2015 Oklahoma Streams Report

Beneficial Use Monitoring Program

OWRB
the water agency

INTRODUCTION

It is the intent of this Oklahoma Water Resources Board (OWRB) report to advance concepts and principles of the Oklahoma Comprehensive Water Plan (OCWP). Consistent with a primary OCWP initiative, this and other OWRB technical studies provide invaluable data crucial to the ongoing management of Oklahoma's water supplies as well as the future use and protection of the state's water resources. Oklahoma's decision-makers rely upon this information to address specific water supply, quality, infrastructure, and related concerns. Maintained by the OWRB and updated every 10 years, the OCWP serves as Oklahoma's official long-term water planning strategy. Recognizing the essential connection between sound science and effective public policy, incorporated in the Water Plan are a broad range of water resource development and protection strategies substantiated by hard data – such as that contained in this report – and supported by Oklahoma citizens.

Protecting Oklahoma's valuable water resources is essential to maintaining the quality of life for all Oklahomans. Used for a myriad of purposes—such as irrigation, hydropower, public/private water supply, navigation, and a variety of recreational activities—the state's surface and groundwater provides enormous benefits to Oklahoma from both an economic and recreational standpoint.

The National Recreation Lakes Study Commission (NRLSC) estimates that 32,100 people in Oklahoma are employed in support of activities related to our numerous man-made lakes. Also according to the NRLSC, 18,718,000 visitor days are spent on Oklahoma lakes each year and recreation in and around these lakes contributes approximately $2.2 billion each year to Oklahoma's economy. Of additional value are the recreational benefits associated with our smaller municipal/watershed projects, Oklahoma Department of Wildlife lakes, and rivers and streams throughout the state, which infuse millions into state coffers through fishing, hunting, camping and related activities. (In 1987, the Oklahoma Comprehensive Outdoor Recreation Plan estimated that approximately $10.7 million was realized through camping and $15.2 million through hunting/fishing.[1]) According to a 2001 federal study, fishing activities alone contribute $476,019 dollars to Oklahoma's economy, not including the substantial ancillary costs associated with that extremely popular sport.[2]

In addition to surface waters, abundant groundwater also fuels the state's economy serving as supply for thousands municipalities, rural water districts, industrial facilities, and agricultural operations. According to the 2012 update of the Oklahoma Comprehensive Water Plan (OCWP), groundwater represents the primary water supply for approximately 300 cities and towns and comprises 43 percent of the total water used in the state each year.[3] Groundwater resources also supply approximately 90 percent of the state's irrigation needs, and around 8% of Oklahoma's citizens obtain their drinking water from private wells.

Oklahoma works to protect and manage its water resources through a number of initiatives, with the Oklahoma Water Quality Standards (OWQS) serving as the cornerstone of the state's water quality management programs. The Oklahoma Water Resources Board (OWRB) is designated

---

[1] Oklahoma Statewide Comprehensive Outdoor Recreation Plan (SCORP), 1987.
[2] U.S. Department of Interior, Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. *2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.*
[3] Oklahoma Water Resources Board, *Update of the Oklahoma Comprehensive Water Plan, 1995*.

by state statute as the agency responsible for promulgating water quality standards and developing or assisting the other environmental agencies with implementation framework. State agencies are responsible for implementing the OWQS as outlined by the OWRB through development of Implementation plans. Protecting our waters is a cooperative effort between many state agencies and because the OWQS are utilized by all agencies and represent a melding of both science and policy, they are an ideal mechanism to assess the effectiveness of our diverse water quality management activities.

The OWQS are housed in OAC 785:45 and consist of three main components: beneficial uses, criteria to protect beneficial uses, and anti-degradation policy. An additional component, which is not directly part of the OWQS but necessary to water resource protection, is a monitoring program. A monitoring program is required in order to ensure that beneficial uses are maintained and protected. If uses are not being maintained, the cause of that impairment must be identified and restoration activities should be implemented to improve water quality such that it can meet its assigned beneficial uses.

All state agencies are currently required to implement Oklahoma's Water Quality Standards within the scope of their jurisdiction through the development of an Implementation Plan specific for their agency. This process, called OWQS Implementation, allows the OWQS to be utilized by other state agencies in the performance of their regulatory (statutory) responsibilities to manage water quality or to facilitate best management practice initiatives.

In the late 1990's, the need for a protocol to determine beneficial use impairment was identified, which would facilitate state agencies in directing their time and money to the areas in most need of protection or remediation. The OWRB, working in close concert with other state environmental agencies and other concerned parties developed Use Support Assessment Protocols (USAP) to be used by all parties for assessing if a water body was meeting its assigned beneficial uses. In addition, protocols were developed which could be coupled with a trend monitoring system to detect threatened waters before they become seriously impaired. Data collection efforts connected with protocol development and/or implementation also serves a vital purpose in refining numerical criteria currently included in the OWQS and in developing appropriate numerical and narrative criteria for future OWQS documents. It is essential that our waters meet assigned uses and that OWQS implementation protocols are appropriate. Please see the OWRB website for the applicable Oklahoma Administrative Code OAC 785:46 related to the USAP. Final approval of the USAP occurred in 2000 and the OWRB has constantly worked to refine the existing protocols and pursue the addition or modification of USAP protocols to further enhance its utility and effectiveness.

Work to be performed towards development and implementation of the critical fourth component of the OWQS program, monitoring, is the subject of this report. All sampling activities described and conducted as part of this program were consistent with the Oklahoma USAP. It is also important to note that they are consistent with Environmental Protection Agency (EPA) reporting requirements for the "*Integrated Water Quality Monitoring and Assessment Report"*, §319 Nonpoint Source (NPS) Assessment, and the §314 Lake Water Quality Assessment (LWQA).

Background & Problem Definition

The State of Oklahoma has historically had numerous monitoring programs conducted by several state and federal agencies. In general, each environmental agency conducts their monitoring programs with some degree of integration and coordination with other state,

municipal, or federal programs. Most water quality monitoring programs in Oklahoma are designed and implemented by each agency to collect information for one specific purpose or project (i.e. development of Total Maximum Daily Loads, OWQS process, lake trophic status determination, water quality impacts from point source dischargers, stream flow measurements, document success of best management practices, etc.). Information of this type is very specific to each individual project's data quality objectives (DQOs) and is often limited to a very small geographic area. This document describes sampling activities the OWRB has historically conducted on lakes and efforts that are currently on going on lakes and streams across Oklahoma as part of a comprehensive, long-term, statewide Beneficial Use Monitoring Program (BUMP). The goal of the BUMP is to detect and quantify water quality trends, document and quantify impairments of assigned beneficial uses, and identify pollution problems before they become a pollution crisis.

The state is taking a major step towards coordinating sampling activities with the creation of a "Water Quality Monitoring Council" comprised of representatives from state, local, and federal agencies as well as universities, industries, volunteer groups, Indian tribes, and environmental organizations. This Council as envisioned would serve a useful purpose in providing an avenue for communication between the various groups and will allow the state to coordinate water quality monitoring in a more effective manner. The Council will focus on coordinating agency activities and help the state avoid duplication of effort. Coordination between all concerned parties is obviously essential, but a comprehensive basic monitoring initiative to support the OWQS implementation process must be pursued to identify waters which are not meeting their assigned beneficial uses and thus ensure that Oklahoma's water resources are protected from water quality degradation. The Council will also be pivotal in ensuring consistency between data collection efforts. The Monitoring Council will function in a coordinating capacity, which will maximize monitoring efforts.

Beneficial Use and Monitoring Program Overview

The overall goal of the Beneficial Use Monitoring Program is to document beneficial use impairments, identify impairment sources (if possible), detect water quality trends, provide needed information for the OWQS, and facilitate the prioritization of pollution control activities.

Beneficial Use Monitoring Program Components

- **Monitoring Rivers & Streams** - The OWRB is currently monitoring approximately eighty-four (84) stations on a 6-week rotation. Fixed station monitoring is based largely upon the eighty-four (84) planning basins as outlined in the Oklahoma Comprehensive Water Plan (OCWP). In general, at least one (1) sample station was located at the terminal end of each of the planning basins. The OWRB also conducts on-going special studies as well as 25-30 probabilistic monitoring stations annually.
- **Fixed Station Load Monitoring** - The OWRB is currently working with several partners including the the USGS, US Army Corp of Engineers, Grand River Dam Authority, and National Weather Service to conduct flow monitoring on all of our fixed station sites that are not part of the Oklahoma/USGS Cooperative Gaging Network. This cooperative effort will allow for loadings to be calculated, trends to be assessed statewide, and provide much needed data for the Use Support Assessment process. Along with the USGS cost share program, Oklahoma's 319 program, Oklahoma's 314 program and the 303(d)-process will drive sample site locations associated with this task.

- **Fixed Station Lakes Monitoring** - As part of the Beneficial Use Monitoring Program, the Oklahoma Water Resources Board (OWRB) conducts sampling on lakes and reservoirs across the State of Oklahoma. To accomplish this task, the OWRB has taken a probabilistic survey approach for the lakes monitoring program. This survey design allows the state's objectives to be met as well as ensure various sized water bodies are represented adequately. The survey population includes all lakes above 50 surface acres, which encompasses approximately 206 different water bodies. The population is then stratified into two groups – lakes greater than 500 surface acres and those below 500 surface acres. The greater than 500 surface acres group includes 68 lakes, of which approximately one-fifth are monitored annually (quarterly samples) on a randomized draw. They are then monitored again during a subsequent year in the 5-year rotation, so that each lake greater than 50 surface acres is sampled 2 non-consecutive years during each 5 year rotation. The lakes managed by our Federal partners, the USACE and Bureau of Reclamation (BoR) are included in the 68 large lakes. Additionally, ten randomly drawn lakes of less than 500 surface acres are sampled annually (quarterly samples) over the 5 year sample frame. Many of these smaller lakes have not been sampled historically through the BUMP program and include small municipal water supplies.

  The OWRB works with other agencies, such as the US Army Corps of Engineers (USACE), for inclusion of additional information on water bodies managed by the Corps. Data collected consists primarily of water chemistry, nutrients, and chlorophyll-a information. In general, a minimum of three to five stations per reservoir is sampled depending on the size of the reservoir. Stations are located such that they represent the lacustrine, transitional, and riverine zones of the lake. On many reservoirs, additional sites are monitored, including major arms of the reservoir as appropriate. Water quality parameters have been added to the lakes sampling effort over the years to enhance program ability to make use support determinations.

- **Groundwater Monitoring and Assessment Program (GMAP)** – This new program was made possible as result of a $1,500,000 increase in funding received from the Oklahoma Legislature for water quality/quantity monitoring based on recommendations of the 2012 Update of the Oklahoma Comprehensive Water Plan. These additional monies were utilized to restore funding levels of the Beneficial Use Monitoring Program as well as to implement the new groundwater program. The new groundwater program prioritizes efforts on Oklahoma's 21 major groundwater aquifers and will continue to be phased in over the next 3 years. This baseline period will focus on 4-6 aquifers per year and will assess concentrations of nutrients, metals and major ion species. Water quality data will be collected from networks of wells on the basis of an aquifer's areal extent. This design feature generated sample populations of at least 30 wells for each of Oklahoma's 15 largest aquifers. Smaller aquifers are represented by fewer wells but proportionally have more sites per areal extent (Table 1).

Table 1. Sample Networks Based on Aquifer Areal Extent.

Areal Extent Category	Sample Site Well Density	Sample Sizes Generated
> 5000 km^2	1 well per 150 km^2 (6 Aquifers)	37 – 89
3001 – 5000 km^2	1 well per 100 km^2 (5 aquifers)	33 – 48
1501 – 3000 km^2	1 well per 75 km^2 (6 aquifers)	25 – 33
751 – 1500 km^2	1 well per 50 km^2 (2 aquifers)	16 – 19
≤ 750 km^2	2 aquifers	6 – 10

In the first year of sampling, 203 wells in 6 major aquifers were sampled for water quality and 299 wells for water level. When fully implemented, there will be 750 wells in the statewide groundwater quality network statewide. In addition, the OWRB's annual groundwater level measurement program will be doubled in capacity (from around 530 to 1100 wells) and will be spatially redistributed. Work began on expanding the groundwater level measurement program in January 2014 with the addition of 87 new wells to the program. For one-half of the water level network, manual measurements will become tri-annual events. In January 2014, 110 wells were added to the tri-annual measurement network. Additionally, over the 4-year baseline period, the OWRB plans to install 30-50 continuous water level recorders to obtain daily or hourly measurements that are more sensitive to detecting seasonal changes (brought on by drought or variable climate conditions) than can be obtained by annual measurements. Sixteen continuous water level recorders were installed in 8 aquifers across the state for this purpose in the first year of sampling.

- **Intensive Investigations** - If beneficial use impairment is identified or suspected, then all appropriate state agencies will be alerted and an investigation will be initiated to confirm if beneficial use impairment is occurring. If routine monitoring cannot definitively identify impairments, then an intensive study will be undertaken and if impairment is present, the source of the impairment will be identified, if possible. For example, monies could be spent to identify if high turbidity readings in rivers and streams are due to natural processes or do to human activities in the watershed of concern. Some potential causes of beneficial use impairment are; improper beneficial use or criteria (Oklahoma Water Resources Board jurisdiction), point source problems (Oklahoma Department of Environmental Quality or Oklahoma Department of Agriculture), non-point source problems (Oklahoma Conservation Commission, Oklahoma Department of Agriculture, Oklahoma Corporation Commission, or Oklahoma Department of Environmental Quality), oil and gas contamination (Oklahoma Corporation Commission), agricultural activities (Oklahoma Department of Agriculture), or mining activities (Oklahoma Department of Mines). All monitoring activities will be cooperative in nature with the agency with statutory authority assuming the lead role for intensive monitoring. If water bodies are not identified for intensive study as part of this task, then monies will be reallocated for routine monitoring of beneficial use attainment. Other entities (i.e. tribal or governmental units outside of Oklahoma) will be involved as appropriate. All intensive-monitoring activities will be consistent with the OWQS and the USAP. If no protocols exist, then best professional judgment or State/Environmental Protection Agency guidance is used as appropriate.

EXECUTIVE SUMMARY

It is the intent of this Oklahoma Water Resources Board (OWRB) report to advance concepts and principles of the Oklahoma Comprehensive Water Plan (OCWP). Consistent with a primary OCWP initiative, this and other OWRB technical studies provide invaluable data crucial to the ongoing management of Oklahoma's water supplies as well as the future use and protection of the state's water resources. Oklahoma's decision-makers rely upon this information to address specific water supply, quality, infrastructure, and related concerns. Maintained by the OWRB and updated every 10 years, the OCWP serves as Oklahoma's official long-term water planning strategy. Recognizing the essential connection between sound science and effective public policy, incorporated in the Water Plan are a broad range of water resource development and protection strategies substantiated by hard data – such as that contained in this report – and supported by Oklahoma citizens.

Beneficial Use Monitoring Program Goal

The goal of the Beneficial Use Monitoring Program is to document beneficial use impairments, identify impairment sources (if possible), detect water quality trends, provide needed information for the OWQS and facilitate the prioritization of pollution control activities.

The Beneficial Use Monitoring Program exists as a result of the vital economic and social importance of Oklahoma's lakes, streams, wetlands, and aquifers and the associated need for their protection and management. The data contained in this report is scientifically defensible and has been collected and analyzed following procedures outlined in Use Support Assessment Protocols (USAP), developed by Oklahoma's environmental agencies. Specifically, USAPs establish a consistent method to determine if beneficial uses assigned for individual waters through Oklahoma Water Quality Standards (OWQS) are being supported. (Legitimacy of data analyzed following protocols other than those outlined in the USAP must be defended.) If the BUMP report indicates that a designated beneficial use is impaired, threatened, or otherwise compromised, measures must be taken to mitigate or restore the water quality.

Traditionally, the State of Oklahoma has utilized numerous water monitoring programs conducted by individual state and federal agencies. In general, each environmental agency designs and implements its own program with only limited participation from with other state, municipal, or federal entities. These programs collect information for a specific purpose or project (e.g., development of Total Maximum Daily Loads, OWQS process, lake trophic status determination, water quality impact assessments from nonpoint and point source pollution, stream flow measurement, assessment of best management practices, etc.). Therefore, the information is specific to each project's data quality objectives (DQOs) and is often limited to a very small geographic area.

To synchronize Oklahoma's monitoring efforts related to water quality, the State Legislature appropriated funds in 1998 to create the Beneficial Use Monitoring Program under the direction of the Oklahoma Water Resources Board, who maintains Oklahoma's Water Quality Standards. The BUMP brings the OWRB's overall water quality management program full circle. From the promulgation of OWQS, to permitting and enforcement of permits stemming from OWQS-established criteria, to non-point source controls—all agency water quality management

activities are intended to work in concert to restore, protect, and maintain designated beneficial uses.

The specific objectives of the BUMP are to detect and quantify water quality trends, document and quantify impairments of assigned beneficial uses, and identify pollution problems before they become a pollution crisis. This report interprets current Oklahoma lake and stream data collected as part of the comprehensive, long-term program. As the program matures, the BUMP report is sure to become one of the most important documents published annually in Oklahoma.

Beneficial Use Monitoring Program Components

- **Monitoring Rivers & Streams** - The OWRB is currently monitoring approximately eighty-four (84) stations on a 6-week rotation. Fixed station monitoring is based largely upon the eighty-four (84) planning basins as outlined in the Oklahoma Comprehensive Water Plan (OCWP). In general, at least one (1) sample station was located at the terminal end of each of the planning basins. The OWRB also conducts on-going special studies as well as 25-30 probabilistic monitoring stations annually.

- **Fixed Station Load Monitoring** – The OWRB is currently working with several partners including the USGS, US Army Corp of Engineers, Grand River Dam Authority, and National Weather Service to conduct flow monitoring on all of our fixed station sites that are not part of the Oklahoma/USGS Cooperative Gaging Network. This cooperative effort will allow for loadings to be calculated, trends to be assessed statewide, and provide much needed data for the Use Support Assessment process.

- **Fixed Station Lakes Monitoring** - As part of the Beneficial Use Monitoring Program, the Oklahoma Water Resources Board (OWRB) conducts sampling on lakes and reservoirs across the State of Oklahoma. To accomplish this task, the OWRB has taken a probabilistic survey approach for the lakes monitoring program. This survey design allows the state's objectives to be met as well as ensure various sized waterbodies are represented adequately. The survey population includes all lakes above 50 surface acres, which encompasses approximately 206 different waterbodies. The population is then stratified into two groups – lakes greater than 500 surface acres and those below 500 surface acres. The greater than 500 surface acres group includes 68 lakes, of which approximately one-fifth are monitored annually (quarterly samples) on a randomized draw. They are then monitored again during a subsequent year in the 5-year rotation, so that each lake greater than 50 surface acres is sampled 2 non-consecutive years during each 5 year rotation. The lakes managed by our Federal partners, the USACE and Bureau of Reclamation (BoR) are included in the 68 large lakes. Additionally, ten randomly drawn lakes of less than 500 surface acres are sampled annually (quarterly samples) over the 5 year sample frame. Many of these smaller lakes have not been sampled historically through the BUMP program and include small municipal water supplies.

  The OWRB works with other agencies, such as the US Army Corps of Engineers (USACE), for inclusion of additional information on waterbodies managed by the Corps. Data collected consists primarily of water chemistry, nutrients, and chlorophyll-a information. In general, a minimum of three to five stations per reservoir is sampled depending on the size of the reservoir. Stations are located such that they represent the lacustrine, transitional, and riverine zones of the lake. On many reservoirs, additional sites are monitored, including

major arms of the reservoir as appropriate. Water quality parameters have been added to the lakes sampling effort over the years to enhance program ability to make use support determinations.

Groundwater Monitoring and Assessment Program (GMAP) – This new program was made possible as result of the increase in funding received from the Oklahoma Legislature for water quality/quantity monitoring based on recommendations of the 2012 Update of the Oklahoma Comprehensive Water Plan. These additional monies were utilized to restore funding levels of the Beneficial Use Monitoring Program as well as to implement the new groundwater program. The new groundwater program prioritizes efforts on Oklahoma's 21 major groundwater aquifers and will continue to be phased in over the next 3 years. This baseline period will focus on 4-6 aquifers per year and will assess concentrations of nutrients, metals and major ion species. Sample size was predicated upon and proportional to the surface area of the aquifer with a general goal of 30 wells per aquifer. Some of the state's larger aquifers exceeded the goal and some of the smaller aquifers were represented by fewer wells Table 1. Sample Networks Based on Aquifer Areal Extent.

Areal Extent Category	Sample Site Well Density	Sample Sizes Generated
> 5000 km^2	1 well per 150 km^2 (6 aquifers)	37 – 89
3001 – 5000 km^2	1 well per 100 km^2 (5 aquifers)	33 – 48
1501 – 3000 km^2	1 well per 75 km^2 (6 aquifers)	25 – 33
751 – 1500 km^2	1 well per 50 km^2 (2 aquifers)	16 – 19
≤ 750 km^2	2 aquifers	6 – 10

When fully implemented, there will be 750 wells in the statewide groundwater quality network statewide. In addition, the OWRB's annual groundwater level measurement program will be doubled in capacity from around 530 to 1100 wells and will be spatially redistributed. Also over the 5-year baseline period, the OWRB plans to install 30-50 continuous water level recorders to obtain daily or hourly measurements that are more sensitive to detecting seasonal changes (brought on by drought or variable climate conditions) than can be obtained by annual measurements.

- **Intensive Investigations** - If beneficial use impairment is identified or suspected, then all appropriate state agencies will be alerted and an investigation will be initiated to confirm if beneficial use impairment is occurring. If routine monitoring cannot definitively identify impairments, then an intensive study will be undertaken and if impairment is present, the source of the impairment will be identified if possible. One potential use for the intensive studies envisioned was identified during the data analysis phase of this reporting process. For example, monies could be spent to identify if high turbidity readings in rivers and streams are due to natural processes or do to human activities in the watershed of concern. Some potential causes of beneficial use impairment are; improper beneficial use or criteria (Oklahoma Water Resources Board jurisdiction), point source problems (Oklahoma Department of Environmental Quality or Oklahoma Department of Agriculture), non-point source problems (Oklahoma Conservation Commission, Oklahoma Department of Agriculture, Oklahoma Corporation Commission, or Oklahoma Department of Environmental Quality), oil and gas contamination (Oklahoma Corporation Commission), agricultural activities (Oklahoma Department of Agriculture), or mining activities (Oklahoma Department of Mines). All monitoring activities will be cooperative in nature with the agency with statutory authority assuming the lead role for intensive monitoring. If water bodies are not identified for intensive study as part of this task, then monies will be reallocated for routine monitoring of beneficial use attainment. Other entities (i.e. tribal or governmental units

outside of Oklahoma) will be involved as appropriate. All intensive-monitoring activities will be consistent with the OWQS and the USAP. If no protocols exist, then best professional judgment or State/Environmental Protection Agency guidance is used as appropriate.

Program History/Overview

Sampling of the numerous lakes, streams, and rivers across this state was initiated in the summer and fall of 1998. Lake sampling in connection with the Beneficial Use Monitoring Program began in July of 1998. Sampling on numerous streams and rivers began in earnest in November of the same year. The two sampling programs, one for lakes and one for streams had separate starting dates for a number of reasons. First, the OWRB has been conducting a lake-sampling program during the warmer summer months since 1990 as part of the Federal Clean Lakes Program. This historical lake sampling program was funded through federal dollars with the express purpose of determining lake trophic status. The trophic status of a reservoir can range from oligotrophic (low biological productivity) to hyper-eutrophic (excessive biological productivity). In general, the more productive a reservoir, the more water quality problems it is likely to experience. Federal dollars to fund this trophic state assessment of our state's lakes were discontinued in 1994. At that time, the OWRB searched for other funding sources, and through working with the Secretary of the Environment and the Oklahoma Conservation Commission, the Water Board was able to obtain a onetime federal 319 nonpoint source grant to continue the lake trophic state assessment program. The OWRB subsequently initiated a quarterly lake sampling program in the spring of 1998 and was able to roll the existing lake program into the BUMP.

For streams, no such comprehensive, statewide sampling effort was ongoing at the time the BUMP was funded. Because of this, the OWRB required a number of months to re-allocate staff and implement a monitoring regime on streams. In addition, OWRB staff greatly desired input from the other environmental agencies on the placement of stream monitoring stations. The existence of a previous statewide stream-monitoring network greatly aided in sample site selection. This historical ambient trend stream-monitoring network existed from 1975 until 1993 and was implemented by the Oklahoma State Health Department. Although this program did not evaluate sample results through comparison with the OWQS criteria or determine use support, it did provide a framework upon which to build. The historical sampling network sampled streams on a monthly basis from 1975-1986 and on a semi-annual basis from 1987-1993. Based upon the historical program and input from other agencies, the OWRB has established an ambient monitoring network of 100 active permanent stations with numerous rotational sites. Both the permanent and rotational networks are evaluated annually to determine if any stations should be dropped and others added. The Water Resources Board relies heavily on the other state and federal agencies for input into this process. In addition, monitoring personnel with the OWRB work closely with the other state environmental agencies to avoid duplication of sampling effort (i.e. the Oklahoma Conservation Commission rotating and data gaps sampling initiatives), except on a very limited basis for quality assurance purposes. A very small number of sites that are duplicative in nature do allow for the comparison of results between sampling programs to ensure that sampling protocols and the Use Support Assessment Protocols (USAP - described below) are working effectively and that decisions on support status are being made in a consistent manner.

The OWRB has developed Use Support Assessment Protocols (USAP) for lakes and streams, which are essential if the state is to be consistent in identifying waters that are not meeting their assigned beneficial uses or are threatened. The Water Resources Board has incorporated the

USAP into Oklahoma Administrative Code (OAC) 785:46 to ensure that consistent determinations for impairments are made by all of the monitoring agencies.

The state must follow consistent procedures for listing waters as impaired. Using the OWRB Use Support Assessment Protocols, it was possible for OWRB staff to assess whether threats or impairments are present in our waterways. With continued funding, identification of impaired waters will be accomplished on additional waters.

Results of Sampling Efforts

It is essential that Oklahoma quantify impacts in a comprehensive and scientific manner and look for trends in water quality to identify waters that are not meeting their assigned beneficial uses. As a state, we must manage our water resources effectively and direct money to areas in most need of protection or remediation to ensure that we continue to have good quality and sufficient quantity of water to meet our needs well into the 21st century. Comprehensive statewide data sets on rivers, streams and lakes for accurately assessing beneficial use impairments have not existed since 1993. With the implementation of monitoring on a large scale in October of 1998, this is no longer the case. With the availability of data, it is the desire of the Oklahoma Water Resources Board to provide the legislature and professional water managers with a comprehensive and up-to-date document for their review and approval. Administrative and Technical staff at the OWRB look forward to conducting the Beneficial Use Monitoring Program far into the future and providing the state of Oklahoma with the information it needs to make informed decisions that allow us to effectively manage our precious water resources.

Every two years, the OWRB analyzes data collected by BUMP and that data are used to identify if the waters of the state are meeting their assigned beneficial uses. If the stream/river segment is not meeting its beneficial use it is submitted for inclusion on the EPA's 303d list. The latest EPA approved 303d list of impaired waters can be found on the Oklahoma Department of Environmental Quality's website. Oklahoma's 303d list

STREAM MONITORING PROGRAM

The Stream Beneficial Use Monitoring Program (BUMP) was initiated in November of 1998. BUMP streams staff began collecting monthly data in November of 1998 and throughout the years has changed from monthly sampling to bi-monthly sampling depending on program needs. Beginning in 2013, a six-week sampling cycle was implemented. Each stream station is described individually with information outlining the site location and other pertinent information followed by a brief synopsis of data results. All of the sites are listed at this hyperlink, current permanent monitoring sites.

River and Stream Monitoring HISTORIC Overview

Historically, the collection of data on rivers and streams across the state has been inconsistent. Over the years, various local, tribal, state, and federal agencies managed a number of sampling programs for different purposes. These programs have varied in nature ranging from site-specific, short-term monitoring to broad, statewide sampling, such as the one conducted by the former Oklahoma State Department of Health (OSDH). When OSDH stopped their monthly sampling program in 1989 it created a void in the dataset and the need for a new, comprehensive, statewide ambient trend monitoring program. In addition, Oklahoma lacked a program with the specific capability of documenting statewide beneficial use impairments on a long-term basis. The Beneficial Use Monitoring Program (BUMP) was created to fulfill these goals. By establishing a monitoring network that evaluates general water quality through the use of an existing framework like the Oklahoma Water Quality Standards (OWQS), the state of Oklahoma initiated a progressive phase in the long-term assessment of the overall health of our state's streams and rivers.

Materials & Methods

The Monitoring Network: The BUMP rivers and streams network consists of three major station classifications — permanent ambient trend, rotating, and statistical survey sites. Permanent ambient trend monitoring stations are relatively static within the program. In general, they do not change from year to year and were chosen to allow for long-term assessment of beneficial uses and water quality trends. Since program inception, a small number of sites have been dropped and new sites have been added to more effectively assess the water quality of our major stream basins. Statistical survey stations are selected at random every two years and visited once or twice during biological index periods. Rotating stations are selected for specific purposes and typically have a finite lifespan.

With the creation of the permanent monitoring network, OWRB staff established three overarching objectives for the program.

First, the network must encompass the entire state. To accomplish this, a commitment was made to locate at least one site in each of the 8-digit USGS hydrologic units (HUC; Table 1) (Map).

Table 1. Eight Digit United States Geological Survey HUC Watersheds.

8 Digit HUC Number	Description	8 Digit HUC Number	Description
11040001	Cimarron Headwaters	**11100301**	Middle North Canadian
11040002	Upper Cimarron	**11100302**	Lower North Canadian
11040006	Upper Cimarron – Liberal	**11100303**	Deep Fork
11040007	Crooked	**11110101**	Polecat – Snake
11040008	Upper Cimarron – Bluff	**11110102**	Dirty – Greenleaf
11050001	Lower Cimarron – Eagle Chief	**11110103**	Illinois
11050002	Lower Cimarron – Skeleton	**11110104**	Robert S. Kerr Reservoir
11050003	Lower Cimarron	**11110105**	Poteau
11060001	Kaw Lake	**11120105**	Lower Prairie Dog Town Fk., Red
11060002	Upper Salt Fork – Arkansas	**11120202**	Lower Salt Fork – Red
11060003	Medicine Lodge	**11120302**	Middle North Fork – Red
11060004	Lower Salt Fork – Arkansas	**11120303**	Lower North Fork – Red
11060005	Chickaskia	**11120304**	Elm Fork – Red
11060006	Black Bear – Red Rock	**11130101**	Groesbeck – Sandy
11070103	Middle Verdigris	**11130102**	Blue – China
11070105	Lower Verdigris	**11130201**	Farmers – Mud
11070106	Caney	**11130202**	Cache
11070107	Bird	**11130203**	West Cache
11070205	Middle Neosho	**11130208**	Northern Beaver
11070206	Grand Lake	**11130210**	Lake Texoma
11070207	Spring	**11130301**	Washita Headwaters
11070208	Elk	**11130302**	Upper Washita
11070209	Lower Neosho	**11130303**	Middle Washita
11090103	Rita Blanca	**11130304**	Lower Washita
11090201	Lower Canadian – Deer	**11140101**	Bois D'Arc – Island
11090202	Lower Canadian – Walnut	**11140102**	Blue
11090203	Little	**11140103**	Muddy Boggy
11090204	Lower Canadian	**11140104**	Clear Boggy
11100101	Upper Beaver	**11140105**	Kiamichi
11100102	Middle Beaver	**11140106**	Pecan – Waterhole
11100103	Coldwater	**11140107**	Upper Little
11100104	Palo Duro	**11140108**	Mountain Fork
11100201	Lower Beaver	**11140109**	Lower Little
11100203	Lower Wolf		

Second, the foundation of the monitoring network should focus on the state's largest rivers, the Arkansas River and the Red River, and their major tributaries, such as the Canadian River and the Washita River. Consideration was given to the major tributaries of rivers such as the Canadian River and the Little River. Further consideration was also given to areas of the state (e.g., the Panhandle) that were underrepresented as well as rivers and streams (e.g., the Deep Fork River) that were conspicuously missing from the network.

Third, the advice and input of other state environmental agencies and professionals was sought before making a final determination of permanent monitoring station locations. In particular, the Oklahoma Department of Environmental Quality (ODEQ) and the Oklahoma Conservation Commission (OCC) have been, and continue to be very helpful in assisting with locating permanent stations.

Operating within these overarching objectives, the staff of the OWRB selected and performed monitoring on 130 permanent ambient trend monitoring sites since September of 1998. Beginning in January 2013, the OWRB adjusted the monitoring network to more closely align with the needs of the Oklahoma Comprehensive Water Plan. The goal was to put a permanent station at the outflow of all 82 water planning basins (Map), while maintaining a small network of reference condition sites. Along with the redesigned network, the frequency of sampling was increased from 6 samples per year to 8 samples per year.

The placement of a site location necessitates several considerations. First, a site must be accessible by vehicle and be safe for sampling personnel and other motorists. Second, the site must be located in an area where representative data can be acquired. The OWQS Use Support Assessment Protocols (USAP) sets spatial limitations on the data that is collected. Essentially, a site can only represent twenty-five stream miles for non-wadeable streams and ten stream miles for wadeable streams (with some exceptions). Furthermore, a site can only be representative of the water body identification number (12-digit HUC number) in which it is located and the site cannot be located within a regulatory mixing zone. This requires monitoring sites be selected in a way which represents as long a stream reach as possible while still maintaining the spatial integrity outlined in USAP. Thirdly, it is important that historical data be considered. Many of the BUMP permanent monitoring sites were selected from a set of historical stations which were previously used in the OSDH statewide monitoring program (when OSDH dissolved it became part of the ODEQ Ambient Trend Monitoring Program). Before initial sampling began in 1998, OWRB staff worked closely with the ODEQ to integrate many of the historical sites into BUMP. Although the historical data from these sites cannot be used to assess beneficial uses (USAP sets a temporal limitation of five years), the historical data set benefits the state in assessing long-term water quality trends. Lastly, it is imperative that rivers and streams which have been designated in the OWQS as Outstanding Resource Waters (ORW), High Quality Waters (HQW), or Sensitive Water Supplies (SWS) be given unique consideration even if they do not meet the objectives as outlined. The water quality status of each site is discussed in more detail in the individual site pages.

The goal of the rotating portion of the program is to provide short-term assessments on priority waters as identified by a state agency or other party. Two general objectives were identified to aid in the determination of what would qualify as a rotating site. First, it should be determined that data collection at a particular site should be short-term in nature and not extend past one sampling year, although some stations do remain in the network for up to two years. Data collected within that year should allow water quality managers to make the appropriate decisions regarding the segment being monitored. For instance, if a stream reach is listed as impaired on the 303(d) list due to pH, measuring pH throughout one year should allow the requesting agency or entity to either de-list the segment or determine what other monitoring efforts are necessary. Secondly, the monitoring should fall within the framework of the USAP. Since the inception of the program, the staff of OWRB have met individually with representatives of other state agencies to identify their priority short-term monitoring needs. Once the OWRB receives a list of waters for monitoring from the interested agencies, staff evaluates the nominations and notifies the nominating agency of which waters would be monitored (to date, all of the waters requested for monitoring have been accommodated). In all, over 220 monitoring stations have been or are currently being monitored. In most instances, the segments were listed for one or more variables on the state's 303(d) list. For a comprehensive list of historic and/or current rotational monitoring stations, please contact the Oklahoma Water Resources Board/Water Quality Programs Division at (405) 530-8800.

Statistical survey monitoring is a unique study design for which monitoring stations across the state are selected at random. The OWRB has been actively involved in this type of monitoring since 2004. The latest probabilistic data report is titled "Statewide Stream/River Probabilistic Monitoring Network for the State of Oklahoma from 2008-2011" and can be found under "Water Quality Monitoring" on the reports page of the OWRB website at www.owrb.ok.gov/reports.

Stream Monitoring Variables: The variables being monitored were chosen to reflect both objectives of the programs — assessment of beneficial uses within the framework of USAP as well as the assessment of general water quality. Even though a variable may not be listed in the OWQS with a specific criterion (e.g., hardness), the variable is an important constituent in analyzing and understanding the general water quality of a particular segment. See
2 for a list of monitoring variables.

Data for general water quality, nutrient, metals, organics, chlorophyll-a, and bacteriological variables are collected in one of two ways. Some variables are monitored in-situ utilizing a YSI or EXO multi-probe instrument. The data are uploaded from the instrument to a data logger, transferred manually to a field log sheet, and downloaded to the OWRB monitoring database. These variables include dissolved oxygen (D.O.), %D.O. saturation, water temperature, pH, salinity, total dissolved solids, and specific conductance. Data for all other variables are gathered from water quality samples collected at the station. When the flow of a channel is approximately 1.5 ft/s or greater, samples are collected using a depth-integrated method. Samples at non-wadeable sites are collected by lowering a depth-integrated sampler (DH-95 with polyethylene collection bottle) from a bridge, through the water column at equal width increments across the channel. Samples at wadeable sites are collected with a DH-81 wadeable depth-integrated sampler (polyethylene collection bottle) through the water column at equal width increments. When the flow of the channel is less than 1.5 ft/s, a grab composite sample is collected. Non-wadeable sites are collected by lowering a weighted bottle sampler with a 1-L bottle under the surface of the channel. Wadeable sites are collected using a whirl-pak inside of a 1-L collection bottle and submerging the bottle under the water. Equal width increments are used in both wadeable and non-wadeable sites to get an accurate representation of the channel. Grab samples are conducted if the channel is a series of

disconnected pools. If sampling occurs from a bridge, the sampling typically is done on the down-stream side of the bridge. The sampling methods used are described in detail in the Collecting Water Quality Samples SOP. From this water sample, water quality variables are monitored in several ways. For laboratory analysis of general water quality variables and nutrients, water is aliquoted, as outlined in the SOP, into two, 1L bottles (one for sulfuric acid/ice preservation and one for ice preservation). If a metals analysis is necessary, water is collected at the thalwag of the channel into a 250mL bottle and preserved with nitric acid for a total recoverable metals panel, or filtered and preserved with nitric acid for a dissolved metals panel, as per standard operating procedures guidelines. Sample water for the determination of nephelometric turbidity, total hardness, and total alkalinity is also aliquoted from the remainder of the general chemistry sample water. Nephelometric turbidity is determined through use of a HACH portable turbidimeter. Total hardness and alkalinity are determined using HACH test kits. All instruments and test kits are calibrated and used according to manufacturer's instructions. Sestonic chlorophyll-a samples are also collected from the composited water sample and are filtered through a glass fiber filter, treated with a buffering agent and frozen until delivered to the State Environmental Laboratory. Organics have an increased affinity for polypropylene, and allowing sample water to contact polypropylene bottles or other collection equipment may cause concentrations to be significantly underestimated. Therefore, when organics analyses are required, water is collected using a 1-Liter Teflon bottle and composited into a 2-gallon glass bottle. The laboratory sample is aliquoted by inverting the glass bottle 10 times and dispensing to one-quart or one-pint clear or amber glass jars depending on the type of organic analysis. The samples are placed on ice for preservation. Bacteriological samples are collected using a composite grab sample method and are aliquoted to two 100mL bacteria bottles for laboratory analysis.

Biological data are collected using a variety of methods. Typically, fish are collected using electrofishing methods.Alternatively, a seine net is used to collect fish when conductivity is not conducive to electrofishing. Benthic macroinvertebrates are collected by targeting the richest habitats in the water body, which includes riffles, streamside vegetation, and woody debris. Collections are then shipped to an outside lab where a subsample is taken for taxonomic analysis. Various habitat measures are also included during each biological sampling event. During fish collections, staff conduct habitat assessments derived from standard EPA methods and collect both quantitative and qualitative measurements on in-stream and riparian characteristics. During macroinvertebrate collections, habitat assessment is focused on determining target habitat type and substrate composition. Benthic chlorophyll-a samples are gathered from the characteristic substrates of the stream.

Table 2. Variables Monitored by the BUMP Stream Sampling Program.

SAMPLE VARIABLES		
General Water Quality Variables – Sampled 6 times annually		
Dissolved Oxygen (D. O.)	pH	Specific Conductance
Temperature	Total Dissolved Solids	% D. O. Saturation
Salinity	Total Alkalinity	Total Hardness
Chloride	Nephelometric Turbidity	Sulfate
Nutrients – Sampled 6 times annually		
***Kjeldahl Nitrogen**	Ammonia Nitrogen	Total Phosphorus

SAMPLE VARIABLES		
*Nitrate Nitrogen	*Nitrite Nitrogen	
Metals – Sampled as needed		
Arsenic	Cadmium	Chromium
Copper	Lead	Mercury
Nickel	Selenium	Silver
Zinc	Thallium	
Organics – Site specific sampling as needed		
Analysis of Pesticides, Herbicides, Fungicides, and other organics		
Bacteriological Communities – Sampled 5-10 times annually (during recreational season)		
Enterococci	*Escherichia coli*	
Biological Communities – Sampled as described below		
Sestonic Chlorophyll-a (8 times annually	Benthic Chlorophyll-a (as needed during summer)	Fish (once every 4-5 years)
Benthic Macroinvertebrates (1 collection in the summer annually)	Habitat (sampled with fish and macroinvertebrate sampling)	

*Total nitrogen is calculated by OWRB staff, based upon concentrations for these compounds

For a more detailed discussion of water quality sampling procedures, please contact the OWRB for copy of the BUMP Standard Operating Procedures (SOP). The SOP document can be obtained by contacting the Oklahoma Water Resources Board/Water Quality Programs Division at (405) 530-8800 or by accessing and downloading the document via the web at the following link. Streams SOP's

Quality Assurance/Quality Control (QA/QC): QA/QC will not be discussed in detail in this report. However, for a comprehensive description of field QA/QC methods, please contact the Oklahoma Water Resources Board/Water Quality Programs Division at (405) 530-8800. For laboratory QA/QC methods please contact the Oklahoma Department of Environmental Quality/Customer Services Division at (405) 702-6100. Comprehensive QA/QC has been performed on all data collected and utilized for this report.

It is also imperative that the state continues to refine the minerals criteria found in OAC 45: Appendix F. The process was begun in earnest in 2005 with a major revision to Appendix F criteria, and the assessments in this report reflect these new criteria. However, some management segment values are still extrapolated from minimum data and from stations not necessarily representative of the entire management segment. By using the OWRB's methodology for the development of site-specific minerals criteria, BUMP data as well as other water quality monitoring program data may be used to refine inconsistent criteria.

RESULTS AND DISCUSSION

It is essential that Oklahoma quantify impacts in a comprehensive and scientific manner and look for trends in water quality to identify waters that are not meeting their assigned beneficial

uses. As a state, we must manage our water resources effectively and direct money to areas in most need of protection or remediation to ensure that we continue to have good quality and sufficient quantity of water to meet our needs well into the 21st century. It is the desire of the Oklahoma Water Resources Board to provide the legislature, the general public and professional water managers with a comprehensive and up-to-date document for their review and approval. Administrative and Technical staff at the OWRB look forward to conducting the Beneficial Use Monitoring Program far into the future and providing the state of Oklahoma with the information it needs to make informed decisions related to the effective management of its precious water resources.

Every two years, the OWRB analyzes data collected by BUMP and uses that data to determine if the waters of the state are meeting their assigned beneficial uses. If the stream/river segment is not meeting its beneficial use it is submitted for inclusion on the EPA's 303(d) list. The latest EPA approved 303(d) list of impaired waters can be found on the Oklahoma Department of Environmental Quality's website. Oklahoma's 303d list

Arkansas River at Bixby

Sample Record	Times Visited	Station ID
November 1998 - 2012	133	120420010010-001AT

Stream Data

County	Tulsa	View Site Data
Location	North of the Town of Bixby on State Highway 64	
Latitude/Longitude	35.95585307, -95.88622562	
Planning Watershed	Middle Arkansas (8-digit HUC - 11110101)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	115	17.0	18.3	1.9/34.1	9/24.3	
	Turbidity (NTU)	118	45	20	4/638	12/45	19% of values>OWQS
	pH (units)	114	8.02	8.01	7.19/9.15	7.75/8.27	
	Dissolved Oxygen (mg/L)	115	9.84	9.35	3.9/23.03	7.32/11.48	
	Hardness (mg/L)	116	238	237	85/442	194/281	
Minerals	Total Dissolved Solids (mg/L)	54	761	735	296/1372	523/967	
	Specific Conductivity (uS/cm)	115	1499	1442	92/3275	1016/1885	
	Chloride (mg/L)	117	322	272	66/863	219/392	
	Sulfate (mg/L)	117	125	114	29/1580	86/132	
Nutrients	Total Phosphorus (mg/L)	118	0.220	0.198	0.089/0.835	0.16/0.239	
	Total Nitrogen (mg/L)	116	1.46	1.40	0.25/3.56	1.14/1.69	
	Nitrate/Nitrite (mg/L)	118	0.71	0.68	<0.05/2.35	0.43/0.96	
	Chlorophyll A (mg/m^3)	33	17.2	8.7	0.9/167	5.3/15.7	TSI=58.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	358	109	<10/4000	34/311	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	127	46	<10/836	13/165	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						U	S	S
Aesthetics												S
Agriculture					S		S	S				
Secondary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Arkansas River at Haskell

Sample Record	Times Visited	Station ID
November 1998 - Current	165	120410010080-001AT

Stream Data

County	Muskogee	View Site Data
Location	East of the Town of Haskell on State Highway 104	
Latitude/Longitude	35.82095549, -95.63995264	
Planning Watershed	Middle Arkansas (8-digit HUC - 11110101)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	137	17.4	17.9	1.9/32.6	9.7/25.4	
	Turbidity (NTU)	138	45	21	2/944	11/48	
	pH (units)	137	8.13	8.10	7.15/9.16	7.88/8.37	
	Dissolved Oxygen (mg/L)	136	9.84	9.78	4.51/16.94	8.49/11.04	
	Hardness (mg/L)	137	240	236	140/490	202/282	
Minerals	Total Dissolved Solids (mg/L)	79	808	785	209/1460	620/973	
	Specific Conductivity (uS/cm)	135	1534	1414	411/3436	1147/1830	
	Chloride (mg/L)	141	331	277	26/815	222/427	
	Sulfate (mg/L)	141	108	106	27/205	82/123	
Nutrients	Total Phosphorus (mg/L)	146	0.209	0.189	0.073/0.81	0.154/0.236	
	Total Nitrogen (mg/L)	141	1.35	1.28	0.4/3.18	1.03/1.6	
	Nitrate/Nitrite (mg/L)	142	0.54	0.56	<0.05/1.6	0.2/0.79	
	Chlorophyll A (mg/m^3)	54	23.3	16.3	1.3/140	5.4/35.2	TSI=61.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	36	223	50	<10/2420	<10/153	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	36	133	<10	<10/1515	<10/79	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						U	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Arkansas River at Moffett

Sample Record	Times Visited	Station ID
November 1998 - Current	82	220200010010-001AT

Stream Data

County	Sequoyah	View Site Data
Location	East of the Town of Moffett on State Highway 64	
Latitude/Longitude	35.39242903, -94.43267795	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110104)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	68	19.4	20.6	1.7/30.9	12.9/26.9	
	Turbidity (NTU)	71	36	22	7/194	16/45	
	pH (units)	68	7.85	7.84	6.87/8.79	7.65/8.09	
	Dissolved Oxygen (mg/L)	68	9.20	8.76	5.35/16.48	7.4/10.42	
	Hardness (mg/L)	68	163	141	39/658	125/183	
Minerals	Total Dissolved Solids (mg/L)	27	317	311	146/536	241/391	
	Specific Conductivity (uS/cm)	66	614	576	195/1333	482/737	
	Chloride (mg/L)	71	104	97	13/293	58/138	
	Sulfate (mg/L)	71	55	51	22/116	36/65	
Nutrients	Total Phosphorus (mg/L)	71	0.120	0.113	0.051/0.33	0.09/0.135	
	Total Nitrogen (mg/L)	70	0.96	0.90	0.45/2.82	0.68/1.12	
	Nitrate/Nitrite (mg/L)	71	0.31	0.26	<0.05/1.17	0.11/0.48	
	Chlorophyll A (mg/m^3)	30	14.3	11.2	<0.1/71.8	6.6/15.8	TSI=56.7
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	21	1090	<10	<10/12000	<10/31	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	21	159	<10	<10/2035	<10/25	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						U	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

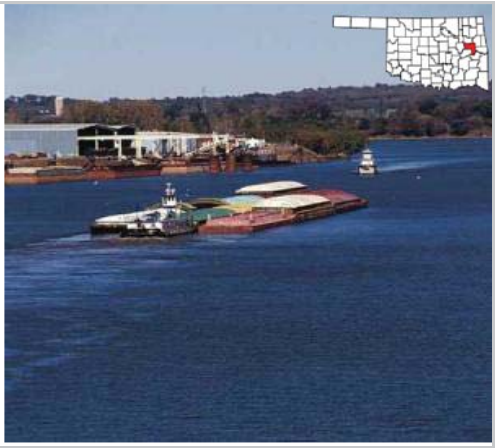
S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Arkansas River at Muskogee

Sample Record	Times Visited	Station ID
November 1998 - Current	119	121400010260-001AT



Stream Data

County	Muskogee	View Site Data
Location	East of the Town of Muskogee on State Highway 62	
Latitude/Longitude	35.77016066, -95.30031102	
Planning Watershed	Middle Arkansas (8-digit HUC - 11110102)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	117	17.9	17.6	1.9/32.4	10.8/25.1	
	Turbidity (NTU)	118	46	23	5/387	15/43	
	pH (units)	115	8.04	8.01	7.09/9.48	7.74/8.32	
	Dissolved Oxygen (mg/L)	117	8.83	8.54	4.2/14.88	7.08/10.59	
	Hardness (mg/L)	115	187	174	92/418	143/220	
Minerals	Total Dissolved Solids (mg/L)	58	466	408	155/1040	308/602	
	Specific Conductivity (uS/cm)	116	934	793	215/2746	465/1226	
	Chloride (mg/L)	105	172	138	11/713	80/214	
	Sulfate (mg/L)	106	75	68	28/202	45/96	
Nutrients	Total Phosphorus (mg/L)	119	0.164	0.144	0.053/0.705	0.113/0.177	
	Total Nitrogen (mg/L)	118	1.19	1.10	0.4/3.9	0.92/1.39	
	Nitrate/Nitrite (mg/L)	119	0.45	0.41	<0.05/1.21	0.19/0.65	
	Chlorophyll A (mg/m^3)	45	19.3	14.5	<0.1/90	8.8/26.7	TSI=59.7
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	4077	31	<10/75000	<10/200	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	418	20	<10/5492	<10/60	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Sampling and Assessment by the **Oklahoma Water Resources Board** – 3800 Classen Blvd, Oklahoma City, OK, 73118 – 405.530.8800 – http://www.owrb.ok.gov

Arkansas River at Ralston

Sample Record	Times Visited	Station ID
December 1998 - Current	166	621200010200-001AT

Stream Data

County	Pawnee	View Site Data
Location	East of the Town of Ralston on State Highway 18	
Latitude/Longitude	36.50481274, -96.72547095	
Planning Watershed	Upper Arkansas (8-digit HUC - 11060006)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	143	18.0	18.4	-0.4/38	10.2/25	
	Turbidity (NTU)	144	125	34	2/>1000	13/106	
	pH (units)	143	8.20	8.22	6.96/9	8.01/8.4	
	Dissolved Oxygen (mg/L)	143	10.07	9.67	1.73/26.76	8.14/11.64	
	Hardness (mg/L)	143	261	250	82/635	202/321	
Minerals	Total Dissolved Solids (mg/L)	76	725	670	280/1510	538/853	
	Specific Conductivity (uS/cm)	143	1211	1103	186/4882	752/1513	
	Chloride (mg/L)	144	254	220	18/1380	152/296	
	Sulfate (mg/L)	144	110	106	36/268	86/134	
Nutrients	Total Phosphorus (mg/L)	144	0.236	0.173	<0.005/1.39	0.127/0.261	
	Total Nitrogen (mg/L)	143	1.39	1.29	0.35/5.78	0.91/1.67	
	Nitrate/Nitrite (mg/L)	144	0.50	0.44	<0.05/1.72	<0.05/0.76	
	Chlorophyll A (mg/m^3)	47	26.9	22.2	2/113	9.5/37.9	TSI=62.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	33	2450	98	<10/65000	20/637	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	33	528	20	<10/9804	<10/242	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						U	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Arkansas River at Sand Springs

Sample Record	Times Visited	Station ID
September 1999 - 2012	118	120420010130-001AT

Stream Data

County	Tulsa	View Site Data
Location	South of the Town of Sand Springs on State Highway 97	
Latitude/Longitude	36.12393866, -96.11578343	
Planning Watershed	Middle Arkansas (8-digit HUC - 11110101)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	102	17.3	19.1	0.5/33	9.3/24.6	
	Turbidity (NTU)	104	34	15	3/735	8/32	19% of values>OWQS
	pH (units)	102	7.87	7.87	7.16/8.63	7.69/8.02	
	Dissolved Oxygen (mg/L)	102	8.92	9.00	2.84/15.85	6.98/10.51	
	Hardness (mg/L)	104	243	238	59/412	196/288	
Minerals	Total Dissolved Solids (mg/L)	44	846	807	347/1650	601/1059	
	Specific Conductivity (uS/cm)	102	1646	1564	179/4080	1128/1995	
	Chloride (mg/L)	104	367	309	91/1100	238/468	
	Sulfate (mg/L)	105	115	112	29/228	85/137	
Nutrients	Total Phosphorus (mg/L)	105	0.138	0.140	0.016/0.281	0.109/0.164	
	Total Nitrogen (mg/L)	104	1.15	1.18	0.48/2.2	0.78/1.45	
	Nitrate/Nitrite (mg/L)	106	0.54	0.55	<0.05/1.36	0.24/0.78	
	Chlorophyll A (mg/m^3)	32	6.1	5.4	0.7/18.7	3.1/7.9	TSI=48.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	25	67	20	<10/400	<10/87	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	25	28	20	<10/119	<10/36	

