2	52.3	68.0	14.9	171.1	8.07	2.9	10.1	12.3	0.06	**0.02**	0.622	0.038	0.118	0.702	55.8	123	0.037	0.105	30	0.71
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	30189	04-May-04	7.23	75.4	50.9	30.0	17.4	137.2	7.92	2.1	6.1	12.4	0.77	0.09	1.024	0.454	1.314	1.884	45.8	150	0.027	0.135	25	1.82
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	30414	15-Jun-04	3.88	47.9	50.7	63.0	26.2	177.2	7.91	2.3	7.7	5.9	0.19	**0.02**	0.260	0.077	0.287	0.470	59.7	0	0.051	0.165	13	1.38
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	30575	13-Jul-04	3.38	42.0	36.4	38.0	26.4	104.5	8.19	2.7	5.0	6.4	0.13	**0.02**	0.870	0.052	0.202	1.020	37.7	99	0.079	0.174	12	0.25
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	30800	17-Aug-04	1.22	13.2	51.6	75.0	20.9	134.6	7.88	2.6	6.4	4.0	0.07	**0.02**	0.390	**0.015**	0.105	0.480	45.6	135	0.054	0.127	19	
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	31016	21-Sep-04	3.04	34.1	8.4	81.0	21.0	189.0	8.05	2.1	8.2	3.4	**0.02**	**0.02**	0.520	**0.015**	0.055	0.560	63.8	105	**0.005**	0.077	**10**	
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	31238	26-Oct-04	4.93	53.2	42.9	46.0	19.1	75.6	8.25	2.0	2.7	4.3	0.05	**0.02**	**0.110**	**0.015**	0.085	0.180	29.5	111	0.040	0.114	**10**	0.38

Appendix A.1 Raw chemical and physical water quality data.

WBID	SiteName	SAMPLEID	DateActivityStart	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Available Nitrogen	Total Nitrogen	TotHardness (mg/L as CaCO3)	TotDisSolids (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	31359	30-Nov-04	10.25	88.5	49.2	47.0	8.9	119.1	8.80	3.7	5.8	11.8	0.12	**0.02**	0.390	**0.015**	0.155	0.530	35.7	122	0.020	0.079	15	12.04
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	31804	10-Jan-05	12.25	99.3	65.0	36.0	6.3	125.1	8.54	**2.0**	5.1	13.7	0.27	**0.02**	**0.110**	0.025	0.315	0.400	47.9	103	0.014	0.044	**10**	25.36
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	31946	08-Feb-05	10.53	88.1		27.0	7.7	121.1	8.31	3.8	7.3	11.0	0.13	0.05	0.370	**0.015**	0.195	0.550	29.9	108	0.023	0.137	28	48.82
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	32094	15-Mar-05	8.99	82.3	11.7	56.0	11.4	185.2		2.5	12.5	23.8	0.05	**0.02**	**0.110**	**0.015**	0.085	0.180	78.4	137	0.008	0.052	**10**	0.65
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	32274	19-Apr-05	7.63	82.8	31.2	54.0	19.3	140.7	7.37	**2.0**	5.6	14.4	0.06	**0.02**	**0.110**	0.028	0.108	0.190	46.1	107	0.022	0.044	22	1.60
OK220600-01-0100P	Mill Creek: Trib. to Eufaula	32646	25-May-05	4.64	55.9		108.0	25.2	318.3	7.33	2.9	12.4	27.3	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	104.7	164	0.011	0.016	27	0.37
OK220600-03-0010J	Brushy Creek	27881	22-Jul-03	2.52	52.1	12.1	48.6	27.8	196.3	7.38	2.3	7.9	11.9	**0.02**	**0.02**	**0.110**	0.061	0.101	0.150	65.9	114	0.010	0.086	**10**	0.18
OK220600-03-0010J	Brushy Creek	29550	26-Aug-03	6.85	93.0	14.8		31.9	183.0	7.14	3.7	33.4	57.1	**0.02**	**0.02**	0.627	0.034	0.074	0.667	65.8	160	0.008	0.081	12	
OK220600-03-0010J	Brushy Creek	28317	30-Sep-03	5.58	60.2	27.5	48.5	19.1	192.3	7.24	8.9	4.8	18.0	**0.02**	**0.02**	0.550	0.016	0.056	0.590	67.4	100	0.011	0.098	30	
OK220600-03-0010J	Brushy Creek	28469	04-Nov-03	6.62	74.6	9.8	78.0	21.9	240.1	7.23	2.8	4.9	17.5	**0.02**	**0.02**	0.324	**0.015**	0.055	0.364	78.3	112	**0.005**	0.077	30	
OK220600-03-0010J	Brushy Creek	28622	16-Dec-03	8.94	74.7	6.2	67.0	7.8	225.6	7.50	3.3	5.1	16.0	**0.02**	**0.02**	0.143	**0.015**	0.055	0.183	83.6	125	0.014	0.062	15	
OK220600-03-0010J	Brushy Creek	29465	21-Jan-04	11.57	89.8	66.5	51.0	4.7	150.2	7.30		7.3	13.1	0.08	**0.02**	0.523	**0.015**	0.115	0.623	43.5	131	0.044	0.129	**10**	15.58
OK220600-03-0010J	Brushy Creek	29668	24-Feb-04	8.79	78.5	57.7	17.1	10.3	126.9	7.07	4.1	7.4	15.6	0.05	**0.02**	0.189	0.028	0.098	0.259	38.0	85	0.023	0.125	21	12.85
OK220600-03-0010J	Brushy Creek	29844	30-Mar-04	7.74	84.0	34.5	35.0	18.6	132.6	4.95	2.1	7.0	15.2	**0.02**	**0.02**	0.365	**0.015**	0.055	0.405	47.6	95	0.108	0.092	32	
OK220600-03-0010J	Brushy Creek	30209	11-May-04	4.98	60.3	36.7	22.0	24.9	115.7	7.29	2.3	5.3	12.1	0.06	**0.02**	0.121	0.036	0.116	0.201	38.5	86	0.021	0.102	**10**	2.89
OK220600-03-0010J	Brushy Creek	30462	22-Jun-04	5.84	58.7	302.0	44.0	23.5	149.0	6.99	3.2	5.0	19.6	0.22	**0.02**	1.480	0.061	0.301	1.720	45.0	128	0.120	0.358	164	22.04
OK220600-03-0010J	Brushy Creek	30596	19-Jul-04	4.25	53.2	32.4	32.0	26.8	122.1	7.37	4.3	7.5	10.6	**0.02**	**0.02**	0.310	0.054	0.094	0.350	39.0	98	0.030	0.083	**10**	3.27
OK220600-03-0010J	Brushy Creek	30863	23-Aug-04	3.10	31.1	18.7	34.0	25.1	120.0	7.72	**2.0**	6.2	8.3	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	38.5	69	0.028	0.085	16	0.14
OK220600-03-0010J	Brushy Creek	31073	27-Sep-04	3.91	33.4	10.1	43.0	20.4	210.4	8.01	2.7	16.1	24.3	**0.02**	**0.02**	**0.110**	0.022	0.062	0.150	77.3	144	0.011	0.045	**10**	
OK220600-03-0010J	Brushy Creek	31691	02-Nov-04	6.60	59.1	93.6	44.0	18.1	180.1	7.61	2.1	2.9	5.6	0.11	**0.02**	0.720	0.018	0.148	0.850	27.1	116	0.075	0.157	73	5520.82
OK220600-03-0010J	Brushy Creek	31413	08-Dec-04	9.79	85.9	66.5	24.0	9.8	100.2	6.71	3.9	4.8	12.9	0.11	**0.02**	0.190	**0.015**	0.145	0.320	32.5	80	0.028	0.109	23	250.13
OK220600-03-0010J	Brushy Creek	31809	11-Jan-05	11.29	102.4	37.0	39.0	11.0	123.8	8.87	**2.0**	4.4	12.9	0.13	**0.02**	**0.110**	**0.015**	0.165	0.260	36.3	82	0.011	0.055	**10**	77.41
OK220600-03-0010J	Brushy Creek	31986	15-Feb-05	9.49	87.1		50.0	10.9	146.6	8.21	2.0	6.0	17.8	0.05	**0.02**	**0.110**	**0.015**	0.085	0.180	46.4	83	0.015	0.072	**10**	100.62
OK220600-03-0010J	Brushy Creek	32085	15-Mar-05	9.40	98.2	9.4	49.0	12.5	188.3	7.44	4.5	7.4	24.8	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	69.6	112	**0.005**	0.038	**10**	5.84
OK220600-03-0010J	Brushy Creek	32295	26-Apr-05	8.19	86.0	17.4	49.0	17.8	161.1	7.41	3.7	5.5	18.1	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	61.6	68	0.008	0.040	**10**	7.85
OK220600-03-0010J	Brushy Creek	32637	25-May-05	5.27	68.2	11.0	0.6	27.0	219.5	7.32	**2.0**	8.2	28.5	**0.02**	**0.02**	0.100	**0.015**	0.055	0.140	77.7	112	0.006	0.085	16	1.17
OK220600-03-0050F	Peaceable Creek	27880	22-Jul-03	4.02	51.3	17.4	39.4	28.4	415.8	7.18	2.5	39.8	73.2	0.03	**0.02**	1.287	0.059	0.109	1.337	82.4	253	0.026	0.139	15	7.27
OK220600-03-0050F	Peaceable Creek	29551	26-Aug-03	5.97	80.7	10.8		29.2	358.0	7.11	2.8	32.9	56.0	0.08	**0.02**	0.647	0.020	0.120	0.747	75.0	264	0.036	0.123	14	
OK220600-03-0050F	Peaceable Creek	28318	30-Sep-03	6.47	69.8	10.1	50.3	19.4	952.0	7.15	3.7	92.2	213.3	**0.02**	**0.02**	0.642	**0.015**	0.055	0.682	144.3	490	0.009	0.089	**10**	
OK220600-03-0050F	Peaceable Creek	28470	04-Nov-03	4.45	49.9	3.1	48.0	21.2	1330.0	7.07	2.2	138.8	336.6	0.10	**0.02**	0.604	0.024	0.144	0.724	250.7	786	**0.005**	0.073	24	
OK220600-03-0050F	Peaceable Creek	28623	16-Dec-03	6.81	56.0	8.2	60.0	7.0	118.3	7.47	3.1	89.5	299.7	**0.02**	**0.02**	0.399	**0.015**	0.055	0.439	189.1	709	0.021	0.080	**10**	
OK220600-03-0050F	Peaceable Creek	29466	21-Jan-04	8.76	70.5	90.6	70.0	5.7	425.7	7.40		44.1	48.9	0.10	**0.02**	0.593	0.026	0.146	0.713	87.0	294	0.091	0.191	14	6.45
OK220600-03-0050F	Peaceable Creek	29669	24-Feb-04	10.05	89.8	52.1	44.6	10.3	531.0	7.36	6.4	40.0	105.3	0.11	**0.02**	0.532	0.030	0.160	0.662	111.3	291	0.117	0.214	11	3.09
OK220600-03-0050F	Peaceable Creek	29845	30-Mar-04	8.73	91.8	31.0	48.0	17.7	504.0	4.50	2.6	46.1	111.7	0.06	**0.02**	0.531	**0.015**	0.095	0.611	124.7	338	0.062	0.167	44	
OK220600-03-0050F	Peaceable Creek	30208	11-May-04	2.98	35.0	32.2	50.0	23.6	203.1	6.99	2.9	12.0	18.6	0.26	0.09	0.414	0.172	0.522	0.764	61.9	102	0.127	0.229	**10**	1.90
OK220600-03-0050F	Peaceable Creek	30463	22-Jun-04	5.38	53.2	203.0	41.0	23.3	1448.0	7.05	3.1	7.8	13.0	0.16	0.06	1.240	0.141	0.361	1.460	43.0	129	0.113	0.279	100	52.92
OK220600-03-0050F	Peaceable Creek	30595	19-Jul-04	3.18	39.3	28.4	64.0	25.7	211.1	7.44	2.5	18.5	16.0	**0.02**	**0.02**	0.480	0.045	0.085	0.520	53.3	161	0.048	0.124	**10**	
OK220600-03-0050F	Peaceable Creek	30862	23-Aug-04	3.34	39.0	13.8	53.0	24.9	220.1	8.15	**2.0**	21.0	17.2	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	60.5	127	0.030	0.096	12	
OK220600-03-0050F	Peaceable Creek	31072	27-Sep-04	3.47	39.4	11.4	61.0	21.2	229.2	8.05	**2.0**	20.6	13.6	**0.02**	**0.02**	**0.110**	0.034	0.074	0.150	62.1	104	0.044	0.078	16	
OK220600-03-0050F	Peaceable Creek	31690	02-Nov-04	7.84	77.4	175.0	50.0	17.3	70.8	7.63	**2.0**	3.0	7.2	0.14	**0.02**	0.730	**0.015**	0.175	0.890	43.6	100	0.060	0.165	171	4576.92
OK220600-03-0050F	Peaceable Creek	31414	08-Dec-04	9.78	86.5	102.0	31.0	9.9	119.7	7.13	4.2	5.9	12.4	0.14	**0.02**	0.270	0.016	0.176	0.430	38.8	107	0.057	0.169	36	327.99
OK220600-03-0050F	Peaceable Creek	31808	11-Jan-05	10.69	96.3	58.6	37.0	10.7	172.3	8.20	**2.0**	11.0	18.2	0.20	**0.02**	**0.110**	0.038	0.258	0.330	46.5	129	0.024	0.077	11	84.65
OK220600-03-0050F	Peaceable Creek	31985	15-Feb-05	9.83	90.0		60.0	11.4	216.7	8.19	**2.0**	14.9	33.3	0.16	**0.02**	0.180	**0.015**	0.195	0.360	84.4	134	0.101	0.191	**10**	112.42
OK220600-03-0050F	Peaceable Creek	32086	15-Mar-05	9.01	93.8	11.7	58.0	12.1	384.6	7.37	11.1	36.4	73.8	**0.02**	**0.02**	0.120	**0.015**	0.055	0.160	93.8	214	0.041	0.089	**10**	7.96

Appendix A.1 Raw chemical and physical water quality data.

WBID	SiteName	SAMPLEID	DateActivityStart	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Available Nitrogen	Total Nitrogen	TotHardness (mg/L as CaCO3)	TotDisSolids (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OK220600-03-0050F	Peaceable Creek	32296	26-Apr-05	6.87	72.5	22.1	47.0	17.7	238.2	7.27	2.9	20.3	26.6	0.14	**0.02**	**0.110**	**0.015**	0.175	0.270	73.1	131	0.034	0.074	20	
OK220600-03-0050F	Peaceable Creek	32638	25-May-05	5.34	65.6	12.0	71.0	25.9	546.0	7.16	**2.0**	52.5	104.0	**0.02**	**0.02**	0.290	**0.015**	0.055	0.330	119.0	304	0.018	0.142	14	2.55
OK520500-01-0170L	Bad Creek	27874	22-Jul-03	2.05	26.0	26.5	60.0	27.5	878.0	6.80	4.9	201.1	20.9	0.13	**0.02**	0.976	0.037	0.187	1.126	139.1	483	0.028	0.164	**10**	0.00
OK520500-01-0170L	Bad Creek	28154	26-Aug-03	6.15	85.0	51.2	34.0	30.9	491.0	7.11	2.7	99.5	18.3	**0.02**	**0.02**	0.651	0.015	0.055	0.691	80.2	317	0.011	0.107	16	0.00
OK520500-01-0170L	Bad Creek	28321	30-Sep-03	6.44	69.0	64.0	38.0	18.3	424.8	7.04	2.9	82.8	14.6	0.05	**0.02**	0.736	0.089	0.159	0.806	49.7	229	0.012	0.095	38	
OK520500-01-0170L	Bad Creek	28485	04-Nov-03	8.23	90.0	22.9	74.0	19.8	608.0	7.35	2.5	124.1	19.1	**0.02**	**0.02**	0.406	**0.015**	0.055	0.446	95.4	288	**0.005**	0.080	**10**	
OK520500-01-0170L	Bad Creek	28613	16-Dec-03	12.27	100.4	18.4	68.0	8.0	711.0	7.27	3.5	158.9	19.6	**0.02**	**0.02**	0.493	**0.015**	0.055	0.533	106.0	257	**0.005**	0.063	**10**	
OK520500-01-0170L	Bad Creek	29473	21-Jan-04	12.13	101.1	72.6	22.0	7.5	325.0	7.16		56.6	16.8	0.18	**0.02**	0.825	0.017	0.217	1.025	55.0	242	0.016	0.103	26	2.30
OK520500-01-0170L	Bad Creek	29673	24-Feb-04	10.98	95.5	56.2	44.0	9.2	613.0	7.52	4.8	128.2	25.8	0.06	**0.02**	0.479	0.030	0.110	0.559	105.7	401	0.018	0.085	19	0.51
OK520500-01-0170L	Bad Creek	29835	30-Mar-04	10.18	102.4	11.2	38.0	15.7	709.0	6.67	3.7	146.6	22.2	**0.02**	**0.02**	0.189	**0.015**	0.055	0.229	118.0	356	0.014	0.049	12	1.77
OK520500-01-0170L	Bad Creek	30197	04-May-04	9.21	97.0	35.8	42.0	17.8	378.3	7.85	2.8	87.4	15.0	0.10	**0.02**	1.806	0.185	0.305	1.926	87.1	320	0.015	0.101	21	3.48
OK520500-01-0170L	Bad Creek	30422	15-Jun-04	6.94	88.3	9.8	56.0	27.6	1074.0	7.70	2.2	264.5	25.0	**0.02**	**0.02**	0.130	0.021	0.061	0.170	162.4	586	0.013	0.084	**10**	0.32
OK520500-01-0170L	Bad Creek	30583	13-Jul-04	6.91	89.7	17.9	44.0	28.8	690.0	7.63	**2.0**	160.9	19.7	0.03	**0.02**	0.310	0.023	0.073	0.360	109.4	359	0.051	0.070	14	0.84
OK520500-01-0170L	Bad Creek	30808	17-Aug-04	7.55	89.0	17.2	36.0	23.5		8.00	**2.0**	200.7	18.8	0.07	**0.02**	0.290	**0.015**	0.105	0.380	116.0	486	0.049	0.069	10	
OK520500-01-0170L	Bad Creek	31024	21-Sep-04	6.75	80.0	17.8	15.0	24.0	904.0	7.10	**2.0**	212.4	17.4	**0.02**	**0.02**	0.290	**0.015**	0.055	0.330	110.6	457	0.008	0.059	**10**	
OK520500-01-0170L	Bad Creek	31225	25-Oct-04	11.70	128.5	11.4	46.5	22.8	882.0	8.51	2.8	218.5	17.1	**0.02**	**0.02**	0.330	**0.015**	0.055	0.370	115.2	458	**0.005**	0.040	**10**	
OK520500-01-0170L	Bad Creek	31429	07-Dec-04	8.14	72.4	180.0	43.0	10.1	119.7	9.77	2.9	12.8	6.5	0.16	**0.02**	0.610	**0.015**	0.195	0.790	37.3	94	0.066	0.180	131	121.87
OK520500-01-0170L	Bad Creek	31708	04-Jan-05	10.59	89.7	965.0	15.7	8.3	78.8	6.70	4.3	8.9	4.7	0.17	**0.02**	**0.110**	**0.015**	0.205	0.300	25.5	227	0.095	0.133	1902	1679.41
OK520500-01-0170L	Bad Creek	31933	08-Feb-05	10.99	91.4	69.0	31.0	7.4	248.0	7.75	4.0	35.7	13.9	0.18	**0.02**	0.980	**0.015**	0.215	1.180	49.3	210	0.016	0.110	15	15.40
OK520500-01-0170L	Bad Creek	32105	15-Mar-05	10.10	93.0	7.9	53.0	11.7	693.0	7.70	2.8	159.7	29.1	**0.02**	**0.02**	0.230	**0.015**	0.055	0.270	134.1	385	0.005	0.042	**10**	1.14
OK520500-01-0170L	Bad Creek	32262	19-Apr-05	9.10	99.5	12.9	49.0	19.7	526.0	7.60	**2.0**	119.7	21.3	**0.02**	**0.02**	0.140	**0.015**	0.055	0.180	102.0	299	**0.005**	0.020	**10**	1.31
OK520500-01-0170L	Bad Creek	32657	25-May-05	7.32	90.1	9.7	50.3	26.0	1107.0	7.75	2.1	288.2	30.8	**0.02**	**0.02**	0.240	**0.015**	0.055	0.280	185.3	642	**0.005**	**0.005**	18	0.53
OK520500-01-0200D	Alabama Creek	27873	22-Jul-03	2.80	34.0	15.8	25.0	25.0	663.0	6.61	2.1	166.7	13.1	0.07	**0.02**	1.076	0.318	0.408	1.166	69.4	362	0.026	0.095	15	0.00
OK520500-01-0200D	Alabama Creek	28153	26-Aug-03	4.35	56.0	7.9	42.0	28.3	1042.0	6.70	2.8	256.0	18.1	**0.02**	**0.02**	0.580	0.024	0.064	0.620	168.7	599	0.012	0.069	**10**	0.00
OK520500-01-0200D	Alabama Creek	28322	30-Sep-03	5.22	54.0	36.1	49.0	17.5	453.4	6.88	2.5	82.0	15.2	0.06	**0.02**	0.561	0.092	0.172	0.641	87.3	253	0.014	0.104	22	
OK520500-01-0200D	Alabama Creek	28486	04-Nov-03	8.50	93.0	5.6	106.0	20.3	882.0	7.24	2.4	177.5	18.4	**0.02**	**0.02**	0.403	**0.015**	0.055	0.443	122.0	478	0.044	0.062	12	
OK520500-01-0200D	Alabama Creek	28612	16-Dec-03	11.67	95.2	6.4	84.0	7.2	1358.0	7.15	3.2	259.9	24.5	**0.02**	**0.02**	1.389	**0.015**	0.055	1.429	227.1	562	0.013	0.065	**10**	
OK520500-01-0200D	Alabama Creek	29472	21-Jan-04	12.59	97.9	106.0	34.0	4.8	363.3	7.26		57.2	20.0	0.12	**0.02**	0.670	0.015	0.155	0.810	85.2	253	0.022	0.114	28	2.29
OK520500-01-0200D	Alabama Creek	29674	24-Feb-04	9.30	81.0	38.6	59.0	9.4	601.0	6.65	4.4	116.8	25.5	0.05	**0.02**	0.241	0.028	0.098	0.311	121.6	342	0.058	0.123	22	0.90
OK520500-01-0200D	Alabama Creek	29836	30-Mar-04	8.67	86.0	115.1	52.0	15.5	458.0	6.99	4.6	79.1	21.4	**0.02**	**0.02**	0.170	**0.015**	0.055	0.210	102.2	223	0.019	0.051	10	2.25
OK520500-01-0200D	Alabama Creek	30198	04-May-04	8.04	85.0	36.9	33.0	17.6	342.8	7.83	2.8	74.1	14.4	0.05	**0.02**	0.478	**0.015**	0.085	0.548	85.2	310	0.016	0.125	28	4.39
OK520500-01-0200D	Alabama Creek	30423	15-Jun-04	4.74	59.0	17.6	66.0	26.7	526.0	8.50	**2.0**	98.5	15.0	**0.02**	**0.02**	**0.110**	0.028	0.068	0.150	110.4	277	0.008	0.083	**10**	0.31
OK520500-01-0200D	Alabama Creek	30584	13-Jul-04	5.52	70.5	71.8	28.0	27.8	186.1	6.85	2.1	30.8	7.0	0.14	**0.02**	0.170	0.028	0.188	0.330	43.5	125	0.051	0.125	36	0.90
OK520500-01-0200D	Alabama Creek	30809	17-Aug-04	7.15	86.0	7.3	65.0	24.3		7.23	2.4	147.9	14.2	**0.02**	**0.02**	0.280	**0.015**	0.055	0.320	128.8	395	0.061	0.087	**10**	
OK520500-01-0200D	Alabama Creek	31025	21-Sep-04	6.84	77.5	3.2	106.0	21.5	960.0	6.65	**2.0**	192.6	21.2	**0.02**	**0.02**	0.340	**0.015**	0.055	0.380	193.7	501	0.006	0.051	**10**	
OK520500-01-0200D	Alabama Creek	31226	25-Oct-04	15.27	149.5	3.1	99.0	23.1	1443.0	8.18	3.9	361.6	16.8	**0.02**	**0.02**	0.070	**0.015**	0.055	0.110	248.6	816	0.007	0.053	**10**	
OK520500-01-0200D	Alabama Creek	31430	07-Dec-04	9.59	84.6	160.0	50.0	10.0	111.4	9.02	3.2	8.0	7.1	0.19	**0.02**	0.560	**0.015**	0.225	0.770	26.8	90	0.040	0.137	68	103.76
OK520500-01-0200D	Alabama Creek	31709	04-Jan-05	11.06	94.6	585.0	21.7	8.4	63.2	7.03	4.9	4.4	5.0	0.20	**0.02**	**0.110**	0.023	0.243	0.330	17.3	194	0.092	0.144	804	531.45
OK520500-01-0200D	Alabama Creek	31934	08-Feb-05	9.97	82.5	58.0	32.0	6.8	195.5	8.28	3.2	22.2	13.5	0.19	**0.02**	0.670	**0.015**	0.225	0.880	44.2	163	0.013	0.089	**10**	19.80
OK520500-01-0200D	Alabama Creek	32106	15-Mar-05	8.86	80.0	13.3	64.0	11.0	447.5	7.07	5.1	82.0	26.8	0.05	**0.02**	**0.110**	**0.015**	0.085	0.180	108.5	259	0.006	0.060	**10**	1.84
OK520500-01-0200D	Alabama Creek	32263	19-Apr-05	7.77	84.2	18.0	59.0	19.3	419.5	7.22	**2.0**	76.3	23.2	0.05	**0.02**	**0.110**	0.024	0.094	0.180	103.6	246	**0.005**	0.030	**10**	2.27
OK520500-01-0200D	Alabama Creek	32658	25-May-05	5.03	60.7	16.9	82.0	24.9	663.0	7.23	2.1	174.8	26.3	**0.02**	**0.02**	0.210	**0.015**	0.055	0.250	146.9	395	0.010	0.041	19	0.31
OK520500-02-0010C	Wewoka Creek: Lower	27872	22-Jul-03	4.50	55.5	51.6	139.0	26.5	1970.0	7.70	5.3	516.2	22.7	0.38	**0.02**	1.361	0.060	0.460	1.761	323.8	1102	0.019	0.189	47	0.03
OK520500-02-0010C	Wewoka Creek: Lower	28152	26-Aug-03	5.67	72.0	52.1	105.0	27.3	1308.0	7.57	4.4	310.0	20.6	**0.02**	**0.02**	0.652	0.027	0.067	0.692	241.7	717	0.020	0.101	49	0.02

Appendix A.1 Raw chemical and physical water quality data.

WBID	SiteName	SAMPLEID	DateActivityStart	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Available Nitrogen	Total Nitrogen	TotHardness (mg/L as CaCO3)	TotDisSolids (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OK520500-02-0010C	Wewoka Creek: Lower	28324	30-Sep-03	8.91	94.8	37.9	67.0	18.3	632.0	7.88	3.8	129.1	14.7	0.05	**0.02**	0.683	0.024	0.094	0.753	134.4	331	0.007	0.112	29	10.90
OK520500-02-0010C	Wewoka Creek: Lower	28488	04-Nov-03	8.51	96.0	16.0	115.0	21.3	1303.0	7.73	3.2	73.1	22.9	**0.02**	**0.02**	0.452	**0.015**	0.055	0.492	231.7	688	0.106	0.064	**10**	4.27
OK520500-02-0010C	Wewoka Creek: Lower	28611	16-Dec-03	11.99	97.1	25.1	122.0	6.4	1309.0	7.66	4.4	78.0	31.1	0.35	**0.02**	0.588	0.051	0.421	0.958	216.6	529	0.027	0.096	14	11.04
OK520500-02-0010C	Wewoka Creek: Lower	29471	21-Jan-04	13.81	105.0	74.7	80.0	4.0	990.0	7.82		198.1	21.4	0.28	**0.02**	0.916	0.100	0.400	1.216	164.7	483	0.102	0.186	49	44.71
OK520500-02-0010C	Wewoka Creek: Lower	29675	24-Feb-04	10.25	90.4	78.1	116.0	9.8	1078.0	7.85	4.6	212.9	25.1	0.38	**0.02**	0.767	0.049	0.449	1.167	212.5	558	0.081	0.173	78	32.33
OK520500-02-0010C	Wewoka Creek: Lower	29838	30-Mar-04	9.52	98.5	20.6	118.0	16.9	1084.0	8.17	4.5	213.7	25.7	0.06	**0.02**	0.534	0.024	0.104	0.614	219.3	546	0.014	0.074	26	37.15
OK520500-02-0010C	Wewoka Creek: Lower	30199	04-May-04	9.27	101.2	28.9	87.0	19.6	691.0	8.44	3.1	155.3	15.0	0.32	**0.02**	0.646	**0.015**	0.355	0.986	161.2	479	0.038	0.151	33	67.30
OK520500-02-0010C	Wewoka Creek: Lower	30424	15-Jun-04	7.93	103.1	54.4	58.0	29.1	1664.0	7.70	2.3	468.3	11.3	0.30	**0.02**	0.440	0.032	0.352	0.760	276.4	1102	**0.005**	0.124	66	23.66
OK520500-02-0010C	Wewoka Creek: Lower	30585	13-Jul-04	7.16	93.4	98.8	51.0	29.3	308.8	7.47	3.3	53.5	8.0	0.23	**0.02**	0.320	**0.015**	0.265	0.570	75.4	190	0.097	0.209	79	201.33
OK520500-02-0010C	Wewoka Creek: Lower	30810	17-Aug-04	10.64	134.0	34.1	78.0	27.3		8.73	2.6	243.4	16.8	**0.02**	**0.02**	0.480	**0.015**	0.055	0.520	172.7	584	0.061	0.136	30	11.33
OK520500-02-0010C	Wewoka Creek: Lower	31026	21-Sep-04	6.77	78.4	32.7	109.0	23.4	319.3	7.86	3.5	296.1	25.2	**0.02**	**0.02**	0.650	**0.015**	0.055	0.690	228.0	705	**0.005**	0.088	43	5.61
OK520500-02-0010C	Wewoka Creek: Lower	31229	26-Oct-04	8.88	101.9	47.2	105.0	22.2	974.0	8.02	2.7	218.8	19.1	**0.02**	**0.02**	0.290	**0.015**	0.055	0.330	178.5	529	0.042	0.088	41	6.09
OK520500-02-0010C	Wewoka Creek: Lower	31431	07-Dec-04	9.02	80.5		92.0	10.3	297.3	9.07	3.9	37.5	8.8	0.20	**0.02**	1.020	0.045	0.265	1.240	66.3	209	0.320	0.622	1130	407.69
OK520500-02-0010C	Wewoka Creek: Lower	31710	04-Jan-05	9.79	87.2	793.0	46.3	10.3	173.0	7.15	5.1	23.8	6.4	0.22	**0.02**	**0.110**	0.026	0.266	0.350	43.1	504	0.218	0.235	1255	9532.79
OK520500-02-0010C	Wewoka Creek: Lower	31935	08-Feb-05	10.54	87.9	130.0	59.0	7.5	390.0	7.80	3.0	57.9	12.7	0.20	**0.02**	0.810	**0.015**	0.235	1.030	87.4	246	0.061	0.207	142	594.00
OK520500-02-0010C	Wewoka Creek: Lower	32107	15-Mar-05	9.69	89.4	8.5	141.0	11.7	1500.0	8.21	2.5	370.4	29.6	**0.02**	**0.02**	0.240	**0.015**	0.055	0.280	302.0	841	0.007	0.049	**10**	32.27
OK520500-02-0010C	Wewoka Creek: Lower	32264	19-Apr-05	8.52	94.0	11.2	127.0	20.3	1373.0	8.05	**2.0**	336.6	33.4	**0.02**	**0.02**	0.240	**0.015**	0.055	0.280	278.7	729	**0.005**	0.031	**10**	28.83
OK520500-02-0010C	Wewoka Creek: Lower	32659	25-May-05	6.95	88.0	26.1	145.0	27.2	2266.0	7.95	2.3	569.1	31.5	**0.02**	**0.02**	0.290	**0.015**	0.055	0.330	397.5	1271	0.012	0.034	40	9.57
OK520500-02-0010M	Wewoka Creek: Upper	27849	22-Jul-03	13.33	179.2	62.2	156.0	30.8	1505.0	8.98	12.4	41.9	90.5	0.72	0.16	2.989	0.048	0.928	3.869	179.4	827	0.397	0.762	56	5.46
OK520500-02-0010M	Wewoka Creek: Upper	28174	26-Aug-03	10.94	149.7	40.1	179.0	31.9	1317.0	8.78	5.1	235.8	75.1	**0.02**	**0.02**	1.523	0.030	0.070	1.563	148.2	709	0.912	1.134	55	0.00
OK520500-02-0010M	Wewoka Creek: Upper	28308	30-Sep-03	6.12	62.9	54.8	86.0	16.8	693.0	7.87	2.3	124.8	22.0	0.53	0.07	0.603	0.043	0.643	1.203	148.8	375	0.080	1.171	39	12.98
OK520500-02-0010M	Wewoka Creek: Upper	28460	04-Nov-03	6.95	76.0	25.5	140.0	20.1	1363.0	7.94	2.9	247.4	49.8	1.51	**0.02**	0.628	0.032	1.562	2.158	259.7	691	0.398	0.374	39	11.06
OK520500-02-0010M	Wewoka Creek: Upper	28601	15-Dec-03	12.90	101.3	15.6	152.0	5.1	1394.0	8.64	4.6	255.1	39.2	1.75	**0.02**	0.506	**0.015**	1.785	2.276	255.2	657	0.370	0.454	13	
OK520500-02-0010M	Wewoka Creek: Upper	29452	20-Jan-04	12.09	90.9	76.3	90.0	3.5	674.0	7.83		119.3	19.0	0.27	**0.02**	0.528	0.039	0.329	0.818	131.6	342	0.100	0.198	40	
OK520500-02-0010M	Wewoka Creek: Upper	29678	23-Feb-04	11.38	102.0	21.4	69.0	10.6	1004.0	8.23	3.5	179.7	28.0	0.91	0.06	0.479	0.050	1.020	1.449	206.5	523	0.150	0.228	11	
OK520500-02-0010M	Wewoka Creek: Upper	29821	30-Mar-04	8.34	82.0	14.9	157.0	14.5	1703.0	8.19	3.2	353.3	31.3	1.62	**0.02**	0.874	**0.015**	1.655	2.514	310.7	897	0.237	0.297	23	27.56
OK520500-02-0010M	Wewoka Creek: Upper	30180	04-May-04	9.20	109.3	22.2	99.0	23.6	956.0	8.17	**2.0**	202.4	17.1	0.34	**0.02**	0.471	**0.015**	0.375	0.831	195.1	545	0.042	0.137	27	28.16
OK520500-02-0010M	Wewoka Creek: Upper	30406	15-Jun-04	13.30	182.0	19.6	110.0	32.1	985.0	8.01	2.6	223.7	18.2	0.16	**0.02**	0.290	0.017	0.197	0.470	183.2	571	0.045	0.155	30	
OK520500-02-0010M	Wewoka Creek: Upper	30565	13-Jul-04	6.51	87.7	33.2	88.0	31.0	449.2	7.92	2.5	68.2	11.3	0.11	**0.02**	0.180	**0.015**	0.145	0.310	112.9	265	0.061	0.124	30	49.04
OK520500-02-0010M	Wewoka Creek: Upper	30791	17-Aug-04	10.35	128.6	44.5	109.0	26.7	828.0		**2.0**	161.5	21.2	0.33	**0.02**	0.450	**0.015**	0.365	0.800	161.6	446	0.200	0.312	25	
OK520500-02-0010M	Wewoka Creek: Upper	31029	21-Sep-04	11.64	146.5	21.9	136.0	27.3	1227.0	8.86	4.3	266.0	54.1	0.07	**0.02**	0.700	**0.015**	0.105	0.790	217.6	695	0.333	0.474	25	
OK520500-02-0010M	Wewoka Creek: Upper	31216	26-Oct-04	5.75	63.8			20.5	915.0	7.22	6.7	178.4	41.9	5.55	**0.02**	3.000	**0.015**	5.585	8.570	176.3	653	1.707	2.627	1766	
OK520500-02-0010M	Wewoka Creek: Upper	31335	29-Nov-04	10.31	92.4	45.1	78.0	10.5	4952.0	7.77	2.4	98.5	13.3	0.22	**0.02**	0.390	**0.015**	0.255	0.630	129.1	328	0.052	0.108	33	
OK520500-02-0010M	Wewoka Creek: Upper	31434	07-Dec-04	8.98	74.1	239.0	85.0	9.5	498.6	9.05	2.4	85.1	10.3	0.16	**0.02**	0.520	0.052	0.232	0.700	101.1	270	0.131	0.225	243	202.82
OK520500-02-0010M	Wewoka Creek: Upper	31700	03-Jan-05	9.92	90.1			11.2	339.5	7.55	5.7	52.3	9.4	0.26	**0.02**	**0.110**	0.057	0.337	0.390	82.2	127	0.260	0.331	1681	
OK520500-02-0010M	Wewoka Creek: Upper	31929	07-Feb-05	10.79	91.6	126.0	191.0	8.2	588.0	7.18	3.8	97.7	13.1	0.16	**0.02**	0.820	**0.015**	0.195	1.000	130.5	336	0.047	0.170	129	231.39
OK520500-02-0010M	Wewoka Creek: Upper	32101	14-Mar-05	13.60	132.8	6.5	171.0	14.3	1713.0	8.28	3.5	432.8	30.5	**0.02**	**0.02**	0.140	**0.015**	0.055	0.180	344.8	886	0.014	0.047	12	14.20
OK520500-02-0010M	Wewoka Creek: Upper	32258	18-Apr-05	10.80	119.0	6.8	186.0	20.6	2007.0	8.21	**2.0**	408.6	30.8	0.09	**0.02**	0.190	**0.015**	0.125	0.300	395.5	1194	0.021	0.059	**10**	11.83
OK520500-02-0010M	Wewoka Creek: Upper	32653	24-May-05	7.72	99.1	15.5	125.0	29.0	1702.0	8.01	3.1	437.5	35.0	**0.02**	**0.02**	0.370	**0.015**	0.055	0.410	299.4	977	0.037	0.063	26	5.38
OK520500-02-0090D	Little Wewoka Creek	27871	22-Jul-03	3.80	44.0	3.1	188.0	23.5	1220.0	7.26	**2.0**	247.1	3.6	0.23	**0.02**	0.633	0.097	0.347	0.883	241.1	622	0.008	0.071	10	0.00
OK520500-02-0090D	Little Wewoka Creek	28151	26-Aug-03	3.15	37.0	26.0	97.0	24.3	1169.0	7.31	4.4	379.1	8.1	**0.02**	**0.02**	1.449	0.118	0.158	1.489	227.7	802	0.023	0.153	25	0.00
OK520500-02-0090D	Little Wewoka Creek	28323	30-Sep-03	8.16	82.4	13.8	54.0	16.1	551.0	6.87	3.0	109.9	12.6	0.04	**0.02**	0.390	0.029	0.089	0.450	114.0	294	0.010	0.072	16	0.49
OK520500-02-0090D	Little Wewoka Creek	28487	04-Nov-03	4.85	54.0	5.2	77.0	20.3	671.0	6.95	3.3	138.1	11.7	**0.02**	**0.02**	0.533	**0.015**	0.055	0.573	139.2	361	0.075	0.067	13	0.44
OK520500-02-0090D	Little Wewoka Creek	28610	16-Dec-03	11.03	86.0	9.8	78.0	4.7	655.0	7.11	2.9	120.3	14.4	**0.02**	**0.02**	0.301	**0.015**	0.055	0.341	150.5	208	0.015	0.066	**10**	0.70

Appendix A.1 Raw chemical and physical water quality data.

WBID	SiteName	SAMPLEID	DateActivityStart	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Available Nitrogen	Total Nitrogen	TotHardness (mg/L as CaCO3)	TotDisSolids (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OK520500-02-0090D	Little Wewoka Creek	29470	21-Jan-04	14.45	107.0	42.3	42.0	2.9	608.0	7.34		129.8	16.2	**0.02**	**0.02**	0.597	**0.015**	0.055	0.637	111.2	344	0.016	0.084	28	5.92
OK520500-02-0090D	Little Wewoka Creek	29676	24-Feb-04	10.99	90.0	42.5	69.0	8.3	925.0	7.07	4.6	199.7	17.9	**0.02**	**0.02**	0.358	0.026	0.066	0.398	173.1	507	0.022	0.089	46	2.07
OK520500-02-0090D	Little Wewoka Creek	29837	30-Mar-04	10.56	103.5	15.3	69.0	14.5	826.0	7.51	2.8	176.8	17.9	**0.02**	**0.02**	0.258	**0.015**	0.055	0.298	169.2	451	0.014	0.056	**10**	4.18
OK520500-02-0090D	Little Wewoka Creek	30200	04-May-04	9.50	113.0	36.4	59.0	23.7	706.0	8.57	2.1	169.7	12.4	0.16	**0.02**	0.707	0.049	0.229	0.887	132.7	475	**0.005**	0.110	20	8.96
OK520500-02-0090D	Little Wewoka Creek	30425	15-Jun-04	7.13	92.1	37.0	51.0	28.5	382.3	7.22	2.2	78.5	7.7	0.21	**0.02**	0.380	0.090	0.320	0.610	77.3	251	0.040	0.137	**10**	5.06
OK520500-02-0090D	Little Wewoka Creek	30586	13-Jul-04	7.72	104.0	40.6	53.0	31.0	451.3	7.49	3.4	102.3	6.8	0.18	**0.02**	0.980	0.053	0.253	1.180	79.0	274	0.039	0.149	49	36.05
OK520500-02-0090D	Little Wewoka Creek	30811	17-Aug-04	8.78	114.5	16.3	48.0	29.1		7.55	**2.0**	105.8	10.9	**0.02**	**0.02**	0.210	**0.015**	0.055	0.250	114.2	323	0.046	0.070	**10**	2.51
OK520500-02-0090D	Little Wewoka Creek	31027	21-Sep-04	7.20	86.0	5.0	164.0	24.0	1009.0	7.35	4.2	191.4	9.5	**0.02**	**0.02**	0.610	**0.015**	0.055	0.650	212.0	505	**0.005**	0.053	**10**	
OK520500-02-0090D	Little Wewoka Creek	31230	26-Oct-04	8.42	72.8	603.0	91.0	21.3	605.0	7.40	5.3	134.0	8.8	**0.02**	**0.02**	0.620	**0.015**	0.055	0.660	127.5	410	0.067	0.350	802	
OK520500-02-0090D	Little Wewoka Creek	31432	07-Dec-04	10.52	92.1	290.0	48.0	9.4	162.2	6.05	2.4	21.3	6.9	0.20	**0.02**	0.660	0.060	0.280	0.880	37.1	138	0.089	0.198	231	77.54
OK520500-02-0090D	Little Wewoka Creek	31711	04-Jan-05	10.02	88.2	464.0	21.6	9.2	115.4	6.68	5.8	15.8	4.9	0.20	**0.02**	1.140	0.024	0.244	1.360	27.4	162	0.099	0.151	667	
OK520500-02-0090D	Little Wewoka Creek	31936	08-Feb-05	11.02	93.0	66.0	41.0	7.5	346.3	7.43	3.8	59.3	12.1	0.19	**0.02**	0.580	**0.015**	0.225	0.790	69.9	241	0.024	0.122	53	56.13
OK520500-02-0090D	Little Wewoka Creek	32108	15-Mar-05	9.90	87.2	7.4	86.0	9.7	851.0	7.45	2.4	196.2	23.7	**0.02**	**0.02**	0.200	**0.015**	0.055	0.240	206.1	515	**0.005**	0.031	**10**	4.06
OK520500-02-0090D	Little Wewoka Creek	32265	19-Apr-05	9.96	108.6	3.6	108.0	19.5	875.0	7.76	**2.0**	196.1	23.2	**0.02**	**0.02**	0.200	**0.015**	0.055	0.240	212.6	469	**0.005**	0.024	**10**	
OK520500-02-0090D	Little Wewoka Creek	32660	25-May-05	9.77	116.7	8.0	110.0	24.3	1084.0	7.87	**2.0**	327.1	20.8	**0.02**	**0.02**	0.280	0.031	0.071	0.320	252.6	637	**0.005**	**0.005**	**10**	
OK520600-03-0010D	Canadian Sandy Creek	27870	21-Jul-03	7.73	99.7	3.7	229.0	29.2	500.0	7.82	2.3	19.6	7.7	0.05	**0.02**	**0.110**	0.073	0.143	0.180	216.1	301	0.051	0.105	**10**	0.00
OK520600-03-0010D	Canadian Sandy Creek	28150	25-Aug-03	5.55	74.0	8.5	217.0	29.0	516.0	7.21	4.0	17.8	2.3	**0.02**	**0.02**	0.397	0.020	0.060	0.437	208.1	12	0.039	0.112	15	0.00
OK520600-03-0010D	Canadian Sandy Creek	28326	30-Sep-03	10.46	115.0	7.6	240.0	19.9	524.0	8.16	2.3	19.0	24.2	0.10	**0.02**	0.283	0.016	0.136	0.403	219.4	276	0.051	0.089	**10**	0.92
OK520600-03-0010D	Canadian Sandy Creek	28484	03-Nov-03	4.78	54.0	14.5	297.0	21.4	762.0	7.70	3.9	26.3	41.8	**0.02**	**0.02**	0.251	**0.015**	0.055	0.291	272.6	437	0.063	0.144	**10**	0.52
OK520600-03-0010D	Canadian Sandy Creek	28607	15-Dec-03	12.86	101.1	3.8	235.0	5.5	7.4	8.17	3.1	14.5	26.1	0.02	**0.02**	0.185	**0.015**	0.055	0.225	289.6	387	0.023	0.081	**10**	6.22
OK520600-03-0010D	Canadian Sandy Creek	29468	20-Jan-04	13.73	99.0	12.7	233.0	1.9	684.0	8.26		46.0	25.7	0.09	**0.02**	0.527	0.027	0.137	0.637	236.0	372	0.064	0.121	11	7.09
OK520600-03-0010D	Canadian Sandy Creek	29671	23-Feb-04	11.00	98.3	48.5	245.0	10.4	681.0	8.18	3.5	46.2	25.1	0.07	**0.02**	**0.110**	0.015	0.105	0.200	261.2	327	0.036	0.119	48	14.16
OK520600-03-0010D	Canadian Sandy Creek	29840	30-Mar-04	11.43	119.2	11.7	242.0	17.4	645.0	8.08	**2.0**	28.3	25.2	**0.02**	**0.02**	0.170	**0.015**	0.055	0.210	270.2	325	0.040	0.076	22	15.62
OK520600-03-0010D	Canadian Sandy Creek	30194	03-May-04	8.77	92.0	23.2	231.0	17.7	488.0	8.02	3.4	28.9	16.3	0.18	**0.02**	0.334	0.042	0.242	0.534	234.9	368	0.059	0.134	**10**	23.51
OK520600-03-0010D	Canadian Sandy Creek	30419	14-Jun-04	6.42	80.2	116.0	155.0	26.5	325.1	7.77	3.4	9.0	12.8	0.20	**0.02**	**0.110**	0.037	0.257	0.330	148.6	167	0.084	0.204	149	44.16
OK520600-03-0010D	Canadian Sandy Creek	30580	12-Jul-04	6.12	77.0	210.0	240.0	26.9	388.3	8.04	2.6	10.2	10.8	0.14	**0.02**	**0.110**	0.026	0.186	0.270	180.0	250	0.146	0.287	220	16.68
OK520600-03-0010D	Canadian Sandy Creek	30805	16-Aug-04	8.75	104.0	40.3	183.0	24.0		7.77	2.7	21.0	25.4	0.18	**0.02**	0.370	**0.015**	0.215	0.570	197.6	289	0.071	0.121	25	4.27
OK520600-03-0010D	Canadian Sandy Creek	31021	20-Sep-04	6.21	69.9	59.4	242.0	21.2	537.0	7.50	**2.0**	18.4	32.9	0.04	**0.02**	0.110	**0.015**	0.075	0.170	243.5	360	0.049	0.113	39	0.49
OK520600-03-0010D	Canadian Sandy Creek	31227	26-Oct-04	7.39	81.6	507.0		20.2	370.0	7.81	3.4	12.4	19.8	0.12	**0.02**	**0.110**	**0.015**	0.155	0.250	189.7	272	0.210	0.336	289	21.91
OK520600-03-0010D	Canadian Sandy Creek	31428	06-Dec-04	11.26	100.9	40.4	222.0	10.5	604.0	6.24	2.4	23.5	18.6	0.17	**0.02**	**0.110**	**0.015**	0.205	0.300	269.8	348	0.073	0.121	41	86.05
OK520600-03-0010D	Canadian Sandy Creek	31702	03-Jan-05	9.78	94.0	57.5	102.0	13.6	273.2	7.88	5.0	7.8	13.4	0.22	**0.02**	**0.110**	0.033	0.273	0.350	112.1	139	0.076	0.239	103	5.27
OK520600-03-0010D	Canadian Sandy Creek	31931	07-Feb-05	8.22	72.7	153.0	172.0	9.2	408.9	7.78	4.2	11.8	12.2	0.14	**0.02**	0.760	**0.015**	0.175	0.920	173.4	194	0.101	0.260	92	
OK520600-03-0010D	Canadian Sandy Creek	32103	14-Mar-05	13.42	129.5	3.4	302.0	13.7	493.3	8.30	3.0	25.3	23.0	0.05	**0.02**	**0.110**	**0.015**	0.085	0.180	291.2	366	0.011	0.052	**10**	33.01
OK520600-03-0010D	Canadian Sandy Creek	32260	18-Apr-05	10.13	109.2	4.1	295.0	19.0	643.0	8.28	**2.0**	170.5	24.4	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	299.6	380	**0.005**	0.034	**10**	22.31
OK520600-03-0010D	Canadian Sandy Creek	32655	24-May-05	7.46	97.4	37.9	312.0	29.2	671.0	8.04	2.2	147.1	22.4	0.14	**0.02**	**0.110**	0.179	0.339	0.270	305.2	420	0.047	0.167	47	5.64
OK520700-01-0080L	Gentry Creek	27860	21-Jul-03	4.80	65.2	29.6	127.0	28.9	367.9	7.98	4.6	8.5	44.0	0.05	**0.02**	0.584	0.180	0.250	0.654	131.1	227	0.017	0.144	24	0.05
OK520700-01-0080L	Gentry Creek	28163	25-Aug-03	6.11	57.1	20.6	122.0	27.3	398.6	7.93	2.9	11.0	19.3	**0.02**	0.15	0.885	0.289	0.459	1.055	148.8	183	0.031	0.115	30	0.00
OK520700-01-0080L	Gentry Creek	28330	29-Sep-03	2.62	25.6	184.0	89.0	16.1	223.1	7.63	3.8	3.7	19.4	0.06	**0.02**	0.821	0.041	0.121	0.901	88.3	156	0.013	0.208	221	0.31
OK520700-01-0080L	Gentry Creek	28474	03-Nov-03	2.19	24.0	65.0	97.0	19.9	269.1	7.73	**2.0**	7.7	17.9	**0.02**	**0.02**	0.691	0.021	0.061	0.731	101.9	155	0.039	0.137	66	0.08
OK520700-01-0080L	Gentry Creek	28627	15-Dec-03	8.70	71.5	234.0	84.0	7.6	218.2	6.99	3.2	3.7	18.5	0.08	**0.02**	0.595	0.057	0.157	0.695	82.0	237	0.065	0.231	80	
OK520700-01-0080L	Gentry Creek	29478	20-Jan-04	10.88	79.1	63.0	61.0	2.2	266.9	7.39		6.2	44.6	0.56	**0.02**	0.964	0.025	0.605	1.544	71.3	191	0.066	0.174	15	
OK520700-01-0080L	Gentry Creek	29686	23-Feb-04	6.68	57.0	10.7	53.0	10.5	267.9	7.60	3.2	10.5	86.1	**0.02**	**0.02**	0.193	0.031	0.071	0.233	127.8	210	0.025	0.069	**10**	
OK520700-01-0080L	Gentry Creek	29825	29-Mar-04	6.83	66.2	44.0	79.0	13.9	305.6	7.88	2.9	10.3	64.7	0.16	**0.02**	0.464	**0.015**	0.195	0.644	114.4	191	0.026	0.095	22	13.15
OK520700-01-0080L	Gentry Creek	30185	03-May-04	6.61	65.7	16.7	61.0	14.7	257.9	8.08	**2.0**	11.5	49.2	0.13	**0.02**	0.231	**0.015**	0.165	0.381	101.0	157	0.009	0.097	17	3.32

Appendix A.1 Raw chemical and physical water quality data.

WBID	SiteName	SAMPLEID	DateActivityStart	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Available Nitrogen	Total Nitrogen	TotHardness (mg/L as CaCO3)	TotDisSolids (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OK520700-01-0080L	Gentry Creek	30410	14-Jun-04	4.54	45.6	104.0	85.0	26.7	273.6	7.80	2.6	11.4	40.0	0.16	0.10	**0.110**	0.144	0.404	0.370	105.6	162	0.009	0.133	35	
OK520700-01-0080L	Gentry Creek	30571	12-Jul-04	4.51	56.9	153.0	60.0	27.3	264.1	7.67	2.1	12.3	37.2	0.08	**0.02**	**0.110**	**0.015**	0.115	0.210	96.2	173	0.061	0.107	26	
OK520700-01-0080L	Gentry Creek	30796	16-Aug-04	4.70	54.1	71.9	88.0	22.4	225.5	7.79	2.2	10.8	28.6	0.09	**0.02**	0.190	**0.015**	0.125	0.300	84.7	183	0.034	0.129	43	
OK520700-01-0080L	Gentry Creek	31012	20-Sep-04	4.60	52.4	30.9	60.0	21.1	221.7	8.30	3.9	9.0	20.9	**0.02**	**0.02**	0.310	0.016	0.056	0.350	86.4	141	**0.005**	0.108	**10**	
OK520700-01-0080L	Gentry Creek	31234	25-Oct-04	3.44	37.3	21.4	50.0	19.4	161.8	8.08	3.5	5.5	24.6	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	67.8	119	0.029	0.122	24	
OK520700-01-0080L	Gentry Creek	31355	29-Nov-04	8.85	77.1	62.4	42.0	9.1	242.2	8.29	3.1	8.8	47.7	0.24	**0.02**	0.360	**0.015**	0.275	0.620	80.5	219	0.030	0.108	11	
OK520700-01-0080L	Gentry Creek	31805	10-Jan-05	8.40	70.3	35.8	40.0	7.7	236.2	8.76	**2.0**	6.2	44.0	0.33	**0.02**	**0.110**	0.022	0.372	0.460	72.2	147	0.020	0.063	**10**	6.32
OK520700-01-0080L	Gentry Creek	31942	07-Feb-05	10.14	86.6		43.0	8.5	206.4	8.34	4.1	5.1	35.2	0.15	**0.02**	0.810	**0.015**	0.185	0.980	62.6	167	0.030	0.130	18	14.89
OK520700-01-0080L	Gentry Creek	32090	14-Mar-05	7.36	67.0	8.9	53.0	11.1	256.6		2.1	13.5	109.4	0.06	**0.02**	**0.110**	**0.015**	0.095	0.190	169.7	260	0.008	0.066	**10**	
OK520700-01-0080L	Gentry Creek	32270	18-Apr-05	6.57	74.3	14.6	74.0	21.0	425.8	7.13	**2.0**	11.6	94.4	**0.02**	**0.02**	**0.110**	0.026	0.066	0.150	159.3	230	**0.005**	0.027	**10**	
OK520700-01-0080L	Gentry Creek	32642	24-May-05	3.56	42.0		113.0	25.8	545.0	7.43	2.0	33.4	108.1	**0.02**	**0.02**	0.280	**0.015**	0.055	0.320	201.6	327	0.013	0.031	22	
OK520700-03-0100B	Salt Creek (Creek Co.)	27868	21-Jul-03	5.23	67.0	6.8	196.0	27.8	1097.0	7.70	**2.0**	214.1	19.0	0.20	**0.02**	0.497	0.084	0.304	0.717	255.3	0	**0.020**	0.011	606	0.15
OK520700-03-0100B	Salt Creek (Creek Co.)	28148	25-Aug-03	2.36	29.0	15.1	125.0	25.2	722.0	7.10	4.1	120.5	13.5	**0.02**	**0.02**	1.653	0.172	0.212	1.693	157.0	389	0.009	0.092	19	0.00
OK520700-03-0100B	Salt Creek (Creek Co.)	28320	29-Sep-03	8.90	90.4	35.6	78.0	16.1	424.8	7.48	3.3	64.3	11.4	0.06	**0.02**	0.673	0.042	0.122	0.753	109.1	180	0.025	0.094	15	0.17
OK520700-03-0100B	Salt Creek (Creek Co.)	28483	03-Nov-03	6.57	70.3	15.7	168.0	18.7	747.0	7.37	2.7	103.2	19.9	**0.02**	**0.02**	0.549	0.022	0.062	0.589	223.4	406	**0.005**	0.079	11	2.26
OK520700-03-0100B	Salt Creek (Creek Co.)	28609	15-Dec-03	12.53	102.4	11.4	161.0	6.9	694.0	7.73	3.8	16.9	22.3	0.07	**0.02**	0.178	0.016	0.106	0.268	213.1	348	**0.005**	0.072	**10**	4.10
OK520700-03-0100B	Salt Creek (Creek Co.)	29474	21-Jan-04	13.08	105.0	55.3	122.0	6.0	408.6	7.40		51.7	15.6	0.23	**0.02**	0.487	0.087	0.337	0.737	125.0	220	0.049	0.140	19	10.44
OK520700-03-0100B	Salt Creek (Creek Co.)	29677	24-Feb-04	12.25	104.0	20.1	171.0	8.1	7.9	7.76	4.0	107.0	23.4	0.07	**0.02**	0.403	0.040	0.130	0.493	233.4	449	0.029	0.088	16	6.47
OK520700-03-0100B	Salt Creek (Creek Co.)	29834	30-Mar-04	9.61	97.0	84.1	117.0	15.8	571.0	6.94	3.2	89.2	16.8	0.19	**0.02**	0.981	0.066	0.276	1.191	177.9	330	0.061	0.134	70	54.25
OK520700-03-0100B	Salt Creek (Creek Co.)	30196	03-May-04	8.86	93.2	49.4	129.0	17.8	485.0	7.14	2.8	82.6	14.0	0.20	**0.02**	0.483	0.132	0.352	0.703	172.9	395	0.068	0.157	48	12.33
OK520700-03-0100B	Salt Creek (Creek Co.)	30421	14-Jun-04	4.80	62.5	28.3	133.0	29.2	512.0	7.40	**2.0**	66.2	16.0	0.24	**0.02**	**0.110**	0.073	0.333	0.370	164.3	258	**0.005**	0.120	13	4.57
OK520700-03-0100B	Salt Creek (Creek Co.)	30582	12-Jul-04	7.14	94.0	30.5	81.0	29.9	255.0	7.52	2.5	17.1	9.6	0.10	**0.02**	**0.110**	**0.015**	0.135	0.230	102.8	118	0.074	0.109	27	39.84
OK520700-03-0100B	Salt Creek (Creek Co.)	30807	16-Aug-04	7.16	88.0	26.8	139.0	25.8		7.83	3.0	90.3	18.2	0.08	**0.02**	0.160	**0.015**	0.115	0.260	202.4	398	0.046	0.093	15	2.36
OK520700-03-0100B	Salt Creek (Creek Co.)	31023	20-Sep-04	1.40	17.0	13.8	214.0	25.3	961.0	7.20	3.8	175.5	12.1	**0.02**	**0.02**	0.600	**0.015**	0.055	0.640	250.1	543	0.027	0.148	**10**	
OK520700-03-0100B	Salt Creek (Creek Co.)	31224	25-Oct-04	6.92	73.2	7.8	187.0	18.1	974.0	7.50	5.6	170.4	31.9	**0.02**	**0.02**	0.370	**0.015**	0.055	0.410	227.7	484	0.030	0.096	**10**	0.18
OK520700-03-0100B	Salt Creek (Creek Co.)	31426	06-Dec-04	11.18	92.6	50.0	110.0	7.2	477.4	8.96	2.3	59.7	17.1	0.17	**0.02**	0.240	0.166	0.356	0.430	143.4	252	0.076	0.120	**10**	7.17
OK520700-03-0100B	Salt Creek (Creek Co.)	31704	03-Jan-05	8.26	77.0	10.0	176.0	12.2	764.0	7.98	3.9	108.7	24.2	0.07	**0.02**	**0.110**	0.058	0.148	0.200	233.2	417	0.013	0.048	11	4.88
OK520700-03-0100B	Salt Creek (Creek Co.)	31932	08-Feb-05	11.17	90.6	102.0	93.0	6.5	330.3	8.10	3.9	31.7	14.1	0.25	**0.02**	1.450	**0.015**	0.285	1.720	102.0	251	0.042	0.162	55	37.71
OK520700-03-0100B	Salt Creek (Creek Co.)	32104	15-Mar-05	9.61	85.6	8.9	173.0	10.2	694.0	7.94	2.9	103.7	24.4	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	54.2	390	0.011	0.052	**10**	6.73
OK520700-03-0100B	Salt Creek (Creek Co.)	32261	19-Apr-05	6.85	72.8	9.7	215.0	18.3	925.0	7.76	**2.0**	145.5	23.4	**0.02**	**0.02**	0.520	**0.015**	0.055	0.560	289.6	520	0.009	0.035	**10**	3.97
OK520700-03-0100B	Salt Creek (Creek Co.)	32656	25-May-05	4.90	61.4	18.2	214.0	23.2	1120.0	7.77	**2.0**	216.4	17.5	0.15	**0.02**	0.600	**0.015**	0.185	0.770	306.3	666	0.035	0.122	24	1.49
OK520700-03-0220G	Camp Creek	27867	21-Jul-03	1.15	14.0	17.8	244.0	27.0	611.0	7.38	3.4	36.4	6.8	0.06	**0.02**	0.962	0.233	0.313	1.042	250.2	303	0.010	0.104	36	0.00
OK520700-03-0220G	Camp Creek	28147	25-Aug-03	0.65	8.0	15.1	238.0	25.4	662.0	7.11	3.5	59.6	0.5	**0.02**	**0.02**	0.877	0.190	0.230	0.917	254.7	361	0.025	0.101	22	0.00
OK520700-03-0220G	Camp Creek	28319	29-Sep-03	6.82	65.0	18.5	187.0	13.2	505.0	7.50	4.9	36.4	6.7	**0.02**	**0.02**	0.472	0.016	0.056	0.512	223.4	248	0.009	0.101	15	
OK520700-03-0220G	Camp Creek	28482	03-Nov-03	4.82	50.8	2.9	223.0	17.9	745.0	7.32	3.0	84.7	8.3	**0.02**	**0.02**	0.476	**0.015**	0.055	0.516	272.7	415	**0.005**	0.064	**10**	0.18
OK520700-03-0220G	Camp Creek	28606	15-Dec-03	11.30	87.4	8.1	262.0	4.6	967.0	7.80	3.0	49.2	12.3	**0.02**	**0.02**	0.243	**0.015**	0.055	0.283	358.4	492	0.010	0.050	**10**	0.40
OK520700-03-0220G	Camp Creek	29467	20-Jan-04	13.77	97.5	48.6	113.0	1.3	420.0	7.19		43.7	11.3	0.15	**0.02**	0.410	0.048	0.218	0.580	142.4	231	0.022	0.096	24	1.12
OK520700-03-0220G	Camp Creek	29670	23-Feb-04	9.99	87.4	9.9	271.0	9.6	1213.0	7.85	4.6	184.6	14.4	0.17	**0.02**	0.251	0.054	0.244	0.441	404.5	584	0.018	0.065	**10**	0.63
OK520700-03-0220G	Camp Creek	29833	29-Mar-04	10.20	100.4	54.4	92.0	14.8	263.8	7.25	4.4	22.1	9.3	0.10	**0.02**	0.643	0.017	0.137	0.763	115.2	151	0.008	0.088	32	14.23
OK520700-03-0220G	Camp Creek	30193	03-May-04	8.40	79.0	28.5	110.0	13.1	283.0	7.06	3.4	33.5	9.4	0.09	**0.02**	0.384	0.055	0.165	0.494	154.1	241	0.006	0.091	18	3.44
OK520700-03-0220G	Camp Creek	30418	14-Jun-04	6.83	81.0	10.6	139.0	23.6	325.2	7.33	**2.0**	26.4	6.6	0.17	**0.02**	**0.110**	0.058	0.248	0.300	150.4	164	0.013	0.077	**10**	1.10
OK520700-03-0220G	Camp Creek	30579	12-Jul-04	7.08	87.0	11.0	95.0	25.6	192.8	7.84	**2.0**	8.8	7.4	0.05	**0.02**	**0.110**	0.018	0.088	0.180	93.0	131	0.038	0.058	15	26.47
OK520700-03-0220G	Camp Creek	30804	16-Aug-04	6.55	71.3	110.0	143.0	19.6		7.54	3.1	221.6	5.8	0.21	**0.02**	0.940	**0.015**	0.245	1.170	295.9	577	0.079	0.177	82	6.42
OK520700-03-0220G	Camp Creek	31223	25-Oct-04	4.11	42.4	2.2	251.0	17.0	710.0	7.57	4.2	61.3	6.3	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	277.6	526	0.018	0.070	**10**	0.01

Appendix A.1 Raw chemical and physical water quality data.

WBID	SiteName	SAMPLEID	DateActivityStart	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Available Nitrogen	Total Nitrogen	TotHardness (mg/L as CaCO3)	TotDisSolids (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OK520700-03-0220G	Camp Creek	31425	06-Dec-04	11.36	93.1	32.5	135.0	6.8	626.0	9.01	2.0	97.0	12.8	0.07	**0.02**	**0.110**	**0.015**	0.105	0.200	191.0	313	0.018	0.070	**10**	1.06
OK520700-03-0220G	Camp Creek	31705	03-Jan-05	8.04	72.0	6.0	285.0	10.1	1125.0	8.00	3.1	180.0	11.7	0.05	**0.02**	**0.110**	0.062	0.132	0.180	386.2	577	0.005	0.044	**10**	0.35
OK520700-03-0220G	Camp Creek	31926	07-Feb-05	10.94	91.5	99.0	91.0	7.5	263.9	8.09	4.2	22.3	10.3	0.22	**0.02**	0.870	**0.015**	0.255	1.110	89.7	218	0.032	0.118	28	11.32
OK520700-03-0220G	Camp Creek	32098	14-Mar-05	11.36	94.3	7.5	170.0	7.3	636.0	7.73	3.2	95.3	11.0	0.05	**0.02**	**0.110**	**0.015**	0.085	0.180	239.0	309	0.013	0.045	**10**	43.60
OK520700-03-0220G	Camp Creek	32255	18-Apr-05	5.97	62.0	6.3	288.0	16.7	1235.0	7.44	**2.0**	199.6	404.9	0.05	**0.02**	0.130	**0.015**	0.085	0.200	419.1	681	0.006	0.014	27	0.52
OK520700-03-0220G	Camp Creek	32650	24-May-05	4.95	57.4	9.0	262.0	22.8	1003.0	7.75	2.4	196.8	6.4	0.07	**0.02**	0.460	0.292	0.382	0.550	371.8	609	0.015	0.030	12	0.22
OK520700-04-0020F	Dry Creek	27845	21-Jul-03	5.27	70.1	19.4	279.0	30.3	867.0	8.18	2.3	91.4	18.5	0.11	**0.02**	**0.110**	0.033	0.163	0.240	334.2	438	0.012	0.085	20	1.78
OK520700-04-0020F	Dry Creek	28171	26-Aug-03	4.44	57.7	30.7	173.0	28.9	719.0	7.54	3.5	101.0	8.9	**0.02**	**0.02**	1.139	0.114	0.154	1.179	205.5	387	0.034	0.102	33	0.00
OK520700-04-0020F	Dry Creek	28304	29-Sep-03	7.30	74.9	22.7	208.0	16.5	565.0	7.78	2.7	40.0	11.5	**0.02**	**0.02**	0.201	0.020	0.060	0.241	231.4	302	0.011	0.097	19	0.29
OK520700-04-0020F	Dry Creek	28456	03-Nov-03	7.69	80.7	9.7	308.0	17.7	968.0	7.97	**2.0**	93.4	18.4	**0.02**	**0.02**	0.397	**0.015**	0.055	0.437	382.8	539	0.008	0.082	13	4.34
OK520700-04-0020F	Dry Creek	28603	15-Dec-03	12.57	98.5	9.2	359.0	5.0	1039.0	8.26	3.0	120.1	19.2	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	387.2	512	**0.005**	0.068	**10**	7.93
OK520700-04-0020F	Dry Creek	29454	20-Jan-04	12.75	93.6	92.8	153.0	2.6	501.0	7.75		58.3	13.0	0.26	**0.02**	0.750	0.066	0.346	1.030	168.3	305	0.050	0.161	43	24.75
OK520700-04-0020F	Dry Creek	29682	24-Feb-04	10.98	93.5	11.0	286.0	8.2	858.0	8.08	3.3	124.6	19.9	0.05	**0.02**	0.395	0.033	0.103	0.465	380.4	512	0.030	0.085	**10**	13.33
OK520700-04-0020F	Dry Creek	29818	29-Mar-04	8.67	84.9	232.0	137.0	14.4	443.6	7.40	4.0	34.0	13.7	0.37	**0.02**	1.294	0.061	0.451	1.684	170.4	314	0.115	0.285	172	95.14
OK520700-04-0020F	Dry Creek	30178	03-May-04	8.96	95.4	95.9	170.0	18.3	534.0	7.93	2.5	53.3	12.8	0.19	**0.02**	0.456	0.107	0.317	0.666	212.9	340	0.032	0.169	78	21.78
OK520700-04-0020F	Dry Creek	30404	15-Jun-04	7.18	92.9	21.8	216.0	28.8	7.0	8.26	2.9	73.9	12.4	0.19	**0.02**	**0.110**	0.034	0.244	0.320	261.9	396	0.024	0.103	17	
OK520700-04-0020F	Dry Creek	30563	12-Jul-04	7.66	103.6	20.4	218.0	31.3	638.0	8.10	**2.0**	58.1	14.7	0.10	**0.02**	0.150	**0.015**	0.135	0.270	254.7	341	0.120	0.217	**10**	9.37
OK520700-04-0020F	Dry Creek	30790	16-Aug-04	8.78	105.5	173.0	63.3	24.6	497.0		**2.0**	41.5	9.1	0.19	**0.02**	0.140	**0.015**	0.225	0.350	195.5	259	0.064	0.130	42	3.71
OK520700-04-0020F	Dry Creek	31030	21-Sep-04	8.62	108.7	18.7	249.0	27.9	811.0	8.37	7.9	93.9	3.8	**0.02**	**0.02**	0.710	**0.015**	0.055	0.750	300.7	452	0.013	0.127	18	
OK520700-04-0020F	Dry Creek	31214	25-Oct-04	4.32	45.5	14.8	318.0	17.9	368.5	7.70	2.6	43.2	11.9	0.04	**0.02**	0.340	**0.015**	0.075	0.400	242.6	347	0.037	0.081	**10**	
OK520700-04-0020F	Dry Creek	31337	29-Nov-04	10.46	90.2	167.0	132.0	8.9	348.8	7.96	3.7	23.1	12.1	0.17	**0.02**	0.560	**0.015**	0.205	0.750	157.6	249	0.070	0.194	121	
OK520700-04-0020F	Dry Creek	31706	03-Jan-05	9.77	90.1	8.6	260.0	11.7	585.0	8.43	3.9	56.1	17.3	0.04	**0.02**	**0.110**	**0.015**	0.075	0.170	292.0	380	0.007	0.047	**10**	8.03
OK520700-04-0020F	Dry Creek	31927	07-Feb-05	10.72	90.5	377.0	109.0	8.0	334.4	7.91	4.9	23.0	12.3	0.30	**0.02**	0.810	0.121	0.441	1.130	116.5	298	0.077	0.314	240	480.80
OK520700-04-0020F	Dry Creek	32099	14-Mar-05	10.87	94.6	9.5	299.0	9.2	707.0	8.37	4.6	72.8	19.8	0.05	**0.02**	**0.110**	**0.015**	0.085	0.180	342.4	382	**0.005**	0.060	**10**	16.80
OK520700-04-0020F	Dry Creek	32256	18-Apr-05								**2.0**	127.2	22.1	0.06	**0.02**	0.590	0.420	0.500	0.670	377.0	508	0.026	0.062	32	10.53
OK520700-04-0020F	Dry Creek	32651	24-May-05	6.03	72.6	34.9	194.0	24.6	844.0	8.02	**2.0**	103.7	15.9	0.14	**0.02**	0.220	**0.015**	0.175	0.380	360.8	519	0.038	0.053	41	4.38
OK520700-04-0260C	Quapaw Creek	27846	21-Jul-03	7.95	104.5	16.5	276.0	29.8	752.0	8.75	2.6	49.9	32.5	0.08	**0.02**	1.298	0.074	0.174	1.398	221.6	375	0.010	0.075	14	0.00
OK520700-04-0260C	Quapaw Creek	28172	26-Aug-03	5.70	73.9	58.2	320.0	28.4	571.0	8.45	11.4	62.5	7.9	**0.02**	0.11	2.532	0.497	0.627	2.662	220.2	446	0.042	0.259	120	0.00
OK520700-04-0260C	Quapaw Creek	28305	29-Sep-03	9.17	91.5	14.9	191.0	15.3	502.0	8.12	2.5	21.0	18.3	**0.02**	**0.02**	0.193	0.020	0.060	0.233	203.5	233	0.016	0.089	17	
OK520700-04-0260C	Quapaw Creek	28457	03-Nov-03	7.88	86.9	6.5	298.0	20.1	753.0	8.24	**2.0**	30.4	29.7	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	296.5	434	0.024	0.117	33	1.86
OK520700-04-0260C	Quapaw Creek	28604	15-Dec-03	15.18	128.2	7.5	287.0	7.9	647.0	8.55	3.4	32.7	27.8	0.29	**0.02**	**0.110**	**0.015**	0.325	0.420	218.6	331	**0.005**	0.054	**10**	5.38
OK520700-04-0260C	Quapaw Creek	29455	20-Jan-04	13.40	100.4	111.0	143.0	3.2	377.0	7.93		19.5	12.5	0.27	**0.02**	0.343	0.027	0.317	0.633	144.0	219	0.081	0.168	59	27.17
OK520700-04-0260C	Quapaw Creek	29681	24-Feb-04	11.85	97.9	8.9	306.0	7.1	704.0	8.35	2.7	32.1	26.3	0.06	**0.02**	**0.110**	0.027	0.107	0.190	289.1	364	0.008	0.074	**10**	7.51
OK520700-04-0260C	Quapaw Creek	29819	29-Mar-04	9.28	92.3	242.0	166.0	15.1	376.1	8.05	4.0	16.2	13.7	0.41	0.06	1.095	0.028	0.498	1.565	173.5	301	0.062	0.222	143	41.67
OK520700-04-0260C	Quapaw Creek	30177	03-May-04	11.21	115.6	43.2	224.0	16.8	581.0	8.12	2.4	28.9	17.0	0.21	**0.02**	0.246	**0.015**	0.245	0.476	238.7	313	0.040	0.157	26	11.70
OK520700-04-0260C	Quapaw Creek	30402	14-Jun-04	8.53	116.9	34.0	187.0	32.0	476.0	8.40	**2.0**	22.0	15.2	0.17	**0.02**	**0.110**	0.021	0.211	0.300	181.3	267	0.041	0.114	22	5.81
OK520700-04-0260C	Quapaw Creek	30564	12-Jul-04	7.54	108.5	47.1	144.0	34.7	349.7	8.28	**2.0**	17.0	10.2	0.14	**0.02**	0.140	**0.015**	0.175	0.300	141.9	172	0.075	0.145	25	19.41
OK520700-04-0260C	Quapaw Creek	30789	16-Aug-04	8.71	99.5	161.0	110.0	22.2	304.1		**2.0**	13.2	10.1	0.28	**0.02**	0.190	**0.015**	0.315	0.490	118.5	165	0.082	0.196	85	23.17
OK520700-04-0260C	Quapaw Creek	31031	21-Sep-04	7.94	98.2	10.9	301.0	25.6	338.8	8.56	2.2	38.4	34.6	0.04	**0.02**	0.340	**0.015**	0.075	0.400	187.2	349	0.010	0.077	**10**	
OK520700-04-0260C	Quapaw Creek	31215	25-Oct-04	8.24	91.0	3.1	272.0	20.3	547.0	8.22	**2.0**	38.4	23.1	**0.02**	**0.02**	0.200	**0.015**	0.055	0.240	254.9	397	0.039	0.078	**10**	1.32
OK520700-04-0260C	Quapaw Creek	31338	29-Nov-04	10.86	94.4	116.0	142.0	9.4	305.5	8.09	2.7	15.5	12.0	0.21	**0.02**	0.360	**0.015**	0.245	0.590	143.6	238	0.089	0.163	74	
OK520700-04-0260C	Quapaw Creek	31707	03-Jan-05	12.20	110.8	7.9	290.0	11.1	572.0	8.59	3.8	28.8	23.2	0.08	**0.02**	**0.110**	**0.015**	0.115	0.210	278.1	379	0.022	0.060	**10**	11.86
OK520700-04-0260C	Quapaw Creek	31928	07-Feb-05	11.04	93.2	278.0	141.0	7.7	349.2	8.02	4.3	15.3	11.2	0.25	**0.02**	0.470	0.016	0.286	0.740	131.4	238	0.076	0.277	254	133.11
OK520700-04-0260C	Quapaw Creek	32100	14-Mar-05	10.64	93.7	5.8	317.0	9.7	679.0	8.56	2.6	32.6	27.6	0.05	**0.02**	0.230	**0.015**	0.085	0.300	309.7	305	0.006	0.061	17	12.49

Appendix A.1 Raw chemical and physical water quality data.