Beneficial Uses

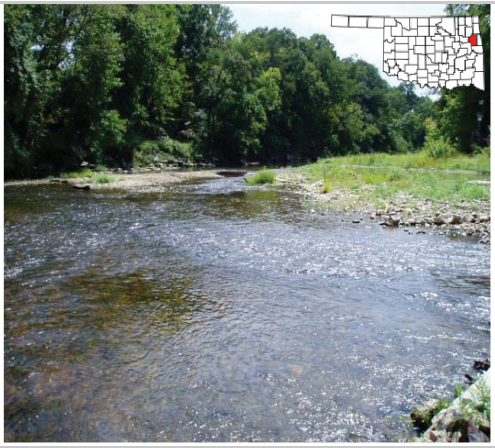
Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						U	S	S
Aesthetics												S
Agriculture					S		S	S				
Secondary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Barren Fork at Eldon



Sample Record	Times Visited	Station ID
November 1998 - Current	192	121700050010-001AT

Stream Data

County	Cherokee	View Site Data
Location	South of the Town of Eldon on State Highway 51	
Latitude/Longitude	35.92173377, -94.83726494	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	126	17.0	17.5	3.1/28.6	11.2/22	
	Turbidity (NTU)	125	4	3	1/45	2/3	
	pH (units)	125	7.60	7.55	6.37/8.82	7.35/7.88	
	Dissolved Oxygen (mg/L)	126	9.55	9.68	4.4/14.53	7.88/11.14	
	Hardness (mg/L)	127	99	97	46/159	89/107	
Minerals	Total Dissolved Solids (mg/L)	21	140	117	92/545	108/126	
	Specific Conductivity (uS/cm)	126	199	199	20/713	174/216	
	Chloride (mg/L)	99	8	10	<5/44	<5/10	
	Sulfate (mg/L)	99	10	10	<5/40	7/10	
Nutrients	Total Phosphorus (mg/L)	131	0.033	0.028	<0.005/0.217	0.021/0.035	
	Total Nitrogen (mg/L)	130	1.53	1.42	0.2/4.2	0.88/1.99	
	Nitrate/Nitrite (mg/L)	131	1.36	1.32	0.14/3.83	0.74/1.75	
	Chlorophyll A (mg/m^3)	71	1.4	1.1	<0.1/11.7	0.6/1.7	TSI=34.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	74	221	20	<10/3900	<10/81	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	74	78	<10	<10/2420	<10/52	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment	Total Phosphorus
Fish & Wildlife Propagation	S	S	S	S						S	S	S	
Aesthetics												S	S
Agriculture					S		S	S					
Primary Body Contact Recreation									S				
Public & Private Water Supply				S		S			S				
Fish Consumption				S									

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Beaver River at Beaver

Sample Record	Times Visited	Station ID
November 1998 - Current	129	720500020290-001AT

Stream Data

County	Beaver	View Site Data
Location	North of the Town of Beaver on State Highway 23	
Latitude/Longitude	36.82280124, -100.5193698	
Planning Watershed	Panhandle (8-digit HUC - 11100102)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	100	16.3	15.2	1/32	10.2/23.5	
	Turbidity (NTU)	103	19	7	1/808	4/15	
	pH (units)	99	7.68	7.65	6.93/9.1	7.36/7.98	
	Dissolved Oxygen (mg/L)	101	8.86	8.53	0.16/20.28	6.45/11.02	18% of values<OWQS and 18% of values<alt OWQS
	Hardness (mg/L)	101	1645	1385	201/3510	1101/2126	
Minerals	Total Dissolved Solids (mg/L)	58	6139	5295	1360/10400	4255/8471	100% of values>OWQS
	Specific Conductivity (uS/cm)	102	8903	8232	451/17157	6924/11207	
	Chloride (mg/L)	102	2542	2325	177/6510	1894/3048	100% of values>OWQS
	Sulfate (mg/L)	102	940	841	103/2620	614/1160	58% of values>OWQS
Nutrients	Total Phosphorus (mg/L)	102	0.080	0.036	0.008/2.119	0.023/0.066	
	Total Nitrogen (mg/L)	102	1.04	0.85	0.18/12.11	0.58/1.14	
	Nitrate/Nitrite (mg/L)	102	0.10	<0.05	<0.05/3.96	<0.05/0.05	
	Chlorophyll A (mg/m^3)	8	20.2	9.8	3.2/99.2	4.2/16.5	TSI=60.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	23	1320	199	20/9208	100/1100	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	23	1285	221	<10/5794	63/2987	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	NS	NS						NS	U	NS
Aesthetics												S
Agriculture					NS		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Selenium
U = Assessment yielded undetermined supporting status

Beaver Creek at Ryan

Sample Record	Times Visited	Station ID
January 2013 - Current	28	311200000030-001AT

Stream Data

County	Jefferson	View Site Data
Location	West of the Town of Ryan off State Highway 81	
Latitude/Longitude	34.020316 , -97.971356	
Planning Watershed	Northern Beaver (8-digit HUC - 11130208)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	24	17.8	17.7	0.5/30.6	12.7/24.9	
	Turbidity (NTU)	24	75	50	8/441	29/92	44% of values>OWQS
	pH (units)	24	8.21	8.19	7.42/9.17	7.7/8.61	
	Dissolved Oxygen (mg/L)	24	8.61	6.95	2.89/25.19	5.31/11.07	30% of values<OWQS and 18% of values<alt OWQS
	Hardness (mg/L)	24	283	278	94/500	186/364	
Minerals	Total Dissolved Solids (mg/L)	22	581	509	125/1590	307/734	12% of values>OWQS
	Specific Conductivity (uS/cm)	24	1156	917	214/3476	494/1559	
	Chloride (mg/L)	22	159	100	12/666	40/177	
	Sulfate (mg/L)	22	113	88	41/296	74/159	
Nutrients	Total Phosphorus (mg/L)	22	0.519	0.484	0.069/1.41	0.331/0.628	
	Total Nitrogen (mg/L)	22	3.46	2.63	0.99/14.26	1.56/3.98	
	Nitrate/Nitrite (mg/L)	22	1.61	0.42	<0.05/11.8	0.15/2.48	
	Chlorophyll A (mg/m^3)	22	94.1	49.5	<0.1/455	18.8/162.8	TSI=75.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	6	438	394	108/980	223/611	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	6	181	144	<10/517	19/316	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	NS	S						NEI	U	NEI
Aesthetics												NEI
Agriculture					S		S	NS				
Primary Body Contact Recreation									NEI			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

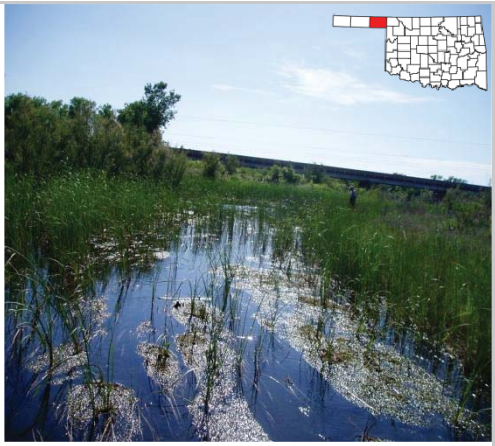
S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Beaver River at Gate

Sample Record	Times Visited	Station ID
October 2000 – September 2007	45	720500020140-001AT



Stream Data

County	Beaver	View Site Data
Location	South of the Town of Gate on County Road N 1650	
Latitude/Longitude	36.78998597, -100.0574831	
Planning Watershed	Panhandle (8-digit HUC -11100201)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	37	20.0	21.2	2/34.3	13/27.6	
	Turbidity (NTU)	37	11	6	1/103	4/11	
	pH (units)	35	8.03	8.08	7.38/8.6	7.83/8.25	
	Dissolved Oxygen (mg/L)	37	9.99	9.96	5.61/18.98	7.91/11.36	
	Hardness (mg/L)	37	650	625	320/1050	508/778	
Minerals	Total Dissolved Solids (mg/L)	3	2140	1950	1830/2640	1830/2640	
	Specific Conductivity (uS/cm)	37	3680	3477	1897/10893	2525/4217	
	Chloride (mg/L)	37	964	878	368/2860	631/1195	50% of values>OWQS
	Sulfate (mg/L)	37	365	330	175/1230	268/430	
Nutrients	Total Phosphorus (mg/L)	37	0.050	0.034	0.009/0.272	0.019/0.061	
	Total Nitrogen (mg/L)	37	0.73	0.67	0.24/1.79	0.44/1.03	
	Nitrate/Nitrite (mg/L)	37	0.06	<0.05	<0.05/0.2	<0.05/0.05	
	Chlorophyll A (mg/m^3)	0	0.0	0.0	0/0	0/0	No Data
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	12	622	151	<10/2900	43/775	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	12	138	76	<10/496	<10/251	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						NS	NS	NS
Aesthetics												NEI
Agriculture					S		NS	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead

Sampling and Assessment by the **Oklahoma Water Resources Board** – 3800 Classen Blvd, Oklahoma City, OK, 73118 – 405.530.8800 – http://www.owrb.ok.gov

Beaver River at Guymon

Sample Record	Times Visited	Station ID
April 1999 - 2012	123	720510000190-001AT

Stream Data

County	Texas	View Site Data
Location	West of the Town of Guymon off State Highway 64	
Latitude/Longitude	36.70576142, -101.6365036	
Planning Watershed	Panhandle (8-digit HUC - 11100101)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	111	15.4	16.0	-0.2/32	8/22.9	
	Turbidity (NTU)	115	20	14	2/146	8/25	
	pH (units)	109	8.00	8.00	7.21/8.9	7.76/8.18	
	Dissolved Oxygen (mg/L)	113	8.11	8.01	0.06/30.97	5.99/9.82	22% of values<OWQS and 7% of values<alt OWQS
	Hardness (mg/L)	113	265	228	70/1263	205/268	
Minerals	Total Dissolved Solids (mg/L)	37	298	295	270/331	290/309	
	Specific Conductivity (uS/cm)	112	482	478	170/668	452/524	
	Chloride (mg/L)	99	11	11	<5/25	10/13	
	Sulfate (mg/L)	99	30	30	17/81	27/33	
Nutrients	Total Phosphorus (mg/L)	113	0.053	0.035	<0.005/0.504	0.018/0.056	
	Total Nitrogen (mg/L)	113	0.62	0.51	0.16/5.27	0.4/0.68	
	Nitrate/Nitrite (mg/L)	113	0.14	<0.05	<0.05/0.76	<0.05/0.17	
	Chlorophyll A (mg/m^3)	20	4.0	2.4	0.2/24.9	1.6/4.4	TSI=44.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	22	1842	233	31/21000	132/1325	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	22	1376	233	74/24192	152/448	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	U	S						S	U	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

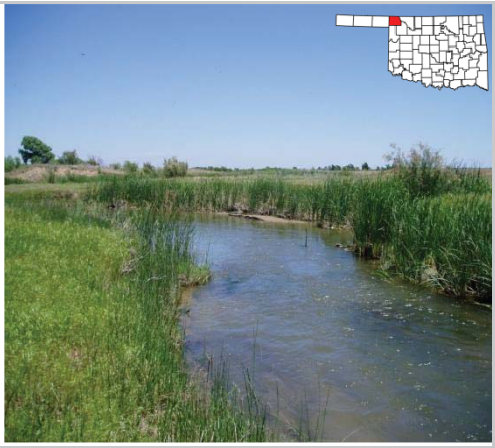
S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Beaver River at Ft. Supply

Sample Record	Times Visited	Station ID
November 1998 - Current	139	720500020010-002AT



Stream Data

County	Harper	View Site Data
Location	Northwest of the Town of Ft. Supply on State Highway 183	
Latitude/Longitude	36.5908354, -99.59121563	
Planning Watershed	Panhandle (8-digit HUC - 11100201)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	120	18.1	18.7	-0.1/36.2	10.2/26.1	
	Turbidity (NTU)	123	13	7	1/65	4/14	
	pH (units)	117	8.05	8.07	7.26/8.58	7.9/8.24	
	Dissolved Oxygen (mg/L)	119	10.08	10.20	1.46/16.5	8.35/11.83	25% of values<OWQS and 25% of values<alt OWQS
	Hardness (mg/L)	121	527	485	238/1260	401/590	
Minerals	Total Dissolved Solids (mg/L)	58	952	844	401/1920	709/1080	
	Specific Conductivity (uS/cm)	121	1592	1492	650/3419	1259/1745	
	Chloride (mg/L)	120	233	211	69/786	184/232	
	Sulfate (mg/L)	119	291	253	47/1170	190/317	
Nutrients	Total Phosphorus (mg/L)	120	0.039	0.026	<0.005/0.169	0.018/0.049	
	Total Nitrogen (mg/L)	121	0.67	0.65	0.2/1.6	0.43/0.85	
	Nitrate/Nitrite (mg/L)	121	0.17	<0.05	<0.05/1.17	<0.05/0.22	
	Chlorophyll A (mg/m^3)	44	4.9	3.6	0.3/28.4	1.7/5.7	TSI=46.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	25	500	220	20/3000	95/591	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	25	135	85	<10/437	20/177	Mean>OWQS

Beneficial Uses

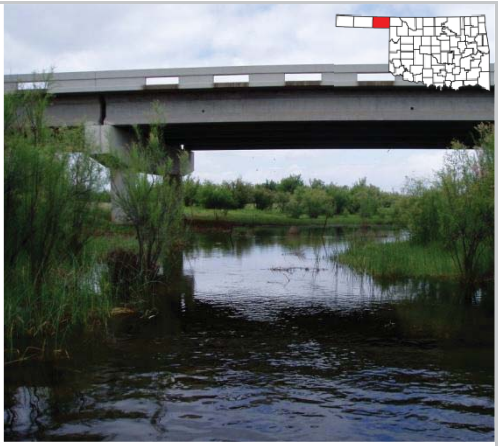
Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	NS	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Lead*

Beaver River at Turpin

Sample Record	Times Visited	Station ID
November 2000 – May 2008	69	720500020450-001AT



Stream Data

County	Beaver	View Site Data
Location	South of the Town of Turpin on State Highway 83	
Latitude/Longitude	36.75941268, -100.8439297	
Planning Watershed	Panhandle (8-digit HUC - 11100102)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	58	15.2	15.8	-0.2/28.9	9/21.5	
	Turbidity (NTU)	59	6	3	1/32	2/7	
	pH (units)	58	7.87	7.87	7.27/8.65	7.66/8.11	
	Dissolved Oxygen (mg/L)	58	10.89	11.05	4.53/20.14	8.65/12.71	
	Hardness (mg/L)	59	1177	1169	207/1850	1039/1335	
Minerals	Total Dissolved Solids (mg/L)	8	6020	5930	5660/6580	5785/6360	100% of values>OWQS
	Specific Conductivity (uS/cm)	59	9288	9337	4295/12796	8582/10421	
	Chloride (mg/L)	58	2561	2585	729/3970	2312/2800	100% of values>OWQS
	Sulfate (mg/L)	59	706	681	229/1600	616/777	17% of values>OWQS
Nutrients	Total Phosphorus (mg/L)	59	0.039	0.024	0.011/0.263	0.018/0.034	
	Total Nitrogen (mg/L)	59	0.85	0.68	0.33/3.86	0.58/0.93	
	Nitrate/Nitrite (mg/L)	59	0.06	<0.05	<0.05/0.2	<0.05/0.05	
	Chlorophyll A (mg/m^3)	15	17.7	7.5	<0.1/78	2.7/19	TSI=58.8
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	19	2250	500	<10/24000	30/1300	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	19	1108	259	<10/6867	41/911	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						NS	S	NS
Aesthetics												NEI
Agriculture					NS		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

less than 10% of the three-month geometic means are below 0.037, the station is supporting, but if more than 10% are above the criterion, the station is not supporting.

Assessment of Human Health Support. A new beneficial use was created in 1999 dealing with fish consumption and is housed under the Human Health criteria. The new use deals with fish consumption bans and states that waters that the DEQ has issued a fish consumption ban on will be considered as not supporting it's fish consumption use. Currently the BUMP has sampled several waters to determine fish consumption use support but will not report results until the 2003 report.

supporting). Regardless of the criteria in Appendix F of OAC 785:45, if all TDS samples are less than 750 mg/L and all chloride and sulfate samples are less than 250 mg/L, the AG beneficial use is supported. Only one variable needs to violate the assessment protocol for the beneficial use to be partially supported or not supported.

Assessment of Aesthetics Support. With the exception of the numerical criterion of 0.037 mg/L of total phosphorus for Oklahoma scenic rivers and 70 Platinum-cobalt units for true color, the OWQS includes only narrative criteria for the aesthetics beneficial use. Furthermore, the USAP only addresses the effect of nutrients and true color. However, narrative criteria in OAC 785:45-3-2(c) requires that nutrients related water quality degradation cannot interfere with the maintenance of any beneficial use protected under OAC 785:46-13-3(a)(1). Because numerical nutrient criteria exists only for scenic rivers, assessments of nutrients on all other rivers and streams do not determine beneficial use support but whether a particular stretch of stream is nutrient-threatened. Therefore, these assessments of nutrients do not utilize any of the default protocols, but revolve around the use of a dichotomous key. The use of the key is a rather involved process and will not be verbally outlined in this report. Please refer to OAC 785:46-15-10 for a detailed discussion of the dichotomous key and how it is apllied for use support determination.

The impact of nutrients on streams is related to the growth of phytoplankton. Phytoplankton are autotrophic which means that when light and consumables such as nutrients are available they can convert energy and grow. The available nutrients are total phosphorus and nitrite and nitrate (utilized as a combined nitrogen concentration). Several factors determine if the level of these compounds pose a threat to the health of the stream. Foremost, the size of the stream must be considered. Smaller streams (3rd order or less) tend to be more susceptible to nutrient impacts and, therefore, smaller concentrations have similar effects as larger concentrations in larger streams (greater than 3rd order). Depending on stream order, USAP has established preset threshold values for total phosphorus and nitrate/nitrite. If the two-year rolling median of the sample values exceeds the threshold, the following confounding factors are considered to determine if the excessive nutrients are threatening the health of the stream. The amount of time the nutrient is resident in the stream is proportional to the impact. Therefore, the slope of the topography around the station must be considered. Furthermore, phytoplankton is light dependent for growth. Consequently, light must be able to able to penetrate the surface of the water. For this reason, water clarity must be measured by using a nephelometric turbidity meter or a Secchi disk. Only turbidity readings taken at seasonal base flow are included when calculating the geometric mean. Logic states that low clarity will limit the impact of phytoplankton on the stream and that high clarity will increase the impact of phytoplankton. On smaller streams, available light is also measured by percent canopy shading. An option to the dichotomous key is the use of Carlson's Trophic State Index (TSI) value (Carlson, 1977) on non-wadeable streams. The mean of sestonic chlorophyll-a data is used to calculate the TSI using the equation: **TSI = 9.81 x ln(chlorophyll-a) + 30.6**. A TSI value of 62 or greater indicates that a nonwadeable waterbody is nutrient threatened.

In 2002, A numerical criterion of 0.037 mg/L of total phosphorus was set for all waterbodies designated as Oklahoma Scenic Rivers. These rivers include the Barren Fork River, Flint Creek, the Illinois River, Lee Creek, Little Lee Creek, and the Mountain Fork River above Broken Bow Reservoir. The current USAP requires that a multi-step process for support determination. First of all, three-month rolling geometrics are calculated for the most immediate 5 years of data available. This data, when possible, should include high flow monitoring events. Once the geometric means are calculated a short-term protocol is used for final assessment. If

Assessment of Primary Body Contact Recreation (PBCR) Support. The PBCR beneficial use utilizes 2 different bacteriological classes and one bacteriological species to assess use support: fecal coliform (FC), *Escherichia coli* (*E. coli*), and enterococci (Ent.). The assessment is performed by using the long-term average numerical protocol to compare to a prescribed geometric mean and by using a modified version of the short-term average numerical protocol to compare each sample to a prescribed screening level. The prescribed geometric means (GM) and screening levels (SL) are: FC—GM of 400 colony forming units/mL (cfu/mL) and SL of 400 cfu/mL; *E. coli*—GM of 126 cfu/mL and SL of 235 cfu/mL in scenic rivers and 406 cfu/mL in all other waters; and Ent.—GM of 33 cfu/mL and SL of 61 cfu/mL in scenic rivers and 406 cfu/mL in all other waters. For *E. coli* and Ent., both the SL (only one sample exceedance is necessary) and the GM must be exceeded for the use to not be supported. If all of the samples meet the SL or the GM is met, the use is supported. In the case of FC, the use may only be supported if the GM is met and no greater than 25% of the sample concentrations exceed the SL. If either the GM is exceeded or greater than 25% of the sample concentrations exceed the SL, the use is not supported for FC. In no instance is the PBCR beneficial use partially supported. Furthermore, PBCR support is only determined from samples collected during the recreational season from May 1 through September 30 of each year. Only one variable needs to violate the assessment protocol for the beneficial use to be not supported.

Assessment of Public and Private Water Supply (PPWS) Support. The PPWS beneficial use utilizes toxicant concentrations to assess use support. For purposes of this report, only metals are considered in the toxicant category. Only one variable needs to violate the assessment protocol for the beneficial use to be partially supported or not supported. Organics are currently being collected at some stations and will be used in the 2003 assessment. In previous reporting years, total coliform bacteria were used to determine use support. This was done in error. The criterion of 5,000 cfu/mL in the OWQS is only applied at the water supply intake point and is not to be applied throughout the waterbody.

Numerical criteria for metals is established in OWQS 785:45-5-10(1) and (6). The short-term numerical average protocol is used to determine use support for both sets of criterion. If a substance has different numerical criteria listed in both tables, the most stringent criterion takes precedence. Furthermore, criteria in both tables need not be exceeded for the use to be partially supported or not supported.

Assessment of Agriculture (AG) Support. The AG beneficial use utilizes three variables to assess use support: total dissolved solids, chlorides, and sulfates. Numerical criteria for both yearly mean standards and sample standards are located in Appendix F of OAC 785:45. The yearly mean standard for each variable is compared to the geometric mean of the samples using a long-term average numerical protocol. The sample standard for each variable is compared to the each sample using a short-term average numerical protocol. Use support assessment for each variable requires a three-step process:

1) The sample standard and yearly mean standard for the six digit management segment which encompasses the monitoring must be located in Appendix F of OAC 785:45;
2) The geometric mean of the samples is compared to the yearly mean standard (if the geometric mean exceeds the yearly mean standard, the use is not supported and no further analysis is necessary);
3) If the geometric mean meets the yearly mean standard, the sample standard is compared to each sample and percent exceedance is calculated (depending on the percent exceedance, the variable is supporting, partially supporting, or not

TF—5.0mg/l (June 1—October 15) and 6.0 mg/L (October 16—May 31). The protocol for short-term average numerical parameters is used to assess the level of support.

Numerical criteria is prescribed for toxicants in OWQS 785:45-5-12(g)(6)(G) in a table entitled "Numerical Criteria for Toxic Substances". To determine use support, the protocol for short-term average numerical parameters is used. Sample values must be compared to both acute and chronic criterion. Both criterions need not be exceeded for the variable to be partially supported or not supported.

A numerical range for pH of 6.5 to 9.0 units is prescribed in 785:45-5-12(g)(3) for all aquatic classifications. The protocol for short-term average numerical parameters is used to assess the level of support.

Screening limits are established for turbidity in OWQS 785:45-5-12(g)(7)(A)(i) and (iii). CWAC are assigned a criterion of 10 Nephelometric Turbidity Units (NTU), and all other stream communities are assigned a criterion of 50 NTU. The protocol for short-term average numerical parameters is used to assess the level of support. In OWQS 785:45-5-12(g)(7)(C), it is stated that numerical criteria for turbidity "apply only to seasonal base flow conditions". Therefore, those measurements that are taken above seasonal base flow are not included in determining support. To determine seasonal base flow, the average discharge for the sampling day is compared to the median flow of the three months surrounding the sampling day. If the station is not part of the USGS stream-flow monitoring program but has an upstream or downstream stream-flow station in close proximity, that station is used to determine whether the station in question is at seasonal base flow. If no proximal stream-flow station exists, stream-flow monitoring stations on other waterbodies that are in close geographical proximity were used to determine whether the station in question is at seasonal base flow. Because discharge data is not yet available from October of 2001 through September of 2002, use support determinations based on turbidity data are provisional and assessments related to turbidity may be subject to change. Therefore, all turbidity assessments are provisional. Changes will be reported in an addendum to this report. Furthermore, to assist staff in the determination of seasonal base flow at stations that do not have continuous discharge measurements, the OWRB is now collecting discharge measurements at all but four of the permanent monitoring stations. To supplement base flow determination staff uses several anecdotal methods. These methods are only used in concert with another method when determining if base flow conditions existed when the sample was taken. In one method, staff determines flow condition visually by noting whether the flow is minimal, light, moderate, high, or stormwater. Also, beginning in 2002, staff began noting the presence or absence of a periphyton line as well as the color and texture of the periphyton. In most instances, if a periphyton line has been established, flow has not exceeded that level in at least seven days.

Additionally, biological criteria have been promulgated into rule for all but four ecoregions. As fish data are collected on streams throughout the state, an assessment of biological health will be presented in this report. The application of biological criteria requires a three-step process. First, various metrics (e.g., # of sunfish species) are determined on the raw collection data (i.e., species and numbers of each species). From these metrics, an index of biological integrity (IBI) is calculated. Finally, the IBI score is compared to regionally developed scoring ranges, and the site is placed into 1 of 3 biocriteria categories—fully supporting, undetermined, or not supporting. For those regions where biological criteria have yet to be developed, the data are presented in this report, but the site evaluation is left as undetermined.

iii) Not supporting — greater than or equal to 25%.

Long-term average numerical variables measure variables with exposure periods of greater than or equal to seven days (e.g., yearly mean standard for chlorides). In other words, the **entire** set of samples that is being analyzed is considered a unique entity. For example, chloride samples collected monthly from January through December are aggregated through the calculation of a geometric mean. Use support determination for long-term numerical variables requires a three-step process:

1) Samples for a particular variable are aggregated into a geometric mean
2) The geometric mean is compared to the prescribed criterion or screening level
3) Use support is determined to be supporting if the mean is less than the prescribed criterion or screening level or not supporting if the mean is greater than the prescribed criterion or screening level.

Because the long-term average compares only one value (the geometric mean) to the prescribed criterion or screening level, it cannot be considered partially supporting. In most instances, at least ten samples are required to calculate a geometric mean. Furthermore, geometric means are calculated on a two-year rolling average using the most recent data available.

A particular change to this year's report is the addition of the lanquage "but is impaired per the CPP" when a beneficial use is determined to be partially supporting. The data produced by the BUMP is used to help develop Oklahoma's Integrated Report, which is a USEPA required report classifying all water bodies based on impairment status. Althought the USAP is the guiding document for use support attainment decisions; the State also uses the Continuing Planning Process (CPP) document as required by the USEPA. Its methodology section is mostly a reiteration of the USAP, however it does address areas where the USAP is silent or does not fully meet reporting requirements. Once such area is the use of "partial support" which is not a valid reporting endpoint for use attainment. The CPP classifies water bodies as "impaired" or "not impaired". Subsequently, for reporting purposes, those waters classified as "supporting" by the USAP are classified as "not impaired", and those waters classified as "partial supporting" or "not supporting" by the USAP are classified as "impaired".

So that the reader will fully understand how use support was determined for our rivers and streams for the various beneficial uses assigned to them a short discussion of the OWQS beneficial uses and the Use Support Assessment Protocols (USAP) is included below.

Assessment of Fish and Wildlife Propagation (FWP) Support. The FWP beneficial use utilizes five different water quality variables to assess use support: dissolved oxygen (D.O.) concentration, toxicants, hydrogen ion activity (pH), turbidity, and biological criteria. Only one variable needs to exceed the assessment protocol for the beneficial use to be partially supported or not supported.

The OWQS 785:45-5-12(g)(1) in a table entitled "Dissolved Oxygen Criteria" prescribes three screening levels for D.O. in streams. Streams are categorized in Appendix C of the OWQS as habitat limited aquatic communities (HLAC), warm water aquatic communities (WWAC), cool water aquatic communities (CWAC), and trout fisheries (TF). The prescribed screening level for each of the categories is: HLAC—4.0mg/l (April 1—June 15) and 3.0 mg/L (June 16—May 31); WWAC—4.0mg/l (June 16—October 15) and 5.0 mg/L (October 16—June 15); and CWAC and

scientifically defensible reason can be brought forth justifying the use of older data. This report uses no data collected before November of 1998.

USAP also sets data requirements on the number of samples needed and the magnitude of criteria exceedance for toxicants and dissolved oxygen before a use support determination can be made. The minimum number of samples required to assess use support for all general water quality variables is ten (10). This minimum number of samples is not applicable if data from samples already collected ensures that the use will not be supported. In other words, if a 25% percent exceedance is required to designate a use as not supporting and three (3) of the first five (5) samples collected were in exceedance of the criteria, then sampling can discontinue because you are assured of having >25% of the minimum number of samples exceeding the criteria. The BUMP program collects at least ten samples per year on all general water quality parameters with the exception of bacteria, organics and metals. Toxicants (metals and organics) require a minimum of five (5) samples to determine use support, however, less than 5 samples can be used to determine if a use is partially supported or not supported. Furthermore, if at least 2 sample concentrations of a toxicant exceed the criteria prescribed in the OWQS by two or more orders of magnitude, then the use is determined to be "not supporting".

Finally, USAP gives guidance on the treatment of practical quantification limits (PQL), or detection limits. A PQL is the minimum value that a particular test or instrument can "read-to" with an acceptable level of confidence. If a value is determined to be less than the PQL, then it is generally reported as a "less than value" (e.g., variable data point "x" = <2.0 mg/L). In other words, the test or the instrument cannot deliver a value less than the PQL without introducing statistically significant uncertainty to the data. Moreover, when analyzing the data, data point "x" cannot be assigned a value of 2.0 mg/L or 0.0 mg/L because staff would be making an arbitrary determination that would assuredly be either an under estimation or an over estimation of the "true" value. Consequently, the OWRB staff assigns a value that is fifty percent of the PQL ("x" would equal 1.0 mg/L).

Default Protocols. USAP outlines the procedures for determining whether a set of data points for a particular variable **support**, **partially support**, or **do not support** a particular beneficial use. These protocols are constructed around two distinct types of numerical variables — short term averages and long term averages. In each case, samples collected for the range of water quality parameters are analyzed and aggregated in different ways.

Short-term average numerical variables measure variables with exposure periods of less than seven days (e.g., turbidity or a sample standard for chlorides). In other words, the set of samples that is being analyzed considers each sample as a separate entity. For example, **each** turbidity sample collected monthly from January through December is considered a unique sample, and consequently, every sample is not aggregated into a single sample for analysis but is considered a fraction of the whole. Use support determination for short-term numerical variables requires a three-step process:

1. Each sample exceeding the prescribed criterion or screening level for a particular variable is identified,
2. The number of samples exceeding the prescribed criterion or screening level is divided by the total number of samples collected to obtain a percent exceedance, and
3. The percent exceedance is compared to a range of prescribed percent exceedances to determine use support. The prescribed percent exceedances are:
    - **i)** Supporting — less than or equal to ten percent (10%),
    - **ii)** Partially supporting — greater than 10% but less than twenty-five percent (25%),

STREAM DATA ANALYSIS PROTOCOLS

BUMP data collection on streams began in November of 1998. In order to provide a structural framework for data analysis and interpretation within the confines of the OWQS, the program uses the Use Support Assessment Protocols (USAP) promulgated into rule in Oklahoma Administrative Code (OAC) 785:46-15. A detailed explanation of the relationship between the USAP and the data collected on streams and rivers as part of the BUMP is presented below. This explanation is broken down into 8 subsections: Data Requirements, Default Protocols, Assessment of Fish and Wildlife Propagation Support, Assessment of Primary Body Contact Recreation Support, Assessment of Public and Private Water Supply Support, Assessment of Agriculture Support, Assessment of Aesthetics Support, and Assessment of Human Health Support (fish consumption). The latest USAP is included with this document as Appendix A and should provide greater insight into exactly how use support determinations were made for this report. In addition, OAC 785:45 (Oklahoma Water Quality Standards) and the justification document for the USAP can be obtained by contacting the OWRB/Water Quality Programs Division at (405) 530-8800 or through accessing the documents on the OWRB web page at: http://www.state.ok.us/~owrb/rules/Rules.html.

Data Requirements. USAP divides the number of stream miles that can be represented by a single site/station (or spatial coverage) into two categories—non-wadable and wadable streams. Sites/stations can be representative of no more than 25 stream miles on non-wadable streams and 10 stream miles on wadable streams. These limitations can be adjusted based upon existing data, distance between monitoring sites, sources of pollution, and the influence of major hydrological features, such as major tributaries and dams (delineated by 12-digit waterbody identification segments). A definition of what constitutes a wadable and non-wadable stream is not outlined in the USAP, so OWRB staff use federal guidance as well as best professional judgment. Federal 305 (b) guidelines say that no monitoring site/station can be representative of more than 25 stream miles on large streams and rivers. Furthermore, in areas where topography and land use are relatively homogeneous and there are no other significant influences, a single monitoring station can be representative up to 50 to 75 stream miles. Therefore, only two firm guidelines are currently available for determining the spatial coverage of a monitoring site/station:

1) The spatial coverage can not extend outside the 12-digit segment in which the monitoring site/station is located except in those instances where it is determined that it is reasonable to do so (e.g., the segment break is not caused by a major hydrological influence).
2) No monitoring site/station can be representative of more than 25 stream miles (in some instances, monitoring sites/stations may be representative of up to 50 stream miles with a scientifically defensible justification).

Accordingly, spatial coverage for the 2004 - 2005 BUMP report on streams will be limited to these two guidelines. The spatial coverage is subject to change dependent upon the language of the latest version of USAP.

USAP sets two limitations on temporal coverage. First, data used in assessments must be collected such that decisions are not biased towards either critical-flow, base-flow, or high-flow conditions. This report uses data collected during all seasons. Secondly, stream data that is more than five years old cannot be used to assess support unless no other data exists or a

Big Cabin Creek at Big Cabin

Sample Record	Times Visited	Station ID
September 1999 - 2012	131	121600060060-001AT

Stream Data

County	Craig	View Site Data
Location	Northeast of the Town of Big Cabin on road 310	
Latitude/Longitude	36.56838771, -95.15177919	
Planning Watershed	Grand (8-digit HUC - 11070209)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	109	16.9	17.2	0.3/32.4	10/24.4	
	Turbidity (NTU)	108	41	28	7/755	18/41	
	pH (units)	109	7.60	7.56	6.78/8.79	7.4/7.81	
	Dissolved Oxygen (mg/L)	109	7.86	7.38	3.08/18.5	5.85/9.59	
	Hardness (mg/L)	107	244	218	13/671	175/292	
Minerals	Total Dissolved Solids (mg/L)	31	369	356	164/964	265/422	
	Specific Conductivity (uS/cm)	108	568	557	165/1385	446/674	
	Chloride (mg/L)	109	21	10	<5/85	10/26	
	Sulfate (mg/L)	110	161	140	34/538	96/200	15% of values>OWQS
Nutrients	Total Phosphorus (mg/L)	110	0.195	0.142	0.026/1.09	0.094/0.217	
	Total Nitrogen (mg/L)	109	1.79	1.36	0.49/11.16	0.93/1.98	
	Nitrate/Nitrite (mg/L)	110	0.80	0.39	<0.05/10.1	0.21/0.82	
	Chlorophyll A (mg/m^3)	55	17.9	9.5	1.2/102	3.5/24	TSI=58.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	31	15901	52	<10/437000	20/616	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	31	1558	110	<10/24196	31/847	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					NS		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Bird Creek at Avant

Sample Record	Times Visited	Station ID
January 2002 - Current	12	121300020010-001AT

Stream Data

County	Osage	View Site Data
Location	South of the town of Avant off State Highway 11	
Latitude/Longitude	36.484775359, -96.059833576	
Planning Watershed	Middle Arkansas (8-digit HUC -11070107)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	7	17.7	17.5	3.4/28.6	10.7/27.3	
	Turbidity (NTU)	7	10	8	4/28	6/9	
	pH (units)	7	7.87	7.92	7.49/8.04	7.78/8.02	
	Dissolved Oxygen (mg/L)	7	9.34	8.15	7.18/13.03	7.69/11.95	
	Hardness (mg/L)	7	126	126	85/157	116/136	
Minerals	Total Dissolved Solids (mg/L)	7	181	181	115/224	176/200	
	Specific Conductivity (uS/cm)	7	337	345	181/443	305/374	
	Chloride (mg/L)	7	30	29	12/46	27/38	
	Sulfate (mg/L)	7	19	18	15/27	18/21	
Nutrients	Total Phosphorus (mg/L)	7	0.032	0.025	0.019/0.055	0.021/0.041	
	Total Nitrogen (mg/L)	7	0.60	0.58	0.43/0.9	0.5/0.66	
	Nitrate/Nitrite (mg/L)	7	0.06	<0.05	<0.05/0.13	<0.05/0.07	
	Chlorophyll A (mg/m^3)	7	6.0	7.1	2.1/9.3	3.3/8.6	TSI=48.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	5	141	206	16/248	16/233	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	5	157	20	17/613	18/363	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NEI	NEI	NEI	NEI						NEI	NEI	NEI
Aesthetics												NEI
Agriculture					NEI		NEI	NEI				
Primary Body Contact Recreation									NEI			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Sampling and Assessment by the **Oklahoma Water Resources Board** – 3800 Classen Blvd, Oklahoma City, OK, 73118 – 405.530.8800 – http://www.owrb.ok.gov

Bird Creek at Port of Catoosa

Sample Record	Times Visited	Station ID
November 1998 - Current	164	121300010010-001AT

Stream Data

County	Tulsa	View Site Data
Location	Northwest of the Town of Catoosa on State Highway 266	
Latitude/Longitude	36.22311412, -95.81921244	
Planning Watershed	Middle Arkansas (8-digit HUC - 11070107)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	137	17.7	17.5	2.8/31.9	10.9/24.3	
	Turbidity (NTU)	137	80	32	6/>1000	21/72	
	pH (units)	137	7.58	7.59	6.88/9.12	7.4/7.75	
	Dissolved Oxygen (mg/L)	136	8.21	7.63	3.17/19.26	6.49/9.6	
	Hardness (mg/L)	137	135	128	58/294	109/160	
Minerals	Total Dissolved Solids (mg/L)	62	236	236	64/454	190/276	
	Specific Conductivity (uS/cm)	136	408	401	26/1570	318/478	
	Chloride (mg/L)	127	42	38	<5/219	28/49	
	Sulfate (mg/L)	127	44	38	19/293	29/47	
Nutrients	Total Phosphorus (mg/L)	140	0.393	0.368	0.05/0.953	0.254/0.497	
	Total Nitrogen (mg/L)	141	2.98	2.79	0.82/8.16	2.03/3.93	
	Nitrate/Nitrite (mg/L)	142	1.98	1.84	0.16/6.9	0.82/2.94	
	Chlorophyll A (mg/m^3)	75	7.9	5.6	1.7/86.4	3.8/8.2	TSI=50.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	34	3702	173	<10/73000	31/782	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	34	903	81	<10/17329	41/495	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	NEI	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Sampling and Assessment by the **Oklahoma Water Resources Board** – 3800 Classen Blvd, Oklahoma City, OK, 73118 – 405.530.8800 – http://www.owrb.ok.gov

Black Bear Creek at Pawnee

Sample Record	Times Visited	Station ID
December 1998 - Current	171	621200030010-001AT

Stream Data

County	Pawnee	View Site Data
Location	North of the Town of Pawnee on State Highway 18	
Latitude/Longitude	36.34341161, -96.79985204	
Planning Watershed	Upper Arkansas (8-digit HUC - 11060006)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	145	17.1	17.5	-0.3/33.3	9.4/24.6	
	Turbidity (NTU)	146	142	53	5/>1000	21/165	39% of values>OWQS
	pH (units)	145	7.92	7.96	6.26/8.7	7.67/8.17	
	Dissolved Oxygen (mg/L)	145	8.80	8.11	1.7/30.01	6.28/10.18	
	Hardness (mg/L)	144	223	215	42/465	141/296	
Minerals	Total Dissolved Solids (mg/L)	75	450	414	132/1170	234/606	
	Specific Conductivity (uS/cm)	144	807	732	158/2215	409/1099	
	Chloride (mg/L)	145	138	118	10/564	54/197	
	Sulfate (mg/L)	145	46	41	10/145	31/57	
Nutrients	Total Phosphorus (mg/L)	153	0.234	0.187	0.009/1.33	0.12/0.315	
	Total Nitrogen (mg/L)	144	1.53	1.41	0.47/4.36	0.92/1.93	
	Nitrate/Nitrite (mg/L)	145	0.37	0.31	<0.05/2.61	<0.05/0.57	
	Chlorophyll A (mg/m^3)	26	14.0	10.4	2.3/45.7	7.6/18.1	TSI=56.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	35	1236	285	<10/19000	52/1120	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	35	477	63	<10/10462	20/266	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	U	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes *U = Assessment yielded undetermined supporting status*

Blue River at Durant

Sample Record	Times Visited	Station ID
November 1998 - Current	172	410600010010-001AT

Stream Data

County	Bryan	View Site Data
Location	East of the Town of Durant off State Highway 70	
Latitude/Longitude	33.99732546, -96.24093554	
Planning Watershed	Blue-Boggy (8-digit HUC - 11140102)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	141	18.7	18.2	2.7/33	12/26.1	
	Turbidity (NTU)	144	63	26	3/707	14/49	
	pH (units)	139	8.01	8.03	7.06/8.8	7.84/8.19	
	Dissolved Oxygen (mg/L)	141	8.53	8.31	4.14/20.41	6.92/9.87	
	Hardness (mg/L)	142	219	230	68/346	185/253	
Minerals	Total Dissolved Solids (mg/L)	40	228	238	68/288	210/254	
	Specific Conductivity (uS/cm)	141	395	411	139/596	338/464	
	Chloride (mg/L)	105	9	10	<5/63	<5/10	
	Sulfate (mg/L)	104	19	16	<5/82	11/21	
Nutrients	Total Phosphorus (mg/L)	147	0.086	0.054	<0.005/0.497	0.035/0.096	
	Total Nitrogen (mg/L)	142	0.63	0.46	<0.05/3.12	0.31/0.83	
	Nitrate/Nitrite (mg/L)	142	0.16	<0.05	<0.05/1.4	<0.05/0.2	
	Chlorophyll A (mg/m^3)	39	3.8	2.5	0.2/29	0.7/4.8	TSI=43.8
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	39	545	101	<10/5000	32/461	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	39	260	98	<10/2420	41/276	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Brushy Creek at Haileyville

Sample Record	Times Visited	Station ID
November 1998 - 2012	136	220600030010-001AT

Stream Data

County	Pittsburg	View Site Data
Location	Southwest of the Town of Haileyville on State Highway 63	
Latitude/Longitude	34.843370, -95.614373	
Planning Watershed	Eufaula (8-digit HUC - 11090204)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	117	17.9	18.6	1.9/33	10.9/24.9	
	Turbidity (NTU)	119	72	42	4/>1000	25/80	14% of values>OWQS
	pH (units)	117	7.37	7.33	6.31/8.57	7.08/7.68	
	Dissolved Oxygen (mg/L)	117	7.19	6.60	1.41/26.38	5.1/8.41	12% of values<OWQS
	Hardness (mg/L)	117	97	74	<10/693	52/99	
Minerals	Total Dissolved Solids (mg/L)	37	128	113	62/254	98/145	
	Specific Conductivity (uS/cm)	117	276	179	18/1291	123/252	
	Chloride (mg/L)	104	26	10	<5/178	8/18	
	Sulfate (mg/L)	105	63	34	12/369	26/50	
Nutrients	Total Phosphorus (mg/L)	120	0.116	0.077	0.007/1.06	0.053/0.122	
	Total Nitrogen (mg/L)	119	0.91	0.81	0.23/3.39	0.61/1.08	
	Nitrate/Nitrite (mg/L)	120	0.17	0.11	<0.05/1.17	<0.05/0.25	
	Chlorophyll A (mg/m^3)	23	5.9	3.7	0.5/33	1.3/4.9	TSI=47.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	26	944	36	<10/14136	<10/198	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	26	1001	68	<10/19863	<10/273	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	U	S						S	U	NS
Aesthetics												NS
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			NS
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead
Aesthetics, Fish & Wildlife Propagation, Private & Public Water Supply not supporting for oil & grease
U = Assessment yielded undetermined supporting status

STATION NAME	FWP	PBCR	PPWS	AG	AES
Washita River, off SH 19, Alex	NS (5)	NS (6, 8)	S	S	T (13, 17)
Washita River, SH 152, Cordell	NS (5, 16, 18)	NS (6, 7, 8)	S	S	TS(13, 18)
Washita River, SH 19, Pauls Valley	NS (5)	NS (6, 8)	S	S	T(13, 17)
Washita River, SH 33, mcclure	NS (5, 16, 18)	NS (6, 7, 8)	S	S	NT
Washita River, US 177, Durwood	NS (5)	NS (6, 8)	S	S	T(13, 17)
Washita River, US 281, Anadarko	NS (5, 16, 18)	NS (6, 8)	S	S	NS (17, 18)
West Cache Creek, SH 5B, Taylor	NS (5)	NS (6, 7, 8)	S	NS (10,11)	NT
Wolf Creek, off US 270, Fort Supply	S	NS (8)	S	S	S

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

STATION NAME	FWP	PBCR	PPWS	AG	AES
Neosho River, off SH 137, Connor Bridge	NS (2, 3, 5)	S	S	S	NT
Neosho River, SH 82, Langley	NS(1, 3)	S	S	S	NT
Neosho River, US 412, Chouteau	NS(1, 3)	S	NS(15)	S	T(13, 15)
North Canadian River, Ind. Nat. Tpk., Dustin	NS (5)	NS (6, 8)	S	S	T (13)
North Canadian River, SH 3E, Shawnee	NS (3, 4, 5)	NS (8)	N/A	NS(10)	T (13, 17)
North Canadian River, off US 62, Harrah	NS (5)	NS (6, 8)	N/A	NS (10)	T (13, 17)
North Canadian River, US 270, Watonga	S	NS (6, 7, 8)	NS (6)	S	NT
North Canadian River, US 281, Seiling	S	NS (8)	S	S	S
North Canadian River, US 75, Wetumka	NS (5)	NS (8)	S	S	T (13, 17)
North Canadian River, US 412, Woodward	S	NS (8)	N/A	S	S
North Canadian River, US 81, El Reno	NS(3)	NS (8)	S	S	T (13, 17)
North Fork of the Red River, US 62, Headrick	NS (3, 5)	NS (8)	S	NS (10, 11, 12)	T (17)
North Fork of the Red River, SH 34, Carter	NS(5)	NS (8)	S	S	NT
Poteau River, off SH 112, Pocola	NS (3, 5)	NS (8)	S	S	NT
Poteau River, US 59, Heavener	NS(3)	S	S	S	NT
Red River, US 183, Davidson	NS (3, 5)	NS (6, 8)	N/A	NS (10, 11, 12)	T (17)
Red River, US 259, Harris	NS (5)	S	S	S	NT
Red River, US 271, Hugo	S	NS (8)	S	NS(10, 11, 12)	NT
Red River, US 81, Terral	NS (3, 5)	NS (8)	S	NS (11, 12)	T(13, 17)
Sager Creek, off US 412, West Siloam Springs	S	NS (8)	NS (15)	S	T (13, 15)
Salt Fork of the Arkansas, SH 58, Ingersoll	NS (5, 16, 18)	NS (6, 7, 8)	S	NS(12)	NS(18)
Salt Fork of the Arkansas, US 77, Tonkawa	NS (5)	NS (8)	S	S	S
Salt Fork of the Red River, SH 34, Mangum	S	NS (8)	S	S	NT
Salt Fork of the Red River, off US 283, Elmer	NS (3)	NS (6, 8)	NS(9)	S	NT
Sandy Creek, SH 6, Eldorado	NS (2, 3, 5)	NS(9)	N/A	NS (10, 11, 12)	NT
Skeleton Creek, SH 74, Lovell	NS (3, 5)	NS (6, 8)	S	S	NS(15, 18)
Spring Creek, off US 412, Murphy	S	S	S	S	S
Spring River, off SH 137, Quapaw	NS (3, 5)	NS (8)	S	S	NT
Verdigris River, US 412, Inola	NS (5)	NS (8)	S	S	NT
Verdigris River, SH 10, Lenepah	NS (5)	NS (8)	S	S	NT
Verdigris River, SH 20, Keetonville	S	NS (8)	S	S	NT
Verdigris River, SH 51, Wagoner	NS (5)	NS (8)	S	S	NT

STATION NAME	FWP	PBCR	PPWS	AG	AES
Cimarron River, off US 64, Mocane	NS(3)	NS (6, 8)	S	S	S
Cimarron River, SH 33, Ripley	NS (5)	NS (8)	N/A	NS(10)	NT
Cimarron River, US 281, near Waynoka	NS (16)	NS (7)	N/A	NS (10, 11)	S
Clear Boggy Creek, off US 69, Caney	NS (5, 16, 18)	NS (8)	S	S	NS(18)
Deep Fork River, off SH 16, Beggs	NS (5)	NS (6, 8)	S	S	NS(18)
Deep Fork River, US 377, Stroud	NS (5)	NS (6, 8)	S	S	NS(13, 18)
East Cache Creek, SH 53, Walters	NS (5)	NS (6, 8)	S	NS(10)	T(13, 15)
Elk Creek, off US 183, roosevelt	NS (3, 5)	NS (8)	S	S	NT
Elk River, SH 43, Tiff City (MO)	S	S	S	S	NT
Elm Fork River, SH 30, Carl	NS(9)	NEI	NEI	NS(11)	NEI
Elm Fork River, SH 9, granite	NS(3)	NS (7, 8)	S	NS(11)	S
Flint Creek, US 412, Flint	S	NS (8)	S	S	NS (14)
Fourche-Maline Creek, off US 270, Red Oak	NS (1, 3)	NS (8)	S	S	S
Glover River, SH 3, Glover	NS (5)	S	S	S	NT
Honey Creek, off SH 25, Grove	S	NS (7)	S	S	T(15)
Illinois River, US 59, Watts	NS (5)	NS (8)	S	S	NS (14)
Illinois River, US 62, Tahlequah	S	S	S	S	NS (14)
Kiamichi River, off US 271, Tuskahoma	NS (2, 3)	NS (8)	S	S	NT
Kiamichi River, SH 63, Big Cedar	NS (3)	NS (8)	S	S	NS(18)
Kiamichi River, US 271, Antlers	NS (3)	NS (8)	S	S	NS(18)
Kiamichi River, SH 109, Fort Towson	NS (3)	NS (8)	NS (9)	S	NT
Lee Creek, SH 101, Short	NS(3)	S	S	S	S
Little Lee Creek, SH 101, Nicut	NEI	NEI	NEI	S	NEI
Little River, off SH 3, Cloudy	NS (3, 5)	NS (8)	S	S	S
Little River, off US 70, near Holly Creek	NS (1, 3, 5)	S	S	S	NT
Little River, SH 56, Sasakwa	NS (5)	NS (6, 8)	S	S	NS(13, 18)
Mountain Fork, SH 4, Smithville	NS (2, 3)	S	S	S	S
Mountain Fork, US 70, Eagletown	NS (3)	NS (8)	S	S	NT
Mud Creek, SH 32, Courtney	NS (5, 16, 18)	NS (6, 8)	S	S	NS(18)
Muddy Boggy Creek, US 70, Unger	NS (5)	NS (8)	S	S	NT
Muddy Boggy Creek, US 69, Atoka	NS (3, 5)	NS (6, 8)	S	S	NS
Neosho River, off US 66, Commerce	NS (5, 16, 18)	NS(8)	S	S	NT

Table 1. Permanent Ambient Trend Monitoring Stations and their Beneficial Use Support Status.

STATION NAME	FWP	PBCR	PPWS	AG	AES
Arkansas River, US 64, Moffett	S	NS (8)	S	NS(10)	NT
Arkansas River, SH 104, Haskell	S	S	N/A	S	NT
Arkansas River, SH 18, Ralston	NS (5)	NS (8)	S	S	NT
Arkansas River, SH 97, Sand Springs	NS (5)	S	N/A	S	NT
Arkansas River, US 62, Muskogee	S	NS (8)	N/A	NS (10, 11)	NT
Arkansas River, US 64, Bixby	NS (5)	N/A	N/A	S	NT
Barren Fork, SH 51, Eldon	S	S	S	S	NS (14, 18)
Beaver River, off US 64, Guymon	NS (1)	NS (6, 7, 8)	S	S	NT
Beaver River, US 83, Turpin	NS (16, 18)	NS (6, 7, 8)	N/A	NS (10, 11)	NS(18)
Beaver River, SH 23, Beaver	NS(16)	NS (6, 7, 8)	N/A	NS (10, 11, 12)	NS(18)
Beaver River, CR N1650, Gate	NS(16, 18)	NS (6, 8)	N/A	NS (10, 11)	NS(18)
Beaver River, US 183, Fort Supply	S	NS (6, 8)	N/A	S	S
Big Cabin Creek, off US 69, Big Cabin	S	N/A	S	NS (12)	S
Bird Creek, SH 266, Port of Catoosa	NS (5)	NS (6,7, 8)	S	S	S
Black Bear Creek, SH 18, Pawnee	NS (5)	NS (6, 8)	S	S	NT
Blue River, US 70, Durant	S	NS (6, 8)	S	S	NS(18)
Brushy Creek, off US 270, Haileyville	NS (1, 3, 5)	NS (6, 7, 8)	S	NS (12)	NT
Canadian River, SH 2, Whitefield	S	S	S	S	NT
Canadian River, US 183, Taloga	S	NS (8)	N/A	NS (10, 11,12)	NS (18)
Canadian River, US 270, Calvin	NS(3,5,16,18)	NS (8)	S	NS (12)	NS(17, 18)
Canadian River, US 377, Konawa	NS (5)	NS (8)	S	S	T (13, 17)
Canadian River, US 66, Bridgeport	NS (5)	NS (8)	N/A	S	NT
Canadian River, US 77, Purcell	NS (5)	N/A	N/A	S	NS (13,17,18)
Caney Creek, off SH 100, Barber	S	S	S	S	S
Caney River, off US 75, Ramona	NS (5)	NS (8)	S	S	NS(18)
Chickaskia River, US 177, Blackwell	NS (5)	NS (6, 8)	S	S	NT
Cimarron River, off SH 8, near Ames	S	NS (6, 8)	N/A	NS (10, 11, 12)	NT
Cimarron River, SH 34, Buffalo	NS(16, 18)	NS (6, 7, 8)	N/A	NS (10,11)	S
Cimarron River, SH 99, Oilton	NS (5)	NS (6, 8)	N/A	NS(10)	NT
Cimarron River, US 77, Guthrie	S	NS (8)	N/A	S	T (17)
Cimarron River, US 81, Dover	NS (3)	NS (7, 8)	N/A	NS (10, 11)	NT

2012 Oklahoma Streams Report

Beneficial Use Monitoring Program

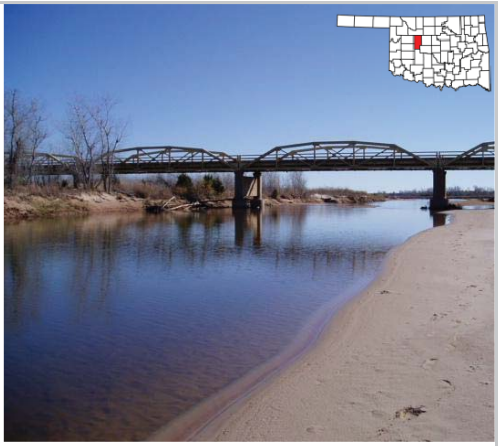
2012 Oklahoma Streams Report

Beneficial Use Monitoring Program

Published by
State of Oklahoma
OWRB
OKLAHOMA WATER RESOURCES BOARD
the water agency

Canadian River at Bridgeport

Sample Record	Times Visited	Station ID
February 1999 - Current	158	520610020150-001AT



Stream Data

County	Blaine	View Site Data
Location	East of the Town of Bridgeport on US Highway 281	
Latitude/Longitude	35.54292908, -98.31831715	
Planning Watershed	West Central (8-digit HUC - 11090202)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	135	17.1	17.0	-0.6/36.3	10/24	
	Turbidity (NTU)	132	67	27	3/>1000	10/66	
	pH (units)	131	8.12	8.13	7.6/8.6	7.97/8.28	
	Dissolved Oxygen (mg/L)	134	9.63	9.49	0.38/19.77	8.11/10.56	
	Hardness (mg/L)	135	569	556	126/2100	460/632	
Minerals	Total Dissolved Solids (mg/L)	72	997	1065	265/1518	783/1205	
	Specific Conductivity (uS/cm)	135	1481	1524	334/2552	1070/1891	
	Chloride (mg/L)	133	156	184	12/472	34/235	
	Sulfate (mg/L)	135	409	410	106/752	345/456	
Nutrients	Total Phosphorus (mg/L)	135	0.142	0.091	0.01/2.14	0.059/0.143	
	Total Nitrogen (mg/L)	134	1.26	1.14	0.38/7.47	0.87/1.46	
	Nitrate/Nitrite (mg/L)	135	0.46	0.39	<0.05/2.5	0.07/0.63	
	Chlorophyll A (mg/m^3)	51	14.3	8.2	2.3/84.4	5.4/21.3	TSI=56.7
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	30	748	95	<10/12033	31/388	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	30	965	31	<10/24192	<10/95	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead

Sampling and Assessment by the **Oklahoma Water Resources Board** – 3800 Classen Blvd, Oklahoma City, OK, 73118 – 405.530.8800 – http://www.owrb.ok.gov

Canadian River at Calvin

Sample Record	Times Visited	Station ID
December 1998 - Current	169	220600010119-001AT

Stream Data

County	Hughes	View Site Data
Location	North of the Town of Calvin on State Highway 270	
Latitude/Longitude	34.97589666, -96.24231022	
Planning Watershed	Central (8-digit HUC - 11090202)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	138	18.5	19.0	1.5/36.3	11.5/26	
	Turbidity (NTU)	137	149	43	4/>1000	23/149	
	pH (units)	138	8.25	8.26	7.19/9.04	8.08/8.39	
	Dissolved Oxygen (mg/L)	138	9.93	9.69	3.79/23.59	8.08/11.69	
	Hardness (mg/L)	140	327	315	99/727	252/403	
Minerals	Total Dissolved Solids (mg/L)	73	616	608	312/1064	488/716	
	Specific Conductivity (uS/cm)	138	1001	1005	318/1749	745/1254	
	Chloride (mg/L)	135	134	135	25/253	102/170	
	Sulfate (mg/L)	136	166	155	32/473	104/211	
Nutrients	Total Phosphorus (mg/L)	140	0.241	0.186	0.023/1.16	0.132/0.287	
	Total Nitrogen (mg/L)	139	1.54	1.39	0.35/6.36	1.01/1.91	
	Nitrate/Nitrite (mg/L)	140	0.29	<0.05	<0.05/1.83	<0.05/0.48	
	Chlorophyll A (mg/m^3)	75	38.4	26.5	3.4/176	16.9/48.1	TSI=66.4
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	42	994	75	<10/24192	26/458	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	42	185	18	<10/2420	<10/96	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						NS	S	NS
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Lead*

Canadian River at Konawa

Sample Record	Times Visited	Station ID
November 1998 - 2012	135	520600010010-001AT

Stream Data

County	Seminole	View Site Data
Location	East of the Town of Konawa on State Highway 377	
Latitude/Longitude	34.93343848, -96.6830356	
Planning Watershed	Central (8-digit HUC - 11090202)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	115	18.0	18.5	0.7/34.8	11/26.6	
	Turbidity (NTU)	114	173	41	1/>1000	22/199	
	pH (units)	116	8.27	8.26	7.43/9.15	8.02/8.46	
	Dissolved Oxygen (mg/L)	114	9.77	9.30	4.49/32.28	7.89/11.15	
	Hardness (mg/L)	115	364	355	89/674	267/462	
Minerals	Total Dissolved Solids (mg/L)	52	706	713	294/1160	551/863	54% of values>OWQS
	Specific Conductivity (uS/cm)	115	1076	1103	206/1722	793/1369	
	Chloride (mg/L)	114	122	120	18/282	81/160	
	Sulfate (mg/L)	114	246	227	41/3090	147/276	
Nutrients	Total Phosphorus (mg/L)	123	0.327	0.264	<0.005/1.26	0.175/0.375	
	Total Nitrogen (mg/L)	115	1.83	1.64	0.6/6.55	1.19/2.19	
	Nitrate/Nitrite (mg/L)	116	0.43	0.18	<0.05/3.18	<0.05/0.7	
	Chlorophyll A (mg/m^3)	49	39.2	31.8	5.3/135	17.8/54.6	TSI=66.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	29	915	120	<10/9100	26/500	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	29	433	20	<10/5794	<10/73	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Sampling and Assessment by the **Oklahoma Water Resources Board** – 3800 Classen Blvd, Oklahoma City, OK, 73118 – 405.530.8800 – http://www.owrb.ok.gov

Canadian River at Purcell

Sample Record	Times Visited	Station ID
February 1999 - Current	169	520610010010-001AT

Stream Data

County	McClain	View Site Data
Location	East of the Town of Purcell on State Highway 77	
Latitude/Longitude	35.01433266, -97.35035449	
Planning Watershed	Central (8-digit HUC - 11090202)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	135	17.3	18.6	-2.3/34.1	10.7/24.7	
	Turbidity (NTU)	134	135	35	4/>1000	14/138	
	pH (units)	135	8.34	8.25	7.36/9.85	8.06/8.56	
	Dissolved Oxygen (mg/L)	135	10.45	10.19	4.21/26.87	8.17/12.33	
	Hardness (mg/L)	137	421	428	74/990	296/538	
Minerals	Total Dissolved Solids (mg/L)	73	797	774	285/1804	619/989	
	Specific Conductivity (uS/cm)	136	1236	1245	303/2215	893/1597	
	Chloride (mg/L)	138	137	127	20/419	85/185	
	Sulfate (mg/L)	138	275	271	41/972	181/341	
Nutrients	Total Phosphorus (mg/L)	146	0.542	0.422	0.011/2.765	0.27/0.631	
	Total Nitrogen (mg/L)	139	2.95	2.62	0.56/11.87	1.87/3.49	
	Nitrate/Nitrite (mg/L)	140	1.19	0.87	<0.05/9.69	0.25/1.41	
	Chlorophyll A (mg/m^3)	78	55.1	33.7	0.5/211	10.5/93.6	TSI=69.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	30	2480	322	<10/31700	83/1296	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	30	1028	36	<10/19863	12/563	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						U	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Canadian River at Taloga

Sample Record	Times Visited	Station ID
November 1998 - 2012	106	520620020010-001AT

Stream Data

County	Dewey	View Site Data
Location	North of the Town of Taloga on State Highway 183	
Latitude/Longitude	36.05419703, -98.96894778	
Planning Watershed	West-Central (8-digit HUC - 11090201)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	93	15.2	15.9	-0.5/32.6	7.5/22.9	
	Turbidity (NTU)	99	46	17	2/>1000	10/36	
	pH (units)	93	8.08	8.08	7.36/8.7	7.94/8.25	
	Dissolved Oxygen (mg/L)	93	10.24	9.50	1.13/21.02	8.22/11.95	
	Hardness (mg/L)	94	709	678	58/1425	560/793	
Minerals	Total Dissolved Solids (mg/L)	45	1608	1540	615/3410	1420/1748	
	Specific Conductivity (uS/cm)	96	2337	2400	711/4187	2102/2595	
	Chloride (mg/L)	94	371	388	66/749	294/445	19% of values>OWQS
	Sulfate (mg/L)	95	550	462	141/1681	382/590	
Nutrients	Total Phosphorus (mg/L)	99	0.071	0.032	<0.005/1.89	0.019/0.056	
	Total Nitrogen (mg/L)	94	0.87	0.70	0.2/5.29	0.48/0.9	
	Nitrate/Nitrite (mg/L)	95	0.29	0.13	<0.05/2.82	<0.05/0.3	
	Chlorophyll A (mg/m^3)	0	0.0	0.0	0/0	0/0	No Data
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	17	307.6	50.0	<10/3000	<10/350	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	17	42.1	20.0	<10/253	<10/36	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		NS	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Canadian River at Whitefield

Sample Record	Times Visited	Station ID
September 1999 - Current	149	220300000010-001AT

Stream Data

County	Haskell	View Site Data
Location	North of the Town of Whitefield on State Highway 2	
Latitude/Longitude	35.26306098, -95.23915454	
Planning Watershed	Lower Arkansas (8-digit HUC - 11090204)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	128	18.1	20.0	1.3/33	11.6/24.1	
	Turbidity (NTU)	130	22	6	1/812	4/18	
	pH (units)	127	7.92	7.94	6.39/8.68	7.72/8.17	
	Dissolved Oxygen (mg/L)	127	8.94	8.77	2.25/18.95	6.98/10.64	
	Hardness (mg/L)	128	149	145	43/317	128/163	
Minerals	Total Dissolved Solids (mg/L)	62	230	219	169/480	201/246	
	Specific Conductivity (uS/cm)	127	427	424	197/720	368/492	
	Chloride (mg/L)	129	42	38	14/74	31/51	
	Sulfate (mg/L)	129	47	47	23/100	37/57	
Nutrients	Total Phosphorus (mg/L)	131	0.062	0.046	<0.005/0.95	0.028/0.073	
	Total Nitrogen (mg/L)	130	0.64	0.61	0.21/1.4	0.47/0.8	
	Nitrate/Nitrite (mg/L)	131	0.18	0.15	<0.05/0.56	<0.05/0.26	
	Chlorophyll A (mg/m^3)	55	5.0	4.1	<0.1/28	2.2/5.9	TSI=46.4
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	278	<10	<10/6867	<10/28	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	105	24	<10/1860	<10/65	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						U	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Caney Creek at Barber

Sample Record	Times Visited	Station ID
September 1999 - 2012	145	121700040010-001AT

Stream Data

County	Cherokee	View Site Data
Location	North of the Town of Barber off State Highway 100	
Latitude/Longitude	35.72381643, -94.85787184	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	99	18.1	17.6	4.1/29.3	13/23.3	
	Turbidity (NTU)	100	4	2	1/103	1/3	
	pH (units)	97	7.77	7.76	6.46/9.06	7.56/8.02	
	Dissolved Oxygen (mg/L)	99	9.66	9.42	3.94/15.6	8.29/11.12	
	Hardness (mg/L)	99	109	109	64/174	98/120	
Minerals	Total Dissolved Solids (mg/L)	12	149	143	116/237	133/157	
	Specific Conductivity (uS/cm)	99	219	218	123/391	200/243	
	Chloride (mg/L)	90	9	10	<5/37	<5/10	
	Sulfate (mg/L)	90	9	10	<5/33	7/10	
Nutrients	Total Phosphorus (mg/L)	105	0.060	0.037	<0.005/1.532	0.03/0.047	
	Total Nitrogen (mg/L)	104	1.14	1.05	0.18/7.06	0.71/1.41	
	Nitrate/Nitrite (mg/L)	105	0.99	0.91	0.06/6.68	0.55/1.26	
	Chlorophyll A (mg/m^3)	53	1.3	0.8	<0.1/12.1	0.5/1.2	TSI=32.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	46	94	20	<10/1408	<10/52	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	46	124	15	<10/2382	<10/41	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chloride	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	NS	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Caney River at Ramona

Sample Record	Times Visited	Station ID
December 1998 - Current	166	121400010010-001AT

Stream Data

County	Washington	View Site Data
Location	Southeast of the Town of Ramona on County Road E0350	
Latitude/Longitude	36.50889974, -95.84265966	
Planning Watershed	Middle Arkansas (8-digit HUC - 11070106)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	136	17.4	18.0	0.8/35.1	10.2/24.9	
	Turbidity (NTU)	139	106	57	6/>1000	28/111	13% of values>OWQS
	pH (units)	136	7.84	7.82	6.65/9.09	7.63/8.03	
	Dissolved Oxygen (mg/L)	136	9.09	8.60	3.46/18.08	7.13/11.09	
	Hardness (mg/L)	137	150	154	<10/358	119/174	
Minerals	Total Dissolved Solids (mg/L)	37	216	220	20/350	155/289	
	Specific Conductivity (uS/cm)	135	375	356	38/989	280/478	
	Chloride (mg/L)	102	39	25	<5/377	14/52	
	Sulfate (mg/L)	102	31	27	<5/112	19/38	
Nutrients	Total Phosphorus (mg/L)	141	0.152	0.121	<0.005/0.726	0.08/0.187	
	Total Nitrogen (mg/L)	140	1.22	1.01	0.26/4.36	0.77/1.33	
	Nitrate/Nitrite (mg/L)	141	0.40	0.28	<0.05/2.9	0.09/0.45	
	Chlorophyll A (mg/m^3)	73	23.7	12.2	0.5/268	6.7/26.3	TSI=61.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	41	2300	41	<10/87000	20/174	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	41	254	52	<10/5475	<10/108	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish & Wildlife Propagation not supporting for Lead*

Chikaskia River at Blackwell

Sample Record	Times Visited	Station ID
December 1998 - Current	160	621100000010-001AT

Stream Data

County	Kay	View Site Data
Location	East of the Town of Blackwell on State Highway 177	
Latitude/Longitude	36.81155311, -97.27808293	
Planning Watershed	Upper Arkansas (8-digit HUC - 11060005)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	138	16.7	17.0	-0.9/34	9.3/25.7	
	Turbidity (NTU)	139	121	43	6/>1000	23/94	22% of values>OWQS
	pH (units)	136	8.03	8.05	6.24/9.29	7.84/8.25	
	Dissolved Oxygen (mg/L)	138	10.74	9.59	2.53/48.86	8.24/12.44	
	Hardness (mg/L)	137	367	324	80/3720	238/398	
Minerals	Total Dissolved Solids (mg/L)	72	691	572	195/3840	487/681	
	Specific Conductivity (uS/cm)	138	1003	913	33/6238	685/1115	
	Chloride (mg/L)	137	154	117	12/1970	71/160	
	Sulfate (mg/L)	137	119	105	30/765	83/131	
Nutrients	Total Phosphorus (mg/L)	145	0.202	0.151	0.013/1.24	0.093/0.258	
	Total Nitrogen (mg/L)	136	1.81	1.75	0.48/6.63	1.23/2.28	
	Nitrate/Nitrite (mg/L)	137	0.95	0.84	<0.05/3.09	0.3/1.37	
	Chlorophyll A (mg/m^3)	76	19.8	12.0	<0.1/138	4.7/28.8	TSI=59.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	31	5746	140	20/147000	52/1600	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	31	350	20	<10/3968	<10/250	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Chikaskia River at Tonkawa

Sample Record	Times Visited	Station ID
March 2013 - Current	36	621100000010-002RS

Stream Data

County	Kay	View Site Data
Location	Northeast of the Town of Tonkawa off State Highway 60	
Latitude/Longitude	36.637358, -97.23295	
Planning Watershed	Upper Arkansas (8-digit HUC - 11060005)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	27	17.0	18.0	0/28.5	10.2/25.8	
	Turbidity (NTU)	28	79	36	6/576	13/99	27% of values>OWQS
	pH (units)	27	8.05	8.07	6.79/8.62	7.92/8.31	
	Dissolved Oxygen (mg/L)	27	9.94	9.12	3.7/14.7	7.87/12.16	
	Hardness (mg/L)	25	356	390	89/536	266/458	
Minerals	Total Dissolved Solids (mg/L)	20	593	601	237/886	471/690	
	Specific Conductivity (uS/cm)	26	1106	1030	250/4588	753/1183	
	Chloride (mg/L)	20	131	139	15/238	81/167	
	Sulfate (mg/L)	20	139	138	63/257	99/163	
Nutrients	Total Phosphorus (mg/L)	20	0.178	0.151	0.027/0.664	0.062/0.266	
	Total Nitrogen (mg/L)	20	1.42	1.32	0.68/3.71	0.97/1.7	
	Nitrate/Nitrite (mg/L)	20	0.39	0.21	<0.05/1.08	<0.05/0.76	
	Chlorophyll A (mg/m^3)	20	32.5	32.4	3.2/111	16.1/42	TSI=64.8
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	3	836	58	31/2420	31/2420	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	3	154	<10	<10/461	<10/461	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	NEI	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NEI			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Cimarron River at Ames

Sample Record	Times Visited	Station ID
March 2003 - Current	118	620910020010-004RS

Stream Data

County	Major	View Site Data
Location	West of the Town of Ames off State Highway 8	
Latitude/Longitude	36.27979304, -98.31895336	
Planning Watershed	Central (8-digit HUC - 11050002)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	95	17.8	18.9	-0.9/39.2	9.6/25.6	
	Turbidity (NTU)	98	40	7	1/>1000	4/18	
	pH (units)	95	8.07	8.08	7.4/8.57	7.96/8.19	
	Dissolved Oxygen (mg/L)	95	10.51	10.50	5.07/21.06	8.86/11.89	
	Hardness (mg/L)	96	1014	1027	422/1815	776/1219	
Minerals	Total Dissolved Solids (mg/L)	53	9831	8960	2050/21700	6325/12600	52% of values>OWQS
	Specific Conductivity (uS/cm)	95	16240	14826	3765/36987	10220/22359	
	Chloride (mg/L)	95	5300	4460	181/13700	3000/7620	39% of values>OWQS
	Sulfate (mg/L)	95	806	805	300/3210	636/912	32% of values>OWQS
Nutrients	Total Phosphorus (mg/L)	95	0.054	0.028	<0.005/0.705	0.018/0.045	
	Total Nitrogen (mg/L)	95	0.99	0.93	0.45/2.69	0.72/1.19	
	Nitrate/Nitrite (mg/L)	95	0.33	0.24	<0.05/1.13	<0.05/0.43	
	Chlorophyll A (mg/m^3)	59	15.1	11.1	1.2/64.9	6.5/20	TSI=57.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	29	199	50	<10/1203	<10/200	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	29	902	512	20/3255	178/1349	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						NS	S	S
Aesthetics												S
Agriculture					NS		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Selenium

Cimarron River at Buffalo

Sample Record	Times Visited	Station ID
November 1998 - 2012	123	620920030010-001AT

Stream Data

County	Woods	View Site Data
Location	East of the Town of Buffalo on State Highway 34	
Latitude/Longitude	36.85209062, -99.31622871	
Planning Watershed	Panhandle (8-digit HUC - 11050001)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	110	18.1	17.9	-1/36.2	9.8/26.5	
	Turbidity (NTU)	112	23	8	2/715	4/18	
	pH (units)	109	8.06	8.10	7.17/8.7	7.89/8.26	
	Dissolved Oxygen (mg/L)	107	9.76	9.30	0.67/23.17	8.01/11.43	
	Hardness (mg/L)	109	1002	800	119/7000	640/1236	
Minerals	Total Dissolved Solids (mg/L)	49	10596	6060	1746/40000	4129/12750	16% of values>OWQS
	Specific Conductivity (uS/cm)	110	15831	12466	2030/61252	7713/19014	
	Chloride (mg/L)	110	5073	3890	630/24100	2220/5956	20% of values>OWQS
	Sulfate (mg/L)	110	613	498	196/1620	366/790	
Nutrients	Total Phosphorus (mg/L)	110	0.080	0.054	<0.005/0.392	0.035/0.096	
	Total Nitrogen (mg/L)	109	0.77	0.63	0.23/2.59	0.46/0.97	
	Nitrate/Nitrite (mg/L)	110	0.20	<0.05	<0.05/1.85	<0.05/0.21	
	Chlorophyll A (mg/m^3)	0	0.0	0.0	0/0	0/0	No Data
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	22	1160	155	<10/11000	38/1500	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	22	5818	4242	<10/24199	414/7817	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						NS	NS	NS
Aesthetics												S
Agriculture					S		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Cimarron River at Dover

Sample Record	Times Visited	Station ID
December 1998 - 2012	138	620910020010-001AT

Stream Data

County	Kingfisher	View Site Data
Location	South of the Town of Dover on US 81	
Latitude/Longitude	35.95153084, -97.91407037	
Planning Watershed	Central (8-digit HUC -11050002)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	117	17.7	17.5	-0.3/37.7	9.7/25.3	
	Turbidity (NTU)	121	135	20	3/>1000	11/84	
	pH (units)	117	8.04	8.08	7/8.56	7.91/8.2	
	Dissolved Oxygen (mg/L)	116	10.09	9.78	4.73/20.53	8.27/11.89	
	Hardness (mg/L)	119	833	836	100/2160	632/997	
Minerals	Total Dissolved Solids (mg/L)	52	6130	6244	305/12300	3699/8555	
	Specific Conductivity (uS/cm)	117	11376	11352	134/28860	7765/14832	
	Chloride (mg/L)	118	3462	2949	47/10300	2165/4785	
	Sulfate (mg/L)	119	612	639	96/1025	489/741	
Nutrients	Total Phosphorus (mg/L)	119	0.195	0.084	<0.005/2.35	0.051/0.197	
	Total Nitrogen (mg/L)	118	1.27	1.09	0.53/5.72	0.81/1.47	
	Nitrate/Nitrite (mg/L)	119	0.43	0.29	<0.05/1.73	0.09/0.71	
	Chlorophyll A (mg/m^3)	37	19.2	18.7	1.3/46.5	5.6/31.3	TSI=59.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	27	4634	60	<10/87000	<10/600	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	27	1390	487	<10/9208	183/1483	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						U	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Selenium
U = Assessment yielded undetermined supporting status

Cimarron River at Guthrie

Sample Record	Times Visited	Station ID
December 1998 - Current	165	620910010010-001AT

Stream Data

County	Logan	View Site Data
Location	North of the Town of Guthrie on US 77	
Latitude/Longitude	35.91981845, -97.4257038	
Planning Watershed	Central (8-digit HUC -11050002)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	141	17.6	17.4	-1.1/37.3	9.5/25	
	Turbidity (NTU)	143	146	34	6/>1000	16/100	13% of values>OWQS
	pH (units)	141	8.13	8.13	7.06/9.72	7.91/8.31	
	Dissolved Oxygen (mg/L)	140	9.95	9.81	4.55/18.09	8.08/11.75	
	Hardness (mg/L)	140	648	620	196/1890	493/781	
Minerals	Total Dissolved Solids (mg/L)	74	4135	4155	1108/9510	2797/5183	
	Specific Conductivity (uS/cm)	139	8012	7630	863/19499	5482/10032	
	Chloride (mg/L)	142	2196	2132	91/6500	1418/2645	
	Sulfate (mg/L)	141	443	450	115/851	328/556	
Nutrients	Total Phosphorus (mg/L)	142	0.392	0.315	0.029/1.58	0.222/0.496	
	Total Nitrogen (mg/L)	141	2.11	1.82	0.58/6.4	1.48/2.38	
	Nitrate/Nitrite (mg/L)	142	1.07	0.80	<0.05/4.99	0.49/1.42	
	Chlorophyll A (mg/m^3)	78	27.9	26.0	2.3/86.2	13.5/41.1	TSI=63.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	1487	124	<10/18000	43/1397	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	321	115	<10/2415	51/437	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						U	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Cimarron River at Mocane

Sample Record	Times Visited	Station ID
October 1999 - Current	147	620930000010-001AT

Stream Data

County	Beaver	View Site Data
Location	North of the Town of Mocane off of US 64	
Latitude/Longitude	36.97516467, -100.3141738	
Planning Watershed	Panhandle (8-digit HUC -11040006)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	129	18.3	18.2	-0.6/34.9	11.2/25.5	
	Turbidity (NTU)	131	27	14	3/>1000	6/25	
	pH (units)	123	8.33	8.34	7.64/9.4	8.15/8.51	
	Dissolved Oxygen (mg/L)	129	10.17	9.71	5.25/21.82	8.58/11.39	
	Hardness (mg/L)	129	469	463	47/840	411/530	
Minerals	Total Dissolved Solids (mg/L)	68	2781	2695	2224/3610	2563/3018	
	Specific Conductivity (uS/cm)	129	4515	4480	405/8438	4235/4828	
	Chloride (mg/L)	125	1361	1330	184/2347	1200/1545	
	Sulfate (mg/L)	126	206	202	96/339	191/223	
Nutrients	Total Phosphorus (mg/L)	127	0.338	0.266	<0.005/1.32	0.096/0.51	
	Total Nitrogen (mg/L)	127	1.76	1.39	<0.05/6.1	0.75/2.51	
	Nitrate/Nitrite (mg/L)	127	0.99	0.37	<0.05/5.48	<0.05/1.63	
	Chlorophyll A (mg/m^3)	42	33.2	10.0	1.6/441	6.6/21.1	TSI=65.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	31	765	110	<10/9000	40/500	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	31	225	97	<10/1986	31/173	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	NS	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes *Fish & Wildlife Propagation not supporting for Selenium*

Cimarron River at Oilton

Sample Record	Times Visited	Station ID
December 1998 - 2012	136	620900010170-001AT

Stream Data

County	Creek	View Site Data
Location	North of the Town of Oilton off State Highway 99	
Latitude/Longitude	36.09442186, -96.5787792	
Planning Watershed	Upper Arkansas (8-digit HUC - 11050003)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	121	17.7	17.4	-0.9/35.3	9.2/26.1	
	Turbidity (NTU)	120	207	55	4/>1000	25/159	35% of values>OWQS
	pH (units)	120	8.22	8.23	7.11/9.31	7.95/8.5	13% of values>OWQS
	Dissolved Oxygen (mg/L)	121	9.81	9.13	0.72/24.36	7.25/11.8	
	Hardness (mg/L)	119	481	498	34/1300	330/594	
Minerals	Total Dissolved Solids (mg/L)	52	2820	2757	10/13654	1680/3585	
	Specific Conductivity (uS/cm)	121	5093	5009	518/16339	2842/6990	
	Chloride (mg/L)	116	1464	1353	115/5600	848/1993	
	Sulfate (mg/L)	118	317	305	86/681	216/406	
Nutrients	Total Phosphorus (mg/L)	119	0.365	0.268	<0.005/1.78	0.176/0.455	
	Total Nitrogen (mg/L)	117	1.96	1.67	0.49/5.7	1.29/2.39	
	Nitrate/Nitrite (mg/L)	119	0.46	0.29	<0.05/1.86	<0.05/0.85	
	Chlorophyll A (mg/m^3)	36	47.0	31.9	0.1/304	15.4/58.5	TSI=68.4
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	738	86	<10/6000	30/421	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	162	20	<10/2014	<10/97	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	NS	S	S						NS	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Lead*

Cimarron River at Ripley

Sample Record	Times Visited	Station ID
October 2000 - Current	147	620900030010-001AT

Stream Data

County	Payne	View Site Data
Location	South of the Town of Ripley on State Highway 33	
Latitude/Longitude	35.98570275, -96.91305015	
Planning Watershed	Upper Arkansas (8-digit HUC - 11050003)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	120	17.5	18.3	-1/35.5	8.6/25.5	
	Turbidity (NTU)	121	186	38	5/>1000	14/145	
	pH (units)	119	8.23	8.23	7.15/9.18	7.9/8.53	
	Dissolved Oxygen (mg/L)	120	10.14	9.73	4.16/19.26	7.76/12.06	
	Hardness (mg/L)	121	518	521	142/1050	400/635	
Minerals	Total Dissolved Solids (mg/L)	56	3448	3595	470/7500	2073/4638	
	Specific Conductivity (uS/cm)	120	5959	5752	465/13560	3688/8045	
	Chloride (mg/L)	120	1775	1765	168/4490	1091/2315	
	Sulfate (mg/L)	119	334	322	61/660	248/424	
Nutrients	Total Phosphorus (mg/L)	120	0.375	0.299	0.112/1.37	0.203/0.449	
	Total Nitrogen (mg/L)	119	1.99	1.70	0.83/6.62	1.38/2.25	
	Nitrate/Nitrite (mg/L)	120	0.53	0.31	<0.05/4.96	<0.05/0.92	
	Chlorophyll A (mg/m^3)	61	60.7	43.7	0.7/474	17.3/83	TSI=70.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	37	536	108	<10/4000	25/400	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	37	323	31	<10/3654	<10/178	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Lead*

Cimarron River at Waynoka

Sample Record	Times Visited	Station ID
March 2003 - Current	95	620920020010-001RS

Stream Data

County	Woods	View Site Data
Location	South of the Town of Waynoka on State Highway 281	
Latitude/Longitude	36.516709, -98.87990179	
Planning Watershed	Central (8-digit HUC - 11050001)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	79	18.9	18.7	-1.5/37.4	11.9/26.3	
In-Situ	Turbidity (NTU)	80	37	5	1/>1000	3/13	
In-Situ	pH (units)	77	7.91	7.92	7.28/8.35	7.8/8.06	
In-Situ	Dissolved Oxygen (mg/L)	78	8.86	8.52	3.7/13.52	7.77/9.78	
In-Situ	Hardness (mg/L)	79	1600	1440	162/9160	1136/1750	
Minerals	Total Dissolved Solids (mg/L)	46	26840	25450	8450/55400	17850/35125	92% of values>OWQS
Minerals	Specific Conductivity (uS/cm)	79	37153	35228	7575/74949	26376/46716	
Minerals	Chloride (mg/L)	80	13148	12100	804/31900	7808/17475	92% of values>OWQS
Minerals	Sulfate (mg/L)	80	1079	1070	426/1760	869/1280	
Nutrients	Total Phosphorus (mg/L)	79	0.047	0.030	<0.005/0.625	0.013/0.039	
Nutrients	Total Nitrogen (mg/L)	80	0.63	0.56	0.25/1.99	0.45/0.7	
Nutrients	Nitrate/Nitrite (mg/L)	80	0.08	<0.05	<0.05/0.99	<0.05/0.05	
Nutrients	Chlorophyll A (mg/m^3)	38	6.9	4.6	0.9/26.7	2.6/9.3	TSI=49.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	17	197	41	<10/1300	<10/104	Mean>OWQS
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	17	1498	1011	52/7270	500/2071	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						NS	S	S
Aesthetics												S
Agriculture					S		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				NS								

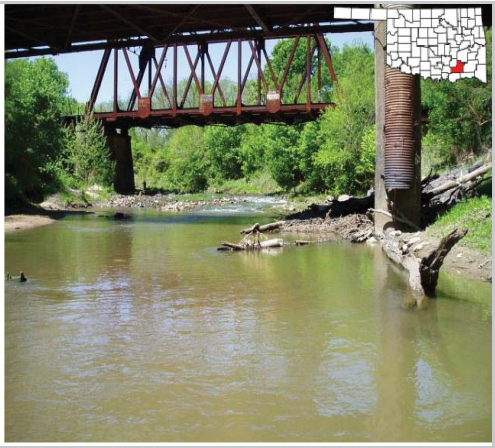
S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Selenium
Fish Consumption not supporting for Mercury

Clear Boggy Creek at Caney

Sample Record	Times Visited	Station ID
November 1998 - Current	166	410400030010-001AT



Stream Data

County	Atoka	View Site Data
Location	North of the Town of Caney on US 69	
Latitude/Longitude	34.25148276, -96.2052689	
Planning Watershed	Blue-Boggy (8-digit HUC -11140104)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	139	18.1	18.0	1/31.8	12/25.6	
	Turbidity (NTU)	141	93	43	4/>1000	18/86	
	pH (units)	138	7.92	7.94	6.48/9.32	7.74/8.13	
	Dissolved Oxygen (mg/L)	139	8.71	8.32	4.73/22.11	6.93/9.93	
	Hardness (mg/L)	140	203	205	<10/323	165/251	
Minerals	Total Dissolved Solids (mg/L)	38	257	257	8/366	220/319	
	Specific Conductivity (uS/cm)	138	452	452	117/1154	334/556	
	Chloride (mg/L)	103	28	22	<5/233	13/36	
	Sulfate (mg/L)	103	30	28	<5/101	23/34	
Nutrients	Total Phosphorus (mg/L)	141	0.161	0.097	<0.005/1.081	0.058/0.163	
	Total Nitrogen (mg/L)	139	0.77	0.59	<0.05/3.39	0.4/0.98	
	Nitrate/Nitrite (mg/L)	139	0.13	<0.05	<0.05/1.19	<0.05/0.16	
	Chlorophyll A (mg/m^3)	23	5.4	3.8	0.9/18.2	1.8/7.9	TSI=47.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	33	758	130	<10/5000	25/1042	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	33	335	72	<10/2420	16/389	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	S	NS
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Lead

Cow Creek at Waurika

Sample Record	Times Visited	Station ID
December 1998 - Current	67	311200000060-001AT

Stream Data

County	Jefferson	View Site Data
Location	North of Waurika off State Highway 81	
Latitude/Longitude	34.169208, -98.004862	
Planning Watershed	Northern Beaver (8-digit HUC - 11130208)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	60	18.4	18.9	3.6/31.5	11.1/26.9	
	Turbidity (NTU)	61	119	59	20/736	43/121	36% of values>OWQS
	pH (units)	60	8.03	8.04	7.35/9.06	7.79/8.29	
	Dissolved Oxygen (mg/L)	60	7.78	7.28	2.63/12.79	5.94/9.52	
	Hardness (mg/L)	63	276	272	62/556	196/352	
Minerals	Total Dissolved Solids (mg/L)	41	486	527	136/1066	299/635	
	Specific Conductivity (uS/cm)	60	869	838	157/1820	520/1154	
	Chloride (mg/L)	62	114	93	12/1145	41/129	
	Sulfate (mg/L)	62	96	86	24/521	56/115	
Nutrients	Total Phosphorus (mg/L)	62	0.896	0.557	0.212/5.553	0.371/1.263	
	Total Nitrogen (mg/L)	62	3.85	2.06	0.68/16.96	1.44/4.8	
	Nitrate/Nitrite (mg/L)	62	2.67	0.89	<0.05/15.5	0.41/3.48	
	Chlorophyll A (mg/m^3)	22	16.1	13.5	0.8/62.6	1.6/25.2	TSI=57.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	10	1638	380	130/8000	198/1866	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	10	329	115	20/1733	49/343	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						NEI	NEI	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NEI			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Deep Fork River at Beggs

Sample Record	Times Visited	Station ID
November 1998 - Current	162	520700020010-001AT

Stream Data

County	Okmulgee	View Site Data
Location	South of the Town of Beggs off State Highway 16	
Latitude/Longitude	35.67424336, -96.06876654	
Planning Watershed	Eufaula (8-digit HUC -11100303)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	133	17.7	18.0	0.7/33	9.9/25	
	Turbidity (NTU)	134	173	87	7/>1000	48/219	37% of values>OWQS
	pH (units)	134	7.84	7.84	6.82/9.06	7.62/8.03	
	Dissolved Oxygen (mg/L)	133	8.38	7.85	3.73/17.19	6.33/10.23	
	Hardness (mg/L)	131	227	210	27/1500	155/279	
Minerals	Total Dissolved Solids (mg/L)	76	368	350	50/765	268/475	
	Specific Conductivity (uS/cm)	133	672	615	90/1469	426/905	
	Chloride (mg/L)	136	97	88	<5/273	49/136	
	Sulfate (mg/L)	136	46	42	10/129	33/58	
Nutrients	Total Phosphorus (mg/L)	135	0.179	0.156	0.014/0.79	0.099/0.223	
	Total Nitrogen (mg/L)	135	1.16	0.97	<0.05/3.53	0.72/1.49	
	Nitrate/Nitrite (mg/L)	136	0.29	0.23	<0.05/2.87	<0.05/0.4	
	Chlorophyll A (mg/m^3)	36	22.2	11.2	2.2/138	7.1/19.2	TSI=61.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	35	3727	145	<10/113000	41/520	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	35	612	41	<10/14136	<10/197	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						NS	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Deep Fork River at Stroud

Sample Record	Times Visited	Station ID
November 1998 – December 2012	136	520700040010-001AT

Stream Data

County	Lincoln	View Site Data
Location	South of the Town of Stroud on US 377	
Latitude/Longitude	35.68609365, -96.6622792	
Planning Watershed	Central (8-digit HUC -11100303)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	110	17.8	18.0	-0.3/39.3	11/24.7	
	Turbidity (NTU)	108	165	28	4/>1000	14/195	
	pH (units)	110	8.21	8.24	7.02/9.65	8.04/8.47	
	Dissolved Oxygen (mg/L)	110	9.15	9.12	4.5/14.65	7.63/10.26	
	Hardness (mg/L)	110	263	284	63/541	196/320	
Minerals	Total Dissolved Solids (mg/L)	54	456	504	128/922	326/554	
	Specific Conductivity (uS/cm)	110	803	838	18/1990	549/1015	
	Chloride (mg/L)	114	111	108	10/500	54/145	
	Sulfate (mg/L)	114	54	47	19/174	36/60	
Nutrients	Total Phosphorus (mg/L)	122	0.295	0.215	0.017/1.767	0.15/0.35	
	Total Nitrogen (mg/L)	113	1.23	1.03	0.32/4.63	0.65/1.59	
	Nitrate/Nitrite (mg/L)	114	0.37	0.24	<0.05/2.73	<0.05/0.47	
	Chlorophyll A (mg/m^3)	16	11.0	8.9	1.4/35	2.2/14.9	TSI=54.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	818	283	<10/6131	89/990	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	202	63	<10/1785	20/239	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Deep Red Creek at Randlett

Sample Record	Times Visited	Station ID
January 2013 - Current	18	311310030010-001AT

Stream Data

County	Cotton	View Site Data
Location	North of the Town of Randlett on US 277	
Latitude/Longitude	34.220833, -98.452778	
Planning Watershed	West Cache (8-digit HUC -11130203)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	12	19.1	19.4	4.9/29.5	14.4/26.3	
	Turbidity (NTU)	12	254	201	28/825	98/273	91% of values>OWQS
	pH (units)	12	8.22	8.25	7.66/8.87	7.97/8.41	
	Dissolved Oxygen (mg/L)	12	7.45	8.25	3.6/10.7	5.05/9.39	
	Hardness (mg/L)	12	162	153	75/274	129/186	
Minerals	Total Dissolved Solids (mg/L)	12	351	290	240/751	272/314	100% of values>OWQS
	Specific Conductivity (uS/cm)	12	510	414	249/1348	354/550	
	Chloride (mg/L)	12	66	34	16/261	24/59	
	Sulfate (mg/L)	12	60	56	27/96	35/86	
Nutrients	Total Phosphorus (mg/L)	12	0.251	0.191	<0.05/0.55	0.122/0.409	
	Total Nitrogen (mg/L)	12	1.82	1.56	0.89/2.85	1.43/2.43	
	Nitrate/Nitrite (mg/L)	12	0.22	0.13	<0.05/0.64	<0.05/0.41	
	Chlorophyll A (mg/m^3)	12	21.5	22.6	3.4/42.9	7.4/32.1	TSI=60.7
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	5	1396	727	687/2420	707/2420	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	5	672	148	129/2420	139/1468	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	NS				
Primary Body Contact Recreation									NEI			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

East Cache Creek at Walters

Sample Record	Times Visited	Station ID
November 1998 - Current	160	311300010020-001AT

Stream Data

County	Cotton	View Site Data
Location	East of the Town of Walters on State Highway 53	
Latitude/Longitude	34.36188194, -98.28233417	
Planning Watershed	Beaver-Cache (8-digit HUC -11130202)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	137	18.1	18.6	2.1/35.4	11.2/26.1	
In-Situ	Turbidity (NTU)	138	84	53	5/809	28/89	36% of values>OWQS
In-Situ	pH (units)	136	7.91	7.88	7.37/8.64	7.71/8.09	
In-Situ	Dissolved Oxygen (mg/L)	137	8.33	7.70	3.39/16.1	6.52/10.16	
In-Situ	Hardness (mg/L)	138	220	205	95/638	175/249	
Minerals	Total Dissolved Solids (mg/L)	77	470	451	154/916	370/575	
Minerals	Specific Conductivity (uS/cm)	136	748	748	160/1893	586/875	
Minerals	Chloride (mg/L)	142	74	76	<5/194	45/93	
Minerals	Sulfate (mg/L)	142	93	88	31/326	67/106	
Nutrients	Total Phosphorus (mg/L)	142	1.021	0.939	0.047/3.58	0.46/1.45	
Nutrients	Total Nitrogen (mg/L)	142	4.16	3.80	0.68/11.8	1.89/5.56	
Nutrients	Nitrate/Nitrite (mg/L)	142	2.86	2.48	<0.05/9.93	0.89/4.17	
Nutrients	Chlorophyll A (mg/m^3)	36	14.3	7.2	1/77.7	3.4/16.4	TSI=56.7
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	30	2260	519	109/43000	230/1109	Mean>OWQS
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	30	332	121	<10/4352	71/292	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Selenium

Elk River at Tiff City (MO)

Sample Record	Times Visited	Station ID
May 1999 – December 2012	138	121600030440-001AT

Stream Data

County	McDonald	View Site Data
Location	Southeast of the Town of Tiff City (MO) on SH 43	
Latitude/Longitude	36.6314, -94.5867	
Planning Watershed	Grand (8-digit HUC -11070208)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	114	17.5	17.0	4.1/32.9	11.2/24	
	Turbidity (NTU)	114	4	2	1/26	2/4	
	pH (units)	113	7.95	7.91	6.64/8.89	7.74/8.18	
	Dissolved Oxygen (mg/L)	114	9.63	9.58	0.02/19.55	7.68/11.25	
	Hardness (mg/L)	113	139	139	15/240	127/153	
Minerals	Total Dissolved Solids (mg/L)	20	177	172	158/261	164/181	
	Specific Conductivity (uS/cm)	113	292	285	3/790	261/316	
	Chloride (mg/L)	100	10	10	<5/19	7/10	
	Sulfate (mg/L)	100	10	10	<5/23	7/11	
Nutrients	Total Phosphorus (mg/L)	114	0.101	0.056	<0.005/0.559	0.031/0.122	
	Total Nitrogen (mg/L)	113	1.80	1.77	0.23/4.52	1.13/2.26	
	Nitrate/Nitrite (mg/L)	114	1.59	1.58	<0.05/4.28	0.94/2.06	
	Chlorophyll A (mg/m^3)	58	2.5	1.2	<0.1/37.4	0.6/2	TSI=39.7
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	32	113	46	<10/1300	<10/91	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	32	80	26	<10/563	<10/52	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Elk Creek at Roosevelt

Sample Record	Times Visited	Station ID
March 2006 - Current	120	311500030010-002AT

Stream Data

County	Kiowa	View Site Data
Location	West of the Town of Roosevelt off State Highway 19	
Latitude/Longitude	34.91426897, -99.1137584	
Planning Watershed	Southwest (8-digit HUC -11120303)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	98	17.6	18.9	-0.7/31.1	9.3/25.5	
	Turbidity (NTU)	102	111	39	3/>1000	20/72	43% of values>OWQS
	pH (units)	97	8.17	8.20	7.45/8.55	8.08/8.31	
	Dissolved Oxygen (mg/L)	98	9.59	9.07	3.58/17.43	6.84/12.3	
	Hardness (mg/L)	102	753	738	212/1980	508/941	
Minerals	Total Dissolved Solids (mg/L)	107	1173	1160	200/2960	820/1500	
	Specific Conductivity (uS/cm)	99	1669	1761	375/3098	1242/2055	
	Chloride (mg/L)	109	133	126	24/428	94/158	
	Sulfate (mg/L)	109	491	479	67/1070	290/679	
Nutrients	Total Phosphorus (mg/L)	68	0.139	0.114	<0.005/0.614	0.077/0.167	
	Total Nitrogen (mg/L)	69	1.38	1.25	0.6/2.58	0.99/1.68	
	Nitrate/Nitrite (mg/L)	69	0.32	<0.05	<0.05/1.41	<0.05/0.55	
	Chlorophyll A (mg/m^3)	41	34.9	29.9	0.4/91.7	13.4/45.6	TSI=65.4
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	13	309	63	<10/2420	41/197	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	13	217	62	<10/1733	32/197	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	NS	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish & Wildlife Propagation not supporting for Selenium*

Sampling and Assessment by the **Oklahoma Water Resources Board** – 3800 Classen Blvd, Oklahoma City, OK, 73118 – 405.530.8800 – http://www.owrb.ok.gov

Elm Fork of the Red River at Carl

Sample Record	Times Visited	Station ID
May 2006 - Current	123	311800000010-002RS

Stream Data

County	Harmon	View Site Data
Location	North of the Town of Carl on State Highway 30	
Latitude/Longitude	35.011719, -99.903717	
Planning Watershed	Southwest (8-digit HUC -11120304)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	107	19.9	21.9	-0.9/37.6	11.9/28.5	
	Turbidity (NTU)	111	50	5	1/>1000	3/8	
	pH (units)	106	7.80	7.88	6.8/8.54	7.67/8.02	
	Dissolved Oxygen (mg/L)	108	7.56	7.83	0.91/13.18	5.74/9.42	47% of values<OWQS and 30% of values<alt OWQS
	Hardness (mg/L)	112	4394	3440	856/13670	2609/4943	
Minerals	Total Dissolved Solids (mg/L)	114	53896	28700	900/270000	17875/58275	65% of values>OWQS
	Specific Conductivity (uS/cm)	108	66301	45860	1678/235299	27935/96489	
	Chloride (mg/L)	116	31028	14900	313/181000	7800/33400	100% of values>OWQS
	Sulfate (mg/L)	115	4000	1980	138/231001	1590/2280	48% of values>OWQS
Nutrients	Total Phosphorus (mg/L)	58	0.038	0.007	<0.005/0.945	<0.005/0.018	
	Total Nitrogen (mg/L)	62	1.70	1.45	0.43/4.78	1.11/2.09	
	Nitrate/Nitrite (mg/L)	62	0.32	0.20	<0.05/1.48	0.09/0.45	
	Chlorophyll A (mg/m^3)	25	3.7	2.5	<0.1/21.9	1.6/3.1	TSI=43.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	5	485	<10	<10/2420	<10/1210	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	5	1	<10	<10/<10	<10/<10	Not Enough Samples

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	NS	NS						NS	NS	S
Aesthetics												S
Agriculture					NS		NS	NS				
Primary Body Contact Recreation									NEI			
Public & Private Water Supply				NS		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Selenium
Public & Private Water Supply not supporting for Selenium

Elm Fork of the Red River at Granite

Sample Record	Times Visited	Station ID
June 2004 - Current	137	311800000010-002AT

Stream Data

County	Bryan	View Site Data
Location	South of the city of Granite on State Highway 6	
Latitude/Longitude	34.92637482, -99.50197667	
Planning Watershed	Southwest (8-digit HUC - 11120304)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	114	17.9	18.5	-0.1/35.3	10/25.3	
In-Situ	Turbidity (NTU)	117	87	12	2/>1000	5/28	
In-Situ	pH (units)	114	7.91	7.92	7.2/8.91	7.78/8.02	
In-Situ	Dissolved Oxygen (mg/L)	114	9.12	9.36	2.24/15.84	7.65/10.62	
In-Situ	Hardness (mg/L)	116	2254	2250	240/7140	1803/2650	
Minerals	Total Dissolved Solids (mg/L)	119	13521	12600	890/40500	8230/16300	
Minerals	Specific Conductivity (uS/cm)	114	21378	19929	1413/60705	13510/25796	
Minerals	Chloride (mg/L)	121	6877	6350	192/25700	3280/8630	32% of values>OWQS
Minerals	Sulfate (mg/L)	121	1399	1440	126/2520	1200/1615	
Nutrients	Total Phosphorus (mg/L)	75	0.081	0.025	<0.005/1.7	0.015/0.046	
Nutrients	Total Nitrogen (mg/L)	78	1.19	0.98	0.48/5.42	0.76/1.29	
Nutrients	Nitrate/Nitrite (mg/L)	78	0.31	0.07	<0.05/2.6	<0.05/0.39	
Nutrients	Chlorophyll A (mg/m^3)	50	9.9	5.6	0.5/73.9	2.9/10.4	TSI=53.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	15	803	158	<10/2420	52/2014	Mean>OWQS
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	15	2826	1782	278/15531	733/2495	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						NS	NS	S
Aesthetics												S
Agriculture					S		NS	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NS		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead
Fish & Wildlife Propagation not supporting for Selenium
Public & Private Water Supply not supporting for Selenium

Elm Fork of the Red River at Granite

Sample Record	Times Visited	Station ID
June 2004 - Current	240	311800000010-002AT

Stream Data

County	Bryan	View Site Data
Location	South of the city of Granite on State Highway 6	
Latitude/Longitude	34.92637482, -99.50197667	
Planning Watershed	Southwest (8-digit HUC - 11120304)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	162	18.12	20.29	-0.06/35.29	10.09/25.14	
	Turbidity (NTU)	166	98.6	12.5	1/>1000.0	5/42.8	
	pH (units)	159	7.81	7.85	6.92/8.33	7.68/8	
	Dissolved Oxygen (mg/L)	162	8.94	8.71	2.93/16.2	7.43/10.42	
	Hardness (mg/L)	165	2132.2	2130.0	240/7140	1704.5/2505	
Minerals	Total Dissolved Solids (mg/L)	171	12494.9	12000.0	890/120300	7536/16000	
	Specific Conductivity (uS/cm)	162	19995.4	19119.0	1413/181518	12515.5/25341	
	Chloride (mg/L)	171	5995.6	5920.0	161/16000	2950/7840	90.85% of values>OWQS
	Sulfate (mg/L)	170	1417.6	1460.0	126/2520	1283/1632.5	
Nutrients	Total Phosphorus (mg/L)	123	0.116	0.034	<0.005/4.13	0.02/0.074	
	Total Nitrogen (mg/L)	128	1.151	0.978	0.19/7.1	0.693/1.356	
	Nitrate/Nitrite (mg/L)	129	0.398	0.210	<0.050/2.205	0.055/0.608	
	Chlorophyll A (mg/m^3)	45	6.15	3.99	0.5/45.6	1.76/7.37	TSI=48.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	30	571.2	164.0	<10.0/6000	86/498	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	30	2180.7	1267.0	85/15531	639/2490.5	Mean> OWQS of 126

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						NS	S	S
Aesthetics												S
Agriculture					S		NS	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish consumption not supporting for Thallium
Fish & Wildlife Propagation not supporting for Selenium

Flint Creek at Flint

Sample Record	Times Visited	Station ID
November 1998 - Current	189	121700060010-001AT

Stream Data

County	Delaware	View Site Data
Location	North of the Town of Flint on county road	
Latitude/Longitude	36.1867733, -94.70680493	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	124	16.8	16.4	2.5/28.7	11/22.9	
	Turbidity (NTU)	124	3	1	1/58	1/2	
	pH (units)	123	7.66	7.67	6.44/8.79	7.41/7.89	
	Dissolved Oxygen (mg/L)	124	9.41	9.16	4.97/14.94	7.91/10.72	
	Hardness (mg/L)	126	114	114	<10/218	103/124	
Minerals	Total Dissolved Solids (mg/L)	21	183	159	112/552	148/186	
	Specific Conductivity (uS/cm)	122	292	294	152/452	259/329	
	Chloride (mg/L)	100	15	14	<5/43	10/18	
	Sulfate (mg/L)	100	17	15	<5/69	11/20	
Nutrients	Total Phosphorus (mg/L)	136	0.194	0.162	0.055/1.45	0.131/0.195	See Notes
	Total Nitrogen (mg/L)	130	3.04	2.93	0.97/7.95	2.41/3.64	
	Nitrate/Nitrite (mg/L)	132	2.83	2.72	0.8/7.55	2.16/3.4	
	Chlorophyll A (mg/m^3)	71	1.0	0.7	<0.1/4.2	0.5/1.2	TSI=30.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	65	555	52	<10/18000	12/114	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	65	194	31	<10/4611	<10/74	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment	Total Phosphorus
Fish & Wildlife Propagation	S	S	S	S						S	S	S	
Aesthetics												S	NS
Agriculture					S		S	S					
Primary Body Contact Recreation									NS				
Public & Private Water Supply				S					S				
Fish Consumption				S									

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

100%(79 of 79) of rolling Geo. Mean exceed OWQS criterion of 0.037 ppm

Fourche-Maline Creek at Red Oak

Sample Record	Times Visited	Station ID
November 1998 - Current	170	220100040020-001AT

Stream Data

County	Latimer	View Site Data
Location	S.E. of the Town of Red Oak off US Highway 270	
Latitude/Longitude	34.91232472, -95.15608416	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	140	17.4	18.5	1/31.6	10.1/24	
	Turbidity (NTU)	144	38	29	5/390	18/43	
	pH (units)	141	7.13	7.03	5.77/8.76	6.83/7.47	
	Dissolved Oxygen (mg/L)	140	6.12	6.17	0.84/15.69	3.21/8.53	55% of values<OWQS and 42% of values<alt OWQS
	Hardness (mg/L)	141	52	47	<10/212	33/63	
Minerals	Total Dissolved Solids (mg/L)	36	102	99	50/175	78/123	
	Specific Conductivity (uS/cm)	139	157	133	11/1106	98/196	
	Chloride (mg/L)	101	9	10	<5/22	7/10	
	Sulfate (mg/L)	102	22	21	10/49	15/25	
Nutrients	Total Phosphorus (mg/L)	140	0.083	0.068	<0.005/0.867	0.047/0.091	
	Total Nitrogen (mg/L)	138	0.78	0.75	0.16/1.7	0.54/0.96	
	Nitrate/Nitrite (mg/L)	140	0.15	0.12	<0.05/0.97	<0.05/0.21	
	Chlorophyll A (mg/m^3)	22	7.5	3.0	0.8/34	1.8/10.3	TSI=50.4
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	33	461	80	<10/8000	50/228	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	33	208	74	<10/1986	24/183	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	NS	NS						S	NS	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Lead

Glover River at Glover

Sample Record	Times Visited	Station ID
November 1998 - Current	186	410210080010-001AT

Stream Data

County	McCurtain	View Site Data
Location	West of the Town of Broken Bow on State Highway 3	
Latitude/Longitude	34.09774144, -94.90248786	
Planning Watershed	Southeast (8-digit HUC - 11140107)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	146	19.7	19.9	1.8/35.1	12/27.1	
	Turbidity (NTU)	149	11	7	1/89	4/11	
	pH (units)	146	7.29	7.20	5.07/9.26	7.01/7.5	
	Dissolved Oxygen (mg/L)	146	8.55	8.69	2.52/14.41	7.04/9.9	
	Hardness (mg/L)	147	25	16	<10/231	12/29	
Minerals	Total Dissolved Solids (mg/L)	24	45	44	25/95	34/55	
	Specific Conductivity (uS/cm)	146	56	47	0/437	36/71	
	Chloride (mg/L)	87	8	10	<5/18	<5/10	
	Sulfate (mg/L)	87	9	10	<5/34	6/10	
Nutrients	Total Phosphorus (mg/L)	140	0.029	0.019	<0.005/0.5	0.012/0.029	
	Total Nitrogen (mg/L)	138	0.46	0.39	<0.05/1.92	0.28/0.56	
	Nitrate/Nitrite (mg/L)	138	0.16	<0.05	<0.05/1.42	<0.05/0.2	
	Chlorophyll A (mg/m^3)	74	2.1	1.9	<0.1/8.7	0.8/2.8	TSI=38.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	43	52	20	<10/400	<10/63	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	43	39	18	<10/354	<10/31	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Silver and Lead

Honey Creek at Grove

Sample Record	Times Visited	Station ID
December 1998-June 2006	108	121600030290-001AT

Stream Data

County	Delaware	View Site Data
Location	Southeast of the City of Grove on County Road N4670	
Latitude/Longitude	36.54773713, -94.12072263	
Planning Watershed	Grand (8-digit HUC - 11070206)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	89	16.6	16.7	6/27	11.3/21.4	
	Turbidity (NTU)	89	3	2	1/24	1/4	
	pH (units)	89	7.70	7.65	6.29/9.04	7.5/7.89	
	Dissolved Oxygen (mg/L)	88	8.72	8.35	4.38/16.51	7.37/10.03	
	Hardness (mg/L)	89	150	150	18/260	128/170	
Minerals	Total Dissolved Solids (mg/L)	18	228	230	102/367	179/265	
	Specific Conductivity (uS/cm)	89	495	451	182/929	370/626	
	Chloride (mg/L)	86	58	45	<5/148	27/92	
	Sulfate (mg/L)	86	35	28	<5/112	17/50	
Nutrients	Total Phosphorus (mg/L)	93	0.088	0.074	0.025/0.403	0.05/0.099	
	Total Nitrogen (mg/L)	87	2.87	2.73	0.19/9	2.05/3.18	
	Nitrate/Nitrite (mg/L)	88	2.55	2.31	<0.05/8.71	1.69/2.91	
	Chlorophyll A (mg/m^3)	28	2.3	0.7	<0.1/17.9	0.4/1.2	TSI=38.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	2107	200	41/35000	90/700	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	211	103	<10/2046	47/211	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

HUC 1104

Upper Cimarron Sub-basin

The Upper Cimarron sub-basin (4-digit hydrologic unit 1104) is situated in the far northwest portion of the state. It originates in the northwestern portion of Cimarron County and continues along the northern third of the county until exiting at the northwest corner of Texas County. The sub-basin reenters Oklahoma in the upper reaches of Beaver County and terminates in the northwest section of Harper County. No major cities or County seats are located within the sub-basin. Minor cities of note include Kenton and Knowles.