WBID	SiteName	SAMPLEID	DateActivityStart	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Available Nitrogen	Total Nitrogen	TotHardness (mg/L as CaCO3)	TotDisSolids (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OK520700-04-0260C	Quapaw Creek	32257	18-Apr-05	8.59	92.6	4.3	344.0	18.9	727.0	8.31	**2.0**	51.2	27.6	0.05	**0.02**	**0.110**	0.025	0.095	0.180	302.8	418	0.006	0.031	**10**	7.85
OK520700-04-0260C	Quapaw Creek	32652	24-May-05	9.98	119.1	3.0	310.0	27.5	723.0	8.40	2.5	49.2	27.8	0.04	**0.02**	0.160	**0.015**	0.075	0.220	294.4	457	0.021	0.032	**10**	3.40
OK520710-01-0010G	Deep Fork of the N. Canadian R.	27847	21-Jul-03	13.62	194.0	6.6	216.0	34.1	923.0	8.82	2.6	119.2	76.3	0.08	**0.02**	0.954	0.034	0.134	1.054	217.0	496	0.720	1.014	**10**	13.56
OK520710-01-0010G	Deep Fork of the N. Canadian R.	28173	26-Aug-03	8.30	116.1	9.1	194.0	33.8	939.0	8.77	2.6	123.5	83.7	0.41	0.08	0.778	0.076	0.566	1.268	197.8	516	0.904	1.016	16	11.02
OK520710-01-0010G	Deep Fork of the N. Canadian R.	28306	29-Sep-03	8.68	93.3	7.5	182.0	18.8	946.0	7.94	2.0	92.3	63.1	0.81	0.06	0.639	0.036	0.906	1.509	261.0	502	2.208	1.985	21	15.75
OK520710-01-0010G	Deep Fork of the N. Canadian R.	28458	03-Nov-03	10.15	114.4	6.0	223.0	21.0	944.0	8.35	**2.0**	98.7	64.5	0.08	0.73	0.408	0.053	0.863	1.218	255.1	524	1.068	1.200	28	17.34
OK520710-01-0010G	Deep Fork of the N. Canadian R.	28605	15-Dec-03	12.80	114.8	14.6	227.0	10.4	1048.0	8.27	2.9	95.9	51.1	3.39	**0.02**	0.360	0.031	3.441	3.770	286.9	530	1.223	1.359	22	11.65
OK520710-01-0010G	Deep Fork of the N. Canadian R.	29456	20-Jan-04	13.49	108.6	22.8	218.0	6.1	883.0	8.00		80.7	51.0	4.36	**0.02**	0.464	0.024	4.404	4.844	259.9	459	0.967	1.156	22	65.18
OK520710-01-0010G	Deep Fork of the N. Canadian R.	29680	24-Feb-04	9.71	84.4	19.7	171.0	9.1	1035.0	8.06	2.9	102.7	61.1	5.44	0.06	0.508	0.058	5.558	6.008	302.1	521	1.904	2.088	22	21.36
OK520710-01-0010G	Deep Fork of the N. Canadian R.	29820	29-Mar-04	11.80	129.9	52.9	223.0	19.9	741.0	8.35	2.5	72.5	38.9	0.97	0.05	0.698	0.101	1.121	1.718	246.9	451	0.980	1.231	35	25.25
OK520710-01-0010G	Deep Fork of the N. Canadian R.	30179	03-May-04	8.74	98.2	51.0	143.0	21.2	322.7	8.26	2.2	42.2	33.5	0.45	0.07	0.399	0.060	0.580	0.919	177.7	298	0.096	0.182	91	188.92
OK520710-01-0010G	Deep Fork of the N. Canadian R.	30403	15-Jun-04	8.01	97.3	44.0	143.0	25.7	534.0	8.25	2.2	799.4	23.8	**0.02**	**0.02**	**0.110**	0.019	0.059	0.150	478.5	1642	0.105	0.268	**10**	176.70
OK520710-01-0010G	Deep Fork of the N. Canadian R.	30567	13-Jul-04	11.58	171.5	3.5	231.0	35.6	911.0	8.82	2.9	99.2	62.1	0.25	**0.02**	0.320	**0.015**	0.285	0.590	271.4	521	1.315	1.533	**10**	14.81
OK520710-01-0010G	Deep Fork of the N. Canadian R.	30788	16-Aug-04	7.91	93.0	86.1	102.0	23.7	353.0	7.77	2.8	26.1	19.6	0.31	0.08	0.640	**0.015**	0.405	1.030	114.1	163	0.088	0.176	139	
OK520710-01-0010G	Deep Fork of the N. Canadian R.	31032	21-Sep-04	9.00	116.0	10.1	240.0	28.7	932.0	8.49	**2.0**	109.0	59.5	1.35	0.13	1.500	0.824	2.304	2.980	266.3	533	2.926	3.082	**10**	13.83
OK520710-01-0010G	Deep Fork of the N. Canadian R.	31213	25-Oct-04	5.99	63.8	7.7	247.0	19.0	775.0	8.04	2.3	103.4	58.4	1.72	**0.02**	0.400	**0.015**	1.755	2.140	291.3	574	1.391	1.435	11	15.93
OK520710-01-0010G	Deep Fork of the N. Canadian R.	31339	29-Nov-04	10.47	95.3	14.7	150.0	11.1	442.1	8.27	2.8	34.6	25.6	0.60	**0.02**	0.260	**0.015**	0.635	0.880	168.7	289	0.083	0.159	26	
OK520710-01-0010G	Deep Fork of the N. Canadian R.	31938	09-Feb-05	12.58	97.8	16.5	187.0	4.8	613.0	8.43	3.9	47.7	27.7	0.75	**0.02**	0.720	**0.015**	0.785	1.490	209.5	307	0.121	0.229	31	187.11
OK520710-01-0010G	Deep Fork of the N. Canadian R.	32110	16-Mar-05	12.05	106.6	8.2	326.0	10.2	1059.0	8.16	11.5	97.1	49.3	0.97	**0.02**	0.270	**0.015**	1.005	1.260	363.3	538	0.901	0.949	**10**	23.66
OK520710-01-0010G	Deep Fork of the N. Canadian R.	32278	20-Apr-05	4.89	54.1	7.6	329.0	19.6	999.0	7.97	**2.0**	90.0	37.5	0.36	**0.02**	0.230	0.125	0.505	0.610	349.2	543	0.939	1.000	22	19.14
OK520710-01-0010G	Deep Fork of the N. Canadian R.	32662	25-May-05	8.86	101.2	29.5	263.0	24.2		8.00	2.3	102.1	58.7	1.93	**0.02**	0.900	**0.015**	1.965	2.850	297.3	533	1.100	1.160	49	16.86
OK520800-01-0050G	Bird Creek: Downstream	27869	21-Jul-03	6.44	82.4	7.7	151.0	27.8	587.0	7.41	**2.0**	49.1	28.5	6.94	0.13	0.932	0.115	7.185	8.002	178.3	336	2.113	2.420	**10**	0.95
OK520800-01-0050G	Bird Creek: Downstream	28149	25-Aug-03	7.11	88.0	2.5	146.0	26.5	521.0	7.33	2.1	39.0	25.9	4.34	0.11	0.584	0.068	4.518	5.034	184.7	331	1.931	2.066	10	0.76
OK520800-01-0050G	Bird Creek: Downstream	28325	30-Sep-03	9.63	100.6	12.2	132.0	17.4	573.0	7.44	2.6	54.8	27.0	6.26	0.06	0.851	0.093	6.413	7.171	173.5	303	2.159	2.039	13	1.47
OK520800-01-0050G	Bird Creek: Downstream	28489	03-Nov-03	11.34	129.7	4.2	147.0	22.0	534.0	7.59	2.3	47.0	26.0	4.40	0.09	0.742	0.056	4.546	5.232	175.7	321	2.039	2.104	**10**	1.23
OK520800-01-0050G	Bird Creek: Downstream	28608	15-Dec-03	16.85	148.6	7.8	123.0	10.0	639.0	8.01	5.0	66.2	31.3	8.20	0.28	1.141	0.146	8.626	9.621	198.5	335	1.583	1.689	**10**	1.67
OK520800-01-0050G	Bird Creek: Downstream	29469	20-Jan-04	13.73	109.0	51.2	102.0	5.3	518.0	7.66		63.8	26.7	1.49	0.06	1.310	0.311	1.861	2.860	148.9	326	0.441	0.481	25	4.05
OK520800-01-0050G	Bird Creek: Downstream	29672	23-Feb-04	16.70	155.4	9.8	153.0	12.2	781.0	8.51	5.8	106.4	39.9	**0.02**	**0.02**	0.885	0.049	0.089	0.925	217.7	388	1.721	1.611	12	2.35
OK520800-01-0050G	Bird Creek: Downstream	29839	29-Mar-04	15.37	163.0	3.7	157.0	18.1	1458.0	8.35	3.0	294.5	47.2	0.44	**0.02**	0.594	0.018	0.478	1.054	305.6	762	0.671	0.819	**10**	3.06
OK520800-01-0050G	Bird Creek: Downstream	30195	03-May-04	10.25	115.0	10.1	157.0	20.5	588.0	8.33	3.6	75.2	39.8	1.39	0.06	0.584	0.025	1.475	2.034	212.8	408	0.659	0.765	**10**	2.28
OK520800-01-0050G	Bird Creek: Downstream	30420	14-Jun-04	10.74	141.0	7.2	155.0	29.7	874.0	7.99	2.4	150.3	30.1	1.29	0.13	0.420	0.072	1.492	1.840	214.9	445	1.410	1.531	**10**	1.10
OK520800-01-0050G	Bird Creek: Downstream	30581	12-Jul-04	9.10	123.0	24.0	127.0	30.8	585.0	7.11	3.0	84.4	17.1	0.68	**0.02**	0.230	0.037	0.737	0.930	161.6	303	0.567	0.770	17	
OK520800-01-0050G	Bird Creek: Downstream	30806	16-Aug-04	12.80	158.0	9.3	127.0	26.1		7.73	2.2	26.3	20.6	1.53	0.07	0.480	**0.015**	1.615	2.080	178.0	274	1.035	1.307	**10**	0.45
OK520800-01-0050G	Bird Creek: Downstream	31022	20-Sep-04	11.12	127.4	2.5	178.0	22.1	529.0	8.01	2.0	39.9	26.5	3.55	**0.02**	0.240	**0.015**	3.585	3.810	183.7	324	1.818	2.150	**10**	0.43
OK520800-01-0050G	Bird Creek: Downstream	31228	26-Oct-04	6.89	76.5	6.8	129.0	20.7	443.9	7.35	3.3	31.2	21.0	1.52	0.45	0.080	0.315	2.285	2.050	146.1	254	0.875	2.147	**10**	5.99
OK520800-01-0050G	Bird Creek: Downstream	31433	07-Dec-04	9.89	87.8	138.0	58.0	10.1	205.4	5.94	3.0	6.6	17.2	0.23	**0.02**	0.500	0.029	0.279	0.750	66.2	144	0.068	0.162	23	8.96
OK520800-01-0050G	Bird Creek: Downstream	31701	03-Jan-05	8.63	83.5			13.7	101.5	7.55	6.0	6.1	4.6	0.21	**0.02**	**0.110**	0.073	0.303	0.340	33.8	36	0.197	0.275	927	
OK520800-01-0050G	Bird Creek: Downstream	31937	08-Feb-05	10.67	92.4	54.8	87.0	8.6	420.3	7.65	3.6	51.4	19.1	0.33	0.06	0.870	0.019	0.409	1.260	106.7	260	0.055	0.158	24	21.85
OK520800-01-0050G	Bird Creek: Downstream	32109	15-Mar-05	15.25	138.0	14.8	191.0	10.8	1428.0	8.82	3.5	311.7	48.5	1.65	**0.02**	0.540	0.017	1.687	2.210	345.3	850	1.280	1.280	**10**	4.81
OK520800-01-0050G	Bird Creek: Downstream	32266	19-Apr-05	19.56		4.0	193.0	20.8	1297.0	8.93	**2.0**	283.3	42.4	1.36	**0.02**	0.520	**0.015**	1.395	1.900	325.4	728	0.501	0.535	**10**	3.06
OK520800-01-0050G	Bird Creek: Downstream	32661	25-May-05	8.99	109.9	12.3	153.0	24.8	1174.0	8.00	**2.0**	256.5	36.2	5.91	**0.02**	0.780	0.031	5.961	6.710	273.1	730	1.797	1.943	21	1.34
OK520800-03-0010D	Salt Creek (Seminole Co.)	27848	22-Jul-03	8.35	110.9	43.8	312.0	29.8	3215.0	8.20		859.6	43.8	0.54	**0.02**	12.164	1.509	2.069	12.724	549.6	1739	0.032	0.495	36	0.00
OK520800-03-0010D	Salt Creek (Seminole Co.)	28307	30-Sep-03	8.82	89.2	8.7	172.0	15.9	2008.0	8.12	2.5	468.0	25.0	0.07	**0.02**	0.587	0.063	0.153	0.677	359.3	1096	**0.005**	0.059	16	
OK520800-03-0010D	Salt Creek (Seminole Co.)	28459	04-Nov-03	7.03	76.8	6.0	257.0	19.7	3960.0	8.02	2.6	994.1	30.9	**0.02**	**0.02**	0.346	**0.015**	0.055	0.386	618.2	1892	**0.005**	0.075	30	0.37

Appendix A.1 Raw chemical and physical water quality data.

WBID	SiteName	SAMPLEID	DateActivityStart	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia (mg/L)	Available Nitrogen	Total Nitrogen	TotHardness (mg/L as CaCO3)	TotDisSolids (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OK520800-03-0010D	Salt Creek (Seminole Co.)	28602	15-Dec-03	12.57	98.1	8.0	239.0	4.8	2459.0	8.31	2.5	551.7	33.0	0.02	**0.02**	0.120	**0.015**	0.055	0.160	460.8	1242	0.013	0.064	**10**	3.99
OK520800-03-0010D	Salt Creek (Seminole Co.)	29453	20-Jan-04	14.14	99.0	44.6	200.0	0.8		8.12		339.9	24.6	0.06	**0.02**	0.447	**0.015**	0.095	0.527	307.4	816	0.018	0.092	12	7.34
OK520800-03-0010D	Salt Creek (Seminole Co.)	29679	23-Feb-04	9.30	83.8	5.3	222.0	10.9	2921.0	8.26	2.4	699.5	33.3	**0.02**	**0.02**	**0.110**	0.026	0.066	0.150	529.5	1439	0.015	0.053	**10**	4.05
OK520800-03-0010D	Salt Creek (Seminole Co.)	29822	30-Mar-04	9.31	96.3	2.0	262.0	17.0	2960.0	8.24	**2.0**	678.8	31.2	**0.02**	**0.02**	0.308	**0.015**	0.055	0.348	565.4	1546	**0.005**	0.051	**10**	9.35
OK520800-03-0010D	Salt Creek (Seminole Co.)	30181	04-May-04	8.83	114.1	15.9	240.0	28.6	2325.0	8.35	**2.0**	538.8	24.7	**0.02**	**0.02**	0.299	**0.015**	0.055	0.339	454.6	1226	0.006	0.081	26	
OK520800-03-0010D	Salt Creek (Seminole Co.)	30405	15-Jun-04	6.73	94.4	7.4	170.0	33.6	3012.0	8.37	2.5	44.7	34.6	0.18	**0.02**	0.160	**0.015**	0.215	0.360	170.6	280	**0.005**	0.071	64	
OK520800-03-0010D	Salt Creek (Seminole Co.)	30566	13-Jul-04	6.91	98.8	32.7	170.0	35.0	799.0	8.10	3.1	190.5	10.2	**0.02**	**0.02**	0.690	**0.015**	0.055	0.730	225.6	555	0.072	0.140	30	25.20
OK520800-03-0010D	Salt Creek (Seminole Co.)	30792	17-Aug-04	8.99	122.6	6.7	154.0	32.0	2035.0		**2.0**	493.3	18.4	**0.02**	**0.02**	0.230	**0.015**	0.055	0.270	344.6	1054	0.046	0.059	**10**	1.69
OK520800-03-0010D	Salt Creek (Seminole Co.)	31217	26-Oct-04	6.52	73.1			21.1	1567.0	7.76	4.4	426.4	16.2	0.09	**0.02**	1.230	**0.015**	0.125	1.340	309.8	1067	0.218	0.527	1150	
OK520800-03-0010D	Salt Creek (Seminole Co.)	31336	29-Nov-04	11.02	97.1	70.9	179.0	9.8	796.0	8.07	2.3	237.6	16.2	0.13	**0.02**	0.480	**0.015**	0.165	0.630	283.9	648	0.036	0.096	48	
OK520800-03-0010D	Salt Creek (Seminole Co.)	31427	06-Dec-04	11.79	101.8	86.1	136.0	8.9	1225.0	8.96	2.3	243.8	18.3	0.12	**0.02**	0.350	**0.015**	0.155	0.490	294.8	641	0.060	0.116	**10**	53.74
OK520800-03-0010D	Salt Creek (Seminole Co.)	31703	03-Jan-05	9.08	83.3			11.2	255.8	7.35	8.3	43.1	6.5	0.21	**0.02**	**0.110**	0.048	0.278	0.340	92.9	268	0.238	0.283	1188	
OK520800-03-0010D	Salt Creek (Seminole Co.)	31930	07-Feb-05	8.82	75.3	158.0	160.0	8.8	828.0	7.97	3.6	117.7	14.2	0.14	**0.02**	0.600	**0.015**	0.175	0.760	200.7	439	0.043	0.170	119	910.21
OK520800-03-0010D	Salt Creek (Seminole Co.)	32102	14-Mar-05	10.90	113.0	3.6	341.0	16.9	3160.0	8.19	2.4	883.3	45.3	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	667.7	1730	0.010	0.046	12	20.72
OK520800-03-0010D	Salt Creek (Seminole Co.)	32259	18-Apr-05	9.37	104.6	4.1	333.0	20.7	2506.0	8.14	**2.0**	899.7	44.0	**0.02**	**0.02**	**0.110**	**0.015**	0.055	0.150	850.2	1988	**0.005**	0.026	**10**	32.88
OK520800-03-0010D	Salt Creek (Seminole Co.)	32654	24-May-05	9.17	132.0	2.3	232.0	35.0	3517.0	8.10	2.3	1056.6	55.6	**0.02**	**0.02**	0.250	**0.015**	0.055	0.290	771.2	2250	**0.005**	0.019	**10**	6.53

Appendix A.2. Raw bacteria data.

WBID	Site Name	SampleID	Date	*E.Coli*	*Enterococcus*	Comments
OK120400-01-0400F	Coody Creek	27863	22-Jul-03	240	610	higher than recorded value
OK120400-01-0400F	Coody Creek	28167	26-Aug-03	60	80	lower than recorded value
OK120400-01-0400F	Coody Creek	28333	30-Sep-03	50	140	
OK120400-01-0400F	Coody Creek	30192	04-May-04	80	300	
OK120400-01-0400F	Coody Creek	30417	15-Jun-04	140	270	
OK120400-01-0400F	Coody Creek	30578	13-Jul-04	45	330	
OK120400-01-0400F	Coody Creek	30803	17-Aug-04	125	115	
OK120400-01-0400F	Coody Creek	31019	21-Sep-04	40	70	
OK120400-01-0400F	Coody Creek	31241	26-Oct-04	500	630	
OK120400-01-0400F	Coody Creek	32277	19-Apr-05	285	70	
OK120400-01-0400F	Coody Creek	32649	25-May-05	150	160	
OK120400-02-0010F	Dirty Creek	27879	22-Jul-03	30	80	
OK120400-02-0010F	Dirty Creek	28180	26-Aug-03	20	30	
OK120400-02-0010F	Dirty Creek	28313	29-Sep-03	20	50	
OK120400-02-0010F	Dirty Creek	30217	11-May-04	**5**	85	
OK120400-02-0010F	Dirty Creek	30430	15-Jun-04	90	90	
OK120400-02-0010F	Dirty Creek	30594	19-Jul-04	**5**	**5**	
OK120400-02-0010F	Dirty Creek	30823	23-Aug-04	5	30	
OK120400-02-0010F	Dirty Creek	31081	28-Sep-04	5	**10**	
OK120400-02-0010F	Dirty Creek	32254	18-Apr-05	25	10	
OK120400-02-0010F	Dirty Creek	32633	24-May-05	30	10	
OK120400-02-0030F	South Fk Dirty Creek	27865	22-Jul-03	20	510	
OK120400-02-0030F	South Fk Dirty Creek	28169	26-Aug-03	**10**	70	
OK120400-02-0030F	South Fk Dirty Creek	28335	30-Sep-03	10	150	
OK120400-02-0030F	South Fk Dirty Creek	30190	04-May-04	90	530	
OK120400-02-0030F	South Fk Dirty Creek	30415	15-Jun-04	20	150	
OK120400-02-0030F	South Fk Dirty Creek	30576	13-Jul-04	85	140	
OK120400-02-0030F	South Fk Dirty Creek	30801	17-Aug-04	**5**	80	
OK120400-02-0030F	South Fk Dirty Creek	31017	21-Sep-04	10	710	
OK120400-02-0030F	South Fk Dirty Creek	31239	26-Oct-04	35	90	
OK120400-02-0030F	South Fk Dirty Creek	32275	19-Apr-05	205	70	
OK120400-02-0030F	South Fk Dirty Creek	32647	25-May-05	1000	1000	
OK120400-02-0110D	George's Fk Dirty Creek	27864	22-Jul-03	30	270	
OK120400-02-0110D	George's Fk Dirty Creek	28168	26-Aug-03	40	60	
OK120400-02-0110D	George's Fk Dirty Creek	28334	30-Sep-03	50	50	
OK120400-02-0110D	George's Fk Dirty Creek	30191	04-May-04	80	440	
OK120400-02-0110D	George's Fk Dirty Creek	30416	15-Jun-04	50	415	
OK120400-02-0110D	George's Fk Dirty Creek	30577	13-Jul-04	100	200	
OK120400-02-0110D	George's Fk Dirty Creek	30802	17-Aug-04	20	50	
OK120400-02-0110D	George's Fk Dirty Creek	31018	21-Sep-04	30	80	
OK120400-02-0110D	George's Fk Dirty Creek	31240	26-Oct-04	30	40	
OK120400-02-0110D	George's Fk Dirty Creek	32276	19-Apr-05	60	70	
OK120400-02-0110D	George's Fk Dirty Creek	32648	25-May-05	1000	1000	
OK120400-02-0160D	Butler Creek	28166	25-Aug-03	40	**10**	
OK120400-02-0160D	Butler Creek	28332	29-Sep-03	**10**	10	
OK120400-02-0160D	Butler Creek	30188	03-May-04	80	480	
OK120400-02-0160D	Butler Creek	30413	14-Jun-04	125	80	
OK120400-02-0160D	Butler Creek	30574	12-Jul-04	165	170	
OK120400-02-0160D	Butler Creek	30799	16-Aug-04	20	60	
OK120400-02-0160D	Butler Creek	31015	20-Sep-04	500	50	
OK120400-02-0160D	Butler Creek	31237	25-Oct-04	**5**	20	
OK120400-02-0160D	Butler Creek	32273	18-Apr-05	80	30	
OK120400-02-0160D	Butler Creek	32645	24-May-05	50	90	
OK120400-02-0190D	Elk Creek	27862	21-Jul-03	10	100	
OK120400-02-0190D	Elk Creek	28165	25-Aug-03	230	10	
OK120400-02-0190D	Elk Creek	28336	30-Sep-03	100	160	
OK120400-02-0190D	Elk Creek	30187	03-May-04	75	305	
OK120400-02-0190D	Elk Creek	30412	14-Jun-04	500	175	
OK120400-02-0190D	Elk Creek	30572	12-Jul-04	230	80	
OK120400-02-0190D	Elk Creek	30798	16-Aug-04	100	90	

Appendix A.2. Raw bacteria data.

WBID	Site Name	SampleID	Date	*E.Coli*	*Enterococcus*	Comments
OK120400-02-0190D	Elk Creek	31014	20-Sep-04	35	340	
OK120400-02-0190D	Elk Creek	31236	25-Oct-04	20	20	
OK120400-02-0190D	Elk Creek	32272	18-Apr-05	65	20	
OK120400-02-0190D	Elk Creek	32644	24-May-05	50	60	
OK120400-02-0240H	Shady Grove Creek	27861	21-Jul-03	**1000**	**10**	
OK120400-02-0240H	Shady Grove Creek	28331	29-Sep-03	40	50	
OK120400-02-0240H	Shady Grove Creek	30186	03-May-04	60	320	
OK120400-02-0240H	Shady Grove Creek	30411	14-Jun-04	60	25	
OK120400-02-0240H	Shady Grove Creek	30573	12-Jul-04	25	20	
OK120400-02-0240H	Shady Grove Creek	30797	16-Aug-04	60	10	
OK120400-02-0240H	Shady Grove Creek	31013	20-Sep-04	**5**	20	
OK120400-02-0240H	Shady Grove Creek	31235	25-Oct-04	85	10	
OK120400-02-0240H	Shady Grove Creek	32271	18-Apr-05	20	15	
OK120400-02-0240H	Shady Grove Creek	32643	24-May-05	**5**	5	
OK120410-01-0220G	Snake Creek	27858	21-Jul-03	190	430	
OK120410-01-0220G	Snake Creek	28161	25-Aug-03	**10**	10	
OK120410-01-0220G	Snake Creek	28328	30-Sep-03	50	90	
OK120410-01-0220G	Snake Creek	30183	03-May-04	35	190	
OK120410-01-0220G	Snake Creek	30408	14-Jun-04	10	125	
OK120410-01-0220G	Snake Creek	30569	12-Jul-04	140	210	
OK120410-01-0220G	Snake Creek	30794	16-Aug-04	20	**10**	
OK120410-01-0220G	Snake Creek	31010	20-Sep-04	5	10	
OK120410-01-0220G	Snake Creek	31232	25-Oct-04	20	70	
OK120410-01-0220G	Snake Creek	32268	18-Apr-05	70	55	
OK120410-01-0220G	Snake Creek	32640	24-May-05	210	80	
OK120410-02-0010H	Cloud Creek	27859	21-Jul-03	190	220	
OK120410-02-0010H	Cloud Creek	28162	25-Aug-03	250	20	
OK120410-02-0010H	Cloud Creek	28329	30-Sep-03	80	60	
OK120410-02-0010H	Cloud Creek	30184	03-May-04	205	345	
OK120410-02-0010H	Cloud Creek	30409	01-Jun-04	60	60	
OK120410-02-0010H	Cloud Creek	30570	12-Jul-04	170	320	
OK120410-02-0010H	Cloud Creek	30795	16-Aug-04	130	100	
OK120410-02-0010H	Cloud Creek	31011	20-Sep-04	125	50	
OK120410-02-0010H	Cloud Creek	31233	25-Oct-04	30	**10**	
OK120410-02-0010H	Cloud Creek	32269	18-Apr-05	65	45	
OK120410-02-0010H	Cloud Creek	32641	24-May-05	70	30	
OK120420-02-0050D	Polecat Creek	27857	21-Jul-03	**10**	20	
OK120420-02-0050D	Polecat Creek	28160	25-Aug-03	**10**	**10**	
OK120420-02-0050D	Polecat Creek	28327	29-Sep-03	30	230	
OK120420-02-0050D	Polecat Creek	30182	03-May-04	130	175	
OK120420-02-0050D	Polecat Creek	30407	14-Jun-04	65	65	
OK120420-02-0050D	Polecat Creek	30568	12-Jul-04	275	200	
OK120420-02-0050D	Polecat Creek	30793	16-Aug-04	45	120	
OK120420-02-0050D	Polecat Creek	31009	20-Sep-04	45	70	
OK120420-02-0050D	Polecat Creek	31231	25-Oct-04	50	**10**	
OK120420-02-0050D	Polecat Creek	32267	18-Apr-05	50	45	
OK120420-02-0050D	Polecat Creek	32639	24-May-05	160	40	
OK121700-03-0370G	Ballard Creek	27876	22-Jul-03	210	580	
OK121700-03-0370G	Ballard Creek	28177	26-Aug-03	20	210	
OK121700-03-0370G	Ballard Creek	28310	29-Sep-03	**10**	80	
OK121700-03-0370G	Ballard Creek	30214	11-May-04	5	175	
OK121700-03-0370G	Ballard Creek	30427	15-Jun-04	10	65	
OK121700-03-0370G	Ballard Creek	30591	19-Jul-04	10	70	
OK121700-03-0370G	Ballard Creek	30820	23-Aug-04	55	200	
OK121700-03-0370G	Ballard Creek	31078	28-Sep-04	20	50	
OK121700-03-0370G	Ballard Creek	32251	18-Apr-05	25	20	
OK121700-03-0370G	Ballard Creek	32630	24-May-05	220	70	
OK121700-06-0040G	Battle Creek	27875	22-Jul-03	190	630	
OK121700-06-0040G	Battle Creek	28176	26-Aug-03	290	390	
OK121700-06-0040G	Battle Creek	28309	29-Sep-03	**10**	50	

Appendix A.2. Raw bacteria data.

WBID	Site Name	SampleID	Date	*E.Coli*	*Enterococcus*	Comments
OK121700-06-0040G	Battle Creek	30213	11-May-04	**5**	60	
OK121700-06-0040G	Battle Creek	30426	15-Jun-04	5	180	
OK121700-06-0040G	Battle Creek	30590	19-Jul-04	10	85	
OK121700-06-0040G	Battle Creek	30819	23-Aug-04	25	180	
OK121700-06-0040G	Battle Creek	31077	28-Sep-04	**5**	130	
OK121700-06-0040G	Battle Creek	32250	18-Apr-05	40	5	
OK121700-06-0040G	Battle Creek	32629	24-May-05	5	40	
OK220100-03-0010G	Brazil Creek	27883	22-Jul-03	20	110	
OK220100-03-0010G	Brazil Creek	29548	26-Aug-03	90	260	
OK220100-03-0010G	Brazil Creek	28315	30-Sep-03	890	120	
OK220100-03-0010G	Brazil Creek	30211	11-May-04	10	55	
OK220100-03-0010G	Brazil Creek	30460	21-Jun-04	220	410	
OK220100-03-0010G	Brazil Creek	30598	19-Jul-04	15	85	
OK220100-03-0010G	Brazil Creek	30865	23-Aug-04	**500**	**10**	
OK220100-03-0010G	Brazil Creek	31075	27-Sep-04	15	30	
OK220100-03-0010G	Brazil Creek	32293	26-Apr-05	90	70	
OK220100-03-0010G	Brazil Creek	32635	25-May-05	**1000**	**1000**	
OK220100-04-0010M	Fourche Maline Creek	27882	22-Jul-03	**10**	430	
OK220100-04-0010M	Fourche Maline Creek	29549	26-Aug-03	10	220	
OK220100-04-0010M	Fourche Maline Creek	28316	30-Sep-03	20	50	
OK220100-04-0010M	Fourche Maline Creek	30210	11-May-04	40	100	
OK220100-04-0010M	Fourche Maline Creek	30461	22-Jun-04	140	350	
OK220100-04-0010M	Fourche Maline Creek	30597	19-Jul-04	55	50	
OK220100-04-0010M	Fourche Maline Creek	30864	23-Aug-04	405	25	
OK220100-04-0010M	Fourche Maline Creek	31074	27-Sep-04	10	**10**	
OK220100-04-0010M	Fourche Maline Creek	32294	26-Apr-05	20	10	
OK220100-04-0010M	Fourche Maline Creek	32636	25-May-05	100	60	
OK220200-03-0010C	Sallisaw Creek: Lower	27878	22-Jul-03	**10**	60	
OK220200-03-0010C	Sallisaw Creek: Lower	28179	26-Aug-03	**10**	40	
OK220200-03-0010C	Sallisaw Creek: Lower	28312	29-Sep-03	**10**	10	
OK220200-03-0010C	Sallisaw Creek: Lower	30216	11-May-04	**5**	15	
OK220200-03-0010C	Sallisaw Creek: Lower	30429	15-Jun-04	10	10	
OK220200-03-0010C	Sallisaw Creek: Lower	30593	19-Jul-04	5	5	
OK220200-03-0010C	Sallisaw Creek: Lower	30822	23-Aug-04	15	**10**	
OK220200-03-0010C	Sallisaw Creek: Lower	31080	28-Sep-04	**5**	60	
OK220200-03-0010C	Sallisaw Creek: Lower	32253	18-Apr-05	15	**5**	
OK220200-03-0010C	Sallisaw Creek: Lower	32632	24-May-05	10	15	
OK220200-03-0010G	Sallisaw Creek: Upper	27877	22-Jul-03	200	670	
OK220200-03-0010G	Sallisaw Creek: Upper	28178	26-Aug-03	10	980	
OK220200-03-0010G	Sallisaw Creek: Upper	28311	20-Sep-03	**10**	310	
OK220200-03-0010G	Sallisaw Creek: Upper	30215	11-May-04	5	40	
OK220200-03-0010G	Sallisaw Creek: Upper	30428	15-Jun-04	10	75	
OK220200-03-0010G	Sallisaw Creek: Upper	30592	19-Jul-04	**5**	10	
OK220200-03-0010G	Sallisaw Creek: Upper	30821	23-Aug-04	**5**	20	
OK220200-03-0010G	Sallisaw Creek: Upper	31079	28-Sep-04	30	180	
OK220200-03-0010G	Sallisaw Creek: Upper	32252	18-Apr-05	5	5	
OK220200-03-0010G	Sallisaw Creek: Upper	32631	24-May-05	35	50	
OK220200-04-0010G	San Bois Creek	27884	22-Jul-03	**10**	140	
OK220200-04-0010G	San Bois Creek	29547	26-Aug-03	50	280	
OK220200-04-0010G	San Bois Creek	28314	30-Sep-03	10	50	
OK220200-04-0010G	San Bois Creek	30212	11-May-04	10	80	
OK220200-04-0010G	San Bois Creek	30459	21-Jun-04	520	730	
OK220200-04-0010G	San Bois Creek	30599	19-Jul-04	20	20	
OK220200-04-0010G	San Bois Creek	30866	23-Aug-04	285	10	
OK220200-04-0010G	San Bois Creek	31076	27-Sep-04	15	20	
OK220200-04-0010G	San Bois Creek	32292	26-Apr-05	190	340	
OK220200-04-0010G	San Bois Creek	32634	25-May-05	**1000**	**1000**	
OK220600-01-0100P	Mill Creek	27866	22-Jul-03	**10**	150	
OK220600-01-0100P	Mill Creek	28170	26-Aug-03	**10**	**1000**	
OK220600-01-0100P	Mill Creek	28337	30-Sep-03	670	170	

Appendix A.2. Raw bacteria data.

WBID	Site Name	SampleID	Date	*E.Coli*	*Enterococcus*	Comments
OK220600-01-0100P	Mill Creek	30189	04-May-04	40	210	
OK220600-01-0100P	Mill Creek	30414	15-Jun-04	30	175	
OK220600-01-0100P	Mill Creek	30575	13-Jul-04	15	220	
OK220600-01-0100P	Mill Creek	30800	17-Aug-04	10	70	
OK220600-01-0100P	Mill Creek	31016	21-Sep-04	15	60	
OK220600-01-0100P	Mill Creek	31238	26-Oct-04	65	150	
OK220600-01-0100P	Mill Creek	32274	19-Apr-05	15	30	
OK220600-01-0100P	Mill Creek	32646	25-May-05	70	40	
OK220600-03-0010J	Brushy Creek	27881	22-Jul-03	20	180	
OK220600-03-0010J	Brushy Creek	29550	26-Aug-03	180	250	
OK220600-03-0010J	Brushy Creek	28317	30-Sep-03	10	10	
OK220600-03-0010J	Brushy Creek	30209	11-May-04	55	120	
OK220600-03-0010J	Brushy Creek	30462	22-Jun-04	**1000**	**1000**	
OK220600-03-0010J	Brushy Creek	30596	19-Jul-04	70	75	
OK220600-03-0010J	Brushy Creek	30863	23-Aug-04	**500**	40	
OK220600-03-0010J	Brushy Creek	31073	27-Sep-04	**5**	20	
OK220600-03-0010J	Brushy Creek	32295	26-Apr-05	320	170	
OK220600-03-0010J	Brushy Creek	32637	25-May-05	20	20	
OK220600-03-0050F	Peaceable Creek	27880	22-Jul-03	20	120	
OK220600-03-0050F	Peaceable Creek	29551	26-Aug-03	60	140	
OK220600-03-0050F	Peaceable Creek	28318	30-Sep-03	20	50	
OK220600-03-0050F	Peaceable Creek	30208	11-May-04	25	265	
OK220600-03-0050F	Peaceable Creek	30463	22-Jun-04	**1000**	**1000**	
OK220600-03-0050F	Peaceable Creek	30595	19-Jul-04	**5**	30	
OK220600-03-0050F	Peaceable Creek	30862	23-Aug-04	**500**	40	
OK220600-03-0050F	Peaceable Creek	31072	27-Sep-04	60	50	
OK220600-03-0050F	Peaceable Creek	32296	26-Apr-05	50	60	
OK220600-03-0050F	Peaceable Creek	32638	25-May-05	70	**10**	
OK520500-01-0170L	Bad Creek	27874	22-Jul-03	**1000**	720	
OK520500-01-0170L	Bad Creek	28154	26-Aug-03	**10**	**10**	
OK520500-01-0170L	Bad Creek	28321	30-Sep-03	20	50	
OK520500-01-0170L	Bad Creek	30197	04-May-04	120	700	
OK520500-01-0170L	Bad Creek	30422	15-Jun-04	5	5	
OK520500-01-0170L	Bad Creek	30583	13-Jul-04	**5**	30	
OK520500-01-0170L	Bad Creek	30808	17-Aug-04	5	10	
OK520500-01-0170L	Bad Creek	31024	21-Sep-04	5	60	
OK520500-01-0170L	Bad Creek	32262	19-Apr-05	20	75	
OK520500-01-0170L	Bad Creek	32657	25-May-05	70	10	
OK520500-01-0200D	Alabama Creek	27873	22-Jul-03	440	80	
OK520500-01-0200D	Alabama Creek	28153	26-Aug-03	**10**	**10**	
OK520500-01-0200D	Alabama Creek	28322	30-Sep-03	10	20	
OK520500-01-0200D	Alabama Creek	30198	04-May-04	80	340	
OK520500-01-0200D	Alabama Creek	30423	15-Jun-04	265	165	
OK520500-01-0200D	Alabama Creek	30584	13-Jul-04	85	120	
OK520500-01-0200D	Alabama Creek	30809	17-Aug-04	25	20	
OK520500-01-0200D	Alabama Creek	31025	21-Sep-04	**5**	10	
OK520500-01-0200D	Alabama Creek	32263	19-Apr-05	95	75	
OK520500-01-0200D	Alabama Creek	32658	25-May-05	170	70	
OK520500-02-0010C	Wewoka Creek: Lower	27872	22-Jul-03	**10**	140	
OK520500-02-0010C	Wewoka Creek: Lower	28152	26-Aug-03	10	60	
OK520500-02-0010C	Wewoka Creek: Lower	28324	30-Sep-03	30	80	
OK520500-02-0010C	Wewoka Creek: Lower	30199	04-May-04	10	110	
OK520500-02-0010C	Wewoka Creek: Lower	30424	15-Jun-04	75	55	
OK520500-02-0010C	Wewoka Creek: Lower	30585	13-Jul-04	40	95	
OK520500-02-0010C	Wewoka Creek: Lower	30810	17-Aug-04	25	10	
OK520500-02-0010C	Wewoka Creek: Lower	31026	21-Sep-04	15	20	
OK520500-02-0010C	Wewoka Creek: Lower	32264	19-Apr-05	50	10	
OK520500-02-0010C	Wewoka Creek: Lower	32659	25-May-05	10	20	
OK520500-02-0010M	Wewoka Creek: Upper	27849	22-Jul-03	80	10	
OK520500-02-0010M	Wewoka Creek: Upper	28174	26-Aug-03	60	40	

Appendix A.2. Raw bacteria data.

WBID	Site Name	SampleID	Date	*E.Coli*	*Enterococcus*	Comments
OK520500-02-0010M	Wewoka Creek: Upper	28308	30-Sep-03	210	330	
OK520500-02-0010M	Wewoka Creek: Upper	30180	04-May-04	5	110	
OK520500-02-0010M	Wewoka Creek: Upper	30406	15-Jun-04	35	25	
OK520500-02-0010M	Wewoka Creek: Upper	30565	13-Jul-04	40	70	
OK520500-02-0010M	Wewoka Creek: Upper	30791	17-Aug-04	35	70	
OK520500-02-0010M	Wewoka Creek: Upper	31029	21-Sep-04	10	30	
OK520500-02-0010M	Wewoka Creek: Upper	32258	18-Apr-05	25	35	
OK520500-02-0010M	Wewoka Creek: Upper	32653	24-May-05	**5**	**5**	
OK520500-02-0090D	Little Wewoka Creek	27871	22-Jul-03	**10**	70	
OK520500-02-0090D	Little Wewoka Creek	28151	26-Aug-03	20	20	
OK520500-02-0090D	Little Wewoka Creek	28323	30-Sep-03	100	210	
OK520500-02-0090D	Little Wewoka Creek	30200	04-May-04	10	275	
OK520500-02-0090D	Little Wewoka Creek	30425	15-Jun-04	35	195	
OK520500-02-0090D	Little Wewoka Creek	30586	13-Jul-04	70	180	
OK520500-02-0090D	Little Wewoka Creek	30811	17-Aug-04	20	70	
OK520500-02-0090D	Little Wewoka Creek	31027	21-Sep-04	10	40	
OK520500-02-0090D	Little Wewoka Creek	32265	19-Apr-05	85	225	
OK520500-02-0090D	Little Wewoka Creek	32660	25-May-05	10	25	
OK520600-03-0010D	Canadian Sandy Creek	27870	21-Jul-03	**10**	10	
OK520600-03-0010D	Canadian Sandy Creek	28150	25-Aug-03	**10**	10	
OK520600-03-0010D	Canadian Sandy Creek	28326	30-Sep-03	50	120	
OK520600-03-0010D	Canadian Sandy Creek	30194	03-May-04	60	490	
OK520600-03-0010D	Canadian Sandy Creek	30419	14-Jun-04	105	480	
OK520600-03-0010D	Canadian Sandy Creek	30580	12-Jul-04	**500**	680	
OK520600-03-0010D	Canadian Sandy Creek	30805	16-Aug-04	40	100	
OK520600-03-0010D	Canadian Sandy Creek	31021	20-Sep-04	25	130	
OK520600-03-0010D	Canadian Sandy Creek	32260	18-Apr-05	70	70	
OK520600-03-0010D	Canadian Sandy Creek	32655	24-May-05	60	20	
OK520700-01-0080L	Gentry Creek	27860	21-Jul-03	200	70	
OK520700-01-0080L	Gentry Creek	28163	25-Aug-03	30	10	
OK520700-01-0080L	Gentry Creek	28330	29-Sep-03	770	550	
OK520700-01-0080L	Gentry Creek	30185	03-May-04	35	**500**	
OK520700-01-0080L	Gentry Creek	30410	14-Jun-04	265	170	
OK520700-01-0080L	Gentry Creek	30571	12-Jul-04	185	400	
OK520700-01-0080L	Gentry Creek	30796	16-Aug-04	95	110	
OK520700-01-0080L	Gentry Creek	31012	20-Sep-04	55	70	
OK520700-01-0080L	Gentry Creek	31234	25-Oct-04	20	30	
OK520700-01-0080L	Gentry Creek	32270	18-Apr-05	190	80	
OK520700-01-0080L	Gentry Creek	32642	24-May-05	470	20	
OK520700-03-0100B	Salt Creek (Creek Co.)	27868	21-Jul-03	70	490	
OK520700-03-0100B	Salt Creek (Creek Co.)	28148	25-Aug-03	**10**	30	
OK520700-03-0100B	Salt Creek (Creek Co.)	28320	29-Sep-03	**1000**	250	
OK520700-03-0100B	Salt Creek (Creek Co.)	30196	03-May-04	210	480	
OK520700-03-0100B	Salt Creek (Creek Co.)	30421	14-Jun-04	170	205	
OK520700-03-0100B	Salt Creek (Creek Co.)	30582	12-Jul-04	165	300	
OK520700-03-0100B	Salt Creek (Creek Co.)	30807	16-Aug-04	430	650	
OK520700-03-0100B	Salt Creek (Creek Co.)	31023	20-Sep-04	25	40	
OK520700-03-0100B	Salt Creek (Creek Co.)	32261	19-Apr-05	395	130	
OK520700-03-0100B	Salt Creek (Creek Co.)	32656	25-May-05	280	140	
OK520700-03-0220G	Camp Creek	27867	21-Jul-03	80	**1000**	
OK520700-03-0220G	Camp Creek	28147	25-Aug-03	**10**	340	
OK520700-03-0220G	Camp Creek	28319	29-Sep-03	615	505	
OK520700-03-0220G	Camp Creek	30193	03-May-04	270	590	
OK520700-03-0220G	Camp Creek	30418	14-Jun-04	135	325	
OK520700-03-0220G	Camp Creek	30579	12-Jul-04	105	490	
OK520700-03-0220G	Camp Creek	30804	16-Aug-04	**500**	**1000**	
OK520700-03-0220G	Camp Creek	32255	18-Apr-05	155	230	
OK520700-03-0220G	Camp Creek	32650	24-May-05	70	200	
OK520700-04-0020F	Dry Creek	27845	21-Jul-03	590	230	
OK520700-04-0020F	Dry Creek	28171	26-Aug-03	50	480	

Appendix A.2. Raw bacteria data.

WBID	Site Name	SampleID	Date	*E.Coli*	*Enterococcus*	Comments
OK520700-04-0020F	Dry Creek	28304	29-Sep-03	80	480	
OK520700-04-0020F	Dry Creek	30178	03-May-04	**500**	245	
OK520700-04-0020F	Dry Creek	30404	15-Jun-04	70	135	
OK520700-04-0020F	Dry Creek	30563	12-Jul-04	65	250	
OK520700-04-0020F	Dry Creek	30790	16-Aug-04	225	230	
OK520700-04-0020F	Dry Creek	31030	21-Sep-04	**5**	40	
OK520700-04-0020F	Dry Creek	32256	18-Apr-05	215	85	
OK520700-04-0020F	Dry Creek	32651	24-May-05	60	140	
OK520700-04-0260C	Quapaw Creek	27846	21-Jul-03	40	340	
OK520700-04-0260C	Quapaw Creek	28172	26-Aug-03	**1000**	470	
OK520700-04-0260C	Quapaw Creek	28305	29-Sep-03	150	410	
OK520700-04-0260C	Quapaw Creek	30177	03-May-04	25	235	
OK520700-04-0260C	Quapaw Creek	30402	14-Jun-04	40	65	
OK520700-04-0260C	Quapaw Creek	30564	12-Jul-04	40	90	
OK520700-04-0260C	Quapaw Creek	30789	16-Aug-04	**500**	310	
OK520700-04-0260C	Quapaw Creek	31031	21-Sep-04	55	10	
OK520700-04-0260C	Quapaw Creek	32257	18-Apr-05	100	55	
OK520700-04-0260C	Quapaw Creek	32652	24-May-05	5	30	
OK520710-01-0010G	Deep Fork N. Canadian R.	27847	21-Jul-03	**10**	90	
OK520710-01-0010G	Deep Fork N. Canadian R.	28173	26-Aug-03	30	80	
OK520710-01-0010G	Deep Fork N. Canadian R.	28306	29-Sep-03	20	60	
OK520710-01-0010G	Deep Fork N. Canadian R.	30179	03-May-04	15	100	
OK520710-01-0010G	Deep Fork N. Canadian R.	30403	15-Jun-04	40	55	
OK520710-01-0010G	Deep Fork N. Canadian R.	30567	13-Jul-04	**5**	40	
OK520710-01-0010G	Deep Fork N. Canadian R.	30788	16-Aug-04	75	330	
OK520710-01-0010G	Deep Fork N. Canadian R.	31032	21-Sep-04	10	60	
OK520710-01-0010G	Deep Fork N. Canadian R.	32278	20-Apr-05	145	60	
OK520710-01-0010G	Deep Fork N. Canadian R.	32662	25-May-05	90	130	
OK520800-01-0050G	Bird Creek	27869	21-Jul-03	70	**1000**	
OK520800-01-0050G	Bird Creek	28149	25-Aug-03	**10**	140	
OK520800-01-0050G	Bird Creek	28325	30-Sep-03	410	420	
OK520800-01-0050G	Bird Creek	30195	03-May-04	30	110	
OK520800-01-0050G	Bird Creek	30420	14-Jun-04	35	40	
OK520800-01-0050G	Bird Creek	30581	12-Jul-04	40	80	
OK520800-01-0050G	Bird Creek	30806	16-Aug-04	5	130	
OK520800-01-0050G	Bird Creek	31022	20-Sep-04	15	30	
OK520800-01-0050G	Bird Creek	32266	19-Apr-05	40	20	
OK520800-01-0050G	Bird Creek	32661	25-May-05	135	75	
OK520800-03-0010D	Salt Creek (Seminole Co.)	27848	22-Jul-03	**1000**	180	
OK520800-03-0010D	Salt Creek (Seminole Co.)	28307	30-Sep-03	575	255	
OK520800-03-0010D	Salt Creek (Seminole Co.)	30181	04-May-04	45	120	
OK520800-03-0010D	Salt Creek (Seminole Co.)	30405	15-Jun-04	20	90	
OK520800-03-0010D	Salt Creek (Seminole Co.)	30566	13-Jul-04	45	110	
OK520800-03-0010D	Salt Creek (Seminole Co.)	30792	17-Aug-04	15	20	
OK520800-03-0010D	Salt Creek (Seminole Co.)	32259	18-Apr-05	65	25	
OK520800-03-0010D	Salt Creek (Seminole Co.)	32654	24-May-05	185	35	

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
DO (mg/L)	Coody Creek	OK120400-01-0400F	20	0	6.606	0.736	3.294	2.11	4.148	5.81	9.895	12.69
	Dirty Creek	OK120400-02-0010F	21	0	6.723	0.595	2.726	1.31	5.005	6.95	8.895	11.5
	South Fk Dirty Creek	OK120400-02-0030F	19	1	5.473	0.638	2.78	1.64	3.03	4.45	8.06	11.17
	George's Fk Dirty Creek	OK120400-02-0110D	19	1	5.501	0.813	3.542	0.85	2.33	4.42	9.18	12.24
	Butler Creek	OK120400-02-0160D	19	0	6.325	0.731	3.186	0.83	3.83	6.67	9.45	11.75
	Elk Creek	OK120400-02-0190D	19	1	6.919	0.55	2.396	2.59	5.15	7.08	8.66	11.77
	Shady Grove Creek	OK120400-02-0240H	18	1	7.325	0.514	2.181	4.05	5.35	6.985	9.098	11.35
	Snake Creek	OK120410-01-0220G	19	1	7.713	0.639	2.784	3.92	5.27	8.1	10.19	12.98
	Cloud Creek	OK120410-02-0010H	19	1	6.37	0.586	2.555	2.88	4.13	5.99	8.39	11.7
	Polecat Creek	OK120420-02-0010D	18	1	7.921	0.658	2.79	2.86	5.535	7.88	10.19	13.3
	Ballard Creek	OK121700-03-0370G	20	0	9.227	0.614	2.747	4.66	7.288	8.795	11.245	14.06
	Battle Creek	OK121700-06-0040G	20	0	9.17	0.397	1.774	4.8	8.06	9.165	10.43	11.9
	Brazil Creek	OK220100-03-0010G	20	0	7.351	0.654	2.923	2.65	5.358	6.69	9.79	13.14
	Fourche Maline Creek	OK220100-04-0010M	20	0	7.111	0.628	2.808	1.83	5.065	6.28	9.813	12.11
	Sallisaw Creek: Lower	OK220200-03-0010C	20	0	9.846	0.457	2.045	5.69	8.1	10.42	11.38	13.03
	Sallisaw Creek: Upper	OK220200-03-0010G	20	0	9.364	0.579	2.59	4.87	6.995	9.43	11.393	14.3
	San Bois Creek	OK220200-04-0010G	20	0	7.156	0.563	2.52	3.62	5.21	6.63	9.25	12.88
	Mill Creek	OK220600-01-0100P	20	0	6.434	0.737	3.296	1.22	3.565	5.95	9.915	12.25
	Brushy Creek	OK220600-03-0010J	20	0	7.036	0.587	2.627	2.52	5.053	6.735	9.285	11.57
	Peaceable Creek	OK220600-03-0050F	20	0	6.649	0.575	2.573	2.98	4.128	6.64	8.948	10.69
	Bad Creek	OK520500-01-0170L	20	0	8.687	0.566	2.532	2.05	6.918	8.665	10.883	12.27
	Alabama Creek	OK520500-01-0200D	20	0	8.147	0.691	3.092	2.8	5.295	8.27	9.875	15.27
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	8.916	0.474	2.122	4.5	7.353	8.965	10.135	13.81
	Wewoka Creek: Upper	OK520500-02-0010M	21	0	10.044	0.532	2.438	5.75	8.03	10.35	11.865	13.6
	Little Wewoka Creek	OK520500-02-0090D	20	0	8.847	0.602	2.692	3.15	7.33	9.635	10.55	14.45
	Canadian Sandy Creek	OK520600-03-0010D	20	0	9.074	0.597	2.67	4.78	6.663	8.76	11.195	13.73
	Gentry Creek	OK520700-01-0080L	20	0	6.105	0.547	2.444	2.19	4.518	6.34	8.14	10.88
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	7.939	0.726	3.246	1.4	5.565	7.71	10.78	13.08
	Camp Creek	OK520700-03-0220G	19	0	7.594	0.814	3.548	0.65	4.95	7.08	10.94	13.77
	Dry Creek	OK520700-04-0020F	19	1	8.581	0.572	2.495	4.32	7.18	8.67	10.72	12.75
	Quapaw Creek	OK520700-04-0260C	20	0	9.795	0.506	2.261	5.7	8.023	9.225	11.168	15.18
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	9.928	0.565	2.461	4.89	8.3	9.71	12.05	13.62
	Bird Creek	OK520800-01-0050G	20	0	11.553	0.814	3.64	6.44	9.018	10.705	14.87	19.56
	Salt Creek (Seminole Co.)	OK520800-03-0010D	19	0	9.35	0.461	2.01	6.52	8.35	9.08	10.9	14.14
DOPercSat	Coody Creek	OK120400-01-0400F	20	0	63.08	4.96	22.18	22.5	46.78	61.8	83.2	94.1
	Dirty Creek	OK120400-02-0010F	20	1	70.3	5.46	24.41	13.8	51.08	74.75	88.78	106.9
	South Fk Dirty Creek	OK120400-02-0030F	19	1	53.28	4.49	19.58	18.5	32.2	51.8	70.4	83.6
	George's Fk Dirty Creek	OK120400-02-0110D	19	1	52.96	6.3	27.47	9.6	29.7	60.1	78.6	91.2
	Butler Creek	OK120400-02-0160D	19	0	61.55	5.62	24.5	9.3	43.9	71.5	83.5	94.3
	Elk Creek	OK120400-02-0190D	19	1	71.26	4.32	18.85	36.5	60.8	71	89.9	105.9
	Shady Grove Creek	OK120400-02-0240H	18	1	73.48	3.39	14.37	43	64.28	74.4	86.2	95.9

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
	Snake Creek	OK120410-01-0220G	19	1	75.46	3.67	16.01	44.4	61.1	80.5	86.8	99.9
	Cloud Creek	OK120410-02-0010H	19	1	62.78	3.89	16.96	29	50.1	66.2	74.2	85.8
	Polecat Creek	OK120420-02-0010D	18	1	79.82	4.14	17.55	37.5	70.2	82.3	92.45	102.4
	Ballard Creek	OK121700-03-0370G	20	0	90.29	3.77	16.88	55.6	76.18	92.55	103.58	120.9
	Battle Creek	OK121700-06-0040G	20	0	89.94	2.62	11.7	54.4	85.38	93.25	98.2	104.2
	Brazil Creek	OK220100-03-0010G	20	0	76.05	4.88	21.83	28.9	63.35	79.65	89.8	107.5
	Fourche Maline Creek	OK220100-04-0010M	20	0	73.02	4.74	21.2	22.6	59.93	71.25	93.35	98.4
	Sallisaw Creek: Lower	OK220200-03-0010C	20	0	102.83	2.59	11.59	75.4	94.33	101.1	111.93	123.3
	Sallisaw Creek: Upper	OK220200-03-0010G	20	0	94.78	4.25	18.99	60.4	81.55	89.55	111.13	129.3
	San Bois Creek	OK220200-04-0010G	20	0	74.3	4.16	18.59	39.8	56.68	77.5	85.58	100.4
	Mill Creek	OK220600-01-0100P	20	0	62.3	5.23	23.38	13.2	46.18	62.55	81.98	99.3
	Brushy Creek	OK220600-03-0010J	20	0	71.53	4.51	20.17	31.1	58.8	74.65	86.83	102.4
	Peaceable Creek	OK220600-03-0050F	20	0	67.39	4.63	20.72	35	50.25	70.15	88.98	96.3
	Bad Creek	OK520500-01-0170L	20	0	88.9	4.29	19.19	26	85.83	90.05	98.88	128.5
	Alabama Creek	OK520500-01-0200D	20	0	80.56	5.18	23.15	34	63.15	83.35	91.25	149.5
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	92.42	3.42	15.3	55.5	87.38	93.7	100.53	134
	Wewoka Creek: Upper	OK520500-02-0010M	21	0	107.67	7.47	34.25	62.9	84.85	99.1	130.7	182
	Little Wewoka Creek	OK520500-02-0090D	20	0	88.61	4.99	22.3	37	83.3	91.05	106.25	116.7
	Canadian Sandy Creek	OK520600-03-0010D	20	0	93.44	4.14	18.52	54	77.8	97.85	103.28	129.5
	Gentry Creek	OK520700-01-0080L	20	0	58.75	3.83	17.12	24	47.3	61.15	71.2	86.6
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	78.65	5.23	23.39	17	67.83	86.8	93.8	105
	Camp Creek	OK520700-03-0220G	19	0	70.61	6.1	26.58	8	57.4	79	91.5	100.4
	Dry Creek	OK520700-04-0020F	19	1	86.5	3.73	16.26	45.5	74.9	90.5	95.4	108.7
	Quapaw Creek	OK520700-04-0260C	20	0	100.46	2.87	12.85	73.9	92.38	98.05	110.23	128.2
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	107.91	7.36	32.06	54.1	93.3	101.2	116	194
	Bird Creek	OK520800-01-0050G	19	1	117.33	6.45	28.12	76.5	88	115	141	163
	Salt Creek (Seminole Co.)	OK520800-03-0010D	19	0	98.12	3.65	15.93	73.1	83.8	98.1	110.9	132
Turb (NTU)	Coody Creek	OK120400-01-0400F	18	2	26.51	3.89	16.52	6.41	14.75	24.3	33.5	70.9
	Dirty Creek	OK120400-02-0010F	20	1	55.4	12.3	54.9	11	16.8	38.3	71.8	205
	South Fk Dirty Creek	OK120400-02-0030F	18	2	36.6	21.1	89.6	3.2	8.2	11.9	21.5	392
	George's Fk Dirty Creek	OK120400-02-0110D	18	2	48.9	20.9	88.5	5.4	18	31.3	44.6	399
	Butler Creek	OK120400-02-0160D	17	2	28.65	3.97	16.37	3.27	15.6	26.6	39.3	66.8
	Elk Creek	OK120400-02-0190D	18	2	46.8	12.7	53.8	4.9	13.8	30.3	45.1	195
	Shady Grove Creek	OK120400-02-0240H	17	2	56.5	22.4	92.4	3.5	10.2	17.7	29.6	291
	Snake Creek	OK120410-01-0220G	18	2	53.2	11.6	49	6.6	22.9	36.5	57.3	204
	Cloud Creek	OK120410-02-0010H	17	3	37.42	4.1	16.89	8.28	24	39	53.7	65
	Polecat Creek	OK120420-02-0010D	17	2	48.59	8.51	35.09	17.5	22.65	33.2	72.7	118
	Ballard Creek	OK121700-03-0370G	19	1	2.503	0.393	1.714	0.87	1.6	2.02	2.62	7.94
	Battle Creek	OK121700-06-0040G	20	0	1.955	0.588	2.627	0.33	0.683	0.985	1.538	10.5
	Brazil Creek	OK220100-03-0010G	20	0	52.6	15.9	71	8.4	13.9	21.1	52.2	244
	Fourche Maline Creek	OK220100-04-0010M	18	2	42.4	12.4	52.5	13.9	17.5	27.3	46.4	242

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
	Sallisaw Creek: Lower	OK220200-03-0010C	19	1	15.1	7.21	31.42	3.42	4.38	6	9.66	141
	Sallisaw Creek: Upper	OK220200-03-0010G	19	1	14.13	8.57	37.35	0.99	2.39	3.75	5.75	165
	San Bois Creek	OK220200-04-0010G	20	0	72.9	19.9	89.2	5.3	19.2	34.9	68.6	321
	Mill Creek	OK220600-01-0100P	18	2	45.7	10.8	45.8	8.4	16.1	39.7	51.8	214
	Brushy Creek	OK220600-03-0010J	19	1	45.5	15.3	66.7	6.2	11	27.5	57.7	302
	Peaceable Creek	OK220600-03-0050F	19	1	47	13.1	57.3	3.1	11.4	22.1	58.6	203
	Bad Creek	OK520500-01-0170L	20	0	83.9	47.2	211.2	7.9	11.8	20.7	62.1	965
	Alabama Creek	OK520500-01-0200D	20	0	66.1	29	129.6	3.1	7.5	17.8	68.4	585
	Wewoka Creek: Lower	OK520500-02-0010C	19	1	85.3	40	174.2	8.5	25.1	37.9	74.7	793
	Wewoka Creek: Upper	OK520500-02-0010M	19	2	46.9	12.6	54.7	6.5	15.6	25.5	54.8	239
	Little Wewoka Creek	OK520500-02-0090D	20	0	86.8	37.2	166.5	3.1	7.5	21.2	42.5	603
	Canadian Sandy Creek	OK520600-03-0010D	20	0	68.2	26.2	117	3.4	7.8	30.6	58.9	507
	Gentry Creek	OK520700-01-0080L	18	2	65	15.2	64.4	8.9	19.6	39.9	79.9	234
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	29.98	5.88	26.29	6.83	10.35	19.15	45.95	102
	Camp Creek	OK520700-03-0220G	19	0	26.2	7.16	31.23	2.2	7.52	11	32.5	110
	Dry Creek	OK520700-04-0020F	19	1	72.1	22.8	99.4	8.6	11	21.8	95.9	377
	Quapaw Creek	OK520700-04-0260C	20	0	59	18.3	81.9	3	6.8	15.7	97.8	278
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	22.01	5	21.79	3.47	7.57	14.6	29.5	86.1
	Bird Creek	OK520800-01-0050G	19	1	20.14	7.38	32.16	2.45	4.2	9.3	14.8	138
	Salt Creek (Seminole Co.)	OK520800-03-0010D	17	2	29.8	10.1	41.8	2	4.7	8	44.2	158
Alkalinity (CaCO3)	Coody Creek	OK120400-01-0400F	20	0	84.15	6.96	31.13	43	62	86	98.75	161
	Dirty Creek	OK120400-02-0010F	21	0	68.5	16.2	74.4	20.3	39.5	57	65	380
	South Fk Dirty Creek	OK120400-02-0030F	20	0	85.9	8.06	36.05	38	51.75	84.5	114.5	163
	George's Fk Dirty Creek	OK120400-02-0110D	19	1	71.95	7.01	30.56	34	41	80	99	124
	Butler Creek	OK120400-02-0160D	18	1	69.5	5.92	25.13	33	43	74	91.5	109
	Elk Creek	OK120400-02-0190D	18	2	74.39	6.65	28.22	27	60.25	70	88	146
	Shady Grove Creek	OK120400-02-0240H	19	0	48.11	5.38	23.44	13	29	47	74	94
	Snake Creek	OK120410-01-0220G	20	0	83.8	7.47	33.41	38	57	78	107.25	161
	Cloud Creek	OK120410-02-0010H	20	0	69.95	6.6	29.54	34	43	72	87.5	141
	Polecat Creek	OK120420-02-0010D	19	0	92.26	9.35	40.74	39	73	86	104	193
	Ballard Creek	OK121700-03-0370G	19	1	100.58	3.94	17.19	51	96	104	113	125
	Battle Creek	OK121700-06-0040G	20	0	78.75	4.46	19.95	50	58.75	79	91.25	116
	Brazil Creek	OK220100-03-0010G	18	2	37.67	2.62	11.11	13.6	32.45	38	43	59
	Fourche Maline Creek	OK220100-04-0010M	19	1	35.64	3.24	14.12	9.8	28	35.7	42	71
	Sallisaw Creek: Lower	OK220200-03-0010C	20	0	66.6	3.95	17.67	40	54.75	62.5	83.5	97
	Sallisaw Creek: Upper	OK220200-03-0010G	20	0	78.45	4.21	18.82	45	63.25	79.5	92.75	121
	San Bois Creek	OK220200-04-0010G	20	0	96.7	19.7	88.1	18.5	42.3	66.5	122.8	387
	Mill Creek	OK220600-01-0100P	20	0	60.85	6	26.82	27	38.25	55	75.75	133
	Brushy Creek	OK220600-03-0010J	19	1	40.83	4.02	17.5	0.57	32	44	49	78
	Peaceable Creek	OK220600-03-0050F	19	1	51.75	2.5	10.91	31	44.6	50	60	71
	Bad Creek	OK520500-01-0170L	20	0	42.98	3.46	15.46	15	34.5	43.5	52.33	74

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
	Alabama Creek	OK520500-01-0200D	20	0	57.84	5.92	26.47	21.7	33.25	55.5	78	106
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	98.02	6.93	30.98	46.3	69.75	105	121	145
	Wewoka Creek: Upper	OK520500-02-0010M	19	2	126.68	9.1	39.67	69	88	125	157	191
	Little Wewoka Creek	OK520500-02-0090D	20	0	77.73	9.19	41.11	21.6	48.75	69	95.5	188
	Canadian Sandy Creek	OK520600-03-0010D	19	1	231.3	12	52.3	102	217	235	245	312
	Gentry Creek	OK520700-01-0080L	20	0	74.05	5.88	26.32	40	53	67.5	88.75	127
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	150.1	9.75	43.61	78	118.25	150	184.25	215
	Camp Creek	OK520700-03-0220G	19	0	189.4	16.6	72.5	91	113	187	262	288
	Dry Creek	OK520700-04-0020F	19	1	217.4	18.3	79.8	63.3	153	216	286	359
	Quapaw Creek	OK520700-04-0260C	20	0	238.5	17.2	76.9	110	149.5	274	304.8	344
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	211.3	13.4	58.3	102	171	218	240	329
	Bird Creek	OK520800-01-0050G	19	1	140.32	7.64	33.32	58	127	147	157	193
	Salt Creek (Seminole Co.)	OK520800-03-0010D	17	2	222.3	15.4	63.4	136	170	222	259.5	341
Temp (°C)	Coody Creek	OK120400-01-0400F	20	0	16.55	1.77	7.92	2.8	8.53	17.55	22.53	27.2
	Dirty Creek	OK120400-02-0010F	20	1	18.96	1.99	8.91	5.5	10.18	19.25	27.68	32.4
	South Fk Dirty Creek	OK120400-02-0030F	20	0	16.96	1.71	7.66	3.4	9.83	17.55	22.8	27.7
	George's Fk Dirty Creek	OK120400-02-0110D	20	0	16.64	1.7	7.59	3	9.58	17.8	22.43	27.5
	Butler Creek	OK120400-02-0160D	19	0	17.18	1.82	7.95	3.4	9.3	16.8	23.3	30.1
	Elk Creek	OK120400-02-0190D	20	0	18.51	1.74	7.79	4	11.4	18.65	25.15	30.6
	Shady Grove Creek	OK120400-02-0240H	19	0	17.19	1.76	7.67	3	10.6	18.6	24.4	30.9
	Snake Creek	OK120410-01-0220G	20	0	16.57	1.69	7.56	2.8	9.88	17.1	24.13	26.8
	Cloud Creek	OK120410-02-0010H	20	0	17.16	1.77	7.9	1.9	10.03	17.85	24.73	28.4
	Polecat Creek	OK120420-02-0010D	19	0	17.94	1.97	8.59	4.3	10.1	19	26.8	29.9
	Ballard Creek	OK121700-03-0370G	20	0	15.85	1.36	6.08	5.8	9.85	16.1	21.78	24.6
	Battle Creek	OK121700-06-0040G	20	0	14.89	0.919	4.109	9.3	10.85	15.6	18.25	22.5
	Brazil Creek	OK220100-03-0010G	20	0	18.56	1.81	8.08	4.7	11.18	18.6	24.85	31
	Fourche Maline Creek	OK220100-04-0010M	20	0	18.55	1.64	7.33	5.6	11.3	18.9	25.3	28.8
	Sallisaw Creek: Lower	OK220200-03-0010C	20	0	19.41	1.9	8.51	5.6	11.2	19.5	27.3	33.9
	Sallisaw Creek: Upper	OK220200-03-0010G	20	0	18.12	1.48	6.61	6.6	11.5	19.05	25.25	27.5
	San Bois Creek	OK220200-04-0010G	20	0	18.5	1.85	8.27	4.7	10.4	17.5	24.95	30.9
	Mill Creek	OK220600-01-0100P	20	0	16.93	1.81	8.09	4.1	8.83	18.25	24.15	29.8
	Brushy Creek	OK220600-03-0010J	20	0	18.5	1.73	7.71	4.7	10.93	18.85	25.05	31.9
	Peaceable Creek	OK220600-03-0050F	20	0	18.13	1.63	7.31	5.7	10.88	18.55	24.58	29.2
	Bad Creek	OK520500-01-0170L	20	0	18.23	1.8	8.03	7.4	9.43	19	25.5	30.9
	Alabama Creek	OK520500-01-0200D	20	0	17.47	1.74	7.8	4.8	9.55	18.45	24.75	28.3
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	18.44	1.86	8.3	4	10.3	19.95	27.03	29.3
	Wewoka Creek: Upper	OK520500-02-0010M	21	0	18.94	2.05	9.4	3.5	10.55	20.1	28.15	32.1
	Little Wewoka Creek	OK520500-02-0090D	20	0	17.59	1.95	8.71	2.9	9.25	19.9	24.23	31
	Canadian Sandy Creek	OK520600-03-0010D	20	0	18.32	1.8	8.06	1.9	11.28	19.45	25.88	29.2
	Gentry Creek	OK520700-01-0080L	20	0	17.06	1.79	8.02	2.2	9.45	17.75	24.95	28.9
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	17.42	1.83	8.17	6	8.63	17.95	25.28	29.9

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
	Camp Creek	OK520700-03-0220G	19	0	14.94	1.77	7.73	1.3	7.5	14.8	22.8	27
	Dry Creek	OK520700-04-0020F	19	1	17.62	2.14	9.32	2.6	8.9	17.7	27.9	31.3
	Quapaw Creek	OK520700-04-0260C	20	0	18.14	2.08	9.32	3.2	9.48	17.85	27.03	34.7
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	19.84	2.15	9.39	4.8	10.4	19.9	25.7	35.6
	Bird Creek	OK520800-01-0050G	20	0	18.9	1.7	7.61	5.3	11.15	20.6	25.78	30.8
	Salt Creek (Seminole Co.)	OK520800-03-0010D	19	0	18.97	2.47	10.75	0.8	9.8	17	29.8	35
Cond (uS/cm)	Coody Creek	OK120400-01-0400F	20	0	366.4	24.3	108.5	7	327.2	359.7	417.9	566
	Dirty Creek	OK120400-02-0010F	21	0	347.3	84.6	387.7	60.2	219.6	262.5	355.4	1982
	South Fk Dirty Creek	OK120400-02-0030F	20	0	494	110	491	90	266	352	540	2445
	George's Fk Dirty Creek	OK120400-02-0110D	20	0	248.9	17	75.9	94.2	186.9	247	311	398.1
	Butler Creek	OK120400-02-0160D	19	0	362.3	39.2	170.7	211.3	245.5	283.1	424.4	789
	Elk Creek	OK120400-02-0190D	20	0	448.9	46.6	208.5	142.6	285.7	405.2	606.3	934
	Shady Grove Creek	OK120400-02-0240H	19	0	902	137	598	199	389	785	1470	2031
	Snake Creek	OK120410-01-0220G	20	0	419.8	40	179.1	233.5	294.2	360.8	512	907
	Cloud Creek	OK120410-02-0010H	19	1	379.1	59.5	259.6	7.4	277	354.6	419.7	1357
	Polecat Creek	OK120420-02-0010D	19	0	487	39.8	173.5	225.6	367.1	446.1	669	749
	Ballard Creek	OK121700-03-0370G	20	0	271.4	8.42	37.64	144.1	265.15	279.45	291.85	333.1
	Battle Creek	OK121700-06-0040G	20	0	340	120	539	147	186	216	271	2621
	Brazil Creek	OK220100-03-0010G	20	0	161.26	6.67	29.84	101	150.25	163.5	178.63	220.8
	Fourche Maline Creek	OK220100-04-0010M	20	0	130.56	6.76	30.25	83.3	106.7	130.95	159.45	183.4
	Sallisaw Creek: Lower	OK220200-03-0010C	20	0	156.5	10.7	47.7	8	141.3	157.4	192.5	215.3
	Sallisaw Creek: Upper	OK220200-03-0010G	20	0	186.43	7.48	33.45	96.5	164.55	185.55	207.65	233
	San Bois Creek	OK220200-04-0010G	20	0	437.1	90.8	405.9	24.8	133.7	336.5	493	1364
	Mill Creek	OK220600-01-0100P	20	0	148.4	12.7	56.8	46	117.5	139	175.7	318.3
	Brushy Creek	OK220600-03-0010J	20	0	164.19	9.27	41.47	100.2	124.58	155.65	195.3	240.1
	Peaceable Creek	OK220600-03-0050F	20	0	434.7	86	384.6	70.8	205.1	298.1	524.3	1448
	Bad Creek	OK520500-01-0170L	19	1	603.2	67.8	295.4	78.8	378.3	613	878	1107
	Alabama Creek	OK520500-01-0200D	19	1	588.4	90.2	393.1	63.2	342.8	458	882	1443
	Wewoka Creek: Lower	OK520500-02-0010C	19	1	1033	136	595	173	390	1078	1373	2266
	Wewoka Creek: Upper	OK520500-02-0010M	21	0	1277	211	965	340	684	1004	1604	4952
	Little Wewoka Creek	OK520500-02-0090D	19	1	695.4	72.8	317.5	115.4	451.3	671	925	1220
	Canadian Sandy Creek	OK520600-03-0010D	19	1	501.1	41.2	179.7	7.4	388.3	516	645	762
	Gentry Creek	OK520700-01-0080L	20	0	281.7	20	89.4	161.8	223.7	261	297.6	545
	Salt Creek (Creek Co.)	OK520700-03-0100B	19	1	640.5	68.2	297.2	7.9	424.8	694	925	1120
	Camp Creek	OK520700-03-0220G	18	1	654.8	79.7	338.3	192.8	314.7	631	976	1235
	Dry Creek	OK520700-04-0020F	19	1	612.4	58.8	256.4	7	443.6	585	844	1039
	Quapaw Creek	OK520700-04-0260C	20	0	531.7	36.3	162.5	304.1	356.3	559	697.8	753
	Deep Fork N. Canadian River	OK520710-01-0010G	18	1	800	57.2	242.8	322.7	593.3	917	959.3	1059
	Bird Creek	OK520800-01-0050G	19	1	697.7	88	383.7	101.5	518	585	874	1458
	Salt Creek (Seminole Co.)	OK520800-03-0010D	18	1	2197	254	1077	256	1126	2392	3049	3960