The sub-basin is subdivided into four 8-digit hydrologic units (HUC) within the state. These HUC's are the Cimarron Headwaters (11040001), the Upper Cimarron (11040002), the Upper Cimarron-Liberal (11040006), and the Upper Cimarron-Bluff (11040008). The Cimarron River dominates the sub-basin. Near the headwaters of the Cimarron River, Lake Carl Etling is formed by South Carrizo Creek. There is only one water quality monitoring station in this sub-basin.

The sub-basin is dominated by two major ecoregions. The Southwestern Tablelands are prominent in the far west and appear in portions of Beaver County while the Western High Plains are foremost in the near west, central and eastern portions of the sub-basin. The Central Great Plains touches the sub-basin in the far eastern reaches of Harper County. The primary land usage in the sub-basin is rangeland with open grasslands to the west and east and sand sagebrush in portions of Beaver County. Irrigated croplands are scattered throughout the sub-basin. Other land uses of note include pastureland, woodlands, large farmsteads, and bare exposed rock.

STATION NAME	FWP	PBCR	PPWS	AG	AES
CIMARRON RIVER, OFF US 64, MOCANE	NS(3)	NS (6, 8)	S	S	S

ASSIGNED OWQS BENEFICIAL USES	
FWP = FISH & WILDLIFE PROPAGATION	PBCR = PRIMARY BODY CONTACT RECREATION
PPWS = PUBLIC AND PRIVATE WATER SUPPLY	AG = AGRICULTURE
AES = AESTHETICS	

SUPPORT CODES		
S—FULLY SUPPORTING	NS—NOT SUPPORTING	T-THREATENED (NUTRIENTS)
NT-NOT THREATENED (NUTRIENTS)	NEI—NOT ENOUGH INFORMATION	N/A—NOT APPLICABLE

WATER QUALITY VARIABLES		
1—DISSOLVED OXYGEN	2—METALS (ACUTE)	3—METALS (CHRONIC)
4—PH	5—TURBIDITY	6—FECAL COLIFORM
7— *ESCHERICHIA COLI*	8— ENTEROCOCCI	9—METALS
10— TOTAL DISSOLVED SOLIDS	11— CHLORIDES	12— SULFATES
13— TOTAL PHOSPHORUS (TP)	14—TP OK SCENIC RIVER CRITERION	15— NITRITE + NITRATE
16—BIOCRITERIA	17—SESTONIC CHLOROPHYLLL-A (TSI)	18—SEDIMINTATION

STATION NAME	FWP	PBCR	PPWS	AG	AES
Cimarron River, off SH 8, near Ames	S	NS (6, 8)	N/A	NS (10, 11, 12)	NT
Cimarron River, SH 34, Buffalo	NS(16, 18)	NS (6, 7, 8)	N/A	NS (10,11)	S
Cimarron River, SH 99, Oilton	NS (5)	NS (6, 8)	N/A	NS(10)	NT
Cimarron River, US 77, Guthrie	S	NS (8)	N/A	S	T (17)
Cimarron River, US 81, Dover	NS (3)	NS (7, 8)	N/A	NS (10, 11)	NT
Cimarron River, SH 33, Ripley	NS (5)	NS (8)	N/A	NS(10)	NT
Cimarron River, US 281, near Waynoka	NS (16)	NS (7)	N/A	NS (10, 11)	S
Skeleton Creek, SH 74, Lovell	NS (3, 5)	NS (6, 8)	S	S	NS(15, 18)

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1105

Lower Cimarron Sub-basin

The Lower Cimarron sub-basin (4-digit hydrologic unit 1105) is situated in the near northwest and north central portions of the state. It originates in the eastern portion of Harper County, continues eastward through portions of Woodward, Woods, Alfalfa, Major, Garfield, Blaine, Kingfisher, Logan, Noble, Payne, Lincoln, and Pawnee Counties and terminates in the northern part of Creek County. Major cities and county seats located within the sub-basin include Enid, Kingfisher, Guthrie, Stillwater, and north Edmond. Minor cities of note include Buffalo, Fairview, Hennessey, Langston, Cushing, and Drumright.

The sub-basin is subdivided into three 8-digit hydrologic units (HUC) within the state. These HUC's are the Lower Cimarron – Eagle Chief (11050001), the Lower Cimarron – Skeleton (11050002), and the Lower Cimarron (11050003). The major surface water in the sub-basin is the lower Cimarron River. Major tributaries include Buffalo Creek, Eagle Chief Creek, Turkey Creek, Kingfisher Creek, Cottonwood Creek, Skeleton Creek, and Stillwater Creek. Three major lakes are located in the sub-basin—Lake Carl Blackwell formed by Stillwater Creek, Lake McMurtry formed by a tributary of Stillwater Creek, and the Cimarron River Arm of Lake Keystone. Eight permanent water quality-monitoring stations are located in the sub-basin.

The sub-basin is characterized by three ecoregions. The Central Great Plains is the primary ecoregion beginning in the far eastern portion and continuing through the central part of the sub-basin. The Central Oklahoma/Texas Plains represent the eastern quarter (¼) of the sub-basin. The Southwestern Tablelands typify portions of Woodward and Woods Counties. The primary land usage in the sub-basin is rangeland (open grasslands). It dominates the southern portion of the sub-basin from the far western portions through Kingfisher County and is further interspersed throughout the northern portion and in parts of Payne, Creek, and Noble Counties to the east. The secondary land use is cropland, which dominates the north central portion of the sub-basin and is further interspersed in areas to the western, central, and eastern portions. The tertiary land use is pastureland (brushy or mixed) that covers much of Creek Logan, Lincoln and Payne Counties and is further interspersed throughout each of the remaining counties in the sub-basin. Other land uses of note are forestland, rangeland, farmsteads, major urban areas, wetlands, and bare sand channels.

STATION NAME	FWP	PBCR	PPWS	AG	AES
Arkansas River, SH 18, Ralston	NS (5)	NS (8)	S	S	NT
Black Bear Creek, SH 18, Pawnee	NS (5)	NS (6, 8)	S	S	NT
Chickaskia River, US 177, Blackwell	NS (5)	NS (6, 8)	S	S	NT
Salt Fork of the Arkansas, SH 58, Ingersoll	NS (5, 16, 18)	NS (6, 7, 8)	S	NS(12)	NS(18)
Salt Fork of the Arkansas, US 77, Tonkawa	NS (5)	NS (8)	S	S	S

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1106

Upper Arkansas Sub-basin

The Upper Arkansas sub-basin (4-digit hydrologic unit 1106) is situated in the north central portion of the state. It originates in the northeast portion of Woods County, continues eastward through portions of Alfalfa, Grant, Garfield, Kay, Noble, and Payne Counties and terminates in the western part of Osage County and northern one-half (½) of Pawnee County. Major cities and County seats located within the sub-basin include Alva, Ponca City, Perry, Pawnee, Tonkawa, Blackwell, and Cleveland. Minor cities of note include Cherokee, Medford, and Ralston.

The sub-basin is subdivided into six 8-digit hydrologic units (HUC) within the state. These HUC's are the Kaw Lake (11060001), the Upper Salt Fork of the Arkansas (11060002), the Medicine Lodge (11060003), the Lower Salt Fork of the Arkansas (11060004), the Chickaskia (11060005), and the Black Bear–Red Rock (11060006). The major surface water in the sub-basin is the upper Arkansas River. Major tributaries include the Salt Fork of the Arkansas River, the Chickaskia River, Black Bear Creek, Beaver Creek, Salt Creek, Sand Creek, Pond Creek, Deer Creek, Bois d'Arc Creek, and Red Rock Creek. Three major lakes are located in the sub-basin—the Great Salt Plains Lake formed by the Salt Fork of the Arkansas River, Kaw Lake formed by the Arkansas River and Beaver Creek, Sooner Lake formed by Greasy Creek, and the Arkansas River arm of Keystone Lake. Five active permanent water quality-monitoring stations are located in the sub-basin. Two inactive water quality-monitoring stations (Salt Fork of the Arkansas river, US 177, White Eagle and Arkansas River, off US 277, Newkirk) are located in the sub-basin. These stations were last assessed in the 2001 and 2003 BUMP reports, respectively.

The sub-basin is characterized by four ecoregions. The Central Great Plains is the primary ecoregion beginning in the far western portion and continuing through the east part of the sub-basin. The Central Oklahoma/Texas Plains represent the eastern quarter (¼) of the sub-basin. The Flint Hills characterize the northeast portion of Kay County and part of Osage County. The Southwestern Tablelands typify portions of Woods County. The primary land usage in the sub-basin is cropland. It dominates the central part of the sub-basin from eastern Woods County to the east central parts of Kay and Noble Counties. Cropland is further interspersed through the far western and eastern portions. The secondary land use is rangeland (open grasslands, sand sagebrush, upland shrubs, eastern red cedar, and post oak–blackjack oak). Rangeland dominates the far western and eastern portions of the sub-basin as well the northeastern portion of Alfalfa County and the southern portion of Payne and Pawnee Counties. It is further interspersed throughout the sub-basin. The tertiary land use is forestland (bottomland hardwoods and post oak–blackjack oak) that dominates the eastern portion of Payne County and the north and eastern portions of Pawnee County. Forestland is also present in portions of Kay and Osage Counties. Other land uses of note are pastureland, woodlands, farmsteads, major urban areas, wetlands, and confined animal feeding operations.

STATION NAME	FWP	PBCR	PPWS	AG	AES
Big Cabin Creek, off US 69, Big Cabin	S	N/A	S	NS (12)	S
Bird Creek, SH 266, Port of Catoosa	NS (5)	NS (6,7, 8)	S	S	S
Caney River, off US 75, Ramona	NS (5)	NS (8)	S	S	NS(18)
Elk River, SH 43, Tiff City (MO)	S	S	S	S	NT
Honey Creek, off SH 25, Grove	S	NS (7)	S	S	T(15)
Neosho River, off US 66, Commerce	NS (5, 16, 18)	NS(8)	S	S	NT
Neosho River, off SH 137, Connor Bridge	NS (2, 3, 5)	S	S	S	NT
Neosho River, SH 82, Langley	NS(1, 3)	S	S	S	NT
Neosho River, US 412, Chouteau	NS(1, 3)	S	NS(15)	S	T(13, 15)
Spring Creek, off US 412, Murphy	S	S	S	S	S
Spring River, off SH 137, Quapaw	NS (3, 5)	NS (8)	S	S	NT
Verdigris River, US 412, Inola	NS (5)	NS (8)	S	S	NT
Verdigris River, SH 10, Lenepah	NS (5)	NS (8)	S	S	NT
Verdigris River, SH 20, Keetonville	S	NS (8)	S	S	NT
Verdigris River, SH 51, Wagoner	NS (5)	NS (8)	S	S	NT

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1107

Neosho/Grand Sub-basin

The Neosho/Grand sub-basin (4-digit hydrologic unit 1107) is situated in the northeast portion of the state. It originates in the west central portion of Osage County, continues eastward through portions of Washington, Tulsa, Nowata, Rogers, Wagoner, Muskogee, Craig, Mayes, and Cherokee Counties and terminates in Ottawa and Delaware Counties. Major cities and County seats located within the basin include Pawhuska, Dewey, Bartlesville, Skiatook, Collinsville, Sperry, Owasso, Tulsa, Nowata, Oologah, Port of Catoosa, Claremore, Pryor, Chouteau, Locust Grove, Wagoner, Fort Gibson, Vinita, Langley, Miami, Grove, and Jay. Minor cities of note include South Coffeyville, Adair, Quapaw, Afton, and Ketchum.

The sub-basin is subdivided into nine 8-digit hydrologic units (HUC) within the state. These HUC's are the Middle Verdigris (11070103), the Lower Verdigris (11070103), the Caney (11070106), the Bird (11070107), the Middle Neosho (11070205), the Grand Lake (11070206), the Spring (11070207), the Elk (11070208), and the Lower Neosho (11070209). The major surface waters in the basin are the Verdigris and Grand/Neosho Rivers. Major tributaries include Caney River, Little Caney River, Spring River, Elk River, Sand Creek, Bird Creek, Big Creek, Dog Creek, Tar Creek, Honey Creek, Big Cabin Creek, Spavinaw Creek, Pryor Creek, and Spring Creek. Nine major lakes are located in the basin—Hulah Lake formed by the Caney River, Copan Lake formed the Little Caney River, Bluestem Lake formed by the headwaters of Bird Creek, Skiatook Lake formed by Hominy Creek, Oologah Lake formed by the Verdigris River, Grand Lake formed by the Neosho, Spring, and Elk Rivers (among other creeks), Lake Eucha formed by Spavinaw Creek, Spavinaw Lake formed by Spavinaw Creek, Lake Hudson formed by the Neosho River and Spavinaw, Rock, and Saline Creek, and Fort Gibson Lake formed by the Neosho River and Clear and Fourteen Mile Creek. Fifteen active permanent water quality-monitoring stations are located in the basin. Three inactive water quality-monitoring stations (Verdigris River near Nowata, Big Cabin Creek near Pensacola, and Pryor Creek near Sportsman Acres) are located in the sub-basin. Verdigris River near Nowata and Big Cabin Creek near Pensacola were last assessed in the 1999 BUMP report while Pryor Creek near Sportsman Acres was last assessed in the 2000 BUMP report.

The sub-basin is characterized by four ecoregions. The Central Irregular Plains is the primary ecoregion covering the central portion of the sub-basin, the majority of Ottawa and Cherokee Counties, and part of Delaware County. The Central Oklahoma/Texas Plains covers the majority of Osage County and parts of Tulsa and Washington Counties. The Ozark Highlands typify the majority of Delaware County, one-quarter (¼) of Ottawa County, and a small part of western Mayes County. The Boston Mountains ecoregion is represented in a small part of eastern Cherokee County. The primary land usage in the sub-basin is rangeland (open grasslands and woody areas). It dominates the western and north central portions of the sub-basin and is further interspersed throughout the southern, central and east central portions of the sub-basin. The secondary land uses are pastureland and forestland. Pastureland is interspersed throughout the eastern, central, and southern portions of the sub-basin with concentrations in Ottawa, Cherokee, Delaware, Craig, Rogers, Tulsa, and Washington Counties. Forestland (post oak–blackjack oak, hickory, and bottomland hardwoods) is interspersed throughout the entire sub-basin with heavy concentrations in Cherokee and Delaware Counties. The tertiary land use is cropland with heaviest concentrations in the central and east central portions of the sub-basing. Other land uses of note include farmsteads, major urban areas, wetlands, and confined animal feeding operations.

STATION NAME	FWP	PBCR	PPWS	AG	AES
Brushy Creek, off US 270, Haileyville	NS (1, 3, 5)	NS (6, 7, 8)	S	NS (12)	NT
Canadian River, SH 2, Whitefield	S	S	S	S	NT
Canadian River, US 183, Taloga	S	NS (8)	N/A	NS (10, 11,12)	NS (18)
Canadian River, US 270, Calvin	NS(3,5,16,18)	NS (8)	S	NS (12)	NS(17, 18)
Canadian River, US 377, Konawa	NS (5)	NS (8)	S	S	T (13, 17)
Canadian River, US 66, Bridgeport	NS (5)	NS (8)	N/A	S	NT
Canadian River, US 77, Purcell	NS (5)	N/A	N/A	S	NS (13,17,18)
Little River, SH 56, Sasakwa	NS (5)	NS (6, 8)	S	S	NS(13, 18)

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1109

Canadian Sub-basin

The Canadian sub-basin (4-digit hydrologic unit 1109) begins in the central west and runs to the east central portion of the state. It originates in the southern portion of Ellis and the northern portion of Roger-Mills Counties, continues eastward through portions of Ellis, Roger Mills, Dewey, Custer, Blaine, Caddo, Canadian, Grady, Cleveland, McClain, Pottawatomie, Pontotoc, Seminole, Hughes, McIntosh, and Muskogee Counties and terminates in Pittsburg, Haskell, and Latimer Counties. Major cities and County seats located within the basin include Arnett, Taloga, Weatherford, Mustang, Moore, Norman, Noble, Oklahoma City, Purcell, Ada, Tecumseh, Holdenville, McAlester, and Stigler. Minor cities of note include Newcastle, Lexington, Konawa, and Hartshorne.

The basin is subdivided into five 8-digit hydrologic units (HUC) within the state. These HUC's are the Rita Blanca (11090103), the Lower Canadian–Deer (11090201), the Lower Canadian–Walnut (11090202), the Little (11090203), and the Lower Canadian (11090204). The major surface water in the basin is the Canadian River. Major tributaries include Little River, Deer Creek, Walnut Creek, Canadian Sandy Creek, Salt Creek, Coal Creek, Gaines Creek, and Brushy Creek. Five major lakes are located in the basin—Lake Stanley Draper formed by East Elm Creek, Lake Thunderbird formed by the Little River, Lake Konawa formed by Jumper Creek, Lake McAlester formed by a tributary of Coal Creek, and the lower half of Lake Eufaula formed by the Canadian River and Coal, Brushy, and Gaines Creeks (among others). Eight permanent water quality-monitoring stations are located in the basin. One inactive water quality-monitoring station (North Canadian River, IND. NAT, TPK, Hanna) is located in the sub-basin. This station was last assessed in the 2000 BUMP report.

The basin is characterized by five ecoregions. The Central Great Plains is one of two primary ecoregions beginning in western Dewey County and continuing to eastern Cleveland and McClain Counties. The other primary ecoregion is the Central Oklahoma/Texas Plains beginning where the Central Great Plains ends and continues through the majority of Pittsburg and McIntosh counties. The Southwestern Tablelands cover an area beginning in the west and ending in the western part of Dewey County. The Arkansas Valley covers the rest of McIntosh, the eastern portions of Pittsburg County, and parts of Haskell and Latimer Counties. The Ouachita Mountains extend over the bottom part of Pittsburg and Latimer Counties. The primary land usage in the sub-basin is rangeland (open grasslands and woody areas). It dominates the western portion of the sub-basin, is prevalent in the central and east central portions, and is further interspersed throughout the remainder of the sub-basin. The secondary land use is pastureland, which is prevalent in the central and eastern portions. The tertiary land uses are cropland and forestland (post oak–blackjack oak and bottomland hardwoods). Cropland is prevalent in the west central portion of the sub-basin and is interspersed throughout the remainder of the sub-basin. Forestland is prevalent in the east central and eastern portions of the sub-basin. Other land uses of note are woodlands, bottom woodlands, farmsteads, major urban areas, and confined animal feeding operations.

STATION NAME	FWP	PBCR	PPWS	AG	AES
Beaver River, off US 64, Guymon	NS (1)	NS (6, 7, 8)	S	S	NT
Beaver River, US 83, Turpin	NS (16, 18)	NS (6, 7, 8)	N/A	NS (10, 11)	NS(18)
Beaver River, SH 23, Beaver	NS(16)	NS (6, 7, 8)	N/A	NS (10, 11, 12)	NS(18)
Beaver River, CR N1650, Gate	NS(16, 18)	NS (6, 8)	N/A	NS (10, 11)	NS(18)
Beaver River, US 183, Fort Supply	S	NS (6, 8)	N/A	S	S
Deep Fork River, off SH 16, Beggs	NS (5)	NS (6, 8)	S	S	NS(18)
Deep Fork River, US 377, Stroud	NS (5)	NS (6, 8)	S	S	NS(13, 18)
North Canadian River, SH 3E, Shawnee	NS (3, 4, 5)	NS (8)	N/A	NS(10)	T (13, 17)
North Canadian River, off US 62, Harrah	NS (5)	NS (6, 8)	N/A	NS (10)	T (13, 17)
North Canadian River, US 281, Seiling	S	NS (8)	S	S	S
North Canadian River, US 75, Wetumka	NS (5)	NS (8)	S	S	T (13, 17)
North Canadian River, Ind. Nat. Tpk., Dustin	NS (5)	NS (6, 8)	S	S	T (13)
North Canadian River, US 412, Woodward	S	NS (8)	N/A	S	S
North Canadian River, US 81, El Reno	NS(3)	NS (8)	S	S	T (13, 17)
Wolf Creek, off US 270, Fort Supply	S	NS (8)	S	S	S

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1110

Beaver/North Canadian Sub-basin

The Beaver/North Canadian sub-basin (4-digit hydrologic unit 1110) is situated in the Panhandle, northwest, and central portions of the state. It originates in Cimarron County, continues eastward through portions of Texas, Beaver, Harper, Ellis, Woodward, Major, Dewey, Blaine, Canadian, Oklahoma, Logan, Lincoln, Pottawatomie, Seminole, Creek, Okfuskee, Hughes, and Okmulgee Counties and terminates in the central part of McIntosh County. Major cities and County seats located within the basin include Boise City, Guymon, Beaver, Woodward, Watonga, El Reno, Yukon, Oklahoma City, Midwest City, Del City, Choctaw, Harrah, Edmond, Chandler, Shawnee, Tecumseh, Seminole, Bristow, Okemah, Wewoka, Okmulgee, Henryetta, and Eufaula. Minor cities of note include Goodwell, Laverne, Shattuck, Seiling, Meeker, Stroud, Prague, Wetumka, and Beggs.

The sub-basin is subdivided into nine 8-digit hydrologic units (HUC) within the state. These HUC's are the Upper Beaver (11100101), the Middle Beaver (11100102), the Coldwater (11100103), the Palo Duro (11100104), the Lower Beaver (11100201), the Lower Wolf (11100203), the Middle North Canadian (11100301), the Lower North Canadian (11100302), and the Deep Fork (11100303). The major surface water in the sub-basin is the Beaver/North Canadian River. Major tributaries include Goff Creek, Palo Duro Creek, Kiowa Creek, Clear Creek, Wolf Creek, Wewoka Creek, the Deep Fork River, and Little Deep Fork Creek. Ten major lakes are located in the sub-basin—Optima Lake formed by the Beaver River and Coldwater Creek, Fort Supply Lake formed by Wolf Creek, Canton Lake formed by the North Canadian River, Lake Overholser formed by the North Canadian River, Lake Hefner, Lake Arcadia formed by the Deep Fork River, Wes Watkins Lake formed by North Deer Creek, the Shawnee Twin Lakes, Bell Cow Lake formed by Bell Cow Creek, and the upper portion of Eufaula Lake formed by the North Canadian and Deep Fork Rivers. Fourteen active permanent water quality-monitoring stations are located in the basin. Three inactive water quality-monitoring stations (Palo Duro Creek near Bryans Corner, Kiowa Creek near Laverne, and Clear Creek near May) are located in the sub-basin and were last assessed in the 2000 BUMP report.

The basin is characterized by five ecoregions. The Western High Plains cover all Cimarron County, most of Texas County, and half of Beaver County. The Southwestern Tablelands begin in Texas County and terminate in Ellis and Woodward Counties. The Central Great Plains begins in Ellis County and terminates in western Oklahoma County. The Central Oklahoma/Texas Plains begin in eastern Oklahoma County and end in western Okmulgee and McIntosh Counties. The Central Irregular Plains cover eastern Okmulgee and McIntosh Counties. The primary land usage in the sub-basin is rangeland (open grasslands and woody areas). It is prevalent throughout the sub-basin with areas of concentration west central and central portions. The secondary land use is cropland, which is prevalent in the western and central portions and is interspersed throughout the eastern portion. The tertiary land uses is pastureland (brushy or mixed) and forestland (post oak, blackjack oak and bottomland hardwoods). Pastureland is prevalent in the eastern portion and is interspersed through the rest of the sub-basin. Forestland is prevalent in the eastern part of the sub-basin. Other land uses of note are farmsteads, major urban areas, wetlands, and confined animal feeding operations.

STATION NAME	FWP	PBCR	PPWS	AG	AES
Arkansas River, US 64, Moffett	S	NS (8)	S	NS(10)	NT
Arkansas River, SH 104, Haskell	S	S	N/A	S	NT
Arkansas River, SH 97, Sand Springs	NS (5)	S	N/A	S	NT
Arkansas River, US 62, Muskogee	S	NS (8)	N/A	NS (10, 11)	NT
Arkansas River, US 64, Bixby	NS (5)	N/A	N/A	S	NT
Barren Fork, SH 51, Eldon	S	S	S	S	NS (14, 18)
Caney Creek, off SH 100, Barber	S	S	S	S	S
Flint Creek, US 412, Flint	S	NS (8)	S	S	NS (14)
Fourche-Maline Creek, off US 270, Red Oak	NS (1, 3)	NS (8)	S	S	S
Illinois River, US 59, Watts	NS (5)	NS (8)	S	S	NS (14)
Illinois River, US 62, Tahlequah	S	S	S	S	NS (14)
Lee Creek, SH 101, Short	NS(3)	S	S	S	S
Little Lee Creek, SH 101, Nicut	NEI	NEI	NEI	S	NEI
Poteau River, off SH 112, Pocola	NS (3, 5)	NS (8)	S	S	NT
Poteau River, US 59, Heavener	NS(3)	S	S	S	NT
Sager Creek, off US 412, West Siloam Springs	S	NS (8)	NS (15)	S	T (13, 15)

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1111

Lower Arkansas Sub-basin

The Lower Arkansas sub-basin (4-digit hydrologic unit 1111) is situated in the central eastern portion of the state. It originates in the western portion of Creek and Tulsa Counties, continues eastward through portions of Okmulgee, Wagoner, Muskogee, McIntosh, Cherokee, Delaware, Haskell, and Latimer Counties, and terminates in the eastern parts of Adair, Sequoyah, and LeFlore Counties. Major cities and County seats located within the basin include Sand Springs, Tulsa, Broken Arrow, Sapulpa, Jenks, Glenpool, Bixby, Coweta, Muskogee, Tahlequah, Stillwell, Sallisaw, Wilburton, and Poteau. Minor cities of note include Kellyville, Haskell, Checotah, Warner, Gore, Roland, Heavener, and Spiro.

The basin is subdivided into five 8-digit hydrologic units (HUC) within the state. These HUC's are the Polecat–Snake (11110101), the Dirty–Greenleaf (11110102), the Illinois (11110103), the Robert S. Kerr Reservoir (11110104), and the Poteau (11110105). The major surface water in the basin is the lower Arkansas River (McClellan-Kerr Navigational System). Major tributaries include the Illinois River, the Poteau River, Polecat Creek, Bayou Manard, Greenleaf Creek, Sager Creek, Flint Creek, Barren Fork, Caney Creek, Dirty Creek, Sallisaw Creek, Big Skin Bayou, Lee Creek, Cache Creek, San Bois Creek, Brazil Creek, Fourche-Maline Creek, Caston Creek, Black Fork, and James Fork. Five major lakes are located in the basin—Heyburn Lake formed by Polecat Creek, Webbers Falls Reservoir formed by the Arkansas River and Greenleaf Creek, Tenkiller Ferry Lake formed by the Illinois River and Caney Creek, Robert S. Kerr Reservoir formed by the Arkansas River and several tributaries, and Wister Lake formed by the Poteau River and Fourche-Maline Creek. Sixteen active permanent monitoring stations are located in the basin. One inactive water quality-monitoring station (Arkansas River, US 69, Muskogee) is located in the sub-basin. This station was last assessed in the 2000 BUMP Report.

The basin is characterized by five ecoregions. The Central Irregular Plains begins in eastern Okmulgee County, covers the majority of Muskogee County, and continues through parts of McIntosh, Delaware, Sequoyah and eastern Cherokee Counties. The Ozark Highlands begins in Delaware County, continuing through the northern one-half (½) of Adair County, and is also in northern Cherokee County. The Boston Mountains begin in eastern Cherokee County, continue through the southern one-half (½) of Adair County, and end in northern Sequoyah County. The Arkansas Valley covers the southern three-quarters (¾) of Sequoyah County, southeast Muskogee County, Haskell County, the northern one-half (½) of Latimer County, and the northern one-third of LeFlore County. The Ouachita Mountains cover the southern one-half (½) of Latimer County and the southern two-thirds of LeFlore County. The primary land uses in the sub-basin are forestland (post oak–blackjack oak, hickory–oak, bottomland hardwoods, and shortleaf pine) and pastureland (brushy and mixed). Forestland is prevalent throughout the sub-basin with concentrations in the central, northeast and southeast portions. Pastureland is prevalent in the northwest and central eastern portions. Rangeland (post – blackjack oak scrub and open grasslands) is the secondary land use. It is prevalent in the western portion of the sub-basin and is interspersed throughout the central and eastern portions. The tertiary land use is cropland in the northern portion of the sub-basin. Other land uses of note are farmsteads, major urban areas, wetlands, and confined animal feeding operations.

STATION NAME	FWP	PBCR	PPWS	AG	AES
Elk Creek, off US 183, Roosevelt	NS (3, 5)	NS (8)	S	S	NT
Elm Fork River, SH 30, Carl	NS(9)	NEI	NEI	NS(11)	NEI
Elm Fork River, SH 9, granite	NS(3)	NS (7, 8)	S	NS(11)	S
North Fork of the Red River, US 62, Headrick	NS (3, 5)	NS (8)	S	NS (10, 11, 12)	T (17)
North Fork of the Red River, SH 34, Carter	NS(5)	NS (8)	S	S	NT
Salt Fork of the Red River, SH 34, Mangum	S	NS (8)	S	S	NT
Salt Fork of the Red River, off US 283, Elmer	NS (3)	NS (6, 8)	NS(9)	S	NT

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1112

North Fork of the Red Sub-basin

The North Fork of the Red sub-basin (4-digit hydrologic unit 1112) is situated in the southwestern tip of the state. It originates in the western portions of Roger Mills, Beckham and Harmon Counties, continues eastward through portions of Greer, Washita, Kiowa, Jackson, and Tillman Counties and terminates in the northeastern tip of Comanche County. Major cities and County seats located within the basin include Elk City, Sayre, Mangum, Altus, and Hobart. Minor cities of note include Granite, Lone Wolf, Duke, Headrick, and Snyder.

The basin is subdivided into five 8-digit hydrologic units (HUC) within the state. These HUC's are the Lower Prairie Dog Town Fork of the Red (11120105), the Lower Salt Fork of the Red (11120202), the Middle North Fork of the Red (11120302), Lower North Fork of the Red (11120303), and Elm Fork of the Red (11120304). The major surface water in the sub-basin is the North Fork of the Red River. Major tributaries include the Elm Fork of the Red River, the Salt Fork of the Red River, Elk Creek, Turkey Creek, and Otter Creek. Two major lakes are located in the basin—Altus Reservoir formed by the North Fork of the Red River and Tom Steed Reservoir formed by Otter Creek. Seven permanent water quality-monitoring stations are located in the basin.

The sub-basin is characterized by two ecoregions. The Central Great Plains are the primary ecoregion covering all but a small portion of the sub-basin. The Southwestern Tablelands cover a small portion of the east central portion in Beckham, Greer, and Harmon Counties. The primary land usage in the sub-basin is cropland. It dominates the central south and central east portions of the sub-basin and is interspersed throughout the remainder of the sub-basin. The secondary land use is rangeland (open grassland and mesquite) that dominates the southern part of Beckham County and is prevalent in other southern portions of the sub-basin. It is interspersed throughout the remainder of the sub-basin. The tertiary land use is pastureland, which is dominant in northeastern Greer County and is sparsely interspersed throughout the remainder of the sub-basin. Other land uses of note are woodlands, bottom woodlands, farmsteads, major urban areas, and confined animal feeding operations.

STATION NAME	FWP	PBCR	PPWS	AG	AES
East Cache Creek, SH 53, Walters	NS (5)	NS (6, 8)	S	NS(10)	T(13, 15)
Mud Creek, SH 32, Courtney	NS (5, 16, 18)	NS (6, 8)	S	S	NS(18)
Red River, US 183, Davidson	NS (3, 5)	NS (6, 8)	N/A	NS (10, 11, 12)	T (17)
Red River, US 81, Terral	NS (3, 5)	NS (8)	S	NS (11, 12)	T(13, 17)
Sandy Creek, SH 6, Eldorado	NS (2, 3, 5)	NS(9)	N/A	NS (10, 11, 12)	NT
Washita River, SH 152, Cordell	NS (5, 16, 18)	NS (6, 7, 8)	S	S	TS(13, 18)
Washita River, SH 19, Pauls Valley	NS (5)	NS (6, 8)	S	S	T(13, 17)
Washita River, SH 33, mcclure	NS (5, 16, 18)	NS (6, 7, 8)	S	S	NT
Washita River, US 177, Durwood	NS (5)	NS (6, 8)	S	S	T(13, 17)
Washita River, off SH 19, Alex	NS (5)	NS (6, 8)	S	S	T(13, 17)
Washita River, US 281, Anadarko	NS (5, 16, 18)	NS (6, 8)	S	S	NS (17, 18)
West Cache Creek, SH 5B, Taylor	NS (5)	NS (6, 7, 8)	S	NS (10,11)	NT

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1113

Upper Red Sub-basin

The Upper Red sub-basin (4-digit hydrologic unit 1113) is situated in the southwestern portion of the state. It originates in the western portion of Roger Mills County, continues eastward through portions of Beckham, Dewey, Custer, Washita, Kiowa, Caddo, Comanche, Tillman, Cotton, Grady, Stephens, Jefferson, McClain, Garvin, Murray, Pontotoc, Carter, Johnston, and Love Counties and terminates in the western part of Marshall and Bryan Counties, briefly touching Harmon and Jackson Counties. Major cities and County seats located within the basin include Cheyenne, Hollis, Arapaho, Clinton, Frederick, Anadarko, Lawton, Walters, Chickasha, Marlow, Duncan, Waurika, Lindsay, Pauls Valley, Sulphur, Lone Grove, Ardmore, Marietta, Madill, and Tishomingo. Minor cities of note include Hammon, Fort Cobb, Binger, Rush Springs, Davis, and Wynnewood.

The basin is subdivided into eleven 8-digit hydrologic units (HUC) within the state. These HUC's are the Groesbeck–Sandy (11130101), the Blue–China (11130102), the Farmer's–Mud (11130201), the Cache (11130202), the West Cache (11130203), the Northern Beaver (11130208), the Lake Texoma (11130210), the Washita Headwaters (11130301), the Upper Washita (11130302), the Middle Washita (11130303), and the Lower Washita (11130304). The major surface water in the basin is the upper Red River. Major tributaries include the Prairie Dog Town Fork of the Red River, the Washita River, the Little Washita River, Barnitz Creek, Cobb Creek, Bitter Creek, Rush Creek, Wildhorse Creek, Rock Creek, Caddo Creek, Mill Creek, Sandy Creek, Deep Red Creek, West Cache Creek, East Cache Creek, Cow Creek, Beaver Creek, Mud Creek, Walnut Bayou, and Hickory Creek. Eight major lakes are located in the basin—Foss Reservoir formed by the Washita River, Fort Cobb Reservoir formed by Cobb Creek, Lake Ellsworth formed by East Cache Creek, Lake Lawtonka formed by Medicine Creek, Waurika Lake formed by Beaver Creek, Lake of the Arbuckles formed by Rock Creek, Lake Murray formed by Anadarche Creek, and Lake Texoma formed by the Red and Washita Rivers and Hickory Creek. Eleven active permanent water quality-monitoring stations are located in the basin. Four inactive water quality-monitoring stations are in this sub-basin(Cow Creek near Waurika, Walnut Bayou near Burneyville, Red River near Gainsville, and Hickory Creek near Marietta). Walnut Bayou near Burneyville and Hickory Creek near Marietta were last assessed in the 2000 BUMP report while Red River near Gainsville was last assessed in the 1999 BUMP report. Cow Creek near Waurika was last assessed in the 2003 BUMP report.

The basin is characterized by three ecoregions. The Central Great Plains is the primary ecoregion beginning in the western portion of Roger Mills County and continuing through the western parts of Grady, Stephens, and Jefferson Counties. The Central Oklahoma/Texas Plains begins in the eastern parts of Grady, Stephens, and Jefferson Counties and continues eastward over the rest of the sub-basin. The Southwestern Tablelands typify portions of Roger Mills, Custer, and Beckham Counties. The primary land usage in the sub-basin is rangeland (open grasslands, mesquite, and other woody areas). It is prevalent in the western, southern and central portions of the sub-basin and is interspersed throughout the sub-basin. The secondary land use is cropland, which dominates the southwestern portion and is interspersed throughout the sub-basin. The tertiary land uses are pastureland (brushy or mixed) and forestland (post oak–blackjack oak, hickory–oak, and bottomland hardwoods). Other land uses of note are woodlands, bottom woodlands, farmsteads, major urban areas, and wetlands.

STATION NAME	FWP	PBCR	PPWS	AG	AES
Blue River, US 70, Durant	S	NS (6, 8)	S	S	NS(18)
Clear Boggy Creek, off US 69, Caney	NS (5, 16, 18)	NS (8)	S	S	NS(18)
Glover River, SH 3, Glover	NS (5)	S	S	S	NT
Kiamichi River, off US 271, Tuskahoma	NS (2, 3)	NS (8)	S	S	NT
Kiamichi River, SH 63, Big Cedar	NS (3)	NS (8)	S	S	NS(18)
Kiamichi River, US 271, Antlers	NS (3)	NS (8)	S	S	NS(18)
Kiamichi River, SH 109, Fort Towson	NS (3)	NS (8)	NS (9)	S	NT
Little River, off SH 3, Cloudy	NS (3, 5)	NS (8)	S	S	S
Little River, off US 70, near Holly Creek	NS (1, 3, 5)	S	S	S	NT
Little River, SH 56, Sasakwa	NS (5)	NS (6, 8)	S	S	NS(13, 18)
Mountain Fork, SH 4, Smithville	NS (2, 3)	S	S	S	S
Mountain Fork, US 70, Eagletown	NS (3)	NS (8)	S	S	NT
Muddy Boggy Creek, US 70, Unger	NS (5)	NS (8)	S	S	NT
Muddy Boggy Creek, US 69, Atoka	NS (3, 5)	NS (6, 8)	S	S	NS
Red River, US 259, Harris	NS (5)	S	S	S	NT
Red River, US 271, Hugo	S	NS (8)	S	NS(10, 11, 12)	NT

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1114

Lower Red Sub-basin

The Lower Red sub-basin (4-digit hydrologic unit 1114) is situated in the southeastern portion of the state. It originates in the central portion of Pontotoc County, continues eastward through portions of Murray, Johnston, Bryan, Hughes, Coal, Atoka, Pittsburg, Latimer, Pushmataha, and Choctaw Counties, and terminates in the eastern parts of LeFlore and McCurtain Counties. Major cities and County seats located within the basin include Coalgate, Atoka, Durant, Antlers, Hugo, Broken Bow, and Idabel. Minor cities of note include Kiowa, Fort Towson, Rattan, Clayton, Talihina, Smithville, and Valliant.

The basin is subdivided into nine 8-digit hydrologic units (HUC) that are all contained wholly within the state. These HUC's are the Bois D'Arc–Island (11140101), the Blue (11140102), the Muddy Boggy (11140103), the Clear Boggy (11140104), the Kiamichi (11140105), the Pecan–Waterhole (11140106), the Upper Little (11140107), the Mountain Fork (11140108), and Lower Little (11140109). The major surface water in the basin is the lower Red River. Major tributaries include the Blue River, the Kiamichi River, the Little River, the Glover River, the Mountain Fork River, Island Bayou, Whitegrass Creek, Clear Boggy Creek, Muddy Boggy Creek, Jackfork Creek, Cedar Creek, Buzzard Creek, Black Fork, Lukfata Creek, and Big Eagle Creek. Six major lakes are located in the basin—Atoka Reservoir formed by North Boggy Creek, McGee Creek Reservoir formed by McGee Creek, Sardis Lake formed by Jackfork and Buffalo Creeks, Hugo Lake formed by the Kiamichi River, Pine Creek Lake formed by the Little River, and Broken Bow Lake formed by the Mountain Fork River. Sixteen active permanent water quality-monitoring stations are located in the basin. Two inactive water quality-monitoring stations (Muddy Boggy near Farris and Little River near Idabel) are located in the sub-basin. Muddy Boggy near Farris was last assessed in the 1999 BUMP report. Little River near Idabel was last included in the 2003 BUMP report, but will not be assessed further. Because the station is located within a regulatory mixing zone, the OWRB cannot support previously collected data and will not include in future federal and state lists. Little River near Holly Creek was established in the beginning of 2003 and will replace the Idabel station.

The basin is characterized by three ecoregions. The Central Oklahoma/Texas Plains is the primary ecoregion beginning in the northwestern portion and continuing through the southern one-half (½) of the sub-basin. The Ouachita Mountains cover the remainder of the northern one-half (½) of the sub-basin. The South Central Plains cover the southeastern quarter (¼) of the McCurtain County. The primary land usage in the sub-basin is forestland (shortleaf pine, loblolly pine, pine plantations, and oak–hickory). It dominates the central and most of the eastern portions and is further interspersed throughout the sub-basin. The secondary land use is pastureland (brushy and mixed) that dominates parts of the western portion of the sub-basin and is interspersed throughout the sub-basin with areas of concentration in Pushmataha and southern McCurtain Counties. The tertiary land use is rangeland (open grasslands and woody areas) that is prevalent in the northwestern portion and is interspersed throughout the central and southern portions of the sub-basin. Other land uses of note are cropland, bottom woodlands, farmsteads, major urban areas, wetlands, and confined animal feeding operations.

Illinois River at Tahlequah

Sample Record	Times Visited	Station ID
November 1998 - Current	186	121700030010-001AT

Stream Data

County	Cherokee	View Site Data
Location	East of the Town of Tahlequah on US Highway 62	
Latitude/Longitude	35.92606447, -94.92380373	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	125	17.4	17.2	0.8/31.7	10.8/23.9	
	Turbidity (NTU)	125	7	4	1/84	3/6	
	pH (units)	123	7.86	7.82	6.47/9.29	7.56/8.11	
	Dissolved Oxygen (mg/L)	125	9.93	10.01	4.66/15.88	7.63/12.06	
	Hardness (mg/L)	125	114	113	69/161	105/123	
Minerals	Total Dissolved Solids (mg/L)	21	172	141	104/565	132/168	
	Specific Conductivity (uS/cm)	125	266	270	66/713	237/292	
	Chloride (mg/L)	100	11	10	<5/24	8/13	
	Sulfate (mg/L)	100	14	13	<5/48	11/15	
Nutrients	Total Phosphorus (mg/L)	133	0.084	0.071	<0.005/0.438	0.043/0.108	See Notes
	Total Nitrogen (mg/L)	132	1.77	1.72	0.4/3.76	1.18/2.28	
	Nitrate/Nitrite (mg/L)	133	1.53	1.53	0.23/3.61	0.97/1.97	
	Chlorophyll A (mg/m^3)	71	3.4	1.9	<0.1/46.4	1.3/3.1	TSI=42.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	64	152	20	<10/2500	<10/100	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	64	62	<10	<10/884	<10/39	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dssolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment	Total Posphorus
Fish & Wildlife Propagation	S	S	S	S						S	S	S	
Aesthetics												S	NS
Agriculture					S		S	S					
Primary Body Contact Recreation									S				
Public & Private Water Supply				S		S			NS				
Fish Consumption				S									

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

79%(64 of 81) of 3-month rolling Geo. Mean above OWQS criterion of 0.037 ppm

Illinois River at Watts

Sample Record	Times Visited	Station ID
November 1998 - Current	188	121700030350-001AT

Stream Data

County	Adair	View Site Data
Location	North of the Town of Watts on US Highway 59	
Latitude/Longitude	36.12994064, -94.57151225	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	126	17.0	16.1	2/31.5	10.4/23.6	
	Turbidity (NTU)	125	11	7	1/95	4/13	
	pH (units)	125	7.89	7.91	6.51/9.03	7.68/8.11	
	Dissolved Oxygen (mg/L)	126	10.55	10.05	4.51/18.88	8.61/11.88	
	Hardness (mg/L)	127	126	126	<10/215	114/138	
Minerals	Total Dissolved Solids (mg/L)	21	188	171	116/566	145/202	
	Specific Conductivity (uS/cm)	126	305	311	149/713	273/339	
	Chloride (mg/L)	99	13	13	<5/28	10/17	
	Sulfate (mg/L)	99	16	14	7/97	12/18	
Nutrients	Total Phosphorus (mg/L)	132	0.152	0.107	<0.005/1.153	0.061/0.216	See Notes
	Total Nitrogen (mg/L)	131	2.52	2.46	0.86/5.06	2.04/2.89	
	Nitrate/Nitrite (mg/L)	132	2.19	2.16	0.65/4.64	1.7/2.55	
	Chlorophyll A (mg/m^3)	71	3.1	2.3	<0.1/15.3	1.4/3.4	TSI=41.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	65	560	20	<10/15531	<10/100	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	65	368	20	<10/12997	<10/63	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment	Total Posphorus
Fish & Wildlife Propagation	S	S	S	S						S	S	S	
Aesthetics												S	NS
Agriculture					S		S	S					
Primary Body Contact Recreation									S				
Public & Private Water Supply				S		S			S				
Fish Consumption				S									

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

91%(73 of 80) of rolling Geo. Mean exceed OWQS criterion of 0.037 ppm

Island Bayou at Albany

Sample Record	Times Visited	Station ID
November 1998 - Current	33	410700000040-001AT

Stream Data

County	Bryan	View Site Data
Location	South of the Town of Albany off State Highway 70E	
Latitude/Longitude	33.853576, -96.16512	
Planning Watershed	Blue-Boggy (8-digit HUC - 11140101)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	22	16.6	16.6	2.9/28.1	10.8/23	
	Turbidity (NTU)	22	82	16	6/798	10/59	
	pH (units)	22	7.66	7.65	7.12/8.2	7.49/7.84	
	Dissolved Oxygen (mg/L)	22	8.60	8.15	5.11/15.22	6.26/10.95	
	Hardness (mg/L)	22	190	190	59/350	128/247	
Minerals	Total Dissolved Solids (mg/L)	23	361	343	130/674	236/469	
	Specific Conductivity (uS/cm)	22	624	623	124/1094	359/889	
	Chloride (mg/L)	23	62	43	10/134	23/106	
	Sulfate (mg/L)	23	80	75	44/126	68/93	
Nutrients	Total Phosphorus (mg/L)	23	0.354	0.276	0.006/1.2	0.176/0.419	
	Total Nitrogen (mg/L)	23	1.46	1.04	0.54/3.97	0.94/1.78	
	Nitrate/Nitrite (mg/L)	23	0.35	0.19	<0.05/1.69	<0.05/0.48	
	Chlorophyll A (mg/m^3)	23	3.3	2.6	<0.1/12.5	0.9/4.9	TSI=42.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	11	737	488	56/2420	132/866	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	11	704	308	15/2420	63/866	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NEI			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Kiamichi River at Antlers

Sample Record	Times Visited	Station ID
November 1998 - Current	179	410300030010-001AT

Stream Data

County	Pushmataha	View Site Data
Location	North of the Town of Antlers on US Highway 271	
Latitude/Longitude	34.24876734, -95.60509256	
Planning Watershed	Southeast (8-digit HUC - 11140105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	145	18.7	18.0	4.4/34	11.7/25.5	
	Turbidity (NTU)	148	27	18	2/173	11/29	
	pH (units)	144	7.33	7.33	5.04/9.31	6.92/7.71	
	Dissolved Oxygen (mg/L)	144	8.39	7.92	2.47/20.26	7.11/9.71	
	Hardness (mg/L)	147	25	18	<10/324	13/26	
Minerals	Total Dissolved Solids (mg/L)	38	52	54	30/77	46/59	
	Specific Conductivity (uS/cm)	145	54	51	0/390	35/70	
	Chloride (mg/L)	108	8	10	<5/10	<5/10	
	Sulfate (mg/L)	108	13	11	<5/33	10/14	
Nutrients	Total Phosphorus (mg/L)	148	0.047	0.035	<0.005/0.328	0.024/0.052	
	Total Nitrogen (mg/L)	145	0.58	0.52	<0.05/1.85	0.39/0.71	
	Nitrate/Nitrite (mg/L)	146	0.11	<0.05	<0.05/1.49	<0.05/0.14	
	Chlorophyll A (mg/m^3)	71	13.1	3.9	0.5/520	2.2/6.6	TSI=55.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	39	348	50	<10/6000	<10/228	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	39	265	31	<10/4106	<10/96	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	NEI	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

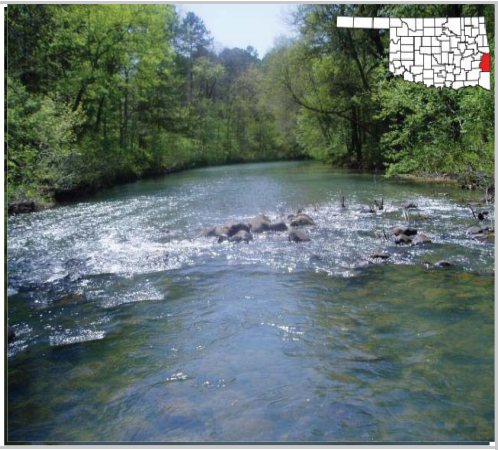
S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for lead
Fish & Wildlife Propagation not supporting for Silver and Lead

Kiamichi River at Big Cedar

Sample Record	Times Visited	Station ID
November 1998 - Current	175	410310020010-001AT



Stream Data

County	LeFlore	View Site Data
Location	East of the Town of Big Cedar on State Highway 63	
Latitude/Longitude	34.63884253, -94.61226313	
Planning Watershed	Southeast (8-digit HUC - 11140105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	141	17.0	17.0	4.2/33.5	10.8/22.4	
	Turbidity (NTU)	144	7	6	1/64	4/8	
	pH (units)	142	7.01	6.87	5.71/9.02	6.61/7.4	16% of values<OWQS
	Dissolved Oxygen (mg/L)	142	8.45	8.54	3.02/15.05	6.85/10.07	
	Hardness (mg/L)	142	15	10	<10/134	10/12	
Minerals	Total Dissolved Solids (mg/L)	21	30	25	11/60	22/35	
	Specific Conductivity (uS/cm)	139	21	21	0/163	6/26	
	Chloride (mg/L)	83	7	<5	<10/10	<5/10	
	Sulfate (mg/L)	83	8	9	<5/23	<5/10	
Nutrients	Total Phosphorus (mg/L)	140	0.015	0.011	<0.005/0.076	0.006/0.019	
	Total Nitrogen (mg/L)	133	0.28	0.22	<0.05/1.13	0.15/0.37	
	Nitrate/Nitrite (mg/L)	134	0.07	<0.05	<0.05/0.7	<0.05/0.05	
	Chlorophyll A (mg/m^3)	37	1.2	0.5	<0.1/7	0.2/1.1	TSI=32.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	38	815	27	<10/24000	<10/74	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	38	97	<10	<10/1317	<10/38	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	NS	S	NS						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Lead, Silver, and Zinc

Kiamichi River at Fort Towson

Sample Record	Times Visited	Station ID
February 2002 - 2012	105	410300010010-002AT

Stream Data

County	Bryan	View Site Data
Location	South of the Town of Fort Towson on State Highway 109	
Latitude/Longitude	33.96940193, -95.27829905	
Planning Watershed	Southeast (8-digit HUC - 11140150)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	85	18.9	19.1	5.5/30.9	11.8/26.3	
	Turbidity (NTU)	86	43	35	8/260	24/50	
	pH (units)	85	7.59	7.63	6.43/8.6	7.21/7.91	
	Dissolved Oxygen (mg/L)	85	8.83	8.56	4.13/15.07	6.79/10.5	
	Hardness (mg/L)	85	41	31	12/235	24/44	
Minerals	Total Dissolved Solids (mg/L)	16	68	66	45/93	58/77	
	Specific Conductivity (uS/cm)	85	76	74	0/299	51/94	
	Chloride (mg/L)	70	11	10	<5/69	10/10	
	Sulfate (mg/L)	70	18	17	10/56	13/22	
Nutrients	Total Phosphorus (mg/L)	86	0.069	0.061	0.022/0.259	0.043/0.081	
	Total Nitrogen (mg/L)	85	0.64	0.57	0.13/1.47	0.47/0.74	
	Nitrate/Nitrite (mg/L)	85	0.11	<0.05	<0.05/1.02	<0.05/0.15	
	Chlorophyll A (mg/m^3)	33	9.7	7.2	1/34.3	3.1/12.7	TSI=52.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	24	419	<10	<10/6700	<10/65	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	24	60	31	<10/528	<10/71	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				NS		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead
Fish & Wildlife Propagation not supporting for Lead
Public & Private Water Supply not supporting for Lead

Kiamichi River at Tuskahoma

Sample Record	Times Visited	Station ID
December 1998 - Current	136	410310010010-001AT

Stream Data

County	Pushmataha	View Site Data
Location	South of the Town of Tuskahoma off US Highway 271	
Latitude/Longitude	34.61236033, -95.27727429	
Planning Watershed	Southeast (8-digit HUC - 11140105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	115	19.3	19.0	3.4/34	12.6/26.7	
	Turbidity (NTU)	118	21	13	1/159	10/24	
	pH (units)	116	7.24	7.21	5.47/8.72	6.91/7.64	
	Dissolved Oxygen (mg/L)	116	8.43	8.38	3.08/17.75	6.99/9.61	
	Hardness (mg/L)	116	20	15	<10/144	11/22	
Minerals	Total Dissolved Solids (mg/L)	19	43	41	30/65	38/45	
	Specific Conductivity (uS/cm)	115	42	41	0/200	19/54	
	Chloride (mg/L)	83	7	7	<5/10	<5/10	
	Sulfate (mg/L)	82	12	10	<5/41	8/13	
Nutrients	Total Phosphorus (mg/L)	126	0.041	0.032	<0.005/0.506	0.023/0.047	
	Total Nitrogen (mg/L)	115	0.47	0.40	<0.05/1.72	0.28/0.56	
	Nitrate/Nitrite (mg/L)	116	0.10	<0.05	<0.05/0.86	<0.05/0.07	
	Chlorophyll A (mg/m^3)	30	6.5	2.5	0.3/32.4	1.2/5.7	TSI=49.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	26	1539	46	<10/35000	<10/88	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	26	319	41	<10/4611	18/92	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	NEI	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Lead and Silver

Lee Creek at Short

Sample Record	Times Visited	Station ID
January 2003 - Present	180	220200050010-001AT

Stream Data

County	Sequoyah	View Site Data
Location	West of the Town of Short on State Highway 101	
Latitude/Longitude	35.56589868, -94.53152717	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110104)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	137	17.2	16.2	0.2/32.5	9.9/24.8	
	Turbidity (NTU)	137	9	5	1/124	4/8	
	pH (units)	137	7.57	7.58	6.31/8.7	7.33/7.84	
	Dissolved Oxygen (mg/L)	137	9.37	9.07	5.23/13.94	7.63/11.16	
	Hardness (mg/L)	135	47	44	<10/130	36/55	
Minerals	Total Dissolved Solids (mg/L)	6	54	57	40/66	42/64	
	Specific Conductivity (uS/cm)	136	95	94	6/266	73/109	
	Chloride (mg/L)	73	10	10	10/10	10/10	
	Sulfate (mg/L)	73	11	10	10/49	10/10	
Nutrients	Total Phosphorus (mg/L)	137	0.013	0.010	<0.005/0.149	<0.005/0.016	
	Total Nitrogen (mg/L)	137	0.30	0.23	<0.05/1.72	0.16/0.37	
	Nitrate/Nitrite (mg/L)	137	0.14	0.06	<0.05/1.62	<0.05/0.15	
	Chlorophyll A (mg/m^3)	106	2.4	0.8	<0.1/92	0.4/1.6	TSI=39.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	52	437	<10	<10/7100	<10/58	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	52	126	<10	<10/2359	<10/39	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment	Total Phosphorus
Fish & Wildlife Propagation	S	S	S	S						S	S	S	
Aesthetics												NEI	NEI
Agriculture					S		S	S					
Primary Body Contact Recreation									S				
Public & Private Water Supply				S									
Fish Consumption				S									

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

LITERATURE CITED

APHA. 1995. Standard methods for the examination of water and wastewater. 19th ed. American Public Health Association, Washington D.C.