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
pH (SU)	Coody Creek	OK120400-01-0400F	19	1	7.815	0.112	0.488	7.33	7.53	7.63	7.93	9.18
	Dirty Creek	OK120400-02-0010F	20	1	7.043	0.0719	0.3215	6.35	6.83	7.03	7.235	7.6
	South Fk Dirty Creek	OK120400-02-0030F	19	1	7.857	0.113	0.493	7.27	7.56	7.74	7.99	9.36
	George's Fk Dirty Creek	OK120400-02-0110D	19	1	7.767	0.115	0.502	7.15	7.4	7.69	7.93	9.21
	Butler Creek	OK120400-02-0160D	18	1	7.698	0.13	0.552	6.99	7.275	7.6	8.16	9.08
	Elk Creek	OK120400-02-0190D	19	1	7.706	0.11	0.481	6.82	7.43	7.66	8.1	8.78
	Shady Grove Creek	OK120400-02-0240H	18	1	7.332	0.196	0.83	5.3	6.848	7.445	7.755	8.59
	Snake Creek	OK120410-01-0220G	19	1	7.843	0.156	0.682	5.45	7.56	7.9	8.31	8.72
	Cloud Creek	OK120410-02-0010H	19	1	7.694	0.132	0.574	5.79	7.46	7.82	8	8.53
	Polecat Creek	OK120420-02-0010D	19	0	7.939	0.119	0.52	6.63	7.69	8.08	8.25	8.67
	Ballard Creek	OK121700-03-0370G	19	1	7.6663	0.0761	0.3315	7.28	7.44	7.55	7.84	8.49
	Battle Creek	OK121700-06-0040G	19	1	7.2389	0.0803	0.3502	6.15	7.15	7.31	7.46	7.61
	Brazil Creek	OK220100-03-0010G	20	0	7.253	0.0663	0.2964	6.75	7.0275	7.195	7.455	8.01
	Fourche Maline Creek	OK220100-04-0010M	20	0	7.276	0.127	0.568	5.82	7.035	7.195	7.37	8.54
	Sallisaw Creek: Lower	OK220200-03-0010C	18	2	7.7094	0.074	0.3141	6.85	7.5825	7.755	7.8625	8.34
	Sallisaw Creek: Upper	OK220200-03-0010G	19	1	7.685	0.136	0.594	6.1	7.41	7.58	8.14	8.6
	San Bois Creek	OK220200-04-0010G	20	0	7.512	0.0969	0.4335	6.82	7.1075	7.545	7.8925	8.36
	Mill Creek	OK220600-01-0100P	19	1	8.0105	0.0943	0.411	7.17	7.83	8.07	8.28	8.8
	Brushy Creek	OK220600-03-0010J	20	0	7.338	0.164	0.732	4.95	7.163	7.345	7.583	8.87
	Peaceable Creek	OK220600-03-0050F	20	0	7.294	0.172	0.769	4.5	7.115	7.315	7.59	8.2
	Bad Creek	OK520500-01-0170L	20	0	7.549	0.156	0.698	6.67	7.103	7.56	7.75	9.77
	Alabama Creek	OK520500-01-0200D	20	0	7.329	0.152	0.678	6.61	6.858	7.185	7.688	9.02
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	7.9415	0.0969	0.4333	7.15	7.7	7.855	8.14	9.07
	Wewoka Creek: Upper	OK520500-02-0010M	20	1	8.135	0.118	0.528	7.18	7.84	8.09	8.55	9.05
	Little Wewoka Creek	OK520500-02-0090D	20	0	7.312	0.111	0.497	6.05	7.08	7.345	7.505	8.57
	Canadian Sandy Creek	OK520600-03-0010D	20	0	7.851	0.105	0.469	6.24	7.77	7.95	8.168	8.3
	Gentry Creek	OK520700-01-0080L	19	1	7.8316	0.0997	0.4345	6.99	7.6	7.8	8.08	8.76
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	7.629	0.099	0.4427	6.94	7.3775	7.61	7.815	8.96
	Camp Creek	OK520700-03-0220G	19	0	7.619	0.103	0.45	7.06	7.32	7.54	7.84	9.01
	Dry Creek	OK520700-04-0020F	18	2	8.0006	0.0684	0.2901	7.4	7.7725	7.995	8.26	8.43
	Quapaw Creek	OK520700-04-0260C	19	1	8.3153	0.0519	0.2263	7.93	8.12	8.31	8.55	8.75
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	8.2642	0.0694	0.3023	7.77	8	8.26	8.43	8.82
	Bird Creek	OK520800-01-0050G	20	0	7.786	0.148	0.663	5.94	7.418	7.695	8.25	8.93
	Salt Creek (Seminole Co.)	OK520800-03-0010D	18	1	8.1461	0.0734	0.3114	7.35	8.0575	8.13	8.2725	8.96
TotHardness (mg/L)	Coody Creek	OK120400-01-0400F	20	0	124.77	6.56	29.34	88.4	102.5	117.2	140.23	212.5
	Dirty Creek	OK120400-02-0010F	21	0	80.22	6.26	28.67	20.6	69.3	81.1	100.2	133
	South Fk Dirty Creek	OK120400-02-0030F	20	0	134.9	14.9	66.7	23.9	82.8	120.8	179.6	305.3
	George's Fk Dirty Creek	OK120400-02-0110D	20	0	75.01	5.57	24.9	21.2	57.08	73.15	96.48	114.6
	Butler Creek	OK120400-02-0160D	19	0	97.15	6.8	29.66	54.4	68.9	98.6	116.6	160.9
	Elk Creek	OK120400-02-0190D	20	0	166.9	18.8	84.3	33.9	108.4	152.8	208.8	346.2
	Shady Grove Creek	OK120400-02-0240H	19	0	524.1	93.9	409.5	61.9	174.3	369.6	960.8	1267.1

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
	Snake Creek	OK120410-01-0220G	20	0	120.65	9.03	40.37	61.6	95.08	116.95	140.33	202.5
	Cloud Creek	OK120410-02-0010H	20	0	97.09	6.85	30.63	41.7	77.1	101.9	114.78	161.2
	Polecat Creek	OK120420-02-0010D	19	0	136.79	8.59	37.45	70.9	106	135.2	171	188.6
	Ballard Creek	OK121700-03-0370G	20	0	120.81	4.52	20.23	45.9	122.55	126.35	128.63	139.5
	Battle Creek	OK121700-06-0040G	20	0	100.02	5.25	23.47	75.9	79.33	94.45	121.98	153
	Brazil Creek	OK220100-03-0010G	20	0	42.68	2.33	10.42	26.6	34.33	42	48.5	66.8
	Fourche Maline Creek	OK220100-04-0010M	20	0	35.68	1.99	8.89	20.4	28.88	34.2	42.3	50
	Sallisaw Creek: Lower	OK220200-03-0010C	20	0	75.26	3.69	16.52	43.2	65	73.9	92.68	99.8
	Sallisaw Creek: Upper	OK220200-03-0010G	20	0	83.2	5.91	26.42	8.7	72.03	85.3	104.73	113.4
	San Bois Creek	OK220200-04-0010G	20	0	59.02	6.77	30.3	15.7	38.4	55.9	67.25	132.3
	Mill Creek	OK220600-01-0100P	20	0	50.29	3.9	17.43	29.5	39	45.85	56.65	104.7
	Brushy Creek	OK220600-03-0010J	20	0	53.98	4	17.89	27.1	38.5	47	69.05	83.6
	Peaceable Creek	OK220600-03-0050F	20	0	92.2	12	53.4	38.8	55.1	78.7	117.1	250.7
	Bad Creek	OK520500-01-0170L	20	0	99.17	9.19	41.12	25.5	61.3	105.85	117.5	185.3
	Alabama Creek	OK520500-01-0200D	20	0	112.1	13.9	62	17.3	73.4	106.1	142.4	248.6
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	200.6	20.5	91.8	43.1	141.1	214.6	267.7	397.5
	Wewoka Creek: Upper	OK520500-02-0010M	21	0	198.5	18.4	84.3	82.2	131.1	179.4	257.5	395.5
	Little Wewoka Creek	OK520500-02-0090D	20	0	143.7	15	67	27.4	87.1	136	210.5	252.6
	Canadian Sandy Creek	OK520600-03-0010D	20	0	230.9	11.9	53.2	112.1	191.7	235.5	272	305.2
	Gentry Creek	OK520700-01-0080L	20	0	107.66	8.46	37.83	62.6	80.88	98.6	130.28	201.6
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	187.2	15.1	67.7	54.2	129.6	190.2	233.4	306.3
	Camp Creek	OK520700-03-0220G	19	0	246.8	24.4	106.5	89.7	150.4	250.2	358.4	419.1
	Dry Creek	OK520700-04-0020F	20	0	268.7	19.3	86.2	116.5	198	258.3	356.2	387.2
	Quapaw Creek	OK520700-04-0260C	20	0	217.5	14.2	63.6	118.5	151.4	219.4	286.4	309.7
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	263.9	18.4	80.3	114.1	209.5	261	297.3	478.5
	Bird Creek	OK520800-01-0050G	20	0	191.5	17.5	78.3	33.8	152.1	181	217	345.3
	Salt Creek (Seminole Co.)	OK520800-03-0010D	19	0	424	47.9	208.8	92.9	283.9	359.3	565.4	850.2
Flow	Coody Creek	OK120400-01-0400F	18	2	12.92	3.29	13.94	0	2.44	8.82	18.67	42.58
	Dirty Creek	OK120400-02-0010F	3	18	698	698	1209	0	0	0	2093	2093
	South Fk Dirty Creek	OK120400-02-0030F	8	12	310	294	833	0	1	15	49	2371
	George's Fk Dirty Creek	OK120400-02-0110D	16	4	288	275	1099	0	1	8	17	4410
	Butler Creek	OK120400-02-0160D	14	5	7.24	2.42	9.07	0	1.56	2.49	10.86	28.86
	Elk Creek	OK120400-02-0190D	18	2	58.6	40.2	170.5	0	3.5	8	31.7	732.2
	Shady Grove Creek	OK120400-02-0240H	12	7	7.1	2.22	7.69	0	1.47	3.09	13.7	22.63
	Snake Creek	OK120410-01-0220G	19	1	19.09	7.11	30.98	0	1.06	8.54	23.84	126.74
	Cloud Creek	OK120410-02-0010H	15	5	271	263	1019	0	1	3	16	3953
	Polecat Creek	OK120420-02-0010D	17	2	28.73	4.64	19.12	3	13.18	26.24	42.68	63.72
	Ballard Creek	OK121700-03-0370G	20	0	37.9	13	58.2	1	6.6	19.6	41.2	262.3
	Battle Creek	OK121700-06-0040G	20	0	13.61	4.32	19.34	0.86	1.87	6.01	18.19	76.35
	Brazil Creek	OK220100-03-0010G	14	6	232	109	407	3	27	49	219	1361
	Fourche Maline Creek	OK220100-04-0010M	14	6	450	275	1028	0	15	47	347	3900

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
	Sallisaw Creek: Lower	OK220200-03-0010C	17	3	148.8	58.1	239.6	0.2	6.3	79.6	167.5	979.8
	Sallisaw Creek: Upper	OK220200-03-0010G	17	3	99.4	41.9	172.6	0	4.2	41.9	92.3	707.3
	San Bois Creek	OK220200-04-0010G	17	3	429	303	1251	0	4	16	66	4960
	Mill Creek	OK220600-01-0100P	18	2	5.72	2.94	12.47	0.02	0.34	0.73	3.17	48.82
	Brushy Creek	OK220600-03-0010J	14	6	430	392	1467	0	2	10	83	5521
	Peaceable Creek	OK220600-03-0050F	11	9	471	412	1365	2	3	8	112	4577
	Bad Creek	OK520500-01-0170L	14	6	131	119	447	0	0	1	6	1679
	Alabama Creek	OK520500-01-0200D	14	6	47.9	37.9	141.8	0	0.3	2	8.2	531.5
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	553	474	2119	0	7	26	62	9533
	Wewoka Creek: Upper	OK520500-02-0010M	12	9	50	22.9	79.4	0	6.9	13.6	43.8	231.4
	Little Wewoka Creek	OK520500-02-0090D	15	5	13.61	6.12	23.71	0	0.49	4.06	8.96	77.54
	Canadian Sandy Creek	OK520600-03-0010D	19	1	16.2	4.8	20.92	0	0.92	7.09	22.31	86.05
	Gentry Creek	OK520700-01-0080L	8	12	4.77	2.17	6.14	0	0.06	1.82	11.44	14.89
	Salt Creek (Creek Co.)	OK520700-03-0100B	19	1	10.48	3.57	15.56	0	1.49	4.57	10.44	54.25
	Camp Creek	OK520700-03-0220G	18	1	6.17	2.74	11.64	0	0.21	0.85	7.65	43.6
	Dry Creek	OK520700-04-0020F	16	4	43.9	29.7	118.7	0	3.9	8.7	20.5	480.8
	Quapaw Creek	OK520700-04-0260C	17	3	18.45	7.66	31.57	0	2.63	7.85	21.29	133.11
	Deep Fork N. Canadian River	OK520710-01-0010G	17	2	49.3	15.9	65.6	11	14.3	17.3	45.2	188.9
	Bird Creek	OK520800-01-0050G	18	2	3.66	1.19	5.05	0.43	1.06	1.98	4.24	21.85
	Salt Creek (Seminole Co.)	OK520800-03-0010D	13	6	82.8	69.1	249.1	0	2.8	7.3	29	910.2
Base Flow	Coody Creek	OK120400-01-0400F	18	2	12.92	3.29	13.94	0	2.44	8.82	18.67	42.58
	Dirty Creek	OK120400-02-0010F	2	17	0	0	0	0	*	0	*	0
	South Fk Dirty Creek	OK120400-02-0030F	7	12	15.98	7.87	20.81	0	0	9.75	20.47	59.04
	George's Fk Dirty Creek	OK120400-02-0110D	14	4	8.04	2.34	8.75	0	0.12	7.01	11.18	31.64
	Butler Creek	OK120400-02-0160D	13	5	7.41	2.61	9.41	0	1.54	2.43	11.9	28.86
	Elk Creek	OK120400-02-0190D	16	2	13.34	4.69	18.77	0	3.38	6.04	13.57	69.12
	Shady Grove Creek	OK120400-02-0240H	12	7	7.1	2.22	7.69	0	1.47	3.09	13.7	22.63
	Snake Creek	OK120410-01-0220G	18	1	13.11	4.06	17.22	0	0.94	7.31	18.67	68.17
	Cloud Creek	OK120410-02-0010H	14	5	7.69	2.83	10.58	0	0.51	2.8	13.6	36.15
	Polecat Creek	OK120420-02-0010D	17	2	28.73	4.64	19.12	3	13.18	26.24	42.68	63.72
	Ballard Creek	OK121700-03-0370G	19	0	26.04	5.75	25.06	0.95	5.39	19.52	38.54	89.18
	Battle Creek	OK121700-06-0040G	20	0	13.61	4.32	19.34	0.86	1.87	6.01	18.19	76.35
	Brazil Creek	OK220100-03-0010G	8	6	28.3	6.32	17.86	2.69	14.17	31.06	35.63	61.94
	Fourche Maline Creek	OK220100-04-0010M	8	6	20.59	6.5	18.39	0	4.82	18.01	37.29	52.43
	Sallisaw Creek: Lower	OK220200-03-0010C	11	2	34.9	10.5	34.9	0.2	3.7	32.8	79.6	86.1
	Sallisaw Creek: Upper	OK220200-03-0010G	13	3	30.75	7.43	26.8	0	3.63	31.86	58.87	71.58
	San Bois Creek	OK220200-04-0010G	14	3	20.99	6.61	24.72	0.18	3.48	14.45	35.34	92.9
	Mill Creek	OK220600-01-0100P	18	2	5.72	2.94	12.47	0.02	0.34	0.73	3.17	48.82
	Brushy Creek	OK220600-03-0010J	11	6	13.57	6.73	22.31	0.14	1.17	5.84	15.58	77.41
	Peaceable Creek	OK220600-03-0050F	7	9	11.73	6.93	18.32	1.9	2.55	6.45	7.96	52.92
	Bad Creek	OK520500-01-0170L	12	6	2.3	1.23	4.25	0	0.37	0.99	2.17	15.4

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
	Alabama Creek	OK520500-01-0200D	12	5	2.94	1.58	5.46	0	0.31	1.37	2.29	19.8
	Wewoka Creek: Lower	OK520500-02-0010C	16	0	20.32	4.71	18.85	0.02	5.73	11.19	32.32	67.3
	Wewoka Creek: Upper	OK520500-02-0010M	10	8	16.57	4.6	14.54	0	5.44	12.41	27.71	49.04
	Little Wewoka Creek	OK520500-02-0090D	14	3	9.04	4.38	16.39	0	0.48	3.29	6.68	56.13
	Canadian Sandy Creek	OK520600-03-0010D	19	0	16.2	4.8	20.92	0	0.92	7.09	22.31	86.05
	Gentry Creek	OK520700-01-0080L	8	9	4.77	2.17	6.14	0	0.06	1.82	11.44	14.89
	Salt Creek (Creek Co.)	OK520700-03-0100B	19	1	10.48	3.57	15.56	0	1.49	4.57	10.44	54.25
	Camp Creek	OK520700-03-0220G	18	1	6.17	2.74	11.64	0	0.21	0.85	7.65	43.6
	Dry Creek	OK520700-04-0020F	14	3	9.07	2.06	7.72	0	3.23	7.98	14.2	24.75
	Quapaw Creek	OK520700-04-0260C	16	3	11.29	2.87	11.49	0	2.25	7.68	17.68	41.67
	Deep Fork N. Canadian River	OK520710-01-0010G	14	2	20.38	3.62	13.56	11.02	13.76	16.4	21.94	65.18
	Bird Creek	OK520800-01-0050G	18	2	3.66	1.19	5.05	0.43	1.06	1.98	4.24	21.85
	Salt Creek (Seminole Co.)	OK520800-03-0010D	12	6	13.82	4.74	16.4	0	2.27	6.94	24.08	53.74
Turb (NTU)	Coody Creek	OK120400-01-0400F	18	2	26.51	3.89	16.52	6.41	14.75	24.3	33.5	70.9
	Dirty Creek	OK120400-02-0010F	18	1	39.59	6.34	26.89	11	15.93	34.65	55.38	104
	South Fk Dirty Creek	OK120400-02-0030F	17	2	15.66	3.2	13.2	3.22	7.65	11.1	19.15	49.1
	George's Fk Dirty Creek	OK120400-02-0110D	17	1	28.29	3.57	14.74	5.43	16.35	29.6	41.25	53.6
	Butler Creek	OK120400-02-0160D	16	2	27.14	3.91	15.63	3.27	14.8	24.05	38.7	66.8
	Elk Creek	OK120400-02-0190D	17	1	41	12	49.3	4.9	13.4	30.2	41.6	195
	Shady Grove Creek	OK120400-02-0240H	17	2	56.5	22.4	92.4	3.5	10.2	17.7	29.6	291
	Snake Creek	OK120410-01-0220G	18	1	53.2	11.6	49	6.6	22.9	36.5	57.3	204
	Cloud Creek	OK120410-02-0010H	17	2	37.42	4.1	16.89	8.28	24	39	53.7	65
	Polecat Creek	OK120420-02-0010D	17	2	48.59	8.51	35.09	17.5	22.65	33.2	72.7	118
	Ballard Creek	OK121700-03-0370G	19	0	2.503	0.393	1.714	0.87	1.6	2.02	2.62	7.94
	Battle Creek	OK121700-06-0040G	20	0	1.955	0.588	2.627	0.33	0.683	0.985	1.538	10.5
	Brazil Creek	OK220100-03-0010G	14	0	23.69	5.64	21.12	8.44	11.87	20.1	25.03	90.8
	Fourche Maline Creek	OK220100-04-0010M	13	1	24.72	2.52	9.08	13.9	17.35	21.3	32.25	43
	Sallisaw Creek: Lower	OK220200-03-0010C	12	1	8.27	2.75	9.53	3.42	4.13	4.94	7.57	37.7
	Sallisaw Creek: Upper	OK220200-03-0010G	15	1	16.1	10.9	42.1	1	2.4	3.2	5.4	165
	San Bois Creek	OK220200-04-0010G	17	0	56.3	19.3	79.6	5.3	16	29.9	49.5	321
	Mill Creek	OK220600-01-0100P	18	2	45.7	10.8	45.8	8.4	16.1	39.7	51.8	214
	Brushy Creek	OK220600-03-0010J	17	0	41.4	16.8	69.4	6.2	10.6	18.7	36.9	302
	Peaceable Creek	OK220600-03-0050F	16	0	34.9	12.4	49.8	3.1	11	15.6	31.9	203
	Bad Creek	OK520500-01-0170L	18	0	29.58	5.31	22.51	7.92	11.35	18.15	52.45	72.6
	Alabama Creek	OK520500-01-0200D	17	0	33.79	8.42	34.72	3.23	7.59	17.6	48.3	115.1
	Wewoka Creek: Lower	OK520500-02-0010C	16	0	37.45	5.2	20.82	8.46	21.73	33.4	51.98	78.1
	Wewoka Creek: Upper	OK520500-02-0010M	17	1	30.94	4.85	20	6.5	15.55	22.2	44.8	76.3
	Little Wewoka Creek	OK520500-02-0090D	17	0	22.25	4.51	18.6	3.07	6.29	15.3	38.8	66
	Canadian Sandy Creek	OK520600-03-0010D	19	0	63.7	27.2	118.5	3.4	7.6	23.2	57.5	507
	Gentry Creek	OK520700-01-0080L	15	2	45.3	11.3	43.9	8.9	16.7	30.9	63	184
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	29.98	5.88	26.29	6.83	10.35	19.15	45.95	102

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
	Camp Creek	OK520700-03-0220G	19	0	26.2	7.16	31.23	2.2	7.52	11	32.5	110
	Dry Creek	OK520700-04-0020F	16	1	37.1	11.3	45.3	8.6	10	19.9	33.9	173
	Quapaw Creek	OK520700-04-0260C	19	0	47.5	15	65.4	3	6.5	14.9	58.2	242
	Deep Fork N. Canadian River	OK520710-01-0010G	16	0	19.16	5.42	21.7	3.47	7.49	9.62	22.03	86.1
	Bird Creek	OK520800-01-0050G	19	1	20.14	7.38	32.16	2.45	4.2	9.3	14.8	138
	Salt Creek (Seminole Co.)	OK520800-03-0010D	16	2	21.76	6.59	26.38	2.01	4.42	7.72	41.03	86.1
Chloride (mg/L)	Coody Creek	OK120400-01-0400F	20	0	29.39	4.97	22.21	13.2	16.43	22.85	35.18	110.8
	Dirty Creek	OK120400-02-0010F	21	0	18.94	2.84	13	1.6	12.3	16.1	26	48.2
	South Fk Dirty Creek	OK120400-02-0030F	20	0	6.13	0.3	1.341	2.7	5.45	6.15	6.95	8.3
	George's Fk Dirty Creek	OK120400-02-0110D	20	0	14	1.62	7.26	3.1	7.5	13.1	18.1	28
	Butler Creek	OK120400-02-0160D	19	0	37.3	10.1	44.2	3.9	12.4	13.9	44.4	138.1
	Elk Creek	OK120400-02-0190D	20	0	20.49	3.91	17.46	5.5	9.1	13.9	28.95	71.8
	Shady Grove Creek	OK120400-02-0240H	19	0	9.089	0.604	2.631	4.2	7.3	9.1	11.1	14
	Snake Creek	OK120410-01-0220G	20	0	54.21	8.64	38.65	16.4	29.5	40.55	78.5	179.6
	Cloud Creek	OK120410-02-0010H	20	0	41.37	5.54	24.77	11.9	24.58	35.85	50.28	122.2
	Polecat Creek	OK120420-02-0010D	19	0	73.24	7.73	33.69	23.7	48.5	70.5	103.4	128.1
	Ballard Creek	OK121700-03-0370G	20	0	10.435	0.363	1.625	5	10.225	10.65	11.275	12.4
	Battle Creek	OK121700-06-0040G	20	0	8.93	1.27	5.68	5.6	6.25	7.55	8.43	30.7
	Brazil Creek	OK220100-03-0010G	20	0	5.735	0.314	1.404	3.6	4.725	5.6	6.85	8.5
	Fourche Maline Creek	OK220100-04-0010M	20	0	8.59	1.85	8.27	3.7	5.55	6.85	8.25	43
	Sallisaw Creek: Lower	OK220200-03-0010C	20	0	3.365	0.18	0.807	2	2.7	3.3	4.075	4.7
	Sallisaw Creek: Upper	OK220200-03-0010G	20	0	3.134	0.162	0.726	1.9	2.625	3.1	3.675	4.7
	San Bois Creek	OK220200-04-0010G	20	0	10.105	0.842	3.763	3.5	7.7	9.65	12.35	16.9
	Mill Creek	OK220600-01-0100P	20	0	7.775	0.66	2.95	2.7	5.65	6.85	10.1	12.7
	Brushy Creek	OK220600-03-0010J	20	0	7.85	1.47	6.57	2.9	4.93	6.1	7.48	33.4
	Peaceable Creek	OK220600-03-0050F	20	0	37.37	7.69	34.4	3	12.73	26.95	45.6	138.8
	Bad Creek	OK520500-01-0170L	20	0	138.4	17.6	78.5	8.9	84	137.4	201	288.2
	Alabama Creek	OK520500-01-0200D	20	0	123.4	21	93.8	4.4	61.4	90.3	176.8	361.6
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	228.1	36.3	162.4	23.8	74.3	213.3	330	569.1
	Wewoka Creek: Upper	OK520500-02-0010M	21	0	203.3	26.8	122.8	41.9	98.1	179.7	260.6	437.5
	Little Wewoka Creek	OK520500-02-0090D	20	0	154.9	20.4	91.1	15.8	103.2	136.1	196.2	379.1
	Canadian Sandy Creek	OK520600-03-0010D	20	0	35.18	9.78	43.72	7.8	12.93	20.3	28.75	170.5
	Gentry Creek	OK520700-01-0080L	20	0	10.04	1.39	6.23	3.7	6.2	9.65	11.48	33.4
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	101.7	13.1	58.5	16.9	60.9	96.8	139.3	216.4
	Camp Creek	OK520700-03-0220G	19	0	87.3	16.4	71.5	8.8	33.5	59.6	180	221.6
	Dry Creek	OK520700-04-0020F	20	0	71.63	7.49	33.48	23	41.93	65.55	99.23	127.2
	Quapaw Creek	OK520700-04-0260C	20	0	30.74	3.14	14.04	13.2	17.63	29.65	38.4	62.5
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	123	38.1	166.2	26.1	72.5	97.1	103.4	799.4
	Bird Creek	OK520800-01-0050G	20	0	102.2	22.4	100.4	6.1	39.2	59.3	139.3	311.7
	Salt Creek (Seminole Co.)	OK520800-03-0010D	19	0	514.1	74.3	323.8	43.1	237.6	493.3	859.6	1056.6

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Sulfate (mg/L)	Coody Creek	OK120400-01-0400F	20	0	49.6	4.2	18.77	23	35.95	45.4	55.05	97.5
	Dirty Creek	OK120400-02-0010F	21	0	36.71	3.47	15.9	6.3	23.45	38.5	48.65	72.9
	South Fk Dirty Creek	OK120400-02-0030F	20	0	80.9	10.9	48.9	9.2	49	66	109	216
	George's Fk Dirty Creek	OK120400-02-0110D	20	0	30.43	2.65	11.85	8.4	22.83	28.95	38.05	60.9
	Butler Creek	OK120400-02-0160D	19	0	49.04	7.45	32.47	7.4	22.8	42.8	73.1	111.6
	Elk Creek	OK120400-02-0190D	20	0	114.9	21.9	97.9	3.6	29.9	92	171.6	361.8
	Shady Grove Creek	OK120400-02-0240H	19	0	514.4	98.7	430	48.4	150.5	345.4	880.2	1442.4
	Snake Creek	OK120410-01-0220G	20	0	30.59	5.56	24.84	14.1	19.05	22.25	27.7	113.3
	Cloud Creek	OK120410-02-0010H	20	0	31.5	2.95	13.19	10	21.7	27.8	40.8	59.4
	Polecat Creek	OK120420-02-0010D	19	0	22.27	1.61	7.02	9.8	16.4	21.3	28.5	35.2
	Ballard Creek	OK121700-03-0370G	20	0	9.315	0.691	3.089	5.3	6.8	8.1	12.2	15.5
	Battle Creek	OK121700-06-0040G	20	0	4.93	0.202	0.906	3.7	4.25	4.8	5.2	7.3
	Brazil Creek	OK220100-03-0010G	20	0	24.93	2.04	9.11	14.7	17.23	24.05	30.58	52.3
	Fourche Maline Creek	OK220100-04-0010M	20	0	13.69	0.935	4.18	7.5	10.25	13.3	16.95	21.6
	Sallisaw Creek: Lower	OK220200-03-0010C	20	0	6.355	0.305	1.362	4.4	4.95	6.45	7.725	8.5
	Sallisaw Creek: Upper	OK220200-03-0010G	20	0	5.92	0.291	1.299	4.1	4.625	6	7.25	8.1
	San Bois Creek	OK220200-04-0010G	20	0	96.7	21.8	97.7	5.9	26.2	66.9	144.2	325.5
	Mill Creek	OK220600-01-0100P	20	0	10.5	1.43	6.39	3.4	5.68	8.6	13.38	27.3
	Brushy Creek	OK220600-03-0010J	20	0	18	2.4	10.75	5.6	12.3	15.8	19.23	57.1
	Peaceable Creek	OK220600-03-0050F	20	0	79.9	21.5	96	7.2	16.3	41.1	105	336.6
	Bad Creek	OK520500-01-0170L	20	0	18.83	1.43	6.39	4.7	15.45	18.95	21.98	30.8
	Alabama Creek	OK520500-01-0200D	20	0	17.34	1.44	6.44	5	13.68	17.45	22.75	26.8
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	20.1	1.83	8.2	6.4	13.2	21	25.58	33.4
	Wewoka Creek: Upper	OK520500-02-0010M	21	0	31.48	4.67	21.42	9.4	15.2	28	40.55	90.5
	Little Wewoka Creek	OK520500-02-0090D	20	0	12.51	1.31	5.87	3.6	7.8	11.9	17.48	23.7
	Canadian Sandy Creek	OK520600-03-0010D	20	0	20.51	2.03	9.07	2.3	12.95	22.7	25.35	41.8
	Gentry Creek	OK520700-01-0080L	20	0	47.69	6.64	29.67	17.9	21.83	42	60.83	109.4
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	18.22	1.22	5.46	9.6	14.03	17.3	23.13	31.9
	Camp Creek	OK520700-03-0220G	19	0	29.6	20.9	90.9	0.5	6.6	9.3	11.7	404.9
	Dry Creek	OK520700-04-0020F	20	0	14.37	1.01	4.53	3.8	11.95	13.35	18.48	22.1
	Quapaw Creek	OK520700-04-0260C	20	0	20.42	1.9	8.49	7.9	12.13	20.7	27.75	34.6
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	49.76	4.18	18.21	19.6	33.5	51.1	62.1	83.7
	Bird Creek	OK520800-01-0050G	20	0	28.78	2.47	11.07	4.6	20.7	26.85	38.9	48.5
	Salt Creek (Seminole Co.)	OK520800-03-0010D	19	0	27.68	3.03	13.22	6.5	16.2	25	34.6	55.6
TotDisSolids (mg/L)	Coody Creek	OK120400-01-0400F	20	0	247.5	14.8	66.2	180	204.8	231.5	267.3	482
	Dirty Creek	OK120400-02-0010F	21	0	162	10.7	49	84	131.5	158	187.5	266
	South Fk Dirty Creek	OK120400-02-0030F	20	0	232.8	23.1	103.5	83	158.5	205	299	484
	George's Fk Dirty Creek	OK120400-02-0110D	20	0	160.45	9.87	44.14	92	129	139.5	200.5	255
	Butler Creek	OK120400-02-0160D	19	0	213.2	22.7	98.8	23	155	187	310	394
	Elk Creek	OK120400-02-0190D	20	0	284	30.9	138.2	104	171.3	258	357.5	592
	Shady Grove Creek	OK120400-02-0240H	19	0	833	147	639	132	265	638	1459	2008

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
	Snake Creek	OK120410-01-0220G	20	0	253.9	20.2	90.4	161	197.3	214.5	312.3	499
	Cloud Creek	OK120410-02-0010H	20	0	217.3	18.3	81.8	10	182.3	211.5	261.5	381
	Polecat Creek	OK120420-02-0010D	19	0	292.2	18.3	79.8	185	204	301	374	403
	Ballard Creek	OK121700-03-0370G	20	0	163.15	6.75	30.2	103	149	161	192.5	208
	Battle Creek	OK121700-06-0040G	20	0	135.4	8.61	38.5	73	111.25	129	158	225
	Brazil Creek	OK220100-03-0010G	20	0	97.45	7.43	33.24	44	67.5	99	117	168
	Fourche Maline Creek	OK220100-04-0010M	20	0	80.05	6.64	29.7	37	57.75	78.5	91.75	144
	Sallisaw Creek: Lower	OK220200-03-0010C	20	0	89.85	8.73	39.05	0.95	65.25	82.5	123	174
	Sallisaw Creek: Upper	OK220200-03-0010G	20	0	110.35	5.61	25.09	74	87.25	114.5	130.5	152
	San Bois Creek	OK220200-04-0010G	20	0	318.4	60.2	269.4	63	127.8	209.5	540	876
	Mill Creek	OK220600-01-0100P	20	0	116.66	9.87	44.15	0.16	103.5	116.5	136.5	205
	Brushy Creek	OK220600-03-0010J	20	0	105	5.56	24.86	68	83.5	106	122.75	160
	Peaceable Creek	OK220600-03-0050F	20	0	258.4	44	196.8	100	127.5	187.5	301.5	786
	Bad Creek	OK520500-01-0170L	20	0	354.8	30.2	135.2	94	245.8	338	457.8	642
	Alabama Creek	OK520500-01-0200D	20	0	342.2	39.9	178.4	90	228.8	293.5	457.3	816
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	617.2	65.4	292.6	190	480	552	726	1271
	Wewoka Creek: Upper	OK520500-02-0010M	21	0	586.4	59.5	272.7	127	339	571	768	1194
	Little Wewoka Creek	OK520500-02-0090D	20	0	399.5	38.5	172.2	138	256.8	385.5	506.5	802
	Canadian Sandy Creek	OK520600-03-0010D	20	0	299.5	23.5	105.2	12	255.5	326	371	437
	Gentry Creek	OK520700-01-0080L	20	0	191.8	10.8	48.4	119	156.3	183	225	327
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	350.7	34.8	155.5	0.1	251.3	389.5	441	666
	Camp Creek	OK520700-03-0220G	19	0	375.3	40.4	176.2	131	231	313	577	681
	Dry Creek	OK520700-04-0020F	20	0	389	20.6	92.3	249	307.3	381	494	539
	Quapaw Creek	OK520700-04-0260C	20	0	320.1	20.1	89.8	165	238	322	392.5	457
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	523.2	67.3	293.2	163	451	521	533	1642
	Bird Creek	OK520800-01-0050G	20	0	392.9	47.4	212.2	36	281.3	328.5	435.8	850
	Salt Creek (Seminole Co.)	OK520800-03-0010D	19	0	1153	137	598	268	641	1096	1730	2250
Ammonia (mg/L)	Coody Creek	OK120400-01-0400F	20	0	0.0459	0.0102	0.0454	0.015	0.015	0.0285	0.056	0.166
	Dirty Creek	OK120400-02-0010F	21	0	0.0635	0.0134	0.0616	0.015	0.0205	0.043	0.0835	0.247
	South Fk Dirty Creek	OK120400-02-0030F	20	0	0.03925	0.00865	0.03868	0.015	0.015	0.023	0.0545	0.18
	George's Fk Dirty Creek	OK120400-02-0110D	20	0	0.0546	0.0115	0.0513	0.015	0.015	0.0355	0.0763	0.21
	Butler Creek	OK120400-02-0160D	19	0	0.04474	0.0097	0.04227	0.015	0.015	0.036	0.054	0.185
	Elk Creek	OK120400-02-0190D	20	0	0.0553	0.0145	0.0647	0.015	0.015	0.028	0.0603	0.233
	Shady Grove Creek	OK120400-02-0240H	19	0	0.0965	0.019	0.083	0.015	0.021	0.085	0.124	0.284
	Snake Creek	OK120410-01-0220G	20	0	0.02915	0.00679	0.03036	0.015	0.015	0.0175	0.02825	0.14
	Cloud Creek	OK120410-02-0010H	20	0	0.0501	0.0125	0.0559	0.015	0.015	0.0225	0.0593	0.222
	Polecat Creek	OK120420-02-0010D	19	0	0.1049	0.0657	0.2865	0.015	0.015	0.028	0.055	1.275
	Ballard Creek	OK121700-03-0370G	20	0	0.0371	0.0131	0.0586	0.015	0.015	0.015	0.0255	0.218
	Battle Creek	OK121700-06-0040G	20	0	0.0178	0.00101	0.00454	0.015	0.015	0.015	0.02075	0.027
	Brazil Creek	OK220100-03-0010G	20	0	0.0522	0.0172	0.0768	0.015	0.015	0.0285	0.0448	0.319
	Fourche Maline Creek	OK220100-04-0010M	20	0	0.0265	0.00411	0.01836	0.015	0.015	0.017	0.03375	0.074

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
	Sallisaw Creek: Lower	OK220200-03-0010C	20	0	0.02945	0.00563	0.02519	0.015	0.015	0.0155	0.032	0.099
	Sallisaw Creek: Upper	OK220200-03-0010G	20	0	0.02	0.00248	0.01107	0.015	0.015	0.015	0.02375	0.062
	San Bois Creek	OK220200-04-0010G	20	0	0.03445	0.0056	0.02503	0.015	0.015	0.023	0.04275	0.093
	Mill Creek	OK220600-01-0100P	20	0	0.0505	0.0216	0.0966	0.015	0.015	0.0215	0.045	0.454
	Brushy Creek	OK220600-03-0010J	20	0	0.02475	0.00358	0.01603	0.015	0.015	0.015	0.0325	0.061
	Peaceable Creek	OK220600-03-0050F	20	0	0.037	0.0096	0.04293	0.015	0.015	0.018	0.037	0.172
	Bad Creek	OK520500-01-0170L	20	0	0.02985	0.009	0.04025	0.015	0.015	0.015	0.0225	0.185
	Alabama Creek	OK520500-01-0200D	20	0	0.0373	0.0153	0.0683	0.015	0.015	0.015	0.027	0.318
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	0.0294	0.00491	0.02197	0.015	0.015	0.0195	0.04175	0.1
	Wewoka Creek: Upper	OK520500-02-0010M	21	0	0.0261	0.00336	0.01539	0.015	0.015	0.015	0.041	0.057
	Little Wewoka Creek	OK520500-02-0090D	20	0	0.03635	0.00709	0.03172	0.015	0.015	0.0195	0.052	0.118
	Canadian Sandy Creek	OK520600-03-0010D	20	0	0.0309	0.00843	0.03772	0.015	0.015	0.015	0.0315	0.179
	Gentry Creek	OK520700-01-0080L	20	0	0.0494	0.0161	0.0719	0.015	0.015	0.0185	0.0385	0.289
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	0.0539	0.0115	0.0513	0.015	0.015	0.031	0.0813	0.172
	Camp Creek	OK520700-03-0220G	19	0	0.0612	0.0189	0.0825	0.015	0.015	0.017	0.058	0.292
	Dry Creek	OK520700-04-0020F	20	0	0.058	0.0207	0.0924	0.015	0.015	0.0175	0.0648	0.42
	Quapaw Creek	OK520700-04-0260C	20	0	0.045	0.024	0.1072	0.015	0.015	0.015	0.0265	0.497
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	0.0814	0.0419	0.1826	0.015	0.015	0.031	0.06	0.824
	Bird Creek	OK520800-01-0050G	20	0	0.076	0.0199	0.0888	0.015	0.0183	0.043	0.088	0.315
	Salt Creek (Seminole Co.)	OK520800-03-0010D	19	0	0.0985	0.0784	0.3418	0.015	0.015	0.015	0.015	1.509
CBOD5 (mg/L)	Coody Creek	OK120400-01-0400F	19	1	2.679	0.198	0.864	2	2	2.3	3.5	4.7
	Dirty Creek	OK120400-02-0010F	19	2	3.205	0.294	1.281	2	2.1	2.6	4.3	6.1
	South Fk Dirty Creek	OK120400-02-0030F	18	2	3.239	0.295	1.252	2	2.15	2.8	4.1	6.4
	George's Fk Dirty Creek	OK120400-02-0110D	19	1	3.237	0.288	1.255	2	2.2	3.1	3.6	7
	Butler Creek	OK120400-02-0160D	18	1	2.883	0.28	1.189	2	2	2.45	3.575	6.4
	Elk Creek	OK120400-02-0190D	18	2	3.567	0.462	1.96	2	2	3.25	4.1	9.2
	Shady Grove Creek	OK120400-02-0240H	18	1	2.883	0.34	1.444	2	2	2.1	3.25	7.3
	Snake Creek	OK120410-01-0220G	19	1	2.789	0.294	1.28	2	2	2.1	3.1	6.3
	Cloud Creek	OK120410-02-0010H	19	1	3.121	0.307	1.336	2	2	2.6	3.7	6.6
	Polecat Creek	OK120420-02-0010D	18	1	3.011	0.241	1.022	2	2	2.8	3.775	5
	Ballard Creek	OK121700-03-0370G	18	2	2.361	0.16	0.677	2	2	2	2.525	4.3
	Battle Creek	OK121700-06-0040G	18	2	2.4	0.185	0.784	2	2	2	2.45	5
	Brazil Creek	OK220100-03-0010G	19	1	2.911	0.289	1.26	2	2	2.5	3.3	7.2
	Fourche Maline Creek	OK220100-04-0010M	19	1	2.679	0.215	0.939	2	2	2.1	3.3	5.5
	Sallisaw Creek: Lower	OK220200-03-0010C	18	2	2.528	0.187	0.795	2	2	2.05	2.825	4.4
	Sallisaw Creek: Upper	OK220200-03-0010G	18	2	2.389	0.178	0.755	2	2	2	2.375	4.9
	San Bois Creek	OK220200-04-0010G	19	1	2.695	0.168	0.734	2	2	2.4	3.1	4.8
	Mill Creek	OK220600-01-0100P	19	1	2.895	0.262	1.142	2	2.1	2.6	3.4	6.8
	Brushy Creek	OK220600-03-0010J	19	1	3.258	0.372	1.622	2	2.1	2.8	3.9	8.9
	Peaceable Creek	OK220600-03-0050F	19	1	3.263	0.499	2.175	2	2	2.6	3.1	11.1
	Bad Creek	OK520500-01-0170L	19	1	2.995	0.218	0.949	2	2.1	2.8	3.7	4.9

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
	Alabama Creek	OK520500-01-0200D	19	1	3.037	0.241	1.052	2	2.1	2.8	3.9	5.1
	Wewoka Creek: Lower	OK520500-02-0010C	19	1	3.5	0.229	1	2	2.6	3.3	4.4	5.3
	Wewoka Creek: Upper	OK520500-02-0010M	20	1	3.85	0.536	2.399	2	2.4	3.15	4.525	12.4
	Little Wewoka Creek	OK520500-02-0090D	19	1	3.189	0.273	1.191	2	2.1	2.9	4.2	5.8
	Canadian Sandy Creek	OK520600-03-0010D	19	1	3.021	0.197	0.857	2	2.3	3	3.5	5
	Gentry Creek	OK520700-01-0080L	19	1	2.853	0.192	0.836	2	2	2.9	3.5	4.6
	Salt Creek (Creek Co.)	OK520700-03-0100B	19	1	3.147	0.219	0.956	2	2.3	3	3.9	5.6
	Camp Creek	OK520700-03-0220G	18	1	3.244	0.221	0.937	2	2.3	3.15	4.2	4.9
	Dry Creek	OK520700-04-0020F	19	1	3.253	0.332	1.445	2	2	2.9	3.9	7.9
	Quapaw Creek	OK520700-04-0260C	19	1	3.111	0.489	2.132	2	2	2.5	3.4	11.4
	Deep Fork N. Canadian River	OK520710-01-0010G	18	1	3.022	0.511	2.169	2	2.15	2.55	2.9	11.5
	Bird Creek	OK520800-01-0050G	19	1	3.126	0.286	1.248	2	2.1	3	3.6	6
	Salt Creek (Seminole Co.)	OK520800-03-0010D	17	2	2.894	0.37	1.527	2	2.15	2.4	2.85	8.3
Nitrate (mg/L)	Coody Creek	OK120400-01-0400F	20	0	0.187	0.0255	0.1142	0.02	0.085	0.18	0.285	0.39
	Dirty Creek	OK120400-02-0010F	21	0	0.2048	0.0293	0.1343	0.02	0.08	0.2	0.26	0.51
	South Fk Dirty Creek	OK120400-02-0030F	20	0	0.1415	0.028	0.1254	0.02	0.0275	0.095	0.2425	0.42
	George's Fk Dirty Creek	OK120400-02-0110D	20	0	0.159	0.0273	0.1222	0.02	0.045	0.175	0.2525	0.44
	Butler Creek	OK120400-02-0160D	19	0	0.1253	0.0236	0.1028	0.02	0.04	0.08	0.2	0.33
	Elk Creek	OK120400-02-0190D	20	0	0.2455	0.0543	0.2428	0.02	0.02	0.21	0.3575	0.8
	Shady Grove Creek	OK120400-02-0240H	19	0	0.3437	0.0748	0.3262	0.02	0.07	0.31	0.48	1.27
	Snake Creek	OK120410-01-0220G	20	0	0.0795	0.0131	0.0584	0.02	0.02	0.07	0.14	0.2
	Cloud Creek	OK120410-02-0010H	20	0	0.137	0.0269	0.1202	0.02	0.05	0.09	0.23	0.46
	Polecat Creek	OK120420-02-0010D	19	0	0.1537	0.0226	0.0986	0.02	0.05	0.18	0.24	0.3
	Ballard Creek	OK121700-03-0370G	20	0	1.998	0.224	1.002	0.23	1.33	2.255	2.655	3.36
	Battle Creek	OK121700-06-0040G	20	0	3.059	0.195	0.872	1.1	2.463	3.14	3.548	4.47
	Brazil Creek	OK220100-03-0010G	20	0	0.1505	0.0309	0.1381	0.02	0.02	0.09	0.2425	0.41
	Fourche Maline Creek	OK220100-04-0010M	20	0	0.0965	0.0152	0.0681	0.02	0.02	0.095	0.1475	0.25
	Sallisaw Creek: Lower	OK220200-03-0010C	20	0	0.198	0.0461	0.2063	0.02	0.055	0.15	0.3075	0.9
	Sallisaw Creek: Upper	OK220200-03-0010G	20	0	0.2085	0.0279	0.1246	0.04	0.0825	0.18	0.3075	0.43
	San Bois Creek	OK220200-04-0010G	20	0	0.116	0.0182	0.0815	0.02	0.0525	0.105	0.1675	0.28
	Mill Creek	OK220600-01-0100P	20	0	0.1195	0.037	0.1655	0.02	0.05	0.07	0.13	0.77
	Brushy Creek	OK220600-03-0010J	20	0	0.0525	0.0119	0.0534	0.02	0.02	0.02	0.075	0.22
	Peaceable Creek	OK220600-03-0050F	20	0	0.091	0.016	0.0717	0.02	0.02	0.09	0.14	0.26
	Bad Creek	OK520500-01-0170L	20	0	0.0665	0.0139	0.0623	0.02	0.02	0.025	0.1225	0.18
	Alabama Creek	OK520500-01-0200D	20	0	0.0675	0.0143	0.0637	0.02	0.02	0.05	0.1075	0.2
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	0.1565	0.0317	0.142	0.02	0.02	0.13	0.295	0.38
	Wewoka Creek: Upper	OK520500-02-0010M	21	0	0.706	0.269	1.234	0.02	0.1	0.26	0.815	5.55
	Little Wewoka Creek	OK520500-02-0090D	20	0	0.0825	0.0193	0.0863	0.02	0.02	0.02	0.1875	0.23
	Canadian Sandy Creek	OK520600-03-0010D	20	0	0.0995	0.0153	0.0684	0.02	0.025	0.095	0.1625	0.22
	Gentry Creek	OK520700-01-0080L	20	0	0.1145	0.03	0.1341	0.02	0.02	0.07	0.1575	0.56
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	0.11	0.0189	0.0845	0.02	0.02	0.075	0.1975	0.25

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
	Camp Creek	OK520700-03-0220G	19	0	0.0847	0.0153	0.0666	0.02	0.02	0.06	0.15	0.22
	Dry Creek	OK520700-04-0020F	20	0	0.118	0.0234	0.1048	0.02	0.025	0.08	0.19	0.37
	Quapaw Creek	OK520700-04-0260C	20	0	0.1355	0.0262	0.1174	0.02	0.04	0.08	0.24	0.41
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	1.276	0.35	1.524	0.02	0.31	0.75	1.72	5.44
	Bird Creek	OK520800-01-0050G	20	0	2.587	0.567	2.538	0.02	0.5	1.505	4.385	8.2
	Salt Creek (Seminole Co.)	OK520800-03-0010D	19	0	0.0916	0.0286	0.1248	0.02	0.02	0.02	0.13	0.54
Nitrite (mg/L)	Coody Creek	OK120400-01-0400F	20	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02
	Dirty Creek	OK120400-02-0010F	21	0	0.02905	0.0043	0.01972	0.02	0.02	0.02	0.02	0.08
	South Fk Dirty Creek	OK120400-02-0030F	20	0	0.0225	0.0025	0.01118	0.02	0.02	0.02	0.02	0.07
	George's Fk Dirty Creek	OK120400-02-0110D	20	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02
	Butler Creek	OK120400-02-0160D	19	0	0.03053	0.00723	0.03153	0.02	0.02	0.02	0.02	0.12
	Elk Creek	OK120400-02-0190D	20	0	0.033	0.00802	0.03585	0.02	0.02	0.02	0.02	0.15
	Shady Grove Creek	OK120400-02-0240H	19	0	0.02474	0.00474	0.02065	0.02	0.02	0.02	0.02	0.11
	Snake Creek	OK120410-01-0220G	20	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02
	Cloud Creek	OK120410-02-0010H	20	0	0.0295	0.0063	0.02819	0.02	0.02	0.02	0.02	0.14
	Polecat Creek	OK120420-02-0010D	19	0	0.02474	0.00328	0.01429	0.02	0.02	0.02	0.02	0.07
	Ballard Creek	OK121700-03-0370G	20	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02
	Battle Creek	OK121700-06-0040G	20	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02
	Brazil Creek	OK220100-03-0010G	20	0	0.024	0.00275	0.01231	0.02	0.02	0.02	0.02	0.06
	Fourche Maline Creek	OK220100-04-0010M	20	0	0.0225	0.0025	0.01118	0.02	0.02	0.02	0.02	0.07
	Sallisaw Creek: Lower	OK220200-03-0010C	20	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02
	Sallisaw Creek: Upper	OK220200-03-0010G	20	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02
	San Bois Creek	OK220200-04-0010G	20	0	0.0215	0.0015	0.00671	0.02	0.02	0.02	0.02	0.05
	Mill Creek	OK220600-01-0100P	20	0	0.027	0.00411	0.01838	0.02	0.02	0.02	0.02	0.09
	Brushy Creek	OK220600-03-0010J	20	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02
	Peaceable Creek	OK220600-03-0050F	20	0	0.0255	0.00394	0.01761	0.02	0.02	0.02	0.02	0.09
	Bad Creek	OK520500-01-0170L	20	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02
	Alabama Creek	OK520500-01-0200D	20	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02
	Wewoka Creek: Upper	OK520500-02-0010M	21	0	0.03095	0.0071	0.03254	0.02	0.02	0.02	0.02	0.16
	Little Wewoka Creek	OK520500-02-0090D	20	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02
	Canadian Sandy Creek	OK520600-03-0010D	20	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02
	Gentry Creek	OK520700-01-0080L	20	0	0.0305	0.00745	0.03332	0.02	0.02	0.02	0.02	0.15
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02
	Camp Creek	OK520700-03-0220G	19	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02
	Dry Creek	OK520700-04-0020F	20	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02
	Quapaw Creek	OK520700-04-0260C	20	0	0.0265	0.00483	0.02159	0.02	0.02	0.02	0.02	0.11
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	0.0779	0.0369	0.161	0.02	0.02	0.02	0.07	0.73
	Bird Creek	OK520800-01-0050G	20	0	0.084	0.0239	0.1068	0.02	0.02	0.06	0.105	0.45
	Salt Creek (Seminole Co.)	OK520800-03-0010D	19	0	0.02	0	0	0.02	0.02	0.02	0.02	0.02

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
TKN (mg/L)	Coody Creek	OK120400-01-0400F	20	0	0.462	0.0732	0.3276	0.11	0.2173	0.431	0.5865	1.313
	Dirty Creek	OK120400-02-0010F	21	0	0.3836	0.0505	0.2315	0.11	0.11	0.41	0.597	0.924
	South Fk Dirty Creek	OK120400-02-0030F	20	0	0.3905	0.0682	0.3051	0.11	0.11	0.335	0.5195	1.075
	George's Fk Dirty Creek	OK120400-02-0110D	20	0	0.5282	0.0771	0.3448	0.098	0.2225	0.4655	0.8198	1.18
	Butler Creek	OK120400-02-0160D	19	0	0.4245	0.0552	0.2408	0.11	0.11	0.499	0.58	0.816
	Elk Creek	OK120400-02-0190D	20	0	0.5159	0.0945	0.4228	0.11	0.1525	0.468	0.6705	1.879
	Shady Grove Creek	OK120400-02-0240H	19	0	0.2842	0.0645	0.2813	0.11	0.11	0.16	0.406	1.089
	Snake Creek	OK120410-01-0220G	20	0	0.321	0.0478	0.2137	0.11	0.11	0.265	0.4705	0.788
	Cloud Creek	OK120410-02-0010H	20	0	0.48	0.121	0.539	0.11	0.12	0.328	0.594	2.53
	Polecat Creek	OK120420-02-0010D	19	0	0.455	0.0719	0.3132	0.11	0.11	0.44	0.64	1.35
	Ballard Creek	OK121700-03-0370G	20	0	0.1731	0.0388	0.1736	0.11	0.11	0.11	0.11	0.684
	Battle Creek	OK121700-06-0040G	20	0	0.11535	0.00309	0.01383	0.11	0.11	0.11	0.11	0.157
	Brazil Creek	OK220100-03-0010G	20	0	0.3441	0.075	0.3355	0.11	0.11	0.11	0.4975	1.328
	Fourche Maline Creek	OK220100-04-0010M	20	0	0.2382	0.0414	0.1851	0.11	0.11	0.11	0.37	0.68
	Sallisaw Creek: Lower	OK220200-03-0010C	20	0	0.1712	0.0305	0.1363	0.11	0.11	0.11	0.1595	0.648
	Sallisaw Creek: Upper	OK220200-03-0010G	20	0	0.1373	0.0222	0.0991	0.11	0.11	0.11	0.11	0.545
	San Bois Creek	OK220200-04-0010G	20	0	0.3216	0.0477	0.2135	0.11	0.11	0.281	0.5043	0.707
	Mill Creek	OK220600-01-0100P	20	0	0.428	0.0601	0.2688	0.11	0.1475	0.39	0.6085	1.024
	Brushy Creek	OK220600-03-0010J	20	0	0.3206	0.0754	0.337	0.1	0.11	0.166	0.4835	1.48
	Peaceable Creek	OK220600-03-0050F	20	0	0.47	0.0767	0.343	0.11	0.135	0.447	0.6325	1.287
	Bad Creek	OK520500-01-0170L	20	0	0.5111	0.0914	0.4088	0.11	0.2325	0.368	0.7148	1.806
	Alabama Creek	OK520500-01-0200D	20	0	0.4154	0.0777	0.3477	0.07	0.125	0.31	0.5753	1.389
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	0.5745	0.0681	0.3048	0.11	0.2975	0.561	0.746	1.361
	Wewoka Creek: Upper	OK520500-02-0010M	21	0	0.751	0.176	0.808	0.11	0.33	0.506	0.76	3
	Little Wewoka Creek	OK520500-02-0090D	20	0	0.5543	0.0738	0.33	0.2	0.2853	0.5565	0.6533	1.449
	Canadian Sandy Creek	OK520600-03-0010D	20	0	0.2244	0.0395	0.1768	0.11	0.11	0.11	0.3213	0.76
	Gentry Creek	OK520700-01-0080L	20	0	0.4019	0.067	0.2994	0.11	0.11	0.295	0.667	0.964
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	0.5142	0.0951	0.4251	0.11	0.1645	0.485	0.6	1.653
	Camp Creek	OK520700-03-0220G	19	0	0.4094	0.0716	0.312	0.11	0.11	0.384	0.643	0.962
	Dry Creek	OK520700-04-0020F	20	0	0.4351	0.0794	0.3553	0.11	0.1175	0.3675	0.68	1.294
	Quapaw Creek	OK520700-04-0260C	20	0	0.423	0.132	0.591	0.11	0.11	0.197	0.356	2.532
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	0.5557	0.0751	0.3273	0.11	0.32	0.464	0.72	1.5
	Bird Creek	OK520800-01-0050G	20	0	0.6197	0.0728	0.3255	0.08	0.435	0.584	0.8653	1.31
	Salt Creek (Seminole Co.)	OK520800-03-0010D	19	0	0.984	0.624	2.721	0.11	0.12	0.308	0.587	12.164
TotOrthoPhos (mg/L)	Coody Creek	OK120400-01-0400F	20	0	0.03605	0.00453	0.02024	0.005	0.026	0.0305	0.04925	0.072
	Dirty Creek	OK120400-02-0010F	21	0	0.04838	0.00763	0.03495	0.008	0.022	0.047	0.067	0.138
	South Fk Dirty Creek	OK120400-02-0030F	20	0	0.02905	0.00608	0.02719	0.005	0.01025	0.018	0.04025	0.111
	George's Fk Dirty Creek	OK120400-02-0110D	20	0	0.03255	0.00673	0.03011	0.006	0.014	0.0255	0.0375	0.131
	Butler Creek	OK120400-02-0160D	19	0	0.02805	0.00408	0.01778	0.006	0.014	0.025	0.045	0.061
	Elk Creek	OK120400-02-0190D	20	0	0.0888	0.0242	0.1082	0.01	0.0238	0.0565	0.117	0.469
	Shady Grove Creek	OK120400-02-0240H	19	0	0.02058	0.00501	0.02186	0.005	0.005	0.018	0.023	0.093

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
	Snake Creek	OK120410-01-0220G	20	0	0.0337	0.00494	0.02209	0.007	0.0145	0.028	0.0555	0.073
	Cloud Creek	OK120410-02-0010H	20	0	0.0315	0.00544	0.02431	0.005	0.013	0.0295	0.043	0.102
	Polecat Creek	OK120420-02-0010D	19	0	0.0747	0.0303	0.132	0.016	0.028	0.041	0.067	0.612
	Ballard Creek	OK121700-03-0370G	20	0	0.117	0.0511	0.2286	0.025	0.0413	0.0585	0.0823	1.074
	Battle Creek	OK121700-06-0040G	20	0	0.03265	0.00334	0.01493	0.008	0.02525	0.03	0.04075	0.066
	Brazil Creek	OK220100-03-0010G	20	0	0.0551	0.0223	0.0999	0.005	0.0103	0.019	0.0478	0.44
	Fourche Maline Creek	OK220100-04-0010M	20	0	0.0266	0.00377	0.01685	0.005	0.0125	0.0255	0.03825	0.073
	Sallisaw Creek: Lower	OK220200-03-0010C	20	0	0.01435	0.00313	0.01398	0.005	0.005	0.0085	0.01675	0.058
	Sallisaw Creek: Upper	OK220200-03-0010G	20	0	0.0153	0.00314	0.01402	0.005	0.00525	0.01	0.01975	0.063
	San Bois Creek	OK220200-04-0010G	20	0	0.0299	0.00546	0.02442	0.005	0.01425	0.025	0.03675	0.104
	Mill Creek	OK220600-01-0100P	20	0	0.0312	0.00696	0.03114	0.005	0.0115	0.021	0.03925	0.136
	Brushy Creek	OK220600-03-0010J	20	0	0.02905	0.00748	0.03347	0.005	0.0085	0.0145	0.0295	0.12
	Peaceable Creek	OK220600-03-0050F	20	0	0.0532	0.00836	0.03738	0.005	0.0245	0.0425	0.08375	0.127
	Bad Creek	OK520500-01-0170L	20	0	0.0221	0.00545	0.02439	0.005	0.005	0.0135	0.0255	0.095
	Alabama Creek	OK520500-01-0200D	20	0	0.02615	0.00532	0.02381	0.005	0.0085	0.015	0.043	0.092
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	0.0624	0.0179	0.0803	0.005	0.0083	0.0325	0.093	0.32
	Wewoka Creek: Upper	OK520500-02-0010M	21	0	0.2664	0.0853	0.3907	0.014	0.046	0.131	0.3515	1.707
	Little Wewoka Creek	OK520500-02-0090D	20	0	0.0306	0.00667	0.02982	0.005	0.00575	0.019	0.0445	0.099
	Canadian Sandy Creek	OK520600-03-0010D	20	0	0.065	0.0104	0.0464	0.005	0.0393	0.055	0.0753	0.21
	Gentry Creek	OK520700-01-0080L	20	0	0.02675	0.00425	0.01902	0.005	0.01	0.0255	0.03325	0.066
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	0.03195	0.00531	0.02374	0.005	0.0095	0.028	0.04825	0.076
	Camp Creek	OK520700-03-0220G	19	0	0.01842	0.00396	0.01728	0.005	0.008	0.013	0.022	0.079
	Dry Creek	OK520700-04-0020F	20	0	0.0389	0.0077	0.03443	0.005	0.01125	0.031	0.0605	0.12
	Quapaw Creek	OK520700-04-0260C	20	0	0.03775	0.00662	0.02959	0.005	0.01	0.0315	0.07175	0.089
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	1.002	0.175	0.763	0.083	0.121	0.967	1.315	2.926
	Bird Creek	OK520800-01-0050G	20	0	1.146	0.161	0.722	0.055	0.518	1.158	1.813	2.159
	Salt Creek (Seminole Co.)	OK520800-03-0010D	19	0	0.0441	0.0156	0.0681	0.005	0.005	0.015	0.046	0.238
TotPhosphorus (mg/L)	Coody Creek	OK120400-01-0400F	20	0	0.1058	0.00724	0.03239	0.039	0.0865	0.1065	0.1335	0.159
	Dirty Creek	OK120400-02-0010F	21	0	0.1353	0.0122	0.0558	0.057	0.092	0.129	0.182	0.279
	South Fk Dirty Creek	OK120400-02-0030F	20	0	0.0844	0.0103	0.0461	0.005	0.0608	0.0745	0.101	0.197
	George's Fk Dirty Creek	OK120400-02-0110D	20	0	0.1242	0.0083	0.03714	0.071	0.0995	0.1205	0.14775	0.203
	Butler Creek	OK120400-02-0160D	19	0	0.09321	0.00877	0.03824	0.023	0.069	0.086	0.125	0.176
	Elk Creek	OK120400-02-0190D	20	0	0.1735	0.0298	0.1331	0.027	0.1068	0.1445	0.199	0.612
	Shady Grove Creek	OK120400-02-0240H	19	0	0.07074	0.00916	0.03995	0.005	0.051	0.061	0.095	0.162
	Snake Creek	OK120410-01-0220G	20	0	0.1331	0.0167	0.0746	0.057	0.0935	0.11	0.139	0.36
	Cloud Creek	OK120410-02-0010H	20	0	0.1328	0.0161	0.0721	0.033	0.0843	0.119	0.1675	0.35
	Polecat Creek	OK120420-02-0010D	19	0	0.1739	0.0335	0.1459	0.045	0.107	0.14	0.17	0.655
	Ballard Creek	OK121700-03-0370G	20	0	0.1697	0.0528	0.2361	0.068	0.0928	0.111	0.1405	1.159
	Battle Creek	OK121700-06-0040G	20	0	0.08525	0.00797	0.03563	0.046	0.0695	0.0815	0.08675	0.226
	Brazil Creek	OK220100-03-0010G	20	0	0.1414	0.0327	0.1464	0.025	0.0698	0.092	0.16	0.665
	Fourche Maline Creek	OK220100-04-0010M	20	0	0.09635	0.0077	0.03443	0.038	0.0785	0.095	0.1065	0.183

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
	Sallisaw Creek: Lower	OK220200-03-0010C	20	0	0.0744	0.00806	0.03605	0.018	0.0565	0.0655	0.08425	0.183
	Sallisaw Creek: Upper	OK220200-03-0010G	20	0	0.0682	0.00612	0.02738	0.033	0.05325	0.0585	0.0765	0.142
	San Bois Creek	OK220200-04-0010G	20	0	0.1148	0.0121	0.054	0.041	0.0775	0.1085	0.1438	0.241
	Mill Creek	OK220600-01-0100P	20	0	0.1076	0.0142	0.0637	0.016	0.0673	0.102	0.1365	0.31
	Brushy Creek	OK220600-03-0010J	20	0	0.099	0.0152	0.068	0.038	0.0645	0.085	0.1073	0.358
	Peaceable Creek	OK220600-03-0050F	20	0	0.1395	0.0134	0.0598	0.073	0.0823	0.1315	0.1855	0.279
	Bad Creek	OK520500-01-0170L	20	0	0.08295	0.00983	0.04397	0.005	0.0515	0.082	0.106	0.18
	Alabama Creek	OK520500-01-0200D	20	0	0.0854	0.00765	0.03423	0.03	0.05475	0.085	0.12075	0.144
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	0.1485	0.0284	0.127	0.031	0.0775	0.118	0.1883	0.622
	Wewoka Creek: Upper	OK520500-02-0010M	21	0	0.45	0.129	0.592	0.047	0.131	0.228	0.464	2.627
	Little Wewoka Creek	OK520500-02-0090D	20	0	0.1029	0.0171	0.0763	0.005	0.0585	0.078	0.146	0.35
	Canadian Sandy Creek	OK520600-03-0010D	20	0	0.1458	0.0179	0.0801	0.034	0.093	0.121	0.1948	0.336
	Gentry Creek	OK520700-01-0080L	20	0	0.1147	0.0115	0.0516	0.027	0.0755	0.1115	0.136	0.231
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	0.0986	0.0092	0.04115	0.011	0.07375	0.095	0.131	0.162
	Camp Creek	OK520700-03-0220G	19	0	0.077	0.00838	0.03654	0.014	0.05	0.07	0.101	0.177
	Dry Creek	OK520700-04-0020F	20	0	0.1261	0.017	0.0758	0.047	0.0713	0.0995	0.167	0.314
	Quapaw Creek	OK520700-04-0260C	20	0	0.1225	0.0164	0.0733	0.031	0.0643	0.1015	0.1668	0.277
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	1.117	0.172	0.751	0.159	0.268	1.156	1.435	3.082
	Bird Creek	OK520800-01-0050G	20	0	1.313	0.169	0.757	0.158	0.593	1.419	2.059	2.42
	Salt Creek (Seminole Co.)	OK520800-03-0010D	19	0	0.1328	0.0335	0.1461	0.019	0.053	0.075	0.14	0.527
TotSusSolids (mg/L)	Coody Creek	OK120400-01-0400F	20	0	18.65	2.51	11.23	10	10	15	22.75	48
	Dirty Creek	OK120400-02-0010F	21	0	32.95	7.86	36.03	10	10	22	36	151
	South Fk Dirty Creek	OK120400-02-0030F	20	0	36.5	20.5	91.6	10	10	10	19	423
	George's Fk Dirty Creek	OK120400-02-0110D	20	0	45.3	20.3	90.7	10	11	21	33	420
	Butler Creek	OK120400-02-0160D	19	0	22	3.54	15.42	10	10	14	30	59
	Elk Creek	OK120400-02-0190D	20	0	33.4	6.68	29.87	10	10.25	17.5	55.25	113
	Shady Grove Creek	OK120400-02-0240H	19	0	35.5	21.2	92.6	10	10	10	22	417
	Snake Creek	OK120410-01-0220G	20	0	56.8	15.6	69.6	11	18	29	52	253
	Cloud Creek	OK120410-02-0010H	20	0	171	128	574	10	25	32	51	2603
	Polecat Creek	OK120420-02-0010D	19	0	66.9	28.1	122.6	10	25	36	62	567
	Ballard Creek	OK121700-03-0370G	20	0	63.4	53	236.9	10	10	10	10	1070
	Battle Creek	OK121700-06-0040G	20	0	12.85	1.38	6.15	10	10	10	13.5	30
	Brazil Creek	OK220100-03-0010G	20	0	30.7	8.61	38.49	10	10	10	44.75	150
	Fourche Maline Creek	OK220100-04-0010M	20	0	29.7	10.1	45	10	10.5	16.5	26.5	213
	Sallisaw Creek: Lower	OK220200-03-0010C	20	0	17.15	6.42	28.73	10	10	10	11.75	139
	Sallisaw Creek: Upper	OK220200-03-0010G	20	0	18.15	7.73	34.58	10	10	10	10	165
	San Bois Creek	OK220200-04-0010G	20	0	39.3	10.5	46.9	5	10	13.5	72.3	158
	Mill Creek	OK220600-01-0100P	20	0	19.15	3.14	14.05	10	10	14	24.25	71
	Brushy Creek	OK220600-03-0010J	20	0	26.1	7.98	35.67	10	10	13.5	28.25	164
	Peaceable Creek	OK220600-03-0050F	20	0	28.1	8.84	39.54	10	10	14	23	171
	Bad Creek	OK520500-01-0170L	20	0	115.1	94.2	421.4	10	10	13	20.5	1902

Appendix A.3. Descriptive statistics by site for water quality parameters.

Variable	Site Name	WBID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
	Alabama Creek	OK520500-01-0200D	20	0	57.7	39.4	176.2	10	10	11	26.5	804
	Wewoka Creek: Lower	OK520500-02-0010C	20	0	159.1	79.5	355.3	10	26.8	42	75	1255
	Wewoka Creek: Upper	OK520500-02-0010M	21	0	205	111	508	10	24	30	56	1766
	Little Wewoka Creek	OK520500-02-0090D	20	0	102	49.8	222.9	10	10	14.5	48.3	802
	Canadian Sandy Creek	OK520600-03-0010D	20	0	58.6	17.4	77.6	10	10	23.5	81	289
	Gentry Creek	OK520700-01-0080L	20	0	35.2	10.6	47.6	10	10.3	22	33.8	221
	Salt Creek (Creek Co.)	OK520700-03-0100B	20	0	50.5	29.5	131.9	10	10	15	26.3	606
	Camp Creek	OK520700-03-0220G	19	0	20.58	3.93	17.14	10	10	15	27	82
	Dry Creek	OK520700-04-0020F	20	0	47.5	13.8	61.7	10	10	19.5	42.8	240
	Quapaw Creek	OK520700-04-0260C	20	0	48	13.9	62.4	10	10	19.5	70.3	254
	Deep Fork N. Canadian River	OK520710-01-0010G	19	0	30.79	7.43	32.4	10	10	22	31	139
	Bird Creek	OK520800-01-0050G	20	0	59.1	45.7	204.4	10	10	10	20	927
	Salt Creek (Seminole Co.)	OK520800-03-0010D	19	0	147.4	82.8	361.1	10	10	16	48	1188

Appendix B. Fish collection data.

Site Name	WBID	SAMPLEID	Date	RefNum	Number	Family	FamCom	Species	VernName	WQMean	HabMean	Insectivor	Omnivore	Piscivore	Herbivore	Generalist	Lithophilic Spawner
Coody Creek	OK120400-01-0400F	27863	07/22/03	96.	4	Ictaluridae	Catfishes	Ameiurus melas	Black bullhead catfish	4	4	X				X	
Coody Creek	OK120400-01-0400F	27863	07/22/03	114.	1	Fundulidae	Topminnows	Fundulus notatus	Blackstripe topminnow	2.7	2.3	X					
Coody Creek	OK120400-01-0400F	27863	07/22/03	133.	11	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Coody Creek	OK120400-01-0400F	27863	07/22/03	72.	6	Cyprinidae	Carps and minnows	Pimephales notatus	Bluntnose minnow	3	2.7		X				X
Coody Creek	OK120400-01-0400F	27863	07/22/03	119.	32	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Coody Creek	OK120400-01-0400F	27863	07/22/03	23.	8	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Coody Creek	OK120400-01-0400F	27863	07/22/03	13.	2	Clupeidae	Shads and herrings	Dorosoma cepedianum	Gizzard shad	3.3	3.5		X				
Coody Creek	OK120400-01-0400F	27863	07/22/03	130.	9	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Coody Creek	OK120400-01-0400F	27863	07/22/03	141.	8	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Coody Creek	OK120400-01-0400F	27863	07/22/03	135.	49	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Coody Creek	OK120400-01-0400F	27863	07/22/03	118.	46	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Coody Creek	OK120400-01-0400F	27863	07/22/03	28.	20	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Coody Creek	OK120400-01-0400F	27863	07/22/03	42.	8	Cyprinidae	Carps and minnows	Lythrurus umbratilis	Redfin shiner	2	2	X					
Coody Creek	OK120400-01-0400F	27863	07/22/03	90.5	1	Catostomidae	Suckers	Moxostoma	Redhorse sucker	2.1	2						
Coody Creek	OK120400-01-0400F	27863	07/22/03	154.	3	Percidae	Perches	Etheostoma gracile	Slough darter	2.6	1.6	X					
Coody Creek	OK120400-01-0400F	27863	07/22/03	140.	3	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Coody Creek	OK120400-01-0400F	27863	07/22/03	131.	3	Centrarchidae	Sunfishes	Lepomis gulosus	Warmouth sunfish	3.2	3			X			
Coody Creek	OK120400-01-0400F	27863	07/22/03	97.	4	Ictaluridae	Catfishes	Ameiurus natalis	Yellow bullhead catfish	3.6	3.2	X				X	
Dirty Creek	OK120400-02-0010F	30243	05/26/04	115.	1	Fundulidae	Topminnows	Fundulus olivaceus	Blackspotted topminnow	2.7	2.3	X					
Dirty Creek	OK120400-02-0010F	30243	05/26/04	133.	30	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Dirty Creek	OK120400-02-0010F	30243	05/26/04	99.	2	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	
Dirty Creek	OK120400-02-0010F	30243	05/26/04	32.	1	Cyprinidae	Carps and minnows	Cyprinus carpio	Common carp	4	3.8		X				
Dirty Creek	OK120400-02-0010F	30243	05/26/04	107.	1	Ictaluridae	Catfishes	Pylodictis olivaris	Flathead catfish	3.3	3			X			
Dirty Creek	OK120400-02-0010F	30243	05/26/04	13.	57	Clupeidae	Shads and herrings	Dorosoma cepedianum	Gizzard shad	3.3	3.5		X				
Dirty Creek	OK120400-02-0010F	30243	05/26/04	141.	3	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Dirty Creek	OK120400-02-0010F	30243	05/26/04	88.	3	Catostomidae	Suckers	Ictiobus cyprinellus	Largemouth buffalo	3.2	3	X					
Dirty Creek	OK120400-02-0010F	30243	05/26/04	135.	16	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Dirty Creek	OK120400-02-0010F	30243	05/26/04	7.	1	Lepisosteidae	Gars	Lepisosteus osseus	Longnose gar	4	3.7			X			
Dirty Creek	OK120400-02-0010F	30243	05/26/04	132.	1	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
Dirty Creek	OK120400-02-0010F	30243	05/26/04	28.	1	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Dirty Creek	OK120400-02-0010F	30243	05/26/04	8.	1	Lepisosteidae	Gars	Lepisosteus platostomus	Shortnose gar	3.8	3.3			X			
Dirty Creek	OK120400-02-0010F	30243	05/26/04	87.	13	Catostomidae	Suckers	Ictiobus bubalus	Smallmouth buffalo	3.2	3.3	X					
Dirty Creek	OK120400-02-0010F	30243	05/26/04	6.	7	Lepisosteidae	Gars	Lepisosteus oculatus	Spotted gar	3.5	2.7			X			
Dirty Creek	OK120400-02-0010F	30243	05/26/04	14.	4	Clupeidae	Shads and herrings	Dorosoma petenense	Threadfin shad	2.3	2.8		X				
Dirty Creek	OK120400-02-0010F	30243	05/26/04	142.	2	Centrarchidae	Sunfishes	Pomoxis annularis	White crappie	3.4	3.2			X			
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	89.	9	Catostomidae	Suckers	Ictiobus niger	Black buffalo	3	3	X					
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	143.	1	Centrarchidae	Sunfishes	Pomoxis nigromaculatus	Black crappie	3.2	2.8			X			
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	92.	1	Catostomidae	Suckers	Moxostoma duquesnei	Black redhorse	1.8	2	X					X
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	114.	9	Fundulidae	Topminnows	Fundulus notatus	Blackstripe topminnow	2.7	2.3	X					
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	133.	33	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					

Appendix B. Fish collection data.

Site Name	WBID	SAMPLEID	Date	RefNum	Number	Family	FamCom	Species	VernName	WQMean	HabMean	Insectivor	Omnivore	Piscivore	Herbivore	Generalist	Lithophilic Spawner
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	72.	6	Cyprinidae	Carps and minnows	Pimephales notatus	Bluntnose minnow	3	2.7		X				X
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	119.	111	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	23.	7	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	99.	1	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	107.	1	Ictaluridae	Catfishes	Pylodictis olivaris	Flathead catfish	3.3	3			X			
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	105.	1	Ictaluridae	Catfishes	Noturus nocturnus	Freckeled madtom	2.5	1.8	X					
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	179.	2	Sciaenidae	Drums	Aplodinotus grunniens	Freshwater drum	3.2	3.2	X				X	
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	13.	31	Clupeidae	Shads and herrings	Dorosoma cepedianum	Gizzard shad	3.3	3.5		X				
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	93.	4	Catostomidae	Suckers	Moxostoma erythrurum	Golden redhorse	2.3	2	X					X
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	130.	13	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	141.	11	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	88.	2	Catostomidae	Suckers	Ictiobus cyprinellus	Largemouth buffalo	3.2	3	X					
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	135.	57	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	7.	1	Lepisosteidae	Gars	Lepisosteus osseus	Longnose gar	4	3.7			X			
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	118.	5	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	132.	1	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	164.	1	Percidae	Perches	Etheostoma whipplei	Redfin darter	2	1.8	X					X
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	79.	1	Catostomidae	Suckers	Carpiodes carpio	River carpsucker	3.5	3.5		X				
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	154.	2	Percidae	Perches	Etheostoma gracile	Slough darter	2.6	1.6	X					
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	87.	8	Catostomidae	Suckers	Ictiobus bubalus	Smallmouth buffalo	3.2	3.3	X					
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	140.	3	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	6.	7	Lepisosteidae	Gars	Lepisosteus oculatus	Spotted gar	3.5	2.7			X			
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	90.	3	Catostomidae	Suckers	Minytrema melanops	Spotted sucker	2	1.5	X					X
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	14.	2	Clupeidae	Shads and herrings	Dorosoma petenense	Threadfin shad	2.3	2.8		X				
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	131.	18	Centrarchidae	Sunfishes	Lepomis gulosus	Warmouth sunfish	3.2	3			X			
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	142.	1	Centrarchidae	Sunfishes	Pomoxis annularis	White crappie	3.4	3.2			X			
South Fk Dirty Creek	OK120400-02-0030F	27978	07/31/03	97.	1	Ictaluridae	Catfishes	Ameiurus natalis	Yellow bullhead catfish	3.6	3.2	X				X	
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	96.	2	Ictaluridae	Catfishes	Ameiurus melas	Black bullhead catfish	4	4	X				X	
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	115.	3	Fundulidae	Topminnows	Fundulus olivaceus	Blackspotted topminnow	2.7	2.3	X					
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	114.	2	Fundulidae	Topminnows	Fundulus notatus	Blackstripe topminnow	2.7	2.3	X					
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	133.	39	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	119.	22	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	75.	1	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	23.	9	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	99.	1	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	13.	1	Clupeidae	Shads and herrings	Dorosoma cepedianum	Gizzard shad	3.3	3.5		X				
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	130.	16	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	141.	2	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	167.	1	Percidae	Perches	Percina caprodes	Logperch	2.3	2.3	X					
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	135.	90	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					

Appendix B. Fish collection data.

Site Name	WBID	SAMPLEID	Date	RefNum	Number	Family	FamCom	Species	VernName	WQMean	HabMean	Insectivor	Omnivore	Piscivore	Herbivore	Generalist	Lithophilic Spawner
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	118.	21	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	132.	4	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	6.	1	Lepisosteidae	Gars	Lepisosteus oculatus	Spotted gar	3.5	2.7			X			
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	131.	13	Centrarchidae	Sunfishes	Lepomis gulosus	Warmouth sunfish	3.2	3			X			
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	142.	3	Centrarchidae	Sunfishes	Pomoxis annularis	White crappie	3.4	3.2			X			
George's Fk Dirty Creek	OK120400-02-0110D	27864	07/22/03	97.	11	Ictaluridae	Catfishes	Ameiurus natalis	Yellow bullhead catfish	3.6	3.2	X				X	
Butler Creek	OK120400-02-0160D	27976	07/23/03	96.	4	Ictaluridae	Catfishes	Ameiurus melas	Black bullhead catfish	4	4	X				X	
Butler Creek	OK120400-02-0160D	27976	07/23/03	114.	3	Fundulidae	Topminnows	Fundulus notatus	Blackstripe topminnow	2.7	2.3	X					
Butler Creek	OK120400-02-0160D	27976	07/23/03	133.	6	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Butler Creek	OK120400-02-0160D	27976	07/23/03	119.	14	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Butler Creek	OK120400-02-0160D	27976	07/23/03	23.	6	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Butler Creek	OK120400-02-0160D	27976	07/23/03	46.	19	Cyprinidae	Carps and minnows	Notemigonus crysoleucas	Golden shiner	3.8	3.8		X				
Butler Creek	OK120400-02-0160D	27976	07/23/03	130.	5	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Butler Creek	OK120400-02-0160D	27976	07/23/03	141.	7	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Butler Creek	OK120400-02-0160D	27976	07/23/03	135.	4	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Butler Creek	OK120400-02-0160D	27976	07/23/03	118.	57	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Butler Creek	OK120400-02-0160D	27976	07/23/03	164.	2	Percidae	Perches	Etheostoma whipplei	Redfin darter	2	1.8	X					X
Butler Creek	OK120400-02-0160D	27976	07/23/03	154.	7	Percidae	Perches	Etheostoma gracile	Slough darter	2.6	1.6	X					
Butler Creek	OK120400-02-0160D	27976	07/23/03	90.	1	Catostomidae	Suckers	Minytrema melanops	Spotted sucker	2	1.5	X					X
Butler Creek	OK120400-02-0160D	27976	07/23/03	131.	8	Centrarchidae	Sunfishes	Lepomis gulosus	Warmouth sunfish	3.2	3			X			
Butler Creek	OK120400-02-0160D	27976	07/23/03	97.	7	Ictaluridae	Catfishes	Ameiurus natalis	Yellow bullhead catfish	3.6	3.2	X				X	
Elk Creek	OK120400-02-0190D	27974	07/08/03	143.	1	Centrarchidae	Sunfishes	Pomoxis nigromaculatus	Black crappie	3.2	2.8			X			
Elk Creek	OK120400-02-0190D	27974	07/08/03	115.	10	Fundulidae	Topminnows	Fundulus olivaceus	Blackspotted topminnow	2.7	2.3	X					
Elk Creek	OK120400-02-0190D	27974	07/08/03	133.	30	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Elk Creek	OK120400-02-0190D	27974	07/08/03	119.	13	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Elk Creek	OK120400-02-0190D	27974	07/08/03	75.	5	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Elk Creek	OK120400-02-0190D	27974	07/08/03	23.	39	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Elk Creek	OK120400-02-0190D	27974	07/08/03	105.	2	Ictaluridae	Catfishes	Noturus nocturnus	Freckeled madtom	2.5	1.8	X					
Elk Creek	OK120400-02-0190D	27974	07/08/03	130.	5	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Elk Creek	OK120400-02-0190D	27974	07/08/03	141.	12	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Elk Creek	OK120400-02-0190D	27974	07/08/03	135.	36	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Elk Creek	OK120400-02-0190D	27974	07/08/03	118.	27	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Elk Creek	OK120400-02-0190D	27974	07/08/03	28.	33	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Elk Creek	OK120400-02-0190D	27974	07/08/03	164.	7	Percidae	Perches	Etheostoma whipplei	Redfin darter	2	1.8	X					X
Elk Creek	OK120400-02-0190D	27974	07/08/03	42.	2	Cyprinidae	Carps and minnows	Lythrurus umbratilis	Redfin shiner	2	2	X					
Elk Creek	OK120400-02-0190D	27974	07/08/03	140.	4	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Elk Creek	OK120400-02-0190D	27974	07/08/03	131.	3	Centrarchidae	Sunfishes	Lepomis gulosus	Warmouth sunfish	3.2	3			X			
Elk Creek	OK120400-02-0190D	27974	07/08/03	142.	1	Centrarchidae	Sunfishes	Pomoxis annularis	White crappie	3.4	3.2			X			
Elk Creek	OK120400-02-0190D	27974	07/08/03	97.	1	Ictaluridae	Catfishes	Ameiurus natalis	Yellow bullhead catfish	3.6	3.2	X				X	
Shady Grove Creek	OK120400-02-0240H	27973	07/08/03	96.	1	Ictaluridae	Catfishes	Ameiurus melas	Black bullhead catfish	4	4	X				X	

Appendix B. Fish collection data.

Site Name	WBID	SAMPLEID	Date	RefNum	Number	Family	FamCom	Species	VernName	WQMean	HabMean	Insectivor	Omnivore	Piscivore	Herbivore	Generalist	Lithophilic Spawner
Shady Grove Creek	OK120400-02-0240H	27973	07/08/03	133.	5	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Shady Grove Creek	OK120400-02-0240H	27973	07/08/03	23.	1	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Shady Grove Creek	OK120400-02-0240H	27973	07/08/03	130.	8	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Shady Grove Creek	OK120400-02-0240H	27973	07/08/03	141.	16	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Shady Grove Creek	OK120400-02-0240H	27973	07/08/03	135.	6	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Shady Grove Creek	OK120400-02-0240H	27973	07/08/03	154.	3	Percidae	Perches	Etheostoma gracile	Slough darter	2.6	1.6	X					
Shady Grove Creek	OK120400-02-0240H	27973	07/08/03	140.	22	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Snake Creek	OK120410-01-0220G	28060	08/19/03	114.	10	Fundulidae	Topminnows	Fundulus notatus	Blackstripe topminnow	2.7	2.3	X					
Snake Creek	OK120410-01-0220G	28060	08/19/03	133.	2	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Snake Creek	OK120410-01-0220G	28060	08/19/03	72.	21	Cyprinidae	Carps and minnows	Pimephales notatus	Bluntnose minnow	3	2.7		X				X
Snake Creek	OK120410-01-0220G	28060	08/19/03	119.	87	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Snake Creek	OK120410-01-0220G	28060	08/19/03	75.	19	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Snake Creek	OK120410-01-0220G	28060	08/19/03	23.	27	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Snake Creek	OK120410-01-0220G	28060	08/19/03	99.	1	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	
Snake Creek	OK120410-01-0220G	28060	08/19/03	179.	1	Sciaenidae	Drums	Aplodinotus grunniens	Freshwater drum	3.2	3.2	X				X	
Snake Creek	OK120410-01-0220G	28060	08/19/03	54.	4	Cyprinidae	Carps and minnows	Notropis buchanani	Ghost shiner	2.6	2.6	X					
Snake Creek	OK120410-01-0220G	28060	08/19/03	13.	39	Clupeidae	Shads and herrings	Dorosoma cepedianum	Gizzard shad	3.3	3.5		X				
Snake Creek	OK120410-01-0220G	28060	08/19/03	46.	1	Cyprinidae	Carps and minnows	Notemigonus crysoleucas	Golden shiner	3.8	3.8		X				
Snake Creek	OK120410-01-0220G	28060	08/19/03	130.	6	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Snake Creek	OK120410-01-0220G	28060	08/19/03	141.	22	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Snake Creek	OK120410-01-0220G	28060	08/19/03	167.	1	Percidae	Perches	Percina caprodes	Logperch	2.3	2.3	X					
Snake Creek	OK120410-01-0220G	28060	08/19/03	135.	76	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Snake Creek	OK120410-01-0220G	28060	08/19/03	118.	32	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Snake Creek	OK120410-01-0220G	28060	08/19/03	132.	10	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
Snake Creek	OK120410-01-0220G	28060	08/19/03	28.	46	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Snake Creek	OK120410-01-0220G	28060	08/19/03	87.	2	Catostomidae	Suckers	Ictiobus bubalus	Smallmouth buffalo	3.2	3.3	X					
Snake Creek	OK120410-01-0220G	28060	08/19/03	140.	13	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Snake Creek	OK120410-01-0220G	28060	08/19/03	90.	1	Catostomidae	Suckers	Minytrema melanops	Spotted sucker	2	1.5	X					X
Snake Creek	OK120410-01-0220G	28060	08/19/03	70.	10	Cyprinidae	Carps and minnows	Phenacobius mirabilis	Suckermouth minnow	2.3	1.3	X					
Snake Creek	OK120410-01-0220G	28060	08/19/03	122.	5	Percichthyidae	Temperate basses	Morone chrysops	White bass	3.3	3			X			
Snake Creek	OK120410-01-0220G	28060	08/19/03	142.	16	Centrarchidae	Sunfishes	Pomoxis annularis	White crappie	3.4	3.2			X			
Snake Creek	OK120410-01-0220G	28060	08/19/03	97.	1	Ictaluridae	Catfishes	Ameiurus natalis	Yellow bullhead catfish	3.6	3.2	X				X	
Cloud Creek	OK120410-02-0010H	27859	07/21/03	143.	1	Centrarchidae	Sunfishes	Pomoxis nigromaculatus	Black crappie	3.2	2.8			X			
Cloud Creek	OK120410-02-0010H	27859	07/21/03	114.	1	Fundulidae	Topminnows	Fundulus notatus	Blackstripe topminnow	2.7	2.3	X					
Cloud Creek	OK120410-02-0010H	27859	07/21/03	133.	65	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Cloud Creek	OK120410-02-0010H	27859	07/21/03	72.	7	Cyprinidae	Carps and minnows	Pimephales notatus	Bluntnose minnow	3	2.7		X				X
Cloud Creek	OK120410-02-0010H	27859	07/21/03	119.	39	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Cloud Creek	OK120410-02-0010H	27859	07/21/03	75.	58	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Cloud Creek	OK120410-02-0010H	27859	07/21/03	23.	3	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Cloud Creek	OK120410-02-0010H	27859	07/21/03	99.	2	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	

Appendix B. Fish collection data.

Site Name	WBID	SAMPLEID	Date	RefNum	Number	Family	FamCom	Species	VernName	WQMean	HabMean	Insectivor	Omnivore	Piscivore	Herbivore	Generalist	Lithophilic Spawner
Cloud Creek	OK120410-02-0010H	27859	07/21/03	32.	2	Cyprinidae	Carps and minnows	Cyprinus carpio	Common carp	4	3.8		X				
Cloud Creek	OK120410-02-0010H	27859	07/21/03	107.	2	Ictaluridae	Catfishes	Pylodictis olivaris	Flathead catfish	3.3	3			X			
Cloud Creek	OK120410-02-0010H	27859	07/21/03	179.	3	Sciaenidae	Drums	Aplodinotus grunniens	Freshwater drum	3.2	3.2	X				X	
Cloud Creek	OK120410-02-0010H	27859	07/21/03	13.	166	Clupeidae	Shads and herrings	Dorosoma cepedianum	Gizzard shad	3.3	3.5		X				
Cloud Creek	OK120410-02-0010H	27859	07/21/03	46.	1	Cyprinidae	Carps and minnows	Notemigonus crysoleucas	Golden shiner	3.8	3.8		X				
Cloud Creek	OK120410-02-0010H	27859	07/21/03	130.	8	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Cloud Creek	OK120410-02-0010H	27859	07/21/03	141.	25	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Cloud Creek	OK120410-02-0010H	27859	07/21/03	167.	4	Percidae	Perches	Percina caprodes	Logperch	2.3	2.3	X					
Cloud Creek	OK120410-02-0010H	27859	07/21/03	135.	76	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Cloud Creek	OK120410-02-0010H	27859	07/21/03	118.	51	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Cloud Creek	OK120410-02-0010H	27859	07/21/03	132.	5	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
Cloud Creek	OK120410-02-0010H	27859	07/21/03	28.	95	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Cloud Creek	OK120410-02-0010H	27859	07/21/03	164.	5	Percidae	Perches	Etheostoma whipplei	Redfin darter	2	1.8	X					X
Cloud Creek	OK120410-02-0010H	27859	07/21/03	154.	1	Percidae	Perches	Etheostoma gracile	Slough darter	2.6	1.6	X					
Cloud Creek	OK120410-02-0010H	27859	07/21/03	140.	27	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Cloud Creek	OK120410-02-0010H	27859	07/21/03	90.	16	Catostomidae	Suckers	Minytrema melanops	Spotted sucker	2	1.5	X					X
Cloud Creek	OK120410-02-0010H	27859	07/21/03	70.	18	Cyprinidae	Carps and minnows	Phenacobius mirabilis	Suckermouth minnow	2.3	1.3	X					
Cloud Creek	OK120410-02-0010H	27859	07/21/03	131.	8	Centrarchidae	Sunfishes	Lepomis gulosus	Warmouth sunfish	3.2	3			X			
Cloud Creek	OK120410-02-0010H	27859	07/21/03	122.	9	Percichthyidae	Temperate basses	Morone chrysops	White bass	3.3	3			X			
Cloud Creek	OK120410-02-0010H	27859	07/21/03	142.	25	Centrarchidae	Sunfishes	Pomoxis annularis	White crappie	3.4	3.2			X			
Polecat Creek	OK120420-02-0050D	31002	09/14/04	119.	6	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Polecat Creek	OK120420-02-0050D	31002	09/14/04	75.	65	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Polecat Creek	OK120420-02-0050D	31002	09/14/04	99.	20	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	
Polecat Creek	OK120420-02-0050D	31002	09/14/04	168.	3	Percidae	Perches	Percina copelandi	Channel darter	1.8	1.7	X					X
Polecat Creek	OK120420-02-0050D	31002	09/14/04	49.	127	Cyprinidae	Carps and minnows	Notropis atherinoides	Emerald shiner	3.2	3.2	X					
Polecat Creek	OK120420-02-0050D	31002	09/14/04	107.	10	Ictaluridae	Catfishes	Pylodictis olivaris	Flathead catfish	3.3	3			X			
Polecat Creek	OK120420-02-0050D	31002	09/14/04	179.	2	Sciaenidae	Drums	Aplodinotus grunniens	Freshwater drum	3.2	3.2	X				X	
Polecat Creek	OK120420-02-0050D	31002	09/14/04	54.	2	Cyprinidae	Carps and minnows	Notropis buchanani	Ghost shiner	2.6	2.6	X					
Polecat Creek	OK120420-02-0050D	31002	09/14/04	13.	6	Clupeidae	Shads and herrings	Dorosoma cepedianum	Gizzard shad	3.3	3.5		X				
Polecat Creek	OK120420-02-0050D	31002	09/14/04	130.	1	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Polecat Creek	OK120420-02-0050D	31002	09/14/04	167.	1	Percidae	Perches	Percina caprodes	Logperch	2.3	2.3	X					
Polecat Creek	OK120420-02-0050D	31002	09/14/04	135.	13	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Polecat Creek	OK120420-02-0050D	31002	09/14/04	118.	9	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Polecat Creek	OK120420-02-0050D	31002	09/14/04	132.	1	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
Polecat Creek	OK120420-02-0050D	31002	09/14/04	28.	144	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Polecat Creek	OK120420-02-0050D	31002	09/14/04	164.	7	Percidae	Perches	Etheostoma whipplei	Redfin darter	2	1.8	X					X
Polecat Creek	OK120420-02-0050D	31002	09/14/04	173.	4	Percidae	Perches	Percina phoxocephala	Slenderhead darter	2.2	1.8	X					X
Polecat Creek	OK120420-02-0050D	31002	09/14/04	87.	7	Catostomidae	Suckers	Ictiobus bubalus	Smallmouth buffalo	3.2	3.3	X					
Polecat Creek	OK120420-02-0050D	31002	09/14/04	140.	3	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Polecat Creek	OK120420-02-0050D	31002	09/14/04	70.	9	Cyprinidae	Carps and minnows	Phenacobius mirabilis	Suckermouth minnow	2.3	1.3	X					

Appendix B. Fish collection data.

Site Name	WBID	SAMPLEID	Date	RefNum	Number	Family	FamCom	Species	VernName	WQMean	HabMean	Insectivor	Omnivore	Piscivore	Herbivore	Generalist	Lithophilic Spawner
Polecat Creek	OK120420-02-0050D	31002	09/14/04	14.	1	Clupeidae	Shads and herrings	Dorosoma petenense	Threadfin shad	2.3	2.8		X				
Polecat Creek	OK120420-02-0050D	31002	09/14/04	122.	4	Percichthyidae	Temperate basses	Morone chrysops	White bass	3.3	3			X			
Polecat Creek	OK120420-02-0050D	31002	09/14/04	142.	1	Centrarchidae	Sunfishes	Pomoxis annularis	White crappie	3.4	3.2			X			
Ballard Creek	OK121700-03-0370G	28051	08/05/03	121.	14	Cottidae	Sculpins	Cottus carolinae	Banded sculpin	1	1	X					X
Ballard Creek	OK121700-03-0370G	28051	08/05/03	53.	111	Cyprinidae	Carps and minnows	Notropis boops	Bigeye shiner	2	1.5	X					X
Ballard Creek	OK121700-03-0370G	28051	08/05/03	92.	4	Catostomidae	Suckers	Moxostoma duquesnei	Black redhorse	1.8	2	X					X
Ballard Creek	OK121700-03-0370G	28051	08/05/03	133.	1	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Ballard Creek	OK121700-03-0370G	28051	08/05/03	119.	1	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Ballard Creek	OK121700-03-0370G	28051	08/05/03	39.	288	Cyprinidae	Carps and minnows	Luxilus cardinalis	Cardinal shiner	1	1	X					X
Ballard Creek	OK121700-03-0370G	28051	08/05/03	23.	240	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Ballard Creek	OK121700-03-0370G	28051	08/05/03	32.	1	Cyprinidae	Carps and minnows	Cyprinus carpio	Common carp	4	3.8		X				
Ballard Creek	OK121700-03-0370G	28051	08/05/03	78.	16	Cyprinidae	Carps and minnows	Semotilus atromaculatus	Creek chub	2	2					X	X
Ballard Creek	OK121700-03-0370G	28051	08/05/03	93.	9	Catostomidae	Suckers	Moxostoma erythrurum	Golden redhorse	2.3	2	X					X
Ballard Creek	OK121700-03-0370G	28051	08/05/03	130.	1	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Ballard Creek	OK121700-03-0370G	28051	08/05/03	148.	5	Percidae	Perches	Etheostoma blennioides	Greenside darter	1.6	1.4	X					X
Ballard Creek	OK121700-03-0370G	28051	08/05/03	141.	3	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Ballard Creek	OK121700-03-0370G	28051	08/05/03	135.	17	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Ballard Creek	OK121700-03-0370G	28051	08/05/03	118.	4	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Ballard Creek	OK121700-03-0370G	28051	08/05/03	86.	1	Catostomidae	Suckers	Hypentelium nigricans	Northern hog sucker	1.3	1	X					X
Ballard Creek	OK121700-03-0370G	28051	08/05/03	162.	53	Percidae	Perches	Etheostoma spectabile	Orangethroat darter	2.4	2	X					X
Ballard Creek	OK121700-03-0370G	28051	08/05/03	61.	33	Cyprinidae	Carps and minnows	Notropis nubilus	Ozark minnow	1.6	1.2				X		X
Ballard Creek	OK121700-03-0370G	28051	08/05/03	66.	1	Cyprinidae	Carps and minnows	Notropis rubellus	Rosyface shiner	1.6	1.6	X					X
Ballard Creek	OK121700-03-0370G	28051	08/05/03	125.	1	Centrarchidae	Sunfishes	Amboplites ariommus	Shadow bass	2	1.5	X				X	X
Ballard Creek	OK121700-03-0370G	28051	08/05/03	101.	93	Ictaluridae	Catfishes	Noturus exilis	Slender madtom	2	1	X					X
Ballard Creek	OK121700-03-0370G	28051	08/05/03	139.	1	Centrarchidae	Sunfishes	Micropterus dolomieui	Smallmouth bass	1.5	1.5			X			X
Ballard Creek	OK121700-03-0370G	28051	08/05/03	160.	12	Percidae	Perches	Etheostoma punctulatum	Stippled darter	1.7	1.3	X					X
Battle Creek	OK121700-06-0040G	28052	08/05/03	121.	113	Cottidae	Sculpins	Cottus carolinae	Banded sculpin	1	1	X					X
Battle Creek	OK121700-06-0040G	28052	08/05/03	39.	191	Cyprinidae	Carps and minnows	Luxilus cardinalis	Cardinal shiner	1	1	X					X
Battle Creek	OK121700-06-0040G	28052	08/05/03	23.	14	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Battle Creek	OK121700-06-0040G	28052	08/05/03	78.	27	Cyprinidae	Carps and minnows	Semotilus atromaculatus	Creek chub	2	2					X	X
Battle Creek	OK121700-06-0040G	28052	08/05/03	152.	24	Percidae	Perches	Etheostoma flabellare	Fantail darter	2	1.3	X					X
Battle Creek	OK121700-06-0040G	28052	08/05/03	86.	1	Catostomidae	Suckers	Hypentelium nigricans	Northern hog sucker	1.3	1	X					X
Battle Creek	OK121700-06-0040G	28052	08/05/03	162.	24	Percidae	Perches	Etheostoma spectabile	Orangethroat darter	2.4	2	X					X
Battle Creek	OK121700-06-0040G	28052	08/05/03	61.	25	Cyprinidae	Carps and minnows	Notropis nubilus	Ozark minnow	1.6	1.2				X		X
Battle Creek	OK121700-06-0040G	28052	08/05/03	45.	3	Cyprinidae	Carps and minnows	Nocomis asper	Redspot chub	1.5	1.5	X					X
Battle Creek	OK121700-06-0040G	28052	08/05/03	66.	2	Cyprinidae	Carps and minnows	Notropis rubellus	Rosyface shiner	1.6	1.6	X					X
Battle Creek	OK121700-06-0040G	28052	08/05/03	125.	4	Centrarchidae	Sunfishes	Amboplites ariommus	Shadow bass	2	1.5	X				X	X
Battle Creek	OK121700-06-0040G	28052	08/05/03	101.	76	Ictaluridae	Catfishes	Noturus exilis	Slender madtom	2	1	X					X
Battle Creek	OK121700-06-0040G	28052	08/05/03	71.	54	Cyprinidae	Carps and minnows	Phoxinus erythrogaster	Southern redbelly dace	1.2	1.2				X		X
Battle Creek	OK121700-06-0040G	28052	08/05/03	160.	5	Percidae	Perches	Etheostoma punctulatum	Stippled darter	1.7	1.3	X					X

Appendix B. Fish collection data.

Site Name	WBID	SAMPLEID	Date	RefNum	Number	Family	FamCom	Species	VernName	WQMean	HabMean	Insectivor	Omnivore	Piscivore	Herbivore	Generalist	Lithophilic Spawner
Battle Creek	OK121700-06-0040G	28052	08/05/03	82.	3	Catostomidae	Suckers	Catostomus commersoni	White sucker	1.8	1.6	X				X	X
Brazil Creek	OK220100-03-0010G	31212	10/22/04	53.	33	Cyprinidae	Carps and minnows	Notropis boops	Bigeye shiner	2	1.5	X					X
Brazil Creek	OK220100-03-0010G	31212	10/22/04	115.	23	Fundulidae	Topminnows	Fundulus olivaceus	Blackspotted topminnow	2.7	2.3	X					
Brazil Creek	OK220100-03-0010G	31212	10/22/04	133.	18	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Brazil Creek	OK220100-03-0010G	31212	10/22/04	72.	40	Cyprinidae	Carps and minnows	Pimephales notatus	Bluntnose minnow	3	2.7		X				X
Brazil Creek	OK220100-03-0010G	31212	10/22/04	104.	1	Ictaluridae	Catfishes	Noturus miurus	Brindled madtom	1.7	1.3	X					X
Brazil Creek	OK220100-03-0010G	31212	10/22/04	119.	34	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Brazil Creek	OK220100-03-0010G	31212	10/22/04	23.	62	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Brazil Creek	OK220100-03-0010G	31212	10/22/04	99.	5	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	
Brazil Creek	OK220100-03-0010G	31212	10/22/04	174.	6	Percidae	Perches	Percina sciera	Dusky darter	2.2	2.2	X					X
Brazil Creek	OK220100-03-0010G	31212	10/22/04	93.	2	Catostomidae	Suckers	Moxostoma erythrurum	Golden redhorse	2.3	2	X					X
Brazil Creek	OK220100-03-0010G	31212	10/22/04	130.	27	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Brazil Creek	OK220100-03-0010G	31212	10/22/04	167.	1	Percidae	Perches	Percina caprodes	Logperch	2.3	2.3	X					
Brazil Creek	OK220100-03-0010G	31212	10/22/04	135.	38	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Brazil Creek	OK220100-03-0010G	31212	10/22/04	118.	62	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Brazil Creek	OK220100-03-0010G	31212	10/22/04	132.	3	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
Brazil Creek	OK220100-03-0010G	31212	10/22/04	162.	54	Percidae	Perches	Etheostoma spectabile	Orangethroat darter	2.4	2	X					X
Brazil Creek	OK220100-03-0010G	31212	10/22/04	136.	1	Centrarchidae	Sunfishes	Lepomis microlophus	Redear sunfish	3	2.87	X					
Brazil Creek	OK220100-03-0010G	31212	10/22/04	164.	16	Percidae	Perches	Etheostoma whipplei	Redfin darter	2	1.8	X					X
Brazil Creek	OK220100-03-0010G	31212	10/22/04	42.	21	Cyprinidae	Carps and minnows	Lythrurus umbratilis	Redfin shiner	2	2	X					
Brazil Creek	OK220100-03-0010G	31212	10/22/04	101.	16	Ictaluridae	Catfishes	Noturus exilis	Slender madtom	2	1	X					X
Brazil Creek	OK220100-03-0010G	31212	10/22/04	154.	4	Percidae	Perches	Etheostoma gracile	Slough darter	2.6	1.6	X					
Brazil Creek	OK220100-03-0010G	31212	10/22/04	140.	6	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Brazil Creek	OK220100-03-0010G	31212	10/22/04	31.	35	Cyprinidae	Carps and minnows	Cyprinella whipplei	Steelcolor shiner	2	1.8	X					X
Brazil Creek	OK220100-03-0010G	31212	10/22/04	14.	1	Clupeidae	Shads and herrings	Dorosoma petenense	Threadfin shad	2.3	2.8		X				
Brazil Creek	OK220100-03-0010G	31212	10/22/04	131.	5	Centrarchidae	Sunfishes	Lepomis gulosus	Warmouth sunfish	3.2	3			X			
Brazil Creek	OK220100-03-0010G	31212	10/22/04	97.	1	Ictaluridae	Catfishes	Ameiurus natalis	Yellow bullhead catfish	3.6	3.2	X				X	
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	53.	7	Cyprinidae	Carps and minnows	Notropis boops	Bigeye shiner	2	1.5	X					X
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	92.	2	Catostomidae	Suckers	Moxostoma duquesnei	Black redhorse	1.8	2	X					X
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	170.	2	Percidae	Perches	Percina maculata	Blackside darter	2	1	X					X
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	115.	8	Fundulidae	Topminnows	Fundulus olivaceus	Blackspotted topminnow	2.7	2.3	X					
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	133.	28	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	149.	1	Percidae	Perches	Etheostoma chlorosomum	Bluntnose darter	1.8	1.6	X					
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	72.	57	Cyprinidae	Carps and minnows	Pimephales notatus	Bluntnose minnow	3	2.7		X				X
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	119.	11	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	75.	12	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	23.	29	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	99.	3	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	174.	6	Percidae	Perches	Percina sciera	Dusky darter	2.2	2.2	X					X
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	49.	26	Cyprinidae	Carps and minnows	Notropis atherinoides	Emerald shiner	3.2	3.2	X					

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Site Name	WBID	SAMPLEID	Date	RefNum	Number	Family	FamCom	Species	VernName	WQMean	HabMean	Insectivor	Omnivore	Piscivore	Herbivore	Generalist	Lithophilic Spawner
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	152.	2	Percidae	Perches	Etheostoma flabellare	Fantail darter	2	1.3	X					X
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	105.	4	Ictaluridae	Catfishes	Noturus nocturnus	Freckeled madtom	2.5	1.8	X					
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	179.	6	Sciaenidae	Drums	Aplodinotus grunniens	Freshwater drum	3.2	3.2	X				X	
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	13.	42	Clupeidae	Shads and herrings	Dorosoma cepedianum	Gizzard shad	3.3	3.5		X				
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	93.	8	Catostomidae	Suckers	Moxostoma erythrurum	Golden redhorse	2.3	2	X					X
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	130.	18	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	155.	16	Percidae	Perches	Etheostoma histrio	Harlequin darter	1.6	1.2	X					
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	141.	5	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	167.	10	Percidae	Perches	Percina caprodes	Logperch	2.3	2.3	X					
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	135.	47	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	7.	2	Lepisosteidae	Gars	Lepisosteus osseus	Longnose gar	4	3.7			X			
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	69.	19	Cyprinidae	Carps and minnows	Notropis volucellus	Mimic shiner	2.2	2	X					
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	118.	5	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	132.	13	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	56.	6	Cyprinidae	Carps and minnows	Notropis emiliae	Pugnose shiner	2	2	X			X		
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	28.	1	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	136.	3	Centrarchidae	Sunfishes	Lepomis microlophus	Redear sunfish	3	2.87	X					
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	164.	6	Percidae	Perches	Etheostoma whipplei	Redfin darter	2	1.8	X					X
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	42.	9	Cyprinidae	Carps and minnows	Lythrurus umbratilis	Redfin shiner	2	2	X					
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	87.	9	Catostomidae	Suckers	Ictiobus bubalus	Smallmouth buffalo	3.2	3.3	X					
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	140.	12	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	6.	13	Lepisosteidae	Gars	Lepisosteus oculatus	Spotted gar	3.5	2.7			X			
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	90.	14	Catostomidae	Suckers	Minytrema melanops	Spotted sucker	2	1.5	X					X
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	31.	78	Cyprinidae	Carps and minnows	Cyprinella whipplei	Steelcolor shiner	2	1.8	X					X
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	131.	7	Centrarchidae	Sunfishes	Lepomis gulosus	Warmouth sunfish	3.2	3			X			
Fourche Maline Creek	OK220100-04-0010M	31200	10/13/04	142.	2	Centrarchidae	Sunfishes	Pomoxis annularis	White crappie	3.4	3.2			X			
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	165.	13	Percidae	Perches	Etheostoma zonale	Banded darter	1.6	1.2	X					
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	53.	41	Cyprinidae	Carps and minnows	Notropis boops	Bigeye shiner	2	1.5	X					X
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	92.	4	Catostomidae	Suckers	Moxostoma duquesnei	Black redhorse	1.8	2	X					X
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	114.	4	Fundulidae	Topminnows	Fundulus notatus	Blackstripe topminnow	2.7	2.3	X					
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	133.	8	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	119.	50	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	75.	4	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	39.	68	Cyprinidae	Carps and minnows	Luxilus cardinalis	Cardinal shiner	1	1	X					X
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	23.	92	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	32.	1	Cyprinidae	Carps and minnows	Cyprinus carpio	Common carp	4	3.8		X				
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	152.	5	Percidae	Perches	Etheostoma flabellare	Fantail darter	2	1.3	X					X
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	179.	0	Sciaenidae	Drums	Aplodinotus grunniens	Freshwater drum	3.2	3.2	X				X	
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	13.	20	Clupeidae	Shads and herrings	Dorosoma cepedianum	Gizzard shad	3.3	3.5		X				
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	93.	0	Catostomidae	Suckers	Moxostoma erythrurum	Golden redhorse	2.3	2	X					X

Appendix B. Fish collection data.

Site Name	WBID	SAMPLEID	Date	RefNum	Number	Family	FamCom	Species	VernName	WQMean	HabMean	Insectivor	Omnivore	Piscivore	Herbivore	Generalist	Lithophilic Spawner
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	130.	14	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	148.	10	Percidae	Perches	Etheostoma blennioides	Greenside darter	1.6	1.4	X					X
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	141.	2	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	167.	10	Percidae	Perches	Percina caprodes	Logperch	2.3	2.3	X					
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	135.	29	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	7.	1	Lepisosteidae	Gars	Lepisosteus osseus	Longnose gar	4	3.7			X			
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	118.	5	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	162.	5	Percidae	Perches	Etheostoma spectabile	Orangethroat darter	2.4	2	X					X
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	61.	5	Cyprinidae	Carps and minnows	Notropis nubilus	Ozark minnow	1.6	1.2				X		X
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	101.	2	Ictaluridae	Catfishes	Noturus exilis	Slender madtom	2	1	X					X
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	139.	2	Centrarchidae	Sunfishes	Micropterus dolomieui	Smallmouth bass	1.5	1.5			X			X
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	140.	8	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	6.	3	Lepisosteidae	Gars	Lepisosteus oculatus	Spotted gar	3.5	2.7			X			
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	90.	0	Catostomidae	Suckers	Minytrema melanops	Spotted sucker	2	1.5	X					X
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	31.	19	Cyprinidae	Carps and minnows	Cyprinella whipplei	Steelcolor shiner	2	1.8	X					X
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	14.	1	Clupeidae	Shads and herrings	Dorosoma petenense	Threadfin shad	2.3	2.8		X				
Sallisaw Creek: Lower	OK220200-03-0010C	28053	08/06/03	131.	4	Centrarchidae	Sunfishes	Lepomis gulosus	Warmouth sunfish	3.2	3			X			
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	165.	1	Percidae	Perches	Etheostoma zonale	Banded darter	1.6	1.2	X					
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	53.	22	Cyprinidae	Carps and minnows	Notropis boops	Bigeye shiner	2	1.5	X					X
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	92.	2	Catostomidae	Suckers	Moxostoma duquesnei	Black redhorse	1.8	2	X					X
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	133.	2	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	119.	2	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	39.	109	Cyprinidae	Carps and minnows	Luxilus cardinalis	Cardinal shiner	1	1	X					X
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	23.	82	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	152.	1	Percidae	Perches	Etheostoma flabellare	Fantail darter	2	1.3	X					X
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	130.	9	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	148.	2	Percidae	Perches	Etheostoma blennioides	Greenside darter	1.6	1.4	X					X
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	167.	1	Percidae	Perches	Percina caprodes	Logperch	2.3	2.3	X					
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	135.	2	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	86.	8	Catostomidae	Suckers	Hypentelium nigricans	Northern hog sucker	1.3	1	X					
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	162.	6	Percidae	Perches	Etheostoma spectabile	Orangethroat darter	2.4	2	X					X
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	61.	7	Cyprinidae	Carps and minnows	Notropis nubilus	Ozark minnow	1.6	1.2				X		X
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	45.	4	Cyprinidae	Carps and minnows	Nocomis asper	Redspot chub	1.5	1.5	X					X
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	101.	3	Ictaluridae	Catfishes	Noturus exilis	Slender madtom	2	1	X					X
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	139.	1	Centrarchidae	Sunfishes	Micropterus dolomieui	Smallmouth bass	1.5	1.5			X			X
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	31.	18	Cyprinidae	Carps and minnows	Cyprinella whipplei	Steelcolor shiner	2	1.8	X					X
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	160.	1	Percidae	Perches	Etheostoma punctulatum	Stippled darter	1.7	1.3	X					X
Sallisaw Creek: Upper	OK220200-03-0010G	28054	08/06/03	97.	1	Ictaluridae	Catfishes	Ameiurus natalis	Yellow bullhead catfish	3.6	3.2	X				X	
San Bois Creek	OK220200-04-0010G	31003	09/16/04	115.	25	Fundulidae	Topminnows	Fundulus olivaceus	Blackspotted topminnow	2.7	2.3	X					
San Bois Creek	OK220200-04-0010G	31003	09/16/04	133.	2	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					

Appendix B. Fish collection data.

Site Name	WBID	SAMPLEID	Date	RefNum	Number	Family	FamCom	Species	VernName	WQMean	HabMean	Insectivor	Omnivore	Piscivore	Herbivore	Generalist	Lithophilic Spawner
San Bois Creek	OK220200-04-0010G	31003	09/16/04	72.	3	Cyprinidae	Carps and minnows	Pimephales notatus	Bluntnose minnow	3	2.7		X				X
San Bois Creek	OK220200-04-0010G	31003	09/16/04	119.	21	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
San Bois Creek	OK220200-04-0010G	31003	09/16/04	75.	4	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
San Bois Creek	OK220200-04-0010G	31003	09/16/04	135.	8	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
San Bois Creek	OK220200-04-0010G	31003	09/16/04	118.	1	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
San Bois Creek	OK220200-04-0010G	31003	09/16/04	42.	6	Cyprinidae	Carps and minnows	Lythrurus umbratilis	Redfin shiner	2	2	X					
San Bois Creek	OK220200-04-0010G	31003	09/16/04	140.	2	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
San Bois Creek	OK220200-04-0010G	31003	09/16/04	31.	7	Cyprinidae	Carps and minnows	Cyprinella whipplei	Steelcolor shiner	2	1.8	X					X
San Bois Creek	OK220200-04-0010G	31003	09/16/04	142.	1	Centrarchidae	Sunfishes	Pomoxis annularis	White crappie	3.4	3.2			X			
Mill Creek	OK220600-01-0100P	27972	07/07/03	114.	2	Fundulidae	Topminnows	Fundulus notatus	Blackstripe topminnow	2.7	2.3	X					
Mill Creek	OK220600-01-0100P	27972	07/07/03	133.	31	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Mill Creek	OK220600-01-0100P	27972	07/07/03	72.	24	Cyprinidae	Carps and minnows	Pimephales notatus	Bluntnose minnow	3	2.7		X				X
Mill Creek	OK220600-01-0100P	27972	07/07/03	119.	4	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Mill Creek	OK220600-01-0100P	27972	07/07/03	23.	71	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Mill Creek	OK220600-01-0100P	27972	07/07/03	130.	2	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Mill Creek	OK220600-01-0100P	27972	07/07/03	141.	2	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Mill Creek	OK220600-01-0100P	27972	07/07/03	135.	50	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Mill Creek	OK220600-01-0100P	27972	07/07/03	118.	14	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Mill Creek	OK220600-01-0100P	27972	07/07/03	132.	3	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
Mill Creek	OK220600-01-0100P	27972	07/07/03	28.	2	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Mill Creek	OK220600-01-0100P	27972	07/07/03	164.	20	Percidae	Perches	Etheostoma whipplei	Redfin darter	2	1.8	X					X
Mill Creek	OK220600-01-0100P	27972	07/07/03	79.	3	Catostomidae	Suckers	Carpiodes carpio	River carpsucker	3.5	3.5		X				
Mill Creek	OK220600-01-0100P	27972	07/07/03	87.	1	Catostomidae	Suckers	Ictiobus bubalus	Smallmouth buffalo	3.2	3.3	X					
Mill Creek	OK220600-01-0100P	27972	07/07/03	140.	12	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Mill Creek	OK220600-01-0100P	27972	07/07/03	90.	1	Catostomidae	Suckers	Minytrema melanops	Spotted sucker	2	1.5	X					X
Brushy Creek	OK220600-03-0010J	31201	10/18/04	92.	2	Catostomidae	Suckers	Moxostoma duquesnei	Black redhorse	1.8	2	X					X
Brushy Creek	OK220600-03-0010J	31201	10/18/04	115.	30	Fundulidae	Topminnows	Fundulus olivaceus	Blackspotted topminnow	2.7	2.3	X					
Brushy Creek	OK220600-03-0010J	31201	10/18/04	133.	15	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Brushy Creek	OK220600-03-0010J	31201	10/18/04	72.	24	Cyprinidae	Carps and minnows	Pimephales notatus	Bluntnose minnow	3	2.7		X				X
Brushy Creek	OK220600-03-0010J	31201	10/18/04	119.	37	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Brushy Creek	OK220600-03-0010J	31201	10/18/04	75.	2	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Brushy Creek	OK220600-03-0010J	31201	10/18/04	23.	19	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Brushy Creek	OK220600-03-0010J	31201	10/18/04	32.	1	Cyprinidae	Carps and minnows	Cyprinus carpio	Common carp	4	3.8		X				
Brushy Creek	OK220600-03-0010J	31201	10/18/04	174.	1	Percidae	Perches	Percina sciera	Dusky darter	2.2	2.2	X					X
Brushy Creek	OK220600-03-0010J	31201	10/18/04	179.	1	Sciaenidae	Drums	Aplodinotus grunniens	Freshwater drum	3.2	3.2	X				X	
Brushy Creek	OK220600-03-0010J	31201	10/18/04	13.	12	Clupeidae	Shads and herrings	Dorosoma cepedianum	Gizzard shad	3.3	3.5		X				
Brushy Creek	OK220600-03-0010J	31201	10/18/04	93.	3	Catostomidae	Suckers	Moxostoma erythrurum	Golden redhorse	2.3	2	X					X
Brushy Creek	OK220600-03-0010J	31201	10/18/04	130.	3	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Brushy Creek	OK220600-03-0010J	31201	10/18/04	141.	5	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Brushy Creek	OK220600-03-0010J	31201	10/18/04	167.	3	Percidae	Perches	Percina caprodes	Logperch	2.3	2.3	X					

Appendix B. Fish collection data.

Site Name	WBID	SAMPLEID	Date	RefNum	Number	Family	FamCom	Species	VernName	WQMean	HabMean	Insectivor	Omnivore	Piscivore	Herbivore	Generalist	Lithophilic Spawner
Brushy Creek	OK220600-03-0010J	31201	10/18/04	135.	43	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Brushy Creek	OK220600-03-0010J	31201	10/18/04	7.	3	Lepisosteidae	Gars	Lepisosteus osseus	Longnose gar	4	3.7			X			
Brushy Creek	OK220600-03-0010J	31201	10/18/04	118.	29	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Brushy Creek	OK220600-03-0010J	31201	10/18/04	132.	7	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
Brushy Creek	OK220600-03-0010J	31201	10/18/04	162.	5	Percidae	Perches	Etheostoma spectabile	Orangethroat darter	2.4	2	X					X
Brushy Creek	OK220600-03-0010J	31201	10/18/04	136.	2	Centrarchidae	Sunfishes	Lepomis microlophus	Redear sunfish	3	2.87	X					
Brushy Creek	OK220600-03-0010J	31201	10/18/04	164.	4	Percidae	Perches	Etheostoma whipplei	Redfin darter	2	1.8	X					X
Brushy Creek	OK220600-03-0010J	31201	10/18/04	42.	37	Cyprinidae	Carps and minnows	Lythrurus umbratilis	Redfin shiner	2	2	X					
Brushy Creek	OK220600-03-0010J	31201	10/18/04	87.	5	Catostomidae	Suckers	Ictiobus bubalus	Smallmouth buffalo	3.2	3.3	X					
Brushy Creek	OK220600-03-0010J	31201	10/18/04	140.	7	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Brushy Creek	OK220600-03-0010J	31201	10/18/04	90.	19	Catostomidae	Suckers	Minytrema melanops	Spotted sucker	2	1.5	X					X
Brushy Creek	OK220600-03-0010J	31201	10/18/04	131.	4	Centrarchidae	Sunfishes	Lepomis gulosus	Warmouth sunfish	3.2	3			X			
Brushy Creek	OK220600-03-0010J	31201	10/18/04	142.	6	Centrarchidae	Sunfishes	Pomoxis annularis	White crappie	3.4	3.2			X			
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	115.	15	Fundulidae	Topminnows	Fundulus olivaceus	Blackspotted topminnow	2.7	2.3	X					
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	133.	4	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	72.	17	Cyprinidae	Carps and minnows	Pimephales notatus	Bluntnose minnow	3	2.7		X				X
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	119.	36	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	75.	1	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	23.	11	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	174.	9	Percidae	Perches	Percina sciera	Dusky darter	2.2	2.2	X					X
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	105.	2	Ictaluridae	Catfishes	Noturus nocturnus	Freckeled madtom	2.5	1.8	X					
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	130.	4	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	167.	1	Percidae	Perches	Percina caprodes	Logperch	2.3	2.3	X					
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	135.	73	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	118.	10	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	132.	1	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	136.	1	Centrarchidae	Sunfishes	Lepomis microlophus	Redear sunfish	3	2.87	X					
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	164.	19	Percidae	Perches	Etheostoma whipplei	Redfin darter	2	1.8	X					X
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	42.	18	Cyprinidae	Carps and minnows	Lythrurus umbratilis	Redfin shiner	2	2	X					
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	154.	2	Percidae	Perches	Etheostoma gracile	Slough darter	2.6	1.6	X					
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	140.	3	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Peaceable Creek	OK220600-03-0050F	31202	10/18/04	90.	2	Catostomidae	Suckers	Minytrema melanops	Spotted sucker	2	1.5	X					X
Bad Creek	OK520500-01-0170L	28044	07/31/03	114.	10	Fundulidae	Topminnows	Fundulus notatus	Blackstripe topminnow	2.7	2.3	X					
Bad Creek	OK520500-01-0170L	28044	07/31/03	133.	3	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Bad Creek	OK520500-01-0170L	28044	07/31/03	72.	69	Cyprinidae	Carps and minnows	Pimephales notatus	Bluntnose minnow	3	2.7		X				X
Bad Creek	OK520500-01-0170L	28044	07/31/03	119.	149	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Bad Creek	OK520500-01-0170L	28044	07/31/03	75.	19	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Bad Creek	OK520500-01-0170L	28044	07/31/03	23.	2	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Bad Creek	OK520500-01-0170L	28044	07/31/03	13.	4	Clupeidae	Shads and herrings	Dorosoma cepedianum	Gizzard shad	3.3	3.5		X				
Bad Creek	OK520500-01-0170L	28044	07/31/03	130.	1	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	

Appendix B. Fish collection data.

Site Name	WBID	SAMPLEID	Date	RefNum	Number	Family	FamCom	Species	VernName	WQMean	HabMean	Insectivor	Omnivore	Piscivore	Herbivore	Generalist	Lithophilic Spawner
Bad Creek	OK520500-01-0170L	28044	07/31/03	141.	21	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Bad Creek	OK520500-01-0170L	28044	07/31/03	167.	10	Percidae	Perches	Percina caprodes	Logperch	2.3	2.3	X					
Bad Creek	OK520500-01-0170L	28044	07/31/03	135.	84	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Bad Creek	OK520500-01-0170L	28044	07/31/03	118.	4	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Bad Creek	OK520500-01-0170L	28044	07/31/03	132.	36	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
Bad Creek	OK520500-01-0170L	28044	07/31/03	28.	4	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Bad Creek	OK520500-01-0170L	28044	07/31/03	42.	4	Cyprinidae	Carps and minnows	Lythrurus umbratilis	Redfin shiner	2	2	X					
Bad Creek	OK520500-01-0170L	28044	07/31/03	79.	1	Catostomidae	Suckers	Carpiodes carpio	River carpsucker	3.5	3.5		X				
Bad Creek	OK520500-01-0170L	28044	07/31/03	140.	9	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Bad Creek	OK520500-01-0170L	28044	07/31/03	70.	1	Cyprinidae	Carps and minnows	Phenacobius mirabilis	Suckermouth minnow	2.3	1.3	X					
Bad Creek	OK520500-01-0170L	28044	07/31/03	131.	1	Centrarchidae	Sunfishes	Lepomis gulosus	Warmouth sunfish	3.2	3			X			
Bad Creek	OK520500-01-0170L	28044	07/31/03	142.	2	Centrarchidae	Sunfishes	Pomoxis annularis	White crappie	3.4	3.2			X			
Alabama Creek	OK520500-01-0200D	27719	06/23/03	133.	22	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Alabama Creek	OK520500-01-0200D	27719	06/23/03	119.	1	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Alabama Creek	OK520500-01-0200D	27719	06/23/03	75.	2	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Alabama Creek	OK520500-01-0200D	27719	06/23/03	23.	2	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Alabama Creek	OK520500-01-0200D	27719	06/23/03	99.	2	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	
Alabama Creek	OK520500-01-0200D	27719	06/23/03	141.	14	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Alabama Creek	OK520500-01-0200D	27719	06/23/03	135.	45	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Alabama Creek	OK520500-01-0200D	27719	06/23/03	118.	10	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Alabama Creek	OK520500-01-0200D	27719	06/23/03	132.	8	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
Alabama Creek	OK520500-01-0200D	27719	06/23/03	28.	3	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Alabama Creek	OK520500-01-0200D	27719	06/23/03	136.	2	Centrarchidae	Sunfishes	Lepomis microlophus	Redear sunfish	3	2.87	X					
Alabama Creek	OK520500-01-0200D	27719	06/23/03	79.	1	Catostomidae	Suckers	Carpiodes carpio	River carpsucker	3.5	3.5		X				
Alabama Creek	OK520500-01-0200D	27719	06/23/03	87.	1	Catostomidae	Suckers	Ictiobus bubalus	Smallmouth buffalo	3.2	3.3	X					
Wewoka Creek: Lower	OK520500-02-0010C	28045	07/31/03	75.	17	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Wewoka Creek: Lower	OK520500-02-0010C	28045	07/31/03	99.	1	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	
Wewoka Creek: Lower	OK520500-02-0010C	28045	07/31/03	32.	2	Cyprinidae	Carps and minnows	Cyprinus carpio	Common carp	4	3.8		X				
Wewoka Creek: Lower	OK520500-02-0010C	28045	07/31/03	49.	70	Cyprinidae	Carps and minnows	Notropis atherinoides	Emerald shiner	3.2	3.2	X					
Wewoka Creek: Lower	OK520500-02-0010C	28045	07/31/03	179.	1	Sciaenidae	Drums	Aplodinotus grunniens	Freshwater drum	3.2	3.2	X				X	
Wewoka Creek: Lower	OK520500-02-0010C	28045	07/31/03	13.	4	Clupeidae	Shads and herrings	Dorosoma cepedianum	Gizzard shad	3.3	3.5		X				
Wewoka Creek: Lower	OK520500-02-0010C	28045	07/31/03	130.	2	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Wewoka Creek: Lower	OK520500-02-0010C	28045	07/31/03	167.	1	Percidae	Perches	Percina caprodes	Logperch	2.3	2.3	X					
Wewoka Creek: Lower	OK520500-02-0010C	28045	07/31/03	135.	14	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Wewoka Creek: Lower	OK520500-02-0010C	28045	07/31/03	118.	13	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Wewoka Creek: Lower	OK520500-02-0010C	28045	07/31/03	132.	31	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
Wewoka Creek: Lower	OK520500-02-0010C	28045	07/31/03	28.	454	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Wewoka Creek: Lower	OK520500-02-0010C	28045	07/31/03	79.	8	Catostomidae	Suckers	Carpiodes carpio	River carpsucker	3.5	3.5		X				
Wewoka Creek: Lower	OK520500-02-0010C	28045	07/31/03	140.	1	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Wewoka Creek: Lower	OK520500-02-0010C	28045	07/31/03	70.	2	Cyprinidae	Carps and minnows	Phenacobius mirabilis	Suckermouth minnow	2.3	1.3	X					

Appendix B. Fish collection data.

Site Name	WBID	SAMPLEID	Date	RefNum	Number	Family	FamCom	Species	VernName	WQMean	HabMean	Insectivor	Omnivore	Piscivore	Herbivore	Generalist	Lithophilic Spawner
Wewoka Creek: Lower	OK520500-02-0010C	28045	07/31/03	122.	1	Percichthyidae	Temperate basses	Morone chrysops	White bass	3.3	3			X			
Wewoka Creek: Upper	OK520500-02-0010M	27971	07/01/03	133.	16	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Wewoka Creek: Upper	OK520500-02-0010M	27971	07/01/03	75.	42	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Wewoka Creek: Upper	OK520500-02-0010M	27971	07/01/03	13.	4	Clupeidae	Shads and herrings	Dorosoma cepedianum	Gizzard shad	3.3	3.5		X				
Wewoka Creek: Upper	OK520500-02-0010M	27971	07/01/03	130.	5	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Wewoka Creek: Upper	OK520500-02-0010M	27971	07/01/03	141.	2	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Wewoka Creek: Upper	OK520500-02-0010M	27971	07/01/03	135.	26	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Wewoka Creek: Upper	OK520500-02-0010M	27971	07/01/03	118.	12	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Wewoka Creek: Upper	OK520500-02-0010M	27971	07/01/03	132.	19	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
Wewoka Creek: Upper	OK520500-02-0010M	27971	07/01/03	28.	383	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Wewoka Creek: Upper	OK520500-02-0010M	27971	07/01/03	79.	10	Catostomidae	Suckers	Carpiodes carpio	River carpsucker	3.5	3.5		X				
Wewoka Creek: Upper	OK520500-02-0010M	27971	07/01/03	68.	4	Cyprinidae	Carps and minnows	Notropis stramineus	Sand shiner	2.7	2.5	X					
Wewoka Creek: Upper	OK520500-02-0010M	27971	07/01/03	87.	3	Catostomidae	Suckers	Ictiobus bubalus	Smallmouth buffalo	3.2	3.3	X					
Wewoka Creek: Upper	OK520500-02-0010M	27971	07/01/03	140.	2	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Wewoka Creek: Upper	OK520500-02-0010M	27971	07/01/03	6.	3	Lepisosteidae	Gars	Lepisosteus oculatus	Spotted gar	3.5	2.7			X			
Wewoka Creek: Upper	OK520500-02-0010M	27971	07/01/03	70.	1	Cyprinidae	Carps and minnows	Phenacobius mirabilis	Suckermouth minnow	2.3	1.3	X					
Little Wewoka Creek	OK520500-02-0090D	28043	07/29/03	133.	6	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Little Wewoka Creek	OK520500-02-0090D	28043	07/29/03	119.	1	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Little Wewoka Creek	OK520500-02-0090D	28043	07/29/03	130.	22	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Little Wewoka Creek	OK520500-02-0090D	28043	07/29/03	141.	5	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Little Wewoka Creek	OK520500-02-0090D	28043	07/29/03	135.	135	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Little Wewoka Creek	OK520500-02-0090D	28043	07/29/03	118.	78	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Little Wewoka Creek	OK520500-02-0090D	28043	07/29/03	28.	5	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Little Wewoka Creek	OK520500-02-0090D	28043	07/29/03	140.	16	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Canadian Sandy Creek	OK520600-03-0010D	27715	06/24/03	133.	1	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Canadian Sandy Creek	OK520600-03-0010D	27715	06/24/03	75.	7	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Canadian Sandy Creek	OK520600-03-0010D	27715	06/24/03	23.	3	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Canadian Sandy Creek	OK520600-03-0010D	27715	06/24/03	99.	9	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	
Canadian Sandy Creek	OK520600-03-0010D	27715	06/24/03	49.	2	Cyprinidae	Carps and minnows	Notropis atherinoides	Emerald shiner	3.2	3.2	X					
Canadian Sandy Creek	OK520600-03-0010D	27715	06/24/03	107.	2	Ictaluridae	Catfishes	Pylodictis olivaris	Flathead catfish	3.3	3			X			
Canadian Sandy Creek	OK520600-03-0010D	27715	06/24/03	130.	4	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Canadian Sandy Creek	OK520600-03-0010D	27715	06/24/03	141.	7	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Canadian Sandy Creek	OK520600-03-0010D	27715	06/24/03	135.	24	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Canadian Sandy Creek	OK520600-03-0010D	27715	06/24/03	118.	13	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Canadian Sandy Creek	OK520600-03-0010D	27715	06/24/03	28.	349	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Canadian Sandy Creek	OK520600-03-0010D	27715	06/24/03	136.	1	Centrarchidae	Sunfishes	Lepomis microlophus	Redear sunfish	3	2.87	X					
Canadian Sandy Creek	OK520600-03-0010D	27715	06/24/03	68.	27	Cyprinidae	Carps and minnows	Notropis stramineus	Sand shiner	2.7	2.5	X					
Canadian Sandy Creek	OK520600-03-0010D	27715	06/24/03	97.	4	Ictaluridae	Catfishes	Ameiurus natalis	Yellow bullhead catfish	3.6	3.2	X				X	
Gentry Creek	OK520700-01-0080L	27975	07/09/03	133.	49	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Gentry Creek	OK520700-01-0080L	27975	07/09/03	149.	3	Percidae	Perches	Etheostoma chlorosomum	Bluntnose darter	1.8	1.6	X					

Appendix B. Fish collection data.

Site Name	WBID	SAMPLEID	Date	RefNum	Number	Family	FamCom	Species	VernName	WQMean	HabMean	Insectivor	Omnivore	Piscivore	Herbivore	Generalist	Lithophilic Spawner
Gentry Creek	OK520700-01-0080L	27975	07/09/03	119.	18	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Gentry Creek	OK520700-01-0080L	27975	07/09/03	75.	9	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Gentry Creek	OK520700-01-0080L	27975	07/09/03	23.	12	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Gentry Creek	OK520700-01-0080L	27975	07/09/03	99.	2	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	
Gentry Creek	OK520700-01-0080L	27975	07/09/03	179.	2	Sciaenidae	Drums	Aplodinotus grunniens	Freshwater drum	3.2	3.2	X				X	
Gentry Creek	OK520700-01-0080L	27975	07/09/03	13.	26	Clupeidae	Shads and herrings	Dorosoma cepedianum	Gizzard shad	3.3	3.5		X				
Gentry Creek	OK520700-01-0080L	27975	07/09/03	46.	20	Cyprinidae	Carps and minnows	Notemigonus crysoleucas	Golden shiner	3.8	3.8		X				
Gentry Creek	OK520700-01-0080L	27975	07/09/03	130.	11	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Gentry Creek	OK520700-01-0080L	27975	07/09/03	141.	12	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Gentry Creek	OK520700-01-0080L	27975	07/09/03	167.	1	Percidae	Perches	Percina caprodes	Logperch	2.3	2.3	X					
Gentry Creek	OK520700-01-0080L	27975	07/09/03	135.	42	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Gentry Creek	OK520700-01-0080L	27975	07/09/03	118.	46	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Gentry Creek	OK520700-01-0080L	27975	07/09/03	132.	4	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
Gentry Creek	OK520700-01-0080L	27975	07/09/03	28.	29	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Gentry Creek	OK520700-01-0080L	27975	07/09/03	136.	13	Centrarchidae	Sunfishes	Lepomis microlophus	Redear sunfish	3	2.87	X					
Gentry Creek	OK520700-01-0080L	27975	07/09/03	164.	5	Percidae	Perches	Etheostoma whipplei	Redfin darter	2	1.8	X					X
Gentry Creek	OK520700-01-0080L	27975	07/09/03	79.	1	Catostomidae	Suckers	Carpiodes carpio	River carpsucker	3.5	3.5		X				
Gentry Creek	OK520700-01-0080L	27975	07/09/03	154.	7	Percidae	Perches	Etheostoma gracile	Slough darter	2.6	1.6	X					
Gentry Creek	OK520700-01-0080L	27975	07/09/03	140.	3	Centrarchidae	Sunfishes	Micropterus punctulatus	Spotted bass	2.3	2.5			X			X
Gentry Creek	OK520700-01-0080L	27975	07/09/03	131.	2	Centrarchidae	Sunfishes	Lepomis gulosus	Warmouth sunfish	3.2	3			X			
Gentry Creek	OK520700-01-0080L	27975	07/09/03	142.	61	Centrarchidae	Sunfishes	Pomoxis annularis	White crappie	3.4	3.2			X			
Gentry Creek	OK520700-01-0080L	27975	07/09/03	97.	5	Ictaluridae	Catfishes	Ameiurus natalis	Yellow bullhead catfish	3.6	3.2	X				X	
Salt Creek (Creek Co.)	OK520700-03-0100B	27714	06/11/03	75.	30	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Salt Creek (Creek Co.)	OK520700-03-0100B	27714	06/11/03	23.	1	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Salt Creek (Creek Co.)	OK520700-03-0100B	27714	06/11/03	99.	4	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	
Salt Creek (Creek Co.)	OK520700-03-0100B	27714	06/11/03	32.	2	Cyprinidae	Carps and minnows	Cyprinus carpio	Common carp	4	3.8		X				
Salt Creek (Creek Co.)	OK520700-03-0100B	27714	06/11/03	107.	3	Ictaluridae	Catfishes	Pylodictis olivaris	Flathead catfish	3.3	3			X			
Salt Creek (Creek Co.)	OK520700-03-0100B	27714	06/11/03	105.	2	Ictaluridae	Catfishes	Noturus nocturnus	Freckeled madtom	2.5	1.8	X					
Salt Creek (Creek Co.)	OK520700-03-0100B	27714	06/11/03	130.	5	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Salt Creek (Creek Co.)	OK520700-03-0100B	27714	06/11/03	141.	3	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Salt Creek (Creek Co.)	OK520700-03-0100B	27714	06/11/03	135.	34	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Salt Creek (Creek Co.)	OK520700-03-0100B	27714	06/11/03	118.	8	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Salt Creek (Creek Co.)	OK520700-03-0100B	27714	06/11/03	28.	197	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Salt Creek (Creek Co.)	OK520700-03-0100B	27714	06/11/03	164.	1	Percidae	Perches	Etheostoma whipplei	Redfin darter	2	1.8	X					X
Salt Creek (Creek Co.)	OK520700-03-0100B	27714	06/11/03	68.	1	Cyprinidae	Carps and minnows	Notropis stramineus	Sand shiner	2.7	2.5	X					
Salt Creek (Creek Co.)	OK520700-03-0100B	27714	06/11/03	87.	2	Catostomidae	Suckers	Ictiobus bubalus	Smallmouth buffalo	3.2	3.3	X					
Salt Creek (Creek Co.)	OK520700-03-0100B	27714	06/11/03	70.	1	Cyprinidae	Carps and minnows	Phenacobius mirabilis	Suckermouth minnow	2.3	1.3	X					
Camp Creek	OK520700-03-0220G	27713	06/09/03	133.	1	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Camp Creek	OK520700-03-0220G	27713	06/09/03	75.	17	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Camp Creek	OK520700-03-0220G	27713	06/09/03	23.	1	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X

Appendix B. Fish collection data.

Site Name	WBID	SAMPLEID	Date	RefNum	Number	Family	FamCom	Species	VernName	WQMean	HabMean	Insectivor	Omnivore	Piscivore	Herbivore	Generalist	Lithophilic Spawner
Camp Creek	OK520700-03-0220G	27713	06/09/03	99.	1	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	
Camp Creek	OK520700-03-0220G	27713	06/09/03	105.	3	Ictaluridae	Catfishes	Noturus nocturnus	Freckeled madtom	2.5	1.8	X					
Camp Creek	OK520700-03-0220G	27713	06/09/03	130.	7	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Camp Creek	OK520700-03-0220G	27713	06/09/03	141.	6	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Camp Creek	OK520700-03-0220G	27713	06/09/03	135.	118	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Camp Creek	OK520700-03-0220G	27713	06/09/03	118.	12	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Camp Creek	OK520700-03-0220G	27713	06/09/03	28.	169	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Camp Creek	OK520700-03-0220G	27713	06/09/03	68.	16	Cyprinidae	Carps and minnows	Notropis stramineus	Sand shiner	2.7	2.5	X					
Camp Creek	OK520700-03-0220G	27713	06/09/03	8.	2	Lepisosteidae	Gars	Lepisosteus platostomus	Shortnose gar	3.8	3.3			X			
Camp Creek	OK520700-03-0220G	27713	06/09/03	154.	1	Percidae	Perches	Etheostoma gracile	Slough darter	2.6	1.6	X					
Camp Creek	OK520700-03-0220G	27713	06/09/03	6.	3	Lepisosteidae	Gars	Lepisosteus oculatus	Spotted gar	3.5	2.7			X			
Dry Creek	OK520700-04-0020F	27718	06/20/03	133.	6	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Dry Creek	OK520700-04-0020F	27718	06/20/03	75.	34	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Dry Creek	OK520700-04-0020F	27718	06/20/03	23.	2	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Dry Creek	OK520700-04-0020F	27718	06/20/03	99.	1	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	
Dry Creek	OK520700-04-0020F	27718	06/20/03	32.	3	Cyprinidae	Carps and minnows	Cyprinus carpio	Common carp	4	3.8		X				
Dry Creek	OK520700-04-0020F	27718	06/20/03	107.	1	Ictaluridae	Catfishes	Pylodictis olivaris	Flathead catfish	3.3	3			X			
Dry Creek	OK520700-04-0020F	27718	06/20/03	130.	3	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Dry Creek	OK520700-04-0020F	27718	06/20/03	141.	5	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Dry Creek	OK520700-04-0020F	27718	06/20/03	135.	31	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Dry Creek	OK520700-04-0020F	27718	06/20/03	7.	5	Lepisosteidae	Gars	Lepisosteus osseus	Longnose gar	4	3.7			X			
Dry Creek	OK520700-04-0020F	27718	06/20/03	28.	191	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Dry Creek	OK520700-04-0020F	27718	06/20/03	8.	3	Lepisosteidae	Gars	Lepisosteus platostomus	Shortnose gar	3.8	3.3			X			
Dry Creek	OK520700-04-0020F	27718	06/20/03	173.	1	Percidae	Perches	Percina phoxocephala	Slenderhead darter	2.2	1.8	X					X
Dry Creek	OK520700-04-0020F	27718	06/20/03	6.	2	Lepisosteidae	Gars	Lepisosteus oculatus	Spotted gar	3.5	2.7			X			
Dry Creek	OK520700-04-0020F	27718	06/20/03	97.	1	Ictaluridae	Catfishes	Ameiurus natalis	Yellow bullhead catfish	3.6	3.2	X				X	
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	119.	4	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	75.	31	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	99.	13	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	130.	5	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	141.	1	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	135.	26	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	7.	2	Lepisosteidae	Gars	Lepisosteus osseus	Longnose gar	4	3.7			X			
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	118.	13	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	132.	11	Centrarchidae	Sunfishes	Lepomis humilis	Orangespotted sunfish	3.5	3.3	X					
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	28.	288	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	68.	25	Cyprinidae	Carps and minnows	Notropis stramineus	Sand shiner	2.7	2.5	X					
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	8.	8	Lepisosteidae	Gars	Lepisosteus platostomus	Shortnose gar	3.8	3.3			X			
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	173.	1	Percidae	Perches	Percina phoxocephala	Slenderhead darter	2.2	1.8	X					X
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	87.	2	Catostomidae	Suckers	Ictiobus bubalus	Smallmouth buffalo	3.2	3.3	X					

Appendix B. Fish collection data.