Carlson, R.E. 1977. "A trophic state index for lakes". Limnology and Oceanography. 22:361-369.

Hounslow, A.W., 1995, Water Quality Data Analysis and Interpretation: Lewis Publishers, Boca Raton, FL.

Mueller, D.K., Hamilton, P.S., Helsel, D.R., Hitt, K.J., and Ruddy, B.C., 1995, Nutrients in Ground Water and Surface Water of the United States--An Analysis of Data Through 1992: U.S. Geological Survey Water-Resources Investigations Report 95-4031, 74 p.

Oklahoma Department of Tourism and Recreation. "Oklahoma Statewide Comprehensive Outdoor Recreation Plan - This Land is Your Land". 1987. 216pp.

Oklahoma Water Resources Board. "Oklahoma Water Atlas". May 1990. 360pp.

Oklahoma Water Resources Board. "Update of the Oklahoma Comprehensive Water Plan 1995". February 1997. 148pp.

Oklahoma Water Resources Board. "Use Support Assessment Protocols". December 2001-20022. OAC 785:46

United States Environmental Protection Agency. "The Lake and Reservoir Restoration Guidance Manual". August 1990. 326pp.

Wetzel, Robert G. "Limnology – Second Edition". 1983. 767pp.

Little River at Cloudy

Sample Record	Times Visited	Station ID
November 1998 - Current	157	410210020140-001AT

Stream Data

County	Pushmataha	View Site Data
Location	East of the Town of Cloudy on Cloudy Road	
Latitude/Longitude	34.32564049, -95.19911409	
Planning Watershed	southeast (8-digit HUC - 11140107)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	128	19.5	19.9	2/36.3	12/27	
	Turbidity (NTU)	127	12	9	1/91	5/15	26% of values>OWQS
	pH (units)	127	7.20	7.16	5.16/8.63	6.87/7.45	12% of values<OWQS
	Dissolved Oxygen (mg/L)	127	8.96	8.91	2.81/14.13	7.62/10.35	
	Hardness (mg/L)	129	16	10	<10/200	<10/13	
Minerals	Total Dissolved Solids (mg/L)	41	44	43	20/94	33/51	
	Specific Conductivity (uS/cm)	128	31	34	0/130	16/41	
	Chloride (mg/L)	100	8	10	<5/17	<5/10	
	Sulfate (mg/L)	100	10	10	<5/46	7/10	
Nutrients	Total Phosphorus (mg/L)	127	0.030	0.019	<0.005/1.043	0.013/0.025	
	Total Nitrogen (mg/L)	121	0.39	0.35	<0.05/1.45	0.25/0.49	
	Nitrate/Nitrite (mg/L)	121	0.10	<0.05	<0.05/0.84	<0.05/0.12	
	Chlorophyll A (mg/m^3)	47	2.9	1.1	<0.1/45.4	0.7/1.8	TSI=40.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	35	248	70	<10/2800	<10/160	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	35	117	17	<10/1012	<10/105	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	NS	S	NS						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead
Fish & Wildlife Propagation not supporting for Copper, Lead, Zinc, and Silver

Little River at Holly Creek

Sample Record	Times Visited	Station ID
November 2003 - Current	119	410200010200-002AT

Stream Data

County	McCurtain	View Site Data
Location	North of the Town of Idabel on County Road 4615	
Latitude/Longitude	33.93595796, -94.82864529	
Planning Watershed	Southeast (8-digit HUC - 11140107)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	91	18.6	18.6	4.2/32.3	11.8/25.7	
	Turbidity (NTU)	95	17	15	0/65	10/21	50% of values>OWQS
	pH (units)	92	7.23	7.17	6.15/8.37	6.92/7.53	
	Dissolved Oxygen (mg/L)	91	8.65	7.65	3.72/78.8	5.93/9.97	
	Hardness (mg/L)	92	35	24	<10/251	17/42	
Minerals	Total Dissolved Solids (mg/L)	18	57	53	34/104	44/71	
	Specific Conductivity (uS/cm)	91	91	74	0/257	46/126	
	Chloride (mg/L)	54	13	10	10/31	10/13	
	Sulfate (mg/L)	53	12	11	10/22	10/13	
Nutrients	Total Phosphorus (mg/L)	91	0.039	0.035	<0.005/0.14	0.025/0.047	
	Total Nitrogen (mg/L)	90	0.58	0.53	<0.05/1.4	0.38/0.7	
	Nitrate/Nitrite (mg/L)	90	0.14	0.08	<0.05/0.82	<0.05/0.18	
	Chlorophyll A (mg/m^3)	53	7.8	5.8	0.3/48.2	2.5/9.4	TSI=50.8
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	35	108	20	<10/2200	<10/31	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	35	81	25	<10/1296	<10/46	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	U	NS						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Lead and Silver
U = Assessment yielded undetermined supporting status

Little Lee Creek at Nicut

Sample Record	Times Visited	Station ID
February 2008 - Current	107	220200050040-001AT

Stream Data

County	Sequoyah	View Site Data
Location	West of the Town of Short on State Highway 101	
Latitude/Longitude	35.58, -94.56	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110104)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	92	16.7	15.9	0.3/31.4	9.5/23.3	
	Turbidity (NTU)	95	10	4	1/223	2/5	
	pH (units)	93	7.55	7.53	6.3/8.35	7.36/7.83	
	Dissolved Oxygen (mg/L)	93	9.79	9.59	5.01/14.47	8.22/11.82	
	Hardness (mg/L)	91	65	63	36/140	53/74	
Minerals	Total Dissolved Solids (mg/L)	11	71	72	50/94	60/76	
	Specific Conductivity (uS/cm)	91	139	135	75/314	115/153	
	Chloride (mg/L)	33	10	10	10/10	10/10	
	Sulfate (mg/L)	33	10	10	10/15	10/10	
Nutrients	Total Phosphorus (mg/L)	91	0.016	0.006	<0.005/0.259	<0.005/0.009	
	Total Nitrogen (mg/L)	90	0.27	0.19	0.1/1.41	0.15/0.26	
	Nitrate/Nitrite (mg/L)	90	0.12	<0.05	<0.05/0.96	<0.05/0.13	
	Chlorophyll A (mg/m^3)	69	0.8	0.6	<0.1/4.4	0.3/0.9	TSI=28.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	14	218	<10	<10/2420	<10/17	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	14	531	<10	<10/6488	<10/48	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment	Phosphorus
Fish & Wildlife Propagation	S	S	S	S						S	S	S	
Aesthetics												NEI	NEI
Agriculture					S		S	S					
Primary Body Contact Recreation									S				
Public & Private Water Supply				S		S			S				
Fish Consumption				S									

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Little River at Sasakwa

Sample Record	Times Visited	Station ID
November 1998 - Current	165	520800010010-001AT

Stream Data

County	Seminole	View Site Data
Location	North of the Town of Sasakwa on State Highway 56	
Latitude/Longitude	34.96534987, -96.5120113	
Planning Watershed	Central (8-digit HUC - 11090204)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	140	17.8	19.0	0.3/32.3	10.8/26	
In-Situ	Turbidity (NTU)	137	158	44	2/>1000	17/145	20% of values>OWQS
In-Situ	pH (units)	139	8.06	8.07	6.84/8.67	7.93/8.26	
In-Situ	Dissolved Oxygen (mg/L)	140	9.05	8.62	3.88/17.75	7.47/10.27	
In-Situ	Hardness (mg/L)	140	312	302	72/980	225/378	
Minerals	Total Dissolved Solids (mg/L)	75	653	655	200/2290	436/800	
Minerals	Specific Conductivity (uS/cm)	140	1174	1168	204/4335	710/1568	
Minerals	Chloride (mg/L)	138	243	229	29/1360	138/299	
Minerals	Sulfate (mg/L)	137	43	37	10/261	30/45	
Nutrients	Total Phosphorus (mg/L)	140	0.131	0.059	<0.005/2.05	0.031/0.118	
Nutrients	Total Nitrogen (mg/L)	139	0.83	0.62	<0.05/6.06	0.42/0.93	
Nutrients	Nitrate/Nitrite (mg/L)	140	0.11	<0.05	<0.05/1.07	<0.05/0.12	
Nutrients	Chlorophyll A (mg/m^3)	37	6.6	3.0	<0.1/90.3	1.5/6.9	TSI=49.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	41	2918	105	<10/93000	33/563	Mean>OWQS
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	41	375	41	<10/5794	13/138	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Little River at Tecumseh

Sample Record	Times Visited	Station ID
January 2013- Current	32	520800020010-001AT

Stream Data

County	Potawatomie	View Site Data
Location	South of the Town of Tecumseh on US 177	
Latitude/Longitude	35.1725, -96.931667	
Planning Watershed	Central (8-digit HUC - 11090203)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	23	15.7	15.8	0.5/33.8	8.2/21.1	
	Turbidity (NTU)	23	36	10	3/254	5/21	
	pH (units)	23	8.12	8.19	7.54/8.53	7.99/8.3	
	Dissolved Oxygen (mg/L)	23	10.03	9.30	7.71/15.28	8.4/11.39	
	Hardness (mg/L)	23	273	275	141/404	236/310	
Minerals	Total Dissolved Solids (mg/L)	22	483	511	180/661	402/567	
	Specific Conductivity (uS/cm)	23	944	1049	326/1413	875/1115	
	Chloride (mg/L)	23	131	137	16/240	91/170	
	Sulfate (mg/L)	23	51	49	26/72	43/59	
Nutrients	Total Phosphorus (mg/L)	23	0.047	0.017	<0.005/0.246	<0.005/0.074	
	Total Nitrogen (mg/L)	23	0.68	0.49	0.26/1.64	0.43/0.73	
	Nitrate/Nitrite (mg/L)	23	0.07	<0.05	<0.05/0.23	<0.05/0.05	
	Chlorophyll A (mg/m^3)	23	2.9	1.5	0.4/10.3	0.8/3.7	TSI=41.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	10	1147	848	179/2420	283/2420	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	10	412	104	20/2420	29/505	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NEI	NEI	NEI	NEI						NEI	NEI	NEI
Aesthetics												NEI
Agriculture					NEI		NEI	NEI				
Primary Body Contact Recreation									NEI			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				NEI								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Mountain Fork River at Eagletown

Sample Record	Times Visited	Station ID
November 1998 - Current	172	410210040010-001AT

Stream Data

County	McCurtain	View Site Data
Location	East of the Town of Broken Bow on US Highway 70	
Latitude/Longitude	34.04168908, -94.62071144	
Planning Watershed	Southeast (8-digit HUC - 11140108)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	140	16.6	16.9	2.6/29.5	12.1/21	
	Turbidity (NTU)	145	4	3	1/29	2/5	
	pH (units)	139	7.25	7.19	4.68/9.3	6.9/7.6	
	Dissolved Oxygen (mg/L)	140	9.22	9.11	4.99/12.85	8.01/10.36	
	Hardness (mg/L)	141	14	10	<10/93	10/13	
Minerals	Total Dissolved Solids (mg/L)	39	31	30	8/84	24/35	
	Specific Conductivity (uS/cm)	139	27	30	0/181	9/36	
	Chloride (mg/L)	106	8	10	<5/27	<5/10	
	Sulfate (mg/L)	106	8	10	<5/15	<5/10	
Nutrients	Total Phosphorus (mg/L)	142	0.019	0.011	<0.005/0.808	0.007/0.016	
	Total Nitrogen (mg/L)	142	0.44	0.38	<0.05/6.22	0.29/0.47	
	Nitrate/Nitrite (mg/L)	142	0.16	0.15	<0.05/0.5	0.11/0.18	
	Chlorophyll A (mg/m^3)	56	1.4	1.2	<0.1/2.9	1/1.7	TSI=33.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	42	318	25	<10/4000	<10/194	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	42	78	20	<10/1956	<10/31	

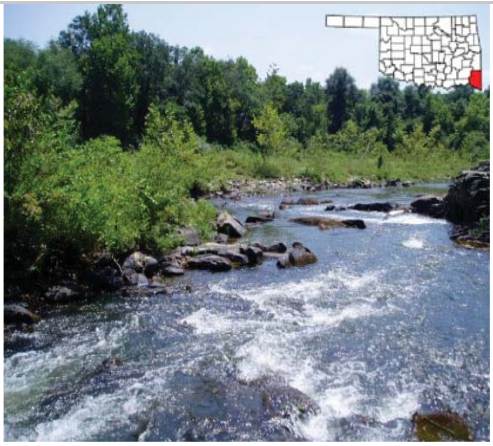
Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S								
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish & Wildlife Propagation not supporting for Lead and Silver*

Mountain Fork River at Smithville



Sample Record	Times Visited	Station ID
November 1998 - Current	233	410210060010-001AT

Stream Data

County	McCurtain	View Site Data
Location	East of the Town of Smithville on State Highway 4	
Latitude/Longitude	34.4616061, -94.63230583	
Planning Watershed	Southeast (8-digit HUC - 11140108)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	186	18.2	18.5	0.5/33.5	10.5/25.5	
	Turbidity (NTU)	191	16	8	1/347	5/13	28% of values>OWQS
	pH (units)	187	7.17	7.09	4.73/9.04	6.82/7.52	
	Dissolved Oxygen (mg/L)	186	8.97	8.73	3.66/19	7.37/10.46	
	Hardness (mg/L)	187	15	10	3/135	10/15	
Minerals	Total Dissolved Solids (mg/L)	23	36	36	14/59	26/45	
	Specific Conductivity (uS/cm)	186	34	36	0/180	25/42	
	Chloride (mg/L)	88	8	10	<5/28	5/10	
	Sulfate (mg/L)	87	9	10	<5/28	6/10	
Nutrients	Total Phosphorus (mg/L)	183	0.029	0.020	<0.005/0.281	0.012/0.03	
	Total Nitrogen (mg/L)	177	0.49	0.44	<0.05/2.11	0.3/0.57	
	Nitrate/Nitrite (mg/L)	178	0.14	<0.05	<0.05/1.46	<0.05/0.19	
	Chlorophyll A (mg/m^3)	110	2.7	1.8	<0.1/15.8	0.9/3.5	TSI=40.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	55	1243	<10	<10/57000	<10/60	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	55	91	<10	<10/2420	<10/41	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment	Total Phosphorus
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S	
Aesthetics												S	NEI
Agriculture					S		S	S					
Primary Body Contact Recreation									S				
Public & Private Water Supply				S		S			S				
Fish Consumption				S									

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Zinc, Silver, and Lead

Mud Creek at Courtney

Sample Record	Times Visited	Station ID
November 1998 - Current	160	311100040010-001AT

Stream Data

County	Love	View Site Data
Location	Near the Town of Courtney on State Highway 32	
Latitude/Longitude	34.004167, -97.566667	
Planning Watershed	Lower Washita (8-digit HUC - 11130201)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	141	18.9	19.1	3.4/32.6	12.6/26.6	
	Turbidity (NTU)	142	218	101	15/>1000	50/298	83% of values>OWQS
	pH (units)	140	7.87	7.90	7.14/8.81	7.65/8.07	
	Dissolved Oxygen (mg/L)	141	6.71	6.61	1.42/17.43	5.12/8.11	31% of values<OWQS and 22% of values<alt OWQS
	Hardness (mg/L)	140	239	218	30/670	133/299	
Minerals	Total Dissolved Solids (mg/L)	75	480	394	93/1310	296/574	
	Specific Conductivity (uS/cm)	140	743	653	90/2292	344/902	
	Chloride (mg/L)	139	96	69	<5/568	26/132	
	Sulfate (mg/L)	138	75	67	20/247	43/96	
Nutrients	Total Phosphorus (mg/L)	140	0.240	0.166	0.024/1.609	0.104/0.324	
	Total Nitrogen (mg/L)	139	1.36	1.13	0.3/3.85	0.82/1.77	
	Nitrate/Nitrite (mg/L)	140	0.19	0.10	<0.05/0.97	<0.05/0.33	
	Chlorophyll A (mg/m^3)	21	27.3	11.2	1.5/164	4.6/37.4	TSI=63.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	32	900	251	<10/17000	43/600	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	32	223	64	<10/1986	23/294	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	NS	NS						S	NEI	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				NS								

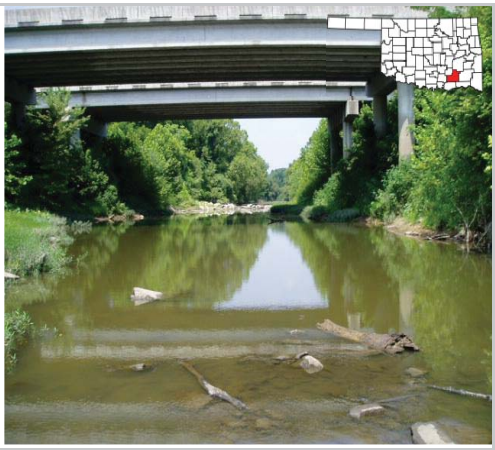
S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Lead
Fish Consumption not supporting for Lead

Muddy Boggy Creek at Atoka

Sample Record	Times Visited	Station ID
November 1998 - Current	174	410400050270-001AT



Stream Data

County	Atoka	View Site Data
Location	North of the Town of Atoka on US 69	
Latitude/Longitude	34.39420542, -96.12436418	
Planning Watershed	Blue-Boggy (8-digit HUC -11140103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	139	17.5	17.4	1.7/31.3	10.4/25.1	
	Turbidity (NTU)	139	141	75	5/>1000	38/166	42% of values>OWQS
	pH (units)	139	7.32	7.34	5.92/8.31	7.08/7.57	
	Dissolved Oxygen (mg/L)	139	7.48	6.80	2.97/34.62	5.26/9.15	21% of values<OWQS and 5% of values<alt OWQS
	Hardness (mg/L)	138	88	85	24/197	63/108	
Minerals	Total Dissolved Solids (mg/L)	37	191	178	51/405	137/241	
	Specific Conductivity (uS/cm)	138	248	222	62/757	152/313	
	Chloride (mg/L)	102	22	15	<5/148	10/24	
	Sulfate (mg/L)	102	52	46	16/134	34/64	
Nutrients	Total Phosphorus (mg/L)	140	0.139	0.102	<0.005/0.632	0.066/0.176	
	Total Nitrogen (mg/L)	139	1.11	1.00	0.36/4.21	0.76/1.33	
	Nitrate/Nitrite (mg/L)	139	0.15	0.11	<0.05/0.7	<0.05/0.2	
	Chlorophyll A (mg/m^3)	39	10.0	5.4	<0.1/42.5	2.2/14.6	TSI=53.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	45	884	100	<10/19863	42/850	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	45	854	56	<10/19863	19/301	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	NEI	S						S	NEI	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Lead*

Muddy Boggy Creek at Unger

Sample Record	Times Visited	Station ID
July 1999 - Current	166	410400010070-001AT

Stream Data

County	Choctaw	View Site Data
Location	East of the Town of Unger on US 70	
Latitude/Longitude	34.02512076, -95.7511845	
Planning Watershed	Blue-Boggy (8-digit HUC -11140103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	134	18.7	18.7	2.8/36.3	11.6/25.7	
In-Situ	Turbidity (NTU)	135	118	66	3/857	36/119	26% of values>OWQS
In-Situ	pH (units)	133	7.66	7.69	6.71/8.21	7.5/7.88	
In-Situ	Dissolved Oxygen (mg/L)	134	8.31	7.80	3.87/40.07	6.21/10.15	
In-Situ	Hardness (mg/L)	135	132	132	21/268	100/167	
Minerals	Total Dissolved Solids (mg/L)	31	261	244	95/921	160/289	
Minerals	Specific Conductivity (uS/cm)	133	355	363	100/732	229/459	
Minerals	Chloride (mg/L)	95	40	29	<5/181	14/59	
Minerals	Sulfate (mg/L)	95	34	29	13/134	22/41	
Nutrients	Total Phosphorus (mg/L)	134	0.138	0.097	<0.005/1.017	0.065/0.168	
Nutrients	Total Nitrogen (mg/L)	133	0.88	0.75	<0.05/2.19	0.55/1.1	
Nutrients	Nitrate/Nitrite (mg/L)	133	0.14	0.10	<0.05/0.88	<0.05/0.21	
Nutrients	Chlorophyll A (mg/m^3)	39	8.4	7.1	<0.1/22.3	2.6/12.9	TSI=51.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	37	607	90	<10/8000	20/512	Mean>OWQS
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	37	251	52	<10/2755	15/178	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	NEI	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Neosho River at Chouteau

Sample Record	Times Visited	Station ID
November 1998 - Current	157	121600010280-001AT

Stream Data

County	Mayes	View Site Data
Location	East of the Town of Chouteau on US 412	
Latitude/Longitude	36.17655098, -95.27570708	
Planning Watershed	Grand (8-digit HUC - 11070209)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	123	17.6	18.0	3.8/35.3	10.4/24.8	
	Turbidity (NTU)	124	16	12	3/72	9/17	
	pH (units)	123	7.94	7.91	7.11/9.41	7.62/8.22	
	Dissolved Oxygen (mg/L)	123	9.40	8.98	2.45/17.25	7.4/11.4	See Notes
	Hardness (mg/L)	124	127	125	75/204	111/140	
Minerals	Total Dissolved Solids (mg/L)	20	172	162	128/240	152/196	
	Specific Conductivity (uS/cm)	123	288	282	141/610	250/322	
	Chloride (mg/L)	72	11	10	<5/26	6/15	
	Sulfate (mg/L)	72	35	31	22/157	27/35	
Nutrients	Total Phosphorus (mg/L)	128	0.235	0.134	<0.005/1.38	0.093/0.266	
	Total Nitrogen (mg/L)	128	1.21	1.16	0.49/2.41	0.87/1.51	
	Nitrate/Nitrite (mg/L)	129	0.54	0.47	<0.05/1.4	0.24/0.79	
	Chlorophyll A (mg/m^3)	66	15.9	12.8	1.5/70	7.2/19.2	TSI=57.7
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	35	86	<10	<10/1400	<10/41	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	35	50	<10	<10/882	<10/23	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	NS	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Upstream water quality probes show numerous samples were below 2 mg/L

Neosho River at Commerce

Sample Record	Times Visited	Station ID
October 2000 - Current	151	121600040220-001AT

Stream Data

County	Ottawa	View Site Data
Location	West of the Town of Commerce on County Road E60	
Latitude/Longitude	36.92899836, -94.95707349	
Planning Watershed	Grand (8-digit HUC - 11070206)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	118	16.8	17.7	0.3/33.2	8.7/25.1	
	Turbidity (NTU)	120	114	52	4/>1000	25/100	23% of values>OWQS
	pH (units)	119	7.91	7.96	6.53/9.05	7.71/8.14	
	Dissolved Oxygen (mg/L)	119	9.07	8.40	3.34/15.43	7.17/11.36	
	Hardness (mg/L)	119	179	179	15/300	149/221	
Minerals	Total Dissolved Solids (mg/L)	8	223	208	140/337	160/291	
	Specific Conductivity (uS/cm)	119	383	384	81/701	303/460	
	Chloride (mg/L)	84	11	10	<5/20	10/13	
	Sulfate (mg/L)	84	61	57	22/166	39/77	
Nutrients	Total Phosphorus (mg/L)	122	0.197	0.151	0.007/1.04	0.101/0.239	
	Total Nitrogen (mg/L)	122	1.41	1.14	0.3/4.42	0.7/1.87	
	Nitrate/Nitrite (mg/L)	122	0.44	0.27	<0.05/3.59	<0.05/0.62	
	Chlorophyll A (mg/m^3)	81	20.1	12.4	0.1/200	6.3/23.6	TSI=60.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	38	7991	52	<10/282000	12/463	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	38	472	31	<10/8074	<10/81	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	NS
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Lead

Neosho River at Connor Bridge

Sample Record	Times Visited	Station ID
December 1998 – March 2007	105	121600040010-001AT

Stream Data

County	Ottawa	View Site Data
Location	Northeast of the Town of Fairland on County Road S 590	
Latitude/Longitude	36.79864906, -94.81927419	
Planning Watershed	Grand (8-digit HUC -11070206)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	68	17.5	18.0	2.9/33.1	8.3/24.5	
	Turbidity (NTU)	68	87	37	4/>1000	17/97	
	pH (units)	67	7.83	7.80	6.66/9.33	7.43/8.20	
	Dissolved Oxygen (mg/L)	68	8.54	8.35	1.69/13.58	6.59/11.03	
	Hardness (mg/L)	69	181	191	76/277	135/218	
Minerals	Total Dissolved Solids (mg/L)	69	233	235	88/413	193/273	
	Specific Conductivity (uS/cm)	68	376	377	137/860	301/449	
	Chloride (mg/L)	69	12	<10	<10/31	<10/12	
	Sulfate (mg/L)	69	66	67	<10/117	47/86	
Nutrients	Total Phosphorus (mg/L)	70	0.198	0.163	0.047/0.890	0.118/0.251	
	Total Nitrogen (mg/L)	68	1.29	1.18	0.31/3.14	0.77/1.54	
	Nitrate/Nitrite (mg/L)	69	0.44	0.30	<0.05/1.63	0.12/0.72	
	Chlorophyll A (mg/m^3)	15	13.9	11.4	0.9/45.4	4.6/18.0	TSI=56.4
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	23	1697	<10	<10/37000	<10/30	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	23	152	<10	<10/2359	<10/52	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						U	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Neosho River at Langley

Sample Record	Times Visited	Station ID
December 1998 - Current	168	121600020170-001AT

Stream Data

County	Mayes	View Site Data
Location	South of the Town of Langley on State Highway 82	
Latitude/Longitude	36.44372767, -95.05554329	
Planning Watershed	Grand (8-digit HUC - 11070209)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	132	16.2	16.9	2.1/27.1	10.4/23.1	
	Turbidity (NTU)	135	10	6	1/59	5/11	
	pH (units)	132	7.74	7.76	6.89/9.26	7.52/7.98	
	Dissolved Oxygen (mg/L)	133	8.13	7.93	2.12/15.73	6.16/10.34	
	Hardness (mg/L)	134	126	123	11/236	110/141	
Minerals	Total Dissolved Solids (mg/L)	25	172	161	125/283	147/195	
	Specific Conductivity (uS/cm)	133	266	269	4/475	236/298	
	Chloride (mg/L)	101	9	10	<5/65	<5/10	
	Sulfate (mg/L)	101	28	26	17/61	23/31	
Nutrients	Total Phosphorus (mg/L)	137	0.090	0.081	<0.005/0.251	0.063/0.114	
	Total Nitrogen (mg/L)	137	1.06	0.94	0.3/3.56	0.7/1.33	
	Nitrate/Nitrite (mg/L)	138	0.56	0.49	<0.05/3.14	0.24/0.75	
	Chlorophyll A (mg/m^3)	77	5.7	4.0	0.6/23.2	2.3/6.9	TSI=47.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	37	39	<10	<10/300	<10/41	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	37	14	<10	<10/86	<10/12	

Beneficial Uses

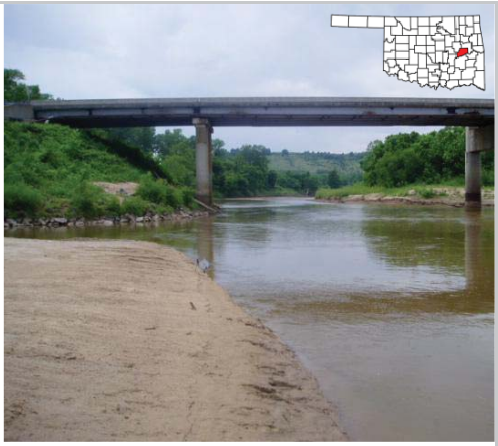
Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						U	NEI	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

North Canadian River at Dustin



Sample Record	Times Visited	Station ID
November 1998 – May 2008	122	520500010110-001AT

Stream Data

County	McIntosh	View Site Data
Location	North of the Town of Dustin on State Highway 84	
Latitude/Longitude	35.31617996, -95.95493326	
Planning Watershed	Eufaula (8-digit HUC - 11100302)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	86	18.2	18.2	-0.5/34.4	10.8/26.2	
In-Situ	Turbidity (NTU)	85	246	133	21/>1000	55/294	78% of values>OWQS
In-Situ	pH (units)	85	8.27	8.23	7.02/9.48	7.94/8.58	
In-Situ	Dissolved Oxygen (mg/L)	85	9.18	8.98	3.89/16.80	7.22/10.99	
In-Situ	Hardness (mg/L)	87	242	210	89/1900	163/260	
Minerals	Total Dissolved Solids (mg/L)	86	455	451	127/800	367/581	
Minerals	Specific Conductivity (uS/cm)	85	725	710	199/1271	587/921	
Minerals	Chloride (mg/L)	90	107	113	15/218	73/137	
Minerals	Sulfate (mg/L)	89	98	89	34/316	61/119	
Nutrients	Total Phosphorus (mg/L)	90	0.475	0.394	0.147/1.220	0.323/0.598	
Nutrients	Total Nitrogen (mg/L)	88	2.31	2.08	0.59/5.44	1.60/2.86	
Nutrients	Nitrate/Nitrite (mg/L)	90	0.59	0.28	<0.05/3.49	<0.05/0.76	
Nutrients	Chlorophyll A (mg/m^3)	13	93.6	50.3	11.5/287.5	21.1/148.0	TSI=75.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	25	861	200	<10/12000	20/537	Mean>OWQS
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	25	75	<10	<10/528	<10/80	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						U	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead
U = Assessment yielded undetermined supporting status

North Canadian River at El Reno

Sample Record	Times Visited	Station ID
November 1998 - Current	162	520530000010-001AT

Stream Data

County	Canadian	View Site Data
Location	North of the Town of El Reno on US 81	
Latitude/Longitude	35.56261214, -97.95884556	
Planning Watershed	Central (8-digit HUC -11100301)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	139	17.6	18.1	-0.3/34.8	9/25.3	
	Turbidity (NTU)	136	48	19	2/>1000	7/43	
	pH (units)	136	8.18	8.22	7.1/9.3	8/8.38	
	Dissolved Oxygen (mg/L)	139	9.68	9.21	0.34/18.69	7.91/11.41	
	Hardness (mg/L)	138	448	448	<10/1080	388/499	
Minerals	Total Dissolved Solids (mg/L)	77	855	888	326/1200	791/951	
	Specific Conductivity (uS/cm)	139	1324	1397	1/2270	1216/1504	
	Chloride (mg/L)	136	148	156	10/239	121/182	
	Sulfate (mg/L)	136	272	278	111/474	226/303	
Nutrients	Total Phosphorus (mg/L)	138	0.153	0.113	<0.005/1.45	0.061/0.211	
	Total Nitrogen (mg/L)	136	1.01	0.89	0.16/4.7	0.65/1.35	
	Nitrate/Nitrite (mg/L)	136	0.13	<0.05	<0.05/0.69	<0.05/0.19	
	Chlorophyll A (mg/m^3)	71	21.3	12.4	0.5/143	3.9/32	TSI=60.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	32	431	135	<10/6000	42/288	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	32	153	31	<10/2420	<10/116	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

North Canadian River at Harrah

Sample Record	Times Visited	Station ID
November 1998 – December 2012	97	520510000110-001AT

Stream Data

County	Oklahoma	View Site Data
Location	North of the Town of Harrah on State Highway 62	
Latitude/Longitude	35.50033302, -97.19429527	
Planning Watershed	Central (8-digit HUC - 11100302)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	81	19.9	20.6	1.4/34.3	12.8/26.8	
	Turbidity (NTU)	80	118	45	6/>1000	20/91	44% of values>OWQS
	pH (units)	80	8.20	8.12	7.25/9.6	7.84/8.44	
	Dissolved Oxygen (mg/L)	81	9.83	9.37	5.22/20	7.84/11.19	
	Hardness (mg/L)	80	314	255	80/3950	203/326	
Minerals	Total Dissolved Solids (mg/L)	18	596	620	332/848	498/666	
	Specific Conductivity (uS/cm)	81	937	958	153/1394	740/1134	
	Chloride (mg/L)	81	131	137	21/290	98/164	
	Sulfate (mg/L)	80	128	118	40/240	88/168	
Nutrients	Total Phosphorus (mg/L)	81	1.028	0.900	0.285/3.12	0.573/1.315	
	Total Nitrogen (mg/L)	80	4.31	3.72	0.91/11.65	2.64/5.32	
	Nitrate/Nitrite (mg/L)	81	2.76	2.01	0.14/10.11	0.91/3.78	
	Chlorophyll A (mg/m^3)	24	45.4	36.0	2.6/157	22.3/64.8	TSI=68.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	27	1470	298	40/12000	85/1182	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	27	915	74	<10/10462	20/305	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead

North Canadian River at Seiling

Sample Record	Times Visited	Station ID
November 1998 - Current	162	720500010010-001AT

Stream Data

County	Major	View Site Data
Location	North of the Town of Seiling on US 281	
Latitude/Longitude	36.18359095, -98.92046478	
Planning Watershed	Panhandle (8-digit HUC -11100301)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	139	16.8	16.7	-0.5/36.5	10.4/24.2	
In-Situ	Turbidity (NTU)	140	42	21	1/>1000	7/40	
In-Situ	pH (units)	135	8.15	8.18	7.19/9.1	8.05/8.31	
In-Situ	Dissolved Oxygen (mg/L)	138	10.05	9.97	1.2/21.73	8.46/11.53	
In-Situ	Hardness (mg/L)	138	541	535	40/2098	443/603	
Minerals	Total Dissolved Solids (mg/L)	78	1073	1080	787/1336	987/1187	
Minerals	Specific Conductivity (uS/cm)	138	1550	1565	547/3250	1407/1709	
Minerals	Chloride (mg/L)	137	189	184	<5/540	168/211	
Minerals	Sulfate (mg/L)	138	333	333	106/669	285/385	
Nutrients	Total Phosphorus (mg/L)	137	0.107	0.088	<0.005/0.363	0.045/0.138	
Nutrients	Total Nitrogen (mg/L)	138	1.07	1.04	0.29/2.58	0.75/1.35	
Nutrients	Nitrate/Nitrite (mg/L)	138	0.31	0.23	<0.05/1.19	<0.05/0.53	
Nutrients	Chlorophyll A (mg/m^3)	33	10.5	7.4	0.9/52.5	2.1/14.4	TSI=53.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	30	2898	170	<10/76000	28/521	Mean>OWQS
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	30	163	31	<10/3130	<10/97	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						NS	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Sampling and Assessment by the **Oklahoma Water Resources Board** – 3800 Classen Blvd, Oklahoma City, OK, 73118 – 405.530.8800 – http://www.owrb.ok.gov

North Canadian River at Shawnee

Sample Record	Times Visited	Station ID
February 2002 - 2012	105	520510000110-005AT

Stream Data

County	Pottawatomie	View Site Data
Location	East of the Town of Shawnee on State Highway 3E	
Latitude/Longitude	35.41056345, -96.78883533	
Planning Watershed	Central (8-digit HUC - 11100302)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	86	17.9	18.6	-0.4/34.4	10.4/25.6	
	Turbidity (NTU)	87	133	56	3/>1000	22/143	33% of values>OWQS
	pH (units)	85	8.30	8.23	7.26/9.98	7.93/8.52	
	Dissolved Oxygen (mg/L)	85	10.30	9.46	2.64/25.01	8.06/12.48	
	Hardness (mg/L)	84	260	260	116/449	207/307	
Minerals	Total Dissolved Solids (mg/L)	35	579	600	327/752	558/634	14% of values>OWQS
	Specific Conductivity (uS/cm)	86	854	884	242/1387	688/1040	
	Chloride (mg/L)	85	119	127	18/181	94/150	
	Sulfate (mg/L)	84	112	107	55/266	78/128	
Nutrients	Total Phosphorus (mg/L)	87	0.887	0.760	0.137/2.47	0.618/1.05	
	Total Nitrogen (mg/L)	87	4.34	3.87	1.67/9.42	2.95/5.3	
	Nitrate/Nitrite (mg/L)	87	2.34	1.84	<0.05/7.79	1.04/3.17	
	Chlorophyll A (mg/m^3)	52	92.5	61.2	<0.1/408	40.5/125.3	TSI=75.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	30	1674	105	<10/24192	18/600	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	30	1189	41	<10/24192	<10/165	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

North Canadian River at Wetumka

Sample Record	Times Visited	Station ID
September 1999 - Current	161	520510000010-001AT

Stream Data

County	Hughes	View Site Data
Location	Northeast of the Town of Wetumka on US 75	
Latitude/Longitude	35.26449455, -96.20706383	
Planning Watershed	Central (8-digit HUC -11100302)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	134	18.9	19.5	0.8/36.2	12/27	
In-Situ	Turbidity (NTU)	136	220	101	16/>1000	45/257	18% of values>OWQS
In-Situ	pH (units)	133	8.40	8.33	7.47/9.9	8.07/8.72	24% of values>OWQS
In-Situ	Dissolved Oxygen (mg/L)	133	10.23	10.15	4.64/19.46	8.02/12.21	
In-Situ	Hardness (mg/L)	134	239	206	60/2500	172/263	
Minerals	Total Dissolved Solids (mg/L)	67	452	452	238/726	376/520	
Minerals	Specific Conductivity (uS/cm)	134	743	742	244/1208	624/898	
Minerals	Chloride (mg/L)	131	103	108	11/260	81/127	
Minerals	Sulfate (mg/L)	130	92	84	23/247	62/116	
Nutrients	Total Phosphorus (mg/L)	133	0.570	0.473	0.049/1.51	0.39/0.706	
Nutrients	Total Nitrogen (mg/L)	132	2.92	2.70	0.61/6.39	1.98/3.78	
Nutrients	Nitrate/Nitrite (mg/L)	133	0.91	0.42	<0.05/4.89	<0.05/1.4	
Nutrients	Chlorophyll A (mg/m^3)	73	109.0	80.8	4.4/502	40.2/134.5	TSI=76.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	45	1719	100	<10/34000	20/500	Mean>OWQS
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	45	368	26	<10/7701	<10/139	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	NS	S	S						NS	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Sampling and Assessment by the **Oklahoma Water Resources Board** – 3800 Classen Blvd, Oklahoma City, OK, 73118 – 405.530.8800 – http://www.owrb.ok.gov

North Canadian River at Woodward

Sample Record	Times Visited	Station ID
October 2000 - Current	143	720500010140-001AT

Stream Data

County	Woodward	View Site Data
Location	East of the Town of Woodward on US 412	
Latitude/Longitude	36.43687215, -99.27835799	
Planning Watershed	Panhandle (8-digit HUC -11100301)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	117	18.3	19.0	0.3/35.9	12.4/25.4	
	Turbidity (NTU)	119	21	9	2/125	4/28	
	pH (units)	113	8.19	8.21	7.4/9.15	7.98/8.38	
	Dissolved Oxygen (mg/L)	115	10.71	10.56	4.67/23.29	8.74/12.37	
	Hardness (mg/L)	117	546	500	188/3620	410/653	
Minerals	Total Dissolved Solids (mg/L)	57	1312	1290	384/2160	993/1630	
	Specific Conductivity (uS/cm)	117	1804	1689	650/3361	1420/2177	
	Chloride (mg/L)	118	276	250	95/600	205/314	
	Sulfate (mg/L)	117	324	282	78/743	213/426	
Nutrients	Total Phosphorus (mg/L)	118	0.177	0.124	0.009/0.845	0.081/0.215	
	Total Nitrogen (mg/L)	119	1.98	1.59	0.53/7.55	1.22/2.4	
	Nitrate/Nitrite (mg/L)	119	1.00	0.62	<0.05/5.91	0.37/1.25	
	Chlorophyll A (mg/m^3)	58	26.0	11.7	2.5/489	6.2/22.9	TSI=62.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	31	2669	199	<10/65000	31/700	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	31	693	41	<10/19863	20/63	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	U	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Poteau River at Heavener

Sample Record	Times Visited	Station ID
November 1998 – December 2012	141	220100020010-001AT

Stream Data

County	LeFlore	View Site Data
Location	South of the Town of Heavener on State Highway 59	
Latitude/Longitude	34.85833476, -94.62923436	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	118	19.0	19.2	1.8/34.9	12.1/25.8	
In-Situ	Turbidity (NTU)	121	23	16	0/152	11/25	
In-Situ	pH (units)	118	7.27	7.25	5.96/8.97	6.92/7.63	
In-Situ	Dissolved Oxygen (mg/L)	118	8.19	7.80	3.77/16	6.58/9.79	
In-Situ	Hardness (mg/L)	118	48	35	<10/188	21/62	
Minerals	Total Dissolved Solids (mg/L)	20	94	66	42/292	53/112	
Minerals	Specific Conductivity (uS/cm)	118	136	102	0/486	57/180	
Minerals	Chloride (mg/L)	77	10	10	<5/105	<5/10	
Minerals	Sulfate (mg/L)	78	35	21	10/146	16/41	
Nutrients	Total Phosphorus (mg/L)	114	0.075	0.054	0.008/0.430	0.038/0.087	
Nutrients	Total Nitrogen (mg/L)	112	0.67	0.64	0.19/1.62	0.46/0.78	
Nutrients	Nitrate/Nitrite (mg/L)	113	0.19	0.16	<0.05/0.74	<0.05/0.29	
Nutrients	Chlorophyll A (mg/m^3)	13	9.5	9.4	1.8/29.7	3.2/13.1	TSI=52.7
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	65	20	<10/400	<10/80	Mean>OWQS
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	58	31	<10/393	13/52	

Beneficial Uses

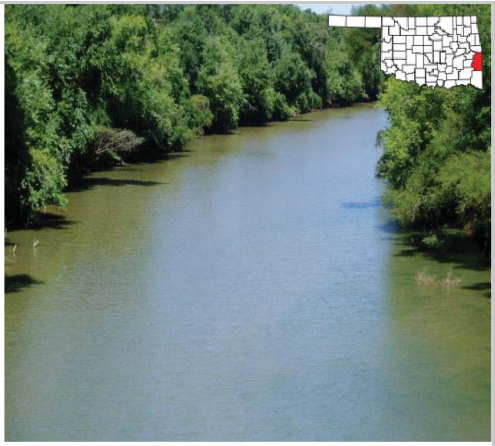
Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	NEI	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Poteau River at Pocola

Sample Record	Times Visited	Station ID
November 1998 - Current	167	220100010010-001AT



Stream Data

County	LeFlore	View Site Data
Location	West of the Town of Pocola on County Road E 1220	
Latitude/Longitude	35.23864842, -94.52021262	
Planning Watershed	Lower Arkansas (8-digit HUC -11110105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	148	18.7	19.1	2.9/34.6	11.2/26	
	Turbidity (NTU)	155	75	52	11/476	36/89	19% of values>OWQS
	pH (units)	150	7.28	7.25	5.39/8.99	6.96/7.62	
	Dissolved Oxygen (mg/L)	151	8.02	7.79	3.31/15.94	6.18/9.59	
	Hardness (mg/L)	153	51	46	<10/414	32/58	
Minerals	Total Dissolved Solids (mg/L)	23	126	98	48/675	70/128	
	Specific Conductivity (uS/cm)	149	140	129	0/530	81/177	
	Chloride (mg/L)	84	9	10	<5/33	<5/10	
	Sulfate (mg/L)	84	37	34	<5/88	25/46	
Nutrients	Total Phosphorus (mg/L)	151	0.126	0.110	0.017/0.416	0.076/0.149	
	Total Nitrogen (mg/L)	148	1.08	0.95	0.17/6.45	0.77/1.2	
	Nitrate/Nitrite (mg/L)	150	0.35	0.24	<0.05/4.96	0.11/0.41	
	Chlorophyll A (mg/m^3)	65	16.2	14.5	1.9/77.3	8.8/20.8	TSI=57.8
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	38	142	31	<10/2420	18/65	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	38	101	23	<10/2420	<10/55	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Lead
Fish Consumption not supporting for Lead

North Fork of the Red River at Carter

Sample Record	Times Visited	Station ID
November 1998 - Current	156	311510010010-001AT

Stream Data

County	Beckham	View Site Data
Location	South of the Town of Carter on State Highway 34	
Latitude/Longitude	35.16712931, -99.50730365	
Planning Watershed	Southwest (8-digit HUC -11120302)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	128	17.9	18.1	-0.9/36.5	10/24.9	
	Turbidity (NTU)	131	55	15	1/>1000	6/37	
	pH (units)	126	8.08	8.10	7.61/8.55	7.93/8.23	
	Dissolved Oxygen (mg/L)	128	9.62	9.13	5.33/17	8.03/10.84	
	Hardness (mg/L)	130	935	923	89/1960	810/1066	
Minerals	Total Dissolved Solids (mg/L)	70	1946	1893	1132/3050	1750/2092	
	Specific Conductivity (uS/cm)	128	2762	2728	970/5645	2443/3085	
	Chloride (mg/L)	131	392	377	39/1100	300/464	
	Sulfate (mg/L)	131	726	720	64/1240	585/869	
Nutrients	Total Phosphorus (mg/L)	128	0.081	0.036	<0.005/1.333	0.022/0.069	
	Total Nitrogen (mg/L)	128	1.04	0.93	0.34/3.17	0.68/1.23	
	Nitrate/Nitrite (mg/L)	129	0.35	0.25	<0.05/2.77	<0.05/0.57	
	Chlorophyll A (mg/m^3)	48	12.9	8.1	0.9/70.7	3.9/14.1	TSI=55.7
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	25	227	30	<10/2420	<10/82	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	25	139	20	<10/1733	15/85	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	NEI	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

North Fork of the Red River at Headrick

Sample Record	Times Visited	Station ID
November 1998 - Current	207	311500010020-001AT

Stream Data

County	Tillman	View Site Data
Location	East of the Town of Headrick on US 62	
Latitude/Longitude	34.6379245, -99.10311528	
Planning Watershed	Southwest (8-digit HUC -11120303)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	176	19.3	19.9	-1.2/35.3	11.7/27	
In-Situ	Turbidity (NTU)	184	129	13	1/>1000	6/46	
In-Situ	pH (units)	173	8.05	8.10	6.8/9.1	7.86/8.22	
In-Situ	Dissolved Oxygen (mg/L)	176	9.54	9.10	3.57/15.21	8.24/11	
In-Situ	Hardness (mg/L)	180	1127	1130	100/4154	859/1374	
Minerals	Total Dissolved Solids (mg/L)	130	5491	5163	660/13700	3893/6725	100% of values>OWQS
Minerals	Specific Conductivity (uS/cm)	177	8709	8394	594/23053	5947/10722	
Minerals	Chloride (mg/L)	188	2541	2305	151/9620	1440/3048	97% of values>OWQS
Minerals	Sulfate (mg/L)	188	784	765	34/2702	611/930	
Nutrients	Total Phosphorus (mg/L)	154	0.140	0.045	0.005/2.461	0.027/0.092	
Nutrients	Total Nitrogen (mg/L)	146	1.04	0.76	0.27/7.28	0.63/1.17	
Nutrients	Nitrate/Nitrite (mg/L)	147	0.23	<0.05	<0.05/1.52	<0.05/0.32	
Nutrients	Chlorophyll A (mg/m^3)	77	20.8	12.4	0.2/269	5.6/24.3	TSI=60.4
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	25	1176	130	<10/19863	46/486	Mean>OWQS
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	25	510	134	<10/8164	52/249	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	NS	S
Aesthetics												S
Agriculture					S		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Selenium

North Fork of the Red River at Tipton

Sample Record	Times Visited	Station ID
February 2013 - Current	27	311500010020-002AT

Stream Data

County	Tillman	View Site Data
Location	West of the Town of Tipton on State Highway 5	
Latitude/Longitude	34.506944, -99.207778	
Planning Watershed	Southwest (8-digit HUC -11120303)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	22	19.7	21.0	1.7/33	12.8/25.6	
	Turbidity (NTU)	23	68	18	7/>1000	11/36	12% of values>OWQS
	pH (units)	22	8.34	8.31	7.58/9.33	8.06/8.64	
	Dissolved Oxygen (mg/L)	22	12.45	12.28	6.2/20.51	8.89/14.71	
	Hardness (mg/L)	23	1085	1172	169/1680	860/1280	
Minerals	Total Dissolved Solids (mg/L)	23	5208	5240	488/7820	3840/6880	94% of values>OWQS
	Specific Conductivity (uS/cm)	22	8838	8708	711/13832	7091/11613	
	Chloride (mg/L)	23	2631	2470	104/4280	1810/3510	100% of values>OWQS
	Sulfate (mg/L)	23	643	698	120/906	557/786	
Nutrients	Total Phosphorus (mg/L)	23	0.624	0.417	0.083/2.52	0.25/0.846	
	Total Nitrogen (mg/L)	23	1.84	1.65	1.02/3.61	1.38/1.98	
	Nitrate/Nitrite (mg/L)	23	0.65	0.46	0.15/2.24	0.24/0.93	
	Chlorophyll A (mg/m^3)	23	27.9	19.5	4.4/66.4	11.1/43.5	TSI=63.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	2	1700	1700	1414/1986	0/0	Not enough samples
	E. Coli (cfu/100ml)(*-Geo. Mn.)	2	214	214	99/330	0/0	Not enough samples

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	NEI	S
Aesthetics												NEI
Agriculture					S		NS	NS				
Primary Body Contact Recreation									NEI			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Sampling and Assessment by the **Oklahoma Water Resources Board** – 3800 Classen Blvd, Oklahoma City, OK, 73118 – 405.530.8800 – http://www.owrb.ok.gov

Red River at Burkburnett

Sample Record	Times Visited	Station ID
January 2013 - Current	26	311310010010-002AT

Stream Data

County	Cotton	View Site Data
Location	North of the Town of Burkburnett, Texas on Interstate 44	
Latitude/Longitude	34.2095473, -98.33061891	
Planning Watershed	Beaver-Cache (8-digit HUC - 11130102)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	23	18.0	16.3	2.9/30.1	14.3/25.5	
In-Situ	Turbidity (NTU)	23	367	104	10/>1000	27/>1000	42% of values>OWQS
In-Situ	pH (units)	23	7.97	8.01	7.55/8.3	7.8/8.2	
In-Situ	Dissolved Oxygen (mg/L)	23	9.54	9.11	6.88/13.85	7.72/10.43	
In-Situ	Hardness (mg/L)	23	1638	1760	44/2820	1185/1930	
Minerals	Total Dissolved Solids (mg/L)	23	6596	6820	1820/10200	5510/7600	100% of values>OWQS
Minerals	Specific Conductivity (uS/cm)	23	10946	10979	3243/18690	9345/11953	
Minerals	Chloride (mg/L)	23	3202	3380	735/5320	2620/3520	100% of values>OWQS
Minerals	Sulfate (mg/L)	23	1234	1260	406/1950	1040/1390	100% of values>OWQS
Nutrients	Total Phosphorus (mg/L)	23	1.067	0.147	0.032/5.9	0.093/1.47	
Nutrients	Total Nitrogen (mg/L)	23	3.84	1.51	0.99/17.97	1.28/5.23	
Nutrients	Nitrate/Nitrite (mg/L)	23	0.26	<0.05	<0.05/0.97	<0.05/0.56	
Nutrients	Chlorophyll A (mg/m^3)	23	32.4	28.5	3.3/99.6	18.5/39.8	TSI=64.7
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	5	1997	2420	308/2420	1364/2420	
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	5	1284	1120	461/2420	790/1860	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						NS	S	NS
Aesthetics												NEI
Agriculture					NS		NS	NS				
Primary Body Contact Recreation									NEI			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				NS								

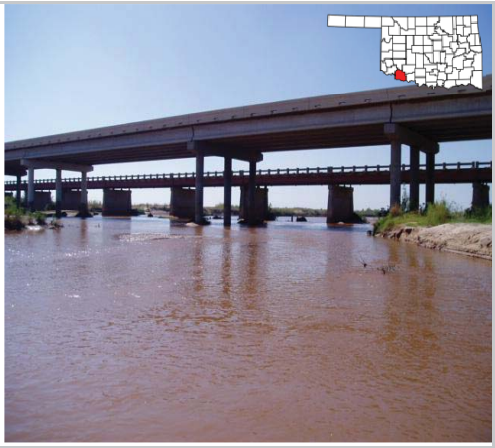
S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Selenium, Mercury, Lead, and Chromium
Fish Consumption not supporting for Mercury

Red River at Davidson

Sample Record	Times Visited	Station ID
November 1998 - Current	197	311310010010-001AT



Stream Data

County	Tillman	View Site Data
Location	South of the Town of Davidson on State Highway 183	
Latitude/Longitude	34.2115454, -99.08155505	
Planning Watershed	Beaver-Cache (8-digit HUC - 11130102)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	171	18.4	18.9	-0.8/34.5	11/25	
	Turbidity (NTU)	174	253	58	5/>1000	23/236	52% of values>OWQS
	pH (units)	169	8.07	8.10	6.98/9.12	7.92/8.22	
	Dissolved Oxygen (mg/L)	171	10.12	9.61	0.48/21.97	8.26/11.92	
	Hardness (mg/L)	173	1383	1360	277/2700	1058/1728	
Minerals	Total Dissolved Solids (mg/L)	124	5203	5275	520/13600	3830/6594	100% of values>OWQS
	Specific Conductivity (uS/cm)	172	7955	8228	1261/21375	6015/9708	
	Chloride (mg/L)	180	2138	2100	219/5980	1485/2678	100% of values>OWQS
	Sulfate (mg/L)	180	1164	1100	182/6680	868/1350	100% of values>OWQS
Nutrients	Total Phosphorus (mg/L)	142	0.372	0.159	<0.005/9.4	0.096/0.325	
	Total Nitrogen (mg/L)	142	2.25	1.50	0.58/34.95	1.14/2.1	
	Nitrate/Nitrite (mg/L)	143	0.39	0.19	<0.05/2.34	<0.05/0.66	
	Chlorophyll A (mg/m^3)	73	49.0	38.0	1.6/192	21.2/68.4	TSI=68.8
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	25	2101	60	<10/21000	<10/1986	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	25	1379	84	<10/17329	15/239	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S
Aesthetics												NEI
Agriculture					NS		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish & Wildlife Propagation not supporting for Selenium*

Red River at Harris

Sample Record	Times Visited	Station ID
November 1998 - Current	165	410100010010-001AT

Stream Data

County	McCurtain	View Site Data
Location	South of the Town of Harris on State Highway 259	
Latitude/Longitude	33.68687568, -94.69422864	
Planning Watershed	Southeast (8-digit HUC - 11140106)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	136	19.5	20.3	3/33.5	12.5/26.4	
	Turbidity (NTU)	141	74	42	9/614	24/86	
	pH (units)	136	7.97	8.00	7.1/8.74	7.76/8.18	
	Dissolved Oxygen (mg/L)	135	8.55	8.41	4.17/13.86	7.09/10.08	
	Hardness (mg/L)	138	270	281	14/758	207/325	
Minerals	Total Dissolved Solids (mg/L)	73	572	579	112/1204	324/819	
	Specific Conductivity (uS/cm)	136	1052	1061	156/2423	655/1484	
	Chloride (mg/L)	136	171	170	8/395	98/245	
	Sulfate (mg/L)	136	151	149	38/308	93/205	
Nutrients	Total Phosphorus (mg/L)	137	0.134	0.103	0.022/0.715	0.078/0.154	
	Total Nitrogen (mg/L)	137	0.95	0.87	0.15/2.81	0.67/1.14	
	Nitrate/Nitrite (mg/L)	137	0.13	<0.05	<0.05/0.78	<0.05/0.2	
	Chlorophyll A (mg/m^3)	51	25.2	22.5	2.9/87.8	14.1/34.2	TSI=62.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	40	56	19	<10/600	<10/50	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	40	21	<10	<10/134	<10/21	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						U	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead
U = Assessment yielded undetermined supporting status

Red River at Hugo

Sample Record	Times Visited	Station ID
November 1998 - Current	192	410400010010-001AT

Stream Data

County	Choctaw	View Site Data
Location	South of the Town of Hugo on State Highway 271	
Latitude/Longitude	33.87545921, -95.50182137	
Planning Watershed	Blue-Boggy (8-digit HUC - 11140101)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	137	19.3	19.4	3.5/34.4	12.3/27	
	Turbidity (NTU)	139	85	36	7/766	23/75	
	pH (units)	136	8.02	8.06	6.79/8.73	7.77/8.26	
	Dissolved Oxygen (mg/L)	137	9.41	9.14	4.18/39.16	7.66/10.89	
	Hardness (mg/L)	138	290	298	72/480	235/347	
Minerals	Total Dissolved Solids (mg/L)	78	652	678	130/1080	508/872	
	Specific Conductivity (uS/cm)	137	1155	1157	210/2739	845/1526	
	Chloride (mg/L)	138	192	204	<5/394	134/264	
	Sulfate (mg/L)	138	161	166	32/320	116/208	
Nutrients	Total Phosphorus (mg/L)	146	0.124	0.084	0.013/0.925	0.06/0.131	
	Total Nitrogen (mg/L)	137	0.94	0.84	0.24/2.87	0.63/1.03	
	Nitrate/Nitrite (mg/L)	137	0.17	0.10	<0.05/0.82	0.05/0.24	
	Chlorophyll A (mg/m^3)	54	19.8	18.5	2.7/45	9.3/28.2	TSI=59.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	39	364	41	<10/3300	<10/400	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	39	109	<10	<10/1607	<10/85	

Beneficial Uses

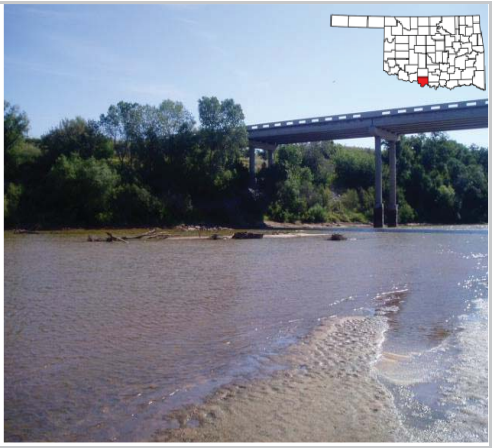
Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						NEI	NEI	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Red River at Terral

Sample Record	Times Visited	Station ID
December 1998 - Current	160	311100010190-001AT



Stream Data

County	Jefferson	View Site Data
Location	South of the Town of Terral on State Highway 81	
Latitude/Longitude	33.8786094, -97.93457247	
Planning Watershed	Lower Washita (8-digit HUC - 11130201)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	138	20.1	21.0	3.1/38.4	13.1/27.4	
	Turbidity (NTU)	140	305	99	4/>1000	44/454	61% of values>OWQS
	pH (units)	137	8.22	8.25	6.73/9.11	8.02/8.46	
	Dissolved Oxygen (mg/L)	138	10.49	10.29	3.42/20.13	8.08/12.76	
	Hardness (mg/L)	140	825	818	168/2075	558/1059	
Minerals	Total Dissolved Solids (mg/L)	78	2990	2966	456/6840	2080/3832	
	Specific Conductivity (uS/cm)	137	4989	5030	157/14458	3576/6512	
	Chloride (mg/L)	139	1245	1235	151/4200	808/1600	
	Sulfate (mg/L)	139	624	619	96/2110	390/775	
Nutrients	Total Phosphorus (mg/L)	148	0.439	0.294	0.021/4.21	0.196/0.434	
	Total Nitrogen (mg/L)	140	2.26	1.80	0.59/23.1	1.4/2.45	
	Nitrate/Nitrite (mg/L)	140	0.44	0.22	<0.05/3.77	<0.05/0.64	
	Chlorophyll A (mg/m^3)	57	77.1	61.4	<0.1/368	32.1/96	TSI=73.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	30	521	60	<10/3654	<10/350	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	30	117	26	<10/1106	<10/122	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						U	S	S
Aesthetics												NEI
Agriculture					NS		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead
Fish & Wildlife Propagation not supporting for Selenium
U = Assessment yielded undetermined supporting status

Salt Fork Of The Red River at Elmer

Sample Record	Times Visited	Station ID
November 1998 - Current	199	311600020010-002AT

Stream Data

County	Jackson	View Site Data
Location	West of the Town of Elmer near US 283	
Latitude/Longitude	34.47893211, -99.38286717	
Planning Watershed	Southwest (8-digit HUC -11120202)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	172	19.4	19.5	0.5/34.7	12.4/26.6	
	Turbidity (NTU)	175	91	24	3/>1000	12/51	14% of values>OWQS
	pH (units)	168	8.04	8.08	7.42/8.56	7.9/8.19	
	Dissolved Oxygen (mg/L)	172	10.00	10.09	3.59/17.59	8.31/11.79	
	Hardness (mg/L)	177	1533	1575	200/2513	1140/1953	
Minerals	Total Dissolved Solids (mg/L)	127	3003	3180	240/4860	2480/3710	41% of values>OWQS
	Specific Conductivity (uS/cm)	173	3961	4011	356/7648	3249/4602	
	Chloride (mg/L)	185	616	557	19/2097	455/791	55% of values>OWQS
	Sulfate (mg/L)	184	1282	1294	87/3485	954/1618	16% of values>OWQS
Nutrients	Total Phosphorus (mg/L)	145	0.114	0.077	<0.005/0.79	0.038/0.141	
	Total Nitrogen (mg/L)	145	2.22	2.01	0.59/7.14	1.39/2.65	
	Nitrate/Nitrite (mg/L)	146	1.13	0.87	<0.05/5.93	0.27/1.5	
	Chlorophyll A (mg/m^3)	52	25.0	18.8	<0.1/83.5	8.1/39.7	TSI=62.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	21	3552	400	<10/51800	85/1407	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	21	488	51	<10/5172	15/226	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						U	U	S
Aesthetics												S
Agriculture					NS		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NS		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead
Fish & Wildlife Propagation and Private & Public Water Supply not supporting for Selenium
U = Assessment yielded undetermined supporting status

Salt Fork Of The Red River at Mangum

Sample Record	Times Visited	Station ID
October 2000 – September 2007	54	311600020010-001AT

Stream Data

County	Greer	View Site Data
Location	South of the Town of Mangum on State Highway 34	
Latitude/Longitude	34.85764987, -99.50925729	
Planning Watershed	Southwest (8-digit HUC -11120202)	

Parameters

	Parameter (Descriptions)	Mean	Median	Range	Comments
In-Situ	Water Temperature (C°)	18.6	18.9	2.7/37.0	
	Turbidity (NTU)	9	6	1/30	
	pH (units)	7.93	7.96	6.60/8.56	
	Dissolved Oxygen (ppm)	8.61	8.22	5.62/12.84	
	Hardness (ppm)	1531.9	1500.5	660.0/2380.0	
Minerals	Total Dissolved Solids (ppm)	2216.4	2115.0	798.6/8895.0	
	Specific Conductivity (uS)	3584.3	3238.0	1369.0/21559	
	Chloride (ppm)	278.2	270.0	63.1/464.0	
	Sulfate (ppm)	1254.3	1300.0	471.0/1800.0	
Nutrients	Total Phosphorus (ppm)	0.028	0.016	0.007/0.154	
	Nitrate/Nitrite (ppm)	0.258	0.210	0.050/0.970	
	Chlorophyll A (mg/m^3)	54.3	38.4	6.0/175.0	TSI=69.8
Bacteria	Fecal Coliform (cfu/100ml)(*-Geo. Mn.)	271.1*	310.0	<10/3400	
	Enterococcus (cfu/100ml)(*-Geo. Mn.)	240.7*	167.5	<10/11000	Mean>OWQS
	E. Coli (MPN/100ml)(*-Geo. Mean)	84.9*	74.0	<10/1785	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						NS	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Sager Creek at West Siloam Springs

Sample Record	Times Visited	Station ID
November 1998 – December 2012	163	121700060080-001AT

Stream Data

County	Delaware	View Site Data
Location	West of the Town of West Siloam Springs off US Highway 412	
Latitude/Longitude	36.20164298, -94.60538182	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	109	17.4	17.2	5.9/29.2	12.3/22.1	
	Turbidity (NTU)	110	3	1	1/55	1/3	
	pH (units)	108	7.71	7.72	6.59/8.65	7.46/7.98	
	Dissolved Oxygen (mg/L)	109	9.11	8.75	4.66/15.35	8.05/10.2	21% of values<OWQS and 13% of values<alt OWQS
	Hardness (mg/L)	108	132	134	<10/198	120/146	
Minerals	Total Dissolved Solids (mg/L)	21	244	227	10/657	186/283	
	Specific Conductivity (uS/cm)	109	424	427	164/713	357/495	
	Chloride (mg/L)	100	36	34	<5/95	23/47	
	Sulfate (mg/L)	100	25	21	<5/64	16/29	
Nutrients	Total Phosphorus (mg/L)	114	1.117	1.040	0.012/3.965	0.644/1.501	
	Total Nitrogen (mg/L)	113	7.46	7.20	2.32/17.55	4.88/9.08	
	Nitrate/Nitrite (mg/L)	114	7.02	6.48	2.01/17.5	4.39/8.62	
	Chlorophyll A (mg/m^3)	54	1.6	0.7	<0.1/8.3	0.4/2.4	TSI=35.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	56	512	109	<10/9700	34/475	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	56	218	31	<10/4360	<10/98	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	NS	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Salt Fork of the Arkansas River at Ingersol

Sample Record	Times Visited	Station ID
December 1998 - Current	154	621010010160-001AT

Stream Data

County	Alfalfa	View Site Data
Location	Northeast of the Town of Ingersol on State Highway 58	
Latitude/Longitude	36.82018011, -98.35994081	
Planning Watershed	Upper Arkansas (8-digit HUC - 11060002)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	135	17.8	18.1	-0.8/36.7	9.5/26.5	
	Turbidity (NTU)	137	94	36	1/>1000	11/89	12% of values>OWQS
	pH (units)	133	7.93	7.94	7.15/8.42	7.82/8.1	
	Dissolved Oxygen (mg/L)	135	9.81	9.32	4.49/26.91	8.2/11.34	
	Hardness (mg/L)	134	889	880	432/1660	799/967	
Minerals	Total Dissolved Solids (mg/L)	65	1584	1560	520/3170	1475/1665	
	Specific Conductivity (uS/cm)	135	2022	2049	905/3688	1861/2220	
	Chloride (mg/L)	132	172	166	29/591	130/202	
	Sulfate (mg/L)	133	732	734	150/1130	660/814	
Nutrients	Total Phosphorus (mg/L)	134	0.102	0.056	<0.005/1.71	0.026/0.105	
	Total Nitrogen (mg/L)	133	1.15	0.85	0.3/18.71	0.71/1.09	
	Nitrate/Nitrite (mg/L)	134	0.36	0.34	<0.05/1.05	0.21/0.48	
	Chlorophyll A (mg/m^3)	41	7.4	4.4	<0.1/53.4	2.4/8.3	TSI=50.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	30	5432	1700	74/46080	323/5750	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	30	1407	311	20/19863	118/1291	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						U	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Salt Fork of the Arkansas River at Tonkawa

Sample Record	Times Visited	Station ID
October 2000 - Current	138	621000010010-001AT

Stream Data

County	Kay	View Site Data
Location	South of the Town of Tonkawa on US 77	
Latitude/Longitude	36.67070374, -97.30951657	
Planning Watershed	Upper Arkansas (8-digit HUC -11060004)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	121	17.8	18.5	-0.9/36.6	9.4/26.5	
	Turbidity (NTU)	119	125	46	6/>1000	20/143	12% of values>OWQS
	pH (units)	121	8.16	8.17	7/9.45	8/8.4	
	Dissolved Oxygen (mg/L)	121	10.52	10.23	3.77/24.35	8.21/12.89	
	Hardness (mg/L)	120	464	468	126/930	365/549	
Minerals	Total Dissolved Solids (mg/L)	51	3108	2270	544/9680	1640/4100	
	Specific Conductivity (uS/cm)	121	4746	3987	563/15758	2798/5420	
	Chloride (mg/L)	116	1384	1120	223/5320	713/1509	
	Sulfate (mg/L)	116	278	261	49/637	210/333	
Nutrients	Total Phosphorus (mg/L)	116	0.241	0.217	0.06/0.975	0.149/0.305	
	Total Nitrogen (mg/L)	116	1.52	1.45	0.36/3.42	1.14/1.76	
	Nitrate/Nitrite (mg/L)	116	0.17	<0.05	<0.05/1.12	<0.05/0.2	
	Chlorophyll A (mg/m^3)	53	59.2	44.4	2.7/262	23.8/68.6	TSI=70.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	27	7310	768	20/161000	200/1900	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	463	40	<10/9804	<10/119	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	U	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Sandy Creek at Eldorado

Sample Record	Times Visited	Station ID
November 1998 - Current	158	311600010040-001AT

Stream Data

County	Jackson	View Site Data
Location	Southwest of the Town of Eldorado on State Highway 6	
Latitude/Longitude	34.46433562, -99.66255838	
Planning Watershed	Southwest (8-digit HUC -11130101)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	151	18.7	19.8	2.7/33.2	13/25	
	Turbidity (NTU)	159	72	42	4/>1000	23/73	35% of values>OWQS
	pH (units)	148	7.75	7.73	7.09/8.44	7.57/7.92	
	Dissolved Oxygen (mg/L)	151	10.96	11.02	2.59/24.06	7.32/14.09	
	Hardness (mg/L)	156	2405	2527	115/3974	2209/2814	
Minerals	Total Dissolved Solids (mg/L)	93	6321	6580	372/7320	6238/6855	100% of values>OWQS
	Specific Conductivity (uS/cm)	151	8685	9263	282/11175	8671/9649	
	Chloride (mg/L)	156	2053	2123	13/3750	1905/2298	100% of Values>OWQS
	Sulfate (mg/L)	157	1914	2002	45/3680	1717/2215	94% of Values>OWQS
Nutrients	Total Phosphorus (mg/L)	156	0.120	0.078	<0.005/1.356	0.039/0.153	
	Total Nitrogen (mg/L)	156	3.65	3.62	0.54/8.38	3.1/4.2	
	Nitrate/Nitrite (mg/L)	157	2.28	2.27	0.11/4.86	1.47/3.1	
	Chlorophyll A (mg/m^3)	38	35.7	13.6	1.3/173	5.6/33.2	TSI=65.7
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	25	2737	900	<10/37300	132/2420	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	25	365	131	<10/3448	42/418	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						NS	U	S
Aesthetics												NEI
Agriculture					NS		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NS		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Public & Private Water Supply not supporting for Selenium
Fish & Wildlife Propagation not supporting for Selenium
U = Assessment yielded undetermined supporting status

Skeleton Creek at Lovell

Sample Record	Times Visited	Station ID
December 1998 - Current	161	620910030010-001AT

Stream Data

County	Logan	View Site Data
Location	East of the Town of Lovell on State Highway 74	
Latitude/Longitude	36.06098714, -97.58584155	
Planning Watershed	Upper Arkansas (8-digit HUC -11050002)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	141	16.8	16.8	-1.4/33.9	7.7/24.9	
	Turbidity (NTU)	143	137	75	4/>1000	42/143	53% of values>OWQS
	pH (units)	141	8.22	8.18	7.51/9.08	8.03/8.41	
	Dissolved Oxygen (mg/L)	140	10.23	9.94	2.69/25.2	7.53/12.43	
	Hardness (mg/L)	141	382	405	100/690	293/473	
Minerals	Total Dissolved Solids (mg/L)	74	936	974	264/1950	781/1133	
	Specific Conductivity (uS/cm)	141	1632	1682	338/2904	1289/2003	
	Chloride (mg/L)	141	238	244	52/458	187/281	
	Sulfate (mg/L)	141	223	205	64/3200	156/244	
Nutrients	Total Phosphorus (mg/L)	142	0.520	0.453	0.078/1.63	0.33/0.7	
	Total Nitrogen (mg/L)	141	4.67	4.00	0.67/15.51	2.93/5.87	
	Nitrate/Nitrite (mg/L)	142	3.33	2.60	<0.05/14.55	1.52/4.54	
	Chlorophyll A (mg/m^3)	20	57.2	42.2	8.5/233	24.8/77.6	TSI=70.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	32	3195	400	20/41000	63/2420	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	32	621	75	<10/9804	23/429	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Selenium

Sampling and Assessment by the **Oklahoma Water Resources Board** – 3800 Classen Blvd, Oklahoma City, OK, 73118 – 405.530.8800 – http://www.owrb.ok.gov

Spring Creek at Murphy

Sample Record	Times Visited	Station ID
November 1998 - Current	174	121600010290-001AT

Stream Data

County	Mayes	View Site Data
Location	South of the Town of Locust Grove off State Highway 82	
Latitude/Longitude	36.13104241, -95.19015604	
Planning Watershed	Grand (8-digit HUC -11070209)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	131	16.6	16.6	7.2/26.8	11.7/21.2	
In-Situ	Turbidity (NTU)	131	2	1	1/15	1/2	
In-Situ	pH (units)	130	7.48	7.48	6.8/8.59	7.25/7.73	
In-Situ	Dissolved Oxygen (mg/L)	131	9.10	9.02	2.68/13.82	7.7/10.52	
In-Situ	Hardness (mg/L)	131	86	79	<10/728	70/89	
Minerals	Total Dissolved Solids (mg/L)	27	110	93	6/498	83/107	
Minerals	Specific Conductivity (uS/cm)	130	165	160	32/425	142/188	
Minerals	Chloride (mg/L)	111	9	10	<5/96	<5/10	
Minerals	Sulfate (mg/L)	110	9	10	<5/40	6/10	
Nutrients	Total Phosphorus (mg/L)	137	0.021	0.013	<0.005/0.392	0.009/0.018	
Nutrients	Total Nitrogen (mg/L)	138	0.66	0.58	<0.05/3.03	0.4/0.78	
Nutrients	Nitrate/Nitrite (mg/L)	139	0.51	0.45	<0.05/1.5	0.3/0.64	
Nutrients	Chlorophyll A (mg/m^3)	75	1.0	0.4	<0.1/29.5	0.2/0.6	TSI=30.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	47	182	20	<10/3000	<10/116	
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	47	113	<10	<10/4352	<10/31	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Spring River at Quapaw

Sample Record	Times Visited	Station ID
December 1998 - Current	172	121600070010-001AT

Stream Data

County	Ottawa	View Site Data
Location	East of the Town of Quapaw near State Highway 137	
Latitude/Longitude	36.93462871, -94.74614371	
Planning Watershed	Grand (8-digit HUC -11070207)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	140	17.4	17.4	1/32.1	10.8/24.4	
	Turbidity (NTU)	140	34	15	1/581	9/25	32% of values>OWQS
	pH (units)	139	7.88	7.91	6.64/8.92	7.7/8.05	
	Dissolved Oxygen (mg/L)	140	9.04	8.96	0.16/14.9	7.24/10.69	
	Hardness (mg/L)	139	157	164	17/258	141/180	
Minerals	Total Dissolved Solids (mg/L)	25	208	214	120/280	179/238	
	Specific Conductivity (uS/cm)	140	363	365	111/827	312/416	
	Chloride (mg/L)	105	14	12	<5/36	10/16	
	Sulfate (mg/L)	104	35	33	18/75	27/41	
Nutrients	Total Phosphorus (mg/L)	142	0.198	0.174	0.048/0.64	0.132/0.248	
	Total Nitrogen (mg/L)	142	2.31	2.30	0.49/4.78	1.8/2.8	
	Nitrate/Nitrite (mg/L)	143	1.63	1.68	<0.05/3.37	1.08/2.12	
	Chlorophyll A (mg/m^3)	61	8.8	7.5	1.4/37.4	3.5/12.4	TSI=52.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	39	1690	17	<10/33000	<10/70	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	39	252	20	<10/3448	<10/100	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	U	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Red River at Hugo

Sample Record	Times Visited	Station ID
November 1998 - Current	169	410400010010-001AT

Stream Data

County	Choctaw	View Site Data
Location	South of the Town of Hugo on State Highway 271	
Latitude/Longitude	33.87545921, -95.50182137	
Planning Watershed	Blue-Boggy (8-digit HUC - 11140101)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	112	19.4	19.5	4.1/34.4	12.3/27.2	
	Turbidity (NTU)	113	90	33	7/766	23/75	
	pH (units)	111	8.00	8.02	6.79/8.73	7.76/8.23	
	Dissolved Oxygen (mg/L)	112	9.30	9.05	4.18/39.16	7.36/10.67	
	Hardness (mg/L)	114	296.3	306.0	72.0/480.0	237.5/352.3	
Minerals	Total Dissolved Solids (mg/L)	117	729.9	737.1	130.0/1779.0	529.0/934.5	
	Specific Conductivity (uS/cm)	112	1177.3	1179.0	210.0/2739.0	868.0/1547.8	
	Chloride (mg/L)	115	196.4	205.0	<10.0/394.0	137.0/266.0	88.4% of values>OWQS of 72
	Sulfate (mg/L)	115	167.2	173.0	31.6/320.0	120.0/209.0	93.0% of values>OWQS of 51.5
Nutrients	Total Phosphorus (mg/L)	116	0.135	0.087	0.013/0.925	0.065/0.147	
	Total Nitrogen (mg/L)	116	0.905	0.765	<0.050/2.870	0.570/1.025	
	Nitrate/Nitrite (mg/L)	111	0.172	0.125	<0.050/0.820	<0.050/0.235	
	Chlorophyll A (mg/m^3)	25	12.3	13.5	2.9/45.0	8.3/26.7	TSI=60.4
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	29	290.6	20.0	<10.0/3300	<10.0/240	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	29	98.8	<10.0	<10.0/1607	<10.0/68.5	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					NS		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

Red River at Harris

Sample Record	Times Visited	Station ID
November 1998 - Current	168	410100010010-001AT

Stream Data

County	McCurtain	View Site Data
Location	South of the Town of Harris on State Highway 259	
Latitude/Longitude	33.68687568, -94.69422864	
Planning Watershed	Southeast (8-digit HUC - 11140106)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	116	19.4	20.3	3.0/33.0	12.5/26.1	
In-Situ	Turbidity (NTU)	117	72	42	10/614	23/84	22.2% of values>OWQS of 50
In-Situ	pH (units)	115	7.99	8.02	7.10/8.74	7.77/8.19	
In-Situ	Dissolved Oxygen (mg/L)	115	8.47	8.31	4.17/13.86	6.86/10.15	
In-Situ	Hardness (mg/L)	117	285.6	288.0	14.1/758.0	222.5/335.0	
Minerals	Total Dissolved Solids (mg/L)	121	693.1	717.4	112.0/1575.0	452.7/921.0	
Minerals	Specific Conductivity (uS/cm)	116	1122.2	1124.0	190.0/2423.0	720.1/1507.3	
Minerals	Chloride (mg/L)	116	184.5	188.0	<10.0/395.0	123.0/253.8	
Minerals	Sulfate (mg/L)	116	161.9	163.5	37.7/308.0	115.3/210.5	
Nutrients	Total Phosphorus (mg/L)	117	0.138	0.103	0.022/0.715	0.077/0.160	
Nutrients	Total Nitrogen (mg/L)	119	0.882	0.830	<0.100/2.810	0.630/1.060	
Nutrients	Nitrate/Nitrite (mg/L)	111	0.125	0.050	<0.050/0.580	<0.050/0.190	
Nutrients	Chlorophyll A (mg/m^3)	23	12.5	21.8	2.9/87.8	12.3/34.4	TSI=62.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	29	60.2	<10.0	<10.0/600	<10.0/45.5	
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	29	23.3	<10.0	<10.0/134	<10.0/20	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

Muddy Boggy Creek at Unger

Sample Record	Times Visited	Station ID
July 1999 - Current	152	410400010070-001AT

Stream Data

County	Choctaw	View Site Data
Location	East of the Town of Unger on US 70	
Latitude/Longitude	34.02512076, -95.7511845	
Planning Watershed	Blue-Boggy (8-digit HUC -11140103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	109	19.0	18.9	5.0/36.3	11.9/26.5	
	Turbidity (NTU)	107	117	59	3/857	35/123	47.6% of values >OWQS of 50
	pH (units)	108	7.65	7.69	6.71/8.21	7.49/7.86	
	Dissolved Oxygen (mg/L)	109	8.24	7.59	3.87/40.07	6.14/9.96	
	Hardness (mg/L)	110	130.8	132.0	21.0/246.0	97.5/166.3	
Minerals	Total Dissolved Solids (mg/L)	110	228.3	234.5	64.0/476.0	147.7/291.5	
	Specific Conductivity (uS/cm)	108	356.7	367.5	99.7/732.0	228.3/459.0	
	Chloride (mg/L)	94	40.8	30.4	<10.0/181.0	13.6/59.2	
	Sulfate (mg/L)	94	34.6	28.8	12.6/134.0	21.8/41.1	
Nutrients	Total Phosphorus (mg/L)	111	0.144	0.098	<0.005/1.017	0.071/0.169	
	Total Nitrogen (mg/L)	112	0.839	0.695	<0.050/2.870	0.540/1.055	
	Nitrate/Nitrite (mg/L)	106	0.148	0.110	<0.050/1.140	<0.050/0.203	
	Chlorophyll A (mg/m^3)	17	11.9	7.1	1.0/20.2	2.7/15.3	TSI=52.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	27	623.1	41.0	<10.0/8000	<10.0/300	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	27	283.6	63.0	<10.0/2755	<10.0/160	

Beneficial Uses

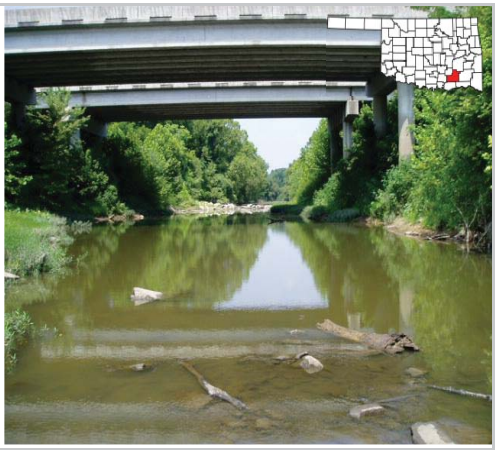
Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish consumption not supporting for Lead*

Muddy Boggy Creek at Atoka

Sample Record	Times Visited	Station ID
November 1998 - Current	162	410400050270-001AT



Stream Data

County	Atoka	View Site Data
Location	North of the Town of Atoka on US 69	
Latitude/Longitude	34.39420542, -96.12436418	
Planning Watershed	Blue-Boggy (8-digit HUC -11140103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	115	17.8	17.7	4.4/31.3	11.0/25.4	
	Turbidity (NTU)	115	127	70	5/1002	33/147	35.7% of values >OWQS of 50
	pH (units)	116	7.30	7.33	6.13/8.25	7.06/7.56	
	Dissolved Oxygen (mg/L)	115	7.43	6.63	2.97/34.62	5.17/9.15	
	Hardness (mg/L)	114	85.8	84.5	10.0/197.0	57.8/108.0	
Minerals	Total Dissolved Solids (mg/L)	116	168.9	157.5	8.0/484.6	99.3/213.5	
	Specific Conductivity (uS/cm)	113	255.2	227.0	61.9/757.1	147.9/329.3	
	Chloride (mg/L)	102	22.4	14.6	<10.0/148.0	<10.0/24.1	
	Sulfate (mg/L)	102	52.1	45.3	<10.0/134.0	33.5/63.8	
Nutrients	Total Phosphorus (mg/L)	118	0.139	0.101	<0.005/0.565	0.066/0.172	
	Total Nitrogen (mg/L)	119	0.987	0.930	<0.050/2.220	0.690/1.270	
	Nitrate/Nitrite (mg/L)	117	0.168	0.130	<0.050/0.750	<0.050/0.233	
	Chlorophyll A (mg/m^3)	16	11.0	4.0	0.3/42.5	1.6/17.2	TSI=53.8
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	35	944.8	80.0	<10.0/19863	40/400	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	35	983.3	52.0	<10.0/19863	<10.0/292	

Beneficial Uses

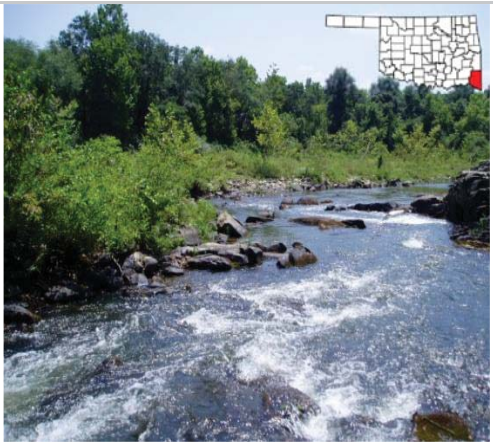
Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S
Aesthetics												NS
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish consumption not supporting for Lead
Fish and Wildlife Propagation not supporting for Copper and Lead

Mountain Fork River at Smithville



Sample Record	Times Visited	Station ID
November 1998 - Current	279	410210060010-001AT

Stream Data

County	McCurtain	View Site Data
Location	East of the town of Smithville on State Highway 4	
Latitude/Longitude	34.4616061, -94.63230583	
Planning Watershed	Southeast (8-digit HUC - 11140108)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	168	18.5	19.2	0.5/33.5	11.1/25.9	
	Turbidity (NTU)	168	16	8	1/261	5/13	
	pH (units)	166	7.11	7.07	4.63/8.71	6.78/7.49	
	Dissolved Oxygen (mg/L)	167	8.79	8.61	3.66/14.16	7.25/10.2	
	Hardness (mg/L)	169	15.3	10.0	2.8/135.0	10.0/13.7	
Minerals	Total Dissolved Solids (mg/L)	168	22.6	23.5	0.1/116.0	15.1/28.1	
	Specific Conductivity (uS/cm)	167	31.0	33.1	0.1/180.0	18.8/41.0	
	Chloride (mg/L)	87	10.2	10.0	<10.0/28.0	<10.0/<10.0	
	Sulfate (mg/L)	86	10.5	<10.0	10/28.0	<10.0/<10.0	
Nutrients	Total Phosphorus (mg/L)	146	0.032	0.021	<0.005/0.281	0.015/0.034	See Notes
	Total Nitrogen (mg/L)	149	0.629	0.430	<0.100/6.87	0.300/0.610	
	Nitrate/Nitrite (mg/L)	145	0.251	0.050	<0.050/6.430	<0.050/0.185	
	Chlorophyll A (mg/m^3)	67	11.1	1.9	0.1/15.8	0.9/3.6	TSI=37.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	45	1433.5	<10.0	<10.0/57000	<10.0/51	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	45	43.2	<10.0	<10.0/397	<10.0/41	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment	Total Phosphorus
Fish & Wildlife Propagation	S	S	S	NS						S	S	S	
Aesthetics												S	S
Agriculture					S		S	S					
Primary Body Contact Recreation									S				
Public & Private Water Supply				S									
Fish Consumption				S									

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

9.55%(6 of 63) of rolling Geo. Mean exceed OWQS criterion of 0.037 ppm
Fish and Wildlife Propagation not supporting for Copper and Lead

Mountain Fork River at Eagletown

Sample Record	Times Visited	Station ID
November 1998 - Current	171	410210040010-001AT

Stream Data

County	McCurtain	View Site Data
Location	East of the town of Broken Bow on US Highway 70	
Latitude/Longitude	34.04168908, -94.62071144	
Planning Watershed	Southeast (8-digit HUC - 11140108)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	118	16.5	16.9	2.6/29.5	12.1/21.0	36.6% of values > OWQS of 20
	Turbidity (NTU)	119	4	3	1/22	2/5	
	pH (units)	116	7.24	7.18	4.68/9.3.0	6.88/7.71	
	Dissolved Oxygen (mg/L)	117	9.12	9.06	4.99/12.85	7.96/10.3.0	
	Hardness (mg/L)	118	14.4	10.0	6.5/93.0	10.0/12.1	
Minerals	Total Dissolved Solids (mg/L)	118	20.1	19.8	0.1/118.0	6.1/26.3	
	Specific Conductivity (uS/cm)	117	24.0	27.5	0.1/181.0	6.2/34.0	
	Chloride (mg/L)	105	10.2	<10.0	<10.0/26.6	<10.0/<10.0	
	Sulfate (mg/L)	105	10.1	<10.0	<10.0/15.3	<10.0/<10.0	
Nutrients	Total Phosphorus (mg/L)	120	0.021	0.011	<0.005/0.808	0.007/0.017	
	Total Nitrogen (mg/L)	122	0.437	0.345	0.080/6.195	0.259/0.451	
	Nitrate/Nitrite (mg/L)	122	0.147	0.133	<0.050/0.475	0.095/0.171	
	Chlorophyll A (mg/m^3)	31	12.1	1.2	0.4/28.3	0.9/1.8	TSI=34.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	31	419.6	41.0	<10.0/4000	<10.0/200	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	31	92.6	20.0	<10.0/1956	<10.0/31	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S								
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Lead and Thallium
Not supporting for OWQS Trout fisheries temperature criterion

Little River at Sasakwa

Sample Record	Times Visited	Station ID
November 1998 - Current	154	520800010010-001AT

Stream Data

County	Seminole	View Site Data
Location	North of the Town of Sasakwa on State Highway 56	
Latitude/Longitude	34.96534987, -96.5120113	
Planning Watershed	Central (8-digit HUC - 11090204)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	115	17.8	19.0	0.3/32.3	10.8/26.2	
	Turbidity (NTU)	112	164	42	2/1001	17/146	18.2% of values> OWQS of 50
	pH (units)	114	8.05	8.06	6.84/8.67	7.91/8.26	
	Dissolved Oxygen (mg/L)	115	8.96	8.63	3.88/17.75	7.38/10.19	
	Hardness (mg/L)	115	311.2	302.0	72.0/980.0	220.0/372.0	
Minerals	Total Dissolved Solids (mg/L)	119	704.1	694.0	130.3/2818.0	448.0/870.0	
	Specific Conductivity (uS/cm)	115	1173.8	1183.0	203.5/4335.0	710.0/1549.0	
	Chloride (mg/L)	115	245.4	227.0	29.2/1360.0	139.0/290.0	
	Sulfate (mg/L)	114	41.5	35.8	10.3/261.0	28.6/43.1	
Nutrients	Total Phosphorus (mg/L)	117	0.141	0.060	<0.005/2.05	0.034/0.126	
	Total Nitrogen (mg/L)	120	0.855	0.590	<0.100/6.850	0.390/0.910	
	Nitrate/Nitrite (mg/L)	121	0.201	0.050	<0.050/6.470	<0.050/0.1600	
	Chlorophyll A (mg/m^3)	14	10.8	3.0	0.1/90.3	1.3/8.7	TSI=53.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	29	3826.3	74.0	<10.0/93000	25/350	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	29	409.8	41.0	<10.0/5794	20/151.5	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NS
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish consumption not supporting for Lead and Thallium*

Little River at Holly Creek

Sample Record	Times Visited	Station ID
November 2003 - Current	104	410200010200-002AT

Stream Data

County	McCurtain	View Site Data
Location	North of the Town of Idabel on County Road 4615	
Latitude/Longitude	33.93595796, -94.82864529	
Planning Watershed	Southeast (8-digit HUC - 11140107)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	67	18.3	17.9	4.2/31.4	11.8/25.7	
	Turbidity (NTU)	66	16	12	4/65	9/20	69.0% of values> OWQS of 10
	pH (units)	67	7.29	7.23	6.49/8.37	6.94/7.57	
	Dissolved Oxygen (mg/L)	66	7.74	7.27	3.72/12.64	5.77/9.93	19.0% of values<OWQS of 6.0
	Hardness (mg/L)	67	37.6	24.0	10.0/251.0	17.0/43.0	
Minerals	Total Dissolved Solids (mg/L)	67	63.6	54.0	0.1/166.0	34.0/88.0	
	Specific Conductivity (uS/cm)	67	93.6	74.0	0.1/257.0	43.0/133.0	
	Chloride (mg/L)	52	13.0	<10.0	<10.0/31.3	<10.0/12.8	
	Sulfate (mg/L)	51	12.0	10.5	<10.0/22.1	<10.0/13.2	
Nutrients	Total Phosphorus (mg/L)	69	0.039	0.035	<0.005/0.140	0.026/0.046	
	Total Nitrogen (mg/L)	69	0.558	0.480	<0.100/2.180	0.335/0.665	
	Nitrate/Nitrite (mg/L)	62	0.133	0.100	<0.050/0.690	<0.050/0.180	
	Chlorophyll A (mg/m^3)	23	11.8	4.9	0.4/13.5	1.9/9.3	TSI=45.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	13	194.2	20.0	<10.0/2200	15/41	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	13	133.9	20.0	<10.0/1296	<10.0/52	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	NS	NS						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish and Wildlife Propagation not supporting for Lead*

Little River at Cloudy

Sample Record	Times Visited	Station ID
November 1998 - Current	179	410210020140-001AT

Stream Data

County	Pushmataha	View Site Data
Location	East of the Town of cloudy on Cloudy Road	
Latitude/Longitude	34.32564049, -95.19911409	
Planning Watershed	southeast (8-digit HUC - 11140107)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	117	19.4	19.8	2.0/36.3	12.0/26.6	
	Turbidity (NTU)	116	12	9	1/91	5/15	25.0% of values> OWQS of 10
	pH (units)	116	7.23	7.17	5.16/8.63	6.9./7.48	
	Dissolved Oxygen (mg/L)	116	8.96	8.92	2.81/14.13	7.63/10.33	
	Hardness (mg/L)	118	16.7	10.0	8.9/200.0	10.0/13.3	
Minerals	Total Dissolved Solids (mg/L)	122	24.7	23.1	0.1/94.0	14.8/32.1	
	Specific Conductivity (uS/cm)	117	29.3	31.2	0.1/130.0	14.2/40.0	
	Chloride (mg/L)	93	10.1	<10.0	<10.0/16.7	<10.0/<10.0	
	Sulfate (mg/L)	93	11.3	<10.0	<10.0/46.2	<10.0/10.3	
Nutrients	Total Phosphorus (mg/L)	114	0.031	0.019	<0.005/1.043	0.012/0.026	
	Total Nitrogen (mg/L)	115	0.392	0.340	<0.100/1.430	0.240/0.475	
	Nitrate/Nitrite (mg/L)	108	0.101	<0.050	<0.050/0.815	<0.050/0.109	
	Chlorophyll A (mg/m^3)	31	12.0	1.3	0.3/45.4	0.7/2.6	TSI=45.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	30	264.8	70.0	<10.0/2800	<10.0/245	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	30	130.1	15.0	<10.0/1012	<10.0/106.3	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish consumption not supporting for Lead
Fish and Wildlife Propagation not supporting for Copper and Lead,

Kiamichi River at Fort Towson

Sample Record	Times Visited	Station ID
February 2002 - Current	137	410300010010-002AT

Stream Data

County	Bryan	View Site Data
Location	South of the Town of Fort Towson on State Highway 109	
Latitude/Longitude	33.96940193, -95.27829905	
Planning Watershed	Southeast (8-digit HUC - 11140150)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	84	18.9	19.3	5.5/30.9	11.7/26.3	
	Turbidity (NTU)	83	40	33	7/260	22/48	
	pH (units)	84	7.59	7.64	6.43/8.60	7.23/7.92	
	Dissolved Oxygen (mg/L)	84	8.79	8.54	4.13/15.07	6.79/10.39	
	Hardness (mg/L)	84	41.2	31.5	12.0/235.0	23.3/44.3	
Minerals	Total Dissolved Solids (mg/L)	85	52.7	50.0	0.1/194.0	34.5/65.8	
	Specific Conductivity (uS/cm)	84	76.6	74.0	0.1/299.0	50.9/94.4	
	Chloride (mg/L)	70	11.3	<10.0	<10.0/68.6	<10.0/<10.0	
	Sulfate (mg/L)	70	18.4	16.7	<10.0/56.1	13/21.7	
Nutrients	Total Phosphorus (mg/L)	86	0.069	0.061	0.022/0.259	0.043/0.081	
	Total Nitrogen (mg/L)	87	0.649	0.560	0.130/1.730	0.480/0.73	
	Nitrate/Nitrite (mg/L)	83	0.098	<0.050	<0.050/0.640	<0.050/0.120	
	Chlorophyll A (mg/m^3)	25	11.7	7.3	1/31.7	2.7/13.2	TSI=49.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	24	418.8	<10.0	<10.0/6700	<10.0/65	Mean> OWQS of 31
	E. Coli (cfu/100ml)(*-Geo. Mn.)	24	60.3	30.5	<10.0/528	<10.0/71.3	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NS		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish consumption not supporting for Lead
Fish and Wildlife Propagation not supporting for Lead
Public and Private Water Supply not supporting for Lead

Kiamichi River at Tuskahoma

Sample Record	Times Visited	Station ID
December 1998 - Current	170	410310010010-001AT

Stream Data

County	Pushmataha	View Site Data
Location	South of the Town of Tuskahoma off US Highway 271	
Latitude/Longitude	34.61236033, -95.27727429	
Planning Watershed	Southeast (8-digit HUC - 11140105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	114	19.0	18.9	0.5/34.0	12.3/26.5	
	Turbidity (NTU)	113	20	12	1/154	10/23	
	pH (units)	114	7.23	7.19	5.47/8.72	6.91/7.62	
	Dissolved Oxygen (mg/L)	114	8.48	8.40	3.08/17.75	7.06/9.67	
	Hardness (mg/L)	116	19.9	15.0	10.0/144.0	11.0/22.0	
Minerals	Total Dissolved Solids (mg/L)	115	29.5	30.0	0.1/129.0	14.0/40.0	
	Specific Conductivity (uS/cm)	113	41.8	41.0	0.1/200.0	18.9/55.0	
	Chloride (mg/L)	83	<10.0	<10.0	<10.0/<10.0	<10.0/<10.0	
	Sulfate (mg/L)	82	12.5	<10.0	<10.0/41.2	<10.0/12.7	
Nutrients	Total Phosphorus (mg/L)	119	0.042	0.032	<0.005/0.506	0.024/0.047	
	Total Nitrogen (mg/L)	118	0.433	0.360	<0.100/1.720	0.244/0.513	
	Nitrate/Nitrite (mg/L)	110	0.088	<0.050	<0.050/0.760	<0.050/0.088	
	Chlorophyll A (mg/m^3)	23	12.3	2.5	0.3/32.4	1.2/4.8	TSI=44.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	26	1539.2	45.5	<10.0/35000	<10.0/88	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	26	318.7	41.0	<10.0/4611	17.5/92	

Beneficial Uses

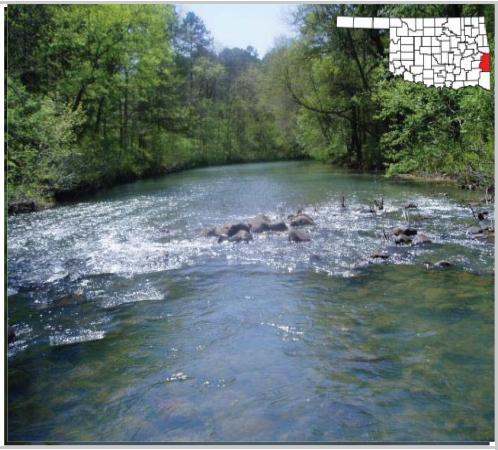
Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead
Fish and Wildlife Propagation not supporting for Copper and Lead

Kiamichi River at Big Cedar



Sample Record	Times Visited	Station ID
November 1998 - Current	160	410310020010-001AT

Stream Data

County	LeFlore	View Site Data
Location	East of the Town of Big Cedar on State Highway 63	
Latitude/Longitude	34.63884253, -94.61226313	
Planning Watershed	Southeast (8-digit HUC - 11140105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	124	16.9	16.7	4.2/33.5	10.7/22.5	
	Turbidity (NTU)	124	8	6	1/64	4/8	
	pH (units)	124	6.98	6.86	5.71/9.02	6.59/7.37	
	Dissolved Oxygen (mg/L)	124	8.47	8.59	3.02/15.05	6.87/10.13	
	Hardness (mg/L)	122	16.2	10.0	2.9/134.0	10.0/12.0	
Minerals	Total Dissolved Solids (mg/L)	125	15.5	14.0	0.1/105.0	4.9/19.5	
	Specific Conductivity (uS/cm)	122	19.8	19.5	0.1/163.0	2.8/26.1	
	Chloride (mg/L)	82	<10.0	<10.0	<10.0/<10.0	<10.0/<10.0	
	Sulfate (mg/L)	82	10.3	<10.0	<10.0/23.3	<10.0/<10.0	
Nutrients	Total Phosphorus (mg/L)	114	0.016	0.012	<0.005/0.076	0.008/0.020	
	Total Nitrogen (mg/L)	113	0.317	0.230	<0.100/1.880	0.150/0.410	
	Nitrate/Nitrite (mg/L)	106	0.066	<0.050	<0.050/0.675	<0.050/<0.050	
	Chlorophyll A (mg/m^3)	15	10.7	0.9	0.1/7.0	0.3/1.7	TSI=35.8
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	1074.0	30.0	<10.0/24000	<10.0/82	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	114.3	<10.0	<10.0/1317	<10.0/30.8	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	S	S
Aesthetics												NS
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish and Wildlife Propagation not supporting for Copper, Lead, Silver, and Zinc*

Kiamichi River at Antlers

Sample Record	Times Visited	Station ID
November 1998 - Current	189	410300030010-001AT

Stream Data

County	Pushmataha	View Site Data
Location	North of the Town of Antlers on US Highway 271	
Latitude/Longitude	34.24876734, -95.60509256	
Planning Watershed	Southeast (8-digit HUC - 11140105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	120	19.0	19.0	4.4/34.0	12.0/25.7	
	Turbidity (NTU)	120	26	17	2/173	10/28	
	pH (units)	119	7.26	7.24	5.04/9.31	6.87/7.65	
	Dissolved Oxygen (mg/L)	119	8.25	7.85	2.47/20.26	6.98/9.35	
	Hardness (mg/L)	122	23.5	16.2	10.0/324.0	12.5/24.0	
Minerals	Total Dissolved Solids (mg/L)	123	38.9	39.0	0.1/253.0	24.0/53.6	
	Specific Conductivity (uS/cm)	120	51.4	47.4	0.1/390.0	28.0/67.6	
	Chloride (mg/L)	108	<10.0	<10.0	<10.0/<10.0	<10.0/<10.0	
	Sulfate (mg/L)	108	13.3	10.7	<10.0/33.2	<10.0/14.4	
Nutrients	Total Phosphorus (mg/L)	124	0.049	0.037	<0.005/0.328	0.025/0.055	
	Total Nitrogen (mg/L)	124	0.564	0.475	<0.100/2.540	0.330/0.668	
	Nitrate/Nitrite (mg/L)	119	0.133	<0.050	<0.050/2.540	<0.050/0.135	
	Chlorophyll A (mg/m^3)	41	12.0	4.2	0.6/520.0	2.5/7.0	TSI=62.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	29	406.6	20.0	<10.0/6000	<10.0/250	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	29	321.9	31.0	<10.0/4106	<10.0/85.5	