Site Name	WBID	SAMPLEID	Date	RefNum	Number	Family	FamCom	Species	VernName	WQMean	HabMean	Insectivor	Omnivore	Piscivore	Herbivore	Generalist	Lithophilic Spawner
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	6.	2	Lepisosteidae	Gars	Lepisosteus oculatus	Spotted gar	3.5	2.7			X			
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	14.	6	Clupeidae	Shads and herrings	Dorosoma petenense	Threadfin shad	2.3	2.8		X				
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	131.	1	Centrarchidae	Sunfishes	Lepomis gulosus	Warmouth sunfish	3.2	3			X			
Quapaw Creek	OK520700-04-0260C	27717	06/19/03	142.	1	Centrarchidae	Sunfishes	Pomoxis annularis	White crappie	3.4	3.2			X			
Deep Fork N. Canadian R.	OK520710-01-0010G	27670	06/30/03	133.	43	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Deep Fork N. Canadian R.	OK520710-01-0010G	27670	06/30/03	141.	3	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Deep Fork N. Canadian R.	OK520710-01-0010G	27670	06/30/03	135.	63	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Deep Fork N. Canadian R.	OK520710-01-0010G	27670	06/30/03	118.	53	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Deep Fork N. Canadian R.	OK520710-01-0010G	27670	06/30/03	28.	603	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Deep Fork N. Canadian R.	OK520710-01-0010G	27670	06/30/03	68.	36	Cyprinidae	Carps and minnows	Notropis stramineus	Sand shiner	2.7	2.5	X					
Deep Fork N. Canadian R.	OK520710-01-0010G	27670	06/30/03	142.	1	Centrarchidae	Sunfishes	Pomoxis annularis	White crappie	3.4	3.2			X			
Bird Creek	OK520800-01-0050G	28042	07/29/03	133.	6	Centrarchidae	Sunfishes	Lepomis macrochirus	Bluegill sunfish	3.2	3.2	X					
Bird Creek	OK520800-01-0050G	28042	07/29/03	119.	27	Atherinidae	Silversides	Labidesthes sicculus	Brook silverside	2.7	2	X					
Bird Creek	OK520800-01-0050G	28042	07/29/03	75.	15	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Bird Creek	OK520800-01-0050G	28042	07/29/03	23.	1	Cyprinidae	Carps and minnows	Campostoma anomalum	Central stoneroller	2.2	2				X		X
Bird Creek	OK520800-01-0050G	28042	07/29/03	99.	2	Ictaluridae	Catfishes	Ictalurus punctatus	Channel catfish	3.2	3.3			X		X	
Bird Creek	OK520800-01-0050G	28042	07/29/03	13.	3	Clupeidae	Shads and herrings	Dorosoma cepedianum	Gizzard shad	3.3	3.5		X				
Bird Creek	OK520800-01-0050G	28042	07/29/03	130.	2	Centrarchidae	Sunfishes	Lepomis cyanellus	Green sunfish	4	4	X				X	
Bird Creek	OK520800-01-0050G	28042	07/29/03	141.	32	Centrarchidae	Sunfishes	Micropterus salmoides	Largemouth bass	3.2	3.2			X			
Bird Creek	OK520800-01-0050G	28042	07/29/03	135.	12	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Bird Creek	OK520800-01-0050G	28042	07/29/03	118.	84	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Bird Creek	OK520800-01-0050G	28042	07/29/03	117.	1	Fundulidae	Topminnows	Fundulus zebrinus	Plains killifish	3.3	3.2	X					
Bird Creek	OK520800-01-0050G	28042	07/29/03	28.	142	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Bird Creek	OK520800-01-0050G	28042	07/29/03	79.	4	Catostomidae	Suckers	Carpiodes carpio	River carpsucker	3.5	3.5		X				
Bird Creek	OK520800-01-0050G	28042	07/29/03	68.	47	Cyprinidae	Carps and minnows	Notropis stramineus	Sand shiner	2.7	2.5	X					
Bird Creek	OK520800-01-0050G	28042	07/29/03	70.	18	Cyprinidae	Carps and minnows	Phenacobius mirabilis	Suckermouth minnow	2.3	1.3	X					
Bird Creek	OK520800-01-0050G	28042	07/29/03	97.	10	Ictaluridae	Catfishes	Ameiurus natalis	Yellow bullhead catfish	3.6	3.2	X				X	
Salt Creek (Seminole Co.)	OK520800-03-0010D	27716	06/25/03	75.	18	Cyprinidae	Carps and minnows	Pimephales vigilax	Bullhead minnow	3.6	3.4		X				
Salt Creek (Seminole Co.)	OK520800-03-0010D	27716	06/25/03	49.	21	Cyprinidae	Carps and minnows	Notropis atherinoides	Emerald shiner	3.2	3.2	X					
Salt Creek (Seminole Co.)	OK520800-03-0010D	27716	06/25/03	135.	3	Centrarchidae	Sunfishes	Lepomis megalotis	Longear sunfish	3.3	3	X					
Salt Creek (Seminole Co.)	OK520800-03-0010D	27716	06/25/03	118.	2	Poeciliidae	Livebearers	Gambusia affinis	Mosquitofish	4	4	X					
Salt Creek (Seminole Co.)	OK520800-03-0010D	27716	06/25/03	36.	2	Cyprinidae	Carps and minnows	Hybognathus placitus	Plains minnow	3.6	3				X		
Salt Creek (Seminole Co.)	OK520800-03-0010D	27716	06/25/03	28.	145	Cyprinidae	Carps and minnows	Cyprinella lutrensis	Red shiner	4	3.7		X				
Salt Creek (Seminole Co.)	OK520800-03-0010D	27716	06/25/03	68.	11	Cyprinidae	Carps and minnows	Notropis stramineus	Sand shiner	2.7	2.5	X					
Salt Creek (Seminole Co.)	OK520800-03-0010D	27716	06/25/03	70.	1	Cyprinidae	Carps and minnows	Phenacobius mirabilis	Suckermouth minnow	2.3	1.3	X					

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	Coody Creek	OK120400-01-0400F	29503	14-Jan-04	104	80	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Coody Creek	OK120400-01-0400F	29503	14-Jan-04	104	5	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Coody Creek	OK120400-01-0400F	29503	14-Jan-04	104	4	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Coody Creek	OK120400-01-0400F	29503	14-Jan-04	104	4	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Coody Creek	OK120400-01-0400F	29503	14-Jan-04	104	3	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Coody Creek	OK120400-01-0400F	29503	14-Jan-04	104	2	14.	Annelida	Oligochaeta	Haplotaxida	Naididae	Nais
riffle	Coody Creek	OK120400-01-0400F	29503	14-Jan-04	104	2	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
riffle	Coody Creek	OK120400-01-0400F	29503	14-Jan-04	104	1	9.	Annelida	Oligochaeta	Haplotaxida	Lumbricidae	
riffle	Coody Creek	OK120400-01-0400F	29503	14-Jan-04	104	1	35.	Arthropoda	Crustacea	Isopoda	Asellidae	Lirceus
riffle	Coody Creek	OK120400-01-0400F	29503	14-Jan-04	104	1	110.5	Arthropoda	Insecta	Diptera	Tabanidae	Chrysops
riffle	Coody Creek	OK120400-01-0400F	29503	14-Jan-04	104	1	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Coody Creek	OK120400-01-0400F	30654	26-Jul-04	102	24	99.5	Arthropoda	Insecta	Diptera	Ephydridae	
riffle	Coody Creek	OK120400-01-0400F	30654	26-Jul-04	102	3	19.2	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Quistadrilus
riffle	Coody Creek	OK120400-01-0400F	30654	26-Jul-04	102	2	86.	Arthropoda	Insecta	Diptera	Athericidae	Atherix
riffle	Coody Creek	OK120400-01-0400F	30654	26-Jul-04	102	1	80.	Arthropoda	Insecta	Coleoptera	Psephenidae	Ectopria
riffle	Coody Creek	OK120400-01-0400F	30654	26-Jul-04	102	1	270.5	Mollusca	Gastropoda	Basommatophora	Planorbidae	Planorbella
riffle	Coody Creek	OK120400-01-0400F	32044	18-Feb-05	103	46	37.	Arthropoda	Crustacea	Amphipoda	Gammaridae	Gammarus
riffle	Coody Creek	OK120400-01-0400F	32044	18-Feb-05	103	25	39.	Arthropoda	Crustacea	Amphipoda	Gammaridae	Stygonectes
riffle	Coody Creek	OK120400-01-0400F	32044	18-Feb-05	103	8	219.5	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	Oemopteryx
riffle	Coody Creek	OK120400-01-0400F	32044	18-Feb-05	103	5	122.5	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acentrella
riffle	Coody Creek	OK120400-01-0400F	32044	18-Feb-05	103	3	40.	Arthropoda	Crustacea	Amphipoda	Gammaridae	Synpleonia
riffle	Coody Creek	OK120400-01-0400F	32044	18-Feb-05	103	1	163.	Arthropoda	Insecta	Lepidoptera	Pyralidae	Parapoynx
riffle	Coody Creek	OK120400-01-0400F	32044	18-Feb-05	103	1	194.	Arthropoda	Insecta	Odonata	Macromiinae	
riffle	Coody Creek	OK120400-01-0400F	32044	18-Feb-05	103	1	271.	Mollusca	Gastropoda	Neotaenioglossa	Pleuroceridae	
veg	South Fk Dirty Creek	OK120400-02-0030F	32042	18-Feb-05	106	59	126.4	Arthropoda	Insecta	Ephemeroptera	Baetidae	Diphetor
veg	South Fk Dirty Creek	OK120400-02-0030F	32042	18-Feb-05	106	3	23.2	Arthropoda	Acari	Arcarina	Hygrobatidae	Atractides
veg	South Fk Dirty Creek	OK120400-02-0030F	32042	18-Feb-05	106	2	185.	Arthropoda	Insecta	Odonata	Gomphidae	Dromogomphus
veg	South Fk Dirty Creek	OK120400-02-0030F	32042	18-Feb-05	106	1	8.5	Annelida	Oligochaeta	Haplotaxida	Glossoscolecidae	Sparganophilus
veg	South Fk Dirty Creek	OK120400-02-0030F	32042	18-Feb-05	106	1	23.05	ARTHROPODA	Acari	Arcarina	Arrenuridae	Arrenurus
veg	South Fk Dirty Creek	OK120400-02-0030F	32042	18-Feb-05	106	1	149.5	Arthropoda	Insecta	Ephemeroptera	Polymitarcyidae	Ephoron
veg	South Fk Dirty Creek	OK120400-02-0030F	32042	18-Feb-05	106	1	162.	Arthropoda	Insecta	Lepidoptera	Pyralidae	Crambus
veg	South Fk Dirty Creek	OK120400-02-0030F	32042	18-Feb-05	106	1	219.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	
veg	South Fk Dirty Creek	OK120400-02-0030F	32042	18-Feb-05	106	1	277.	Mollusca	Pelecypoda	Veneroida	Sphaeriidae	Eupera
riffle	George's Fk Dirty Creek	OK120400-02-0110D	28014	15-Jul-03	89	56	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	George's Fk Dirty Creek	OK120400-02-0110D	28014	15-Jul-03	89	19	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	George's Fk Dirty Creek	OK120400-02-0110D	28014	15-Jul-03	89	3	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	George's Fk Dirty Creek	OK120400-02-0110D	28014	15-Jul-03	89	2	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	George's Fk Dirty Creek	OK120400-02-0110D	28014	15-Jul-03	89	2	99.	Arthropoda	Insecta	Diptera	Empididae	Hemerodromia
riffle	George's Fk Dirty Creek	OK120400-02-0110D	28014	15-Jul-03	89	2	275.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	Corbicula
riffle	George's Fk Dirty Creek	OK120400-02-0110D	28014	15-Jul-03	89	1	45.	Arthropoda	Insecta	Coleoptera	Dryopidae	Helichus
riffle	George's Fk Dirty Creek	OK120400-02-0110D	28014	15-Jul-03	89	1	87.5	Arthropoda	Insecta	Diptera	Ceratopogonidae	Atrichopogon
riffle	George's Fk Dirty Creek	OK120400-02-0110D	28014	15-Jul-03	89	1	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	George's Fk Dirty Creek	OK120400-02-0110D	28014	15-Jul-03	89	1	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	George's Fk Dirty Creek	OK120400-02-0110D	29504	14-Jan-04	434	363	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	George's Fk Dirty Creek	OK120400-02-0110D	29504	14-Jan-04	434	30	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	George's Fk Dirty Creek	OK120400-02-0110D	29504	14-Jan-04	434	12	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	George's Fk Dirty Creek	OK120400-02-0110D	29504	14-Jan-04	434	7	35.	Arthropoda	Crustacea	Isopoda	Asellidae	Lirceus
riffle	George's Fk Dirty Creek	OK120400-02-0110D	29504	14-Jan-04	434	6	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	George's Fk Dirty Creek	OK120400-02-0110D	29504	14-Jan-04	434	4	217.	Arthropoda	Insecta	Plecoptera	Perlodidae	Hydroperla
riffle	George's Fk Dirty Creek	OK120400-02-0110D	29504	14-Jan-04	434	3	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	George's Fk Dirty Creek	OK120400-02-0110D	29504	14-Jan-04	434	2	198.	Arthropoda	Insecta	Plecoptera	Capniidae	Allocapnia
riffle	George's Fk Dirty Creek	OK120400-02-0110D	29504	14-Jan-04	434	1	14.	Annelida	Oligochaeta	Haplotaxida	Naididae	Nais
riffle	George's Fk Dirty Creek	OK120400-02-0110D	29504	14-Jan-04	434	1	87.5	Arthropoda	Insecta	Diptera	Ceratopogonidae	Atrichopogon
riffle	George's Fk Dirty Creek	OK120400-02-0110D	29504	14-Jan-04	434	1	141.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenacron
riffle	George's Fk Dirty Creek	OK120400-02-0110D	29504	14-Jan-04	434	1	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	George's Fk Dirty Creek	OK120400-02-0110D	29504	14-Jan-04	434	1	181.3	ARTHROPODA	Insecta	Odonata	Corduliidae	Epitheca
riffle	George's Fk Dirty Creek	OK120400-02-0110D	29504	14-Jan-04	434	1	263.5	Mollusca	Gastropoda	Basommatophora	Lymnaeidae	Fossaria
riffle	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	103	49	23.27	ARTHROPODA	Acari	Arcarina	Protziidae	Wandesia
riffle	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	103	37	199.	Arthropoda	Insecta	Plecoptera	Capniidae	Capnia
riffle	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	103	4	115.	Arthropoda	Insecta	Diptera	Tipulidae	Dicranota
riffle	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	103	3	24.	Arthropoda	Acari	Arcarina	Trombidformes	
riffle	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	103	1	56.	Arthropoda	Insecta	Coleoptera	Elmidae	Hexacylloepus
riffle	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	103	1	81.	Arthropoda	Insecta	Coleoptera	Psephenidae	Psephenus
riffle	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	103	1	132.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	
riffle	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	103	1	181.	Arthropoda	Insecta	Odonata	Corduliidae	
riffle	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	103	1	235.5	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Ochrotrichia
riffle	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	103	1	240.	Arthropoda	Insecta	Trichoptera	Leptoceridae	Triaenodes
wood	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	124	37	23.27	ARTHROPODA	Acari	Arcarina	Protziidae	Wandesia
wood	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	124	37	199.	Arthropoda	Insecta	Plecoptera	Capniidae	Capnia
wood	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	124	11	115.	Arthropoda	Insecta	Diptera	Tipulidae	Dicranota
wood	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	124	3	24.	Arthropoda	Acari	Arcarina	Trombidformes	
wood	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	124	2	273.	MOLLUSCA	Pelecypoda	Bivalvia		
wood	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	124	1	56.	Arthropoda	Insecta	Coleoptera	Elmidae	Hexacylloepus
wood	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	124	1	97.	Arthropoda	Insecta	Diptera	Empididae	
wood	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	124	1	132.5	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Drunella
wood	George's Fk Dirty Creek	OK120400-02-0110D	30653	26-Jul-04	124	1	235.5	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Ochrotrichia
riffle	George's Fk Dirty Creek	OK120400-02-0110D	32043	18-Feb-05	93	24	170.	Arthropoda	Insecta	Megaloptera	Sialidae	Sialis
riffle	George's Fk Dirty Creek	OK120400-02-0110D	32043	18-Feb-05	93	14	170.5	Arthropoda	Insecta	Neuroptera	Sisyridae	
riffle	George's Fk Dirty Creek	OK120400-02-0110D	32043	18-Feb-05	93	12	99.65	Arthropoda	Insecta	Diptera	Ephydridae	Hydrellia
riffle	George's Fk Dirty Creek	OK120400-02-0110D	32043	18-Feb-05	93	12	199.5	Arthropoda	Insecta	Plecoptera	Capniidae	Mesocapnia
riffle	George's Fk Dirty Creek	OK120400-02-0110D	32043	18-Feb-05	93	11	208.	Arthropoda	Insecta	Plecoptera	Nemouridae	Nemoura
riffle	George's Fk Dirty Creek	OK120400-02-0110D	32043	18-Feb-05	93	6	205.	Arthropoda	Insecta	Plecoptera	Leuctridae	Zealeuctra
riffle	George's Fk Dirty Creek	OK120400-02-0110D	32043	18-Feb-05	93	3	16.	Annelida	Oligochaeta	Haplotaxida	Naididae	Pristina
riffle	George's Fk Dirty Creek	OK120400-02-0110D	32043	18-Feb-05	93	3	161.	Arthropoda	Insecta	Lepidoptera	Pyralidae	
riffle	George's Fk Dirty Creek	OK120400-02-0110D	32043	18-Feb-05	93	2	4.	Annelida	Hirudinea	Rhynchobdellida	Glossiphoniidae	
riffle	George's Fk Dirty Creek	OK120400-02-0110D	32043	18-Feb-05	93	1	3.7	Annelida	Hirudinea	Pharyngobdellida	Erpobdellidae	Mooreobdella
riffle	George's Fk Dirty Creek	OK120400-02-0110D	32043	18-Feb-05	93	1	22.	Arthropoda	Acari			
riffle	George's Fk Dirty Creek	OK120400-02-0110D	32043	18-Feb-05	93	1	23.	Arthropoda	Acari	Arcarina		

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	George's Fk Dirty Creek	OK120400-02-0110D	32043	18-Feb-05	93	1	271.	Mollusca	Gastropoda	Neotaenioglossa	Pleuroceridae	
riffle	Butler Creek	OK120400-02-0160D	29507	19-Feb-04	96	23	217.	Arthropoda	Insecta	Plecoptera	Perlodidae	Hydroperla
riffle	Butler Creek	OK120400-02-0160D	29507	19-Feb-04	96	22	35.	Arthropoda	Crustacea	Isopoda	Asellidae	Lirceus
riffle	Butler Creek	OK120400-02-0160D	29507	19-Feb-04	96	11	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Butler Creek	OK120400-02-0160D	29507	19-Feb-04	96	8	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Butler Creek	OK120400-02-0160D	29507	19-Feb-04	96	8	279.	Mollusca	Pelecypoda	Veneroida	Sphaeriidae	Sphaerium
riffle	Butler Creek	OK120400-02-0160D	29507	19-Feb-04	96	7	3.7	Annelida	Hirudinea	Pharyngobdellida	Erpobdellidae	Mooreobdella
riffle	Butler Creek	OK120400-02-0160D	29507	19-Feb-04	96	7	218.	Arthropoda	Insecta	Plecoptera	Perlodidae	Isoperla
riffle	Butler Creek	OK120400-02-0160D	29507	19-Feb-04	96	4	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Butler Creek	OK120400-02-0160D	29507	19-Feb-04	96	3	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Butler Creek	OK120400-02-0160D	29507	19-Feb-04	96	2	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Butler Creek	OK120400-02-0160D	29507	19-Feb-04	96	1	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	Butler Creek	OK120400-02-0160D	32038	17-Feb-05	107	27	180.	Arthropoda	Insecta	Odonata	Coenagrionidae	Enallagma
riffle	Butler Creek	OK120400-02-0160D	32038	17-Feb-05	107	12	120.51	Arthropoda	Insecta	Diptera	Tipulidae	Unidentified genus#1
riffle	Butler Creek	OK120400-02-0160D	32038	17-Feb-05	107	4	173.	Arthropoda	Insecta	Odonata	Aeshnidae	Basiaeschna
riffle	Butler Creek	OK120400-02-0160D	32038	17-Feb-05	107	4	191.3	Arthropoda	Insecta	Odonata	Gomphidae	Stylogomphus
riffle	Butler Creek	OK120400-02-0160D	32038	17-Feb-05	107	2	179.	Arthropoda	Insecta	Odonata	Coenagrionidae	Argia
riffle	Butler Creek	OK120400-02-0160D	32038	17-Feb-05	107	1	88.	Arthropoda	Insecta	Diptera	Ceratopogonidae	Forcipomyia
riffle	Elk Creek	OK120400-02-0190D	29509	19-Feb-04	115	46	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Elk Creek	OK120400-02-0190D	29509	19-Feb-04	115	17	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Elk Creek	OK120400-02-0190D	29509	19-Feb-04	115	11	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Elk Creek	OK120400-02-0190D	29509	19-Feb-04	115	8	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Elk Creek	OK120400-02-0190D	29509	19-Feb-04	115	7	14.	Annelida	Oligochaeta	Haplotaxida	Naididae	Nais
riffle	Elk Creek	OK120400-02-0190D	29509	19-Feb-04	115	6	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
riffle	Elk Creek	OK120400-02-0190D	29509	19-Feb-04	115	6	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Elk Creek	OK120400-02-0190D	29509	19-Feb-04	115	3	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Elk Creek	OK120400-02-0190D	29509	19-Feb-04	115	2	35.	Arthropoda	Crustacea	Isopoda	Asellidae	Lirceus
riffle	Elk Creek	OK120400-02-0190D	29509	19-Feb-04	115	1	3.7	Annelida	Hirudinea	Pharyngobdellida	Erpobdellidae	Mooreobdella
riffle	Elk Creek	OK120400-02-0190D	29509	19-Feb-04	115	1	30.	Arthropoda	Crustacea	Decapoda	Astacidae	
riffle	Elk Creek	OK120400-02-0190D	29509	19-Feb-04	115	1	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Elk Creek	OK120400-02-0190D	29509	19-Feb-04	115	1	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Elk Creek	OK120400-02-0190D	29509	19-Feb-04	115	1	141.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenacron
riffle	Elk Creek	OK120400-02-0190D	29509	19-Feb-04	115	1	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Elk Creek	OK120400-02-0190D	30657	27-Jul-04	106	75	195.	Arthropoda	Insecta	Odonata	Macromiinae	Macromia
riffle	Elk Creek	OK120400-02-0190D	30657	27-Jul-04	106	6	231.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Smicridea
riffle	Elk Creek	OK120400-02-0190D	30657	27-Jul-04	106	5	87.	Arthropoda	Insecta	Diptera	Ceratopogonidae	
riffle	Elk Creek	OK120400-02-0190D	30657	27-Jul-04	106	4	115.5	Arthropoda	Insecta	Diptera	Tipulidae	Erioptera
riffle	Elk Creek	OK120400-02-0190D	30657	27-Jul-04	106	2	11.5	Annelida	Oligochaeta	Haplotaxida	Naididae	Bratislavia
riffle	Elk Creek	OK120400-02-0190D	30657	27-Jul-04	106	2	16.	Annelida	Oligochaeta	Haplotaxida	Naididae	Pristina
riffle	Elk Creek	OK120400-02-0190D	30657	27-Jul-04	106	1	15.	Annelida	Oligochaeta	Haplotaxida	Naididae	Ophidonais
riffle	Elk Creek	OK120400-02-0190D	30657	27-Jul-04	106	1	28.8	Arthropoda	Crustacea	Amphipoda	Crangonyctidae	Stygobromus
riffle	Elk Creek	OK120400-02-0190D	32037	17-Feb-05	101	40	230.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Potamyia
riffle	Elk Creek	OK120400-02-0190D	32037	17-Feb-05	101	14	172.	Arthropoda	Insecta	Odonata	Aeshnidae	
riffle	Elk Creek	OK120400-02-0190D	32037	17-Feb-05	101	8	272.5	Mollusca	Gastropoda	Architaenioglossa	Viviparidae	Campeloma

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	Elk Creek	OK120400-02-0190D	32037	17-Feb-05	101	7	177.	Arthropoda	Insecta	Odonata	Calopterygidae	Hetaerina
riffle	Elk Creek	OK120400-02-0190D	32037	17-Feb-05	101	7	184.1	Arthropoda	Insecta	Odonata	Gomphidae	Arigomphus
riffle	Elk Creek	OK120400-02-0190D	32037	17-Feb-05	101	2	270.	Mollusca	Gastropoda	Basommatophora	Planorbidae	Menetus
riffle	Elk Creek	OK120400-02-0190D	32037	17-Feb-05	101	1	11.5	Annelida	Oligochaeta	Haplotaxida	Naididae	Bratislavia
riffle	Elk Creek	OK120400-02-0190D	32037	17-Feb-05	101	1	180.3	ARTHROPODA	Insecta	Odonata	Coenagrionidae	Telebasis
riffle	Elk Creek	OK120400-02-0190D	32037	17-Feb-05	101	1	181.5	Arthropoda	Insecta	Odonata	Corduliidae	Neurocordulia
riffle	Elk Creek	OK120400-02-0190D	32037	17-Feb-05	101	1	199.	Arthropoda	Insecta	Plecoptera	Capniidae	Capnia
riffle	Elk Creek	OK120400-02-0190D	32037	17-Feb-05	101	1	204.	Arthropoda	Insecta	Plecoptera	Leuctridae	Leuctra
riffle	Elk Creek	OK120400-02-0190D	32037	17-Feb-05	101	1	205.	Arthropoda	Insecta	Plecoptera	Leuctridae	Zealeuctra
riffle	Shady Grove Creek	OK120400-02-0240H	32036	17-Feb-05	87	10	185.	Arthropoda	Insecta	Odonata	Gomphidae	Dromogomphus
riffle	Shady Grove Creek	OK120400-02-0240H	32036	17-Feb-05	87	5	119.3	Arthropoda	Insecta	Diptera	Tipulidae	Pseudolimnophila
riffle	Shady Grove Creek	OK120400-02-0240H	32036	17-Feb-05	87	3	192.97	ARTHROPODA	Insecta	Odonata	Libellulidae	Plathemis
riffle	Shady Grove Creek	OK120400-02-0240H	32036	17-Feb-05	87	2	180.4	Arthropoda	Insecta	Odonata	Cordulegasteridae	
riffle	Shady Grove Creek	OK120400-02-0240H	32036	17-Feb-05	87	1	181.3	ARTHROPODA	Insecta	Odonata	Corduliidae	Epitheca
riffle	Shady Grove Creek	OK120400-02-0240H	32036	17-Feb-05	87	1	184.1	Arthropoda	Insecta	Odonata	Gomphidae	Arigomphus
riffle	Shady Grove Creek	OK120400-02-0240H	32036	17-Feb-05	87	1	223.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	Agapetus
riffle	Shady Grove Creek	OK120400-02-0240H	32036	17-Feb-05	87	1	248.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Wormaldia
riffle	Snake Creek	OK120410-01-0220G	28006	10-Jul-03	116	67	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Snake Creek	OK120410-01-0220G	28006	10-Jul-03	116	14	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Snake Creek	OK120410-01-0220G	28006	10-Jul-03	116	9	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Snake Creek	OK120410-01-0220G	28006	10-Jul-03	116	7	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Snake Creek	OK120410-01-0220G	28006	10-Jul-03	116	2	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Snake Creek	OK120410-01-0220G	28006	10-Jul-03	116	2	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Snake Creek	OK120410-01-0220G	28006	10-Jul-03	116	2	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	Snake Creek	OK120410-01-0220G	28006	10-Jul-03	116	2	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Snake Creek	OK120410-01-0220G	28006	10-Jul-03	116	2	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
riffle	Snake Creek	OK120410-01-0220G	28006	10-Jul-03	116	1	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Snake Creek	OK120410-01-0220G	28006	10-Jul-03	116	1	179.	Arthropoda	Insecta	Odonata	Coenagrionidae	Argia
riffle	Snake Creek	OK120410-01-0220G	29500	13-Jan-04	118	107	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Snake Creek	OK120410-01-0220G	29500	13-Jan-04	118	5	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Snake Creek	OK120410-01-0220G	29500	13-Jan-04	118	2	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Snake Creek	OK120410-01-0220G	29500	13-Jan-04	118	1	3.7	Annelida	Hirudinea	Pharyngobdellida	Erpobdellidae	Mooreobdella
riffle	Snake Creek	OK120410-01-0220G	29500	13-Jan-04	118	1	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Snake Creek	OK120410-01-0220G	29500	13-Jan-04	118	1	181.3	ARTHROPODA	Insecta	Odonata	Corduliidae	Epitheca
riffle	Snake Creek	OK120410-01-0220G	29500	13-Jan-04	118	1	217.	Arthropoda	Insecta	Plecoptera	Perlodidae	Hydroperla
riffle	Snake Creek	OK120410-01-0220G	30471	17-Jun-04	118	92	199.5	Arthropoda	Insecta	Plecoptera	Capniidae	Mesocapnia
riffle	Snake Creek	OK120410-01-0220G	30471	17-Jun-04	118	1	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
riffle	Snake Creek	OK120410-01-0220G	32039	17-Feb-05	106	21	176.	Arthropoda	Insecta	Odonata	Calopterygidae	Calopteryx
riffle	Snake Creek	OK120410-01-0220G	32039	17-Feb-05	106	14	274.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	
riffle	Snake Creek	OK120410-01-0220G	32039	17-Feb-05	106	7	175.	Arthropoda	Insecta	Odonata	Calopterygidae	
riffle	Snake Creek	OK120410-01-0220G	32039	17-Feb-05	106	6	20.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Tubifex
riffle	Snake Creek	OK120410-01-0220G	32039	17-Feb-05	106	6	30.	Arthropoda	Crustacea	Decapoda	Astacidae	
riffle	Snake Creek	OK120410-01-0220G	32039	17-Feb-05	106	2	186.	Arthropoda	Insecta	Odonata	Gomphidae	Erpetogomphus
riffle	Snake Creek	OK120410-01-0220G	32039	17-Feb-05	106	2	217.	Arthropoda	Insecta	Plecoptera	Perlodidae	Hydroperla

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	Snake Creek	OK120410-01-0220G	32039	17-Feb-05	106	1	115.5	Arthropoda	Insecta	Diptera	Tipulidae	Erioptera
riffle	Snake Creek	OK120410-01-0220G	32039	17-Feb-05	106	1	247.5	Arthropoda	Insecta	Trichoptera	Philopotamidae	Dolophilodes
riffle	Snake Creek	OK120410-01-0220G	32039	17-Feb-05	106	1	272.5	Mollusca	Gastropoda	Architaenioglossa	Viviparidae	Campeloma
riffle	Cloud Creek	OK120410-02-0010H	29508	19-Feb-04	324	215	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Cloud Creek	OK120410-02-0010H	29508	19-Feb-04	324	29	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Cloud Creek	OK120410-02-0010H	29508	19-Feb-04	324	25	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Cloud Creek	OK120410-02-0010H	29508	19-Feb-04	324	10	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Cloud Creek	OK120410-02-0010H	29508	19-Feb-04	324	9	14.	Annelida	Oligochaeta	Haplotaxida	Naididae	Nais
riffle	Cloud Creek	OK120410-02-0010H	29508	19-Feb-04	324	9	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Cloud Creek	OK120410-02-0010H	29508	19-Feb-04	324	8	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Cloud Creek	OK120410-02-0010H	29508	19-Feb-04	324	6	217.	Arthropoda	Insecta	Plecoptera	Perlodidae	Hydroperla
riffle	Cloud Creek	OK120410-02-0010H	29508	19-Feb-04	324	5	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Cloud Creek	OK120410-02-0010H	29508	19-Feb-04	324	2	8.5	Annelida	Oligochaeta	Haplotaxida	Glossoscolecidae	Sparganophilus
riffle	Cloud Creek	OK120410-02-0010H	29508	19-Feb-04	324	2	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Cloud Creek	OK120410-02-0010H	29508	19-Feb-04	324	2	214.	Arthropoda	Insecta	Plecoptera	Perlidae	Perlesta
riffle	Cloud Creek	OK120410-02-0010H	29508	19-Feb-04	324	1	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
riffle	Cloud Creek	OK120410-02-0010H	29508	19-Feb-04	324	1	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Polecat Creek	OK120420-02-0050D	28005	10-Jul-03	123	89	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Polecat Creek	OK120420-02-0050D	28005	10-Jul-03	123	7	229.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Hydropsyche
riffle	Polecat Creek	OK120420-02-0050D	28005	10-Jul-03	123	4	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Polecat Creek	OK120420-02-0050D	28005	10-Jul-03	123	3	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Polecat Creek	OK120420-02-0050D	28005	10-Jul-03	123	3	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Polecat Creek	OK120420-02-0050D	28005	10-Jul-03	123	3	179.	Arthropoda	Insecta	Odonata	Coenagrionidae	Argia
riffle	Polecat Creek	OK120420-02-0050D	28005	10-Jul-03	123	2	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Polecat Creek	OK120420-02-0050D	28005	10-Jul-03	123	2	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
riffle	Polecat Creek	OK120420-02-0050D	28005	10-Jul-03	123	2	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
riffle	Polecat Creek	OK120420-02-0050D	28005	10-Jul-03	123	2	237.5	Arthropoda	Insecta	Trichoptera	Leptoceridae	Ceraclea
riffle	Polecat Creek	OK120420-02-0050D	28005	10-Jul-03	123	1	8.5	Annelida	Oligochaeta	Haplotaxida	Glossoscolecidae	Sparganophilus
riffle	Polecat Creek	OK120420-02-0050D	28005	10-Jul-03	123	1	14.	Annelida	Oligochaeta	Haplotaxida	Naididae	Nais
riffle	Polecat Creek	OK120420-02-0050D	28005	10-Jul-03	123	1	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Polecat Creek	OK120420-02-0050D	28005	10-Jul-03	123	1	279.	Mollusca	Pelecypoda	Veneroida	Sphaeriidae	Sphaerium
riffle	Polecat Creek	OK120420-02-0050D	28005	10-Jul-03	123	1	285.5	Platyhelminthes	Turbellaria	Tricladida	Planariidae	Dugesia
riffle	Polecat Creek	OK120420-02-0050D	29499	13-Jan-04	115	65	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Polecat Creek	OK120420-02-0050D	29499	13-Jan-04	115	26	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Polecat Creek	OK120420-02-0050D	29499	13-Jan-04	115	6	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Polecat Creek	OK120420-02-0050D	29499	13-Jan-04	115	4	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
riffle	Polecat Creek	OK120420-02-0050D	29499	13-Jan-04	115	4	142.4	Arthropoda	Insecta	Ephemeroptera	Isonychiidae	Isonychia
riffle	Polecat Creek	OK120420-02-0050D	29499	13-Jan-04	115	3	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Polecat Creek	OK120420-02-0050D	29499	13-Jan-04	115	2	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Polecat Creek	OK120420-02-0050D	29499	13-Jan-04	115	2	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Polecat Creek	OK120420-02-0050D	29499	13-Jan-04	115	1	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Polecat Creek	OK120420-02-0050D	29499	13-Jan-04	115	1	167.	Arthropoda	Insecta	Megaloptera	Corydalidae	Corydalus
riffle	Polecat Creek	OK120420-02-0050D	29499	13-Jan-04	115	1	214.	Arthropoda	Insecta	Plecoptera	Perlidae	Perlesta
riffle	Polecat Creek	OK120420-02-0050D	30470	17-Jun-04	108	66	203.	Arthropoda	Insecta	Plecoptera	Leuctridae	

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	Polecat Creek	OK120420-02-0050D	30470	17-Jun-04	108	17	204.1	Arthropoda	Insecta	Plecoptera	Leuctridae	Paraleuctra
riffle	Polecat Creek	OK120420-02-0050D	30470	17-Jun-04	108	10	38.	Arthropoda	Crustacea	Amphipoda	Gammaridae	Stygobromus
riffle	Polecat Creek	OK120420-02-0050D	30470	17-Jun-04	108	2	184.1	Arthropoda	Insecta	Odonata	Gomphidae	Arigomphus
riffle	Polecat Creek	OK120420-02-0050D	30470	17-Jun-04	108	2	222.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	
riffle	Polecat Creek	OK120420-02-0050D	30470	17-Jun-04	108	1	80.	Arthropoda	Insecta	Coleoptera	Psephenidae	Ectopria
riffle	Polecat Creek	OK120420-02-0050D	30470	17-Jun-04	108	1	207.	Arthropoda	Insecta	Plecoptera	Nemouridae	Amphinemura
riffle	Polecat Creek	OK120420-02-0050D	30470	17-Jun-04	108	1	274.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	
riffle	Polecat Creek	OK120420-02-0050D	30470	17-Jun-04	108	1	277.	Mollusca	Pelecypoda	Veneroida	Sphaeriidae	Eupera
riffle	Polecat Creek	OK120420-02-0050D	32040	17-Feb-05	103	10	280.	Mollusca	Pelecypoda	Unionoida	Unionidae	
riffle	Polecat Creek	OK120420-02-0050D	32040	17-Feb-05	103	8	23.3	Arthropoda	Acari	Arcarina	Sperchonidae	Sperchonopsis
riffle	Polecat Creek	OK120420-02-0050D	32040	17-Feb-05	103	8	201.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	Alloperla
riffle	Polecat Creek	OK120420-02-0050D	32040	17-Feb-05	103	7	11.5	Annelida	Oligochaeta	Haplotaxida	Naididae	Bratislavia
riffle	Polecat Creek	OK120420-02-0050D	32040	17-Feb-05	103	2	197.	Arthropoda	Insecta	Plecoptera	Capniidae	
riffle	Polecat Creek	OK120420-02-0050D	32040	17-Feb-05	103	1	132.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	
riffle	Polecat Creek	OK120420-02-0050D	32040	17-Feb-05	103	1	212.	Arthropoda	Insecta	Plecoptera	Perlidae	Agnetina=Phasgan
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	21	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	20	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	17	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	10	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	10	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	6	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	4	81.	Arthropoda	Insecta	Coleoptera	Psephenidae	Psephenus
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	3	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	3	204.	Arthropoda	Insecta	Plecoptera	Leuctridae	Leuctra
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	3	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	2	32.	Arthropoda	Crustacea	Decapoda	Cambaridae	Orconectes
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	2	213.	Arthropoda	Insecta	Plecoptera	Perlidae	Neoperla
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	2	272.	Mollusca	Gastropoda	Neotaenioglossa	Pleuroceridae	Goniobasis
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	1	99.	Arthropoda	Insecta	Diptera	Empididae	Hemerodromia
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	1	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	1	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	1	139.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Leucrocuta
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	1	168.	Arthropoda	Insecta	Megaloptera	Corydalidae	Nigronia
riffle	Ballard Creek	OK121700-03-0370G	27954	07-Jul-03	110	1	225.	Arthropoda	Insecta	Trichoptera	Helicopsychidae	Helicopsyche
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	17	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	14	35.	Arthropoda	Crustacea	Isopoda	Asellidae	Lirceus
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	10	145.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	Leptophlebia
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	10	219.5	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	Oemopteryx
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	8	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	8	220.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	Strophopteryx
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	7	142.4	Arthropoda	Insecta	Ephemeroptera	Isonychiidae	Isonychia
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	4	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	4	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	4	218.	Arthropoda	Insecta	Plecoptera	Perlodidae	Isoperla

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	3	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	3	122.5	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acentrella
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	3	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	3	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	2	141.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenacron
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	1	98.	Arthropoda	Insecta	Diptera	Empididae	Clinocera
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	1	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	1	139.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Leucrocuta
riffle	Ballard Creek	OK121700-03-0370G	29511	14-Jan-04	104	1	213.	Arthropoda	Insecta	Plecoptera	Perlidae	Neoperla
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	42	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	14	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	12	142.4	Arthropoda	Insecta	Ephemeroptera	Isonychiidae	Isonychia
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	10	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	8	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	7	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	7	139.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Leucrocuta
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	7	167.	Arthropoda	Insecta	Megaloptera	Corydalidae	Corydalus
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	6	81.	Arthropoda	Insecta	Coleoptera	Psephenidae	Psephenus
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	5	32.	Arthropoda	Crustacea	Decapoda	Cambaridae	Orconectes
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	5	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	4	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	3	9.	Annelida	Oligochaeta	Haplotaxida	Lumbricidae	
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	3	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	3	285.5	Platyhelminthes	Turbellaria	Tricladida	Planariidae	Dugesia
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	2	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	1	1.5	Annelida	Branchiobdellida			
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	1	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	1	143.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	
riffle	Ballard Creek	OK121700-03-0370G	30648	22-Jul-04	143	1	188.5	Arthropoda	Insecta	Odonata	Gomphidae	Lanthus
riffle	Ballard Creek	OK121700-03-0370G	31956	14-Feb-05	105	41	281.25	Nematomorpha				
riffle	Ballard Creek	OK121700-03-0370G	31956	14-Feb-05	105	9	232.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	
riffle	Ballard Creek	OK121700-03-0370G	31956	14-Feb-05	105	3	119.3	Arthropoda	Insecta	Diptera	Tipulidae	Pseudolimnophila
riffle	Ballard Creek	OK121700-03-0370G	31956	14-Feb-05	105	3	133.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Ephemerella
riffle	Ballard Creek	OK121700-03-0370G	31956	14-Feb-05	105	3	222.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	
riffle	Ballard Creek	OK121700-03-0370G	31956	14-Feb-05	105	2	99.65	Arthropoda	Insecta	Diptera	Ephydridae	Hydrellia
riffle	Ballard Creek	OK121700-03-0370G	31956	14-Feb-05	105	2	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	Ballard Creek	OK121700-03-0370G	31956	14-Feb-05	105	2	129.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Pseudocloeon
riffle	Ballard Creek	OK121700-03-0370G	31956	14-Feb-05	105	2	141.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenacron
riffle	Ballard Creek	OK121700-03-0370G	31956	14-Feb-05	105	1	169.	Arthropoda	Insecta	Megaloptera	Sialidae	
riffle	Battle Creek	OK121700-06-0040G	27953	07-Jul-03	97	39	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Battle Creek	OK121700-06-0040G	27953	07-Jul-03	97	13	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
riffle	Battle Creek	OK121700-06-0040G	27953	07-Jul-03	97	11	272.	Mollusca	Gastropoda	Neotaenioglossa	Pleuroceridae	Goniobasis
riffle	Battle Creek	OK121700-06-0040G	27953	07-Jul-03	97	10	81.	Arthropoda	Insecta	Coleoptera	Psephenidae	Psephenus
riffle	Battle Creek	OK121700-06-0040G	27953	07-Jul-03	97	6	59.	Arthropoda	Insecta	Coleoptera	Elmidae	Optioservus

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	Battle Creek	OK121700-06-0040G	27953	07-Jul-03	97	6	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
riffle	Battle Creek	OK121700-06-0040G	27953	07-Jul-03	97	2	31.1	Arthropoda	Crustacea	Decapoda	Cambaridae	Cambarus
riffle	Battle Creek	OK121700-06-0040G	27953	07-Jul-03	97	2	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Battle Creek	OK121700-06-0040G	27953	07-Jul-03	97	2	188.5	Arthropoda	Insecta	Odonata	Gomphidae	Lanthus
riffle	Battle Creek	OK121700-06-0040G	27953	07-Jul-03	97	2	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
riffle	Battle Creek	OK121700-06-0040G	27953	07-Jul-03	97	1	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Battle Creek	OK121700-06-0040G	27953	07-Jul-03	97	1	173.4	Arthropoda	Insecta	Odonata	Aeshnidae	Boyeria
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	33	81.	Arthropoda	Insecta	Coleoptera	Psephenidae	Psephenus
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	22	59.	Arthropoda	Insecta	Coleoptera	Elmidae	Optioservus
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	11	122.5	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acentrella
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	7	272.	Mollusca	Gastropoda	Neotaenioglossa	Pleuroceridae	Goniobasis
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	4	35.	Arthropoda	Crustacea	Isopoda	Asellidae	Lirceus
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	4	134.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Eurylophella
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	4	188.5	Arthropoda	Insecta	Odonata	Gomphidae	Lanthus
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	4	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	3	28.	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	3	133.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Ephemerella
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	2	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	2	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	2	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	2	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	2	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	1	8.5	Annelida	Oligochaeta	Haplotaxida	Glossoscolecidae	Sparganophilus
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	1	17.	Annelida	Oligochaeta	Haplotaxida	Naididae	Slavina
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	1	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	1	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	1	218.	Arthropoda	Insecta	Plecoptera	Perlodidae	Isoperla
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	1	262.	Mollusca	Gastropoda	Basommatophora	Ancylidae	Ferrissia
riffle	Battle Creek	OK121700-06-0040G	29510	14-Jan-04	112	1	281.5	Nemertea	Enopla	Hoplonemertea	Tetrastemmatidae	Prostoma
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	25	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	24	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	16	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	12	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	5	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	4	81.	Arthropoda	Insecta	Coleoptera	Psephenidae	Psephenus
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	4	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	4	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	4	139.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Leucrocuta
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	4	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	4	204.	Arthropoda	Insecta	Plecoptera	Leuctridae	Leuctra
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	2	28.	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	2	143.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	2	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	1	99.	Arthropoda	Insecta	Diptera	Empididae	Hemerodromia

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	1	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	1	122.5	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acentrella
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	1	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	1	250.	Arthropoda	Insecta	Trichoptera	Polycentropodidae	Cyrnellus
riffle	Battle Creek	OK121700-06-0040G	30647	22-Jul-04	118	1	285.5	Platyhelminthes	Turbellaria	Tricladida	Planariidae	Dugesia
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	36	180.1	Arthropoda	Insecta	Odonata	Coenagrionidae	Ischnura
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	18	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	6	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	6	234.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Hydroptila
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	5	44.	Arthropoda	Insecta	Coleoptera	Dryopidae	
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	5	81.	Arthropoda	Insecta	Coleoptera	Psephenidae	Psephenus
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	5	130.1	Arthropoda	Insecta	Ephemeroptera	Caenidae	Brachycercus
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	4	45.	Arthropoda	Insecta	Coleoptera	Dryopidae	Helichus
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	4	144.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	Choroterpes
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	2	38.	Arthropoda	Crustacea	Amphipoda	Gammaridae	Stygobromus
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	2	107.5	Arthropoda	Insecta	Diptera	Stratiomyidae	Euparyphus
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	2	142.4	Arthropoda	Insecta	Ephemeroptera	Isonychiidae	Isonychia
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	2	189.	Arthropoda	Insecta	Odonata	Gomphidae	Ophiogomphus
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	2	211.5	Arthropoda	Insecta	Plecoptera	Perlidae	Anacroneuria
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	1	26.5	Arthropoda	Crustacea	Amphipoda	Crangonyctidae	
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	1	134.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Eurylophella
riffle	Battle Creek	OK121700-06-0040G	31955	14-Feb-05	124	1	172.	Arthropoda	Insecta	Odonata	Aeshnidae	
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	30	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	19	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	17	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	13	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	8	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	6	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	5	139.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Leucrocuta
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	4	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	4	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	4	141.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenacron
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	4	143.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	3	17.	Annelida	Oligochaeta	Haplotaxida	Naididae	Slavina
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	3	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	2	30.	Arthropoda	Crustacea	Decapoda	Astacidae	
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	2	275.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	Corbicula
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	1	18.2	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Branchiura
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	1	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	1	87.75	Arthropoda	Insecta	Diptera	Ceratopogonidae	Dasyhelea
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	1	127.5	Arthropoda	Insecta	Ephemeroptera	Baetidae	Labiobaetis
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	1	142.4	Arthropoda	Insecta	Ephemeroptera	Isonychiidae	Isonychia
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	1	170.	Arthropoda	Insecta	Megaloptera	Sialidae	Sialis
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	1	180.	Arthropoda	Insecta	Odonata	Coenagrionidae	Enallagma

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	Brazil Creek	OK220100-03-0010G	27942	09-Jul-03	135	1	187.	Arthropoda	Insecta	Odonata	Gomphidae	Gomphus
riffle	Brazil Creek	OK220100-03-0010G	29515	16-Jan-04	120	42	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Brazil Creek	OK220100-03-0010G	29515	16-Jan-04	120	24	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Brazil Creek	OK220100-03-0010G	29515	16-Jan-04	120	22	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Brazil Creek	OK220100-03-0010G	29515	16-Jan-04	120	15	198.	Arthropoda	Insecta	Plecoptera	Capniidae	Allocapnia
riffle	Brazil Creek	OK220100-03-0010G	29515	16-Jan-04	120	3	220.5	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	Taeniopteryx
riffle	Brazil Creek	OK220100-03-0010G	29515	16-Jan-04	120	2	28.	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
riffle	Brazil Creek	OK220100-03-0010G	29515	16-Jan-04	120	2	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Brazil Creek	OK220100-03-0010G	29515	16-Jan-04	120	2	98.	Arthropoda	Insecta	Diptera	Empididae	Clinocera
riffle	Brazil Creek	OK220100-03-0010G	29515	16-Jan-04	120	2	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Brazil Creek	OK220100-03-0010G	29515	16-Jan-04	120	1	18.2	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Branchiura
riffle	Brazil Creek	OK220100-03-0010G	29515	16-Jan-04	120	1	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Brazil Creek	OK220100-03-0010G	29515	16-Jan-04	120	1	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Brazil Creek	OK220100-03-0010G	29515	16-Jan-04	120	1	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Brazil Creek	OK220100-03-0010G	29515	16-Jan-04	120	1	218.	Arthropoda	Insecta	Plecoptera	Perlodidae	Isoperla
riffle	Brazil Creek	OK220100-03-0010G	29515	16-Jan-04	120	1	275.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	Corbicula
riffle	Brazil Creek	OK220100-03-0010G	32046	22-Feb-05	109	9	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	Brazil Creek	OK220100-03-0010G	32046	22-Feb-05	109	4	87.5	Arthropoda	Insecta	Diptera	Ceratopogonidae	Atrichopogon
riffle	Brazil Creek	OK220100-03-0010G	32046	22-Feb-05	109	4	98.	Arthropoda	Insecta	Diptera	Empididae	Clinocera
riffle	Brazil Creek	OK220100-03-0010G	32046	22-Feb-05	109	4	204.	Arthropoda	Insecta	Plecoptera	Leuctridae	Leuctra
riffle	Brazil Creek	OK220100-03-0010G	32046	22-Feb-05	109	2	210.	Arthropoda	Insecta	Plecoptera	Perlidae	
riffle	Brazil Creek	OK220100-03-0010G	32046	22-Feb-05	109	1	23.25	Arthropoda	Acari	Arcarina	Lebertiidae	Lebertia
riffle	Brazil Creek	OK220100-03-0010G	32046	22-Feb-05	109	1	26.5	Arthropoda	Crustacea	Amphipoda	Crangonyctidae	
riffle	Brazil Creek	OK220100-03-0010G	32046	22-Feb-05	109	1	107.	Arthropoda	Insecta	Diptera	Stratiomyidae	Caloparyphus
riffle	Brazil Creek	OK220100-03-0010G	32046	22-Feb-05	109	1	107.5	Arthropoda	Insecta	Diptera	Stratiomyidae	Euparyphus
riffle	Brazil Creek	OK220100-03-0010G	32046	22-Feb-05	109	1	222.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	
riffle	Brazil Creek	OK220100-03-0010G	32046	22-Feb-05	109	1	274.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	
riffle	Brazil Creek	OK220100-03-0010G	32046	22-Feb-05	109	1	281.25	Nematomorpha				
riffle	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	120	37	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	120	23	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	120	13	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	120	10	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
riffle	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	120	8	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	120	6	139.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Leucrocuta
riffle	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	120	3	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	120	3	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	120	3	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	120	2	31.1	Arthropoda	Crustacea	Decapoda	Cambaridae	Cambarus
riffle	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	120	2	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	120	2	179.	Arthropoda	Insecta	Odonata	Coenagrionidae	Argia
riffle	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	120	1	18.2	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Branchiura
riffle	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	120	1	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	120	1	141.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenacron
riffle	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	120	1	229.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Hydropsyche

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	38	127.5	Arthropoda	Insecta	Ephemeroptera	Baetidae	Labiobaetis
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	8	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	6	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	6	141.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenacron
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	5	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	5	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	5	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	4	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	4	180.	Arthropoda	Insecta	Odonata	Coenagrionidae	Enallagma
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	2	33.	ARTHROPODA	Crustacea	Decapoda	Palaemonidae	Palaemonetes
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	2	53.5	Arthropoda	Insecta	Coleoptera	Elmidae	Ancyronyx
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	2	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	2	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	1	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	1	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	1	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
veg	Fourche Maline Creek	OK220100-04-0010M	27943	09-Jul-03	109	1	179.	Arthropoda	Insecta	Odonata	Coenagrionidae	Argia
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	24	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	15	198.	Arthropoda	Insecta	Plecoptera	Capniidae	Allocapnia
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	10	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	6	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	5	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	4	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	4	145.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	Leptophlebia
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	3	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	2	120.	Arthropoda	Insecta	Diptera	Tipulidae	Tipula
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	2	210.	Arthropoda	Insecta	Plecoptera	Perlidae	
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	2	220.5	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	Taeniopteryx
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	1	9.	Annelida	Oligochaeta	Haplotaxida	Lumbricidae	
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	1	28.	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	1	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	1	81.	Arthropoda	Insecta	Coleoptera	Psephenidae	Psephenus
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	1	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	1	134.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Eurylophella
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	1	141.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenacron
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	1	243.5	Arthropoda	Insecta	Trichoptera	Limnephilidae	Pycnopsyche
riffle	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	88	1	279.	Mollusca	Pelecypoda	Veneroida	Sphaeriidae	Sphaerium
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	20	33.	ARTHROPODA	Crustacea	Decapoda	Palaemonidae	Palaemonetes
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	20	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	16	145.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	Leptophlebia
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	8	243.5	Arthropoda	Insecta	Trichoptera	Limnephilidae	Pycnopsyche
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	6	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	5	220.5	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	Taeniopteryx
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	4	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	3	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	3	134.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Eurylophella
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	3	198.	Arthropoda	Insecta	Plecoptera	Capniidae	Allocapnia
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	3	269.	Mollusca	Gastropoda	Basommatophora	Planorbidae	Gyraulus
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	2	28.	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	2	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	2	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	1	91.	Arthropoda	Insecta	Diptera	Chironomidae	Diamesinae
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	1	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	1	180.	Arthropoda	Insecta	Odonata	Coenagrionidae	Enallagma
veg	Fourche Maline Creek	OK220100-04-0010M	29516	16-Jan-04	101	1	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	106	19	119.3	Arthropoda	Insecta	Diptera	Tipulidae	Pseudolimnophila
riffle	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	106	18	53.5	Arthropoda	Insecta	Coleoptera	Elmidae	Ancyronyx
riffle	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	106	16	56.	Arthropoda	Insecta	Coleoptera	Elmidae	Hexacylloepus
riffle	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	106	13	277.	Mollusca	Pelecypoda	Veneroida	Sphaeriidae	Eupera
riffle	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	106	4	55.	Arthropoda	Insecta	Coleoptera	Elmidae	Heterelmis
riffle	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	106	4	111.	Arthropoda	Insecta	Diptera	Tabanidae	Tabanus
riffle	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	106	3	15.	Annelida	Oligochaeta	Haplotaxida	Naididae	Ophidonais
riffle	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	106	3	101.8	Arthropoda	Insecta	Diptera	Sciomyzidae	
riffle	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	106	3	114.5	Arthropoda	Insecta	Diptera	Tipulidae	Dactylolabis
riffle	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	106	3	214.5	ARTHROPODA	Insecta	Plecoptera	Perlidae	Perlinella
riffle	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	106	2	199.5	Arthropoda	Insecta	Plecoptera	Capniidae	Mesocapnia
riffle	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	106	2	272.5	Mollusca	Gastropoda	Architaenioglossa	Viviparidae	Campeloma
riffle	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	106	1	18.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	
riffle	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	106	1	125.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Centroptilum
riffle	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	106	1	204.	Arthropoda	Insecta	Plecoptera	Leuctridae	Leuctra
riffle	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	106	1	230.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Potamyia
wood	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	102	13	53.5	Arthropoda	Insecta	Coleoptera	Elmidae	Ancyronyx
wood	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	102	1	56.	Arthropoda	Insecta	Coleoptera	Elmidae	Hexacylloepus
wood	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	102	1	111.	Arthropoda	Insecta	Diptera	Tabanidae	Tabanus
wood	Fourche Maline Creek	OK220100-04-0010M	32047	22-Feb-05	102	1	199.5	Arthropoda	Insecta	Plecoptera	Capniidae	Mesocapnia
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	24	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	23	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	14	143.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	12	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	11	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	10	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	9	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	9	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	4	179.	Arthropoda	Insecta	Odonata	Coenagrionidae	Argia
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	3	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	2	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	2	139.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Leucrocuta
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	2	213.	Arthropoda	Insecta	Plecoptera	Perlidae	Neoperla

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	1	18.2	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Branchiura
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	1	23.2	Arthropoda	Acari	Arcarina	Hygrobatidae	Atractides
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	1	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	1	99.	Arthropoda	Insecta	Diptera	Empididae	Hemerodromia
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	27956	07-Jul-03	130	1	149.5	Arthropoda	Insecta	Ephemeroptera	Polymitarcyidae	Ephoron
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	29642	18-Feb-04	139	95	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	29642	18-Feb-04	139	9	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	29642	18-Feb-04	139	6	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	29642	18-Feb-04	139	4	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	29642	18-Feb-04	139	4	198.	Arthropoda	Insecta	Plecoptera	Capniidae	Allocapnia
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	29642	18-Feb-04	139	3	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	29642	18-Feb-04	139	3	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	29642	18-Feb-04	139	3	103.	Arthropoda	Insecta	Diptera	Simuliidae	Prosimulium
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	29642	18-Feb-04	139	3	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	29642	18-Feb-04	139	2	219.5	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	Oemopteryx
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	29642	18-Feb-04	139	1	9.	Annelida	Oligochaeta	Haplotaxida	Lumbricidae	
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	29642	18-Feb-04	139	1	58.	Arthropoda	Insecta	Coleoptera	Elmidae	Microcylloepus
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	29642	18-Feb-04	139	1	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	29642	18-Feb-04	139	1	133.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Ephemerella
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	29642	18-Feb-04	139	1	217.	Arthropoda	Insecta	Plecoptera	Perlodidae	Hydroperla
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	29642	18-Feb-04	139	1	267.	Mollusca	Gastropoda	Basommatophora	Physidae	Physella
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	39	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	14	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	11	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	9	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	7	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	7	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	6	146.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	Neochoroterpes
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	5	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	5	167.	Arthropoda	Insecta	Megaloptera	Corydalidae	Corydalus
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	3	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	3	142.4	Arthropoda	Insecta	Ephemeroptera	Isonychiidae	Isonychia
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	3	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	2	81.	Arthropoda	Insecta	Coleoptera	Psephenidae	Psephenus
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	2	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	2	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	1	9.	Annelida	Oligochaeta	Haplotaxida	Lumbricidae	
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	1	58.	Arthropoda	Insecta	Coleoptera	Elmidae	Microcylloepus
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	1	99.	Arthropoda	Insecta	Diptera	Empididae	Hemerodromia
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	1	128.8	Arthropoda	Insecta	Ephemeroptera	Baetidae	Procloeon
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	1	229.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Hydropsyche
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	30650	22-Jul-04	124	1	275.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	Corbicula
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	31958	14-Feb-05	108	52	137.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	31958	14-Feb-05	108	20	87.7	ARTHROPODA	Insecta	Diptera	Ceratopogonidae	Culicoides

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	31958	14-Feb-05	108	9	274.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	31958	14-Feb-05	108	7	143.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	31958	14-Feb-05	108	3	127.5	Arthropoda	Insecta	Ephemeroptera	Baetidae	Labiobaetis
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	31958	14-Feb-05	108	3	161.5	ARTHROPODA	Insecta	Lepidoptera	Pyralidae	Acentria
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	31958	14-Feb-05	108	3	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	31958	14-Feb-05	108	3	229.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Hydropsyche
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	31958	14-Feb-05	108	1	32.	Arthropoda	Crustacea	Decapoda	Cambaridae	Orconectes
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	31958	14-Feb-05	108	1	53.	Arthropoda	Insecta	Coleoptera	Elmidae	
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	31958	14-Feb-05	108	1	57.	Arthropoda	Insecta	Coleoptera	Elmidae	Macronychus
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	31958	14-Feb-05	108	1	107.7	Arthropoda	Insecta	Diptera	Stratiomyidae	Myxosargus
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	31958	14-Feb-05	108	1	130.	Arthropoda	Insecta	Ephemeroptera	Caenidae	
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	31958	14-Feb-05	108	1	170.6	Arthropoda	Insecta	Neuroptera	Sisyridae	Climacia
riffle	Sallisaw Creek: Lower	OK220200-03-0010C	31958	14-Feb-05	108	1	192.83	ARTHROPODA	Insecta	Odonata	Libellulidae	Macrothemis
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	22	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	21	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	16	139.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Leucrocuta
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	15	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	13	141.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenacron
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	8	81.	Arthropoda	Insecta	Coleoptera	Psephenidae	Psephenus
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	7	1.5	Annelida	Branchiobdellida			
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	7	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	5	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	5	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	5	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	5	213.	Arthropoda	Insecta	Plecoptera	Perlidae	Neoperla
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	3	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	2	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	1	9.	Annelida	Oligochaeta	Haplotaxida	Lumbricidae	
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	1	30.	Arthropoda	Crustacea	Decapoda	Astacidae	
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	1	142.4	Arthropoda	Insecta	Ephemeroptera	Isonychiidae	Isonychia
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	1	143.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	1	188.5	Arthropoda	Insecta	Odonata	Gomphidae	Lanthus
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	27955	07-Jul-03	140	1	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	39	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	18	218.	Arthropoda	Insecta	Plecoptera	Perlodidae	Isoperla
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	10	9.	Annelida	Oligochaeta	Haplotaxida	Lumbricidae	
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	6	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	4	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	3	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	3	219.5	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	Oemopteryx
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	2	34.5	Arthropoda	Crustacea	Isopoda	Asellidae	Asellus
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	2	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	2	120.	Arthropoda	Insecta	Diptera	Tipulidae	Tipula
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	2	122.5	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acentrella

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	2	141.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenacron
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	2	143.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	1	14.	Annelida	Oligochaeta	Haplotaxida	Naididae	Nais
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	1	35.	Arthropoda	Crustacea	Isopoda	Asellidae	Lirceus
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	1	36.	Arthropoda	Crustacea	Amphipoda	Gammaridae	
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	1	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	1	98.	Arthropoda	Insecta	Diptera	Empididae	Clinocera
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	1	133.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Ephemerella
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	29641	18-Feb-04	102	1	134.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Eurylophella
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	30649	22-Jul-04	116	28	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	30649	22-Jul-04	116	21	81.	Arthropoda	Insecta	Coleoptera	Psephenidae	Psephenus
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	30649	22-Jul-04	116	18	146.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	Neochoroterpes
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	30649	22-Jul-04	116	11	141.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenacron
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	30649	22-Jul-04	116	8	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	30649	22-Jul-04	116	6	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	30649	22-Jul-04	116	6	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	30649	22-Jul-04	116	5	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	30649	22-Jul-04	116	4	139.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Leucrocuta
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	30649	22-Jul-04	116	2	9.	Annelida	Oligochaeta	Haplotaxida	Lumbricidae	
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	30649	22-Jul-04	116	2	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	30649	22-Jul-04	116	2	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	30649	22-Jul-04	116	1	32.	Arthropoda	Crustacea	Decapoda	Cambaridae	Orconectes
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	30649	22-Jul-04	116	1	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	30649	22-Jul-04	116	1	122.5	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acentrella
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	36	146.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	Neochoroterpes
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	22	184.1	Arthropoda	Insecta	Odonata	Gomphidae	Arigomphus
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	9	214.5	ARTHROPODA	Insecta	Plecoptera	Perlidae	Perlinella
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	7	148.	Arthropoda	Insecta	Ephemeroptera	Oligoneuriidae	
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	4	101.8	Arthropoda	Insecta	Diptera	Sciomyzidae	
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	3	31.1	Arthropoda	Crustacea	Decapoda	Cambaridae	Cambarus
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	2	18.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	2	23.25	Arthropoda	Acari	Arcarina	Lebertiidae	Lebertia
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	2	34.5	Arthropoda	Crustacea	Isopoda	Asellidae	Asellus
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	2	110.	Arthropoda	Insecta	Diptera	Tabanidae	
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	2	112.	Arthropoda	Insecta	Diptera	Tipulidae	
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	2	122.5	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acentrella
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	2	124.5	ARTHROPODA	Insecta	Ephemeroptera	Baetidae	Camelobaetidius
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	1	13.	Annelida	Oligochaeta	Haplotaxida	Naididae	Dero
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	1	103.	Arthropoda	Insecta	Diptera	Simuliidae	Prosimulium
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	1	223.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	Agapetus
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	1	229.3	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Macrostemum
riffle	Sallisaw Creek: Upper	OK220200-03-0010G	31957	14-Feb-05	108	1	230.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Potamyia
riffle	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	100	22	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	100	21	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	100	19	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	100	8	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	100	8	141.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenacron
riffle	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	100	7	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	100	4	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
riffle	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	100	3	234.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Hydroptila
riffle	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	100	2	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	100	1	18.2	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Branchiura
riffle	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	100	1	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	100	1	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	100	1	142.4	Arthropoda	Insecta	Ephemeroptera	Isonychiidae	Isonychia
riffle	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	100	1	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
riffle	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	100	1	235.3	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Neotrichia
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	22	128.8	Arthropoda	Insecta	Ephemeroptera	Baetidae	Procloeon
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	14	57.	Arthropoda	Insecta	Coleoptera	Elmidae	Macronychus
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	13	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	11	127.5	Arthropoda	Insecta	Ephemeroptera	Baetidae	Labiobaetis
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	6	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	4	141.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenacron
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	3	53.5	Arthropoda	Insecta	Coleoptera	Elmidae	Ancyronyx
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	2	13.	Annelida	Oligochaeta	Haplotaxida	Naididae	Dero
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	2	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	2	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	2	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	1	23.27	ARTHROPODA	Acari	Arcarina	Protziidae	Wandesia
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	1	28.	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	1	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	1	195.	Arthropoda	Insecta	Odonata	Macromiinae	Macromia
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	1	229.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Hydropsyche
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	1	250.	Arthropoda	Insecta	Trichoptera	Polycentropodidae	Cyrnellus
wood	San Bois Creek	OK220200-04-0010G	27941	09-Jul-03	88	1	262.75	Mollusca	Gastropoda	Neotaenioglossa	Hydrobiidae	
riffle	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	106	16	115.7	Arthropoda	Insecta	Diptera	Tipulidae	Geranomyia
riffle	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	106	14	3.	Annelida	Hirudinea	Pharyngobdellida	Erpobdellidae	
riffle	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	106	7	98.	Arthropoda	Insecta	Diptera	Empididae	Clinocera
riffle	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	106	5	124.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Callibaetis
riffle	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	106	5	211.5	Arthropoda	Insecta	Plecoptera	Perlidae	Anacroneuria
riffle	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	106	4	132.5	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Drunella
riffle	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	106	3	115.5	Arthropoda	Insecta	Diptera	Tipulidae	Erioptera
riffle	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	106	3	173.4	Arthropoda	Insecta	Odonata	Aeshnidae	Boyeria
riffle	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	106	3	214.5	ARTHROPODA	Insecta	Plecoptera	Perlidae	Perlinella
riffle	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	106	3	227.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Ceratopsyche
riffle	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	106	2	116.	Arthropoda	Insecta	Diptera	Tipulidae	Gonomyia
riffle	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	106	2	130.1	Arthropoda	Insecta	Ephemeroptera	Caenidae	Brachycercus
riffle	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	106	1	44.	Arthropoda	Insecta	Coleoptera	Dryopidae	

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	106	1	281.5	Nemertea	Enopla	Hoplonemertea	Tetrastemmatidae	Prostoma
wood	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	102	6	31.1	Arthropoda	Crustacea	Decapoda	Cambaridae	Cambarus
wood	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	102	6	249.5	Arthropoda	Insecta	Trichoptera	Polycentropodidae	Cernotina
wood	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	102	3	30.1	Arthropoda	Crustacea	Decapoda	Astacidae	Cambarellus
wood	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	102	3	110.3	Arthropoda	Insecta	Diptera	Tabanidae	Chlorotabanus
wood	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	102	3	208.	Arthropoda	Insecta	Plecoptera	Nemouridae	Nemoura
wood	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	102	2	45.	Arthropoda	Insecta	Coleoptera	Dryopidae	Helichus
wood	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	102	2	93.	Arthropoda	Insecta	Diptera	Chironomidae	Pseudochironomi
wood	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	102	2	225.	Arthropoda	Insecta	Trichoptera	Helicopsychidae	Helicopsyche
wood	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	102	1	3.7	Annelida	Hirudinea	Pharyngobdellida	Erpobdellidae	Mooreobdella
wood	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	102	1	127.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Heterocloeon
wood	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	102	1	129.5	Arthropoda	Insecta	Ephemeroptera	Baetiscidae	Baetisca
wood	San Bois Creek	OK220200-04-0010G	32045	22-Feb-05	102	1	212.	Arthropoda	Insecta	Plecoptera	Perlidae	Agnetina=Phasgan
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	31	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	24	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	17	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	16	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	12	198.	Arthropoda	Insecta	Plecoptera	Capniidae	Allocapnia
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	10	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	6	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	5	217.	Arthropoda	Insecta	Plecoptera	Perlodidae	Hydroperla
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	4	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	3	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	2	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	2	218.	Arthropoda	Insecta	Plecoptera	Perlodidae	Isoperla
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	2	275.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	Corbicula
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	1	45.	Arthropoda	Insecta	Coleoptera	Dryopidae	Helichus
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	1	101.	Arthropoda	Insecta	Diptera	Psychodidae	Pericoma
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	1	117.	Arthropoda	Insecta	Diptera	Tipulidae	Hexatoma
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	1	120.	Arthropoda	Insecta	Diptera	Tipulidae	Tipula
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	1	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Mill Creek	OK220600-01-0100P	29506	15-Jan-04	141	1	179.	Arthropoda	Insecta	Odonata	Coenagrionidae	Argia
riffle	Mill Creek	OK220600-01-0100P	32035	17-Feb-05	115	52	188.5	Arthropoda	Insecta	Odonata	Gomphidae	Lanthus
riffle	Mill Creek	OK220600-01-0100P	32035	17-Feb-05	115	15	98.	Arthropoda	Insecta	Diptera	Empididae	Clinocera
riffle	Mill Creek	OK220600-01-0100P	32035	17-Feb-05	115	10	53.	Arthropoda	Insecta	Coleoptera	Elmidae	
riffle	Mill Creek	OK220600-01-0100P	32035	17-Feb-05	115	7	184.	Arthropoda	Insecta	Odonata	Gomphidae	
riffle	Mill Creek	OK220600-01-0100P	32035	17-Feb-05	115	1	166.	Arthropoda	Insecta	Megaloptera	Corydalidae	
riffle	Mill Creek	OK220600-01-0100P	32035	17-Feb-05	115	1	187.	Arthropoda	Insecta	Odonata	Gomphidae	Gomphus
riffle	Mill Creek	OK220600-01-0100P	32035	17-Feb-05	115	1	192.6	Arthropoda	Insecta	Odonata	Libellulidae	Erythemis
riffle	Mill Creek	OK220600-01-0100P	32035	17-Feb-05	115	1	281.25	Nematomorpha				
veg	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	95	61	28	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
veg	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	95	4	131	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
veg	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	95	2	94	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
veg	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	95	2	33	ARTHROPODA	Crustacea	Decapoda	Palaemonidae	Palaemonetes

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
veg	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	95	2	128.8	Arthropoda	Insecta	Ephemeroptera	Baetidae	Procloeon
veg	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	95	2	31.1	Arthropoda	Crustacea	Decapoda	Cambaridae	Cambarus
veg	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	95	1	88.06	Arthropoda	Insecta	Diptera	Ceratopogonidae	Probezzia
veg	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	95	1	54	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
veg	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	95	1	228	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
veg	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	95	1	180	Arthropoda	Insecta	Odonata	Coenagrionidae	Enallagma
veg	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	95	1	151	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
veg	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	95	1	142	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
veg	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	95	1	263.5	Mollusca	Gastropoda	Basommatophora	Lymnaeidae	Fossaria
wood	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	44	12	28	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
wood	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	44	5	95	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	44	4	93	Arthropoda	Insecta	Diptera	Chironomidae	Pseudochironomi
wood	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	44	2	122	Arthropoda	Insecta	Ephemeroptera	Baetidae	
wood	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	44	2	90	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	44	2	94	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	44	2	13	Annelida	Oligochaeta	Haplotaxida	Naididae	Dero
wood	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	44	2	180	Arthropoda	Insecta	Odonata	Coenagrionidae	Enallagma
wood	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	44	2	88	Arthropoda	Insecta	Diptera	Ceratopogonidae	Forcipomyia
wood	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	44	1	250	Arthropoda	Insecta	Trichoptera	Polycentropodidae	Cyrnellus
wood	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	44	1	54	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
wood	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	44	1	262	Mollusca	Gastropoda	Basommatophora	Ancylidae	Ferrissia
wood	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	44	1	53.5	Arthropoda	Insecta	Coleoptera	Elmidae	Ancyronyx
wood	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	44	1	142	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
wood	Brushy Creek	OK220600-03-0010J	27945	9-Jul-03	44	1	263.5	Mollusca	Gastropoda	Basommatophora	Lymnaeidae	Fossaria
veg	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	94	48	28	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
veg	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	94	13	90	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
veg	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	94	7	92	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
veg	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	94	7	269	Mollusca	Gastropoda	Basommatophora	Planorbidae	Gyraulus
veg	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	94	5	124	Arthropoda	Insecta	Ephemeroptera	Baetidae	Callibaetis
veg	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	94	4	33	ARTHROPODA	Crustacea	Decapoda	Palaemonidae	Palaemonetes
veg	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	94	2	94	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
veg	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	94	1	19	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
veg	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	94	1	145	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	Leptophlebia
veg	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	94	1	180	Arthropoda	Insecta	Odonata	Coenagrionidae	Enallagma
veg	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	94	1	54	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
veg	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	94	1	95	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	111	52	90	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	111	21	92	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
wood	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	111	17	28	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
wood	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	111	9	95	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	111	3	94	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	111	2	13	Annelida	Oligochaeta	Haplotaxida	Naididae	Dero
wood	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	111	2	124	Arthropoda	Insecta	Ephemeroptera	Baetidae	Callibaetis
wood	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	111	1	93	Arthropoda	Insecta	Diptera	Chironomidae	Pseudochironomi

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
wood	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	111	1	17	Annelida	Oligochaeta	Haplotaxida	Naididae	Slavina
wood	Brushy Creek	OK220600-03-0010J	29518	16-Jan-04	111	1	134	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Eurylophella
riffle	Brushy Creek	OK220600-03-0010J	32048	22-Feb-05	93	14	201	Arthropoda	Insecta	Plecoptera	Chloroperlidae	Alloperla
riffle	Brushy Creek	OK220600-03-0010J	32048	22-Feb-05	93	4	99.65	Arthropoda	Insecta	Diptera	Ephydridae	Hydrellia
riffle	Brushy Creek	OK220600-03-0010J	32048	22-Feb-05	93	2	53.5	Arthropoda	Insecta	Coleoptera	Elmidae	Ancyronyx
riffle	Brushy Creek	OK220600-03-0010J	32048	22-Feb-05	93	2	107.8	Arthropoda	Insecta	Diptera	Stratiomyidae	Nemotelus
riffle	Brushy Creek	OK220600-03-0010J	32048	22-Feb-05	93	1	120.51	Arthropoda	Insecta	Diptera	Tipulidae	Unidentified genus#1
riffle	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	132	86	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	132	17	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	132	5	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
riffle	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	132	5	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
riffle	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	132	4	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	132	4	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	132	2	23.25	Arthropoda	Acari	Arcarina	Lebertiidae	Lebertia
riffle	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	132	2	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	132	2	167.	Arthropoda	Insecta	Megaloptera	Corydalidae	Corydalus
riffle	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	132	1	14.	Annelida	Oligochaeta	Haplotaxida	Naididae	Nais
riffle	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	132	1	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	132	1	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	132	1	229.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Hydropsyche
riffle	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	132	1	275.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	Corbicula
veg	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	106	42	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
veg	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	106	12	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
veg	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	106	11	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
veg	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	106	9	127.5	Arthropoda	Insecta	Ephemeroptera	Baetidae	Labiobaetis
veg	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	106	7	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
veg	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	106	2	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
veg	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	106	2	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
veg	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	106	2	128.8	Arthropoda	Insecta	Ephemeroptera	Baetidae	Procloeon
veg	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	106	1	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
veg	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	106	1	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
veg	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	106	1	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
veg	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	106	1	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
veg	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	106	1	167.	Arthropoda	Insecta	Megaloptera	Corydalidae	Corydalus
veg	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	106	1	180.	Arthropoda	Insecta	Odonata	Coenagrionidae	Enallagma
veg	Peaceable Creek	OK220600-03-0050F	27944	09-Jul-03	106	1	229.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Hydropsyche
riffle	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	105	34	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	105	26	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	105	16	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	105	10	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
riffle	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	105	7	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	105	3	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	105	2	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	105	2	275.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	Corbicula

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	105	1	18.2	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Branchiura
riffle	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	105	1	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	105	1	117.	Arthropoda	Insecta	Diptera	Tipulidae	Hexatoma
riffle	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	105	1	167.	Arthropoda	Insecta	Megaloptera	Corydalidae	Corydalus
riffle	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	105	1	267.	Mollusca	Gastropoda	Basommatophora	Physidae	Physella
veg	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	116	39	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
veg	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	116	19	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
veg	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	116	17	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
veg	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	116	15	28.	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
veg	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	116	5	180.	Arthropoda	Insecta	Odonata	Coenagrionidae	Enallagma
veg	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	116	3	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
veg	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	116	2	16.	Annelida	Oligochaeta	Haplotaxida	Naididae	Pristina
veg	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	116	2	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
veg	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	116	2	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
veg	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	116	2	124.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Callibaetis
veg	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	116	2	243.5	Arthropoda	Insecta	Trichoptera	Limnephilidae	Pycnopsyche
veg	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	116	2	263.5	Mollusca	Gastropoda	Basommatophora	Lymnaeidae	Fossaria
veg	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	116	2	267.	Mollusca	Gastropoda	Basommatophora	Physidae	Physella
veg	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	116	2	269.	Mollusca	Gastropoda	Basommatophora	Planorbidae	Gyraulus
veg	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	116	1	180.1	Arthropoda	Insecta	Odonata	Coenagrionidae	Ischnura
veg	Peaceable Creek	OK220600-03-0050F	29517	16-Jan-04	116	1	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Peaceable Creek	OK220600-03-0050F	31985	15-Feb-05	165	76	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Peaceable Creek	OK220600-03-0050F	31985	15-Feb-05	165	44	115.5	Arthropoda	Insecta	Diptera	Tipulidae	Erioptera
riffle	Peaceable Creek	OK220600-03-0050F	31985	15-Feb-05	165	8	37.	Arthropoda	Crustacea	Amphipoda	Gammaridae	Gammarus
riffle	Peaceable Creek	OK220600-03-0050F	31985	15-Feb-05	165	7	116.	Arthropoda	Insecta	Diptera	Tipulidae	Gonomyia
riffle	Peaceable Creek	OK220600-03-0050F	31985	15-Feb-05	165	5	188.	Arthropoda	Insecta	Odonata	Gomphidae	Hagenius
riffle	Peaceable Creek	OK220600-03-0050F	31985	15-Feb-05	165	4	191.3	Arthropoda	Insecta	Odonata	Gomphidae	Stylogomphus
riffle	Peaceable Creek	OK220600-03-0050F	31985	15-Feb-05	165	4	268.5	Mollusca	Gastropoda	Basommatophora	Planorbidae	Carinifex
riffle	Peaceable Creek	OK220600-03-0050F	31985	15-Feb-05	165	3	124.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Callibaetis
riffle	Peaceable Creek	OK220600-03-0050F	31985	15-Feb-05	165	3	191.	Arthropoda	Insecta	Odonata	Gomphidae	Progomphus
riffle	Peaceable Creek	OK220600-03-0050F	31985	15-Feb-05	165	2	80.	Arthropoda	Insecta	Coleoptera	Psephenidae	Ectopria
riffle	Peaceable Creek	OK220600-03-0050F	31985	15-Feb-05	165	2	272.	Mollusca	Gastropoda	Neotaenioglossa	Pleuroceridae	Goniobasis
riffle	Peaceable Creek	OK220600-03-0050F	31985	15-Feb-05	165	1	28.8	Arthropoda	Crustacea	Amphipoda	Crangonyctidae	Stygobromus
riffle	Peaceable Creek	OK220600-03-0050F	31985	15-Feb-05	165	1	95.8	ARTHROPODA	Insecta	Diptera	Dixidae	Dixella
riffle	Peaceable Creek	OK220600-03-0050F	31985	15-Feb-05	165	1	172.	Arthropoda	Insecta	Odonata	Aeshnidae	
riffle	Peaceable Creek	OK220600-03-0050F	31985	15-Feb-05	165	1	204.1	Arthropoda	Insecta	Plecoptera	Leuctridae	Paraleuctra
riffle	Peaceable Creek	OK220600-03-0050F	31985	15-Feb-05	165	1	227.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Ceratopsyche
riffle	Bad Creek	OK520500-01-0170L	29495	14-Jan-04	124	98	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Bad Creek	OK520500-01-0170L	29495	14-Jan-04	124	8	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Bad Creek	OK520500-01-0170L	29495	14-Jan-04	124	7	9.	Annelida	Oligochaeta	Haplotaxida	Lumbricidae	
riffle	Bad Creek	OK520500-01-0170L	29495	14-Jan-04	124	2	35.	Arthropoda	Crustacea	Isopoda	Asellidae	Lirceus
riffle	Bad Creek	OK520500-01-0170L	29495	14-Jan-04	124	2	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
riffle	Bad Creek	OK520500-01-0170L	29495	14-Jan-04	124	1	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Bad Creek	OK520500-01-0170L	29495	14-Jan-04	124	1	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	Bad Creek	OK520500-01-0170L	29495	14-Jan-04	124	1	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Bad Creek	OK520500-01-0170L	29495	14-Jan-04	124	1	138.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Heptagenia
riffle	Bad Creek	OK520500-01-0170L	29495	14-Jan-04	124	1	198.	Arthropoda	Insecta	Plecoptera	Capniidae	Allocapnia
riffle	Bad Creek	OK520500-01-0170L	29495	14-Jan-04	124	1	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Bad Creek	OK520500-01-0170L	29495	14-Jan-04	124	1	279.	Mollusca	Pelecypoda	Veneroida	Sphaeriidae	Sphaerium
riffle	Bad Creek	OK520500-01-0170L	31084	18-Jun-04	97	29	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Bad Creek	OK520500-01-0170L	31084	18-Jun-04	97	23	18.2	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Branchiura
riffle	Bad Creek	OK520500-01-0170L	31084	18-Jun-04	97	20	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Bad Creek	OK520500-01-0170L	31084	18-Jun-04	97	18	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
riffle	Bad Creek	OK520500-01-0170L	31084	18-Jun-04	97	2	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
riffle	Bad Creek	OK520500-01-0170L	31084	18-Jun-04	97	1	35.	Arthropoda	Crustacea	Isopoda	Asellidae	Lirceus
riffle	Bad Creek	OK520500-01-0170L	31084	18-Jun-04	97	1	87.5	Arthropoda	Insecta	Diptera	Ceratopogonidae	Atrichopogon
riffle	Bad Creek	OK520500-01-0170L	31084	18-Jun-04	97	1	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Bad Creek	OK520500-01-0170L	31084	18-Jun-04	97	1	99.	Arthropoda	Insecta	Diptera	Empididae	Hemerodromia
riffle	Bad Creek	OK520500-01-0170L	31084	18-Jun-04	97	1	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Bad Creek	OK520500-01-0170L	31770	26-Jan-05	98	71	227.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Ceratopsyche
riffle	Bad Creek	OK520500-01-0170L	31770	26-Jan-05	98	6	17.	Annelida	Oligochaeta	Haplotaxida	Naididae	Slavina
riffle	Bad Creek	OK520500-01-0170L	31770	26-Jan-05	98	5	81.5	ARTHROPODA	Insecta	Coleoptera	Ptilodactylidae	
riffle	Bad Creek	OK520500-01-0170L	31770	26-Jan-05	98	3	191.3	Arthropoda	Insecta	Odonata	Gomphidae	Stylogomphus
riffle	Bad Creek	OK520500-01-0170L	31770	26-Jan-05	98	1	23.05	ARTHROPODA	Acari	Arcarina	Arrenuridae	Arrenurus
riffle	Bad Creek	OK520500-01-0170L	31770	26-Jan-05	98	1	97.	Arthropoda	Insecta	Diptera	Empididae	
riffle	Bad Creek	OK520500-01-0170L	31770	26-Jan-05	98	1	213.	Arthropoda	Insecta	Plecoptera	Perlidae	Neoperla
riffle	Alabama Creek	OK520500-01-0200D	29496	14-Jan-04	115	24	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Alabama Creek	OK520500-01-0200D	29496	14-Jan-04	115	23	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Alabama Creek	OK520500-01-0200D	29496	14-Jan-04	115	16	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Alabama Creek	OK520500-01-0200D	29496	14-Jan-04	115	15	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Alabama Creek	OK520500-01-0200D	29496	14-Jan-04	115	15	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Alabama Creek	OK520500-01-0200D	29496	14-Jan-04	115	11	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Alabama Creek	OK520500-01-0200D	29496	14-Jan-04	115	3	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
riffle	Alabama Creek	OK520500-01-0200D	29496	14-Jan-04	115	2	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
riffle	Alabama Creek	OK520500-01-0200D	29496	14-Jan-04	115	2	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Alabama Creek	OK520500-01-0200D	29496	14-Jan-04	115	1	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Alabama Creek	OK520500-01-0200D	29496	14-Jan-04	115	1	179.	Arthropoda	Insecta	Odonata	Coenagrionidae	Argia
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	47	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	15	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	14	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	11	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	8	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	6	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	4	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	2	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	2	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	1	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	1	99.	Arthropoda	Insecta	Diptera	Empididae	Hemerodromia

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	1	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	1	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	1	139.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Leucrocuta
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	1	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	1	234.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Hydroptila
riffle	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	118	1	275.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	Corbicula
wood	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	115	28	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	115	24	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	115	20	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
wood	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	115	10	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	115	7	234.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Hydroptila
wood	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	115	5	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
wood	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	115	3	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
wood	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	115	2	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
wood	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	115	2	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
wood	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	115	2	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
wood	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	115	1	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
wood	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	115	1	45.	Arthropoda	Insecta	Coleoptera	Dryopidae	Helichus
wood	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	115	1	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
wood	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	115	1	99.	Arthropoda	Insecta	Diptera	Empididae	Hemerodromia
wood	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	115	1	117.5	Arthropoda	Insecta	Diptera	Tipulidae	Limnophila
wood	Alabama Creek	OK520500-01-0200D	31085	18-Jun-04	115	1	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	104	39	3.6	Annelida	Hirudinea	Pharyngobdellida	Erpobdellidae	Erpobdella
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	96	39	3.6	Annelida	Hirudinea	Pharyngobdellida	Erpobdellidae	Erpobdella
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	96	14	263.	Mollusca	Gastropoda	Basommatophora	Lymnaeidae	
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	104	14	263.	Mollusca	Gastropoda	Basommatophora	Lymnaeidae	
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	104	11	205.	Arthropoda	Insecta	Plecoptera	Leuctridae	Zealeuctra
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	96	11	205.	Arthropoda	Insecta	Plecoptera	Leuctridae	Zealeuctra
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	104	4	184.	Arthropoda	Insecta	Odonata	Gomphidae	
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	96	4	184.	Arthropoda	Insecta	Odonata	Gomphidae	
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	104	3	267.	Mollusca	Gastropoda	Basommatophora	Physidae	Physella
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	96	3	267.	Mollusca	Gastropoda	Basommatophora	Physidae	Physella
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	104	2	191.3	Arthropoda	Insecta	Odonata	Gomphidae	Stylogomphus
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	96	2	191.3	Arthropoda	Insecta	Odonata	Gomphidae	Stylogomphus
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	104	1	30.2	Arthropoda	Crustacea	Decapoda	Astacidae	Procambarus
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	96	1	30.2	Arthropoda	Crustacea	Decapoda	Astacidae	Procambarus
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	96	1	192.8	Arthropoda	Insecta	Odonata	Libellulidae	Libellula
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	104	1	192.8	Arthropoda	Insecta	Odonata	Libellulidae	Libellula
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	104	1	268.5	Mollusca	Gastropoda	Basommatophora	Planorbidae	Carinifex
riffle	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	96	1	268.5	Mollusca	Gastropoda	Basommatophora	Planorbidae	Carinifex
veg	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	0	44	3.6	Annelida	Hirudinea	Pharyngobdellida	Erpobdellidae	Erpobdella
veg	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	100	44	3.6	Annelida	Hirudinea	Pharyngobdellida	Erpobdellidae	Erpobdella
veg	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	100	10	263.	Mollusca	Gastropoda	Basommatophora	Lymnaeidae	
veg	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	0	10	263.	Mollusca	Gastropoda	Basommatophora	Lymnaeidae	

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
veg	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	100	2	233.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Dibusa
veg	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	0	2	233.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Dibusa
veg	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	100	1	18.1	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Aulodrilus
veg	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	0	1	18.1	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Aulodrilus
veg	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	0	1	18.3	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Ilyodrilus
veg	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	100	1	18.3	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Ilyodrilus
veg	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	0	1	145.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	Leptophlebia
veg	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	100	1	145.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	Leptophlebia
veg	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	0	1	205.	Arthropoda	Insecta	Plecoptera	Leuctridae	Zealeuctra
veg	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	100	1	205.	Arthropoda	Insecta	Plecoptera	Leuctridae	Zealeuctra
veg	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	0	1	268.5	Mollusca	Gastropoda	Basommatophora	Planorbidae	Carinifex
veg	Alabama Creek	OK520500-01-0200D	31771	26-Jan-05	100	1	268.5	Mollusca	Gastropoda	Basommatophora	Planorbidae	Carinifex
wood	Wewoka Creek	OK520500-02-0010C	28032	16-Jul-03	115	68	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Wewoka Creek	OK520500-02-0010C	28032	16-Jul-03	115	16	229.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Hydropsyche
wood	Wewoka Creek	OK520500-02-0010C	28032	16-Jul-03	115	10	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
wood	Wewoka Creek	OK520500-02-0010C	28032	16-Jul-03	115	5	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Wewoka Creek	OK520500-02-0010C	28032	16-Jul-03	115	4	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
wood	Wewoka Creek	OK520500-02-0010C	28032	16-Jul-03	115	4	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	Wewoka Creek	OK520500-02-0010C	28032	16-Jul-03	115	2	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
wood	Wewoka Creek	OK520500-02-0010C	28032	16-Jul-03	115	1	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
wood	Wewoka Creek	OK520500-02-0010C	28032	16-Jul-03	115	1	111.	Arthropoda	Insecta	Diptera	Tabanidae	Tabanus
wood	Wewoka Creek	OK520500-02-0010C	28032	16-Jul-03	115	1	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
wood	Wewoka Creek	OK520500-02-0010C	28032	16-Jul-03	115	1	179.	Arthropoda	Insecta	Odonata	Coenagrionidae	Argia
wood	Wewoka Creek	OK520500-02-0010C	28032	16-Jul-03	115	1	230.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Potamyia
wood	Wewoka Creek	OK520500-02-0010C	28032	16-Jul-03	115	1	254.	Arthropoda	Insecta	Trichoptera	Psychomyiidae	Lype
riffle	Wewoka Creek: Lower	OK520500-02-0010C	29497	14-Jan-04	163	54	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Wewoka Creek: Lower	OK520500-02-0010C	29497	14-Jan-04	163	32	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Wewoka Creek: Lower	OK520500-02-0010C	29497	14-Jan-04	163	19	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Wewoka Creek: Lower	OK520500-02-0010C	29497	14-Jan-04	163	14	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Wewoka Creek: Lower	OK520500-02-0010C	29497	14-Jan-04	163	12	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Wewoka Creek: Lower	OK520500-02-0010C	29497	14-Jan-04	163	9	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Wewoka Creek: Lower	OK520500-02-0010C	29497	14-Jan-04	163	9	142.4	Arthropoda	Insecta	Ephemeroptera	Isonychiidae	Isonychia
riffle	Wewoka Creek: Lower	OK520500-02-0010C	29497	14-Jan-04	163	5	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Wewoka Creek: Lower	OK520500-02-0010C	29497	14-Jan-04	163	4	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Wewoka Creek: Lower	OK520500-02-0010C	29497	14-Jan-04	163	1	18.2	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Branchiura
riffle	Wewoka Creek: Lower	OK520500-02-0010C	29497	14-Jan-04	163	1	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
riffle	Wewoka Creek: Lower	OK520500-02-0010C	29497	14-Jan-04	163	1	138.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Heptagenia
riffle	Wewoka Creek: Lower	OK520500-02-0010C	29497	14-Jan-04	163	1	139.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Leucrocuta
riffle	Wewoka Creek: Lower	OK520500-02-0010C	29497	14-Jan-04	163	1	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
wood	Wewoka Creek	OK520500-02-0010C	31086	18-Jun-04	114	45	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Wewoka Creek	OK520500-02-0010C	31086	18-Jun-04	114	35	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	Wewoka Creek	OK520500-02-0010C	31086	18-Jun-04	114	13	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
wood	Wewoka Creek	OK520500-02-0010C	31086	18-Jun-04	114	9	93.	Arthropoda	Insecta	Diptera	Chironomidae	Pseudochironomi
wood	Wewoka Creek	OK520500-02-0010C	31086	18-Jun-04	114	4	234.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Hydroptila

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
wood	Wewoka Creek	OK520500-02-0010C	31086	18-Jun-04	114	2	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
wood	Wewoka Creek	OK520500-02-0010C	31086	18-Jun-04	114	2	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Wewoka Creek	OK520500-02-0010C	31086	18-Jun-04	114	1	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
wood	Wewoka Creek	OK520500-02-0010C	31086	18-Jun-04	114	1	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
wood	Wewoka Creek	OK520500-02-0010C	31086	18-Jun-04	114	1	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
wood	Wewoka Creek	OK520500-02-0010C	31086	18-Jun-04	114	1	139.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Leucrocuta
riffle	Wewoka Creek: Lower	OK520500-02-0010C	31772	26-Jan-05	86	15	199.	Arthropoda	Insecta	Plecoptera	Capniidae	Capnia
riffle	Wewoka Creek: Lower	OK520500-02-0010C	31772	26-Jan-05	86	14	192.9	Arthropoda	Insecta	Odonata	Libellulidae	Orthemis
riffle	Wewoka Creek: Lower	OK520500-02-0010C	31772	26-Jan-05	86	10	23.05	ARTHROPODA	Acari	Arcarina	Arrenuridae	Arrenurus
riffle	Wewoka Creek: Lower	OK520500-02-0010C	31772	26-Jan-05	86	8	118.	Arthropoda	Insecta	Diptera	Tipulidae	Limonia
riffle	Wewoka Creek: Lower	OK520500-02-0010C	31772	26-Jan-05	86	7	192.	Arthropoda	Insecta	Odonata	Libellulidae	
riffle	Wewoka Creek: Lower	OK520500-02-0010C	31772	26-Jan-05	86	5	3.	Annelida	Hirudinea	Pharyngobdellida	Erpobdellidae	
riffle	Wewoka Creek: Lower	OK520500-02-0010C	31772	26-Jan-05	86	3	121.2	Arthropoda	Insecta	Ephemeroptera	Ameletidae	
riffle	Wewoka Creek: Lower	OK520500-02-0010C	31772	26-Jan-05	86	1	120.51	Arthropoda	Insecta	Diptera	Tipulidae	Unidentified genus#1
riffle	Wewoka Creek: Lower	OK520500-02-0010C	31772	26-Jan-05	86	1	206.	Arthropoda	Insecta	Plecoptera	Nemouridae	
veg	Wewoka Creek	OK520500-02-0010M	27849	22-Jul-03	126	15	124.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Callibaetis
veg	Wewoka Creek	OK520500-02-0010M	27849	22-Jul-03	126	13	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
veg	Wewoka Creek	OK520500-02-0010M	27849	22-Jul-03	126	3	180.	Arthropoda	Insecta	Odonata	Coenagrionidae	Enallagma
veg	Wewoka Creek	OK520500-02-0010M	27849	22-Jul-03	126	3	267.	Mollusca	Gastropoda	Basommatophora	Physidae	Physella
veg	Wewoka Creek	OK520500-02-0010M	27849	22-Jul-03	126	2	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
veg	Wewoka Creek	OK520500-02-0010M	27849	22-Jul-03	126	1	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
veg	Wewoka Creek	OK520500-02-0010M	27849	22-Jul-03	126	1	88.06	Arthropoda	Insecta	Diptera	Ceratopogonidae	Probezzia
veg	Wewoka Creek	OK520500-02-0010M	27849	22-Jul-03	126	1	193.	Arthropoda	Insecta	Odonata	Libellulidae	Perithemis
wood	Wewoka Creek	OK520500-02-0010M	27849	22-Jul-03	127	98	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Wewoka Creek	OK520500-02-0010M	27849	22-Jul-03	127	7	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Wewoka Creek	OK520500-02-0010M	27849	22-Jul-03	127	2	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
wood	Wewoka Creek	OK520500-02-0010M	27849	22-Jul-03	127	1	87.5	Arthropoda	Insecta	Diptera	Ceratopogonidae	Atrichopogon
riffle	Wewoka Creek: Upper	OK520500-02-0010M	31769	25-Jan-05	104	23	208.	Arthropoda	Insecta	Plecoptera	Nemouridae	Nemoura
riffle	Wewoka Creek: Upper	OK520500-02-0010M	31769	25-Jan-05	104	9	149.8	Arthropoda	Insecta	Ephemeroptera	Siphlonuridae	
riffle	Wewoka Creek: Upper	OK520500-02-0010M	31769	25-Jan-05	104	6	164.	Arthropoda	Insecta	Lepidoptera	Pyralidae	Petrophila
riffle	Wewoka Creek: Upper	OK520500-02-0010M	31769	25-Jan-05	104	6	205.	Arthropoda	Insecta	Plecoptera	Leuctridae	Zealeuctra
riffle	Wewoka Creek: Upper	OK520500-02-0010M	31769	25-Jan-05	104	4	125.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Centroptilum
riffle	Wewoka Creek: Upper	OK520500-02-0010M	31769	25-Jan-05	104	4	225.	Arthropoda	Insecta	Trichoptera	Helicopsychidae	Helicopsyche
riffle	Wewoka Creek: Upper	OK520500-02-0010M	31769	25-Jan-05	104	3	135.	Arthropoda	Insecta	Ephemeroptera	Ephemeridae	
riffle	Wewoka Creek: Upper	OK520500-02-0010M	31769	25-Jan-05	104	3	192.55	ARTHROPODA	Insecta	Odonata	Libellulidae	Dythemis
riffle	Wewoka Creek: Upper	OK520500-02-0010M	31769	25-Jan-05	104	2	31.1	Arthropoda	Crustacea	Decapoda	Cambaridae	Cambarus
riffle	Wewoka Creek: Upper	OK520500-02-0010M	31769	25-Jan-05	104	2	200.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	
veg	Wewoka Creek	OK520500-02-0010M	31769	25-Jan-05	103	28	208.	Arthropoda	Insecta	Plecoptera	Nemouridae	Nemoura
veg	Wewoka Creek	OK520500-02-0010M	31769	25-Jan-05	103	8	31.1	Arthropoda	Crustacea	Decapoda	Cambaridae	Cambarus
veg	Wewoka Creek	OK520500-02-0010M	31769	25-Jan-05	103	7	205.	Arthropoda	Insecta	Plecoptera	Leuctridae	Zealeuctra
veg	Wewoka Creek	OK520500-02-0010M	31769	25-Jan-05	103	3	12.	Annelida	Oligochaeta	Haplotaxida	Naididae	Chaetogaster
veg	Wewoka Creek	OK520500-02-0010M	31769	25-Jan-05	103	3	149.9	Arthropoda	Insecta	Ephemeroptera	Siphlonuridae	Siphlonurus
veg	Wewoka Creek	OK520500-02-0010M	31769	25-Jan-05	103	2	149.6	Arthropoda	Insecta	Ephemeroptera	Polymitarcyidae	Tortopus
veg	Wewoka Creek	OK520500-02-0010M	31769	25-Jan-05	103	2	149.8	Arthropoda	Insecta	Ephemeroptera	Siphlonuridae	

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
veg	Wewoka Creek	OK520500-02-0010M	31769	25-Jan-05	103	2	225.	Arthropoda	Insecta	Trichoptera	Helicopsychidae	Helicopsyche
veg	Wewoka Creek	OK520500-02-0010M	31769	25-Jan-05	103	2	249.5	Arthropoda	Insecta	Trichoptera	Polycentropodidae	Cernotina
veg	Wewoka Creek	OK520500-02-0010M	31769	25-Jan-05	103	1	125.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Centroptilum
veg	Wewoka Creek	OK520500-02-0010M	31769	25-Jan-05	103	1	149.5	Arthropoda	Insecta	Ephemeroptera	Polymitarcyidae	Ephoron
veg	Wewoka Creek	OK520500-02-0010M	31769	25-Jan-05	103	1	164.	Arthropoda	Insecta	Lepidoptera	Pyralidae	Petrophila
veg	Wewoka Creek	OK520500-02-0010M	31769	25-Jan-05	103	1	200.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	59	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	17	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	15	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	7	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	3	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	3	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	3	234.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Hydroptila
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	2	28.	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	2	275.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	Corbicula
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	1	3.7	Annelida	Hirudinea	Pharyngobdellida	Erpobdellidae	Mooreobdella
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	1	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	1	87.5	Arthropoda	Insecta	Diptera	Ceratopogonidae	Atrichopogon
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	1	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	1	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	1	142.4	Arthropoda	Insecta	Ephemeroptera	Isonychiidae	Isonychia
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	1	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
veg	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	119	1	247.	Arthropoda	Insecta	Trichoptera	Philopotamidae	Chimarra
wood	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	96	26	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	96	15	28.	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
wood	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	96	14	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
wood	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	96	13	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
wood	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	96	11	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	96	5	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
wood	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	96	4	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
wood	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	96	3	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	96	2	161.	Arthropoda	Insecta	Lepidoptera	Pyralidae	
wood	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	96	1	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
wood	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	96	1	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
wood	Little Wewoka Creek	OK520500-02-0090D	31087	18-Jun-04	96	1	234.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Hydroptila
riffle	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	96	34	30.2	Arthropoda	Crustacea	Decapoda	Astacidae	Procambarus
riffle	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	96	5	149.6	Arthropoda	Insecta	Ephemeroptera	Polymitarcyidae	Tortopus
riffle	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	96	3	217.	Arthropoda	Insecta	Plecoptera	Perlodidae	Hydroperla
riffle	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	96	1	30.1	Arthropoda	Crustacea	Decapoda	Astacidae	Cambarellus
riffle	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	96	1	56.	Arthropoda	Insecta	Coleoptera	Elmidae	Hexacylloepus
riffle	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	96	1	111.	Arthropoda	Insecta	Diptera	Tabanidae	Tabanus
riffle	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	96	1	120.51	Arthropoda	Insecta	Diptera	Tipulidae	Unidentified genus#1
riffle	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	96	1	192.5	Arthropoda	Insecta	Odonata	Libellulidae	Brechmorhoga
riffle	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	96	1	194.	Arthropoda	Insecta	Odonata	Macromiinae	

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	96	1	235.5	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Ochrotrichia
riffle	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	96	1	237.5	Arthropoda	Insecta	Trichoptera	Leptoceridae	Ceraclea
riffle	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	96	1	266.	Mollusca	Gastropoda	Basommatophora	Physidae	Physa
wood	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	99	17	111.	Arthropoda	Insecta	Diptera	Tabanidae	Tabanus
wood	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	99	11	149.6	Arthropoda	Insecta	Ephemeroptera	Polymitarcyidae	Tortopus
wood	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	99	6	217.	Arthropoda	Insecta	Plecoptera	Perlodidae	Hydroperla
wood	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	99	4	30.1	Arthropoda	Crustacea	Decapoda	Astacidae	Cambarellus
wood	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	99	3	14.	Annelida	Oligochaeta	Haplotaxida	Naididae	Nais
wood	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	99	3	192.5	Arthropoda	Insecta	Odonata	Libellulidae	Brechmorhoga
wood	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	99	1	30.2	Arthropoda	Crustacea	Decapoda	Astacidae	Procambarus
wood	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	99	1	219.5	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	Oemopteryx
wood	Little Wewoka Creek	OK520500-02-0090D	31773	26-Jan-05	99	1	272.5	Mollusca	Gastropoda	Architaenioglossa	Viviparidae	Campeloma
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	36	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	20	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	10	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	8	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	6	229.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Hydropsyche
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	3	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	3	45.	Arthropoda	Insecta	Coleoptera	Dryopidae	Helichus
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	3	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	2	58.	Arthropoda	Insecta	Coleoptera	Elmidae	Microcylloepus
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	2	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	2	142.4	Arthropoda	Insecta	Ephemeroptera	Isonychiidae	Isonychia
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	1	18.2	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Branchiura
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	1	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	1	139.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Leucrocuta
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	1	167.	Arthropoda	Insecta	Megaloptera	Corydalidae	Corydalus
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	1	186.	Arthropoda	Insecta	Odonata	Gomphidae	Erpetogomphus
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	1	187.	Arthropoda	Insecta	Odonata	Gomphidae	Gomphus
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	1	191.	Arthropoda	Insecta	Odonata	Gomphidae	Progomphus
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	1	267.	Mollusca	Gastropoda	Basommatophora	Physidae	Physella
riffle	Canadian Sandy Creek	OK520600-03-0010D	28030	16-Jul-03	106	1	275.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	Corbicula
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	16	18.2	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Branchiura
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	16	217.	Arthropoda	Insecta	Plecoptera	Perlodidae	Hydroperla
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	13	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	12	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	11	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	10	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	3	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	3	138.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Heptagenia
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	2	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	2	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	2	111.	Arthropoda	Insecta	Diptera	Tabanidae	Tabanus
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	2	120.	Arthropoda	Insecta	Diptera	Tipulidae	Tipula

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	1	9.	Annelida	Oligochaeta	Haplotaxida	Lumbricidae	
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	1	37.	Arthropoda	Crustacea	Amphipoda	Gammaridae	Gammarus
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	1	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	1	142.4	Arthropoda	Insecta	Ephemeroptera	Isonychiidae	Isonychia
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	1	214.	Arthropoda	Insecta	Plecoptera	Perlidae	Perlesta
riffle	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	101	1	275.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	Corbicula
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	16	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	15	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	15	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	14	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	9	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	6	58.	Arthropoda	Insecta	Coleoptera	Elmidae	Microcylloepus
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	3	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	3	99.	Arthropoda	Insecta	Diptera	Empididae	Hemerodromia
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	3	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	3	138.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Heptagenia
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	2	9.	Annelida	Oligochaeta	Haplotaxida	Lumbricidae	
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	2	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	1	45.	Arthropoda	Insecta	Coleoptera	Dryopidae	Helichus
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	1	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	1	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	1	214.	Arthropoda	Insecta	Plecoptera	Perlidae	Perlesta
wood	Canadian Sandy Creek	OK520600-03-0010D	29493	13-Jan-04	99	1	267.	Mollusca	Gastropoda	Basommatophora	Physidae	Physella
riffle	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	97	36	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	97	16	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	97	7	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	97	7	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
riffle	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	97	6	141.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenacron
riffle	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	97	5	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	97	4	139.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Leucrocuta
riffle	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	97	3	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	97	3	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	97	2	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
riffle	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	97	1	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	97	1	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	97	1	128.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Paracloeodes
riffle	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	97	1	142.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Stenonema
riffle	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	97	1	142.4	Arthropoda	Insecta	Ephemeroptera	Isonychiidae	Isonychia
riffle	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	97	1	234.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Hydroptila
wood	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	111	48	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
wood	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	111	28	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
wood	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	111	15	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	111	5	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
wood	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	111	4	58.	Arthropoda	Insecta	Coleoptera	Elmidae	Microcylloepus

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
wood	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	111	4	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
wood	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	111	2	128.8	Arthropoda	Insecta	Ephemeroptera	Baetidae	Procloeon
wood	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	111	1	45.	Arthropoda	Insecta	Coleoptera	Dryopidae	Helichus
wood	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	111	1	167.	Arthropoda	Insecta	Megaloptera	Corydalidae	Corydalus
wood	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	111	1	177.	Arthropoda	Insecta	Odonata	Calopterygidae	Hetaerina
wood	Canadian Sandy Creek	OK520600-03-0010D	30660	27-Jul-04	111	1	234.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Hydroptila
wood	Salt Creek	OK520700-03-0100B	28040	17-Jul-03	7	5	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
wood	Salt Creek	OK520700-03-0100B	28040	17-Jul-03	7	1	229.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Hydropsyche
wood	Salt Creek	OK520700-03-0100B	28040	17-Jul-03	7	1	275.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	Corbicula
wood	Salt Creek	OK520700-03-0100B	29492	12-Jan-04	109	89	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
wood	Salt Creek	OK520700-03-0100B	29492	12-Jan-04	109	13	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
wood	Salt Creek	OK520700-03-0100B	29492	12-Jan-04	109	3	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Salt Creek	OK520700-03-0100B	29492	12-Jan-04	109	2	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Salt Creek	OK520700-03-0100B	29492	12-Jan-04	109	1	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
wood	Salt Creek	OK520700-03-0100B	29492	12-Jan-04	109	1	214.	Arthropoda	Insecta	Plecoptera	Perlidae	Perlesta
veg	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	90	25	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
veg	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	90	19	267.	Mollusca	Gastropoda	Basommatophora	Physidae	Physella
veg	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	90	9	28.	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
veg	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	90	7	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
veg	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	90	7	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
veg	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	90	6	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
veg	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	90	3	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
veg	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	90	2	124.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Callibaetis
veg	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	90	2	180.1	Arthropoda	Insecta	Odonata	Coenagrionidae	Ischnura
veg	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	90	1	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
veg	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	90	1	173.	Arthropoda	Insecta	Odonata	Aeshnidae	Basiaeschna
veg	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	90	1	229.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Hydropsyche
wood	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	105	51	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	105	19	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	105	9	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
wood	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	105	8	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	105	6	229.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Hydropsyche
wood	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	105	2	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
wood	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	105	2	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
wood	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	105	1	84.5	Arthropoda	Insecta	Diptera	Anthomyiidae	Limnophora
wood	Salt Creek	OK520700-03-0100B	31083	17-Jun-04	105	1	93.	Arthropoda	Insecta	Diptera	Chironomidae	Pseudochironomi
wood	Salt Creek	OK520700-03-0100B	31761	24-Jan-05	104	47	38.	Arthropoda	Crustacea	Amphipoda	Gammaridae	Stygobromus
wood	Salt Creek	OK520700-03-0100B	31761	24-Jan-05	104	8	40.	Arthropoda	Crustacea	Amphipoda	Gammaridae	Synpleonia
wood	Salt Creek	OK520700-03-0100B	31761	24-Jan-05	104	3	200.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	
wood	Salt Creek	OK520700-03-0100B	31761	24-Jan-05	104	2	97.	Arthropoda	Insecta	Diptera	Empididae	
wood	Salt Creek	OK520700-03-0100B	31761	24-Jan-05	104	1	56.	Arthropoda	Insecta	Coleoptera	Elmidae	Hexacylloepus
wood	Salt Creek	OK520700-03-0100B	31761	24-Jan-05	104	1	81.	Arthropoda	Insecta	Coleoptera	Psephenidae	Psephenus
veg	Camp Creek	OK520700-03-0220G	29491	12-Jan-04	72	23	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
veg	Camp Creek	OK520700-03-0220G	29491	12-Jan-04	72	21	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
veg	Camp Creek	OK520700-03-0220G	29491	12-Jan-04	72	6	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
veg	Camp Creek	OK520700-03-0220G	29491	12-Jan-04	72	5	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
veg	Camp Creek	OK520700-03-0220G	29491	12-Jan-04	72	3	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
veg	Camp Creek	OK520700-03-0220G	29491	12-Jan-04	72	1	35.	Arthropoda	Crustacea	Isopoda	Asellidae	Lirceus
wood	Camp Creek	OK520700-03-0220G	29491	12-Jan-04	76	59	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
wood	Camp Creek	OK520700-03-0220G	29491	12-Jan-04	76	6	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Camp Creek	OK520700-03-0220G	29491	12-Jan-04	76	6	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
wood	Camp Creek	OK520700-03-0220G	29491	12-Jan-04	76	4	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Camp Creek	OK520700-03-0220G	31082	17-Jun-04	93	57	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Camp Creek	OK520700-03-0220G	31082	17-Jun-04	93	13	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Camp Creek	OK520700-03-0220G	31082	17-Jun-04	93	7	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
wood	Camp Creek	OK520700-03-0220G	31082	17-Jun-04	93	5	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	Camp Creek	OK520700-03-0220G	31082	17-Jun-04	93	2	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
wood	Camp Creek	OK520700-03-0220G	31082	17-Jun-04	93	1	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
wood	Camp Creek	OK520700-03-0220G	31082	17-Jun-04	93	1	31.1	Arthropoda	Crustacea	Decapoda	Cambaridae	Cambarus
wood	Camp Creek	OK520700-03-0220G	31082	17-Jun-04	93	1	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
wood	Camp Creek	OK520700-03-0220G	31082	17-Jun-04	93	1	88.06	Arthropoda	Insecta	Diptera	Ceratopogonidae	Probezzia
wood	Camp Creek	OK520700-03-0220G	31082	17-Jun-04	93	1	250.	Arthropoda	Insecta	Trichoptera	Polycentropodidae	Cyrnellus
wood	Camp Creek	OK520700-03-0220G	31082	17-Jun-04	93	1	275.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	Corbicula
wood	Camp Creek	OK520700-03-0220G	31762	24-Jan-05	121	15	32.	Arthropoda	Crustacea	Decapoda	Cambaridae	Orconectes
wood	Camp Creek	OK520700-03-0220G	31762	24-Jan-05	121	7	34.7	Arthropoda	Crustacea	Isopoda	Asellidae	Caecidotea
wood	Camp Creek	OK520700-03-0220G	31762	24-Jan-05	121	5	212.	Arthropoda	Insecta	Plecoptera	Perlidae	Agnetina=Phasgan
wood	Camp Creek	OK520700-03-0220G	31762	24-Jan-05	121	4	34.5	Arthropoda	Crustacea	Isopoda	Asellidae	Asellus
wood	Camp Creek	OK520700-03-0220G	31762	24-Jan-05	121	4	103.	Arthropoda	Insecta	Diptera	Simuliidae	Prosimulium
wood	Camp Creek	OK520700-03-0220G	31762	24-Jan-05	121	3	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
wood	Camp Creek	OK520700-03-0220G	31762	24-Jan-05	121	2	95.8	ARTHROPODA	Insecta	Diptera	Dixidae	Dixella
wood	Camp Creek	OK520700-03-0220G	31762	24-Jan-05	121	1	110.3	Arthropoda	Insecta	Diptera	Tabanidae	Chlorotabanus
wood	Camp Creek	OK520700-03-0220G	31762	24-Jan-05	121	1	112.	Arthropoda	Insecta	Diptera	Tipulidae	
wood	Camp Creek	OK520700-03-0220G	31762	24-Jan-05	121	1	195.	Arthropoda	Insecta	Odonata	Macromiinae	Macromia
wood	Camp Creek	OK520700-03-0220G	31762	24-Jan-05	121	1	201.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	Alloperla
wood	Camp Creek	OK520700-03-0220G	31762	24-Jan-05	121	1	263.	Mollusca	Gastropoda	Basommatophora	Lymnaeidae	
wood	Dry Creek	OK520700-04-0020F	27845	21-Jul-03	106	26	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Dry Creek	OK520700-04-0020F	27845	21-Jul-03	106	17	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Dry Creek	OK520700-04-0020F	27845	21-Jul-03	106	15	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	Dry Creek	OK520700-04-0020F	27845	21-Jul-03	106	14	128.8	Arthropoda	Insecta	Ephemeroptera	Baetidae	Procloeon
wood	Dry Creek	OK520700-04-0020F	27845	21-Jul-03	106	8	87.	Arthropoda	Insecta	Diptera	Ceratopogonidae	
wood	Dry Creek	OK520700-04-0020F	27845	21-Jul-03	106	5	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
wood	Dry Creek	OK520700-04-0020F	27845	21-Jul-03	106	4	128.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Paracloeodes
wood	Dry Creek	OK520700-04-0020F	27845	21-Jul-03	106	4	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
wood	Dry Creek	OK520700-04-0020F	27845	21-Jul-03	106	3	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
wood	Dry Creek	OK520700-04-0020F	27845	21-Jul-03	106	2	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
wood	Dry Creek	OK520700-04-0020F	27845	21-Jul-03	106	2	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
wood	Dry Creek	OK520700-04-0020F	27845	21-Jul-03	106	1	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
wood	Dry Creek	OK520700-04-0020F	27845	21-Jul-03	106	1	93.	Arthropoda	Insecta	Diptera	Chironomidae	Pseudochironomi

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
wood	Dry Creek	OK520700-04-0020F	27845	21-Jul-03	106	1	195.	Arthropoda	Insecta	Odonata	Macromiinae	Macromia
wood	Dry Creek	OK520700-04-0020F	27845	21-Jul-03	106	1	229.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Hydropsyche
wood	Dry Creek	OK520700-04-0020F	27845	21-Jul-03	106	1	250.	Arthropoda	Insecta	Trichoptera	Polycentropodidae	Cyrnellus
wood	Dry Creek	OK520700-04-0020F	29530	15-Jan-04	142	70	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
wood	Dry Creek	OK520700-04-0020F	29530	15-Jan-04	142	39	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
wood	Dry Creek	OK520700-04-0020F	29530	15-Jan-04	142	12	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	Dry Creek	OK520700-04-0020F	29530	15-Jan-04	142	7	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Dry Creek	OK520700-04-0020F	29530	15-Jan-04	142	5	14.	Annelida	Oligochaeta	Haplotaxida	Naididae	Nais
wood	Dry Creek	OK520700-04-0020F	29530	15-Jan-04	142	3	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Dry Creek	OK520700-04-0020F	29530	15-Jan-04	142	2	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
wood	Dry Creek	OK520700-04-0020F	29530	15-Jan-04	142	1	28.	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
wood	Dry Creek	OK520700-04-0020F	29530	15-Jan-04	142	1	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
wood	Dry Creek	OK520700-04-0020F	29530	15-Jan-04	142	1	214.	Arthropoda	Insecta	Plecoptera	Perlidae	Perlesta
wood	Dry Creek	OK520700-04-0020F	29530	15-Jan-04	142	1	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
wood	Dry Creek	OK520700-04-0020F	31377	02-Aug-04	108	29	30.	Arthropoda	Crustacea	Decapoda	Astacidae	
wood	Dry Creek	OK520700-04-0020F	31377	02-Aug-04	108	13	3.5	Annelida	Hirudinea	Pharyngobdellida	Erpobdellidae	Dina
wood	Dry Creek	OK520700-04-0020F	31377	02-Aug-04	108	5	103.	Arthropoda	Insecta	Diptera	Simuliidae	Prosimulium
wood	Dry Creek	OK520700-04-0020F	31377	02-Aug-04	108	4	13.	Annelida	Oligochaeta	Haplotaxida	Naididae	Dero
wood	Dry Creek	OK520700-04-0020F	31377	02-Aug-04	108	4	170.5	Arthropoda	Insecta	Neuroptera	Sisyridae	
wood	Dry Creek	OK520700-04-0020F	31377	02-Aug-04	108	3	173.4	Arthropoda	Insecta	Odonata	Aeshnidae	Boyeria
wood	Dry Creek	OK520700-04-0020F	31377	02-Aug-04	108	2	213.	Arthropoda	Insecta	Plecoptera	Perlidae	Neoperla
wood	Dry Creek	OK520700-04-0020F	31377	02-Aug-04	108	1	23.05	ARTHROPODA	Acari	Arcarina	Arrenuridae	Arrenurus
wood	Dry Creek	OK520700-04-0020F	31377	02-Aug-04	108	1	177.	Arthropoda	Insecta	Odonata	Calopterygidae	Hetaerina
wood	Dry Creek	OK520700-04-0020F	31377	02-Aug-04	108	1	214.	Arthropoda	Insecta	Plecoptera	Perlidae	Perlesta
wood	Dry Creek	OK520700-04-0020F	31377	02-Aug-04	108	1	228.4	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Diplectrona
riffle	Dry Creek	OK520700-04-0020F	31763	24-Jan-05	435	335	57.	Arthropoda	Insecta	Coleoptera	Elmidae	Macronychus
riffle	Dry Creek	OK520700-04-0020F	31763	24-Jan-05	435	51	28.8	Arthropoda	Crustacea	Amphipoda	Crangonyctidae	Stygobromus
riffle	Dry Creek	OK520700-04-0020F	31763	24-Jan-05	435	9	27.	Arthropoda	Crustacea	Amphipoda	Talitridae	
riffle	Dry Creek	OK520700-04-0020F	31763	24-Jan-05	435	4	138.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Heptagenia
riffle	Dry Creek	OK520700-04-0020F	31763	24-Jan-05	435	1	110.5	Arthropoda	Insecta	Diptera	Tabanidae	Chrysops
riffle	Dry Creek	OK520700-04-0020F	31763	24-Jan-05	435	1	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
riffle	Dry Creek	OK520700-04-0020F	31763	24-Jan-05	435	1	167.	Arthropoda	Insecta	Megaloptera	Corydalidae	Corydalus
riffle	Dry Creek	OK520700-04-0020F	31763	24-Jan-05	435	1	193.	Arthropoda	Insecta	Odonata	Libellulidae	Perithemis
riffle	Dry Creek	OK520700-04-0020F	31763	24-Jan-05	435	1	220.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	Strophopteryx
riffle	Dry Creek	OK520700-04-0020F	31763	24-Jan-05	435	1	277.	Mollusca	Pelecypoda	Veneroida	Sphaeriidae	Eupera
wood	Dry Creek	OK520700-04-0020F	31763	24-Jan-05	105	76	57.	Arthropoda	Insecta	Coleoptera	Elmidae	Macronychus
wood	Dry Creek	OK520700-04-0020F	31763	24-Jan-05	105	21	28.8	Arthropoda	Crustacea	Amphipoda	Crangonyctidae	Stygobromus
wood	Dry Creek	OK520700-04-0020F	31763	24-Jan-05	105	2	27.	Arthropoda	Crustacea	Amphipoda	Talitridae	
wood	Dry Creek	OK520700-04-0020F	31763	24-Jan-05	105	1	280.	Mollusca	Pelecypoda	Unionoida	Unionidae	
wood	Quapaw Creek	OK520700-04-0260C	29531	15-Jan-04	106	37	14.	Annelida	Oligochaeta	Haplotaxida	Naididae	Nais
wood	Quapaw Creek	OK520700-04-0260C	29531	15-Jan-04	106	35	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
wood	Quapaw Creek	OK520700-04-0260C	29531	15-Jan-04	106	17	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Quapaw Creek	OK520700-04-0260C	29531	15-Jan-04	106	7	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	Quapaw Creek	OK520700-04-0260C	29531	15-Jan-04	106	4	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
wood	Quapaw Creek	OK520700-04-0260C	29531	15-Jan-04	106	1	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Quapaw Creek	OK520700-04-0260C	29531	15-Jan-04	106	1	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
veg	Quapaw Creek	OK520700-04-0260C	31378	02-Aug-04	108	38	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
veg	Quapaw Creek	OK520700-04-0260C	31378	02-Aug-04	108	19	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
veg	Quapaw Creek	OK520700-04-0260C	31378	02-Aug-04	108	18	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
veg	Quapaw Creek	OK520700-04-0260C	31378	02-Aug-04	108	17	128.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Paracloeodes
veg	Quapaw Creek	OK520700-04-0260C	31378	02-Aug-04	108	3	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
veg	Quapaw Creek	OK520700-04-0260C	31378	02-Aug-04	108	2	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
veg	Quapaw Creek	OK520700-04-0260C	31378	02-Aug-04	108	2	128.8	Arthropoda	Insecta	Ephemeroptera	Baetidae	Procloeon
veg	Quapaw Creek	OK520700-04-0260C	31378	02-Aug-04	108	2	179.	Arthropoda	Insecta	Odonata	Coenagrionidae	Argia
veg	Quapaw Creek	OK520700-04-0260C	31378	02-Aug-04	108	1	28.	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
veg	Quapaw Creek	OK520700-04-0260C	31378	02-Aug-04	108	1	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
veg	Quapaw Creek	OK520700-04-0260C	31378	02-Aug-04	108	1	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
veg	Quapaw Creek	OK520700-04-0260C	31378	02-Aug-04	108	1	195.	Arthropoda	Insecta	Odonata	Macromiinae	Macromia
veg	Quapaw Creek	OK520700-04-0260C	31378	02-Aug-04	108	1	267.	Mollusca	Gastropoda	Basommatophora	Physidae	Physella
veg	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	102	42	23.05	ARTHROPODA	Acari	Arcarina	Arrenuridae	Arrenurus
veg	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	102	14	87.7	ARTHROPODA	Insecta	Diptera	Ceratopogonidae	Culicoides
veg	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	102	13	8.	Annelida	Oligochaeta	Haplotaxida	Enchytraeidae	Enchytraeus
veg	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	102	10	99.5	Arthropoda	Insecta	Diptera	Ephydridae	
veg	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	102	5	22.	Arthropoda	Acari			
veg	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	102	2	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
veg	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	102	1	16.	Annelida	Oligochaeta	Haplotaxida	Naididae	Pristina
veg	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	102	1	23.2	Arthropoda	Acari	Arcarina	Hygrobatidae	Atractides
veg	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	102	1	102.	Arthropoda	Insecta	Diptera	Simuliidae	
veg	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	102	1	126.4	Arthropoda	Insecta	Ephemeroptera	Baetidae	Diphetor
veg	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	102	1	169.	Arthropoda	Insecta	Megaloptera	Sialidae	
veg	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	102	1	192.97	ARTHROPODA	Insecta	Odonata	Libellulidae	Plathemis
veg	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	102	1	199.5	Arthropoda	Insecta	Plecoptera	Capniidae	Mesocapnia
wood	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	109	48	23.05	ARTHROPODA	Acari	Arcarina	Arrenuridae	Arrenurus
wood	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	109	29	87.7	ARTHROPODA	Insecta	Diptera	Ceratopogonidae	Culicoides
wood	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	109	15	22.	Arthropoda	Acari			
wood	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	109	4	192.97	ARTHROPODA	Insecta	Odonata	Libellulidae	Plathemis
wood	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	109	3	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	109	3	99.5	Arthropoda	Insecta	Diptera	Ephydridae	
wood	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	109	1	8.	Annelida	Oligochaeta	Haplotaxida	Enchytraeidae	Enchytraeus
wood	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	109	1	106.	Arthropoda	Insecta	Diptera	Stratiomyidae	
wood	Quapaw Creek	OK520700-04-0260C	31764	24-Jan-05	109	1	279.	Mollusca	Pelecypoda	Veneroida	Sphaeriidae	Sphaerium
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	27847	21-Jul-03	120	14	180.	Arthropoda	Insecta	Odonata	Coenagrionidae	Enallagma
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	27847	21-Jul-03	120	11	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	27847	21-Jul-03	120	11	151.	Arthropoda	Insecta	Ephemeroptera	Tricorythidae	Tricorythodes
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	27847	21-Jul-03	120	8	124.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Callibaetis
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	27847	21-Jul-03	120	7	28.	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	27847	21-Jul-03	120	5	179.	Arthropoda	Insecta	Odonata	Coenagrionidae	Argia
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	27847	21-Jul-03	120	3	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	27847	21-Jul-03	120	3	267.	Mollusca	Gastropoda	Basommatophora	Physidae	Physella
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	27847	21-Jul-03	120	2	128.8	Arthropoda	Insecta	Ephemeroptera	Baetidae	Procloeon
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	27847	21-Jul-03	120	2	192.6	Arthropoda	Insecta	Odonata	Libellulidae	Erythemis
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	27847	21-Jul-03	120	1	14.	Annelida	Oligochaeta	Haplotaxida	Naididae	Nais
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	27847	21-Jul-03	120	1	87.	Arthropoda	Insecta	Diptera	Ceratopogonidae	
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	27847	21-Jul-03	120	1	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	27847	21-Jul-03	120	1	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	27847	21-Jul-03	120	1	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	51	14.	Annelida	Oligochaeta	Haplotaxida	Naididae	Nais
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	42	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	24	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	24	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	8	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	8	179.	Arthropoda	Insecta	Odonata	Coenagrionidae	Argia
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	7	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	5	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	4	58.	Arthropoda	Insecta	Coleoptera	Elmidae	Microcylloepus
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	4	275.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	Corbicula
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	2	19.	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Limnodrilus
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	2	285.5	Platyhelminthes	Turbellaria	Tricladida	Planariidae	Dugesia
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	1	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	1	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	1	177.	Arthropoda	Insecta	Odonata	Calopterygidae	Hetaerina
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	1	229.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Hydropsyche
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	187	1	234.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Hydroptila
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	118	82	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	118	15	14.	Annelida	Oligochaeta	Haplotaxida	Naididae	Nais
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	118	15	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	118	2	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	118	1	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	118	1	179.	Arthropoda	Insecta	Odonata	Coenagrionidae	Argia
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	29532	15-Jan-04	118	1	267.	Mollusca	Gastropoda	Basommatophora	Physidae	Physella
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	109	54	175.	Arthropoda	Insecta	Odonata	Calopterygidae	
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	109	10	212.	Arthropoda	Insecta	Plecoptera	Perlidae	Agnetina=Phasgan
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	109	7	16.	Annelida	Oligochaeta	Haplotaxida	Naididae	Pristina
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	109	5	31.1	Arthropoda	Crustacea	Decapoda	Cambaridae	Cambarus
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	109	2	172.5	ARTHROPODA	Insecta	Odonata	Aeshnidae	Anax
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	102	19	164.	Arthropoda	Insecta	Lepidoptera	Pyralidae	Petrophila
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	102	14	31.1	Arthropoda	Crustacea	Decapoda	Cambaridae	Cambarus
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	102	7	175.	Arthropoda	Insecta	Odonata	Calopterygidae	
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	102	5	212.	Arthropoda	Insecta	Plecoptera	Perlidae	Agnetina=Phasgan
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	102	3	16.	Annelida	Oligochaeta	Haplotaxida	Naididae	Pristina
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	102	2	33.	ARTHROPODA	Crustacea	Decapoda	Palaemonidae	Palaemonetes
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	102	2	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	102	1	18.3	Annelida	Oligochaeta	Haplotaxida	Tubificidae	Ilyodrilus
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	102	1	91.	Arthropoda	Insecta	Diptera	Chironomidae	Diamesinae
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	102	1	162.	Arthropoda	Insecta	Lepidoptera	Pyralidae	Crambus
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	102	1	180.1	Arthropoda	Insecta	Odonata	Coenagrionidae	Ischnura
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	102	1	188.5	Arthropoda	Insecta	Odonata	Gomphidae	Lanthus
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	102	1	251.5	Arthropoda	Insecta	Trichoptera	Polycentropodidae	Paranyctiophylax
veg	Deep Fork N. Canadian R.	OK520710-01-0010G	31376	22-Jul-04	102	1	265.	Mollusca	Gastropoda	Basommatophora	Physidae	
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31765	24-Jan-05	130	55	216.	Arthropoda	Insecta	Plecoptera	Perlodidae	Clioperla
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31765	24-Jan-05	130	23	39.	Arthropoda	Crustacea	Amphipoda	Gammaridae	Stygonectes
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31765	24-Jan-05	130	22	10.	Annelida	Oligochaeta	Lumbriculida	Lumbriculidae	
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31765	24-Jan-05	130	8	11.5	Annelida	Oligochaeta	Haplotaxida	Naididae	Bratislavia
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31765	24-Jan-05	130	7	219.5	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	Oemopteryx
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31765	24-Jan-05	130	4	13.	Annelida	Oligochaeta	Haplotaxida	Naididae	Dero
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31765	24-Jan-05	130	2	12.	Annelida	Oligochaeta	Haplotaxida	Naididae	Chaetogaster
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31765	24-Jan-05	130	2	14.	Annelida	Oligochaeta	Haplotaxida	Naididae	Nais
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31765	24-Jan-05	130	2	97.	Arthropoda	Insecta	Diptera	Empididae	
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31765	24-Jan-05	130	1	81.5	ARTHROPODA	Insecta	Coleoptera	Ptilodactylidae	
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31765	24-Jan-05	130	1	270.	Mollusca	Gastropoda	Basommatophora	Planorbidae	Menetus
riffle	Deep Fork N. Canadian R.	OK520710-01-0010G	31765	24-Jan-05	130	1	278.	Mollusca	Pelecypoda	Veneroida	Sphaeriidae	Pisidium
wood	Bird Creek	OK520800-01-0050G	28031	16-Jul-03	108	48	28.	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
wood	Bird Creek	OK520800-01-0050G	28031	16-Jul-03	108	19	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Bird Creek	OK520800-01-0050G	28031	16-Jul-03	108	13	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	Bird Creek	OK520800-01-0050G	28031	16-Jul-03	108	12	93.	Arthropoda	Insecta	Diptera	Chironomidae	Pseudochironomi
wood	Bird Creek	OK520800-01-0050G	28031	16-Jul-03	108	3	263.5	Mollusca	Gastropoda	Basommatophora	Lymnaeidae	Fossaria
wood	Bird Creek	OK520800-01-0050G	28031	16-Jul-03	108	2	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
wood	Bird Creek	OK520800-01-0050G	28031	16-Jul-03	108	2	234.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Hydroptila
wood	Bird Creek	OK520800-01-0050G	28031	16-Jul-03	108	1	87.5	Arthropoda	Insecta	Diptera	Ceratopogonidae	Atrichopogon
wood	Bird Creek	OK520800-01-0050G	28031	16-Jul-03	108	1	88.06	Arthropoda	Insecta	Diptera	Ceratopogonidae	Probezzia
wood	Bird Creek	OK520800-01-0050G	28031	16-Jul-03	108	1	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Bird Creek	OK520800-01-0050G	28031	16-Jul-03	108	1	179.	Arthropoda	Insecta	Odonata	Coenagrionidae	Argia
wood	Bird Creek	OK520800-01-0050G	29494	13-Jan-04	99	27	92.	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae
wood	Bird Creek	OK520800-01-0050G	29494	13-Jan-04	99	15	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Bird Creek	OK520800-01-0050G	29494	13-Jan-04	99	11	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Bird Creek	OK520800-01-0050G	29494	13-Jan-04	99	11	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
wood	Bird Creek	OK520800-01-0050G	29494	13-Jan-04	99	10	28.	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella
wood	Bird Creek	OK520800-01-0050G	29494	13-Jan-04	99	8	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	Bird Creek	OK520800-01-0050G	29494	13-Jan-04	99	6	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
wood	Bird Creek	OK520800-01-0050G	29494	13-Jan-04	99	3	263.5	Mollusca	Gastropoda	Basommatophora	Lymnaeidae	Fossaria
wood	Bird Creek	OK520800-01-0050G	29494	13-Jan-04	99	2	104.	Arthropoda	Insecta	Diptera	Simuliidae	Simulium
wood	Bird Creek	OK520800-01-0050G	29494	13-Jan-04	99	2	267.	Mollusca	Gastropoda	Basommatophora	Physidae	Physella
wood	Bird Creek	OK520800-01-0050G	29494	13-Jan-04	99	1	13.	Annelida	Oligochaeta	Haplotaxida	Naididae	Dero
wood	Bird Creek	OK520800-01-0050G	29494	13-Jan-04	99	1	93.	Arthropoda	Insecta	Diptera	Chironomidae	Pseudochironomi
wood	Bird Creek	OK520800-01-0050G	29494	13-Jan-04	99	1	179.	Arthropoda	Insecta	Odonata	Coenagrionidae	Argia
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	59	28.	Arthropoda	Crustacea	Amphipoda	Talitridae	Hyalella

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	15	94.	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	6	95.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	5	90.	Arthropoda	Insecta	Diptera	Chironomidae	Chironomini
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	5	267.	Mollusca	Gastropoda	Basommatophora	Physidae	Physella
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	2	4.1	Annelida	Hirudinea	Rhynchobdellida	Glossiphoniidae	Helobdella
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	2	60.	Arthropoda	Insecta	Coleoptera	Elmidae	Stenelmis
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	1	54.	Arthropoda	Insecta	Coleoptera	Elmidae	Dubiraphia
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	1	93.	Arthropoda	Insecta	Diptera	Chironomidae	Pseudochironomi
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	1	128.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Paracloeodes
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	1	131.	Arthropoda	Insecta	Ephemeroptera	Caenidae	Caenis
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	1	180.	Arthropoda	Insecta	Odonata	Coenagrionidae	Enallagma
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	1	228.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	1	234.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	Hydroptila
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	1	263.5	Mollusca	Gastropoda	Basommatophora	Lymnaeidae	Fossaria
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	1	269.	Mollusca	Gastropoda	Basommatophora	Planorbidae	Gyraulus
wood	Bird Creek	OK520800-01-0050G	31088	18-Jun-04	108	1	275.	Mollusca	Pelecypoda	Veneroida	Corbiculidae	Corbicula
wood	Bird Creek	OK520800-01-0050G	31766	25-Jan-05	112	8	4.1	Annelida	Hirudinea	Rhynchobdellida	Glossiphoniidae	Helobdella
wood	Bird Creek	OK520800-01-0050G	31766	25-Jan-05	112	8	213.	Arthropoda	Insecta	Plecoptera	Perlidae	Neoperla
wood	Bird Creek	OK520800-01-0050G	31766	25-Jan-05	112	6	3.6	Annelida	Hirudinea	Pharyngobdellida	Erpobdellidae	Erpobdella
wood	Bird Creek	OK520800-01-0050G	31766	25-Jan-05	112	6	30.2	Arthropoda	Crustacea	Decapoda	Astacidae	Procambarus
wood	Bird Creek	OK520800-01-0050G	31766	25-Jan-05	112	3	173.4	Arthropoda	Insecta	Odonata	Aeshnidae	Boyeria
wood	Bird Creek	OK520800-01-0050G	31766	25-Jan-05	112	2	5.8	Annelida	Hirudinea	Rhynchobdellida	Piscicolidae	
wood	Bird Creek	OK520800-01-0050G	31766	25-Jan-05	112	2	5.9	Annelida	Hirudinea	Rhynchobdellida	Piscicolidae	Piscicola
wood	Bird Creek	OK520800-01-0050G	31766	25-Jan-05	112	2	99.8	Arthropoda	Insecta	Diptera	Muscidae	
wood	Bird Creek	OK520800-01-0050G	31766	25-Jan-05	112	2	192.8	Arthropoda	Insecta	Odonata	Libellulidae	Libellula
wood	Bird Creek	OK520800-01-0050G	31766	25-Jan-05	112	1	164.	Arthropoda	Insecta	Lepidoptera	Pyralidae	Petrophila
wood	Bird Creek	OK520800-01-0050G	31766	25-Jan-05	112	1	258.05	Coelenterata	Hydrozoa	Hydroida	Hydridae	Hydra
wood	Bird Creek	OK520800-01-0050G	31766	25-Jan-05	112	1	272.	Mollusca	Gastropoda	Neotaenioglossa	Pleuroceridae	Goniobasis
wood	Salt Creek	OK520800-03-0010D	31380	02-Aug-04	98	16	87.5	Arthropoda	Insecta	Diptera	Ceratopogonidae	Atrichopogon
wood	Salt Creek	OK520800-03-0010D	31380	02-Aug-04	98	12	126.4	Arthropoda	Insecta	Ephemeroptera	Baetidae	Diphetor
wood	Salt Creek	OK520800-03-0010D	31380	02-Aug-04	98	11	149.6	Arthropoda	Insecta	Ephemeroptera	Polymitarcyidae	Tortopus
wood	Salt Creek	OK520800-03-0010D	31380	02-Aug-04	98	3	23.27	ARTHROPODA	Acari	Arcarina	Protziidae	Wandesia
wood	Salt Creek	OK520800-03-0010D	31380	02-Aug-04	98	3	87.	Arthropoda	Insecta	Diptera	Ceratopogonidae	
wood	Salt Creek	OK520800-03-0010D	31380	02-Aug-04	98	3	174.	Arthropoda	Insecta	Odonata	Aeshnidae	Nasiaeschna
wood	Salt Creek	OK520800-03-0010D	31380	02-Aug-04	98	2	86.	Arthropoda	Insecta	Diptera	Athericidae	Atherix
wood	Salt Creek	OK520800-03-0010D	31380	02-Aug-04	98	2	122.5	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acentrella
wood	Salt Creek	OK520800-03-0010D	31380	02-Aug-04	98	2	188.5	Arthropoda	Insecta	Odonata	Gomphidae	Lanthus
wood	Salt Creek	OK520800-03-0010D	31380	02-Aug-04	98	1	23.3	Arthropoda	Acari	Arcarina	Sperchonidae	Sperchonopsis
wood	Salt Creek	OK520800-03-0010D	31380	02-Aug-04	98	1	31.	Arthropoda	Crustacea	Decapoda	Cambaridae	
wood	Salt Creek	OK520800-03-0010D	31380	02-Aug-04	98	1	93.	Arthropoda	Insecta	Diptera	Chironomidae	Pseudochironomi
wood	Salt Creek	OK520800-03-0010D	31380	02-Aug-04	98	1	121.4	Arthropoda	Insecta	Ephemeroptera	Ameletidae	Ameletus
wood	Salt Creek	OK520800-03-0010D	31380	02-Aug-04	98	1	122.7	Arthropoda	Insecta	Ephemeroptera	Baetidae	Acerpenna
wood	Salt Creek	OK520800-03-0010D	31380	02-Aug-04	98	1	161.5	ARTHROPODA	Insecta	Lepidoptera	Pyralidae	Acentria
veg	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	106	18	223.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	Agapetus

Appendix C. Macroinvertebrate collection data.

Sample type	Sitename	Wbid	SAMPLEID	Date	TotBugsIDd	Number	RefNum	BugPhylum	BugClass	BugOrder	BugFamily	BugGenus
veg	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	106	9	192.	Arthropoda	Insecta	Odonata	Libellulidae	
veg	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	106	7	27.	Arthropoda	Crustacea	Amphipoda	Talitridae	
veg	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	106	7	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
veg	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	106	5	192.83	ARTHROPODA	Insecta	Odonata	Libellulidae	Macrothemis
veg	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	106	3	136.1	Arthropoda	Insecta	Ephemeroptera	Ephemeridae	Hexagenia
veg	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	106	3	178.	Arthropoda	Insecta	Odonata	Coenagrionidae	
veg	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	106	2	110.5	Arthropoda	Insecta	Diptera	Tabanidae	Chrysops
veg	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	106	2	167.	Arthropoda	Insecta	Megaloptera	Corydalidae	Corydalus
veg	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	106	1	87.75	Arthropoda	Insecta	Diptera	Ceratopogonidae	Dasyhelea
veg	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	106	1	88.06	Arthropoda	Insecta	Diptera	Ceratopogonidae	Probezzia
veg	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	106	1	107.8	Arthropoda	Insecta	Diptera	Stratiomyidae	Nemotelus
veg	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	106	1	110.3	Arthropoda	Insecta	Diptera	Tabanidae	Chlorotabanus
veg	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	106	1	192.85	Arthropoda	Insecta	Odonata	Libellulidae	Miathyria
veg	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	106	1	207.	Arthropoda	Insecta	Plecoptera	Nemouridae	Amphinemura
veg	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	106	1	210.	Arthropoda	Insecta	Plecoptera	Perlidae	
wood	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	87	14	123.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis
wood	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	87	13	192.83	ARTHROPODA	Insecta	Odonata	Libellulidae	Macrothemis
wood	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	87	11	223.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	Agapetus
wood	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	87	7	192.	Arthropoda	Insecta	Odonata	Libellulidae	
wood	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	87	3	107.8	Arthropoda	Insecta	Diptera	Stratiomyidae	Nemotelus
wood	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	87	2	5.	Annelida	Hirudinea	Rhynchobdellida	Glossiphoniidae	Placobdella
wood	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	87	2	118.	Arthropoda	Insecta	Diptera	Tipulidae	Limonia
wood	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	87	1	88.06	Arthropoda	Insecta	Diptera	Ceratopogonidae	Probezzia
wood	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	87	1	110.5	Arthropoda	Insecta	Diptera	Tabanidae	Chrysops
wood	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	87	1	120.52	Arthropoda	Insecta	Diptera	Tipulidae	Unidentified genus#2
wood	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	87	1	136.1	Arthropoda	Insecta	Ephemeroptera	Ephemeridae	Hexagenia
wood	Salt Creek	OK520800-03-0010D	31768	25-Jan-05	87	1	178.	Arthropoda	Insecta	Odonata	Coenagrionidae	

Appendix D.1. OCC assessment results for beneficial use support.

OKWBID	Name	USE	ATTAINMENT	Impairment	POTENTIAL SOURCE	Date Last Monitored	Comments
OK120400010400_00	Coody Creek	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK120400010400_00	Coody Creek	Agriculture	F125			2005	
OK120400010400_00	Coody Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	46	2005	
OK120400010400_00	Coody Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	87	2005	
OK120400010400_00	Coody Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	108	2005	
OK120400010400_00	Coody Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	59	2005	
OK120400010400_00	Coody Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	69	2005	
OK120400010400_00	Coody Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	92	2005	
OK120400010400_00	Coody Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	111	2005	
OK120400010400_00	Coody Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	128	2005	
OK120400010400_00	Coody Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	133	2005	
OK120400010400_00	Coody Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	136	2005	
OK120400010400_00	Coody Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	140	2005	
OK120400010400_00	Coody Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	62	2005	
OK120400010400_00	Coody Creek	Industrial and Municipal Process and Cooling Water	F135			2005	
OK120400010400_00	Coody Creek	Primary Body Contact Recreation	I137			2005	
OK120400010400_00	Coody Creek	Public and Private Water Supply	I138			2005	
OK120400020010_00	Dirty Creek	Aesthetics	I124			2005	"not threatened" result from dichotomous process
OK120400020010_00	Dirty Creek	Agriculture	F125			2005	
OK120400020010_00	Dirty Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	46	2005	
OK120400020010_00	Dirty Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	87	2005	
OK120400020010_00	Dirty Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	108	2005	
OK120400020010_00	Dirty Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	92	2005	
OK120400020010_00	Dirty Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	136	2005	
OK120400020010_00	Dirty Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	140	2005	
OK120400020010_00	Dirty Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	21	2005	
OK120400020010_00	Dirty Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	46	2005	
OK120400020010_00	Dirty Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	87	2005	
OK120400020010_00	Dirty Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	108	2005	
OK120400020010_00	Dirty Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	103	2005	
OK120400020010_00	Dirty Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	140	2005	
OK120400020010_00	Dirty Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	49	2005	
OK120400020010_00	Dirty Creek	Industrial and Municipal Process and Cooling Water	F135			2005	
OK120400020010_00	Dirty Creek	Primary Body Contact Recreation	I137			2005	
OK120400020010_00	Dirty Creek	Public and Private Water Supply	I138			2005	
OK120400020030_00	Dirty Creek, South Fork	Aesthetics	I124			2005	"not threatened" result from dichotomous process
OK120400020030_00	Dirty Creek, South Fork	Agriculture	***			2005	
OK120400020030_00	Dirty Creek, South Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	46	2005	
OK120400020030_00	Dirty Creek, South Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	87	2005	
OK120400020030_00	Dirty Creek, South Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	108	2005	

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OKWBID	Name	USE	ATTAINMENT	Impairment	POTENTIAL SOURCE	Date Last Monitored	Comments
OK120400020030_00	Dirty Creek, South Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	85	2005	
OK120400020030_00	Dirty Creek, South Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	92	2005	
OK120400020030_00	Dirty Creek, South Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	111	2005	
OK120400020030_00	Dirty Creek, South Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	133	2005	
OK120400020030_00	Dirty Creek, South Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	136	2005	
OK120400020030_00	Dirty Creek, South Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	140	2005	
OK120400020030_00	Dirty Creek, South Fork	Industrial and Municipal Process and Cooling Water	F135			2005	
OK120400020030_00	Dirty Creek, South Fork	Primary Body Contact Recreation	***			2005	
OK120400020110_00	Dirty Creek, Georges Fork	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK120400020110_00	Dirty Creek, Georges Fork	Agriculture	F125			2005	
OK120400020110_00	Dirty Creek, Georges Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	46	2005	
OK120400020110_00	Dirty Creek, Georges Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	87	2005	
OK120400020110_00	Dirty Creek, Georges Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	108	2005	
OK120400020110_00	Dirty Creek, Georges Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	85	2005	
OK120400020110_00	Dirty Creek, Georges Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	92	2005	
OK120400020110_00	Dirty Creek, Georges Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	111	2005	
OK120400020110_00	Dirty Creek, Georges Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	133	2005	
OK120400020110_00	Dirty Creek, Georges Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	136	2005	
OK120400020110_00	Dirty Creek, Georges Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	140	2005	
OK120400020110_00	Dirty Creek, Georges Fork	Industrial and Municipal Process and Cooling Water	F135			2005	
OK120400020110_00	Dirty Creek, Georges Fork	Primary Body Contact Recreation	I137			2005	
OK120400020110_00	Dirty Creek, Georges Fork	Public and Private Water Supply	I138			2005	
OK120400020160_00	Butler Creek	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK120400020160_00	Butler Creek	Agriculture	F125			2005	
OK120400020160_00	Butler Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	46	2005	
OK120400020160_00	Butler Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	87	2005	
OK120400020160_00	Butler Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	108	2005	
OK120400020160_00	Butler Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	92	2005	
OK120400020160_00	Butler Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	136	2005	
OK120400020160_00	Butler Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	59	2005	
OK120400020160_00	Butler Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	140	2005	
OK120400020160_00	Butler Creek	Industrial and Municipal Process and Cooling Water	F135			2005	
OK120400020160_00	Butler Creek	Primary Body Contact Recreation	I137			2005	
OK120400020190_00	Elk Creek	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK120400020190_00	Elk Creek	Agriculture	N125	385	49	2005	
OK120400020190_00	Elk Creek	Agriculture	N125	385	103	2005	
OK120400020190_00	Elk Creek	Agriculture	N125	385	140	2005	
OK120400020190_00	Elk Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	46	2005	
OK120400020190_00	Elk Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	87	2005	
OK120400020190_00	Elk Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	108	2005	

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OKWBID	Name	USE	ATTAINMENT	Impairment	POTENTIAL SOURCE	Date Last Monitored	Comments
OK120400020190_00	Elk Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	62	2005	
OK120400020190_00	Elk Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	85	2005	
OK120400020190_00	Elk Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	92	2005	
OK120400020190_00	Elk Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	111	2005	
OK120400020190_00	Elk Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	133	2005	
OK120400020190_00	Elk Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	136	2005	
OK120400020190_00	Elk Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	140	2005	
OK120400020190_00	Elk Creek	Industrial and Municipal Process and Cooling Water	N135	385	49	2005	
OK120400020190_00	Elk Creek	Industrial and Municipal Process and Cooling Water	N135	385	103	2005	
OK120400020190_00	Elk Creek	Industrial and Municipal Process and Cooling Water	N135	385	140	2005	
OK120400020190_00	Elk Creek	Primary Body Contact Recreation	I137			2005	
OK120400020240_00	Shady Grove Creek	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK120400020240_00	Shady Grove Creek	Agriculture	N125	385	49	2005	
OK120400020240_00	Shady Grove Creek	Agriculture	N125	385	103	2005	
OK120400020240_00	Shady Grove Creek	Agriculture	N125	385	140	2005	
OK120400020240_00	Shady Grove Creek	Agriculture	N125	399	49	2005	
OK120400020240_00	Shady Grove Creek	Agriculture	N125	399	103	2005	
OK120400020240_00	Shady Grove Creek	Agriculture	N125	399	140	2005	
OK120400020240_00	Shady Grove Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	441	8	2005	
OK120400020240_00	Shady Grove Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	441	92	2005	
OK120400020240_00	Shady Grove Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	441	103	2005	
OK120400020240_00	Shady Grove Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	441	140	2005	
OK120400020240_00	Shady Grove Creek	Industrial and Municipal Process and Cooling Water	N135	385	49	2005	
OK120400020240_00	Shady Grove Creek	Industrial and Municipal Process and Cooling Water	N135	385	103	2005	
OK120400020240_00	Shady Grove Creek	Industrial and Municipal Process and Cooling Water	N135	385	140	2005	
OK120400020240_00	Shady Grove Creek	Industrial and Municipal Process and Cooling Water	N135	399	49	2005	
OK120400020240_00	Shady Grove Creek	Industrial and Municipal Process and Cooling Water	N135	399	103	2005	
OK120400020240_00	Shady Grove Creek	Industrial and Municipal Process and Cooling Water	N135	399	140	2005	
OK120400020240_00	Shady Grove Creek	Primary Body Contact Recreation	I137			2005	
OK120410010100_00	Cloud Creek	Aesthetics	F124			2005	
OK120410010100_00	Cloud Creek	Agriculture	F125			2005	
OK120410010100_00	Cloud Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	46	2005	Physical/Chemical
OK120410010100_00	Cloud Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	87	2005	Physical/Chemical
OK120410010100_00	Cloud Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	108	2005	Physical/Chemical
OK120410010100_00	Cloud Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	85	2005	Physical/Chemical
OK120410010100_00	Cloud Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	92	2005	Physical/Chemical
OK120410010100_00	Cloud Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	111	2005	Physical/Chemical
OK120410010100_00	Cloud Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	133	2005	Physical/Chemical
OK120410010100_00	Cloud Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	136	2005	Physical/Chemical
OK120410010100_00	Cloud Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	140	2005	Physical/Chemical

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OKWBID	Name	USE	ATTAINMENT	Impairment	POTENTIAL SOURCE	Date Last Monitored	Comments
OK120410010100_00	Cloud Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	21	2005	Physical/Chemical
OK120410010100_00	Cloud Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	46	2005	Physical/Chemical
OK120410010100_00	Cloud Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	87	2005	Physical/Chemical
OK120410010100_00	Cloud Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	108	2005	Physical/Chemical
OK120410010100_00	Cloud Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	103	2005	Physical/Chemical
OK120410010100_00	Cloud Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	140	2005	Physical/Chemical
OK120410010100_00	Cloud Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	49	2005	Physical/Chemical
OK120410010100_00	Cloud Creek	Industrial and Municipal Process and Cooling Water	F135			2005	
OK120410010100_00	Cloud Creek	Primary Body Contact Recreation	I137			2005	
OK120410010100_00	Cloud Creek	Public and Private Water Supply	I138			2005	
OK120410010220_00	Snake Creek	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK120410010220_00	Snake Creek	Agriculture	F125			2005	
OK120410010220_00	Snake Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	46	2005	
OK120410010220_00	Snake Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	87	2005	
OK120410010220_00	Snake Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	108	2005	
OK120410010220_00	Snake Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	59	2005	
OK120410010220_00	Snake Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	85	2005	
OK120410010220_00	Snake Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	92	2005	
OK120410010220_00	Snake Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	100	2005	
OK120410010220_00	Snake Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	111	2005	
OK120410010220_00	Snake Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	128	2005	
OK120410010220_00	Snake Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	133	2005	
OK120410010220_00	Snake Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	136	2005	
OK120410010220_00	Snake Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	62	2005	
OK120410010220_00	Snake Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	140	2005	
OK120410010220_00	Snake Creek	Industrial and Municipal Process and Cooling Water	F135			2005	
OK120410010220_00	Snake Creek	Primary Body Contact Recreation	I137			2005	
OK120410010220_00	Snake Creek	Public and Private Water Supply	I138			2005	
OK120420020010_00	Polecat Creek	Aesthetics	I124			2005	"not threatened" result from dichotomous process
OK120420020010_00	Polecat Creek	Agriculture	***			2005	
OK120420020010_00	Polecat Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***			2005	
OK120420020010_00	Polecat Creek	Industrial and Municipal Process and Cooling Water	***			2005	
OK120420020010_00	Polecat Creek	Primary Body Contact Recreation	I137			2005	
OK121700030370_00	Ballard Creek	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK121700030370_00	Ballard Creek	Agriculture	N125	399	49	2005	
OK121700030370_00	Ballard Creek	Agriculture	N125	399	103	2005	
OK121700030370_00	Ballard Creek	Agriculture	N125	399	140	2005	
OK121700030370_00	Ballard Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	F133			2005	
OK121700030370_00	Ballard Creek	Industrial and Municipal Process and Cooling Water	N135	399	49	2005	
OK121700030370_00	Ballard Creek	Industrial and Municipal Process and Cooling Water	N135	399	103	2005	

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OKWBID	Name	USE	ATTAINMENT	Impairment	POTENTIAL SOURCE	Date Last Monitored	Comments
OK121700030370_00	Ballard Creek	Industrial and Municipal Process and Cooling Water	N135	399	140	2005	
OK121700030370_00	Ballard Creek	Primary Body Contact Recreation	I137			2005	
OK121700060040_00	Battle Creek	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK121700060040_00	Battle Creek	Agriculture	N125	399	49	2005	
OK121700060040_00	Battle Creek	Agriculture	N125	399	103	2005	
OK121700060040_00	Battle Creek	Agriculture	N125	399	140	2005	
OK121700060040_00	Battle Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***			2005	
OK121700060040_00	Battle Creek	Industrial and Municipal Process and Cooling Water	N135	399	49	2005	
OK121700060040_00	Battle Creek	Industrial and Municipal Process and Cooling Water	N135	399	103	2005	
OK121700060040_00	Battle Creek	Industrial and Municipal Process and Cooling Water	N135	399	140	2005	
OK121700060040_00	Battle Creek	Primary Body Contact Recreation	I137			2005	
OK220100030010_00	Brazil Creek	Aesthetics	***			2005	"not threatened" result from dichotomous process
OK220100030010_00	Brazil Creek	Agriculture	F125			2005	
OK220100030010_00	Brazil Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	46	2005	
OK220100030010_00	Brazil Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	87	2005	
OK220100030010_00	Brazil Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	108	2005	
OK220100030010_00	Brazil Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	92	2005	
OK220100030010_00	Brazil Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	111	2005	
OK220100030010_00	Brazil Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	133	2005	
OK220100030010_00	Brazil Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	136	2005	
OK220100030010_00	Brazil Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	140	2005	
OK220100030010_00	Brazil Creek	Industrial and Municipal Process and Cooling Water	F135			2005	
OK220100030010_00	Brazil Creek	Primary Body Contact Recreation	***	215	46	2005	
OK220100030010_00	Brazil Creek	Primary Body Contact Recreation	***	215	92	2005	
OK220100030010_00	Brazil Creek	Primary Body Contact Recreation	***	215	108	2005	
OK220100030010_00	Brazil Creek	Primary Body Contact Recreation	***	215	136	2005	
OK220100030010_00	Brazil Creek	Primary Body Contact Recreation	***	215	140	2005	
OK220100030010_00	Brazil Creek	Public and Private Water Supply	I138			2005	
OK220100040020_00	Fourche Maline Creek	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK220100040020_00	Fourche Maline Creek	Agriculture	***			2005	
OK220100040020_00	Fourche Maline Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	46	2005	
OK220100040020_00	Fourche Maline Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	87	2005	
OK220100040020_00	Fourche Maline Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	108	2005	
OK220100040020_00	Fourche Maline Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	62	2005	
OK220100040020_00	Fourche Maline Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	69	2005	
OK220100040020_00	Fourche Maline Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	85	2005	
OK220100040020_00	Fourche Maline Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	92	2005	
OK220100040020_00	Fourche Maline Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	111	2005	
OK220100040020_00	Fourche Maline Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	133	2005	
OK220100040020_00	Fourche Maline Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	136	2005	

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OKWBID	Name	USE	ATTAINMENT	Impairment	POTENTIAL SOURCE	Date Last Monitored	Comments
OK220100040020_00	Fourche Maline Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	140	2005	
OK220100040020_00	Fourche Maline Creek	Industrial and Municipal Process and Cooling Water	***			2005	
OK220100040020_00	Fourche Maline Creek	Primary Body Contact Recreation	I137			2005	
OK220100040020_00	Fourche Maline Creek	Public and Private Water Supply	***			2005	
OK220200030010_10	Sallisaw Creek	Aesthetics	I124			2005	"not threatened" result from dichotomous process
OK220200030010_10	Sallisaw Creek	Agriculture	F125			2005	
OK220200030010_10	Sallisaw Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	F133			2005	
OK220200030010_10	Sallisaw Creek	Industrial and Municipal Process and Cooling Water	F135			2005	
OK220200030010_10	Sallisaw Creek	Primary Body Contact Recreation	I137			2005	
OK220200030010_10	Sallisaw Creek	Public and Private Water Supply	I138			2005	
OK220200040010_10	Sans Bois Creek	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK220200040010_10	Sans Bois Creek	Agriculture	N125	385	49	2005	
OK220200040010_10	Sans Bois Creek	Agriculture	N125	385	103	2005	
OK220200040010_10	Sans Bois Creek	Agriculture	N125	385	140	2005	
OK220200040010_10	Sans Bois Creek	Agriculture	N125	399	49	2005	
OK220200040010_10	Sans Bois Creek	Agriculture	N125	399	103	2005	
OK220200040010_10	Sans Bois Creek	Agriculture	N125	399	140	2005	
OK220200040010_10	Sans Bois Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	46	2005	
OK220200040010_10	Sans Bois Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	87	2005	
OK220200040010_10	Sans Bois Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	108	2005	
OK220200040010_10	Sans Bois Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	85	2005	
OK220200040010_10	Sans Bois Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	92	2005	
OK220200040010_10	Sans Bois Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	111	2005	
OK220200040010_10	Sans Bois Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	133	2005	
OK220200040010_10	Sans Bois Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	136	2005	
OK220200040010_10	Sans Bois Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	140	2005	
OK220200040010_10	Sans Bois Creek	Industrial and Municipal Process and Cooling Water	N135	385	49	2005	
OK220200040010_10	Sans Bois Creek	Industrial and Municipal Process and Cooling Water	N135	385	103	2005	
OK220200040010_10	Sans Bois Creek	Industrial and Municipal Process and Cooling Water	N135	385	140	2005	
OK220200040010_10	Sans Bois Creek	Industrial and Municipal Process and Cooling Water	N135	399	49	2005	
OK220200040010_10	Sans Bois Creek	Industrial and Municipal Process and Cooling Water	N135	399	103	2005	
OK220200040010_10	Sans Bois Creek	Industrial and Municipal Process and Cooling Water	N135	399	140	2005	
OK220200040010_10	Sans Bois Creek	Primary Body Contact Recreation	I137			2005	
OK220200040010_10	Sans Bois Creek	Public and Private Water Supply	I138			2005	
OK220600010100_20	Mill Creek	Aesthetics	***			2005	"not threatened" result from dichotomous process
OK220600010100_20	Mill Creek	Agriculture	***			2005	
OK220600010100_20	Mill Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	46	2005	
OK220600010100_20	Mill Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	87	2005	
OK220600010100_20	Mill Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	108	2005	
OK220600010100_20	Mill Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	92	2005	

Appendix D.1. OCC assessment results for beneficial use support.