Beneficial Uses

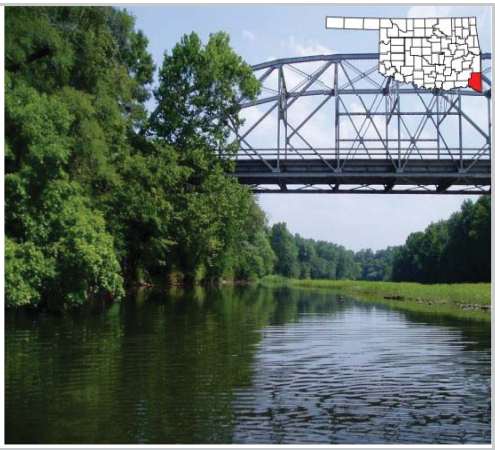
Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	S	S
Aesthetics												NS
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish consumption not supporting for Lead
Fish and Wildlife Propagation not supporting for Copper and Lead

Glover River at Glover



Sample Record	Times Visited	Station ID
November 1998 - Current	202	410210080010-001AT

Stream Data

County	McCurtain	View Site Data
Location	West of the Town of Broken Bow on State Highway 3	
Latitude/Longitude	34.09774144, -94.90248786	
Planning Watershed	Southeast (8-digit HUC - 11140107)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	128	19.6	19.9	1.8/34.0	12.1/27.1	
	Turbidity (NTU)	129	11	7	1/89	4/11	17.1% of values> OWQS of 10
	pH (units)	127	7.27	7.18	5.07/9.26	6.98/7.50	
	Dissolved Oxygen (mg/L)	127	8.51	8.71	2.52/14.41	6.99/9.89	
	Hardness (mg/L)	129	27.3	16.0	10.0/231.0	12.0/29.8	
Minerals	Total Dissolved Solids (mg/L)	129	37.3	31.0	0.1/284.0	23.0/46.5	
	Specific Conductivity (uS/cm)	128	53.1	43.0	0.1/437.0	31.7/64.8	
	Chloride (mg/L)	86	10.1	<10.0	<10.0/18.1	<10.0/<10.0	
	Sulfate (mg/L)	86	10.9	<10.0	<10.0/33.5	<10.0/<10.0	
Nutrients	Total Phosphorus (mg/L)	118	0.030	0.019	<0.005/0.500	0.013/0.029	
	Total Nitrogen (mg/L)	118	0.519	0.385	<0.100/3.520	0.279/0.549	
	Nitrate/Nitrite (mg/L)	115	0.169	<0.050	<0.050/1.420	<0.050/0.225	
	Chlorophyll A (mg/m^3)	44	12.1	1.7	0.1/8.0	0.7/2.5	TSI=36.8
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	31	50.4	20.0	<10.0/400	<10.0/63	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	31	41.6	20.0	<10.0/354	<10.0/41	

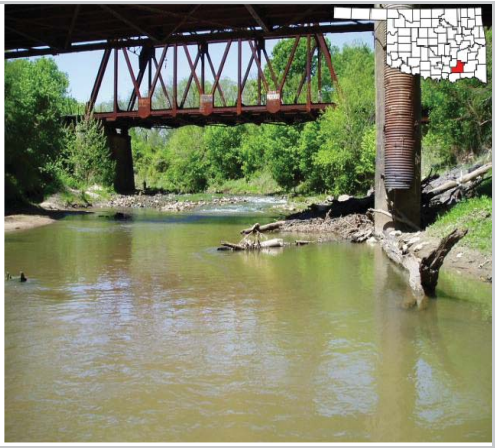
Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish consumption not supporting for Thallium*

Clear Boggy Creek at Caney



Sample Record	Times Visited	Station ID
November 1998 - Current	138	410400030010-001AT

Stream Data

County	Atoka	View Site Data
Location	North of the Town of Caney on US 69	
Latitude/Longitude	34.25148276, -96.2052689	
Planning Watershed	Blue-Boggy (8-digit HUC -11140104)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	114	18.5	18.2	3.0/31.8	12.0/25.9	
	Turbidity (NTU)	115	89	41	4/879	19/92	20.6% of values >OWQS of 50
	pH (units)	113	7.90	7.92	6.48/9.32	7.74/8.11	
	Dissolved Oxygen (mg/L)	114	8.59	8.08	4.73/22.11	6.89/9.79	
	Hardness (mg/L)	115	203.6	208.0	63.0/320.0	166.0/250.0	
Minerals	Total Dissolved Solids (mg/L)	116	286.4	288.0	75.0/750.0	220.4/343.3	
	Specific Conductivity (uS/cm)	114	458.1	469.6	117.0/1154.0	335.1/555.6	
	Chloride (mg/L)	102	28.0	22.5	<10.0/233.0	13.0/36.2	
	Sulfate (mg/L)	102	30.5	28.3	13.7/100.5	23.5/34.3	
Nutrients	Total Phosphorus (mg/L)	117	0.160	0.101	<0.005/1.081	0.063/0.163	
	Total Nitrogen (mg/L)	118	0.781	0.595	<0.100/3.080	0.379/1.003	
	Nitrate/Nitrite (mg/L)	114	0.179	0.055	<0.050/2.400	<0.050/0.166	
	Chlorophyll A (mg/m^3)	1	12.0	18.2	18.2/18.2	0/0	
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	22	527.1	96.5	<10.0/5000	17.5/400	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	22	134.4	57.5	<10.0/619	<10.0/176	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						NS	NS	NS
Aesthetics												NS
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish consumption not supporting for Lead and Thallium*

Blue River at Durant

Sample Record	Times Visited	Station ID
November 1998 - Current	156	410600010010-001AT

Stream Data

County	Bryan	View Site Data
Location	East of the Town of Durant off State Highway 70	
Latitude/Longitude	33.99732546, -96.24093554	
Planning Watershed	Blue-Boggy (8-digit HUC - 11140102)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	116	19.1	18.4	3.1/33.0	12.6/26.8	
	Turbidity (NTU)	117	62	27	3/536	14/54	
	pH (units)	114	8.00	8.03	7.06/8.80	7.83/8.18	
	Dissolved Oxygen (ppm)	116	8.43	8.03	4.14/20.41	6.88/9.82	
	Hardness (ppm)	117	218.7	230.0	68.0/346.0	185.0/252.0	
Minerals	Total Dissolved Solids (ppm)	118	245.4	252.4	68.0/386.0	212.5/287.9	
	Specific Conductivity (uS/cm)	116	395.2	411.1	138.6/596.0	337.3/458.0	
	Chloride (ppm)	103	10.5	<10.0	<10.0/62.9	<10.0/<10.0	
	Sulfate (ppm)	102	18.8	16.2	<10.0/81.5	11.2/21.3	
Nutrients	Total Phosphorus (ppm)	119	0.092	0.061	<0.005/0.497	0.036/0.113	
	Total Nitrogen (ppm)	120	0.805	0.480	<0.050/7.190	0.310/0.906	
	Nitrate/Nitrite (ppm)	120	0.272	0.108	<0.050/2.780	<0.050/0.224	
	Chlorophyll A (mg/m^3)	15	12.6	3.2	0.2/29.0	0.7/6.9	TSI=45.10
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	482.7	90.5	<10.0/5000	<10.0/327.5	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	195.6	97.0	<10.0/933	51.3/243.5	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												NS
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

STATION NAME	FWP	PBCR	PPWS	AG	AES
Blue River, US 70, Durant	S	NS (6, 8)	S	S	NS(18)
Clear Boggy Creek, off US 69, Caney	NS (5, 16, 18)	NS (8)	S	S	NS(18)
Glover River, SH 3, Glover	NS (5)	S	S	S	NT
Kiamichi River, off US 271, Tuskahoma	NS (2, 3)	NS (8)	S	S	NT
Kiamichi River, SH 63, Big Cedar	NS (3)	NS (8)	S	S	NS(18)
Kiamichi River, US 271, Antlers	NS (3)	NS (8)	S	S	NS(18)
Kiamichi River, SH 109, Fort Towson	NS (3)	NS (8)	NS (9)	S	NT
Little River, off SH 3, Cloudy	NS (3, 5)	NS (8)	S	S	S
Little River, off US 70, near Holly Creek	NS (1, 3, 5)	S	S	S	NT
Little River, SH 56, Sasakwa	NS (5)	NS (6, 8)	S	S	NS(13, 18)
Mountain Fork, SH 4, Smithville	NS (2, 3)	S	S	S	S
Mountain Fork, US 70, Eagletown	NS (3)	NS (8)	S	S	NT
Muddy Boggy Creek, US 70, Unger	NS (5)	NS (8)	S	S	NT
Muddy Boggy Creek, US 69, Atoka	NS (3, 5)	NS (6, 8)	S	S	NS
Red River, US 259, Harris	NS (5)	S	S	S	NT
Red River, US 271, Hugo	S	NS (8)	S	NS(10, 11, 12)	NT

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1114

Lower Red Sub-basin

The Lower Red sub-basin (4-digit hydrologic unit 1114) is situated in the southeastern portion of the state. It originates in the central portion of Pontotoc County, continues eastward through portions of Murray, Johnston, Bryan, Hughes, Coal, Atoka, Pittsburg, Latimer, Pushmataha, and Choctaw Counties, and terminates in the eastern parts of LeFlore and McCurtain Counties. Major cities and County seats located within the basin include Coalgate, Atoka, Durant, Antlers, Hugo, Broken Bow, and Idabel. Minor cities of note include Kiowa, Fort Towson, Rattan, Clayton, Talihina, Smithville, and Valliant.

The basin is subdivided into nine 8-digit hydrologic units (HUC) that are all contained wholly within the state. These HUC's are the Bois D'Arc–Island (11140101), the Blue (11140102), the Muddy Boggy (11140103), the Clear Boggy (11140104), the Kiamichi (11140105), the Pecan–Waterhole (11140106), the Upper Little (11140107), the Mountain Fork (11140108), and Lower Little (11140109). The major surface water in the basin is the lower Red River. Major tributaries include the Blue River, the Kiamichi River, the Little River, the Glover River, the Mountain Fork River, Island Bayou, Whitegrass Creek, Clear Boggy Creek, Muddy Boggy Creek, Jackfork Creek, Cedar Creek, Buzzard Creek, Black Fork, Lukfata Creek, and Big Eagle Creek. Six major lakes are located in the basin—Atoka Reservoir formed by North Boggy Creek, McGee Creek Reservoir formed by McGee Creek, Sardis Lake formed by Jackfork and Buffalo Creeks, Hugo Lake formed by the Kiamichi River, Pine Creek Lake formed by the Little River, and Broken Bow Lake formed by the Mountain Fork River. Sixteen active permanent water quality-monitoring stations are located in the basin. Two inactive water quality-monitoring stations (Muddy Boggy near Farris and Little River near Idabel) are located in the sub-basin. Muddy Boggy near Farris was last assessed in the 1999 BUMP report. Little River near Idabel was last included in the 2003 BUMP report, but will not be assessed further. Because the station is located within a regulatory mixing zone, the OWRB cannot support previously collected data and will not include in future federal and state lists. Little River near Holly Creek was established in the beginning of 2003 and will replace the Idabel station.

The basin is characterized by three ecoregions. The Central Oklahoma/Texas Plains is the primary ecoregion beginning in the northwestern portion and continuing through the southern one-half (½) of the sub-basin. The Ouachita Mountains cover the remainder of the northern one-half (½) of the sub-basin. The South Central Plains cover the southeastern quarter (¼) of the McCurtain County. The primary land usage in the sub-basin is forestland (shortleaf pine, loblolly pine, pine plantations, and oak–hickory). It dominates the central and most of the eastern portions and is further interspersed throughout the sub-basin. The secondary land use is pastureland (brushy and mixed) that dominates parts of the western portion of the sub-basin and is interspersed throughout the sub-basin with areas of concentration in Pushmataha and southern McCurtain Counties. The tertiary land use is rangeland (open grasslands and woody areas) that is prevalent in the northwestern portion and is interspersed throughout the central and southern portions of the sub-basin. Other land uses of note are cropland, bottom woodlands, farmsteads, major urban areas, wetlands, and confined animal feeding operations.

West Cache Creek at Taylor

Sample Record	Times Visited	Station ID
November 1998 - Current	149	311310020010-001AT

Stream Data

County	Cotton	View Site Data
Location	North of the Town of Taylor on State Highway 5B	
Latitude/Longitude	34.2095473, -98.33061891	
Planning Watershed	Beaver-Cache (8-digit HUC - 11130203)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	104	18.7	20.0	2.6/35.2	9.9/26.3	
	Turbidity (NTU)	105	143	41	3/1000	15/104	12.9% of values> OWQS of 50
	pH (units)	103	8.02	8.03	6.51/8.78	7.83/8.20	
	Dissolved Oxygen (mg/L)	104	8.71	8.66	3.71/15.3	6.68/10.50	
	Hardness (mg/L)	108	271.0	218.0	90.0/790.0	157.0/332.0	
Minerals	Total Dissolved Solids (mg/L)	109	676.4	527.8	144.0/2919.0	366.0/817.5	100.0% of values> OWQS of 151
	Specific Conductivity (uS/cm)	103	1129.8	893.0	137.0/4559.0	617.0/1439.0	
	Chloride (mg/L)	110	213.0	142.5	<10.0/1010.0	89.5/274.3	23.8% of values> OWQS of 285
	Sulfate (mg/L)	110	89.3	62.3	23.0/300.0	45.5/112.3	19.0% of values>OWQS of 118
Nutrients	Total Phosphorus (mg/L)	110	0.210	0.138	0.039/1.204	0.098/0.244	
	Total Nitrogen (mg/L)	114	1.148	0.755	<0.100/6.330	0.530/1.378	
	Nitrate/Nitrite (mg/L)	112	0.358	0.060	<0.050/5.230	<0.050/0.459	
	Chlorophyll A (mg/m^3)	15	9.9	9.3	1.1/55.1	2.7/21.1	TSI=56.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	20	1081.8	280.0	<10.0/10000	170/827	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	20	285.4	104.5	<10.0/1553	54.8/269.3	Mean> OWQS of 126

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

Washita River at Pauls Valley

Sample Record	Times Visited	Station ID
December 1998 - Current	175	310810010010-001AT

Stream Data

County	Garvin	County
Location	East of the Town of Pauls Valley on county road E1570	
Latitude/Longitude	34.73848401, -97. 16538162	
Planning Watershed	Lower Washita (8-digit HUC -11130303)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	120	18.2	19.0	0.1/33.0	9.4/26.6	
	Turbidity (NTU)	120	305	81	8/1002	47/451	65.4% of values> OWQS of 50
	pH (units)	119	8.08	8.08	7.01/8.74	7.90/8.25	
	Dissolved Oxygen (mg/L)	120	10.59	8.96	3.83/149.2	7.23/11.36	
	Hardness (mg/L)	118	640.2	647.0	171.0/1210.0	498.0/801.3	
Minerals	Total Dissolved Solids (mg/L)	122	932.4	995.5	250.0/1490.0	704.7/1175.3	
	Specific Conductivity (uS/cm)	120	1406.1	1499.5	304.0/2237.0	1107.3/1783.3	
	Chloride (mg/L)	123	74.5	70.3	<10.0/238.0	45.7/98.2	
	Sulfate (mg/L)	120	494.9	523.0	93.7/1240.0	321.0/648.3	
Nutrients	Total Phosphorus (mg/L)	122	0.438	0.198	0.046/3.160	0.114/0.505	
	Total Nitrogen (mg/L)	123	1.803	1.400	<0.100/7.2	0.910/2.310	
	Nitrate/Nitrite (mg/L)	118	0.379	0.158	<0.050/5.340	<0.050/0.578	
	Chlorophyll A (mg/m^3)	30	9.4	32.4	10.4/783.0	19.2/55.8	TSI=74.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	22	1149.1	200.0	<10.0/10462	25.8/925	28.0% of values>OWQS of 400
	E. Coli (cfu/100ml)(*-Geo. Mn.)	22	334.7	31.0	<10.0/3873	<10.0/149.5	Mean> OWQS of 33

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead

Washita River at McClure

Sample Record	Times Visited	Station ID
November 1998 - Current	238	310840010010-003RS

Stream Data

County	Custer	View Site Data
Location	North of the Town of McClure off of State Highway 33	
Latitude/Longitude	35.656289, -99.306207	
Planning Watershed	West Central (8-digit HUC -11130301)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	141	15.9	16.0	-0.8/33.3	8.4/23.2	
In-Situ	Turbidity (NTU)	141	101	35	1/1000	12/104	32.0% of values>OWQS of 50
In-Situ	pH (units)	139	8.03	8.02	7.14/8.64	7.89/8.19	
In-Situ	Dissolved Oxygen (mg/L)	140	9.73	9.66	3.80/19.85	7.91/11.13	
In-Situ	Hardness (mg/L)	140	1136.6	1080.0	176/2349	880/1400	
Minerals	Total Dissolved Solids (mg/L)	145	1522.2	1510.0	299.7/2672.0	1230.5/1816.5	
Minerals	Specific Conductivity (uS/cm)	141	2033.6	2088.0	467.4/2958.0	1761.5/2402.0	
Minerals	Chloride (mg/L)	142	61.8	63.1	11.1/409.0	52.3/69.1	
Minerals	Sulfate (mg/L)	141	936.3	915.0	170/1760	695/1173	
Nutrients	Total Phosphorus (mg/L)	142	0.151	0.063	0.005/1.840	0.041/0.165	
Nutrients	Total Nitrogen (mg/L)	146	1.260	0.958	0.150/5.490	0.740/1.430	
Nutrients	Nitrate/Nitrite (mg/L)	147	0.435	0.265	<0.050/4.960	0.165/0.415	
Nutrients	Chlorophyll A (mg/m^3)	41	8.4	8.6	0.1/103.0	4.7/16.0	TSI=54.4
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	55	1264.7	399.0	<10.0/17900	130/1081	Mean>OWQS of 33.0
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	55	661.9	130.0	<10.0/24192	52/226	Mean>OWQS of 126.0

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						NS	S	NS
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation												
Public & Private Water Supply				S		S						
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium and Lead*

Washita River at Durwood

Sample Record	Times Visited	Station ID
November 1998 - Current	127	310800020010-001AT

Stream Data

County	Carter	View Site Data
Location	Northwest of the Town of Durwood on US 177	
Latitude/Longitude	34.23354963, -96.97638301	
Planning Watershed	Lower Washita (8-digit HUC -11130303)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	88	19.53	20.30	3.77/33.65	12.26/27.05	
	Turbidity (NTU)	87	331.2	90.0	7.8/>1000.0	44/614	44.8% of values> OWQS of 50
	pH (units)	87	8.07	8.03	7.1/8.86	7.88/8.27	
	Dissolved Oxygen (mg/L)	88	8.92	8.45	3.45/19.04	7.14/10.22	
	Hardness (mg/L)	87	523.5	532.0	195/885	396/632	
Minerals	Total Dissolved Solids (mg/L)	88	766.4	785.5	231/1407	569/993.1	
	Specific Conductivity (uS/cm)	87	1168.5	1224.0	355/2037	817/1513	
	Chloride (mg/L)	87	73.8	74.3	10.4/163	43.3/102	
	Sulfate (mg/L)	88	359.5	340.5	26.3/787	231.3/472.3	
Nutrients	Total Phosphorus (mg/L)	88	0.444	0.234	0.025/4.183	0.14/0.438	
	Total Nitrogen (mg/L)	87	1.700	1.195	0.39/7.42	0.81/2.25	
	Nitrate/Nitrite (mg/L)	88	0.304	0.218	<0.050/1.04	<0.050/0.48	
	Chlorophyll A (mg/m^3)	23	20.04	17.70	<0.10/91.5	2.5/29.6	TSI=61.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	23	317.1	100.0	<10.0/1900	20/419	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	23	436.2	41.0	<10.0/8164	<10.0/143	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium and Lead*

Washita River at Cordell

Sample Record	Times Visited	Station ID
November 1998 - Current	273	310830030010-001AT

Stream Data

County	Washita	View Site Data
Location	East of the Town of Cordell on State Highway 152	
Latitude/Longitude	35.29115498, -98.83671818	
Planning Watershed	West Central (8-digit HUC -11130302)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	168	16.9	17.4	-1/33.8	9.1/24.0	
	Turbidity (NTU)	164	116	25	3/1000	10/100	34.2% of values> OWQS of 50
	pH (units)	165	7.99	8.00	5.93/8.72	7.87/8.14	
	Dissolved Oxygen (mg/L)	167	9.80	9.83	1.95/22.10	7.80/11.47	
	Hardness (mg/L)	166	1225.7	1272.0	210.0/2835.0	1067.5/1412.5	
Minerals	Total Dissolved Solids (mg/L)	171	1655.8	1717.0	219.0/2620.0	1390.0/1977.0	
	Specific Conductivity (uS/cm)	168	2171.6	2242.0	348.0/3430.0	1851.8/2546.0	
	Chloride (mg/L)	163	86.4	71.3	<10.0/588.0	51.0/107.0	
	Sulfate (mg/L)	163	1024.9	1066.0	63.3/1880.0	877.0/1210.0	
Nutrients	Total Phosphorus (mg/L)	164	0.293	0.177	0.023/3.330	0.112/0.300	
	Total Nitrogen (mg/L)	165	1.863	1.715	0.150/8.680	1.255/2.228	
	Nitrate/Nitrite (mg/L)	166	0.802	0.700	<0.050/2.520	0.309/1.196	
	Chlorophyll A (mg/m^3)	26	9.1	9.2	2.6/95.9	5.2/17.2	TSI=58.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	78	1759.7	251.0	<10.0/24192	74/1223.5	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	77	1316.6	126.0	<10.0/24192	36/331	Mean> OWQS of 126

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						NS	S	NS
Aesthetics												NS
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Thallium

Washita River at Anadarko

Sample Record	Times Visited	Station ID
February 1999 - Current	211	310830010010-001AT

Stream Data

County	Caddo	View Site Data
Location	North of the Town of Anadarko on US 281	
Latitude/Longitude	35.08448153, -98.24330303	
Planning Watershed	Lower Washita (8-digit HUC -11130302)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	137	18.3	20.3	-0.1/33.5	9.9/27.0	
	Turbidity (NTU)	135	168	43	4/1002	18/146	36.7% of values> OWQS of 50
	pH (units)	133	8.11	8.10	7.01/8.88	7.90/8.28	
	Dissolved Oxygen (mg/L)	137	9.73	9.57	1.33/19.66	8.02/11.60	
	Hardness (mg/L)	136	856.1	890.0	185.0/1580.0	670.3/1066.0	
Minerals	Total Dissolved Solids (mg/L)	140	1207.1	1266.5	150.0/2575.0	961.0/1472.3	
	Specific Conductivity (uS/cm)	136	1775.8	1921.5	144.0/4023.0	1403.3/2139.8	
	Chloride (mg/L)	139	85.0	85.1	<10.0/198.0	52.4/111.0	
	Sulfate (mg/L)	138	713.0	757.0	55.8/2330.0	547.3/869.3	
Nutrients	Total Phosphorus (mg/L)	140	0.284	0.181	0.034/3.297	0.095/0.273	
	Total Nitrogen (mg/L)	141	1.485	1.240	0.150/7.100	0.925/1.718	
	Nitrate/Nitrite (mg/L)	141	0.429	0.275	<0.050/2.280	<0.050/0.685	
	Chlorophyll A (mg/m^3)	46	9.9	21.8	3.5/597.0	13.6/46.0	TSI=69.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	26	1351.4	300.0	<10.0/12997	64.3/1525	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	26	348.8	101.5	<10.0/2723	<10.0/226.5	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						NS	S	NS
Aesthetics												NS
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Lead and Thallium*

Washita River at Alex

Sample Record	Times Visited	Station ID
January 2003 – May 2008	97	310810020010-001AT

Stream Data

County	Grady	View Site Data
Location	North of the Town of Alex on Highway 19C	
Latitude/Longitude	34.9261546, -97.77397966	
Planning Watershed	Lower Washita (8-digit HUC -11130303)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	50	18.22	19.58	0.31/33.63	10.83/25.44	
	Turbidity (NTU)	50	267.4	95.5	8/>1000.0	25/466.3	36.7% of values> OWQS of 50
	pH (units)	49	8.09	8.07	7.22/9.26	7.87/8.25	
	Dissolved Oxygen (mg/L)	50	9.28	8.33	4.59/15.76	7.5/11.45	
	Hardness (mg/L)	50	799.4	844.5	248/1668	593.8/994	
Minerals	Total Dissolved Solids (mg/L)	50	1050.1	1136.0	226/1670	846.6/1304.3	
	Specific Conductivity (uS/cm)	49	1617.6	1762.0	353/2690	1316.5/1980	
	Chloride (mg/L)	50	84.0	83.9	10.6/202	55.7/106.3	
	Sulfate (mg/L)	50	617.7	654.5	151/1260	454.3/811.8	
Nutrients	Total Phosphorus (mg/L)	50	0.429	0.202	0.01/2.06	0.117/0.531	
	Total Nitrogen (mg/L)	50	1.917	1.405	0.68/5.77	1.015/2.453	
	Nitrate/Nitrite (mg/L)	50	0.410	0.385	<0.050/1.8	<0.050/0.666	
	Chlorophyll A (mg/m^3)	29	37.87	30.70	5.86/144	10.36/40.65	TSI=66.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	20	1342.1	139.5	<10.0/11000	33.5/2602.5	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	20	692.1	57.5	<10.0/9208	<10.0/572.8	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Thallium and Lead
Public and Private Water Supply not supporting for Chromium

Sandy Creek at Eldorado

Sample Record	Times Visited	Station ID
November 1998 - Current	133	311600010040-001AT

Stream Data

County	Jackson	View Site Data
Location	Southwest of the Town of Eldorado on State Highway 6	
Latitude/Longitude	34.46433562, -99.66255838	
Planning Watershed	Southwest (8-digit HUC -11130101)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	115	18.7	20.0	2.7/33.2	12.3/25.0	
	Turbidity (NTU)	117	73	45	4/1000	21/72	51.3% of values> OWQS of 50
	pH (units)	112	7.77	7.78	7.09/8.44	7.57/7.96	
	Dissolved Oxygen (mg/L)	115	11.66	11.85	3.46/22.54	8.56/14.88	
	Hardness (mg/L)	116	2324.3	2447.5	190.0/3974.0	2045.3/2692.5	
Minerals	Total Dissolved Solids (mg/L)	119	5669.3	6035.0	514.1/7080.0	5577.0/6430.0	90.7% of values> OWQS of 3969.0
	Specific Conductivity (uS/cm)	115	8473.7	9209.0	803.3/11175	8340.0/9510.0	
	Chloride (mg/L)	118	2006.7	2082.0	159.0/3750.0	1890.0/2220.0	95.5% of Values> OWQS of 909.5
	Sulfate (mg/L)	119	1877.0	1950.0	191.0/3680.0	1670.0/2140.0	54.5% of Values> OWQS of 1934.5
Nutrients	Total Phosphorus (mg/L)	118	0.130	0.093	0.013/1.356	0.044/0.157	
	Total Nitrogen (mg/L)	120	3.513	3.530	0.080/8.380	3.048/4.195	
	Nitrate/Nitrite (mg/L)	118	2.237	2.170	<0.050/4.715	1.453/3.123	
	Chlorophyll A (mg/m^3)						No Data
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	19	2837.2	300.0	<10.0/37300	74/1100	Mean > OWQS of 165
	E. Coli (cfu/100ml)(*-Geo. Mn.)	19	317.9	119.0	<10.0/3448	31/209	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S
Aesthetics												S
Agriculture					NS		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NS		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Thallium
Public & Private Water Supply not supporting for Selenium
Fish & Wildlife Propagation not supporting for Selenium

Red River at Terral

Sample Record	Times Visited	Station ID
December 1998 - Current	170	311100010190-001AT

Stream Data

County	Jefferson	View Site Data
Location	South of the Town of Terral on State Highway 81	
Latitude/Longitude	33.8786094, -97.93457247	
Planning Watershed	Lower Washita (8-digit HUC - 11130201)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	115	20.0	21.4	3.1/33.5	13.0/27.5	
	Turbidity (NTU)	117	294	100	1/1002	43/462	60.0% of values>OWQS of 50
	pH (units)	114	8.21	8.23	6.73/9.11	7.97/8.46	
	Dissolved Oxygen (mg/L)	115	10.44	10.26	3.42/20.13	7.97/12.72	
	Hardness (mg/L)	119	804.4	816.0	168.0/2075.0	531.0/1024.0	
Minerals	Total Dissolved Solids (mg/L)	119	3023.8	3149.0	100.0/9253.0	2110.0/3971.0	
	Specific Conductivity (uS/cm)	114	4845.8	5016.5	157.0/14458	3299.3/6344.5	
	Chloride (mg/L)	117	1195.0	1190.0	151.0/4200.0	799.5/1538.5	30.2% of values>OWQS of 1007.25
	Sulfate (mg/L)	117	623.0	629.0	95.5/2110.0	388.0/787.5	37.2% of values>OWQS of 484.75
Nutrients	Total Phosphorus (mg/L)	118	0.426	0.271	0.021/4.210	0.199/0.417	
	Total Nitrogen (mg/L)	121	1.784	1.580	0.120/8.070	1.185/2.115	
	Nitrate/Nitrite (mg/L)	120	0.339	0.163	<0.050/1.460	<0.050/0.530	
	Chlorophyll A (mg/m^3)	29	13.0	46.9	2.5/163.0	22.7/79.7	TSI=71.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	25	330.2	31.0	<10.0/3654	<10.0/184.5	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	25	107.0	20.0	<10.0/1106	<10.0/74	

Beneficial Uses

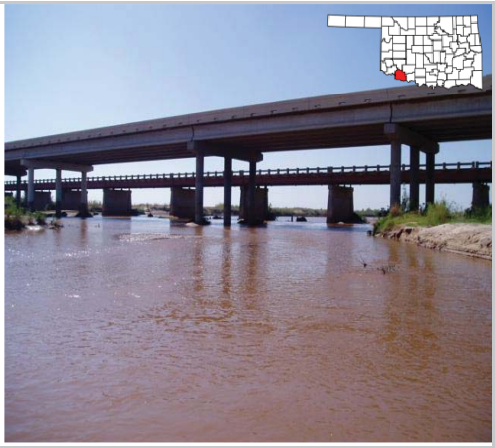
Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S
Aesthetics												NEI
Agriculture					NS		NS	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Thallium
Fish and Wildlife Propagation not supporting for Selenium

Red River at Davidson



Sample Record	Times Visited	Station ID
November 1998 - Current	223	311310010010-001AT

Stream Data

County	Tillman	View Site Data
Location	South of the Town of Davidson on State Highway 183	
Latitude/Longitude	34.2115454, -99.08155505	
Planning Watershed	Beaver-Cache (8-digit HUC - 11130102)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	148	17.9	18.3	-0.8/32.2	10.7/25.0	
In-Situ	Turbidity (NTU)	150	231	57	5/1002	23/248	24.0% of values>OWQS of 50
In-Situ	pH (units)	146	8.06	8.09	6.98/9.12	7.91/8.21	
In-Situ	Dissolved Oxygen (mg/L)	148	9.97	9.57	0.48/21.97	8.22/11.73	
In-Situ	Hardness (mg/L)	149	1363.7	1350.0	277.0/2700.0	1037.5/1682.0	
Minerals	Total Dissolved Solids (mg/L)	156	4923.7	5110.0	520.0/13600.0	3745.0/6009.8	
Minerals	Specific Conductivity (uS/cm)	149	7643.5	8078.0	1261/21375	5766.0/9375.0	
Minerals	Chloride (mg/L)	157	2015.0	2035.0	219.0/5980.0	1425.0/2476.5	96.6% of values>OWQS of 285.0
Minerals	Sulfate (mg/L)	157	1163.1	1090.0	182.0/6680.0	864.5/1335.0	100.0% of values>OWQS of 78.5
Nutrients	Total Phosphorus (mg/L)	119	0.282	0.140	<0.005/2.780	0.092/0.242	
Nutrients	Total Nitrogen (mg/L)	120	2.031	1.325	0.150/34.950	1.076/1.993	
Nutrients	Nitrate/Nitrite (mg/L)	121	0.427	0.210	<0.050/2.900	<0.050/0.665	
Nutrients	Chlorophyll A (mg/m^3)	45	10.7	44.3	1.6/192.0	21.0/70.3	TSI=68.4
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	23	2111.4	52.0	<10.0/21000	<10.0/300	Mean> OWQS of 33
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	23	1388.7	63.0	<10.0/17329	<10.0/197	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S
Aesthetics												NEI
Agriculture					NS		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Thallium
Fish and Wildlife Propagation not supporting for Selenium

Mud Creek at Courtney

Sample Record	Times Visited	Station ID
November 1998 - Current	142	311100040010-001AT

Stream Data

County	Love	View Site Data
Location	Near the town of Courtney on State Highway 32	
Latitude/Longitude	34.004167, -97.566667	
Planning Watershed	Lower Washita (8-digit HUC - 11130201)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	119	19.2	19.5	3.4/32.6	12.5/26.9	
In-Situ	Turbidity (NTU)	118	205	89	15/1000	47/278	62.5% of values > OWQS of 50
In-Situ	pH (units)	118	7.87	7.90	7.14/8.81	7.66/8.07	
In-Situ	Dissolved Oxygen (mg/L)	119	6.73	6.54	1.42/17.43	5.2/8.1	
In-Situ	Hardness (mg/L)	118	240.5	218.0	30.0/670.0	137.5/297.0	
Minerals	Total Dissolved Solids (mg/L)	121	452.5	403.0	85.0/1246.0	254.5/572.0	
Minerals	Specific Conductivity (uS/cm)	118	733.4	667.5	90.0/1972.0	371.8/898.0	
Minerals	Chloride (mg/L)	118	91.9	70.6	<10.0/384.0	31.6/129.8	
Minerals	Sulfate (mg/L)	117	69.7	61.9	19.9/246.5	41.7/91.4	
Nutrients	Total Phosphorus (mg/L)	119	0.236	0.165	0.024/1.609	0.102/0.323	18.6% of values > OWQS of 0.360
Nutrients	Total Nitrogen (mg/L)	120	1.219	1.030	0.080/3.550	0.735/1.585	
Nutrients	Nitrate/Nitrite (mg/L)	119	0.180	0.095	<0.050/0.970	<0.050/0.280	
Nutrients	Chlorophyll A (mg/m^3)						No Data
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	26	1007.5	197.0	<10.0/17000	37.8/600	Mean> OWQS of 33
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	26	242.7	63.0	<10.0/1986	20/287	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						NS	S	NS
Aesthetics												NS
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish consumption not supporting for Lead*

East Cache Creek at Walters

Sample Record	Times Visited	Station ID
November 1998 - Current	159	311300010020-001AT

Stream Data

County	Cotton	View Site Data
Location	East of the Town of Walters on State Highway 53	
Latitude/Longitude	34.36188194, -98.28233417	
Planning Watershed	Beaver-Cache (8-digit HUC -11130202)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	117	18.3	18.9	2.1/35.4	11.1/26.2	
In-Situ	Turbidity (NTU)	115	87	54	4/809	28/89	39.4% of values >OWQS of 50
In-Situ	pH (units)	116	7.88	7.87	7.37/8.52	7.70/8.03	
In-Situ	Dissolved Oxygen (mg/L)	117	8.20	7.47	3.39/16.1	6.46/9.99	
In-Situ	Hardness (mg/L)	118	218.7	200.5	95.0/638.0	174.0/246.5	
Minerals	Total Dissolved Solids (mg/L)	123	461.5	464.0	100.0/1539.5	370.0/529.0	15.9% of values >OWQS of 560
Minerals	Specific Conductivity (uS/cm)	116	722.3	738.0	160.0/1893.0	565.8/829.8	
Minerals	Chloride (mg/L)	121	70.5	74.4	<10.0/164.0	43.3/90.7	
Minerals	Sulfate (mg/L)	121	88.6	83.3	31.4/326.0	65.4/101.0	
Nutrients	Total Phosphorus (mg/L)	121	0.996	0.920	0.047/3.580	0.449/1.440	
Nutrients	Total Nitrogen (mg/L)	123	3.494	2.850	0.150/11.650	1.650/5.030	
Nutrients	Nitrate/Nitrite (mg/L)	123	2.283	1.775	<0.050/9.900	0.665/3.610	
Nutrients	Chlorophyll A (mg/m^3)	15	11.1	7.1	1.0/39.0	2.6/9.3	TSI=51.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	24	2455.1	435.0	109/43000	200/950	Mean> OWQS of 33
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	24	333.6	109.0	<10.0/4352	54.8/193	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

STATION NAME	FWP	PBCR	PPWS	AG	AES
East Cache Creek, SH 53, Walters	NS (5)	NS (6, 8)	S	NS(10)	T(13, 15)
Mud Creek, SH 32, Courtney	NS (5, 16, 18)	NS (6, 8)	S	S	NS(18)
Red River, US 183, Davidson	NS (3, 5)	NS (6, 8)	N/A	NS (10, 11, 12)	T (17)
Red River, US 81, Terral	NS (3, 5)	NS (8)	S	NS (11, 12)	T(13, 17)
Sandy Creek, SH 6, Eldorado	NS (2, 3, 5)	NS(9)	N/A	NS (10, 11, 12)	NT
Washita River, SH 152, Cordell	NS (5, 16, 18)	NS (6, 7, 8)	S	S	TS(13, 18)
Washita River, SH 19, Pauls Valley	NS (5)	NS (6, 8)	S	S	T(13, 17)
Washita River, SH 33, mcclure	NS (5, 16, 18)	NS (6, 7, 8)	S	S	NT
Washita River, US 177, Durwood	NS (5)	NS (6, 8)	S	S	T(13, 17)
Washita River, off SH 19, Alex	NS (5)	NS (6, 8)	S	S	T(13, 17)
Washita River, US 281, Anadarko	NS (5, 16, 18)	NS (6, 8)	S	S	NS (17, 18)
West Cache Creek, SH 5B, Taylor	NS (5)	NS (6, 7, 8)	S	NS (10,11)	NT

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1113

Upper Red Sub-basin

The Upper Red sub-basin (4-digit hydrologic unit 1113) is situated in the southwestern portion of the state. It originates in the western portion of Roger Mills County, continues eastward through portions of Beckham, Dewey, Custer, Washita, Kiowa, Caddo, Comanche, Tillman, Cotton, Grady, Stephens, Jefferson, McClain, Garvin, Murray, Pontotoc, Carter, Johnston, and Love Counties and terminates in the western part of Marshall and Bryan Counties, briefly touching Harmon and Jackson Counties. Major cities and County seats located within the basin include Cheyenne, Hollis, Arapaho, Clinton, Frederick, Anadarko, Lawton, Walters, Chickasha, Marlow, Duncan, Waurika, Lindsay, Pauls Valley, Sulphur, Lone Grove, Ardmore, Marietta, Madill, and Tishomingo. Minor cities of note include Hammon, Fort Cobb, Binger, Rush Springs, Davis, and Wynnewood.

The basin is subdivided into eleven 8-digit hydrologic units (HUC) within the state. These HUC's are the Groesbeck–Sandy (11130101), the Blue–China (11130102), the Farmer's–Mud (11130201), the Cache (11130202), the West Cache (11130203), the Northern Beaver (11130208), the Lake Texoma (11130210), the Washita Headwaters (11130301), the Upper Washita (11130302), the Middle Washita (11130303), and the Lower Washita (11130304). The major surface water in the basin is the upper Red River. Major tributaries include the Prairie Dog Town Fork of the Red River, the Washita River, the Little Washita River, Barnitz Creek, Cobb Creek, Bitter Creek, Rush Creek, Wildhorse Creek, Rock Creek, Caddo Creek, Mill Creek, Sandy Creek, Deep Red Creek, West Cache Creek, East Cache Creek, Cow Creek, Beaver Creek, Mud Creek, Walnut Bayou, and Hickory Creek. Eight major lakes are located in the basin—Foss Reservoir formed by the Washita River, Fort Cobb Reservoir formed by Cobb Creek, Lake Ellsworth formed by East Cache Creek, Lake Lawtonka formed by Medicine Creek, Waurika Lake formed by Beaver Creek, Lake of the Arbuckles formed by Rock Creek, Lake Murray formed by Anadarche Creek, and Lake Texoma formed by the Red and Washita Rivers and Hickory Creek. Eleven active permanent water quality-monitoring stations are located in the basin. Four inactive water quality-monitoring stations are in this sub-basin(Cow Creek near Waurika, Walnut Bayou near Burneyville, Red River near Gainsville, and Hickory Creek near Marietta). Walnut Bayou near Burneyville and Hickory Creek near Marietta were last assessed in the 2000 BUMP report while Red River near Gainsville was last assessed in the 1999 BUMP report. Cow Creek near Waurika was last assessed in the 2003 BUMP report.

The basin is characterized by three ecoregions. The Central Great Plains is the primary ecoregion beginning in the western portion of Roger Mills County and continuing through the western parts of Grady, Stephens, and Jefferson Counties. The Central Oklahoma/Texas Plains begins in the eastern parts of Grady, Stephens, and Jefferson Counties and continues eastward over the rest of the sub-basin. The Southwestern Tablelands typify portions of Roger Mills, Custer, and Beckham Counties. The primary land usage in the sub-basin is rangeland (open grasslands, mesquite, and other woody areas). It is prevalent in the western, southern and central portions of the sub-basin and is interspersed throughout the sub-basin. The secondary land use is cropland, which dominates the southwestern portion and is interspersed throughout the sub-basin. The tertiary land uses are pastureland (brushy or mixed) and forestland (post oak–blackjack oak, hickory–oak, and bottomland hardwoods). Other land uses of note are woodlands, bottom woodlands, farmsteads, major urban areas, and wetlands.

Salt Fork Of The Red River at Elmer

Sample Record	Times Visited	Station ID
November 1998 - Current	286	311600020010-002AT

Stream Data

County	Jackson	View Site Data
Location	West of the Town of Elmer near US 283	
Latitude/Longitude	34.47893211, -99.38286717	
Planning Watershed	Southwest (8-digit HUC -11120202)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	201	19.3	19.5	0.5/37.0	11.9/26.8	
	Turbidity (NTU)	204	76	20	1/1000	10/48	
	pH (units)	194	8.05	8.06	7.33/8.56	7.90/8.19	
	Dissolved Oxygen (mg/L)	201	9.78	9.79	3.95/17.59	7.98/11.41	
	Hardness (mg/L)	206	1501.0	1544.5	200.0/2513.0	1182.5/1886.3	
Minerals	Total Dissolved Solids (mg/L)	212	2603.1	2545.0	240.0/5827.0	2036.5/3301.5	
	Specific Conductivity (uS/cm)	201	3712.5	3712.0	356.0/9105.0	3051.0/4314.5	
	Chloride (mg/L)	214	520.1	494.5	19.0/2097.0	282.8/691.3	
	Sulfate (mg/L)	213	1262.4	1270.0	87.2/3485.0	986.0/1550.0	
Nutrients	Total Phosphorus (mg/L)	174	0.090	0.051	<0.005/0.722	0.024/0.114	
	Total Nitrogen (mg/L)	177	1.757	1.510	<0.100/7.140	0.940/2.268	
	Nitrate/Nitrite (mg/L)	176	0.896	0.573	<0.050/5.930	0.210/1.215	
	Chlorophyll A (mg/m^3)	43	11.9	31.5	2.2/175.0	11.0/51.5	TSI= 63.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	40	2564.2	167.5	<10.0/51800	64.8/975	Mean>OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	40	303.4	57.0	<10.0/5172	22.5/189	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NS		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Thallium
Fish & Wildlife Propagation not supporting for Selenium
Public & Private Water Supply not supporting for Selenium

Salt Fork Of The Red River at Mangum

Sample Record	Times Visited	Station ID
October 2000 – September 2007	54	311600020010-001AT

Stream Data

County	Greer	View Site Data
Location	South of the Town of Mangum on State Highway 34	
Latitude/Longitude	34.85764987, -99.50925729	
Planning Watershed	Southwest (8-digit HUC -11120202)	

Parameters

	Parameter (Descriptions)	Mean	Median	Range	Comments
In-Situ	Water Temperature (C°)	18.6	18.9	2.7/37.0	
	Turbidity (NTU)	9	6	1/30	
	pH (units)	7.93	7.96	6.60/8.56	
	Dissolved Oxygen (ppm)	8.61	8.22	5.62/12.84	
	Hardness (ppm)	1531.9	1500.5	660.0/2380.0	
Minerals	Total Dissolved Solids (ppm)	2216.4	2115.0	798.6/8895.0	
	Specific Conductivity (uS)	3584.3	3238.0	1369.0/21559	
	Chloride (ppm)	278.2	270.0	63.1/464.0	
	Sulfate (ppm)	1254.3	1300.0	471.0/1800.0	
Nutrients	Total Phosphorus (ppm)	0.028	0.016	0.007/0.154	
	Nitrate/Nitrite (ppm)	0.258	0.210	0.050/0.970	
	Chlorophyll A (mg/m^3)	54.3	38.4	6.0/175.0	TSI=69.8
Bacteria	Fecal Coliform (cfu/100ml)(*-Geo. Mn.)	271.1*	310.0	<10/3400	45.5% of values>OWQS of 400
	Enterococcus (cfu/100ml)(*-Geo. Mn.)	240.7*	167.5	<10/11000	Mean> OWQS of 33
	E. Coli (MPN/100ml)(*-Geo. Mean)	84.9*	74.0	<10/1785	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes *Fish consumption not supporting for Thallium*

North Fork of the Red River at Carter

Sample Record	Times Visited	Station ID
November 1998 - Current	168	311510010010-001AT

Stream Data

County	Beckham	View Site Data
Location	South of the Town of Carter on State Highway 34	
Latitude/Longitude	35.16712931, -99.50730365	
Planning Watershed	Southwest (8-digit HUC -11120302)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	113	17.8	18.1	-0.9/36.5	9.9/24.8	
In-Situ	Turbidity (NTU)	114	62	18	0/1000	9/45	14.7% of values >OWQS of 50
In-Situ	pH (units)	111	8.07	8.09	7.61/8.55	7.92/8.23	
In-Situ	Dissolved Oxygen (mg/L)	113	9.54	9.05	5.33/17.00	7.90/10.94	
In-Situ	Hardness (mg/L)	114	916.9	910.0	89.0/1960.0	783.0/1061.0	
Minerals	Total Dissolved Solids (mg/L)	115	1776.6	1790.0	620.0/2690.0	1610.0/1987.0	
Minerals	Specific Conductivity (uS/cm)	113	2675.1	2693.0	970.0/4319.0	2433.0/3005.5	
Minerals	Chloride (mg/L)	116	377.5	373.0	38.7/1100.0	291.8/455.5	
Minerals	Sulfate (mg/L)	116	718.3	717.5	63.8/1240.0	579.3/868.5	
Nutrients	Total Phosphorus (mg/L)	110	0.090	0.038	<0.005/1.333	0.023/0.073	
Nutrients	Total Nitrogen (mg/L)	114	1.087	1.008	0.340/3.145	0.674/1.263	
Nutrients	Nitrate/Nitrite (mg/L)	110	0.383	0.290	<0.050/2.745	0.104/0.593	
Nutrients	Chlorophyll A (mg/m^3)	30	9.9	9.0	1.4/70.7	4.7/17.0	TSI=53.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	23	140.6	30.0	<10.0/2100	<10.0/74	Mean> OWQS of 33
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	23	75.3	20.0	<10.0/479	20/73	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

North Fork of the Red River at Headrick

Sample Record	Times Visited	Station ID
November 1998 - Current	234	311500010020-001AT

Stream Data

County	Tillman	View Site Data
Location	East of the Town of Headrick on US 62	
Latitude/Longitude	34.6379245, -99.10311528	
Planning Watershed	Southwest (8-digit HUC -11120303)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	153	19.6	20.7	-1.2/35.3	12.2/27.0	11.1% of values > OWQS of 32.2
	Turbidity (NTU)	158	138	15	1/1000	7/54	11.5% of values >OWQS of 50
	pH (units)	150	8.06	8.12	6.8.0/8.85	7.88/8.23	
	Dissolved Oxygen (mg/L)	153	9.48	9.03	3.57/15.21	8.09/10.94	
	Hardness (mg/L)	156	1109.8	1117.5	100.0/4154.0	836.3/1336.3	
Minerals	Total Dissolved Solids (mg/L)	166	5003.2	5058.0	684.0/11180.0	3477.5/6243.0	
	Specific Conductivity (uS/cm)	153	8021.9	7950.0	1073.0/17470.0	5593.0/9956.0	
	Chloride (mg/L)	164	2257.7	2200.0	151.1/9620.0	1405.0/2877.5	96.6% of values >OWQS of 353
	Sulfate (mg/L)	165	792.0	767.0	33.6/2702.0	611.0/933.0	17.0% of values >OWQS of 1040
Nutrients	Total Phosphorus (mg/L)	122	0.157	0.049	<0.005/2.461	0.029/0.094	
	Total Nitrogen (mg/L)	125	1.085	0.760	0.190/7.930	0.598/1.180	
	Nitrate/Nitrite (mg/L)	126	0.290	<0.050	<0.050/6.900	<0.050/0.356	
	Chlorophyll A (mg/m^3)	48	12.2	14.2	0.2/269.0	8.6/27.4	TSI=63.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	21	1145.7	109.0	<10.0/19863	36/225	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	21	541.8	131.0	<10.0/8164	41/203	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S
Aesthetics												NEI
Agriculture					NS		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Thallium
Fish and Wildlife Propagation not supporting for Temperature and Selenium

Elm Fork of the Red River at Granite

Sample Record	Times Visited	Station ID
June 2004 - Current	250	311800000010-002AT

Stream Data

County	Bryan	View Site Data
Location	South of the city of Granite on State Highway 6	
Latitude/Longitude	34.92637482, -99.50197667	
Planning Watershed	Southwest (8-digit HUC - 11120304)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	169	18.1	20.2	-0.1/35.3	10.0/25.0	
	Turbidity (NTU)	174	95	13	1/1001	5/42	
	pH (units)	166	7.82	7.86	6.92/8.43	7.68/8.00	
	Dissolved Oxygen (mg/L)	169	8.92	8.73	2.24/16.20	7.46/10.46	
	Hardness (mg/L)	173	2123.4	2125.0	0/7140.0	1693.5/2505.0	
Minerals	Total Dissolved Solids (mg/L)	180	12732.9	12200.0	890/120300	7630/16390	
	Specific Conductivity (uS/cm)	169	20331.4	19152.0	1413/181518	12736/25765	
	Chloride (mg/L)	177	6111.2	5971.0	161/16200	3014/7995	90.85% of values>OWQS
	Sulfate (mg/L)	176	1413.0	1456.5	126/2520	1280/1630	
Nutrients	Total Phosphorus (mg/L)	129	0.112	0.034	<0.005/4.130	0.020/0.070	
	Total Nitrogen (mg/L)	138	1.148	0.980	0.190/7.100	0.698/1.349	
	Nitrate/Nitrite (mg/L)	135	0.398	0.210	<0.050/2.205	<0.050/0.610	
	Chlorophyll A (mg/m^3)	45	10.0	4.0	0.5/45.6	1.8/7.4	TSI=48.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	30	571.2	164.0	<10.0/6000	86/498	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	30	2180.7	1267.0	85/15531	639/2490.5	Mean> OWQS of 126

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						NS	S	S
Aesthetics												S
Agriculture					S		NS	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish consumption not supporting for Thallium
Fish & Wildlife Propagation not supporting for Selenium

Elm Fork of the Red River at Carl

Sample Record	Times Visited	Station ID
May 2006 - Current	97	311800000010-002RS

Stream Data

County	Harmon	View Site Data
Location	North of the Town of Carl on State Highway 30	
Latitude/Longitude	35.011719, -99.903717	
Planning Watershed	Southwest (8-digit HUC -11120304)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	86	18.9	21.6	-0.9/34.7	10.0/27.8	
	Turbidity (NTU)	87	29.03	4.00	1/1000	3/8	
	pH (units)	84	7.83	7.91	6.87/8.19	7.73/8.02	
	Dissolved Oxygen (mg/L)	86	7.79	7.77	2.27/13.18	6.08/9.45	
	Hardness (mg/L)	88	4053.88	3125.0	870/13670	2589/4349	
Minerals	Total Dissolved Solids (mg/L)	95	41704.08	24700.0	900/266000	16700/47200	11.3% of values>OWQS of 58087
	Specific Conductivity (uS/cm)	86	55289.81	35688.5	1678/169119	26430/75144	
	Chloride (mg/L)	93	25931.49	13400.0	313/181000	7360/26000	95.8% of values>OWQS of 1356
	Sulfate (mg/L)	92	4430.11	1875.0	138/231001	1543/2225	11.3% of values>OWQS of 2401
Nutrients	Total Phosphorus (mg/L)	36	0.017	0.009	<0.005/0.110	<0.005/0.020	
	Total Nitrogen (mg/L)	41	1.312	1.160	0.200/3.450	0.920/1.585	
	Nitrate/Nitrite (mg/L)	33	0.339	0.190	<0.050/1.480	0.085/0.465	
	Chlorophyll A (mg/m^3)	2	2.50	2.50	2.3/2.7	NEI	
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)						No Data
	E. Coli (cfu/100ml)(*-Geo. Mn.)						No data

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						NEI	S	S
Aesthetics												NEI
Agriculture					S		NS	S				
Primary Body Contact Recreation									NEI			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				NEI								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Public & Private Water Supply not supporting for Selenium
Fish & Wildlife Propagation not supporting for Selenium

Elk Creek at Roosevelt

Sample Record	Times Visited	Station ID
March 2006 - Current	223	311500030010-002AT

Stream Data

County	Kiowa	View Site Data
Location	West of the Town of Roosevelt off State Highway 19	
Latitude/Longitude	34.91426897, -99.1137584	
Planning Watershed	Southwest (8-digit HUC -11120303)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	157	17.8	18.5	-0.7/33.0	10.7/25.5	
	Turbidity (NTU)	158	127	42	3/1000	21/77	28.1% of values>OWQS of 50
	pH (units)	153	8.13	8.16	7.39/9.36	8.00/8.30	
	Dissolved Oxygen (mg/L)	157	9.54	8.87	0.92/26.35	7.14/11.83	
	Hardness (mg/L)	162	709.0	700.0	185.0/1980.0	483.8/896.0	
Minerals	Total Dissolved Solids (mg/L)	172	1155.8	1105.0	200.0/10850.0	813.0/1396.5	
	Specific Conductivity (uS/cm)	157	1596.5	1640.0	321.0/2865.0	1205.5/2020.0	
	Chloride (mg/L)	171	124.5	117.0	16.9/428.0	85.1/159.0	
	Sulfate (mg/L)	171	470.7	479.0	67.2/1070.0	290.0/616.0	
Nutrients	Total Phosphorus (mg/L)	130	0.180	0.119	0.015/1.934	0.079/0.190	
	Total Nitrogen (mg/L)	132	1.449	1.238	0.200/6.970	0.921/1.666	
	Nitrate/Nitrite (mg/L)	128	0.420	0.218	<0.050/2.620	<0.050/0.665	
	Chlorophyll A (mg/m^3)	27	10.7	30.8	1.8/91.7	12.8/58.4	TSI=66.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	27	1330.0	100.0	<10.0/24192	63/600	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	27	591.0	52.0	<10.0/12997	20/185	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish consumption not supporting for Thallium and Lead
Fish & Wildlife Propagation not supporting for Selenium

STATION NAME	FWP	PBCR	PPWS	AG	AES
Elk Creek, off US 183, Roosevelt	NS (3, 5)	NS (8)	S	S	NT
Elm Fork River, SH 30, Carl	NS(9)	NEI	NEI	NS(11)	NEI
Elm Fork River, SH 9, granite	NS(3)	NS (7, 8)	S	NS(11)	S
North Fork of the Red River, US 62, Headrick	NS (3, 5)	NS (8)	S	NS (10, 11, 12)	T (17)
North Fork of the Red River, SH 34, Carter	NS(5)	NS (8)	S	S	NT
Salt Fork of the Red River, SH 34, Mangum	S	NS (8)	S	S	NT
Salt Fork of the Red River, off US 283, Elmer	NS (3)	NS (6, 8)	NS(9)	S	NT

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1112

North Fork of the Red Sub-basin

The North Fork of the Red sub-basin (4-digit hydrologic unit 1112) is situated in the southwestern tip of the state. It originates in the western portions of Roger Mills, Beckham and Harmon Counties, continues eastward through portions of Greer, Washita, Kiowa, Jackson, and Tillman Counties and terminates in the northeastern tip of Comanche County. Major cities and County seats located within the basin include Elk City, Sayre, Mangum, Altus, and Hobart. Minor cities of note include Granite, Lone Wolf, Duke, Headrick, and Snyder.