OKWBID	Name	USE	ATTAINMENT	Impairment	POTENTIAL SOURCE	Date Last Monitored	Comments
OK220600010100_20	Mill Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	111	2005	
OK220600010100_20	Mill Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	133	2005	
OK220600010100_20	Mill Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	136	2005	
OK220600010100_20	Mill Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	140	2005	
OK220600010100_20	Mill Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	413	21	2005	
OK220600010100_20	Mill Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	413	46	2005	
OK220600010100_20	Mill Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	413	87	2005	
OK220600010100_20	Mill Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	413	108	2005	
OK220600010100_20	Mill Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	413	103	2005	
OK220600010100_20	Mill Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	413	140	2005	
OK220600010100_20	Mill Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	413	49	2005	
OK220600010100_20	Mill Creek	Industrial and Municipal Process and Cooling Water	***			2005	
OK220600010100_20	Mill Creek	Primary Body Contact Recreation	***	215	46	2005	
OK220600010100_20	Mill Creek	Primary Body Contact Recreation	***	215	92	2005	
OK220600010100_20	Mill Creek	Primary Body Contact Recreation	***	215	108	2005	
OK220600010100_20	Mill Creek	Primary Body Contact Recreation	***	215	111	2005	
OK220600010100_20	Mill Creek	Primary Body Contact Recreation	***	215	133	2005	
OK220600010100_20	Mill Creek	Primary Body Contact Recreation	***	215	136	2005	
OK220600010100_20	Mill Creek	Primary Body Contact Recreation	***	215	140	2005	
OK220600010100_20	Mill Creek	Public and Private Water Supply	I138			2005	
OK220600030010_10	Brushy Creek	Aesthetics	N124	317	103	2005	
OK220600030010_10	Brushy Creek	Aesthetics	N124	317	111	2005	
OK220600030010_10	Brushy Creek	Aesthetics	N124	317	140	2005	
OK220600030010_10	Brushy Creek	Aesthetics	N124	317	49	2005	
OK220600030010_10	Brushy Creek	Agriculture	***			2005	
OK220600030010_10	Brushy Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	317	103	2005	
OK220600030010_10	Brushy Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	317	111	2005	
OK220600030010_10	Brushy Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	317	140	2005	
OK220600030010_10	Brushy Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	317	49	2005	
OK220600030010_10	Brushy Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	46	2005	
OK220600030010_10	Brushy Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	87	2005	
OK220600030010_10	Brushy Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	108	2005	
OK220600030010_10	Brushy Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	92	2005	
OK220600030010_10	Brushy Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	111	2005	
OK220600030010_10	Brushy Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	133	2005	
OK220600030010_10	Brushy Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	136	2005	
OK220600030010_10	Brushy Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	140	2005	
OK220600030010_10	Brushy Creek	Industrial and Municipal Process and Cooling Water	***			2005	
OK220600030010_10	Brushy Creek	Primary Body Contact Recreation	I137			2005	
OK220600030010_10	Brushy Creek	Public and Private Water Supply	N138	317	103	2005	

Appendix D.1. OCC assessment results for beneficial use support.

OKWBID	Name	USE	ATTAINMENT	Impairment	POTENTIAL SOURCE	Date Last Monitored	Comments
OK220600030010_10	Brushy Creek	Public and Private Water Supply	N138	317	111	2005	
OK220600030010_10	Brushy Creek	Public and Private Water Supply	N138	317	140	2005	
OK220600030010_10	Brushy Creek	Public and Private Water Supply	N138	317	49	2005	
OK220600030050_00	Peaceable Creek	Aesthetics	I124			2005	"not threatened" result from dichotomous process
OK220600030050_00	Peaceable Creek	Agriculture	***			2005	
OK220600030050_00	Peaceable Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	46	2005	
OK220600030050_00	Peaceable Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	87	2005	
OK220600030050_00	Peaceable Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	108	2005	
OK220600030050_00	Peaceable Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	62	2005	
OK220600030050_00	Peaceable Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	85	2005	
OK220600030050_00	Peaceable Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	92	2005	
OK220600030050_00	Peaceable Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	111	2005	
OK220600030050_00	Peaceable Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	133	2005	
OK220600030050_00	Peaceable Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	136	2005	
OK220600030050_00	Peaceable Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	140	2005	
OK220600030050_00	Peaceable Creek	Industrial and Municipal Process and Cooling Water	***			2005	
OK220600030050_00	Peaceable Creek	Primary Body Contact Recreation	I137			2005	
OK220600030050_00	Peaceable Creek	Public and Private Water Supply	I138			2005	
OK520500010170_00	Bad Creek	Aesthetics	I124			2005	"not threatened" result from dichotomous process
OK520500010170_00	Bad Creek	Agriculture	F125			2005	
OK520500010170_00	Bad Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	413	21	2005	
OK520500010170_00	Bad Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	413	46	2005	
OK520500010170_00	Bad Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	413	87	2005	
OK520500010170_00	Bad Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	413	108	2005	
OK520500010170_00	Bad Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	413	103	2005	
OK520500010170_00	Bad Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	413	140	2005	
OK520500010170_00	Bad Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	413	49	2005	
OK520500010170_00	Bad Creek	Industrial and Municipal Process and Cooling Water	F135			2005	
OK520500010170_00	Bad Creek	Primary Body Contact Recreation	I137			2005	
OK520500010170_00	Bad Creek	Public and Private Water Supply	***			2005	
OK520500010200_00	Alabama Creek	Aesthetics	***			2005	"not threatened" result from dichotomous process
OK520500010200_00	Alabama Creek	Agriculture	F125			2005	
OK520500010200_00	Alabama Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	46	2005	
OK520500010200_00	Alabama Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	87	2005	
OK520500010200_00	Alabama Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	108	2005	
OK520500010200_00	Alabama Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	92	2005	
OK520500010200_00	Alabama Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	111	2005	
OK520500010200_00	Alabama Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	133	2005	
OK520500010200_00	Alabama Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	136	2005	
OK520500010200_00	Alabama Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	140	2005	

Appendix D.1. OCC assessment results for beneficial use support.

OKWBID	Name	USE	ATTAINMENT	Impairment	POTENTIAL SOURCE	Date Last Monitored	Comments
OK520500010200_00	Alabama Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	21	2005	
OK520500010200_00	Alabama Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	46	2005	
OK520500010200_00	Alabama Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	87	2005	
OK520500010200_00	Alabama Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	108	2005	
OK520500010200_00	Alabama Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	103	2005	
OK520500010200_00	Alabama Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	140	2005	
OK520500010200_00	Alabama Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	49	2005	
OK520500010200_00	Alabama Creek	Industrial and Municipal Process and Cooling Water	F135			2005	
OK520500010200_00	Alabama Creek	Primary Body Contact Recreation	I137			2005	
OK520500010200_00	Alabama Creek	Public and Private Water Supply	I138			2005	
OK520500020010_00	Wewoka Creek	Aesthetics	***			2005	"not threatened" result from dichotomous process
OK520500020010_00	Wewoka Creek	Agriculture	***	138	49	2005	
OK520500020010_00	Wewoka Creek	Agriculture	***	138	103	2005	
OK520500020010_00	Wewoka Creek	Agriculture	***	138	140	2005	
OK520500020010_00	Wewoka Creek	Fish and Wildlife Propagation- Habitat Limited Aquatic Community	***	413	21	2005	
OK520500020010_00	Wewoka Creek	Fish and Wildlife Propagation- Habitat Limited Aquatic Community	***	413	46	2005	
OK520500020010_00	Wewoka Creek	Fish and Wildlife Propagation- Habitat Limited Aquatic Community	***	413	87	2005	
OK520500020010_00	Wewoka Creek	Fish and Wildlife Propagation- Habitat Limited Aquatic Community	***	413	108	2005	
OK520500020010_00	Wewoka Creek	Fish and Wildlife Propagation- Habitat Limited Aquatic Community	***	413	103	2005	
OK520500020010_00	Wewoka Creek	Fish and Wildlife Propagation- Habitat Limited Aquatic Community	***	413	140	2005	
OK520500020010_00	Wewoka Creek	Fish and Wildlife Propagation- Habitat Limited Aquatic Community	***	413	49	2005	
OK520500020010_00	Wewoka Creek	Industrial and Municipal Process and Cooling Water	N135	138	49	2005	
OK520500020010_00	Wewoka Creek	Industrial and Municipal Process and Cooling Water	N135	138	103	2005	
OK520500020010_00	Wewoka Creek	Industrial and Municipal Process and Cooling Water	N135	138	140	2005	
OK520500020010_00	Wewoka Creek	Primary Body Contact Recreation	F137			2005	
OK520500020010_00	Wewoka Creek	Public and Private Water Supply	***			2005	
OK520500020090_00	Little Wewoka Creek	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK520500020090_00	Little Wewoka Creek	Agriculture	***			2005	
OK520500020090_00	Little Wewoka Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	46	2005	
OK520500020090_00	Little Wewoka Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	87	2005	
OK520500020090_00	Little Wewoka Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	108	2005	
OK520500020090_00	Little Wewoka Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	92	2005	
OK520500020090_00	Little Wewoka Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	100	2005	
OK520500020090_00	Little Wewoka Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	111	2005	
OK520500020090_00	Little Wewoka Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	133	2005	
OK520500020090_00	Little Wewoka Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	136	2005	
OK520500020090_00	Little Wewoka Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***	322	140	2005	
OK520500020090_00	Little Wewoka Creek	Industrial and Municipal Process and Cooling Water	***			2005	
OK520500020090_00	Little Wewoka Creek	Primary Body Contact Recreation	I137			2005	
OK520500020090_00	Little Wewoka Creek	Public and Private Water Supply	I138			2005	

Appendix D.1. OCC assessment results for beneficial use support.

OKWBID	Name	USE	ATTAINMENT	Impairment	POTENTIAL SOURCE	Date Last Monitored	Comments
OK520600030010_00	Canadian Sandy Creek	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK520600030010_00	Canadian Sandy Creek	Agriculture	F125			2005	
OK520600030010_00	Canadian Sandy Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***			2005	"undetermined" result from bioanalysis
OK520600030010_00	Canadian Sandy Creek	Industrial and Municipal Process and Cooling Water	F135			2005	
OK520600030010_00	Canadian Sandy Creek	Primary Body Contact Recreation	I137			2005	
OK520600030010_00	Canadian Sandy Creek	Public and Private Water Supply	I138			2005	
OK520700010080_00	Gentry Creek	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK520700010080_00	Gentry Creek	Agriculture	F125			2005	
OK520700010080_00	Gentry Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	46	2005	
OK520700010080_00	Gentry Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	87	2005	
OK520700010080_00	Gentry Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	108	2005	
OK520700010080_00	Gentry Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	92	2005	
OK520700010080_00	Gentry Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	136	2005	
OK520700010080_00	Gentry Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	140	2005	
OK520700010080_00	Gentry Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	21	2005	
OK520700010080_00	Gentry Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	46	2005	
OK520700010080_00	Gentry Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	87	2005	
OK520700010080_00	Gentry Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	108	2005	
OK520700010080_00	Gentry Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	103	2005	
OK520700010080_00	Gentry Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	140	2005	
OK520700010080_00	Gentry Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	413	49	2005	
OK520700010080_00	Gentry Creek	Industrial and Municipal Process and Cooling Water	F135			2005	
OK520700010080_00	Gentry Creek	Primary Body Contact Recreation	I137			2005	
OK520700030100_00	Salt Creek (Creek Co.)	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK520700030100_00	Salt Creek (Creek Co.)	Agriculture	***			2005	
OK520700030100_00	Salt Creek (Creek Co.)	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	46	2005	
OK520700030100_00	Salt Creek (Creek Co.)	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	87	2005	
OK520700030100_00	Salt Creek (Creek Co.)	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	108	2005	
OK520700030100_00	Salt Creek (Creek Co.)	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	92	2005	
OK520700030100_00	Salt Creek (Creek Co.)	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	100	2005	
OK520700030100_00	Salt Creek (Creek Co.)	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	136	2005	
OK520700030100_00	Salt Creek (Creek Co.)	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	140	2005	
OK520700030100_00	Salt Creek (Creek Co.)	Industrial and Municipal Process and Cooling Water	***			2005	
OK520700030100_00	Salt Creek (Creek Co.)	Primary Body Contact Recreation	I137			2005	
OK520700030100_00	Salt Creek (Creek Co.)	Public and Private Water Supply	I138			2005	
OK520700030220_00	Camp Creek	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK520700030220_00	Camp Creek	Agriculture	F125			2005	
OK520700030220_00	Camp Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	46	2005	
OK520700030220_00	Camp Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	87	2005	
OK520700030220_00	Camp Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	108	2005	

Appendix D.1. OCC assessment results for beneficial use support.

OKWBID	Name	USE	ATTAINMENT	Impairment	POTENTIAL SOURCE	Date Last Monitored	Comments
OK520700030220_00	Camp Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	92	2005	
OK520700030220_00	Camp Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	111	2005	
OK520700030220_00	Camp Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	128	2005	
OK520700030220_00	Camp Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	133	2005	
OK520700030220_00	Camp Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	136	2005	
OK520700030220_00	Camp Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	322	140	2005	
OK520700030220_00	Camp Creek	Industrial and Municipal Process and Cooling Water	F135			2005	
OK520700030220_00	Camp Creek	Primary Body Contact Recreation	I137			2005	
OK520700030220_00	Camp Creek	Public and Private Water Supply	I138			2005	
OK520700040020_00	Dry Creek	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK520700040020_00	Dry Creek	Agriculture	F125			2005	
OK520700040020_00	Dry Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	***			2005	"undetermined" result from bioanalysis
OK520700040020_00	Dry Creek	Industrial and Municipal Process and Cooling Water	F135			2005	
OK520700040020_00	Dry Creek	Primary Body Contact Recreation	I137			2005	
OK520700040020_00	Dry Creek	Public and Private Water Supply	I138			2005	
OK520700040260_00	Quapaw Creek	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK520700040260_00	Quapaw Creek	Agriculture	F125			2005	
OK520700040260_00	Quapaw Creek	Fish and Wildlife Propagation- Warm Water Aquatic Community	I133			2005	"undetermined" result from bioanalysis
OK520700040260_00	Quapaw Creek	Industrial and Municipal Process and Cooling Water	F135			2005	
OK520700040260_00	Quapaw Creek	Primary Body Contact Recreation	I137			2005	
OK520700040260_00	Quapaw Creek	Public and Private Water Supply	I138			2005	
OK520710010010_00	Canadian River, Deep Fork	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK520710010010_00	Canadian River, Deep Fork	Agriculture	F125			2005	
OK520710010010_00	Canadian River, Deep Fork	Fish and Wildlife Propagation- Warm Water Aquatic Community	***			2005	"undetermined" result from bioanalysis
OK520710010010_00	Canadian River, Deep Fork	Industrial and Municipal Process and Cooling Water	F135			2005	
OK520710010010_00	Canadian River, Deep Fork	Primary Body Contact Recreation	I137			2005	
OK520710010010_00	Canadian River, Deep Fork	Public and Private Water Supply	I138			2005	
OK520800010050_00	Bird Creek	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK520800010050_00	Bird Creek	Agriculture	F125			2005	
OK520800010050_00	Bird Creek	Fish and Wildlife Propagation- Habitat Limited Aquatic Community	F131			2005	
OK520800010050_00	Bird Creek	Industrial and Municipal Process and Cooling Water	F135			2005	
OK520800010050_00	Bird Creek	Secondary Body Contact Recreation	I139			2005	
OK520800030010_00	Salt Creek (Seminole Co.)	Aesthetics	F124			2005	"not threatened" result from dichotomous process
OK520800030010_00	Salt Creek (Seminole Co.)	Agriculture	***	138	49	2005	
OK520800030010_00	Salt Creek (Seminole Co.)	Agriculture	***	138	103	2005	
OK520800030010_00	Salt Creek (Seminole Co.)	Agriculture	***	138	140	2005	
OK520800030010_00	Salt Creek (Seminole Co.)	Agriculture	***	399	49	2005	
OK520800030010_00	Salt Creek (Seminole Co.)	Agriculture	***	399	103	2005	
OK520800030010_00	Salt Creek (Seminole Co.)	Agriculture	***	399	140	2005	
OK520800030010_00	Salt Creek (Seminole Co.)	Fish and Wildlife Propagation- Warm Water Aquatic Community	N133	230	140	2005	

Appendix D.1. OCC assessment results for beneficial use support.

OKWBID	Name	USE	ATTAINMENT	Impairment	POTENTIAL SOURCE	Date Last Monitored	Comments
OK520800030010_00	Salt Creek (Seminole Co.)	Industrial and Municipal Process and Cooling Water	N135	138	49	2005	
OK520800030010_00	Salt Creek (Seminole Co.)	Industrial and Municipal Process and Cooling Water	N135	138	103	2005	
OK520800030010_00	Salt Creek (Seminole Co.)	Industrial and Municipal Process and Cooling Water	N135	138	140	2005	
OK520800030010_00	Salt Creek (Seminole Co.)	Industrial and Municipal Process and Cooling Water	N135	399	49	2005	
OK520800030010_00	Salt Creek (Seminole Co.)	Industrial and Municipal Process and Cooling Water	N135	399	103	2005	
OK520800030010_00	Salt Creek (Seminole Co.)	Industrial and Municipal Process and Cooling Water	N135	399	140	2005	
OK520800030010_00	Salt Creek (Seminole Co.)	Primary Body Contact Recreation	I137			2005	
OK520800030010_00	Salt Creek (Seminole Co.)	Public and Private Water Supply	***			2005	

Appendix D.2. Key for beneficial use support codes and cause and source codes.

USE ID	DESCRIPTION
124	Aesthetic
125	Agriculture
130	Cool Water Aquatic Community
131	Habitat Limited Aquatic Community
133	Warm Water Aquatic Community
137	Primary Body Contact Recreation
138	Public and Private Water Supply
139	Secondary Body Contact Recreation
1005	Sensitive Water Supply
IMPAIRMENT ID	
91	Ammonia (unionized)--toxin
138	Chloride
153	Chlorpyrifos
215	Enterococcus
217	Escherichia coli
230	Fishes bioassessments (streams)
302	Nitrates
317	Oil and grease
322	Oxygen, dissolved
385	Sulfates
398	Total coliform
399	Total dissolved solids
400	Total fecal coliform
413	Turbidity
441	pH
462	Total phosphorous
SOURCE ID	
68	Land application of wastewater biosolids (non-ag)
84	Municipal (urbanized high density area)
85	Municipal point source discharges
92	On-site treatment systems (septic systems and similar decentralized systems)
100	Permitted runoff from confined animal feeding operations (CAFOs)
102	Petroleum / natural gas activities (Legacy)
140	Source unknown
155	Natural sources
156	Agriculture

Appendix E.1. High quality sites: raw chemical and physical water quality data.

Ecoregion	Site	WBID	Date	SAMPLEID	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	Ammonia (mg/L)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrate/Nitrite (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Avail N	Total N	TotDisSolids (mg/L)	TotHardness (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	09-Sep-97	6472	6.18	75.7			26.2	133.0	7.1																
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	09-Sep-97	6479	5.81	71.8			25.8	138.0	6.6																
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	09-Sep-97	6466	4.98				23.8	133.0	7.0																7.41
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	10-Sep-97	5944	4.67	55.4			23.5	135.1	7.1																
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	02-Jul-98	11921	3.63		32.8	29.0	29.9	100.0	7.1																12.00
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	22-Jul-03	27882	1.83	22.6	19.1	41.9	27.8	183.4	7.4	0.069	2.1	8.5	12.6	0.060	0.080	**0.020**	**0.110**	**0.149**	0.190	126.0	50.0	0.011	0.090	**10.0**	0.00
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	26-Aug-03	29549	6.10	80.8	17.0		28.8	169.0	7.1	0.019	2.6	10.6	8.3	**0.020**	0.040	**0.020**	0.643	**0.059**	0.683	144.0	48.3	0.012	0.095	12.0	0.00
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	30-Sep-03	28316	5.79	59.5	13.9	35.7	19.3	162.8	7.2	0.019	5.5	7.7	14.5	0.050	0.070	**0.020**	0.437	**0.089**	0.507	83.0	42.4	0.050	0.083	17.0	0.00
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	04-Nov-03	28468	4.37	50.1	21.3	45.8	22.1	171.5	7.1	**0.015**	3.1	7.8	12.8	**0.020**	0.040	**0.020**	0.426	**0.055**	0.466	85.0	47.4	**0.005**	0.077	37.0	0.00
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	16-Dec-03	28621	8.23	67.0	19.6	23.7	6.5	135.1	7.4	**0.015**	3.4	8.4	13.8	0.020	0.040	**0.020**	**0.110**	**0.055**	0.150	66.0	33.1	0.012	0.105	13.0	19.11
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	24-Feb-04	29667	10.58	96.1	25.0	9.8	11.0	113.8	7.1	0.035	4.0	6.7	16.8	**0.100**	0.120	**0.020**	**0.110**	**0.155**	0.230	55.0	30.6	0.030	0.102	16.0	52.43
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	30-Mar-04	29843	8.36	89.3	29.6	28.0	18.5	129.5	5.8	0.023	2.1	7.2	18.4	0.090	0.110	**0.020**	0.208	**0.133**	0.318	85.0	35.7	0.031	0.090	22.0	
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	11-May-04	30210	5.74	67.8	43.0	42.0	23.8	100.6	7.4	0.038	**2.0**	5.3	11.4	0.170	0.190	**0.020**	**0.110**	**0.228**	0.300	42.0	28.3	0.027	0.119	**10.0**	16.91
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	19-Jul-04	30597	5.26	66.9	35.8	52.0	27.6	104.6	7.0	0.052	2.8	43.0	10.4	0.130	0.150	**0.020**	0.310	**0.202**	0.460	81.0	32.5	0.036	0.105	12.0	21.76
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	23-Aug-04	30864	4.74	58.3	17.7	55.0	25.8	122.1	7.3	**0.015**	**2.0**	5.5	8.7	**0.020**	0.040	**0.020**	**0.110**	**0.055**	0.150	76.0	39.3	0.039	0.092	15.0	3.61
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	27-Sep-04	31074	3.20	36.6	14.9	71.0	22.6	159.0	8.2	0.030	**2.0**	7.0	9.7	**0.020**	0.040	**0.020**	**0.110**	**0.070**	0.150	57.0	48.6	0.018	0.105	21.0	0.00
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	13-Oct-04	31200	6.78	70.8	34.3	42.0	17.4	142.3	7.2																34.54
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	11-Jan-05	31810	10.19	93.5		34.0	11.0	86.1	7.4	**0.015**	**2.0**	3.7	10.2	0.140	0.160	**0.020**	**0.110**	**0.175**	0.270	66.0	20.4	0.015	0.051	17.0	
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	26-Apr-05	32294	9.40	98.4	31.2	29.0	17.5	121.0	7.2	**0.015**	3.3	6.3	17.0	0.080	0.100	**0.020**	**0.110**	**0.115**	0.210	42.0	34.4	0.018	0.038	20.0	42.46
AV	Fourche Maline Creek: Leflore	OK220100-04-0010M	25-May-05	32636	5.00	61.2	33.3	36.0	25.8	159.6	7.0	**0.015**	**2.0**	9.0	21.3	0.170	0.190	**0.020**	0.170	**0.205**	0.360	76.0	42.0	0.025	0.107	28.0	8.46
AV	Mill Creek: Byrd's	OK410400-04-0090G	22-Sep-91	2915	8.30		5.0	268.0	17.5	560.0	8.2			16.0	13.0				0.400				288.0		**0.010**	**1.0**	
AV	Mill Creek: Byrd's	OK410400-04-0090G	12-Dec-91	2916						397.0				18.0	5.0				0.600				164.0		0.140	68.0	
AV	Mill Creek: Byrd's	OK410400-04-0090G	18-Jan-92	2917	12.30		4.6	261.0	7.0	603.0	8.6			24.0	13.0								288.0				
AV	Mill Creek: Byrd's	OK410400-04-0090G	16-Apr-92	2918			3.1	265.0	21.5	552.0	7.3			16.0	10.0				**0.200**				290.0		**0.010**	19.0	
AV	Mill Creek: Byrd's	OK410400-04-0090G	18-May-92	2919						556.0				27.0	9.0				0.300				245.0		0.080	36.0	
AV	Mill Creek: Byrd's	OK410400-04-0090G	23-Jul-92	2920	7.90		6.0	288.0	26.5	583.0	8.2			26.0	164.0				**0.200**				290.0		**0.010**	14.0	
AV	Mill Creek: Byrd's	OK410400-04-0090G	13-Oct-92	2921	9.30		5.2	247.0	21.5	567.0	8.3			10.0	19.0				**0.200**				224.0		**0.010**	12.0	
AV	Mill Creek: Byrd's	OK410400-04-0090G	14-Apr-93	3151						420.0				17.0	12.0				0.400				200.0		0.050	43.0	
AV	Mill Creek: Byrd's	OK410400-04-0090G	28-Apr-93	3152	8.30		4.8	282.0	16.0	590.0	8.3			16.0	12.0				0.300				310.0		**0.010**	7.0	
AV	Mill Creek: Byrd's	OK410400-04-0090G	10-May-93	3153						427.0				14.0	13.0				0.200				230.0		0.030	26.0	
AV	Mill Creek: Byrd's	OK410400-04-0090G	04-Aug-93	3154	6.80		10.0	252.0	23.5	541.0	8.4			18.0	12.0				**0.200**				260.0		0.020	10.0	
AV	Mill Creek: Byrd's	OK410400-04-0090G	20-Sep-94	11872	8.30		7.7	250.0	22.0	492.0	8.6																8.91
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	21-Apr-98	15773	7.53		14.9	25.0	16.3	53.5	6.5																13.00
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	27-Apr-99	16760	9.50		21.1	15.0	15.3	29.9	5.5	**0.008**		3.0	**2.0**	**0.050**	0.052	**0.002**	0.260	**0.060**	0.312		20.0		0.040	3.5	
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	25-May-99	16761	8.72		20.7	9.0	20.5	48.2	6.1	**0.005**		6.0	4.1	**0.050**	0.052	**0.002**	0.140	**0.057**	0.192		16.0	0.010	0.034	6.0	40.70
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	16-Jun-99	16762	7.49		20.2	6.2	23.5	47.0	7.1																
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	22-Jun-99	13534	7.17		14.3	11.4	25.4	61.1		**0.020**		4.0	9.6	**0.050**	0.052	**0.002**	0.100	**0.072**	0.152		16.0	**0.004**	0.021	4.5	7.57
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	20-Jul-99	13293	6.56		7.5	14.6	30.5	77.1		**0.050**		8.0	6.6	**0.034**	0.036	**0.002**	0.110	**0.086**	0.146		22.0	0.003	0.026	9.5	0.64
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	24-Aug-99	13347	4.84		7.3	30.4	28.4	122.6	6.9	0.031		8.0	12.0	**0.050**	0.051	**0.001**	0.560	**0.082**	0.611		35.0	**0.005**	0.034	7.5	0.00
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	05-Oct-99	13224	7.28		4.5	17.0	17.5	118.8	6.4	**0.022**		11.5	16.3	**0.045**	0.046	**0.001**	0.160	**0.068**	0.206		26.0	**0.005**	0.018	3.0	0.00
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	09-Nov-99	13261	7.58		3.1	22.0	16.3	122.7	6.4	**0.026**		12.0	15.3	0.310	0.312	**0.002**	0.200	**0.338**	0.512		32.0	**0.001**	0.010	3.5	0.20
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	14-Dec-99	18187	11.02		20.7	6.2	8.4	54.7	6.0	**0.021**		6.0	5.7	0.175	0.177	**0.002**	**0.100**	**0.198**	0.277		17.0	**0.004**	0.049	6.5	52.70
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	19-Jan-00	18142			11.5	6.5	11.4	76.2	5.9	**0.009**		10.0	12.6	**0.010**	0.012	**0.002**	**0.100**	**0.021**	0.112		24.0	**0.005**	0.019	4.0	5.07
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	21-Feb-00	18046	11.09		8.4	6.9	10.5	86.4	7.1	**0.011**		10.0	13.1	**0.023**	0.025	**0.002**	0.190	**0.036**	0.215		24.0	**0.002**	0.015	**1.0**	4.53
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	28-Mar-00	17808	8.58		11.3	9.3		87.1	7.1	**0.034**		7.5	13.8	**0.010**	0.012	**0.002**	0.180	**0.046**	0.192		27.0	**0.001**	0.023	6.0	3.80
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	09-May-00	18698	7.88		21.7	8.7	21.0	51.9		0.015		4.0	5.2	**0.049**	0.053	**0.004**	0.160	**0.068**	0.213		28.0	0.003	0.040	4.0	57.42
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	13-Jun-00	21435	7.12		8.7	16.2	28.9	85.7	7.1	**0.029**		6.4	10.5	**0.010**	0.012	**0.002**	0.270	**0.041**	0.282		22.0	**0.002**	0.063	7.5	1.62
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	18-Jul-00	19025	8.35		5.4	15.4	28.9	98.1	8.0	0.050		**5.0**	9.2		0.060		0.090	**0.110**	0.150		10.3	0.005	0.014	2.0	0.30
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	22-Aug-00	19162	4.35		9.9	21.6	26.5	126.3	6.9	0.080		**5.0**	**5.0**		0.060		0.450	**0.140**	0.510		18.5	0.012	0.040	**1.0**	0.00
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	26-Sep-00	21528	7.48		67.2	20.0	17.8	117.5	7.0	**0.050**		5.0	39.8		0.060		0.320	**0.110**	0.380		25.0	0.037	0.079	32.0	2.11
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	30-Oct-00	21817	8.44		19.2	39.0	21.1	81.0	8.3	**0.050**		5.3	11.7		**0.050**		0.160	**0.100**	0.210		16.7	0.012	0.050	12.0	5.54
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	04-Dec-00	22121	11.99		18.5	34.0	5.7	47.0	8.2	**0.050**		**5.0**	8.0		0.070		**0.050**	**0.120**	0.120		10.2	0.007	0.031	1.0	12.44
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	16-Jan-01	22285	12.68		24.5	33.0	4.8	60.0	8.1	**0.050**		**5.0**	11.2		0.210		0.050	**0.260**	0.260		8.3	0.005	0.029	**1.0**	76.20
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	20-Feb-01	22581	7.24		15.4	21.0	10.6	48.0	7.8	**0.050**		**5.0**	9.7		0.060		0.090	**0.110**	0.150		**5.0**	0.006	0.032	**1.0**	45.02

Appendix E.1. High quality sites: raw chemical and physical water quality data.

Ecoregion	Site	WBID	Date	SAMPLEID	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	Ammonia (mg/L)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrate/Nitrite (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Avail N	Total N	TotDisSolids (mg/L)	TotHardness (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
AV	Mountain Fork of San Bois Creek	OK220200-04-0050J	26-Mar-01	22729	9.57		12.5	5.0	11.1	55.6	7.5	**0.050**		**5.0**	10.9		**0.050**		0.110	**0.100**	0.160		14.8	0.008	0.010	14.0	8.54
AV	Sugar Loaf Creek	OK220100-01-0160G	10-Jan-95	5735	13.00		22.4	9.8	6.6	63.0	6.5			6.0	12.5	**0.250**	0.260	**0.010**	0.230		0.490		21.0		0.020	5.0	39.87
AV	Sugar Loaf Creek	OK220100-01-0160G	16-Aug-95	12064	5.10		8.9	47.0	31.0	115.0	6.6																0.23
AV	Sugar Loaf Creek	OK220100-01-0160G	09-Oct-95	5737	5.30		36.6	24.0	18.8	70.0	6.5	0.020		5.5	6.9	0.300			0.450				24.0		0.060	16.5	1.00
AV	Sugar Loaf Creek	OK220100-01-0160G	08-Feb-96	5738	12.60		18.1	16.0	6.7	73.5	7.0			16.0	17.4	0.170			0.160				20.0		0.011	5.0	16.23
AV	Sugar Loaf Creek	OK220100-01-0160G	10-Apr-96	5739	8.13		26.1	9.0	17.2	72.5	7.1			7.0	10.1	0.012			0.200				30.0		0.050	11.5	18.79
AV	Sugar Loaf Creek	OK220100-01-0160G	07-Oct-96	5740	7.62		21.6	19.0	20.7	74.0	7.7			5.0	14.0	0.160	0.166	0.006	0.350		0.516		34.0	0.009	0.070	11.5	8.94
AV	Sugar Loaf Creek	OK220100-01-0160G	01-Apr-97	5741	7.95		18.6	20.0	16.3	82.0	6.8			4.3	12.7	**0.021**	0.024	**0.003**	0.100		0.124		26.0	**0.005**	0.022	5.4	13.06
AV	Sugar Loaf Creek	OK220100-01-0160G	07-Jul-97	5742	5.62		25.8	24.0	25.5	91.0	7.0			4.2	4.4	0.210	0.212	0.002	0.320		0.532		30.0	0.006	0.051	11.0	7.25
BMtns	Lower Vian Creek	OK220200-02-0130G	08-May-91	11172	9.20		3.4	86.0	17.3	178.0	7.9			**10.0**	**20.0**		**0.100**		0.171		0.271		99.0		0.010	**1.0**	
BMtns	Lower Vian Creek	OK220200-02-0130G	29-Oct-91	315						83.0		0.020		4.5	**5.0**	0.090			0.300				46.0	0.030	0.030	**1.0**	
BMtns	Lower Vian Creek	OK220200-02-0130G	06-Nov-91	316	10.00		4.2	68.8	9.0	173.0	6.8	**0.010**		4.5	13.0				**0.200**				84.0	**0.010**	**0.010**	1.0	
BMtns	Lower Vian Creek	OK220200-02-0130G	31-Jan-92	317	11.40		10.0	90.0	8.0	227.0	7.6	**0.010**		3.0	13.8				**0.200**				110.0	**0.010**	0.010	1.0	
BMtns	Lower Vian Creek	OK220200-02-0130G	21-Apr-92	318	9.00		15.0	73.0	13.5	153.0	7.9	0.010		1.8	8.5				0.600				70.0	**0.010**	0.020	8.0	
BMtns	Lower Vian Creek	OK220200-02-0130G	29-May-92	319						138.0		0.020		5.0	7.7				**0.200**				66.0	0.010	0.030	6.0	
BMtns	Lower Vian Creek	OK220200-02-0130G	21-Jul-92	320	5.20		2.7	111.0		258.0	7.9	**0.010**		4.0	7.7				**0.200**				130.0	0.020	**0.010**	10.0	
BMtns	Lower Vian Creek	OK220200-02-0130G	10-Jan-95	5769	9.90		0.8	127.0	8.5	214.0	7.2			4.0	12.7	**0.250**	0.260	**0.010**	0.100		0.360		102.0		0.010	0.7	7.02
BMtns	Lower Vian Creek	OK220200-02-0130G	03-Apr-95	5770	10.80		12.0	70.2	12.8	180.0	7.3			3.5	10.3	0.380	0.390	**0.010**	0.110		0.500		86.0		0.040	13.3	13.38
BMtns	Lower Vian Creek	OK220200-02-0130G	17-Jul-95	5771	5.60		3.0	38.0	27.2	299.0	7.0			5.0	**2.0**	**0.100**			0.160				140.0		0.010	**1.0**	0.07
BMtns	Lower Vian Creek	OK220200-02-0130G	09-Oct-95	5772	9.60		2.5	122.0	16.5	187.0	7.9	0.030		3.0	2.1	0.060			**0.010**				115.0		0.020	**1.0**	8.04
BMtns	Lower Vian Creek	OK220200-02-0130G	07-Feb-96	5773	11.21		1.9	90.0	5.6	127.0	7.8			5.0	13.9	**0.003**			**0.010**				100.0		0.004	1.0	3.99
BMtns	Lower Vian Creek	OK220200-02-0130G	10-Apr-96	5774	9.60		16.0	83.0	11.3	198.0	7.4			5.0	13.9	0.002			0.100				100.0		0.060	26.0	10.89
BMtns	Lower Vian Creek	OK220200-02-0130G	23-Jul-96	12129	4.86		4.5	122.0	24.8	269.0	8.0																1.93
BMtns	Lower Vian Creek	OK220200-02-0130G	07-Oct-96	5775	8.39		2.0	124.0	17.8	284.0	8.1			2.8	6.7	0.051	0.056	**0.005**	0.020		0.076		158.0	**0.005**	0.010	4.0	2.08
BMtns	Lower Vian Creek	OK220200-02-0130G	22-Jan-97	5776	11.72		1.8	97.0	8.0	242.0	7.9			4.5	15.0	0.049	0.050	**0.001**	**0.010**		0.060		118.0	0.003	0.006	**1.0**	4.75
BMtns	Lower Vian Creek	OK220200-02-0130G	31-Mar-97	5777	10.66		4.5	80.0	16.6	190.0	8.1			2.6	10.4	0.068	0.069	**0.001**	0.010		0.079		102.0	0.003	0.012	**0.1**	28.05
CIP	Big Cabin Creek	OK121600-06-0220I	13-Aug-01	23920	5.81	74.0	14.4	86.0	26.3	525.0	9.3	0.320	**2.0**	50.6	128.5	10.350	10.360	**0.010**	0.990	**10.680**	11.350	417.0	202.7	1.849	1.918	12.0	0.00
CIP	Big Cabin Creek	OK121600-06-0220I	13-Sep-01	24039	4.62		6.8	112.5	19.0	575.0	7.8																0.00
CIP	Big Cabin Creek	OK121600-06-0220I	17-Sep-01	24236	4.11	50.0	9.3	69.0	24.8	611.0	7.8	0.547	3.0	50.0	97.3	5.400	5.410	**0.010**	1.393	**5.957**	6.803	375.5	178.1	1.799	2.402	17.0	0.00
CIP	Big Cabin Creek	OK121600-06-0220I	22-Oct-01	24372	7.65	78.0	34.5	22.0	15.6	493.0	9.1	0.084	**2.0**	4.3	207.7	0.750	0.760	**0.010**	0.560	**0.844**	1.320	392.0	298.2	0.016	0.062	**10.0**	4.08
CIP	Big Cabin Creek	OK121600-06-0220I	03-Dec-01	24474	9.59	85.0	11.9	85.0	9.2	929.0	6.3	0.268	6.0	6.3	591.0	**0.010**	0.020	**0.010**	0.447	**0.288**	0.467	958.0	715.7	0.007	0.008	**10.0**	3.80
CIP	Big Cabin Creek	OK121600-06-0220I	07-Jan-02	24669	12.98	118.0	9.7	102.0	10.0	488.6	8.7	0.299	10.0	5.7	330.4	0.630	0.640	**0.010**	0.667	**0.939**	1.307	596.5	483.2	0.010	0.049	**10.0**	5.46
CIP	Big Cabin Creek	OK121600-06-0220I	11-Feb-02	24812	10.99	84.0	20.7	92.0	3.7	467.0	8.5	0.106		5.8	273.1	0.770	0.780	**0.010**	0.373	**0.886**	1.153	507.0	418.3	0.027	0.082	21.0	19.31
CIP	Big Cabin Creek	OK121600-06-0220I	18-Mar-02	24942	6.48	57.0	13.5	84.0	9.6	601.0	8.8	0.126	**2.0**	6.7	256.9	0.540	0.550	**0.010**	0.479	**0.676**	1.029	508.0	418.8	0.016	0.057	14.0	17.11
CIP	Big Cabin Creek	OK121600-06-0220I	22-Apr-02	25110	7.84	89.0	64.4	59.0	20.1	654.0	8.6	0.291	4.0	5.5	222.0	0.700	0.710	**0.010**	0.900	**1.001**	1.610	502.7	321.4	0.042	0.118	27.0	21.90
CIP	Big Cabin Creek	OK121600-06-0220I	08-Jul-02	25322	5.91	75.0	8.6	80.0	26.5	982.0	7.1	0.279	**2.0**	5.2	380.6	0.530	0.540	**0.010**	0.697	**0.819**	1.237	724.0	527.4	**0.005**	0.018	**10.0**	1.65
CIP	Big Cabin Creek	OK121600-06-0220I	05-Aug-02	25612	5.93	76.0	13.4	44.0	27.2	658.0	7.4	0.153	2.0	5.5	218.7	0.600	0.610	**0.010**	0.566	**0.763**	1.176	436.0	292.1	0.037	0.040	**10.0**	6.13
CIP	Big Cabin Creek	OK121600-06-0220I	16-Sep-02	25865	4.64	52.0	17.9	52.0	20.1	409.6	7.1	0.317	**2.0**	49.0	85.9	17.280	17.390	0.110	1.403	**17.707**	18.793	393.0	181.9	1.957	1.910	**10.0**	0.12
CIP	Big Cabin Creek	OK121600-06-0220I	14-Oct-02	25991	8.58	93.0	1.8	58.0	18.8	653.0	7.8	0.085	3.0	46.9	67.0	19.680	19.690	**0.010**	0.518	**19.775**	20.208	403.0	158.8	2.389	2.455	**10.0**	0.00
CIP	Big Cabin Creek	OK121600-06-0220I	18-Nov-02	26128	7.49	80.0	4.2	65.0	17.0	654.0	8.5	0.222	2.0	44.3	85.0	0.610	0.620	**0.010**	0.758	**0.842**	1.378	385.0	184.8	0.103	0.153	**10.0**	0.00
CIP	Big Cabin Creek	OK121600-06-0220I	16-Dec-02	26269	4.89	41.0	5.5	131.0	7.7	415.2	8.2	**0.015**	**2.0**	54.9	100.4	**0.010**	0.020	**0.010**	0.251	**0.035**	0.271	336.0	224.3	0.006	0.039	24.0	0.54
CIP	Big Cabin Creek	OK121600-06-0220I	27-Jan-03	26646	11.72		8.7	122.0	0.8		8.1	**0.015**	**2.0**	10.9	591.8	0.040	0.120	0.080	**0.110**	**0.135**	0.230	1063.0	773.9	**0.005**	0.010	**10.0**	1.74
CIP	Big Cabin Creek	OK121600-06-0220I	03-Mar-03	27211	9.97	78.0	15.8	87.0	4.8	1107.0	8.2	**0.015**	5.5	10.6	421.2	0.450	0.460	**0.010**	**0.110**	**0.475**	0.570	789.0	530.6	**0.005**	0.025	**10.0**	54.15
CIP	Big Cabin Creek	OK121600-06-0220I	07-Apr-03	27410	7.03		62.2	295.0	11.6	864.0	7.7	0.027	3.2	6.6	293.5	0.230	0.240	**0.010**	0.308	**0.267**	0.548	575.0	403.4	0.013	0.138	69.0	72.50
CIP	Big Cabin Creek	OK121600-06-0220I	12-May-03	27556	4.22	45.8	26.6	124.0	19.4	882.0	7.9	0.126	2.0	7.1	314.3	0.570	0.590	**0.020**	0.471	**0.716**	1.061	673.0	429.5			27.0	13.92
CIP	Big Cabin Creek	OK121600-06-0220I	16-Jun-03	27744	4.05	47.7	55.4	55.0	23.5	356.6	8.0	0.081	3.1	4.7	96.5	0.470	0.480	**0.010**	0.737	**0.561**	1.217	209.0	157.8	0.045	0.132	45.0	10.03
CIP	Big Creek	OK121510-03-0010D	19-May-98	15726	7.42		9.4	183.0	26.2	423.0	7.9																16.00
CIP	Big Creek	OK121510-03-0010D	13-Aug-01	23922	4.11	55.0	13.8	86.0	29.4	273.9	8.4	0.240	**2.0**	5.6	11.9	0.460	0.470	**0.010**	0.600	**0.710**	1.070	153.0	112.9	0.085	0.095	18.0	0.00
CIP	Big Creek	OK121510-03-0010D	13-Sep-01	24038	4.63		22.6	82.0	24.5	253.1	7.5																0.00
CIP	Big Creek	OK121510-03-0010D	17-Sep-01	24238	4.13	49.0	73.4	67.0	22.1	260.4	7.5	0.867	7.0	9.4	22.3	0.540	0.550	**0.010**	2.776	**1.417**	3.326	152.5	105.9	0.045	0.218	23.0	0.00
CIP	Big Creek	OK121510-03-0010D	22-Oct-01	24374	8.37	89.0	12.2	95.0	17.7	308.4	7.5	0.251	2.0	3.4	18.7	0.610	0.620	**0.010**	0.607	**0.871**	1.227	202.5	186.5	**0.005**	0.036	**10.0**	1.46
CIP	Big Creek	OK121510-03-0010D	03-Dec-01	24476	9.20	80.0	4.1	134.0	8.5	290.9	6.6	0.051	3.0	5.4	20.3	**0.010**	0.020	**0.010**	0.343	**0.071**	0.363	220.5	212.6	0.010	0.035	14.0	1.34
CIP	Big Creek	OK121510-03-0010D	07-Jan-02	24671	13.27	98.0	7.8	160.0	2.8	273.9	9.0	0.176	7.0	3.9	21.0	0.480	0.490	**0.010**	0.453	**0.666**	0.943	257.0	224.9	0.005	0.017	**10.0**	3.75
CIP	Big Creek	OK121510-03-0010D	11-Feb-02	24814	10.40	81.0	13.3	37.0	4.9	260.1	8.4	0.024		3.6	18.7	0.560	0.820	0.260	0.266	**0.844**	1.086	245.5	204.9	0.009	0.052	**10.0**	12.13

Appendix E.1. High quality sites: raw chemical and physical water quality data.

Ecoregion	Site	WBID	Date	SAMPLEID	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	Ammonia (mg/L)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrate/Nitrite (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Avail N	Total N	TotDisSolids (mg/L)	TotHardness (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
CIP	Big Creek	OK121510-03-0010D	18-Mar-02	24944	6.11	56.0	9.7	130.0	10.8	296.2	8.6	0.151	**2.0**	4.1	21.1	**0.010**	0.100	0.090	0.335	**0.251**	0.435	212.0	200.7	0.010	0.029	10.0	6.08
CIP	Big Creek	OK121510-03-0010D	22-Apr-02	25112	7.19	81.0	59.9	119.0	20.0	310.4	8.5	0.226	3.0	3.6	16.3	0.570	0.700	0.130	0.801	**0.926**	1.501	181.4	155.3	0.024	0.125	35.0	16.42
CIP	Big Creek	OK121510-03-0010D	08-Jul-02	25324	6.79	91.0	6.8	144.0	29.8	406.2	7.2	0.122	3.0	5.4	14.3	0.510	0.520	**0.010**	0.423	**0.642**	0.943	247.0	202.0	**0.005**	0.014	**10.0**	1.69
CIP	Big Creek	OK121510-03-0010D	05-Aug-02	25614	5.73	77.0	7.2	126.0	29.5	356.3	7.3	0.138	5.0	4.5	11.6	0.560	0.570	**0.010**	0.550	**0.708**	1.120	207.0	169.6	0.036	0.037	**10.0**	2.83
CIP	Big Creek	OK121510-03-0010D	16-Sep-02	25867	3.22	38.0	9.7	132.0	22.7	299.7	6.4	0.352	**2.0**	6.4	11.6	0.500	0.650	0.150	0.811	**1.002**	1.461	162.0	145.8	0.024	0.045	**10.0**	0.00
CIP	Big Creek	OK121510-03-0010D	14-Oct-02	25993	8.40	85.0	9.5	106.0	15.6	358.5	7.4	0.028	2.0	18.4	12.2	0.710	0.720	**0.010**	0.423	**0.748**	1.143	205.0	146.1	**0.005**	0.042	19.0	0.00
CIP	Big Creek	OK121510-03-0010D	18-Nov-02	26130	7.56	74.0	6.5	72.0	13.0	455.2	8.9	0.029	2.0	19.6	23.8	0.050	0.160	0.110	0.344	**0.189**	0.504	226.0	207.9	0.012	0.030	**10.0**	0.00
CIP	Big Creek	OK121510-03-0010D	16-Dec-02	26271	5.46	46.0	3.7	136.0	7.8	265.3	8.5	**0.015**	**2.0**	16.1	13.3	0.120	0.130	**0.010**	0.206	**0.145**	0.336	239.0	175.0	**0.005**	0.031	**10.0**	0.00
CIP	Big Creek	OK121510-03-0010D	27-Jan-03	26648	13.31		5.9	134.0	3.9	407.4	8.4	**0.015**	**2.0**	6.1	28.0	0.140	0.150	**0.010**	**0.110**	**0.165**	0.260	235.0	200.0	**0.005**	0.008	**10.0**	2.26
CIP	Big Creek	OK121510-03-0010D	03-Mar-03	27213	10.97	90.0	11.5	137.0	6.2	397.4	8.6	**0.015**	4.1	7.1	24.9	0.650	0.660	**0.010**	**0.110**	**0.675**	0.770	144.0	191.5	**0.005**	0.005	**10.0**	40.69
CIP	Big Creek	OK121510-03-0010D	07-Apr-03	27412	7.92		29.1	109.0	11.4	425.6	8.5	**0.015**	**2.0**	6.5	1962.5	**0.010**	0.320	0.310	0.224	**0.335**	0.544	335.0	203.7	**0.005**	0.071	31.0	78.52
CIP	Big Creek	OK121510-03-0010D	12-May-03	27558	4.59	51.7	34.7	56.0	21.2	365.7	8.2	0.025	**2.0**	5.3	18.6	0.290	0.310	**0.020**	0.662	**0.335**	0.972	233.0	177.1	0.017	0.099	32.0	12.82
CIP	Big Creek	OK121510-03-0010D	16-Jun-03	27746	4.67	58.6	13.8	135.0	26.9	424.1	8.3	0.036	2.8	6.3	17.6	0.050	0.160	0.110	0.383	**0.196**	0.543	236.0	202.8	**0.005**	0.075	**10.0**	2.70
CIP	Cloud Creek	OK120410-02-0010H	21-Jul-03	27859	3.03	35.8	57.1	96.0	27.2	437.3	7.9	0.222	2.4	40.8	29.8	0.050	0.070	**0.020**	0.503	**0.292**	0.573	245.0	125.5	0.019	0.174	52.0	0.00
CIP	Cloud Creek	OK120410-02-0010H	25-Aug-03	28162	4.05	51.7	39.0	117.0	28.4	441.1	8.2	0.141	2.5	38.2	26.8	0.100	0.240	0.140	0.433	**0.381**	0.673	209.0	129.0	0.031	0.101	56.0	0.00
CIP	Cloud Creek	OK120410-02-0010H	30-Sep-03	28329	5.99	67.2	59.2	49.0	17.3	239.1	8.0	0.144	2.5	17.9	17.9	0.170	0.220	0.050	0.822	**0.364**	1.042	165.0	64.7	0.047	0.083	49.0	0.99
CIP	Cloud Creek	OK120410-02-0010H	03-Nov-03	28473	4.13	44.8	19.4	81.0	19.3	322.1	7.9	**0.015**	2.6	24.1	23.2	**0.020**	0.040	**0.020**	0.305	**0.055**	0.345	173.0	101.1	**0.005**	0.092	29.0	0.52
CIP	Cloud Creek	OK120410-02-0010H	15-Dec-03	28626	9.32	74.2	17.1	86.0	5.7	385.6	5.8	0.018	3.3	35.3	33.6	0.070	0.090	**0.020**	0.150	**0.108**	0.240	205.0	103.7	0.022	0.085	**10.0**	3.34
CIP	Cloud Creek	OK120410-02-0010H	20-Jan-04	29477	11.70	84.8	65.0	42.0	1.9		7.4	0.064		51.2	40.8	0.460	0.480	**0.020**	0.776	**0.544**	1.256	274.0	84.8	0.044	0.148	23.0	4.53
CIP	Cloud Creek	OK120410-02-0010H	23-Feb-04	29685	7.36	66.4	29.9	40.0	10.4	308.7	7.4	0.035	4.2	47.5	53.7	0.050	0.070	**0.020**	0.351	**0.105**	0.421	240.0	104.3	0.030	0.084	26.0	2.26
CIP	Cloud Creek	OK120410-02-0010H	29-Mar-04	29824	6.33	66.1	56.1	34.0	14.9	368.4	7.8	0.019	3.4	39.8	37.3	0.130	0.150	**0.020**	0.508	**0.169**	0.658	193.0	95.5	0.030	0.124	48.0	
CIP	Cloud Creek	OK120410-02-0010H	03-May-04	30184	7.13	71.1	39.0	50.0	15.1	277.0	8.0	0.042	**2.0**	29.4	25.9	0.290	0.350	0.060	0.546	**0.392**	0.896	182.0	76.0	0.029	0.143	33.0	16.22
CIP	Cloud Creek	OK120410-02-0010H	01-Jun-04	30409	4.80	50.1	42.2	88.0	26.5	400.1	7.7	0.054	**2.0**	52.2	27.9	0.230	0.250	**0.020**	**0.110**	**0.304**	0.360	221.0	108.4	0.012	0.145	26.0	8.16
CIP	Cloud Creek	OK120410-02-0010H	12-Jul-04	30570	4.40	55.6	41.9	35.0	27.4	1357.0	7.8	0.051	2.7	11.9	10.0	0.170	0.190	**0.020**	0.290	**0.241**	0.480	88.0	41.7	0.077	0.179	29.0	
CIP	Cloud Creek	OK120410-02-0010H	16-Aug-04	30795	4.90	57.0	29.8	86.0	23.0	354.6	7.7	**0.015**	2.6	36.0	27.7	**0.020**	0.040	**0.020**	0.280	**0.055**	0.320	211.0	102.0	0.048	0.114	33.0	0.48
CIP	Cloud Creek	OK120410-02-0010H	20-Sep-04	31011	3.90	44.9	38.7	46.0	22.5	360.9	8.0	**0.015**	5.7	34.7	25.0	**0.020**	0.040	**0.020**	0.180	**0.055**	0.220	212.0	104.5	0.013	0.108	59.0	0.00
CIP	Cloud Creek	OK120410-02-0010H	25-Oct-04	31233	2.88	29.0	13.5	141.0	18.7	288.0	8.0	**0.015**	**2.0**	26.0	17.4	**0.020**	0.040	**0.020**	**0.110**	**0.055**	0.150	183.0	101.8	0.016	0.082	24.0	0.00
CIP	Cloud Creek	OK120410-02-0010H	29-Nov-04	31354	9.61	83.6	51.3	51.0	8.9	217.5	8.5	**0.015**	3.7	20.6	21.2	0.230	0.250	**0.020**	0.610	**0.265**	0.860	**10.0**	56.9	0.037	0.134	12.0	36.15
CIP	Cloud Creek	OK120410-02-0010H	07-Feb-05	31941	10.05	85.8		39.0	8.3	346.6	8.2	0.019	4.8	35.7	40.8	0.250	0.270	**0.020**	0.770	**0.289**	1.040	267.0	80.4	0.040	0.247	228.0	
CIP	Cloud Creek	OK120410-02-0010H	14-Mar-05	32089	8.39	74.2	8.3	63.0	9.9	419.7		**0.015**	2.3	80.1	59.4	0.080	0.100	**0.020**	**0.110**	**0.115**	0.210	293.0	139.1	0.006	0.044	**10.0**	21.09
CIP	Cloud Creek	OK120410-02-0010H	18-Apr-05	32269	7.58	84.3	28.6	82.0	18.4	459.9	7.6	0.026	**2.0**	60.4	48.1	0.050	0.070	**0.020**	**0.110**	**0.096**	0.180	237.0	116.9	0.013	0.033	42.0	12.73
CIP	Cloud Creek	OK120410-02-0010H	24-May-05	32641	5.48	66.2		89.0	25.3	7.4	7.5	**0.015**	**2.0**	122.2	45.9	0.050	0.070	**0.020**	2.530	**0.085**	2.600	381.0	161.2	0.009	0.350	30.0	1.20
CIP	Fly Creek	OK121600-03-0180G	10-May-95	12210	9.40		10.0	71.0	15.5	143.0	7.9																
CIP	Fly Creek	OK121600-03-0180G	20-May-98	15075	7.88		5.9	99.0	24.8	264.0	8.1																0.39
CIP	Fly Creek	OK121600-03-0180G	08-Jul-99	16690	6.60		8.3	67.0	23.5	258.0	7.5																6.50
CIP	Little Caney River	OK121400-02-0140H	13-Aug-01	23914	6.95	94.0	83.6	69.0	30.2	338.4	7.4	**0.015**	3.0	22.2	16.7	0.550	0.560	**0.010**	0.550	**0.575**	1.110	149.0	133.4			**1.0**	13.74
CIP	Little Caney River	OK121400-02-0140H	31-Aug-01	23908	6.08		148.0	135.0	25.1	352.6	7.8																15.86
CIP	Little Caney River	OK121400-02-0140H	17-Sep-01	24230	5.95	71.0	109.0	90.0	23.9	354.5	7.7	0.242	2.0	24.1	16.6	0.640	0.650	**0.010**	0.623	**0.892**	1.273	214.5	148.9	0.067	0.125	65.0	11.92
CIP	Little Caney River	OK121400-02-0140H	22-Oct-01	24366	7.70	87.0	98.7	82.0	20.5	342.7	8.0	0.187	5.0	25.5	17.2	0.580	0.590	**0.010**	0.527	**0.777**	1.117	162.5	143.0	0.042	0.071	73.0	9.33
CIP	Little Caney River	OK121400-02-0140H	03-Dec-01	24492	10.95	97.0	60.9	80.0	9.9	356.2	8.0	0.110	3.0	34.5	18.2	0.560	0.570	**0.010**	0.507	**0.680**	1.077	208.5	154.3	0.041	0.058	46.0	3.03
CIP	Little Caney River	OK121400-02-0140H	07-Jan-02	24688	13.66	101.0	15.9	108.0	2.9	391.4	7.9	0.146	7.0	41.4	17.7	0.520	0.530	**0.010**	0.637	**0.676**	1.167	225.5	149.8	**0.005**	0.062	15.0	0.83
CIP	Little Caney River	OK121400-02-0140H	11-Feb-02	24800	11.76	97.0	30.6	110.0	6.4	415.9	7.8	0.129		44.3	19.5	0.470	0.830	0.360	0.578	**0.959**	1.408	228.5	164.5	0.030	0.065	29.0	1.70
CIP	Little Caney River	OK121400-02-0140H	18-Mar-02	24936	10.32	92.0	43.8	88.0	9.8	383.4	7.2	0.248	3.0	33.7	18.6	0.570	0.580	**0.010**	0.753	**0.828**	1.333	220.0	163.6	0.033	0.062	35.0	3.37
CIP	Little Caney River	OK121400-02-0140H	22-Apr-02	25104	7.45	84.0	193.0	82.0	20.8	379.4	7.9	0.129	5.0	31.6	19.6	0.660	0.670	**0.010**	1.548	**0.799**	2.218	234.9	139.9	0.086	0.104	72.0	5.34
CIP	Little Caney River	OK121400-02-0140H	05-Aug-02	25606	6.18	83.0	92.7	93.0	29.0	239.3	8.0	0.196	**2.0**	11.0	8.6	0.720	0.730	**0.010**	0.707	**0.926**	1.437	157.0	106.1	0.046	0.097	41.0	17.32
CIP	Little Caney River	OK121400-02-0140H	09-Sep-02	25812	6.80	86.0	71.0	92.0	26.0	264.2	7.8	0.048	**2.0**	10.8	8.5	0.560	0.570	**0.010**	0.580	**0.618**	1.150	162.0	109.7	0.036	0.115	69.0	16.64
CIP	Little Caney River	OK121400-02-0140H	14-Oct-02	25983	10.31	103.0	46.4	97.0	14.5	276.8	7.5	**0.015**	2.0	14.9	9.1	0.560	0.570	**0.010**	0.236	**0.585**	0.806	183.0	115.3	**0.021**	0.057	40.0	4.48
CIP	Little Caney River	OK121400-02-0140H	18-Nov-02	26120	10.61	99.0	28.1	90.0	11.0	272.1	8.0	0.026	4.0	17.0	10.4	0.080	0.090	**0.010**	0.256	**0.116**	0.346	168.0	111.9	0.027	0.049	14.0	4.78
CIP	Little Caney River	OK121400-02-0140H	16-Dec-02	26263	9.80	85.0	30.3	106.0	8.9	365.3	7.4	**0.015**	**2.0**	36.2	11.5	0.100	0.110	**0.010**	**0.110**	**0.125**	0.220	209.0	133.5	**0.005**	0.033	14.0	11.42
CIP	Little Caney River	OK121400-02-0140H	28-Jan-03	26671	11.61	91.0	23.1	99.0	4.5	298.0	8.0	**0.015**	**2.0**	18.9	10.6	0.140	0.150	**0.010**	**0.110**	**0.165**	0.260	181.0	120.1	**0.005**	0.028	41.0	3.11
CIP	Little Caney River	OK121400-02-0140H	03-Mar-03	27224	11.34	93.0	107.0	90.0	6.9	730.0	7.3	**0.015**	3.0	133.5	26.0	1.070	1.080	**0.010**	0.172	**1.095**	1.252	442.0	160.4	0.086	0.119	46.0	2.32
CIP	Little Caney River	OK121400-02-0140H	12-May-03	27523	7.72	86.6	89.4	111.0	21.6	270.6	7.8	0.065	**2.0**	17.6	13.4	0.270	0.290	**0.020**	0.445	**0.355**	0.735	190.0	119.4	0.038	0.045	43.0	46.23
CIP	Little Caney River	OK121400-02-0140H	16-Jun-03	27723	7.81	97.2	60.0	68.0	26.4	188.6	7.6	0.020	3.0	7.7	6.4	0.330	0.340	**0.010**	0.585	**0.360**	0.925	135.0	79.1	0.035	0.115	22.0	
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	20-Jan-95	5462	12.30				3.7	254.0	7.3			33.6	30.4	**0.200**							39.0				

Appendix E.1. High quality sites: raw chemical and physical water quality data.

Ecoregion	Site	WBID	Date	SAMPLEID	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	Ammonia (mg/L)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrate/Nitrite (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Avail N	Total N	TotDisSolids (mg/L)	TotHardness (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	27-Jan-95	5463					11.2	112.0	6.8			16.6	17.7	**0.200**											
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	02-Feb-95	5464				28.5	10.8	174.9	7.3			13.1	23.9	**0.200**											
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	22-Mar-95	5466	9.00		26.0		18.4	223.0	6.8			23.6	29.6	**0.200**						187.0	40.0			11.0	
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	28-Apr-95	5468	9.70		24.5	40.5	15.9	133.0	7.6	**0.500**		11.7	29.9	**0.200**			1.460			187.0	34.0			25.0	
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	01-May-95	5469	8.97		46.0	29.0	17.0	136.0	7.3	**0.500**		10.2	13.4	**0.200**			0.900			157.0	28.0		0.040	38.0	
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	19-May-95	5470	7.00		13.0	54.0	22.8	250.0	6.4	**0.500**		25.4	38.0	**0.200**			0.640			135.0	74.0		**0.010**	13.0	
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	16-Jun-95	5472			14.0	47.0	26.3	198.0	6.8	**0.500**		24.8	32.5	0.280			**0.500**			158.0	39.0		0.020	4.0	
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	18-Jul-95	5473			7.6	98.0	29.8	621.0	7.3	**0.500**		84.5	98.6	0.330			**0.500**			363.0	84.0		0.040	21.0	
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	04-Aug-95	11838	6.60		7.0	118.0	25.0	465.0	8.5																0.02
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	14-Aug-95	5474	5.70		30.0	101.0	29.0	515.0	7.4	**0.500**		68.2	72.6	**0.200**			0.720			289.0	96.0		**0.010**	51.0	
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	17-Sep-95	5475	6.03		22.0	79.0	24.8	561.0		**0.500**		78.9	50.7	**0.200**			1.480			360.0	96.0		0.050	46.0	
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	05-Oct-95	5476	8.21		13.0	76.0	18.2	407.0	7.7	**0.500**		40.5	55.9	**0.200**			**0.500**			258.0	86.0		0.030	14.0	
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	25-Jan-96	5477	10.70		37.0	84.0	6.0	398.0	7.7	**0.500**		29.9	40.5	**0.200**			1.760			251.0	110.0		0.080	22.2	
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	22-Feb-96	5478	9.77		13.0	102.0	14.1	463.0	7.4	0.100		37.4	43.9	**0.200**			0.540			302.0	123.0		0.020	14.5	
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	30-Mar-96	5479			61.0	48.0	13.2	332.0	7.5	**0.500**		32.5	32.8	**0.200**			1.010			252.0	100.0		0.080	51.9	
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	13-Apr-96	5480	3.98		17.0	133.0	14.5	432.0	7.4	**0.500**		42.2	25.6	**0.200**			1.670			218.0	142.0		0.040	16.5	0.00
CT	Alabama Creek: Above Discharge	OK520500-01-0200U	27-Jun-96	4446	3.00			69.0	27.5	410.0	6.8																
CT	Bird Creek	OK121300-02-0010C	20-Nov-97	15644	10.69		6.2	99.0	7.1	347.0	8.1																1.00
CT	Bird Creek	OK121300-02-0010C	14-Aug-01	23915	5.43	71.0	7.4	54.0	28.0	337.3	7.2	**0.015**	2.0	35.3	11.4	0.480	0.490	**0.010**	0.500	**0.505**	0.990	155.0	115.8	0.025	0.044	**1.0**	15.16
CT	Bird Creek	OK121300-02-0010C	10-Sep-01	24035	6.79		8.1	56.0	24.6	237.3	7.8																17.35
CT	Bird Creek	OK121300-02-0010C	18-Sep-01	24231	6.68	80.0	11.2	61.0	23.4	228.9	7.0	0.308	3.0	24.0	8.7	0.480	0.490	**0.010**	0.858	**0.798**	1.348	126.0	72.5	**0.005**	0.041	**10.0**	31.66
CT	Bird Creek	OK121300-02-0010C	23-Oct-01	24367	7.65	83.0	9.0	43.0	18.6	257.2	7.1	0.080	3.0	30.0	10.1	0.540	0.550	**0.010**	0.319	**0.630**	0.869	95.5	87.0	**0.005**	**0.005**	**10.0**	42.30
CT	Bird Creek	OK121300-02-0010C	04-Dec-01	24493	11.10	98.0	13.9	46.0	9.7	280.1	7.3	0.100	3.0	24.7	13.2	0.490	0.960	0.470	0.500	**1.060**	1.460	147.0	105.0	0.005	0.008	**10.0**	10.97
CT	Bird Creek	OK121300-02-0010C	08-Jan-02	24689	13.03	99.0	5.8	105.0	3.8	355.5	6.9	0.160	8.0	28.5	18.9	0.560	0.570	**0.010**	0.532	**0.730**	1.102	168.5	139.4	**0.005**	0.030	11.0	9.60
CT	Bird Creek	OK121300-02-0010C	12-Feb-02	24801	11.60	93.0	39.3	58.0	5.8	271.5	7.2	0.209	5.0	26.1	18.4	0.860	0.870	**0.010**	0.652	**1.079**	1.522	163.5	99.3	0.045	0.058	**10.0**	23.96
CT	Bird Creek	OK121300-02-0010C	19-Mar-02	24937	10.18	93.0	11.0	48.0	10.9	334.0	7.4	0.174	3.0	37.2	19.5	0.660	0.670	**0.010**	0.539	**0.844**	1.209	179.0	123.7	**0.005**	0.038	**10.0**	11.98
CT	Bird Creek	OK121300-02-0010C	09-Jul-02	25317	6.44	86.0	8.6	45.0	29.3	258.7	7.9	0.095	**2.0**	22.4	10.5	**0.010**	0.020	**0.010**	0.558	**0.115**	0.578	203.0	91.4	**0.005**	0.093	**10.0**	22.85
CT	Bird Creek	OK121300-02-0010C	06-Aug-02	25607	5.47	73.0	5.5	75.0	29.7	288.3	7.7	0.141	**2.0**	27.7	10.8	**0.010**	0.020	**0.010**	0.529	**0.161**	0.549	159.0	111.7	0.019	0.032	**10.0**	20.49
CT	Bird Creek	OK121300-02-0010C	10-Sep-02	25813	4.52	57.0	7.7	75.0	26.3	345.7	7.5	**0.015**	**2.0**	38.5	10.6	**0.010**	0.020	**0.010**	0.438	**0.035**	0.458	192.0	112.0	0.012	0.059	**10.0**	16.90
CT	Bird Creek	OK121300-02-0010C	15-Oct-02	25984	8.20	83.0	9.2	57.0	15.2	239.2	7.5	**0.015**	2.0	21.8	9.7	0.590	0.600	**0.010**	0.362	**0.615**	0.962	144.0	80.4	**0.005**	0.024	**10.0**	15.89
CT	Bird Creek	OK121300-02-0010C	19-Nov-02	26121	9.40	83.0	4.4	58.0	9.3	303.4	7.6	0.025	2.0	33.7	12.6	0.170	0.180	**0.010**	0.440	**0.205**	0.620	169.0	101.9	0.006	0.022	**10.0**	11.00
CT	Bird Creek	OK121300-02-0010C	17-Dec-02	26264	11.25	93.0	5.8	86.0	6.9	360.8	7.2	**0.015**	**2.0**	42.5	13.3	0.070	0.080	**0.010**	**0.110**	**0.095**	0.190	201.0	114.6	**0.005**	0.024	**10.0**	16.28
CT	Bird Creek	OK121300-02-0010C	13-May-03	27524	7.05	81.0	7.7	83.0	22.4	279.6	7.8	0.028	**2.0**	21.0	16.0	0.160	0.180	**0.020**	0.442	**0.208**	0.622	172.0	111.8	**0.005**	**0.005**	**10.0**	31.58
CT	Bird Creek	OK121300-02-0010C	17-Jun-03	27724	6.41	80.0	48.3	68.0	26.3	248.3	7.8	0.039	2.6	13.9	10.0	0.250	0.260	**0.010**	0.496	**0.299**	0.756	159.0	96.6	0.012	0.091	16.0	48.53
CT	Elm Creek	OK520810-00-0100C	27-Apr-99	17236	11.48		113.0	205.0	16.3	389.0	8.8			13.5	1.6	0.123	0.133	0.010	0.510		0.643		188.0		0.120	88.5	18.13
CT	Elm Creek	OK520810-00-0100C	25-May-99	16873	7.66		25.1	190.0	20.6	660.0	8.4			17.0	2.1	0.310	0.317	0.007	0.120		0.437		320.0	0.013	0.046	20.0	4.35
CT	Elm Creek	OK520810-00-0100C	22-Jun-99	13449	9.81		69.0	106.0	21.9	368.0	6.8	**0.027**		14.0	**2.0**	0.161	0.168	0.007	0.630	**0.195**	0.798		170.0	0.011	0.105	73.0	25.14
CT	Elm Creek	OK520810-00-0100C	20-Jul-99	13301	7.12		9.9	290.0	26.4	614.0	7.3	**0.014**		17.0	**1.0**	0.183	0.189	0.006	0.170	**0.203**	0.359		330.0	0.015	0.041	8.5	4.06
CT	Elm Creek	OK520810-00-0100C	23-Jul-99	17535	5.25		5.5	313.0	26.4	632.0	8.1																3.26
CT	Elm Creek	OK520810-00-0100C	23-Aug-99	13355	8.12		14.4	239.0	26.9	559.0	8.4	**0.028**		15.9	8.3	0.191	0.198	0.007	0.180	**0.226**	0.378		292.0	**0.003**	0.035	18.0	1.25
CT	Elm Creek	OK520810-00-0100C	05-Oct-99	13231	9.85		9.4	254.0	15.0	569.0	7.9	**0.003**		13.0	5.1	0.187	0.194	0.007	0.130	**0.197**	0.324		310.0	**0.005**	0.026	10.5	2.27
CT	Elm Creek	OK520810-00-0100C	08-Nov-99	13264	5.97		7.1	272.0	15.4	607.0	7.4	**0.018**		13.0	1.8	0.105	0.110	0.005	0.150	**0.128**	0.260		320.0	0.019	0.051	9.0	3.34
CT	Elm Creek	OK520810-00-0100C	13-Dec-99	18210	9.18		18.4	202.0	7.1	521.0		0.053		14.0	**0.7**	0.260	0.290	0.030	0.540	**0.343**	0.830		284.0	0.031	0.065	12.5	3.38
CT	Elm Creek	OK520810-00-0100C	18-Jan-00	18127	9.09		6.9	239.0	8.9	607.0		**0.017**		14.0	1.8	0.274	0.288	0.014	0.150	**0.305**	0.438		328.0	0.015	0.031	6.0	7.42
CT	Elm Creek	OK520810-00-0100C	22-Feb-00	18065	9.89		17.9	245.0	13.6	566.0		**0.050**		15.0	8.1	0.220	0.232	0.012	0.220	**0.282**	0.452		308.0	**0.004**	0.014	4.0	3.47
CT	Elm Creek	OK520810-00-0100C	27-Mar-00	17786	7.07		20.6		16.8	558.0		**0.027**		15.0	3.0	0.120	0.136	0.016	0.490	**0.163**	0.626		338.0	0.015	0.058	20.0	10.56
CT	Elm Creek	OK520810-00-0100C	08-May-00	18678	7.28		34.1	161.0	23.3	572.0		**0.010**		18.0	1.7	0.300	0.324	0.024	0.810	**0.334**	1.134		304.0	0.035	0.093	28.0	7.17
CT	Elm Creek	OK520810-00-0100C	12-Jun-00	21430	6.91		27.8	197.0	24.2	535.0	8.1	0.086		12.0	1.8	0.260	0.272	0.012	0.260	**0.358**	0.532		278.0	0.025	0.076	28.0	2.89
CT	Elm Creek	OK520810-00-0100C	18-Jul-00	19001	8.54		27.7	224.0	25.8	547.0	8.2	**0.050**		7.7	7.3		0.240		0.230	**0.290**	0.470		279.0	0.023	0.045	16.0	2.54
CT	Elm Creek	OK520810-00-0100C	22-Aug-00	19322	5.61		30.4	266.0	26.4	536.0	8.4	**0.050**		7.9	**5.0**		0.220		0.270	**0.270**	0.490		331.0	0.038	0.069	38.0	1.40
CT	Elm Creek	OK520810-00-0100C	26-Sep-00	21538	9.10		17.8	224.0	16.1	541.0	8.0	**0.050**		9.1	9.1		**0.050**		0.280	**0.100**	0.330		267.0	0.042	0.188		1.28
CT	Elm Creek	OK520810-00-0100C	31-Oct-00	21852	7.38		19.7	180.0	20.2	421.6	7.9	0.050		12.6	8.8		0.170		0.420	**0.220**	0.590		191.0	0.041	0.049	26.0	10.45
CT	Elm Creek	OK520810-00-0100C	04-Dec-00	22030	11.65		5.2	282.0	5.6	389.4	8.2	**0.050**		10.5	7.1		0.300		0.360	**0.350**	0.660		403.0	0.023	0.045	5.0	5.08
CT	Elm Creek	OK520810-00-0100C	17-Jan-01	22179	13.75		11.6	298.0	3.2	470.0	8.3	0.050		13.5	11.6		0.250		0.300	**0.300**	0.550		305.0	0.025	0.047	14.0	8.62

Appendix E.1. High quality sites: raw chemical and physical water quality data.

Ecoregion	Site	WBID	Date	SAMPLEID	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	Ammonia (mg/L)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrate/Nitrite (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Avail N	Total N	TotDisSolids (mg/L)	TotHardness (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
CT	Elm Creek	OK520810-00-0100C	21-Feb-01	22522	10.56		7.6	297.0	7.6	655.0	8.2	0.050		15.3	11.3		0.230		0.270	**0.280**	0.500		330.0	0.021	0.074	**1.0**	10.12
CT	Elm Creek	OK520810-00-0100C	27-Mar-01	22735	12.15		3.0	370.0	8.5	765.0	8.3	**0.050**		14.3	9.6		0.200		0.690	**0.250**	0.890		386.0	0.009	0.010	6.0	6.97
CT	Little Wewoka Creek: Site # 1	OK520500-02-0090A	31-Jul-95	6668	7.00		24.5	120.0	29.0	1230.0	7.8			264.0	2.3	**0.050**			0.540				248.0		0.080	32.1	1.00
CT	Little Wewoka Creek: Site # 1	OK520500-02-0090A	10-Jan-96	6669	12.80		12.0	89.0	2.0	1005.0	8.4	**0.003**		196.0	21.5	0.550			0.190				214.0		0.030	13.0	
CT	Little Wewoka Creek: Site # 1	OK520500-02-0090A	25-Jun-96	6670	6.00		70.1	70.0	32.0	1120.0	6.9	**0.050**		102.0	**2.0**	0.250			0.540				102.0		0.080	46.0	
CT	Little Wewoka Creek: Site # 1	OK520500-02-0090A	26-Jul-96	11970	6.85		15.0	85.0	24.2	421.4	7.3																
CT	Little Wewoka Creek: Site # 1	OK520500-02-0090A	11-Sep-96	11971	5.85		13.1	119.0	23.2	587.0	7.6																0.01
CT	Little Wewoka Creek: Site # 1	OK520500-02-0090A	15-Oct-96	6671	9.48		61.3	81.0	22.1	412.0	8.2			85.5	15.2	0.152	0.154	0.002	0.500		0.654	298.0	104.0	0.009	0.100	27.0	
CT	Little Wewoka Creek: Site # 1	OK520500-02-0090A	08-Jan-97	6672	11.34		9.0	112.0	4.0	575.0	7.8	**0.050**		214.0	25.6	0.069	0.070	0.001	0.270	**0.120**	0.340		222.0	0.002	0.030	26.5	
CT	Little Wewoka Creek: Site # 1	OK520500-02-0090A	08-Apr-97	6673	8.40		74.0	51.0	14.7	301.3	7.6			70.0	17.1	0.340	0.348	0.008	0.830		1.178	269.0	90.0	0.030	0.120	37.0	
CT	Little Wewoka Creek: Site # 1	OK520500-02-0090A	15-Jul-97	6674	7.58		11.5	106.0	30.3	788.0	8.2			151.0	**1.6**	0.220	0.222	**0.002**	0.450		0.672		174.0	0.003	0.031	2.0	
CT	Little Wewoka Creek: Site # 1	OK520500-02-0090A	04-Nov-97	6675	7.42		7.7	107.0	8.0	832.0				175.0	18.6	0.520	0.525	**0.005**	0.310		0.835		180.0	0.003	0.030	4.5	
CT	Mill Creek	OK310800-01-0190T	26-Sep-91	2782	8.90		14.0	371.0	18.5	478.0	8.3			8.0	**5.0**				0.700				231.0		0.070	27.0	
CT	Mill Creek	OK310800-01-0190T	12-Dec-91	2783						259.0				18.0	5.0				1.500				164.0		0.420	160.0	
CT	Mill Creek	OK310800-01-0190T	18-Jan-92	2784	14.00		10.0	232.0	4.5	487.0	8.2			9.0	5.0				0.300				260.0		0.030	35.0	
CT	Mill Creek	OK310800-01-0190T	16-Apr-92	2785																							
CT	Mill Creek	OK310800-01-0190T	18-May-92	2786						308.0				7.0	9.0				0.900				156.0		0.190	31.0	
CT	Mill Creek	OK310800-01-0190T	23-Jul-92	2787	7.40		16.0	198.0	25.5	360.0	8.1			6.0	6.0				0.700				182.0		0.050	15.0	
CT	Mill Creek	OK310800-01-0190T	14-Oct-92	2788	8.50		8.2	285.0	20.5	584.0	8.4			10.0	19.0				**0.200**				224.0		0.010	15.0	
CT	Mill Creek	OK310800-01-0190T	15-Apr-93	3087						331.0				4.1	8.3				0.800				160.0		0.120	65.0	
CT	Mill Creek	OK310800-01-0190T	28-Apr-93	3088	8.00		4.0	267.0	18.0	547.0	8.0			6.2	10.0				0.600				290.0		0.050	9.0	
CT	Mill Creek	OK310800-01-0190T	10-May-93	3089						309.0				4.1	5.3				0.600				140.0		0.630	66.0	
CT	Mill Creek	OK310800-01-0190T	03-Aug-93	3090	6.40		5.3	185.0	24.5	552.0	8.0			5.7	9.3				**0.200**				300.0		0.030	8.0	
CT	Mill Creek	OK310800-01-0190T	26-Sep-94	11979	9.60		6.2	209.0	21.5	500.0	8.2																5.40
CT	Mission Creek	OK121400-02-0190B	18-Nov-97	15469	6.73		29.5	104.0	4.0	436.0	7.2																0.00
CT	Mission Creek	OK121400-02-0190B	14-Aug-01	23917	6.02	78.0	28.4	22.0	27.4	144.0	6.6	0.260	4.0	4.8	7.3	0.490	0.500	**0.010**	1.130	**0.760**	1.630	71.0	54.8	0.041	0.231	31.0	1.24
CT	Mission Creek	OK121400-02-0190B	05-Sep-01	24034	2.91		30.7	48.0	24.8	144.2	7.1																0.96
CT	Mission Creek	OK121400-02-0190B	18-Sep-01	24233	4.73	56.0	64.8	41.0	22.5	144.7	6.2	0.305	2.0	4.7	9.6	0.570	0.580	**0.010**	0.957	**0.885**	1.537	95.5	58.4	0.010	0.080	35.0	0.80
CT	Mission Creek	OK121400-02-0190B	23-Oct-01	24369	5.17	57.0	16.1	72.0	19.6	236.4	7.0	0.229	4.0	64.4	12.5	0.610	0.620	**0.010**	0.581	**0.849**	1.201	109.5	109.1	**0.005**	0.029	**10.0**	0.00
CT	Mission Creek	OK121400-02-0190B	04-Dec-01	24495	6.47	62.0	3.8	121.0	12.2	384.4	7.2	0.364	3.0	10.4	11.1	**0.010**	0.020	**0.010**	0.495	**0.384**	0.515	220.5	193.3	0.016	0.022	**10.0**	0.00
CT	Mission Creek	OK121400-02-0190B	08-Jan-02	24691	9.08	75.0	6.1	162.0	6.4	408.0	6.7	0.266	9.0	10.4	15.9	0.550	0.560	**0.010**	0.682	**0.826**	1.242	216.0	182.9	**0.005**	0.038	10.0	0.00
CT	Mission Creek	OK121400-02-0190B	12-Feb-02	24803	11.53	105.0	20.8	90.0	10.1	250.2	7.7	0.170	6.0	9.2	12.5	**0.010**	0.340	0.330	0.669	**0.510**	1.009	139.0	110.9	0.047	0.066	**10.0**	0.05
CT	Mission Creek	OK121400-02-0190B	19-Mar-02	24939	7.08	64.0	10.8	93.0	10.9	327.1	7.9	0.125	4.0	11.7	15.7	**0.010**	0.020	**0.010**	0.721	**0.145**	0.741	178.0	154.2	0.010	0.033	**10.0**	0.20
CT	Mission Creek	OK121400-02-0190B	23-Apr-02	25107	8.86	106.0	15.0	93.0	23.4	324.1	7.9	0.182	5.0	13.8	15.8	0.540	0.550	**0.010**	0.674	**0.732**	1.224	198.5	137.5	0.016	0.041	14.0	0.02
CT	Mission Creek	OK121400-02-0190B	28-May-02	25235	5.30	61.0	50.8	44.0	21.8	173.1	6.8	0.137	**2.0**	7.8	14.7	0.750	0.760	**0.010**	0.218	**0.897**	0.978	127.0	64.9	0.005	0.069	22.0	37.82
CT	Mission Creek	OK121400-02-0190B	09-Jul-02	25319	6.78	94.0	7.0	131.0	31.8	310.5	8.0	0.267	2.0	12.0	10.7	0.520	0.530	**0.010**	0.870	**0.797**	1.400	205.0	127.7	**0.005**	0.077	**10.0**	0.00
CT	Mission Creek	OK121400-02-0190B	06-Aug-02	25609	5.72	77.0	5.1	41.0	29.7	158.8	7.3	0.360	7.0	7.6	6.6	0.580	0.720	0.140	1.515	**1.080**	2.235	107.0	63.0	0.056	0.115	**10.0**	0.05
CT	Mission Creek	OK121400-02-0190B	10-Sep-02	25815	4.50	55.0	27.2	63.0	24.5	236.0	7.4	**0.015**	4.0	5.4	8.2	0.470	0.480	**0.010**	1.074	**0.495**	1.554	140.0	97.6	0.044	0.109	41.0	0.00
CT	Mission Creek	OK121400-02-0190B	15-Oct-02	25986	7.58	72.0	15.7	99.0	12.8	240.6	6.9	0.018	5.0	5.5	13.8	0.800	0.810	**0.010**	0.483	**0.828**	1.293	144.0	100.3	0.005	0.043	16.0	0.00
CT	Mission Creek	OK121400-02-0190B	19-Nov-02	26123	0.50	4.0	5.1	124.0	9.4	360.0	7.0	0.040	15.0	8.8	20.0	0.090	0.430	0.340	0.607	**0.470**	1.037	207.0	153.9	0.245	0.309	**10.0**	0.00
CT	Mission Creek	OK121400-02-0190B	17-Dec-02	26266	3.81	32.0	21.4	158.0	7.6	381.3	7.0	**0.015**	5.0	9.0	16.6	0.050	0.140	0.090	**0.220**	**0.155**	0.360	229.0	160.9	0.023	0.072	11.0	0.01
CT	Mission Creek	OK121400-02-0190B	28-Jan-03	26670	6.59	48.0	24.6	243.0	1.7		7.3	**0.015**	4.0	29.2	83.7	0.150	0.270	0.120	0.543	**0.285**	0.813	356.0	290.0	0.077	0.181	14.0	0.00
CT	Mission Creek	OK121400-02-0190B	04-Mar-03	27227	10.94	90.0	33.5	51.0	6.6	257.5	7.1	**0.015**	3.4	18.0	25.0	0.430	0.440	**0.010**	**0.110**	**0.455**	0.550	126.0	86.2	**0.005**	0.034	23.0	20.91
CT	Mission Creek	OK121400-02-0190B	08-Apr-03	27426	8.25	97.9	64.9	52.0	10.3	266.6	7.0	0.018	3.4	18.4	21.3	0.240	0.250	**0.010**	0.630	**0.268**	0.880	210.0	95.6	0.007	0.117	42.0	26.51
CT	Mission Creek	OK121400-02-0190B	13-May-03	27526	6.27	66.0	822.0	71.0	17.9	191.4	7.1	0.200	5.6	10.3	14.6	0.920	0.940	**0.020**	1.339	**1.140**	2.279	177.0	118.5	0.296	0.533	609.0	0.38
CT	Mission Creek	OK121400-02-0190B	17-Jun-03	27726	6.24	75.0	28.1	88.0	24.5	184.5	7.0	**0.015**	3.1	8.0	9.1	0.290	0.300	**0.010**	0.885	**0.315**	1.185	119.0	75.1	0.012	0.140	26.0	1.15
CT	Sand Creek	OK121400-04-0010F	14-Aug-01	23916	5.90	79.0	22.9	73.0	29.8	462.0	7.1	0.160	**2.0**	57.6	14.5	0.500	0.510	**0.010**	0.690	**0.670**	1.200	233.0	153.0	0.074	0.113	15.0	0.39
CT	Sand Creek	OK121400-04-0010F	10-Sep-01	24036	7.62		27.1	131.0	27.7	640.0	7.8																0.13
CT	Sand Creek	OK121400-04-0010F	18-Sep-01	24232	5.87	69.0		107.0	22.2	535.0	6.6	0.389	2.0	73.8	59.6	0.730	0.740	**0.010**	1.180	**1.129**	1.920	276.0	172.0	0.054	0.125	70.0	1.48
CT	Sand Creek	OK121400-04-0010F	23-Oct-01	24368	7.70	84.0	11.3	99.0	18.5	476.7	7.2	0.172	2.0	59.1	25.6	0.540	0.550	**0.010**	0.406	**0.722**	0.956	224.5	170.6	**0.005**	0.016	**10.0**	1.31
CT	Sand Creek	OK121400-04-0010F	04-Dec-01	24494	9.13	85.0	11.3	102.0	11.1	601.0	7.3	0.084	5.0	81.7	19.9	**0.010**	0.020	**0.010**	0.562	**0.104**	0.582	330.5	216.6	0.005	0.006	**10.0**	0.68
CT	Sand Creek	OK121400-04-0010F	08-Jan-02	24690	11.39	87.0	8.6	150.0	3.9	592.0	7.0	0.152	7.0	69.5	22.1	0.530	0.540	**0.010**	0.528	**0.692**	1.068	322.0	212.0	**0.005**	0.033	13.0	1.10
CT	Sand Creek	OK121400-04-0010F	12-Feb-02	24802	12.69	103.0	19.6	65.0	5.0	415.4	7.3	0.154	7.0	56.5	29.7	0.580	0.590	**0.010**	0.466	**0.744**	1.056	233.0	136.2	0.018	0.038	**10.0**	14.08
CT	Sand Creek	OK121400-04-0010F	19-Mar-02	24938	8.44	77.0	27.4	54.0	10.9	459.3	7.6	0.156	4.0	59.4	27.6	0.510	0.520	**0.010**	0.543	**0.676**	1.063	255.0	156.3	0.015	0.085	22.0	2.82

Appendix E.1. High quality sites: raw chemical and physical water quality data.

Ecoregion	Site	WBID	Date	SAMPLEID	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	Ammonia (mg/L)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrate/Nitrite (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Avail N	Total N	TotDisSolids (mg/L)	TotHardness (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
CT	Sand Creek	OK121400-04-0010F	23-Apr-02	25106	6.56	73.0		56.0	19.2	492.9	7.5	0.289	4.0	64.7	47.9	0.650	0.660	**0.010**	1.087	**0.949**	1.747	286.5	147.5	0.144	0.149	46.0	29.16
CT	Sand Creek	OK121400-04-0010F	09-Jul-02	25318	4.59	63.0	16.4	113.0	30.3	316.6	7.8	0.184	2.0	29.8	14.0	**0.010**	0.020	**0.010**	0.715	**0.204**	0.735	191.0	113.9	**0.005**	0.114	17.0	3.13
CT	Sand Creek	OK121400-04-0010F	06-Aug-02	25608	5.13	69.0	30.5	90.0	29.8	317.6	7.6	0.124	**2.0**	26.8	12.0	**0.010**	0.020	**0.010**	0.635	**0.144**	0.655	177.0	117.5	0.018	0.070	28.0	3.95
CT	Sand Creek	OK121400-04-0010F	10-Sep-02	25814	3.73	46.0	43.2	95.0	24.8	387.4	7.3	**0.015**	4.0	45.0	11.1	0.460	0.470	**0.010**	0.566	**0.485**	1.036	225.0	130.6	0.019	0.074	31.0	0.34
CT	Sand Creek	OK121400-04-0010F	15-Oct-02	25985	7.75	73.0	20.6	104.0	11.7	401.2	7.4	0.023	**2.0**	46.1	13.4	0.600	0.610	**0.010**	0.275	**0.633**	0.885	234.0	138.4	0.006	0.039	20.0	0.43
CT	Sand Creek	OK121400-04-0010F	19-Nov-02	26122	7.30	62.0	15.1	118.0	7.3	557.0	7.4	0.029	5.0	80.4	17.9	0.130	0.140	**0.010**	0.482	**0.169**	0.622	289.0	179.1	0.020	0.045	**10.0**	0.21
CT	Sand Creek	OK121400-04-0010F	17-Dec-02	26265	8.90	76.0	18.1	108.0	7.2	493.6	7.1	**0.015**	**2.0**	65.5	16.2	0.110	0.120	**0.010**	**0.110**	**0.135**	0.230	271.0	149.2	**0.005**	0.036	**10.0**	2.59
CT	Sand Creek	OK121400-04-0010F	27-Jan-03	26667	11.14	88.0	5.8	99.0	4.8	592.0	7.6	**0.015**	**2.0**	83.5	32.0	0.090	0.100	**0.010**	0.177	**0.115**	0.277	254.0	162.2	**0.005**	0.016	**10.0**	3.21
CT	Sand Creek	OK121400-04-0010F	13-May-03	27525	6.05	69.3	21.4	118.0	22.1	396.8	7.4	0.023	**2.0**	36.8	21.8	0.160	0.180	**0.020**	0.460	**0.203**	0.640	208.0	156.9	**0.005**	0.006	18.0	7.72
CT	Sand Creek	OK121400-04-0010F	17-Jun-03	27725	5.37	67.0	29.3	93.0	26.9	232.7	7.4	**0.015**	5.2	16.0	10.8	0.090	0.150	0.060	1.261	**0.165**	1.411	132.0	103.2	0.007	0.091	21.0	28.76
CT	Sandy Creek: Upper	OK410400-03-0160T	22-Sep-91	2854	8.30		4.0	66.0	21.0	424.0	7.6			83.0	7.0				0.600				90.0		**0.010**	**1.0**	
CT	Sandy Creek: Upper	OK410400-03-0160T	21-Dec-91	2855						65.0				9.0	5.1				0.700				22.0		0.130	4.0	
CT	Sandy Creek: Upper	OK410400-03-0160T	18-Jan-92	2856	12.60		26.0	46.0	4.0	148.0	7.3			10.0	10.0				0.400				58.0		0.040	2.0	
CT	Sandy Creek: Upper	OK410400-03-0160T	16-Apr-92	2857										22.0	33.0								140.0				
CT	Sandy Creek: Upper	OK410400-03-0160T	19-May-92	2858						108.0				5.0	12.0				0.900				40.0		0.110	24.0	
CT	Sandy Creek: Upper	OK410400-03-0160T	23-Jul-92	2859	8.40		10.0	70.0	31.5	206.0	7.8			18.0	1.0				0.600				68.0		0.060	9.0	
CT	Sandy Creek: Upper	OK410400-03-0160T	14-Oct-92	2860	8.70		2.8	48.0	22.5	550.0	7.9			118.0	1.0				0.400				110.0		**0.010**	8.0	
CT	Sandy Creek: Upper	OK410400-03-0160T	15-Apr-93	3119						100.0				4.7	5.5				1.000				36.0		0.170	30.0	
CT	Sandy Creek: Upper	OK410400-03-0160T	28-Apr-93	3120	9.40		5.4	266.0	19.5	92.0	8.2			17.0	11.0				0.400				91.0		**0.010**	2.0	
CT	Sandy Creek: Upper	OK410400-03-0160T	10-May-93	3121						67.0				2.8	2.9				0.600				23.0		0.110	17.0	
CT	Sandy Creek: Upper	OK410400-03-0160T	04-Aug-93	3122	8.50		3.0	60.0	29.5	446.0	8.5			94.0	2.2				0.500				75.0		0.010	5.0	
CT	Sandy Creek: Upper	OK410400-03-0160T	27-Sep-94	12046	8.80		4.2	50.0	19.0	493.0	7.3																0.09
CT	Sandy Creek: Upper	OK410400-03-0160T	23-May-96	12047	4.41		4.5	65.0	25.4	1266.0	7.6																0.01
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	06-Mar-90	10963												2.800			0.680						0.050		
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	03-Aug-90	10964	7.00		1.7		23.0	186.0				16.0	1.7	0.810			0.160				108.0		0.138	17.5	
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	25-Oct-90	10965	9.40		1.7	102.0	11.5	256.0	7.7			12.0	**20.0**		1.000		0.423		1.423		126.0		0.068	7.0	
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	15-Nov-90	10659	9.40		21.0	104.0	13.0	365.0	7.4			**10.0**	**20.0**		0.500		0.343		0.843		159.0		0.060	8.0	
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	19-Dec-90	10966			11.0	56.0						**10.0**	**20.0**		3.500		0.336		3.836		87.0		0.107	3.0	
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	06-Feb-91	10967	11.60		3.5	98.8	9.7	256.0	8.0			**10.0**	**2.0**		2.200		0.689		2.889		115.0		0.011	**1.0**	
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	22-Mar-91	10969			65.0	51.0		172.0				**10.0**	**20.0**		4.000		1.980		5.980		83.0		0.347	67.0	
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	08-May-91	10970	8.40		4.7	83.0	17.9	226.0	7.6			**10.0**	**20.0**		2.800		0.470		3.270		91.0		**0.005**	3.0	
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	08-Aug-91	10971	5.20		2.6	105.0	26.0	227.0	7.4	**0.010**		9.0	**5.0**	0.260			**0.200**					0.070	0.090	**1.0**	
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	29-Oct-91	182						195.0		0.030		8.0	**5.0**	4.670			0.800				76.0	0.240	0.290	12.0	
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	07-Nov-91	183			2.0	85.0	9.3	264.0	7.4	0.010		8.0	6.9	6.200			**0.200**				116.0	0.080	0.100	18.0	
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	30-Jan-92	184	16.20		1.6	91.0	9.7	255.0	8.2	**0.010**		9.0	8.3	3.000			**0.200**				114.0	0.020	0.030	1.0	
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	21-Apr-92	185	9.40		17.0	59.6	15.5	182.0	7.9	0.020		4.6	10.8	1.290			0.400				76.0	0.090	0.120	11.0	
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	29-May-92	186						171.0		0.050		8.0	**5.0**	0.830			0.600				74.0	0.250	0.270	31.0	
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	22-Jul-92	187	6.80		4.4	72.0	27.3	286.0	7.8	**0.010**		10.0	**5.0**	1.700			**0.200**				141.0	0.140	0.130	8.0	
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	22-Jul-03	27876	5.25	63.6	2.0		24.6	272.3	7.5	0.197	2.5	10.2	6.7	0.500	0.520	**0.020**	0.684	**0.717**	1.204	105.0	124.4	0.056	0.153	**10.0**	5.39
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	05-Aug-03	28051	3.56	42.2	1.6	105.0	23.8	279.7	7.4																3.46
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	26-Aug-03	28177	4.66	55.6	1.7	113.0	24.5	286.6		0.026	**2.0**	10.7	5.3	0.230	0.250	**0.020**	**0.110**	**0.276**	0.360	191.0	128.8	0.077	0.114	16.0	0.95
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	29-Sep-03	28310	7.44	75.3	1.1	125.0	16.0	288.4	7.6	0.022	3.5	11.0	6.1	0.290	0.310	**0.020**	**0.110**	**0.332**	0.420	154.0	133.2	0.045	0.104	**10.0**	2.97
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	03-Nov-03	28462	9.13	97.5	0.9	116.0	18.5	302.6	7.6	**0.015**	**2.0**	11.4	8.3	0.420	0.440	**0.020**	**0.110**	**0.455**	0.550	196.0	128.1	0.038	0.092	11.0	3.54
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	15-Dec-03	28615	12.69	105.6	2.0	109.0	7.4	293.1	7.9	**0.015**	2.6	12.4	15.5	2.530	2.550	**0.020**	**0.110**	**2.565**	2.660	152.0	120.1	0.060	0.114	**10.0**	27.55
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	20-Jan-04	29458	14.06	112.4	5.5	79.0	5.8	246.6	7.8	**0.015**		11.5	14.3	2.390	2.410	**0.020**	0.193	**2.425**	2.603	145.0	102.2	0.086	0.126	**10.0**	53.31
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	23-Feb-04	29661	13.93	120.9	1.6	110.0	9.0	333.1	8.5	0.030	4.3	12.4	13.2	2.440	2.460	**0.020**	**0.110**	**2.490**	2.570	208.0	139.5	0.032	0.095	**10.0**	19.77
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	05-Apr-04	30037	11.37	109.2	2.2	102.0	13.4	278.3	8.3	0.030	2.0	10.3	11.0	2.120	2.140	**0.020**	0.154	**2.170**	2.294	193.0	126.8	0.057	0.092	**10.0**	19.52
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	11-May-04	30214	8.46	91.4	2.1	115.0	19.1	250.5	7.4	**0.015**	**2.0**	10.1	7.9	3.290	3.310	**0.020**	**0.110**	**3.325**	3.420	154.0	124.2	0.040	0.105	**10.0**	38.54
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	15-Jun-04	30427	7.37	86.9	2.1	111.0	23.5	271.0	7.4	**0.015**	**2.0**	10.4	7.1	1.950	1.970	**0.020**	**0.110**	**1.985**	2.080	204.0	126.3	0.046	0.126	**10.0**	10.24
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	19-Jul-04	30591	7.42	96.0	1.1	104.0	22.5	265.0	7.5	**0.015**	**2.0**	10.5	7.8	2.050	2.070	**0.020**	**0.110**	**2.085**	2.180	123.0	125.0	0.179	0.144	**10.0**	14.79
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	23-Aug-04	30820	7.26	83.2	2.1	98.0	22.1	265.6	7.6	**0.015**	**2.0**	10.8	7.3	2.640	2.660	**0.020**	**0.110**	**2.675**	2.770	194.0	137.8	0.070	0.130	**10.0**	13.50
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	28-Sep-04	31078	7.07	75.4	1.7	113.0	18.4	293.0	7.4	0.024	**2.0**	11.2	5.7	1.450	1.470	**0.020**	**0.110**	**1.494**	1.580	172.0	125.4	0.070	0.108	**10.0**	5.15
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	03-Nov-04	31292	7.65	75.6	7.9	75.0	14.8	224.1	7.3	**0.015**	2.2	7.5	9.3	3.190	3.210	**0.020**	**0.110**	**3.225**	3.320	152.0	96.4	0.156	0.193	**10.0**	89.18
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	06-Dec-04	31406	10.50	84.6	4.3	98.0	10.6	297.0	7.8	**0.015**	**2.0**	10.5	12.8	3.360	3.380	**0.020**	**0.110**	**3.395**	3.490	164.0	129.2	0.084	0.104	**10.0**	78.31

Appendix E.1. High quality sites: raw chemical and physical water quality data.

Ecoregion	Site	WBID	Date	SAMPLEID	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	Ammonia (mg/L)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrate/Nitrite (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Avail N	Total N	TotDisSolids (mg/L)	TotHardness (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	14-Feb-05	31956	10.87	95.3	2.0	97.0	9.6	285.1	7.6	**0.015**	**2.0**	11.3	12.4	2.800	2.820	**0.020**	**0.110**	**2.835**	2.930	158.0	127.1	0.030	0.070	**10.0**	42.06
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	14-Mar-05	32078	12.67	111.0	1.5	94.0	9.5	282.5	8.1	**0.015**	3.4	10.7	10.2	2.590	2.610	**0.020**	**0.110**	**2.625**	2.720	178.0	127.3	0.025	0.068	**10.0**	23.17
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	18-Apr-05	32251	9.26	93.7	2.6	96.0	16.2	268.5	7.7	**0.015**	**2.0**	10.2	11.6	2.660	2.680	**0.020**	**0.110**	**2.695**	2.790	148.0	122.0	0.046	0.070	**10.0**	34.86
OzHlnds	Ballard Creek: Lower	OK121700-03-0370G	24-May-05	32630	6.94	77.9	3.1	105.0	20.8	280.6	7.5	**0.015**	**2.0**	10.6	7.3	1.770	1.790	**0.020**	**0.110**	**1.805**	1.900	169.0	126.4	0.068	0.226	**10.0**	11.95
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	09-Mar-90	11143												4.000			0.390						0.020		
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	12-Apr-90	10692								**0.200**				2.300			0.090						0.050		
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	02-May-90	10693				53.0		131.0				4.3	16.0	1.900			0.300				49.0		0.030		
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	08-May-90	10694				43.0		101.0		**0.200**		3.5	4.9	1.700			0.460				53.0		0.220		
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	01-Jun-90	10695												1.750			0.100						0.120		
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	12-Jun-90	10696	8.20			63.0	22.7	170.0	6.7			11.0	9.8	2.000			0.320				66.0		0.050	4.5	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	05-Jul-90	10697	6.80			80.0	23.9	180.0	7.4			7.0	8.5	2.990			0.480				84.0		0.080	1.7	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	01-Aug-90	11144	7.70		1.6		23.0	165.0				19.0	2.2	1.700			0.170				94.0		0.140	15.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	10-Sep-90	10698	7.60			93.0	24.2		7.3			9.0	5.3	1.300			0.100				98.0		0.070	2.5	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	04-Oct-90	10699	7.60		4.0	85.0	19.9	220.0	7.7			**10.0**	85.0				0.330				48.0		0.032	4.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	25-Oct-90	11145	10.10		0.6	94.0	14.6	215.0	7.8			**10.0**	**20.0**				0.240				128.0		0.019	2.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	15-Nov-90	10700	10.60		1.0	96.0	15.5	224.0	7.9			**10.0**	**20.0**				8.770				121.0		0.005	**1.0**	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	11-Dec-90	10701	10.40		10.0	60.6	11.4	175.0	8.0			13.0	**20.0**				1.430				79.0		0.012	1.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	18-Dec-90	11146			23.0	51.0						**10.0**	**20.0**				0.340				71.0		0.053	16.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	16-Jan-91	10702	10.20		4.3	36.8	9.9	124.0	7.5			**10.0**	25.0				1.560				61.0		0.019	**1.0**	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	07-Feb-91	11147	11.80		1.0	58.8	9.2	161.0	7.6			**10.0**	**20.0**				0.480				71.0		0.047	1.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	12-Mar-91	10703	10.20		11.0	69.4	15.0	245.0	7.9			19.0	**20.0**				0.730				83.0		0.251	2.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	09-Apr-91	10704	10.20		1.4	72.2	16.0	178.0	7.8			**10.0**	39.0				1.010				68.0		**0.005**	**1.0**	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	08-May-91	11148	9.30		2.0	68.0	18.9	190.0	7.7			**10.0**	**20.0**				0.380				87.0		0.025	**1.0**	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	11-Jun-91	10705	7.60		1.0	92.0	18.6	224.0	7.7			249.0	48.0				1.100				168.0		0.006	**1.0**	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	10-Jul-91	10706	7.30		1.5	88.0	23.8	232.0	7.5			**10.0**	133.0				1.170				107.0		0.013	10.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	06-Aug-91	11149	8.70		1.5	82.0	23.5	218.0	7.5	0.020				1.400			0.500					0.030	0.040	1.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	09-Sep-91	10707								0.020		6.5	**5.0**	1.500			0.300				100.0	0.010	0.070	40.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	08-Oct-91	10708			1.6	104.2	17.6	240.0	7.4	0.030				2.200			**0.200**					0.020	0.030	1.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	29-Oct-91	297						206.0		0.010		7.0	**5.0**	4.000			**0.200**				96.0	0.030	0.030	9.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	06-Nov-91	298			1.3	54.0	13.5	177.0	7.2	0.010		7.0	6.4	4.400			**0.200**				73.0	0.020	0.020	5.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	19-Nov-91	10709						150.0		0.020				4.800			**0.200**					0.040	0.050	1.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	26-Nov-91	10710										7.0	79.4								70.0				
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	18-Dec-91	10711	10.90			68.0	11.7	167.0	7.2	**0.010**		7.0	6.3	3.400			**0.200**				70.0	0.020	0.020	1.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	30-Jan-92	299	13.40		1.1	49.0	12.1	194.0	7.6	**0.010**		8.0	**5.0**	3.100			**0.200**				82.0	0.030	0.030	1.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	25-Mar-92	10712	10.60		0.6	73.6	12.1	196.0	6.9	0.010		8.0	**5.0**	2.300			**0.200**				110.0	0.020	0.010	24.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	21-Apr-92	300								0.010		3.1	4.2	1.800			**0.200**				62.0	0.020	0.030	6.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	27-May-92	10713	9.40		1.2	76.0	16.0	145.0	7.9	0.030		8.0	**5.0**	1.600			**0.200**				84.0	0.030	0.040	18.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	25-Jun-92	10714						187.0		0.010				2.500			**0.200**					0.030	0.010	10.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	22-Jul-92	301	7.80		3.2	82.0	22.0	213.0	7.6	**0.010**		6.0	**5.0**	2.000			**0.200**				104.0	0.030	0.040	1.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	25-Aug-92	10715	8.20		1.4	79.0	23.0	220.0	7.6	**0.010**				1.700			**0.200**					0.030	0.030	1.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	30-Sep-92	10716	9.10		3.4	90.0	18.0	230.0	7.5	0.020				1.500			**0.200**					0.030	0.040	**1.0**	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	21-Oct-92	10717	9.20		7.0		16.7	220.0	6.6	0.020				1.300			**0.200**					0.030	0.040	1.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	12-Nov-92	10718						167.0		0.020		8.0	6.9	2.190			**0.200**				80.0	0.030	0.040	**1.0**	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	24-Nov-92	10719								0.020		7.0	**5.0**	2.770			**0.200**				58.0	0.040	0.040	**1.0**	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	09-Dec-92	10720						163.0		0.030		8.0	**5.0**	2.880			0.200				72.0	0.030	0.050	2.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	22-Mar-93	10721										4.7	4.0	2.300			**0.200**				62.0		0.030	6.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	10-May-93	10722										2.5	3.5	1.700						143.0	39.0		0.190	29.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	16-Jun-93	10723	8.50		1.8	95.0	16.8	148.0	7.5			5.3	3.7	2.200			**0.200**				71.0		0.020	7.0	12.32
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	19-Jul-93	10724	7.00		1.6	83.0	20.0	180.0	7.9			6.0	13.0	2.200			**0.200**				89.0		0.050	1.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	18-Aug-93	10725	6.60		1.1	93.0	22.0	200.0	7.8			8.2	**5.0**	1.850	1.860	**0.010**	0.180		2.040		101.0	0.040	0.040	3.0	2.69
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	15-Sep-93	10726	8.00		7.8	63.0	17.0	174.0	8.1			7.0	**5.0**	3.020	3.030	**0.010**	0.430		3.460		78.0	0.060	0.060	0.5	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	19-Oct-93	10727	7.30		1.0	91.0	17.0	155.0	8.6			9.0	**5.0**	1.920	1.930	**0.010**	0.080		2.010		102.0	0.030	0.040	4.5	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	15-Nov-93	10728								**0.100**		3.7	**5.0**	2.900	2.910	**0.010**	0.850	**3.010**	3.760		62.0	0.160	0.220	25.6	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	17-Nov-93	10729	9.90		6.0	45.0	12.5	98.0	7.4	**0.100**		5.4	**5.0**	**0.500**	0.510	**0.010**	0.680	**0.610**	1.190		64.0	0.080	0.180	3.4	

Appendix E.1. High quality sites: raw chemical and physical water quality data.

Ecoregion	Site	WBID	Date	SAMPLEID	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	Ammonia (mg/L)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrate/Nitrite (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Avail N	Total N	TotDisSolids (mg/L)	TotHardness (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	20-Dec-93	10730	11.00		1.3	46.0	10.0	120.0	7.1	**0.050**		7.0	**5.0**	3.000	3.010	**0.010**	0.190	**3.060**	3.200		73.0	0.030	0.020	**2.0**	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	20-Jan-94	10731	12.90		4.2	70.0	4.5	115.0	6.8																
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	23-Feb-94	10732	11.80		11.0	55.0	9.0	102.0	7.3	**0.100**		45.0	**5.0**	2.800	2.810	**0.010**	0.070	**2.910**	2.880		60.0	0.040	0.060	4.0	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	16-Mar-94	10733	10.90		3.2	44.0	9.8	83.0	7.7			10.0	**5.0**	2.690	2.700	**0.010**	0.260		2.960		54.0	0.030	0.040	**1.0**	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	12-Apr-94	10734			4.3					**0.100**		9.0	11.2	2.600	2.610	0.010	0.230	**2.710**	2.840		60.0	0.020	0.030	1.7	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	20-Apr-94	10735	9.30		2.9	38.0	13.8	111.0	8.3	**0.100**		7.3	18.9	2.600	2.610	**0.010**	0.140	**2.710**	2.750		68.0	0.040	0.070	**2.0**	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	17-May-94	10736	9.10		0.8	101.0	14.5	138.0	7.7			6.0	**5.0**	2.400	2.410	**0.010**	0.030		2.440		86.0	0.030	0.200	**0.5**	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	22-Jun-94	10737	7.90		0.9	83.0	19.0	180.0	7.3	**0.050**		5.3	**1.0**	2.380	2.390	**0.010**	0.130	**2.440**	2.520		98.0	0.030	0.120	0.7	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	20-Jul-94	10738	7.10		1.2	88.0	21.0	200.0	7.4	**0.100**		7.4	**1.0**	1.890	1.900	**0.010**	**0.010**	**2.000**	1.910		100.0	0.030	0.060	**0.4**	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	17-Aug-94	10739	7.00		0.8	86.0	18.5	165.0	7.3	**0.050**		9.0	**1.0**	1.660	1.670	**0.010**	0.670	**1.720**	2.340		102.0	0.040	0.070	0.3	
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	24-Jul-96	11842	5.71		1.7	109.0	22.3	258.0	7.0																1.27
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	22-Jul-03	27875	4.80	54.4	0.5	94.0	21.1	273.4	7.3	0.020	**2.0**	8.5	4.4	2.300	2.320	**0.020**	**0.110**	**2.340**	2.430	124.0	123.0	0.027	0.076	**10.0**	1.77
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	05-Aug-03	28052	7.66	88.9	0.3	113.0	22.8	270.9	7.6																1.09
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	26-Aug-03	28176	6.02	68.7	7.7	114.0	22.5	287.9		0.026	**2.0**	7.8	3.8	1.100	1.120	**0.020**	**0.110**	**1.146**	1.230	225.0	132.7	0.034	0.091	14.0	0.86
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	29-Sep-03	28309	8.79	88.0	0.7	116.0	15.6	283.9	7.3	0.016	3.5	17.2	4.5	1.950	1.970	**0.020**	**0.110**	**1.986**	2.080	158.0	130.6	0.058	0.104	15.0	1.08
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	03-Nov-03	28461	8.98	94.4	0.7	108.0	17.8	284.6	7.6	**0.015**	2.3	8.1	3.7	1.650	1.670	**0.020**	**0.110**	**1.685**	1.780	181.0	105.8	0.008	0.059	30.0	1.17
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	15-Dec-03	28614	11.06	99.5	0.4	79.0	10.6	2621.0	7.5	**0.015**	2.6	9.3	5.7	4.150	4.170	**0.020**	**0.110**	**4.185**	4.280	155.0	153.0	0.008	0.083	**10.0**	5.64
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	20-Jan-04	29457	11.20	98.6	2.1	50.0	9.7	202.6	7.4	**0.015**		6.2	6.0	4.470	4.490	**0.020**	0.157	**4.505**	4.647	113.0	75.9	0.028	0.081	**10.0**	27.69
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	23-Feb-04	29660	11.90	104.2	0.3	76.0	9.6	248.2	7.1	0.027	5.0	8.2	5.0	4.110	4.130	**0.020**	**0.110**	**4.157**	4.240	175.0	104.4	0.032	0.082	12.0	5.08
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	05-Apr-04	30036	10.12	93.7	1.1	79.0	11.6	181.5	7.5	0.025	**2.0**	6.1	5.0	3.490	3.510	**0.020**	**0.110**	**3.535**	3.620	139.0	76.3	0.054	0.081	**10.0**	2.16
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	11-May-04	30213	9.64	97.0	1.2	53.0	15.6	147.1	7.2	**0.015**	**2.0**	6.4	4.8	3.140	3.160	**0.020**	**0.110**	**3.175**	3.270	94.0	78.8	0.027	0.083	**10.0**	10.69
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	15-Jun-04	30426	7.95	84.5	0.7	87.0	18.5	224.7	7.6	**0.015**	2.2	7.5	4.2	2.710	2.730	**0.020**	**0.110**	**2.745**	2.840	187.0	101.6	0.020	0.093	16.0	3.30
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	19-Jul-04	30590	9.05	96.2	0.7	85.0	18.4	207.4	7.3	**0.015**	3.2	8.2	4.9	3.510	3.530	**0.020**	0.150	**3.545**	3.680	121.0	87.3	0.042	0.083	**10.0**	8.48
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	23-Aug-04	30819	8.21	89.2	1.6	92.0	19.4	229.2	7.4	**0.015**	**2.0**	7.6	6.6	3.140	3.160	**0.020**	**0.110**	**3.175**	3.270	158.0	124.2	0.035	0.078	**10.0**	4.78
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	28-Sep-04	31077	7.90	82.4	1.0	89.0	17.5	263.0	6.2	0.021	**2.0**	8.8	4.1	2.380	2.400	**0.020**	**0.110**	**2.421**	2.510	149.0	118.9	0.034	0.065	30.0	1.32
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	02-Nov-04	31291	9.28	94.5	4.3	56.0	16.3	185.5	7.3	**0.015**	**2.0**	5.6	4.7	3.510	3.530	**0.020**	0.130	**3.545**	3.660	111.0	79.4	0.066	0.083	**10.0**	23.06
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	06-Dec-04	31405	8.34	88.4	1.4	77.0	12.9	189.3	7.0	**0.015**	**2.0**	6.6	5.2	4.040	4.060	**0.020**	**0.110**	**4.075**	4.170	119.0	79.3	0.037	0.068	**10.0**	20.46
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	04-Jan-05	31719	10.10	92.8	10.5	64.0	11.6	180.2	7.2	**0.015**		5.8	4.8	3.210	3.230	**0.020**	**0.110**	**3.245**	3.340	101.0	76.3	0.045	0.088	**10.0**	52.32
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	14-Feb-05	31955	10.31	90.1	0.9	58.0	9.3	172.0	6.6	**0.015**	**2.0**	6.7	4.5	3.560	3.580	**0.020**	**0.110**	**3.595**	3.690	112.0	79.6	0.026	0.074	**10.0**	8.19
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	14-Mar-05	32077	11.26	98.9	1.0	57.0	9.7	200.6	7.5	**0.015**	2.4	7.1	4.2	3.090	3.110	**0.020**	**0.110**	**3.125**	3.220	79.0	86.8	0.025	0.061	**10.0**	6.37
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	18-Apr-05	32250	10.47	101.2	1.4	61.0	13.8	189.0	7.5	0.026	**2.0**	6.2	5.2	2.920	2.940	**0.020**	**0.110**	**2.966**	3.050	73.0	81.6	0.020	0.046	**10.0**	11.39
OzHlnds	Battle Creek: Battle Branch	OK121700-06-0040G	24-May-05	32629	8.01	82.0	0.9	80.0	16.3	228.2	7.2	**0.015**	**2.0**	30.7	7.3	2.750	2.770	**0.020**	**0.110**	**2.785**	2.880	134.0	104.8	0.027	0.226	**10.0**	76.35
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	09-Mar-90	11041												1.400			0.190						0.010		
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	01-Aug-90	11042	6.60		2.1		21.0	130.0	7.5			15.0	6.4	1.000			0.300				90.0		0.071	0.5	
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	08-May-91	11043	5.80		1.3	56.0	16.2	148.0	7.3			**10.0**	**20.0**				0.139				99.0		0.031	**1.0**	
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	24-May-91	11044			0.3			125.0				1.0	4.6								70.0			**1.0**	
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	06-Aug-91	11045	7.00		1.6	64.0	23.5	173.0	7.2	0.010				0.920			0.200					**0.010**	**0.010**	10.0	
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	30-Oct-91	227						173.0		0.020		6.0	**5.0**	3.400			**0.200**				76.0	**0.010**	0.010	2.0	
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	07-Nov-91	228	8.40		2.1	61.0	13.0	171.0		**0.010**		5.0	**5.0**	3.100			**0.200**				80.0	**0.010**	**0.010**	19.0	
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	30-Jan-92	229	12.50		1.3	59.0	10.7	147.0	8.1	**0.010**		6.0	6.5	2.300			**0.200**				70.0	**0.010**	**0.010**	1.0	
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	22-Apr-92	230	9.80		1.9	61.6	13.7	154.0	7.6	**0.010**		2.9	4.1	1.100			**0.200**				68.0	**0.010**	**0.010**	7.0	
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	29-May-92	231						164.0		0.020		5.0	4.3	0.820			**0.200**				78.0	0.010	0.020	11.0	
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	22-Jul-92	232	5.90		1.9	78.0	19.7	183.0	7.2	**0.010**		5.0	6.2	0.880			**0.200**				98.0	0.020	**0.010**	9.0	
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	21-Jan-97	14044	10.92		1.1		10.5	178.0	7.7																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	03-Jun-97	12230																							
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	31-Jul-97	14047	8.16		0.8		23.8	186.0	7.7																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	08-Aug-97	12088																							
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	14-Aug-97	5036	7.22		0.9		20.8	189.0	7.0																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	28-Aug-97	5037	9.08		1.0		23.8	203.0																	
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	20-Jul-98	5038	8.62		4.2		24.7	186.0	7.8																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	03-Aug-98	5039	7.15		1.7		23.2	191.0	7.5																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	17-Aug-98	5040	8.31		2.9		25.0	205.0																	
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	30-Jan-03	26685	11.71		0.8		9.6	135.4	8.0																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	13-Feb-03	26777	11.03		0.7		9.2	125.8	8.1																

Appendix E.1. High quality sites: raw chemical and physical water quality data.

Ecoregion	Site	WBID	Date	SAMPLEID	DO (mg/L)	DOPercSat	Turb (NTU)	Alkalinity (CaCO3)	Temp (°C)	Cond (uS/cm)	pH (SU)	Ammonia (mg/L)	CBOD5 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrate/Nitrite (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Avail N	Total N	TotDisSolids (mg/L)	TotHardness (mg/L)	TotOrthoPhos (mg/L)	TotPhosphorus (mg/L)	TotSusSolids (mg/L)	Flow
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	27-Feb-03	26828	14.03		1.3	68.0	9.0	136.2	8.0																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	13-Mar-03	27260	11.84		0.8	66.0	11.5	179.6	8.1																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	19-Jun-03	27620	8.50	89.0	0.6		17.6	221.0	7.3																15.18
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	17-Jul-03	28025	8.19	95.0	0.5	87.0	22.8	220.1	7.5																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	31-Jul-03	27901	7.94	94.1	0.7		24.2	220.0	7.5																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	14-Aug-03	27910	8.39	97.1	0.9	83.0	22.6	227.0	7.5																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	28-Aug-03	27919	6.14	77.4	2.0	93.0	25.4	223.0	7.4																0.00
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	03-Feb-04	29544	10.84	95.5	0.9	85.0	9.1	192.5	7.8																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	11-Feb-04	29604	11.70	101.8	0.4	82.0	9.3	217.2	7.8																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	18-Feb-04	29653	12.31	114.0	0.7	83.0	12.0	175.1	7.3																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	26-Feb-04	29702	11.84	108.3	0.8	142.0	11.3	188.5	7.9																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	02-Mar-04	29717	11.68	107.3	0.6	86.0	11.6	195.8	7.9																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	01-Jul-04	30540	7.74	83.5	1.0		19.0	204.4	7.3																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	21-Jul-04	30608	8.88	103.3	1.0	83.0	22.9	205.9	7.5																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	02-Sep-04	30963	7.71	84.0	0.7	75.0	19.7	206.0	7.3																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	16-Sep-04	31001	8.46	95.4	1.1	76.0	21.3	177.5	7.5																
OzHlnds	Tyner Creek: TB1	OK121700-05-0090G	07-Jun-05	32972	8.36	87.2	0.8	74.0	17.5	192.6	7.5																11.16

Appendix E.2. High Quality Sites fish and habitat data.

			FISH DATA															HABITAT DATA							
Site Name	WBID	Level 3 Ecoregion	Total Number	Total Spp	Darter Spp	Round-bodied Sucker Spp	Sunfish Spp	Intolerant Spp	Percent Tolerant	Percent Omnivores	Percent Insect Cyprinid	Percent Top Predators	Percent Lithophilic Spawners	Avg Instream Cover	Avg Pool Bottom Substrate	Avg Pool Variability	Avg Canopy Cover Shading	Avg Presence of Rocky Runs or Riffles	Avg Flow	Avg Channel Alteration	Avg Channel Sinuosity	Avg Bank Stability	Avg Bank Veg. Stability	Avg Streamside Cover	Avg Total Points
Fourche Maline Creek: Leflore	OK220100-04-0010M	AV	578	37	6.3	1.7	9.0	8	48.6	11.9	22.7	9.9	48.0	4.4	3.8	13.4	14.3	7.5	20	11.1	0.6	7.7	4.3	9.7	96.8
Mill Creek: Byrd's	OK410400-04-0090G	AV	338	16	3.0	1.0	3.0	1	10.9	0.0	18.6	0.3	82.0	1.4	5.7	15	19.4	7.5	16.3	13.7	2.9	8.9	4.5	8	103
Mountain Fork of San Bois Creek	OK220200-04-0050J	AV	206	17	4.0	0.0	3.0	4	39.3	2.4	5.8	1.5	60.0	19.5	17.4	15	7.9	16.2	18.1	16.5	1.6	10	8.9	9.9	141
Sugar Loaf Creek	OK220100-01-0160G	AV	243	25	4.0	1.0	6.0	4	33.3	9.5	8.2	2.9	63.0	11.6	5.2	15	7.2	0	1.2	16.5	4	8.4	2	9.3	80.4
Lower Vian Creek	OK220200-02-0130G	BMtns	1028	22	4.0	1.0	6.0	9	11.2	0.6	60.8	2.9	87.0	16.9	13.1	19.3	8.1	9	9.6	16.5	0.8	10	8.7	10	122
Big Cabin Creek	OK121600-06-0220I	CIP	424	23	5.0	0.0	7.0	3	49.1	14.6	12.3	5.7	46.0	7.5	9.8	18.7	20	4.1	0	8.7	1.1	9.9	4.1	9.6	93.5
Big Creek	OK121510-03-0010D	CIP	868	27	2.0	2.0	7.0	3	26.3	17.9	3.7	3.3	43.0	1.6	5.2	16.1	7	0	0	16.5	0	7.5	4.4	9.5	67.8
Cloud Creek	OK120410-02-0010H	CIP	723	28	3.0	1.0	9.0	3	83.1	45.5	2.5	13.7	23.0	5.9	8.3	18.8	12.5	0	0	7.7	0.1	7.3	5.8	9.2	75.4
Little Caney River	OK121400-02-0140H	CIP	174	17	0.0	0.0	3.0	1	71.3	68.4	0.6	17.8	29.0	3.1	1.9	13.2	9.2	7.5	18.6	8.7	5.4	10	3.4	3.6	84.6
Fly Creek	OK121600-03-0180G	CIP	543	12.5	3.0	0.5	5.0	1.5	31.4	0.1	0.0	2.1	70.0	3.2	3.9	0	15.6	0	15.5	16.5	7.7	7.7	5.7	9.7	85.5
Alabama Creek: Above Discharge	OK520500-01-0200U	CT	491	17	2.0	0.0	6.0	1	38.1	14.3	6.3	3.7	43.0	6.1	8.5	20.2	15.2	5.9	0.1	7.7	2.1	5.7	2.5	9.5	83.5
Bird Creek	OK121300-02-0010C	CT	2134	23	4.0	1.0	6.0	2	83.1	54.4	0.7	21.4	19.0	2.2	1.6	14.6	8.7	0	19.1	16.5	0.8	10	5	9.6	88.1
Elm Creek	OK520810-00-0100C	CT	281	17	0.0	0.0	6.0	1	85.4	25.3	2.8	6.4	52.0	4.8	1.1	14.7	17.3	5.9	12.1	15.1	0.8	6.5	5.4	9.1	92.8
Little Wewoka Creek: Site # 1	OK520500-02-0090A	CT	707.5	17.5	1.0	0.0	5.5	2	77.7	43.8	11.2	4.4	16.0	7.5	5.8	13	2.6	5.9	0	7.7	0.6	8.4	0.2	4.2	55.9
Mill Creek	OK310800-01-0190T	CT	261	14	2.0	0.0	6.0	1	62.5	0.4	18.8	2.7	62.0	14.7	11.2	13.5	19	4.1	15.1	15.1	5.3	6.7	4.4	8.7	118
Mission Creek	OK121400-02-0190B	CT	765	25	2.0	1.0	8.0	1	63.7	50.8	3.0	3.3	24.0	8.8	12.9	16.6	15.5	11.4	4.8	12.3	1.6	10	5.4	10	109
Sand Creek	OK121400-04-0010F	CT	376	20	2.0	0.0	7.0	2	40.4	25.3	15.2	3.7	47.0	5.4	4.2	13.6	7.7	7.5	0.6	9.9	0.8	9.6	8.2	10	77.5
Sandy Creek: Upper	OK410400-03-0160T	CT	287	17	1.5	1.0	7.0	1.5	45.6	11.9	22.6	3.7	50.5	10.8	10.9	16.3	8.5	2.2	1.8	15.1	6.1	10	3.5	3.4	88.6
Ballard Creek: Lower	OK121700-03-0370G	OzHlnds	910	23	3.0	3.0	6.0	12	3.0	0.1	44.0	0.4	86.0	17.2	16.9	19.9	11.5	11.4	12.4	2.3	0.5	7.7	4.3	9.7	114
Battle Creek: Battle Branch	OK121700-06-0040G	OzHlnds	516.33	16.67	2.7	2.0	1.7	12	1.0	0.0	31.6	0.0	91.0	18.9	15	17.2	18.7	15.9	5.4	11.1	0.8	8.9	7.2	10	129
Tyner Creek: TB1	OK121700-05-0090G	OzHlnds	289	14.5	4.0	1.0	2.0	11	0.2	0.0	34.5	1.0	95.0	17.6	18.4	18.8	19.9	16.2	18.4	11.1	0.3	8.7	4.1	9.1	143

Appendix E.3. High Quality Sites macroinvertebrate data.

Sitename	Wbid	Level 3 Ecoregion	SAMPLEID	Date	Habitat	Season	TotBugsIDd	Total Species	EPT Taxa	Ephemeroptera taxa	Plecoptera taxa	Trichoptera taxa	Insect taxa	Non-insect taxa	Percent EPT	Percent Ephemeroptera	Percent Plecoptera	Percent Trichoptera	Percent Insect taxa	Percent Non-insect taxa	Percent Chironomini, Tubificidae, Naididae	Percent dominant taxon	Shannon Diversity	Percent filterers	Percent gatherers	Percent scrapers	Percent omnivores	HBI	NCBI
Mountain Fork of San Bois Ck	OK220200-04-0050J	AV	19020	07/11/00	riffle	Sum	108	19	7	5	1	2	17	2	0.49	0.17	0.01	0.31	0.98	0.02	0.06	0.27	2.33	0.31	0.26	0.09	0.10	4.59	4.82
Mountain Fork of San Bois Ck	OK220200-04-0050J	AV	18151	01/12/00	riffle	Wint	114	18	9	4	4	2	16	3	0.43	0.24	0.16	0.02	0.97	0.03	0.33	0.48	1.93	0.06	0.51	0.08	0.21	5.43	4.67
Fourche Maline Ck: Leflore	OK220100-04-0010M	AV	27943	07/09/03	riffle	Sum	103	16	7	4	0	3	14	2	0.61	0.22	0.00	0.38	0.95	0.05	0.06	0.33	2.15	0.41	0.24	0.00	0.29	4.60	5.21
Fourche Maline Ck: Leflore	OK220100-04-0010M	AV	29516	01/16/04	riffle	Wint	100	16	6	4	2	1	13	3	0.20	0.08	0.11	0.01	0.96	0.04	0.13	0.44	1.90	0.23	0.50	0.00	0.18	5.35	4.96
Fourche Maline Ck: Leflore	OK220100-04-0010M	AV	27943	07/09/03	veg	Sum	100	19	7	6	0	1	17	2	0.54	0.47	0.00	0.07	0.97	0.03	0.05	0.30	2.40	0.10	0.53	0.00	0.19	5.13	5.40
Fourche Maline Ck: Leflore	OK220100-04-0010M	AV	29516	01/16/04	veg	Wint	105	21	10	5	3	2	19	2	0.44	0.23	0.13	0.07	0.88	0.12	0.08	0.19	2.52	0.08	0.62	0.01	0.16	4.95	5.12
Fourche Maline Ck: Leflore	OK220100-04-0010M	AV	19210	07/26/99	wood	Sum	84	13	5	2	0	3	13	0	0.54	0.07	0.00	0.47	1.00	0.00	0.16	0.28	2.02	0.53	0.29	0.00	0.11	4.97	5.17
Fourche Maline Ck: Leflore	OK220100-04-0010M	AV	16375	03/03/99	wood	Wint	96	14	8	3	4	1	13	1	0.27	0.10	0.16	0.01	0.99	0.01	0.16	0.41	1.81	0.38	0.37	0.00	0.19	5.28	4.87
Sugar Loaf Ck	OK220100-01-0160G	AV	20543	07/22/97	riffle	Sum	104	16	5	2	1	2	12	4	0.71	0.04	0.02	0.65	0.93	0.07	0.04	0.41	1.89	0.69	0.08	0.00	0.08	3.77	4.28
Sugar Loaf Ck	OK220100-01-0160G	AV	20812	02/03/97	riffle	Wint	103	21	11	3	6	3	19	3	0.45	0.15	0.26	0.05	0.91	0.09	0.09	0.21	2.59	0.11	0.32	0.03	0.31	4.28	4.42
Sugar Loaf Ck	OK220100-01-0160G	AV	20812	02/03/97	veg	Wint	104	18	11	3	6	3	16	2	0.46	0.05	0.34	0.07	0.98	0.02	0.18	0.24	2.39	0.11	0.48	0.01	0.22	4.52	4.56
Sugar Loaf Ck	OK220100-01-0160G	AV	20682	02/20/96	wood	Wint	106	15	7	3	3	1	14	1	0.22	0.09	0.10	0.03	0.99	0.01	0.22	0.39	1.88	0.16	0.69	0.01	0.10	5.73	4.78
Mill Ck: Byrd's	OK410400-04-0090G	AV	20589	03/22/95	riffle	Wint	129	15	7	5	1	1	12	3	0.41	0.36	0.03	0.01	0.92	0.08	0.06	0.34	2.06	0.10	0.76	0.01	0.12	5.26	4.33
Mill Ck: Byrd's	OK410400-04-0090G	AV	20589	03/22/95	veg	Wint	87	17	8	5	1	2	15	2	0.58	0.49	0.04	0.05	0.97	0.03	0.05	0.28	2.25	0.09	0.82	0.00	0.04	4.74	4.55
Mill Ck: Byrd's	OK410400-04-0090G	AV	20589	03/22/95	wood	Wint	82	13	7	4	1	3	12	2	0.43	0.32	0.04	0.08	0.98	0.02	0.04	0.39	1.90	0.13	0.74	0.00	0.10	5.11	4.52
Lower Vian Ck	OK220200-02-0130G	BMtns	20376	07/24/97	riffle	Sum	129	23	9	6	1	2	18	5	0.49	0.39	0.04	0.06	0.89	0.11	0.03	0.25	2.59	0.12	0.37	0.23	0.18	4.66	4.31
Lower Vian Ck	OK220200-02-0130G	BMtns	20905	02/13/98	riffle	Wint	106	22	11	4	5	2	19	3	0.56	0.15	0.27	0.15	0.89	0.11	0.02	0.26	2.46	0.15	0.33	0.17	0.18	3.80	3.47
Lower Vian Ck	OK220200-02-0130G	BMtns	20555	03/06/95	veg	Wint	103	18	11	3	5	3	16	2	0.36	0.07	0.17	0.12	0.97	0.03	0.02	0.36	2.07	0.34	0.37	0.01	0.05	4.91	4.46
Lower Vian Ck	OK220200-02-0130G	BMtns	20555	03/06/95	wood	Wint	82	16	10	4	4	2	15	1	0.51	0.18	0.28	0.05	0.99	0.01	0.01	0.39	1.99	0.09	0.56	0.03	0.16	4.22	4.22
Big Cabin Ck	OK121600-06-0220I	CIP	25504	07/16/02	riffle	Sum	129	15	7	5	0	3	13	2	0.44	0.13	0.00	0.31	0.94	0.06	0.05	0.37	1.95	0.40	0.15	0.00	0.36	4.52	5.29
Big Cabin Ck	OK121600-06-0220I	CIP	25666	01/28/02	riffle	Wint	138	17	4	2	2	0	11	6	0.09	0.01	0.07	0.00	0.88	0.12	0.04	0.58	1.65	0.20	0.67	0.01	0.01	5.65	4.88
Big Cabin Ck	OK121600-06-0220I	CIP	25666	01/28/02	veg	Wint	131	16	3	1	2	0	11	5	0.03	0.01	0.02	0.00	0.58	0.42	0.05	0.32	1.87	0.16	0.75	0.02	0.02	6.89	6.22
Big Ck	OK121510-03-0010D	CIP	25503	07/16/02	veg	Sum	97	12	4	2	0	2	10	2	0.25	0.03	0.00	0.22	0.97	0.03	0.31	0.31	1.84	0.21	0.51	0.02	0.22	5.88	5.74
Big Ck	OK121510-03-0010D	CIP	25668	01/28/02	veg	Wint	116	12	2	0	1	1	5	7	0.10	0.00	0.09	0.02	0.48	0.52	0.12	0.38	1.74	0.03	0.84	0.03	0.00	6.67	6.03
Big Ck	OK121510-03-0010D	CIP	25668	01/28/02	wood	Wint	105	13	5	1	3	1	11	2	0.09	0.05	0.03	0.01	0.54	0.46	0.07	0.44	1.56	0.02	0.88	0.00	0.09	6.82	6.10
Cloud Ck	OK120410-02-0010H	CIP	29508	02/19/04	riffle	Wint	324	14	5	2	2	1	11	3	0.10	0.04	0.02	0.03	0.96	0.04	0.12	0.66	1.35	0.69	0.26	0.00	0.03	6.02	5.34
Fly Ck	OK121600-03-0180G	CIP	20460	04/06/95	riffle	Wint	107	16	6	3	2	1	13	3	0.45	0.04	0.39	0.02	0.90	0.10	0.05	0.36	2.10	0.04	0.47	0.00	0.45	4.07	5.14
Fly Ck	OK121600-03-0180G	CIP	20460	04/06/95	veg	Wint	120	9	5	1	2	2	8	1	0.61	0.01	0.06	0.54	0.95	0.05	0.01	0.53	1.38	0.11	0.83	0.00	0.04	4.73	4.44
Fly Ck	OK121600-03-0180G	CIP	20460	04/06/95	wood	Wint	114	7	2	0	1	1	6	1	0.80	0.00	0.02	0.78	0.97	0.03	0.00	0.78	0.83	0.04	0.92	0.00	0.03	4.39	4.22
Little Caney River	OK121400-02-0140H	CIP	25486	07/16/02	riffle	Sum	96	17	7	5	0	3	16	2	0.55	0.38	0.00	0.17	0.85	0.15	0.19	0.29	2.31	0.17	0.56	0.00	0.19	5.27	5.81
Little Caney River	OK121400-02-0140H	CIP	26671	01/28/03	riffle	Wint	95	20	6	3	1	2	17	3	0.30	0.18	0.01	0.11	0.87	0.13	0.06	0.20	2.53	0.24	0.35	0.00	0.33	4.86	5.15
Little Caney River	OK121400-02-0140H	CIP	25486	07/16/02	veg	Sum	100	20	8	5	0	3	19	1	0.76	0.72	0.00	0.04	0.99	0.01	0.07	0.66	1.58	0.02	0.79	0.00	0.07	4.54	5.24
Little Caney River	OK121400-02-0140H	CIP	25486	07/16/02	wood	Sum	113	15	6	3	0	3	15	0	0.24	0.08	0.00	0.17	1.00	0.00	0.39	0.39	1.90	0.15	0.70	0.00	0.09	6.05	5.20
Little Caney River	OK121400-02-0140H	CIP	25453	02/04/02	wood	Wint	127	15	7	2	0	5	14	1	0.15	0.06	0.00	0.10	0.99	0.01	0.10	0.44	1.94	0.09	0.83	0.00	0.06	5.86	4.80
Alabama Ck: Above Discharge	OK520500-01-0200U	CT	20737	08/19/96	riffle	Sum	88	14	4	3	0	1	12	2	0.26	0.23	0.00	0.03	0.98	0.02	0.28	0.33	1.93	0.03	0.50	0.00	0.42	5.82	5.70
Alabama Ck: Above Discharge	OK520500-01-0200U	CT	20602	03/29/95	riffle	Wint	123	19	9	5	1	3	17	2	0.28	0.20	0.07	0.02	0.96	0.04	0.10	0.47	2.08	0.03	0.25	0.00	0.66	4.57	5.22
Alabama Ck: Above Discharge	OK520500-01-0200U	CT	20602	03/29/95	veg	Wint	103	15	8	4	2	2	12	3	0.81	0.72	0.07	0.02	0.97	0.03	0.04	0.28	1.99	0.00	0.64	0.00	0.35	4.68	4.68
Alabama Ck: Above Discharge	OK520500-01-0200U	CT	20737	08/19/96	wood	Sum	89	9	5	4	0	1	8	1	0.23	0.18	0.00	0.05	0.96	0.04	0.63	0.63	1.35	0.05	0.87	0.00	0.09	7.13	5.86
Alabama Ck: Above Discharge	OK520500-01-0200U	CT	20602	03/29/95	wood	Wint	93	16	7	4	2	1	14	2	0.64	0.55	0.08	0.01	0.92	0.08	0.04	0.43	2.10	0.11	0.66	0.00	0.22	3.87	3.34
Bird Ck	OK121300-02-0010C	CT	25488	07/17/02	riffle	Sum	122	19	8	5	0	3	15	5	0.37	0.15	0.00	0.23	0.82	0.18	0.28	0.26	2.37	0.39	0.39	0.00	0.17	5.73	5.54
Bird Ck	OK121300-02-0010C	CT	25454	02/05/02	riffle	Wint	136	21	9	3	1	5	16	5	0.60	0.08	0.01	0.51	0.94	0.06	0.06	0.45	2.06	0.69	0.25	0.00	0.04	5.01	5.50
Bird Ck	OK121300-02-0010C	CT	25488	07/17/02	veg	Sum	130	20	5	3	0	2	14	6	0.23	0.05	0.00	0.18	0.69	0.31	0.09	0.35	2.20	0.41	0.38	0.03	0.06	5.69	6.04
Bird Ck	OK121300-02-0010C	CT	25454	02/05/02	veg	Wint	128	13	5	3	0	2	10	3	0.10	0.05	0.00	0.05	0.91	0.09	0.02	0.68	1.29	0.18	0.79	0.02	0.01	6.08	4.99
Bird Ck	OK121300-02-0010C	CT	25488	07/17/02	wood	Sum	118	14	6	2	0	4	13	1	0.46	0.04	0.00	0.42	0.98	0.02	0.19	0.42	1.82	0.43	0.39	0.01	0.05	5.08	4.94
Bird Ck	OK121300-02-0010C	CT	25454	02/05/02	wood	Wint	117	14	5	3	0	2	13	1	0.18	0.03	0.00	0.15	0.99	0.01	0.03	0.47	1.68	0.39	0.55	0.00	0.03	5.69	4.89
Elm Ck	OK520810-00-0100C	CT	19001	07/18/00	riffle	Sum	112	20	7	4	0	3	19	2	0.45	0.13	0.00	0.32	0.98	0.02	0.16	0.22	2.40	0.36	0.49	0.02	0.08	4.77	4.98
Elm Ck	OK520810-00-0100C	CT	18169	01/07/00	riffle	Wint	111	17	5	3	0	2	14	3	0.20	0.09	0.00	0.11	0.95	0.05	0.12	0.36	2.16	0.19	0.67	0.02	0.09	5.76	5.16

Appendix E.3. High Quality Sites macroinvertebrate data.

Sitename	Wbid	Level 3 Ecoregion	SAMPLEID	Date	Habitat	Season	TotBugsIDd	Total Species	EPT Taxa	Ephemeroptera taxa	Plecoptera taxa	Trichoptera taxa	Insect taxa	Non-insect taxa	Percent EPT	Percent Ephemeroptera	Percent Plecoptera	Percent Trichoptera	Percent Insect taxa	Percent Non-insect taxa	Percent Chironomini, Tubificidae, Naididae	Percent dominant taxon	Shannon Diversity	Percent filterers	Percent gatherers	Percent scrapers	Percent omnivores	HBI	NCBI
Elm Ck	OK520810-00-0100C	CT	19001	07/18/00	veg	Sum	92	17	6	4	0	2	15	2	0.48	0.33	0.00	0.15	0.84	0.16	0.10	0.28	2.22	0.11	0.58	0.06	0.06	5.49	6.02
Elm Ck	OK520810-00-0100C	CT	18169	01/07/00	veg	Wint	117	20	5	3	0	2	17	4	0.13	0.11	0.00	0.02	0.93	0.07	0.07	0.36	2.19	0.16	0.68	0.01	0.07	5.94	5.30
Elm Ck	OK520810-00-0100C	CT	18261	07/28/99	wood	Sum	123	18	8	3	0	5	18	0	0.67	0.26	0.00	0.41	1.00	0.00	0.18	0.21	2.38	0.31	0.57	0.01	0.01	4.90	4.98
Elm Ck	OK520810-00-0100C	CT	18169	01/07/00	wood	Wint	103	11	4	2	0	2	11	0	0.10	0.06	0.00	0.04	1.00	0.00	0.11	0.60	1.39	0.35	0.63	0.01	0.01	6.01	4.97
Little Wewoka Ck: Site # 1	OK520500-02-0090A	CT	20389	07/29/97	riffle	Sum	132	27	14	11	0	3	24	3	0.52	0.29	0.00	0.23	0.97	0.03	0.15	0.16	2.74	0.29	0.57	0.02	0.06	5.55	5.38
Little Wewoka Ck: Site # 1	OK520500-02-0090A	CT	20800	01/30/97	riffle	Wint	120	15	5	3	1	2	11	4	0.17	0.05	0.01	0.12	0.90	0.10	0.06	0.47	1.71	0.66	0.29	0.00	0.02	5.87	5.51
Little Wewoka Ck: Site # 1	OK520500-02-0090A	CT	20510	08/12/96	veg	Sum	158	25	12	7	2	3	19	6	0.47	0.28	0.02	0.17	0.96	0.04	0.04	0.23	2.66	0.20	0.62	0.03	0.09	5.00	4.55
Little Wewoka Ck: Site # 1	OK520500-02-0090A	CT	20510	08/12/96	wood	Sum	116	20	8	6	0	2	15	5	0.47	0.33	0.00	0.14	0.94	0.06	0.06	0.25	2.22	0.40	0.31	0.00	0.04	5.69	5.10
Mill Ck	OK310800-01-0190T	CT	12835	07/12/94	riffle	Sum	152	26	11	5	0	6	24	3	0.41	0.27	0.00	0.13	0.93	0.07	0.05	0.20	2.72	0.18	0.37	0.01	0.31	4.57	4.49
Mill Ck	OK310800-01-0190T	CT	20592	03/22/95	riffle	Wint	99	17	5	4	1	1	14	3	0.27	0.18	0.08	0.01	0.83	0.17	0.08	0.21	2.42	0.15	0.49	0.00	0.28	4.83	5.13
Mill Ck	OK310800-01-0190T	CT	20469	04/01/94	veg	Wint	114	25	10	6	1	3	21	4	0.38	0.32	0.04	0.03	0.91	0.09	0.04	0.25	2.65	0.12	0.70	0.00	0.06	5.36	5.07
Mill Ck	OK310800-01-0190T	CT	20592	03/22/95	wood	Wint	91	19	8	4	2	2	18	2	0.31	0.20	0.08	0.02	0.98	0.02	0.15	0.34	2.26	0.10	0.69	0.00	0.17	5.36	4.89
Mission Ck	OK121400-02-0190B	CT	25456	02/05/02	riffle	Wint	137	18	5	2	1	2	14	4	0.37	0.19	0.12	0.06	0.90	0.10	0.06	0.23	2.34	0.08	0.50	0.01	0.21	5.29	5.64
Mission Ck	OK121400-02-0190B	CT	25456	02/05/02	wood	Wint	112	9	0	0	0	0	8	1	0.00	0.00	0.00	0.00	0.94	0.06	0.51	0.51	1.45	0.03	0.95	0.00	0.00	7.11	5.42
Sand Ck	OK121400-04-0010F	CT	25489	07/17/02	riffle	Sum	127	15	6	4	0	2	12	4	0.41	0.12	0.00	0.29	0.77	0.23	0.17	0.38	2.02	0.48	0.27	0.00	0.18	5.43	5.81
Sand Ck	OK121400-04-0010F	CT	26667	01/27/03	riffle	Wint	129	18	5	2	2	2	13	6	0.44	0.02	0.01	0.40	0.84	0.16	0.07	0.40	1.98	0.56	0.17	0.00	0.20	4.90	5.97
Sand Ck	OK121400-04-0010F	CT	25489	07/17/02	wood	Sum	133	16	6	3	0	3	15	2	0.30	0.02	0.00	0.28	0.99	0.01	0.44	0.44	1.71	0.28	0.63	0.00	0.07	6.17	5.51
Sand Ck	OK121400-04-0010F	CT	25455	02/05/02	wood	Wint	115	14	3	1	0	2	11	3	0.03	0.01	0.00	0.02	0.93	0.07	0.57	0.55	1.64	0.12	0.77	0.04	0.03	7.20	5.75
Sandy Ck: Upper	OK410400-03-0160T	CT	12868	05/22/96	riffle	Sum	146	17	7	4	1	3	16	1	0.42	0.08	0.02	0.32	0.99	0.01	0.13	0.25	2.22	0.32	0.40	0.00	0.19	4.65	4.65
Sandy Ck: Upper	OK410400-03-0160T	CT	20585	03/21/95	riffle	Wint	104	21	7	3	2	3	18	3	0.28	0.12	0.05	0.11	0.94	0.06	0.29	0.33	2.41	0.09	0.60	0.00	0.24	5.59	5.29
Sandy Ck: Upper	OK410400-03-0160T	CT	21031	09/15/92	veg	Sum	168	17	6	3	0	3	17	0	0.64	0.07	0.00	0.57	1.00	0.00	0.11	0.37	2.07	0.58	0.26	0.00	0.08	4.54	5.12
Sandy Ck: Upper	OK410400-03-0160T	CT	20585	03/21/95	veg	Wint	104	20	7	2	2	4	17	3	0.24	0.09	0.04	0.10	0.95	0.05	0.12	0.30	2.37	0.13	0.63	0.02	0.07	5.66	4.95
Ballard Ck: Lower	OK121700-03-0370G	OzHlnds	30648	07/22/04	riffle	Sum	127	20	9	6	1	2	17	4	0.66	0.51	0.02	0.12	0.94	0.06	0.05	0.24	2.47	0.18	0.42	0.05	0.24	4.56	4.40
Ballard Ck: Lower	OK121700-03-0370G	OzHlnds	29511	01/14/04	riffle	Wint	96	21	14	7	5	2	19	2	0.55	0.32	0.19	0.04	0.88	0.12	0.07	0.17	2.70	0.10	0.55	0.09	0.13	4.78	4.68
Ballard Ck: Lower	OK121700-03-0370G	OzHlnds	20570	03/11/95	veg	Wint	100	18	11	6	5	0	17	1	0.38	0.15	0.23	0.00	0.99	0.01	0.02	0.33	2.20	0.20	0.53	0.00	0.07	4.74	4.91
Ballard Ck: Lower	OK121700-03-0370G	OzHlnds	20570	03/11/95	wood	Wint	113	10	4	3	1	0	10	0	0.08	0.07	0.01	0.00	1.00	0.00	0.07	0.79	0.91	0.03	0.93	0.02	0.02	5.89	4.55
Battle Ck: Battle Branch	OK121700-06-0040G	OzHlnds	30647	07/22/04	riffle	Sum	98	16	7	4	1	3	13	3	0.56	0.29	0.03	0.25	0.82	0.18	0.05	0.23	2.04	0.25	0.31	0.29	0.05	4.19	3.94
Battle Ck: Battle Branch	OK121700-06-0040G	OzHlnds	29510	01/14/04	riffle	Wint	116	23	14	6	3	4	19	3	0.66	0.31	0.11	0.24	0.93	0.07	0.03	0.22	2.58	0.18	0.40	0.19	0.12	3.64	3.43
Battle Ck: Battle Branch	OK121700-06-0040G	OzHlnds	20651	10/13/95	veg	Sum	94	23	8	5	1	2	17	6	0.17	0.13	0.01	0.03	0.56	0.44	0.07	0.29	2.54	0.01	0.68	0.17	0.05	6.00	5.65
Battle Ck: Battle Branch	OK121700-06-0040G	OzHlnds	20561	03/08/95	veg	Wint	35	11	7	5	2	0	10	1	0.77	0.63	0.14	0.00	0.89	0.11	0.00	0.26	2.06	0.03	0.77	0.06	0.11	3.37	2.70
Battle Ck: Battle Branch	OK121700-06-0040G	OzHlnds	20379	07/25/97	wood	Sum	108	17	7	5	0	2	15	3	0.59	0.52	0.00	0.08	0.88	0.12	0.04	0.39	2.13	0.10	0.67	0.12	0.06	4.65	4.39
Battle Ck: Battle Branch	OK121700-06-0040G	OzHlnds	20873	01/30/98	wood	Wint	69	15	10	6	2	1	13	2	0.66	0.46	0.11	0.09	0.93	0.07	0.01	0.32	2.14	0.02	0.67	0.16	0.09	3.45	3.21
Tyner Ck: TB1	OK121700-05-0090G	OzHlnds	30630	07/13/04	riffle	Sum	130	20	8	5	1	3	16	5	0.53	0.38	0.01	0.14	0.91	0.09	0.02	0.26	2.34	0.14	0.28	0.30	0.13	4.28	3.76
Tyner Ck: TB1	OK121700-05-0090G	OzHlnds	29527	01/15/04	riffle	Wint	144	23	14	8	3	3	19	4	0.60	0.37	0.13	0.09	0.92	0.08	0.00	0.22	2.56	0.05	0.28	0.26	0.24	3.74	3.24
Tyner Ck: TB1	OK121700-05-0090G	OzHlnds	27951	07/10/03	veg	Sum	137	21	7	3	1	3	17	4	0.44	0.24	0.01	0.19	0.70	0.30	0.02	0.29	2.35	0.16	0.55	0.09	0.11	5.38	4.57
Tyner Ck: TB1	OK121700-05-0090G	OzHlnds	20896	02/10/98	veg	Wint	112	23	14	7	3	4	20	3	0.65	0.39	0.05	0.20	0.85	0.15	0.04	0.19	2.54	0.18	0.53	0.09	0.16	4.05	4.10
Tyner Ck: TB1	OK121700-05-0090G	OzHlnds	20924	07/22/98	wood	Sum	91	16	8	5	0	3	14	2	0.55	0.47	0.00	0.09	0.73	0.27	0.07	0.42	1.92	0.07	0.52	0.26	0.10	4.68	4.39
Tyner Ck: TB1	OK121700-05-0090G	OzHlnds	26617	01/21/03	wood	Wint	106	12	8	4	2	2	11	1	0.41	0.27	0.04	0.10	0.76	0.24	0.01	0.56	1.45	0.01	0.58	0.33	0.06	4.23	3.40