The basin is subdivided into five 8-digit hydrologic units (HUC) within the state. These HUC's are the Lower Prairie Dog Town Fork of the Red (11120105), the Lower Salt Fork of the Red (11120202), the Middle North Fork of the Red (11120302), Lower North Fork of the Red (11120303), and Elm Fork of the Red (11120304). The major surface water in the sub-basin is the North Fork of the Red River. Major tributaries include the Elm Fork of the Red River, the Salt Fork of the Red River, Elk Creek, Turkey Creek, and Otter Creek. Two major lakes are located in the basin—Altus Reservoir formed by the North Fork of the Red River and Tom Steed Reservoir formed by Otter Creek. Seven permanent water quality-monitoring stations are located in the basin.

The sub-basin is characterized by two ecoregions. The Central Great Plains are the primary ecoregion covering all but a small portion of the sub-basin. The Southwestern Tablelands cover a small portion of the east central portion in Beckham, Greer, and Harmon Counties. The primary land usage in the sub-basin is cropland. It dominates the central south and central east portions of the sub-basin and is interspersed throughout the remainder of the sub-basin. The secondary land use is rangeland (open grassland and mesquite) that dominates the southern part of Beckham County and is prevalent in other southern portions of the sub-basin. It is interspersed throughout the remainder of the sub-basin. The tertiary land use is pastureland, which is dominant in northeastern Greer County and is sparsely interspersed throughout the remainder of the sub-basin. Other land uses of note are woodlands, bottom woodlands, farmsteads, major urban areas, and confined animal feeding operations.

Sager Creek at West Siloam Springs

Sample Record	Times Visited	Station ID
November 1998 - Current	218	121700060080-001AT

Stream Data

County	Delaware	View Site Data
Location	West of the town of West Siloam Springs off US Highway 412	
Latitude/Longitude	36.20164298, -94.60538182	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	107	17.4	17.2	5.9/29.2	12.0/22.1	
	Turbidity (NTU)	106	3	1	1/55	1/2	
	pH (units)	106	7.70	7.71	6.59/8.65	7.45/7.95	
	Dissolved Oxygen (mg/L)	107	9.07	8.72	4.66/15.35	8.04/10.19	
	Hardness (mg/L)	107	131.8	134.0	10.0/198.0	120.0/146.0	
Minerals	Total Dissolved Solids (mg/L)	110	272.8	271.0	118.0/657.0	222.0/317.3	
	Specific Conductivity (uS/cm)	107	425.1	427.0	164.0/713.0	355.0/496.0	
	Chloride (mg/L)	100	36.4	34.0	<10.0/95.1	23.0/47.2	
	Sulfate (mg/L)	100	24.7	21.3	<10.0/63.7	15.6/29.5	
Nutrients	Total Phosphorus (mg/L)	114	1.117	1.040	0.012/3.965	0.644/1.501	
	Total Nitrogen (mg/L)	116	7.066	7.163	<0.050/17.550	4.599/8.961	
	Nitrate/Nitrite (mg/L)	117	6.634	6.300	<0.050/17.500	4.113/8.585	100% of values > OWQS of 2.4
	Chlorophyll A (mg/m^3)	47	12.0	0.9	0.1/8.3	0.4/2.4	TSI=35.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	56	512.3	109.0	<10.0/9700	33.5/475	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	56	217.9	31.0	<10.0/4360	<10.0/98	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		NS			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes *Fish Consumption not supporting for Thallium*

Poteau River at Heavener

Sample Record	Times Visited	Station ID
November 1998 - Current	158	220100020010-001AT

Stream Data

County	LeFlore	View Site Data
Location	South of the Town of Heavener on State Highway 59	
Latitude/Longitude	34.85833476, -94.62923436	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	118	19.0	19.2	1.8/34.9	12.1/25.8	
	Turbidity (NTU)	117	23	16	3/152	10/24	
	pH (units)	118	7.27	7.25	5.96/8.97	6.92/7.63	
	Dissolved Oxygen (mg/L)	118	8.19	7.80	3.77/16.00	6.58/9.79	
	Hardness (mg/L)	118	48.0	35.0	10.0/188.0	21.4/62.3	
Minerals	Total Dissolved Solids (mg/L)	119	88.3	67.0	0.1/311.0	41.0/117.0	
	Specific Conductivity (uS/cm)	118	135.7	102.2	0.1/486.0	56.8/180.0	
	Chloride (mg/L)	77	11.8	<10.0	<10.0/105.0	<10.0/<10.0	
	Sulfate (mg/L)	78	35.5	21.4	10.2/146.0	15.8/40.7	
Nutrients	Total Phosphorus (mg/L)	114	0.075	0.054	0.008/0.430	0.038/0.087	
	Total Nitrogen (mg/L)	115	0.764	0.605	<0.050/5.870	0.450/0.780	
	Nitrate/Nitrite (mg/L)	116	0.255	0.163	<0.050/4.230	<0.050/0.285	
	Chlorophyll A (mg/m^3)	16	12.1	3.2	0.1/29.7	0.9/11.8	TSI=48.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	64.5	20.0	<10.0/400	<10.0/80	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	58.4	31.0	<10.0/393	12.5/51.8	

Beneficial Uses

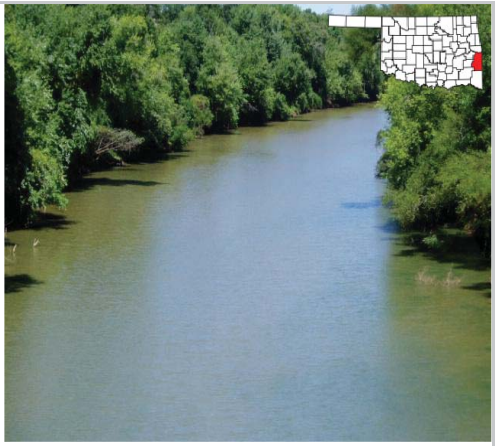
Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead
Fish and Wildlife Propagation not supporting for Lead

Poteau River at Pocola



Sample Record	Times Visited	Station ID
November 1998 - Current	200	220100010010-001AT

Stream Data

County	LeFlore	View Site Data
Location	West of the Town of Pocola on County Road E 1220	
Latitude/Longitude	35.23864842, -94.52021262	
Planning Watershed	Lower Arkansas (8-digit HUC -11110105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	131	18.0	18.0	1.5/34.6	10.8/25.9	
	Turbidity (NTU)	132	80	61	12/476	35/92	42.9% of values >OWQS of 50
	pH (units)	130	7.19	7.20	4.86/8.99	6.86/7.60	
	Dissolved Oxygen (mg/L)	131	7.76	7.37	3.31/15.94	5.76/9.59	
	Hardness (mg/L)	133	50.8	43.0	7.5/414.0	30.3/58.8	
Minerals	Total Dissolved Solids (mg/L)	132	85.8	71.0	0.1/345.0	42.8/121.5	
	Specific Conductivity (uS/cm)	129	129.4	103.0	0.1/530.0	63.0/176.9	
	Chloride (mg/L)	81	11.2	<10.0	<10.0/33.2	<10.0/<10.0	
	Sulfate (mg/L)	81	36.8	34.1	<10.0/87.7	24.4/45.9	
Nutrients	Total Phosphorus (mg/L)	136	0.155	0.122	0.017/1.01	0.091/0.181	
	Total Nitrogen (mg/L)	136	1.022	0.880	<0.050/6.450	0.670/1.151	
	Nitrate/Nitrite (mg/L)	138	0.396	0.210	<0.050/4.960	0.084/0.419	
	Chlorophyll A (mg/m^3)	23	10.8	10.3	4.2/77.3	6.2/25.8	TSI=59.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	45	1194.7	31.0	<10.0/46000	<10.0/90	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	45	185.4	31.0	<10.0/3873	<10.0/79	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead
Fish and Wildlife Propagation not supporting for Lead

Little Lee Creek at Nicut

Sample Record	Times Visited	Station ID
February 2008 - Current	93	220200050040-001AT

Stream Data

County	Sequoyah	View Site Data
Location	West of the town of Short on State Highway 101	
Latitude/Longitude	35.58, -94.56	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110104)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	59	16.3	15.8	0.3/31.4	9.1/23.1	
	Turbidity (NTU)	59	11	4	1/168	2/5	
	pH (units)	59	7.51	7.53	6.3/8.35	7.33/7.80	
	Dissolved Oxygen (mg/L)	59	9.66	9.59	5.01/13.8	8.17/11.60	
	Hardness (mg/L)	59	64.6	63.0	36.0/140.0	53.0/72.0	
Minerals	Total Dissolved Solids (mg/L)	58	88.6	82.0	50.0/204.0	72.8/98.3	
	Specific Conductivity (uS/cm)	59	139.2	129.0	81.0/314.0	113.0/154.0	
	Chloride (mg/L)	28	<10.0	<10.0	<10.0/<10.0	<10.0/<10.0	
	Sulfate (mg/L)	28	10.3	<10.0	<10.0/15.4	<10.0/<10.0	
Nutrients	Total Phosphorus (mg/L)	57	0.020	0.006	<0.005/0.259	<0.005/0.010	
	Total Nitrogen (mg/L)	63	0.314	0.190	<0.050/1.490	0.150/0.370	
	Nitrate/Nitrite (mg/L)	56	0.174	0.055	<0.050/1.490	<0.050/0.160	
	Chlorophyll A (mg/m^3)	23	9.1	0.6	0.1/4.4	0.3/1.1	TSI=26.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	5	113.8	<10.0	<10.0/529	<10.0/269.5	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	5	1324.2	40.0	<10.0/6488	<10.0/3280.5	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment	Total Phosphorus
Fish & Wildlife Propagation	S	S	S	NEI						S	S	S	
Aesthetics												S	NEI
Agriculture					S		S	S					
Primary Body Contact Recreation									NEI				
Public & Private Water Supply				NEI					NEI				
Fish Consumption				NEI									

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Lee Creek at Short

Sample Record	Times Visited	Station ID
January 2003 - Present	207	220200050010-001AT

Stream Data

County	Sequoyah	View Site Data
Location	West of the town of Short on State Highway 101	
Latitude/Longitude	35.56589868, -94.53152717	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110104)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	103	17.0	16.0	0.2/32.3	10.2/24.2	
	Turbidity (NTU)	101	8.07	5.00	1/93	4/8	
	pH (units)	103	7.53	7.56	6.31/8.48	7.26/7.80	
	Dissolved Oxygen (mg/L)	103	9.23	9.04	5.23/13.94	7.37/11.08	
	Hardness (mg/L)	102	47.15	43.0	21.0/130.0	35.0/54.0	
Minerals	Total Dissolved Solids (mg/L)	103	58.45	57.0	4.0/173.0	42.9/67.0	
	Specific Conductivity (uS/cm)	103	91.14	90.0	6.3/266.0	68.0/105.0	
	Chloride (mg/L)	73	<10.0	<10.0	<10.0/<10.0	<10.0/<10.0	
	Sulfate (mg/L)	73	10.9	<10.0	<10.0/49.0	<10.0/<10.0	
Nutrients	Total Phosphorus (mg/L)	103	0.010	0.010	<0.005/0.149	0.007/0.015	See Notes
	Total Nitrogen (mg/L)	109	0.310	0.220	<0.050/2.240	0.150/0.350	
	Nitrate/Nitrite (mg/L)	106	0.140	<0.050	<0.050/1.620	<0.050/0.180	
	Chlorophyll A (mg/m^3)	60	3.3	0.9	<0.1/92.0	0.4/1.6	TSI=41.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	43	471.9	<10.0	<10.0/7100	<10.0/62	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	43	125.3	<10.0	<10.0/2359	<10.0/52	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment	Total Phosphorus
Fish & Wildlife Propagation	S	S	S	NS						S	S	S	
Aesthetics												S	S
Agriculture					S		S	S					
Primary Body Contact Recreation									S				
Public & Private Water Supply				S									
Fish Consumption				S									

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

0.0%(0 of 52) of 3-month rolling Geo. Mean exceed OWQS of 0.037 ppm
Fish & Wildlife Propagation not supporting for Lead

Illinois River at Tahlequah

Sample Record	Times Visited	Station ID
November 1998 - Current	212	121700030010-001AT

Stream Data

County	Cherokee	View Site Data
Location	East of the town of Tahlequah on US Highway 62	
Latitude/Longitude	35.92606447, -94.92380373	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	108	17.7	17.5	5.0/31.7	11.1/23.9	
	Turbidity (NTU)	108	7	4	1/84	3/7	
	pH (units)	106	7.85	7.80	6.47/9.29	7.56/8.10	
	Dissolved Oxygen (mg/L)	108	9.77	9.87	4.66/15.88	7.61/11.68	
	Hardness (mg/L)	108	112.4	112.0	69.4/161.0	104.0/119.0	
Minerals	Total Dissolved Solids (mg/L)	111	167.0	167.0	42.0/565.0	140.0/185.0	
	Specific Conductivity (uS/cm)	107	256.9	264.0	66.0/441.0	235.0/288.1	
	Chloride (mg/L)	100	12.1	10.3	<10.0/23.5	<10.0/13.5	
	Sulfate (mg/L)	100	14.1	12.5	<10.0/47.9	10.7/14.8	
Nutrients	Total Phosphorus (mg/L)	115	0.090	0.080	<0.005/0.438	0.055/0.121	See Notes
	Total Nitrogen (mg/L)	117	1.638	1.560	<0.050/4.320	0.960/2.240	
	Nitrate/Nitrite (mg/L)	118	1.399	1.410	<0.050/3.610	0.823/1.891	
	Chlorophyll A (mg/m^3)	46	11.1	2.1	0.2/14.2	1.4/3.1	TSI=42.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	55	164.1	20.0	<10.0/2500	<10.0/100	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	55	64.9	<10.0	<10.0/884	<10.0/41	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment	Total Phosphorus
Fish & Wildlife Propagation	S	S	S	S						S	S	S	
Aesthetics												S	NS
Agriculture					S		S	S					
Primary Body Contact Recreation									S				
Public & Private Water Supply				S									
Fish Consumption				S									

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *93.0%(50 of 54) of 3-month rolling Geo. Mean above OWQS Criterion of 0.037 ppm*

Illinois River at Watts

Sample Record	Times Visited	Station ID
November 1998 - Current	215	121700030350-001AT

Stream Data

County	Adair	View Site Data
Location	North of the Town of Watts on US Highway 59	
Latitude/Longitude	36.12994064, -94.57151225	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	108	17.3	16.6	4.3/31.5	11.0/23.3	
	Turbidity (NTU)	108	11	7	2/78	4/13	11.5% of values> OWQS of 10
	pH (units)	107	7.88	7.91	6.51/9.03	7.67/8.10	
	Dissolved Oxygen (mg/L)	108	10.38	9.89	4.51/18.88	8.56/11.76	
	Hardness (mg/L)	109	124.9	126.0	10.0/215.0	113.0/136.0	
Minerals	Total Dissolved Solids (mg/L)	111	192.7	195.0	95.4/566.0	168.0/212.0	
	Specific Conductivity (uS/cm)	108	301.4	306.1	149.1/713.0	267.5/331.0	
	Chloride (mg/L)	99	14.1	12.6	<10.0/28.3	<10.3/16.8	
	Sulfate (mg/L)	99	16.2	14.1	<10.0/96.8	11.7/17.9	
Nutrients	Total Phosphorus (mg/L)	113	0.168	0.122	0.008/1.153	0.072/0.227	See Notes
	Total Nitrogen (mg/L)	115	2.344	2.390	<0.050/5.035	1.900/2.830	
	Nitrate/Nitrite (mg/L)	116	2.012	2.028	<0.050/4.615	1.556/2.498	
	Chlorophyll A (mg/m^3)	46	11.0	2.4	0.1/13.0	1.4/3.4	TSI=39.8
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	56	603.4	20.0	<10.0/15531	<10.0/106	Mean> OWQS of 31
	E. Coli (cfu/100ml)(*-Geo. Mn.)	56	380.7	20.0	<10.0/12997	<10.0/63	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment	Total Phosphorus
Fish & Wildlife Propagation	NS	S	S	S						S	S	S	
Aesthetics												S	NS
Agriculture					S		S	S					
Primary Body Contact Recreation									NS				
Public & Private Water Supply				S					S				
Fish Consumption				S									

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

100%(53 of 53) of rolling Geo. Mean exceed OWQS criterion of 0.037 ppm

Fourche-Maline Creek at Red Oak

Sample Record	Times Visited	Station ID
November 1998 - Current	149	220100040020-001AT

Stream Data

County	Latimer	View Site Data
Location	S.E. of the Town of Red Oak off US Highway 270	
Latitude/Longitude	34.91232472, -95.15608416	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	119	17.3	18.4	1.0/31.6	10.0/24.1	
	Turbidity (NTU)	119	39	28	5/390	16/43	
	pH (units)	119	7.11	7.02	5.77/8.70	6.81/7.47	
	Dissolved Oxygen (mg/L)	118	6.08	6.09	0.84/15.69	3.04/8.58	23.29% of values< OWQS of 5.00
	Hardness (mg/L)	119	51.5	46.0	10.0/212.0	32.0/62.0	
Minerals	Total Dissolved Solids (mg/L)	119	98.8	92.0	7.0/307.0	68.0/124.0	
	Specific Conductivity (uS/cm)	118	153.5	131.0	11.0/760.0	94.8/195.0	
	Chloride (mg/L)	100	10.8	<10.0	<10.0/22.3	<10.0/<10.0	
	Sulfate (mg/L)	101	21.6	21.2	<10.0/48.5	15.5/25.1	
Nutrients	Total Phosphorus (mg/L)	118	0.087	0.071	<0.005/0.867	0.048/0.096	
	Total Nitrogen (mg/L)	119	0.742	0.690	<0.050/3.460	0.500/0.920	
	Nitrate/Nitrite (mg/L)	117	0.135	0.115	<0.050/0.560	<0.050/0.195	
	Chlorophyll A (mg/m^3)	2	10.0	0.7	0.7/0.7	NEI	
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	24	537.2	97.5	<10.0/8000	45.8/242	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	24	168.3	79.5	<10.0/1396	20/147.5	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	NS	NS						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish and Wildlife Propagation not supporting for Lead
Fish Consumption not supporting for Lead

Flint Creek at Flint

Sample Record	Times Visited	Station ID
November 1998 - Current	217	121700060010-001AT

Stream Data

County	Delaware	View Site Data
Location	North of the Town of Flint on county road	
Latitude/Longitude	36.1867733, -94.70680493	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	107	17.0	16.4	5.3/28.7	11.2/22.4	
	Turbidity (NTU)	106	3	1	1/58	1/2	
	pH (units)	106	7.64	7.64	6.44/8.79	7.37/7.88	
	Dissolved Oxygen (mg/L)	107	9.27	9.10	4.97/14.94	7.81/10.60	
	Hardness (mg/L)	108	112.3	113.0	10.0/218.0	101.0/123.0	
Minerals	Total Dissolved Solids (mg/L)	109	187.6	188.0	97.5/552.0	158.0/211.0	
	Specific Conductivity (uS/cm)	105	288.5	290.0	152.3/452.2	248.7/320.0	
	Chloride (mg/L)	100	15.2	13.7	<10.0/43.3	<10.0/18.0	
	Sulfate (mg/L)	100	17.5	15.1	<10.0/69.0	11.4/19.9	
Nutrients	Total Phosphorus (mg/L)	114	0.213	0.166	0.074/1.450	0.143/0.200	See Notes
	Total Nitrogen (mg/L)	116	3.006	2.935	<0.050/7.925	2.410/3.705	
	Nitrate/Nitrite (mg/L)	117	2.768	2.695	<0.050/7.525	2.250/3.403	
	Chlorophyll A (mg/m^3)	46	11.2	0.7	0.1/4.2	0.5/1.2	TSI=29.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	56	596.9	60.0	<10.0/18000	20/139.5	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	56	177.1	30.5	<10.0/4611	12.5/74	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment	Total Phosphorus
Fish & Wildlife Propagation	S	S	S	S						S	S	S	
Aesthetics												S	NS
Agriculture					S		S	S					
Primary Body Contact Recreation									NS				
Public & Private Water Supply				S					S				
Fish Consumption				S									

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

100%(54 of 54) of rolling Geo. Mean exceed OWQS criterion of 0.037 ppm

Caney Creek at Barber

Sample Record	Times Visited	Station ID
September 1999 - Current	202	121700040010-001AT

Stream Data

County	Cherokee	View Site Data
Location	North of the Town of Barber off State Highway 100	
Latitude/Longitude	35.72381643, -94.85787184	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	99	18.1	17.6	4.1/29.3	13.0/23.3	
	Turbidity (NTU)	98	4	2	1/103	1/3	
	pH (units)	97	7.77	7.76	6.46/9.06	7.56/8.02	
	Dissolved Oxygen (mg/L)	99	9.66	9.42	3.94/15.6	8.29/11.12	
	Hardness (mg/L)	99	109.5	109.0	64.0/174.0	98.0/120.0	
Minerals	Total Dissolved Solids (mg/L)	102	140.7	139.8	78.4/254.0	128.0/155.9	
	Specific Conductivity (uS/cm)	99	219.0	218.1	122.6/391.0	200.0/243.0	
	Chloride (mg/L)	90	10.3	<10.0	<10.0/36.8	<10.0/<10.0	
	Sulfate (mg/L)	90	10.5	<10.0	<10.0/32.5	<10.0/<10.0	
Nutrients	Total Phosphorus (mg/L)	105	0.060	0.037	<0.005/1.532	0.030/0.047	
	Total Nitrogen (mg/L)	107	1.091	1.015	<0.050/7.035	0.640/1.360	
	Nitrate/Nitrite (mg/L)	108	0.920	0.858	<0.050/6.655	0.490/1.135	
	Chlorophyll A (mg/m^3)	46	13.0	0.8	0.1/12.1	0.5/1.2	TSI=34.03
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	46	94.3	20.0	<10.0/1408	<10.0/52	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	46	123.9	15.0	<10.0/2382	<10.0/41	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chloride	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Barren Fork at Eldon

Sample Record	Times Visited	Station ID
November 1998 - Current	222	121700050010-001AT

Stream Data

County	Cherokee	View Site Data
Location	South of the Town of Eldon on State Highway 51	
Latitude/Longitude	35.92173377, -94.83726494	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	107	17.4	17.9	6.1/28.6	11.6/22.9	
	Turbidity (NTU)	106	4	3	1/40	2/3	
	pH (units)	106	7.59	7.54	6.37/8.82	7.34/7.87	
	Dissolved Oxygen (ppm)	107	9.36	9.55	4.40/13.93	7.74/10.98	
	Hardness (ppm)	108	97.3	95.5	46.0/159.0	88.0/104.0	
Minerals	Total Dissolved Solids (ppm)	110	124.3	121.0	12.9/545.0	106.2/134.5	
	Specific Conductivity (uS/cm)	107	194.9	191.2	20.2/713.0	168.0/212.0	
	Chloride (ppm)	99	10.3	<10.0	<10.0/43.7	<10.0/<10.0	
	Sulfate (ppm)	99	11.1	<10.0	<10.0/40.0	<10.0/<10.0	
Nutrients	Total Phosphorus (ppm)	113	0.035	0.028	<0.005/0.217	0.023/0.035	See Notes
	Total Nitrogen (ppm)	115	1.372	1.295	<0.050/3.950	0.790/1.815	
	Nitrate/Nitrite (ppm)	116	1.205	1.193	<0.050/3.83	0.625/1.625	
	Chlorophyll A (mg/m^3)	46	11.6	1.1	0.1/11.7	0.6/1.7	TSI=36.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	65	211.70	20.00	<10.0/3900	<10.0/87	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	65	50.90	20.00	<10.0/389	<10.0/52	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment	Total Phosphorus
Fish & Wildlife Propagation	S	S	S	S						S	S	S	
Aesthetics												NS	NS
Agriculture					S		S	S					
Primary Body Contact Recreation									S				
Public & Private Water Supply				S		S			S				
Fish Consumption				S									

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

40.0%(22 of 55) of 3-month rolling Geo. Mean exceed OWQS criterion of 0.037 ppm

Arkansas River at Bixby

Sample Record	Times Visited	Station ID
November 1998 - Current	195	120420010010-001AT

Stream Data

County	Tulsa	View Site Data
Location	North of the Town of Bixby on State Highway 64	
Latitude/Longitude	35.95585307, -95.88622562	
Planning Watershed	Middle Arkansas (8-digit HUC - 11110101)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	128	17.0	18.2	1.6/34.1	8.8/24.3	
	Turbidity (NTU)	129	42	19	4/638	11/37	18.5% of values> OWQS of 50
	pH (units)	125	8.02	8.01	7.15/9.15	7.75/8.27	
	Dissolved Oxygen (ppm)	128	9.77	9.35	3.90/23.03	7.33/11.44	
	Hardness (ppm)	129	241.0	239.0	85.0/442.0	195.5/283.5	
Minerals	Total Dissolved Solids (ppm)	134	937.2	914.0	59.0/2096.0	661.5/1190.8	
	Specific Conductivity (uS/cm)	128	1520.3	1464.0	92.2/3275.0	1036.3/1886.5	
	Chloride (ppm)	119	323.3	274.0	66.2/863.0	220.0/392.0	
	Sulfate (ppm)	119	124.5	113.0	28.9/1580.0	86.9/132.0	
Nutrients	Total Phosphorus (ppm)	133	0.230	0.192	0.064/2.532	0.156/0.235	
	Total Nitrogen (ppm)	133	1.342	1.300	0.120/3.560	1.058/1.625	
	Nitrate/Nitrite (ppm)	128	0.676	0.633	<0.050/2.350	0.401/0.916	
	Chlorophyll A (mg/m^3)	27	8.8	8.5	0.9/167.0	5.1/14.5	TSI=59.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	357.54	109.00	33.5/310.5	10/4000	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	127.21	46.00	12.5/164.8	10/836	

Beneficial Uses

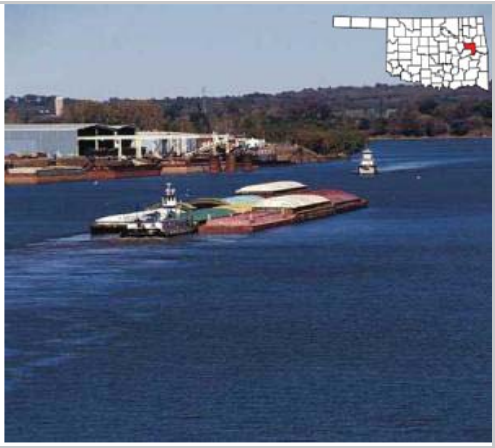
Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Secondary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Arkansas River at Muskogee

Sample Record	Times Visited	Station ID
November 1998 - Current	145	121400010260-001AT



Stream Data

County	Muskogee	View Site Data
Location	East of the Town of Muskogee on State Highway 62	
Latitude/Longitude	35.77016066, -95.30031102	
Planning Watershed	Middle Arkansas (8-digit HUC - 11110102)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	100	17.7	17.4	3.5/32.4	10.8/24.5	
	Turbidity (NTU)	101	46	25	6/387	17/46	
	pH (units)	98	8.05	8.02	7.22/9.48	7.74/8.32	
	Dissolved Oxygen (ppm)	100	8.71	8.53	4.20/13.88	7.13/10.44	
	Hardness (ppm)	98	192.1	175.0	92.0/418.0	145.4/222.5	
Minerals	Total Dissolved Solids (ppm)	105	578.2	486.0	160.7/1759.0	307.5/703.5	35.7% of values>OWQS of 516
	Specific Conductivity (uS/cm)	100	966.4	861.7	231.1/2746.0	481.7/1255.5	
	Chloride (ppm)	89	179.1	154.0	11.3/713.0	84.2/219.0	40.0% of Values>OWQS of 135
	Sulfate (ppm)	90	79.3	74.0	28.5/202.0	45.9/104.0	
Nutrients	Total Phosphorus (ppm)	103	0.167	0.144	0.053/0.705	0.116/0.178	
	Total Nitrogen (ppm)	103	1.139	1.080	<0.100/3.875	0.890/1.340	
	Nitrate/Nitrite (ppm)	99	0.464	0.465	<0.050/1.210	0.220/0.660	
	Chlorophyll A (mg/m^3)	25	10.8	13.7	0.1/90.0	8.3/25.4	TSI=60.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	18	5815.56	50.00	10/75000	10/200	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	18	608.28	31.00	10/5492	10/74	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

Arkansas River at Sand Springs

Sample Record	Times Visited	Station ID
September 1999 - Current	155	120420010130-001AT

Stream Data

County	Tulsa	View Site Data
Location	South of the Town of Sand Springs on State Highway 97	
Latitude/Longitude	36.12393866, -96.11578343	
Planning Watershed	Middle Arkansas (8-digit HUC - 11110101)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	102	17.3	19.1	0.5/33.0	9.3/24.6	
	Turbidity (NTU)	103	32	15	3/735	8/30	14.3% of values> OWQS of 50
	pH (units)	101	7.87	7.87	7.16/8.63	7.69/8.03	
	Dissolved Oxygen (ppm)	102	8.92	9.00	2.84/15.85	6.98/10.51	
	Hardness (ppm)	104	242.9	237.5	59.0/412.0	196.3/287.5	
Minerals	Total Dissolved Solids (ppm)	108	1006.4	959.5	115.0/2651.0	706.8/1227.8	
	Specific Conductivity (uS/cm)	102	1645.8	1563.5	179.0/4080.0	1127.5/1995.3	
	Chloride (ppm)	104	367.0	309.0	91.3/1100.0	238.3/468.3	
	Sulfate (ppm)	105	114.7	112.0	29.2/228.0	84.6/136.5	
Nutrients	Total Phosphorus (ppm)	105	0.138	0.140	0.016/0.281	0.109/0.164	
	Total Nitrogen (ppm)	106	1.081	1.090	<0.100/2.200	0.718/1.398	
	Nitrate/Nitrite (ppm)	101	0.532	0.540	<0.050/1.360	0.243/0.773	
	Chlorophyll A (mg/m^3)	26	9.3	4.3	0.7/18.7	2.8/6.7	TSI=46.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	25	67.40	20.00	<10.0/400	<10.0/87	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	25	28.20	20.00	<10.0/119	<10.0/36	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Secondary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish consumption not supporting for Thallium
Fish and Wildlife Propagation not supporting for Cadmium

Arkansas River at Haskell

Sample Record	Times Visited	Station ID
November 1998 - Current	165	120410010080-001AT

Stream Data

County	Muskogee	View Site Data
Location	East of the Town of Haskell on State Highway 104	
Latitude/Longitude	35.82095549, -95.63995264	
Planning Watershed	Middle Arkansas (8-digit HUC - 11110101)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	114	17.3	17.6	2.5/32.6	9.9/25.4	
	Turbidity (NTU)	114	50	23	4/944	12/52	
	pH (units)	113	8.11	8.05	7.15/9.16	7.83/8.37	
	Dissolved Oxygen (ppm)	113	9.73	9.75	4.51/16.94	8.30/11.02	
	Hardness (ppm)	114	237.3	233.0	140.0/490.0	189.8/280.3	
Minerals	Total Dissolved Solids (ppm)	117	929.7	832.0	209.0/2233.0	666.1/1158.0	
	Specific Conductivity (uS/cm)	112	1502.8	1379.0	411.0/3436.0	1068.0/1814.8	
	Chloride (ppm)	116	315.1	266.5	25.7/815.0	217.3/393.5	
	Sulfate (ppm)	116	109.8	110.0	27.4/205.0	81.4/126.0	
Nutrients	Total Phosphorus (ppm)	117	0.208	0.182	0.073/0.810	0.152/0.232	
	Total Nitrogen (ppm)	118	1.263	1.250	0.100/3.180	0.980/1.578	
	Nitrate/Nitrite (ppm)	112	0.558	0.625	<0.050/1.350	0.210/0.815	
	Chlorophyll A (mg/m^3)	24	9.9	7.7	1.3/140.0	4.5/27.3	TSI=60.4
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	27	135.78	20.00	10/158	10/1401	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	27	91.22	10.00	10/52	10/1515	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

Arkansas River at Moffett

Sample Record	Times Visited	Station ID
November 1998 - Current	79	220200010010-001AT

Stream Data

County	Sequoyah	View Site Data
Location	East of the Town of Moffett on State Highway 64	
Latitude/Longitude	35.39242903, -94.43267795	
Planning Watershed	Lower Arkansas (8-digit HUC - 11110104)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	51	19.45	19.99	5.42/30.93	13.03/27	
	Turbidity (NTU)	54	38.20	21.50	7/194	15/45.3	
	pH (units)	51	7.88	7.85	6.87/8.79	7.71/8.1	
	Dissolved Oxygen (ppm)	51	8.83	8.75	5.35/13.58	7.26/10.08	
	Hardness (ppm)	51	174.70	150.00	39/658	125/190	
Minerals	Total Dissolved Solids (ppm)	54	396.20	368.00	127/833.1	294/477.7	16.3% of values> OWQS of 620
	Specific Conductivity (uS/cm)	50	631.60	604.00	195/1333	476.9/746.5	
	Chloride (ppm)	55	110.80	105.00	13.4/293	66/144	
	Sulfate (ppm)	55	58.10	54.60	22.3/116	41.8/73.5	
Nutrients	Total Phosphorus (ppm)	55	0.13	0.11	0.054/0.33	0.095/0.139	
	Total Nitrogen (ppm)	54	0.94	0.82	0.45/2.82	0.628/1.128	
	Nitrate/Nitrite (ppm)	55	0.32	0.26	<0.050/1.145	0.11/0.49	
	Chlorophyll A (mg/m^3)	13	9.90	8.00	<0.10/34.7	5.05/12.35	TSI=54.4
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	18	1270.10	<10.0	<10.0/12000	<10.0/55.8	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	18	185.40	<10.0	<10.0/2035	<10.0/32.8	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

STATION NAME	FWP	PBCR	PPWS	AG	AES
Arkansas River, US 64, Moffett	S	NS (8)	S	NS(10)	NT
Arkansas River, SH 104, Haskell	S	S	N/A	S	NT
Arkansas River, SH 97, Sand Springs	NS (5)	S	N/A	S	NT
Arkansas River, US 62, Muskogee	S	NS (8)	N/A	NS (10, 11)	NT
Arkansas River, US 64, Bixby	NS (5)	N/A	N/A	S	NT
Barren Fork, SH 51, Eldon	S	S	S	S	NS (14, 18)
Caney Creek, off SH 100, Barber	S	S	S	S	S
Flint Creek, US 412, Flint	S	NS (8)	S	S	NS (14)
Fourche-Maline Creek, off US 270, Red Oak	NS (1, 3)	NS (8)	S	S	S
Illinois River, US 59, Watts	NS (5)	NS (8)	S	S	NS (14)
Illinois River, US 62, Tahlequah	S	S	S	S	NS (14)
Lee Creek, SH 101, Short	NS(3)	S	S	S	S
Little Lee Creek, SH 101, Nicut	NEI	NEI	NEI	S	NEI
Poteau River, off SH 112, Pocola	NS (3, 5)	NS (8)	S	S	NT
Poteau River, US 59, Heavener	NS(3)	S	S	S	NT
Sager Creek, off US 412, West Siloam Springs	S	NS (8)	NS (15)	S	T (13, 15)

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1111

Lower Arkansas Sub-basin

The Lower Arkansas sub-basin (4-digit hydrologic unit 1111) is situated in the central eastern portion of the state. It originates in the western portion of Creek and Tulsa Counties, continues eastward through portions of Okmulgee, Wagoner, Muskogee, McIntosh, Cherokee, Delaware, Haskell, and Latimer Counties, and terminates in the eastern parts of Adair, Sequoyah, and LeFlore Counties. Major cities and County seats located within the basin include Sand Springs, Tulsa, Broken Arrow, Sapulpa, Jenks, Glenpool, Bixby, Coweta, Muskogee, Tahlequah, Stillwell, Sallisaw, Wilburton, and Poteau. Minor cities of note include Kellyville, Haskell, Checotah, Warner, Gore, Roland, Heavener, and Spiro.

The basin is subdivided into five 8-digit hydrologic units (HUC) within the state. These HUC's are the Polecat–Snake (11110101), the Dirty–Greenleaf (11110102), the Illinois (11110103), the Robert S. Kerr Reservoir (11110104), and the Poteau (11110105). The major surface water in the basin is the lower Arkansas River (McClellan-Kerr Navigational System). Major tributaries include the Illinois River, the Poteau River, Polecat Creek, Bayou Manard, Greenleaf Creek, Sager Creek, Flint Creek, Barren Fork, Caney Creek, Dirty Creek, Sallisaw Creek, Big Skin Bayou, Lee Creek, Cache Creek, San Bois Creek, Brazil Creek, Fourche-Maline Creek, Caston Creek, Black Fork, and James Fork. Five major lakes are located in the basin—Heyburn Lake formed by Polecat Creek, Webbers Falls Reservoir formed by the Arkansas River and Greenleaf Creek, Tenkiller Ferry Lake formed by the Illinois River and Caney Creek, Robert S. Kerr Reservoir formed by the Arkansas River and several tributaries, and Wister Lake formed by the Poteau River and Fourche-Maline Creek. Sixteen active permanent monitoring stations are located in the basin. One inactive water quality-monitoring station (Arkansas River, US 69, Muskogee) is located in the sub-basin. This station was last assessed in the 2000 BUMP Report.

The basin is characterized by five ecoregions. The Central Irregular Plains begins in eastern Okmulgee County, covers the majority of Muskogee County, and continues through parts of McIntosh, Delaware, Sequoyah and eastern Cherokee Counties. The Ozark Highlands begins in Delaware County, continuing through the northern one-half (½) of Adair County, and is also in northern Cherokee County. The Boston Mountains begin in eastern Cherokee County, continue through the southern one-half (½) of Adair County, and end in northern Sequoyah County. The Arkansas Valley covers the southern three-quarters (¾) of Sequoyah County, southeast Muskogee County, Haskell County, the northern one-half (½) of Latimer County, and the northern one-third of LeFlore County. The Ouachita Mountains cover the southern one-half (½) of Latimer County and the southern two-thirds of LeFlore County. The primary land uses in the sub-basin are forestland (post oak–blackjack oak, hickory–oak, bottomland hardwoods, and shortleaf pine) and pastureland (brushy and mixed). Forestland is prevalent throughout the sub-basin with concentrations in the central, northeast and southeast portions. Pastureland is prevalent in the northwest and central eastern portions. Rangeland (post – blackjack oak scrub and open grasslands) is the secondary land use. It is prevalent in the western portion of the sub-basin and is interspersed throughout the central and eastern portions. The tertiary land use is cropland in the northern portion of the sub-basin. Other land uses of note are farmsteads, major urban areas, wetlands, and confined animal feeding operations.

Wolf Creek at Ft. Supply

Sample Record	Times Visited	Station ID
November 1998 - Current	149	720500030010-001AT

Stream Data

County	Woodward	View Site Data
Location	East of the Town of Ft. Supply off US 270	
Latitude/Longitude	36.44954552, -99.58872133	
Planning Watershed	Panhandle (8-digit HUC -11100203)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	117	17.7	18.9	-0.1/34.0	10.9/25.1	
	Turbidity (NTU)	117	21	13	2/75	9/29	
	pH (units)	113	8.16	8.18	7.33/9.00	8.03/8.31	
	Dissolved Oxygen (mg/L)	115	10.06	10.03	0.12/26.42	8.59/11.18	
	Hardness (mg/L)	117	317.2	305.0	163.0/615.0	278.5/342.0	
Minerals	Total Dissolved Solids (mg/L)	119	605.6	607.4	220.0/1172.0	574.6/637.0	
	Specific Conductivity (uS/cm)	115	967.3	961.0	463.8/1835.0	898.0/1033.0	
	Chloride (mg/L)	117	132.3	129.0	88.6/186.0	121.5/143.0	
	Sulfate (mg/L)	117	103.9	103.0	47.6/164.0	90.0/116.5	
Nutrients	Total Phosphorus (mg/L)	117	0.057	0.042	<0.005/0.228	0.028/0.073	
	Total Nitrogen (mg/L)	120	1.199	1.183	<0.100/5.470	0.850/1.524	
	Nitrate/Nitrite (mg/L)	115	0.729	0.665	<0.050/4.670	0.385/0.985	
	Chlorophyll A (mg/m^3)	6	10.9	5.3	2.4/21.4	2.5/20.6	
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	23	1156.2	100.0	<10.0/10000	20/900	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	23	185.1	74.0	<10.0/2282	30/85	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes *Fish Consumption not supporting for Thallium*

North Canadian River at El Reno

Sample Record	Times Visited	Station ID
November 1998 - Current	187	520530000010-001AT

Stream Data

County	Canadian	View Site Data
Location	North of the Town of El Reno on US 81	
Latitude/Longitude	35.56261214, -97.95884556	
Planning Watershed	Central (8-digit HUC -11100301)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	113	17.8	18.0	-0.3/34.8	9.0/25.0	
	Turbidity (NTU)	112	53	19	2/1000	7/49	
	pH (units)	110	8.21	8.24	7.1/9.30	8.08/8.39	
	Dissolved Oxygen (mg/L)	113	9.79	9.39	0.34/18.69	8.01/11.53	
	Hardness (mg/L)	113	436.1	430.0	10.0/1080.0	378.5/477.5	
Minerals	Total Dissolved Solids (mg/L)	116	837.9	889.0	291.0/1170.0	759.3/944.0	
	Specific Conductivity (uS/cm)	113	1323.4	1363.0	455.0/2270.0	1211.0/1489.5	
	Chloride (mg/L)	113	154.3	161.0	34.6/239.0	130.0/185.0	
	Sulfate (mg/L)	113	262.6	267.0	111.0/474.0	225.5/296.0	
Nutrients	Total Phosphorus (mg/L)	113	0.156	0.118	0.008/1.450	0.064/0.216	
	Total Nitrogen (mg/L)	116	1.031	0.890	<0.050/4.700	0.650/1.339	
	Nitrate/Nitrite (mg/L)	116	0.181	<0.050	<0.050/3.340	<0.050/0.218	
	Chlorophyll A (mg/m^3)	42	9.0	18.6	0.6/70.4	7.0/33.3	TSI=60.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	394.7	135.0	<10.0/6000	41/287.5	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	87.1	31.0	<10.0/763	<10.0/116	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish and Wildlife Propagation not supporting for Cadmium and Lead
Fish consumption not supporting for Thallium

North Canadian River at Woodward

Sample Record	Times Visited	Station ID
October 2000 - Current	158	720500010140-001AT

Stream Data

County	Woodward	View Site Data
Location	East of the Town of Woodward on US 412	
Latitude/Longitude	36.43687215, -99.27835799	
Planning Watershed	Panhandle (8-digit HUC -11100301)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	94	17.9	19.1	0.3/33.0	11.9/25.1	
	Turbidity (NTU)	94	24	15	2/125	6/32	
	pH (units)	90	8.17	8.16	7.40/9.06	7.97/8.35	
	Dissolved Oxygen (mg/L)	92	10.35	9.93	4.67/23.29	8.54/11.70	
	Hardness (mg/L)	94	509.5	459.5	188.0/3620.0	392.8/541.5	
Minerals	Total Dissolved Solids (mg/L)	105	1055.1	1044.0	384.0/1638.0	858.5/1215.0	
	Specific Conductivity (uS/cm)	94	1616.9	1620.5	650.0/2560.0	1366.3/1886.5	
	Chloride (mg/L)	103	244.2	235.0	94.9/487.0	203.0/269.0	
	Sulfate (mg/L)	102	288.4	261.5	78.4/743.0	201.0/358.5	
Nutrients	Total Phosphorus (mg/L)	96	0.134	0.099	0.009/0.459	0.080/0.161	
	Total Nitrogen (mg/L)	99	1.727	1.460	0.150/10.560	1.170/1.840	
	Nitrate/Nitrite (mg/L)	99	0.825	0.570	<0.050/9.690	0.280/0.910	
	Chlorophyll A (mg/m^3)	30	11.9	12.3	3.7/489.0	5.8/26.0	TSI=65.4
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	2928.6	199.5	<10.0/65000	30.3/1102	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	764.4	41.0	<10.0/19862.8	20/80.3	

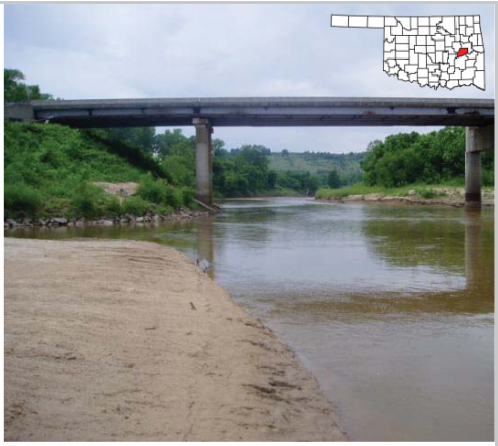
Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

North Canadian River at Dustin



Sample Record	Times Visited	Station ID
November 1998 – May 2008	122	520500010110-001AT

Stream Data

County	McIntosh	View Site Data
Location	North of the Town of Dustin on State Highway 84	
Latitude/Longitude	35.31617996, -95.95493326	
Planning Watershed	Eufaula (8-digit HUC - 11100302)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	86	18.15	18.18	-0.49/34.41	10.77/26.19	
	Turbidity (NTU)	85	245.7	133.0	21/>1000.0	55.5/294.5	64.3% of values>OWQS of 50
	pH (units)	85	8.27	8.23	7.02/9.48	7.94/8.58	
	Dissolved Oxygen (mg/L)	85	9.18	8.98	3.89/16.8	7.22/10.99	
	Hardness (mg/L)	87	242.4	210.0	89/1900	162.5/260	
Minerals	Total Dissolved Solids (mg/L)	86	454.8	451.0	127.1/800	367/581	
	Specific Conductivity (uS/cm)	85	724.8	709.7	198.6/1271	586.5/921.2	
	Chloride (mg/L)	90	107.2	112.5	14.7/218	72.8/137.3	
	Sulfate (mg/L)	89	98.1	89.0	33.9/316	60.8/118.5	
Nutrients	Total Phosphorus (mg/L)	90	0.475	0.394	0.147/1.22	0.323/0.598	67.3% of values>OWQS of 0.360
	Total Nitrogen (mg/L)	88	2.312	2.075	0.585/5.44	1.599/2.858	
	Nitrate/Nitrite (mg/L)	90	0.593	0.280	<0.050/3.49	<0.050/0.756	
	Chlorophyll A (mg/m^3)	13	93.63	50.30	11.53/287.48	21.1/148	TSI=75.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	25	860.7	200.0	<10.0/12000	20/536.5	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	25	74.9	<10.0	<10.0/528	<10.0/79.5	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish consumption not supporting for Lead and Thallium*

North Canadian River at Wetumka

Sample Record	Times Visited	Station ID
September 1999 - Current	228	520510000010-001AT

Stream Data

County	Hughes	View Site Data
Location	Northeast of the Town of Wetumka on US 75	
Latitude/Longitude	35.26449455, -96.20706383	
Planning Watershed	Central (8-digit HUC -11100302)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	146	19.1	20.0	2.7/36.2	12.3/26.8	
In-Situ	Turbidity (NTU)	144	223	101	13/1001	55/239	66.7% of values >OWQS of 50
In-Situ	pH (units)	142	8.39	8.32	7.28/9.90	8.03/8.69	
In-Situ	Dissolved Oxygen (mg/L)	145	9.87	9.89	4.64/19.46	7.86/11.95	
In-Situ	Hardness (mg/L)	145	237.8	210.0	60.0/2500.0	171.0/263.5	
Minerals	Total Dissolved Solids (mg/L)	149	466.0	461.0	158.0/773.0	379.9/553.0	
Minerals	Specific Conductivity (uS/cm)	145	744.1	739.8	244.0/1208.0	607.5/902.0	
Minerals	Chloride (mg/L)	107	105.4	109.0	20.2/260.0	82.3/127.0	
Minerals	Sulfate (mg/L)	106	97.8	92.2	22.7/247.0	66.1/122.3	
Nutrients	Total Phosphorus (mg/L)	141	0.566	0.470	0.049/1.880	0.390/0.670	95.3% of values >OWQS of 0.36
Nutrients	Total Nitrogen (mg/L)	143	2.562	2.400	0.500/6.170	1.690/3.360	
Nutrients	Nitrate/Nitrite (mg/L)	144	0.746	0.375	<0.050/4.890	<0.050/1.208	
Nutrients	Chlorophyll A (mg/m^3)	43	12.3	77.5	5.1/502.0	31.0/122.0	TSI=76.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	48	5121.4	100.0	<10.0/87000	20/575	Mean> OWQS of 33
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	48	605.6	15.0	<10.0/7701	<10.0/120.3	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium and Lead*

North Canadian River at Seiling

Sample Record	Times Visited	Station ID
November 1998 - Current	161	720500010010-001AT

Stream Data

County	Major	View Site Data
Location	North of the Town of Seiling on US 281	
Latitude/Longitude	36.18359095, -98.92046478	
Planning Watershed	Panhandle (8-digit HUC -11100301)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	128	16.4	16.6	-0.5/36.5	9.4/23.1	
	Turbidity (NTU)	128	46	23	1/1000	10/45	
	pH (units)	124	8.12	8.16	6.62/9.1	8.0/8.3	
	Dissolved Oxygen (mg/L)	127	9.90	9.74	1.20/21.73	8.39/11.35	
	Hardness (mg/L)	126	511.5	508.0	40.0/2098.0	410.8/565.0	
Minerals	Total Dissolved Solids (mg/L)	131	967.4	968.5	350.0/1384.5	886.8/1050.0	
	Specific Conductivity (uS/cm)	127	1498.9	1495.0	547.0/3250.0	1381.0/1620.0	
	Chloride (mg/L)	114	187.7	181.5	<10.0/540.0	164.8/208.0	
	Sulfate (mg/L)	115	318.3	315.0	106.0/669.0	275.0/361.0	
Nutrients	Total Phosphorus (mg/L)	114	0.114	0.093	0.016/0.363	0.054/0.146	
	Total Nitrogen (mg/L)	118	1.130	1.068	0.290/2.880	0.854/1.400	
	Nitrate/Nitrite (mg/L)	118	0.354	0.280	<0.050/1.190	<0.050/0.576	
	Chlorophyll A (mg/m^3)	5	9.4	16.0	3.7/42.8	9.2/34	
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	27	3200.5	180.0	<10.0/76000	20/583	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	27	171.5	31.0	<10.0/3130	<10.0/93	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

North Canadian River at Harrah

Sample Record	Times Visited	Station ID
November 1998 - Current	125	520510000110-001AT

Stream Data

County	Oklahoma	View Site Data
Location	North of the Town of Harrah on State Highway 62	
Latitude/Longitude	35.50033302, -97.19429527	
Planning Watershed	Central (8-digit HUC - 11100302)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	80	19.80	20.29	1.35/34.33	12.71/26.46	
In-Situ	Turbidity (NTU)	79	119.4	46.0	6/1000	20/91	12.0% of values>OWQS of 50
In-Situ	pH (units)	79	8.20	8.11	7.25/9.6	7.84/8.44	
In-Situ	Dissolved Oxygen (mg/L)	80	9.82	9.36	5.22/20	7.83/11.22	
In-Situ	Hardness (mg/L)	79	313.5	254.0	80/3950	201/328	
Minerals	Total Dissolved Solids (mg/L)	80	579.2	591.5	98/892	470.8/683.9	25.3% of values>OWQS
Minerals	Specific Conductivity (uS/cm)	80	933.9	955.0	153/1394	738.3/1125	
Minerals	Chloride (mg/L)	81	130.6	137.0	20.8/290	97.9/163.5	
Minerals	Sulfate (mg/L)	80	127.9	118.0	39.6/240	88.4/167.8	
Nutrients	Total Phosphorus (mg/L)	81	1.028	0.900	0.285/3.12	0.573/1.315	
Nutrients	Total Nitrogen (mg/L)	80	4.304	3.715	0.91/11.65	2.64/5.296	
Nutrients	Nitrate/Nitrite (mg/L)	81	2.760	2.010	0.14/10.11	0.905/3.775	
Nutrients	Chlorophyll A (mg/m^3)	24	45.44	36.00	2.6/157	22.25/64.75	TSI=68.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	27	1470.4	298.0	40/12000	85/1182	Mean> OWQS of 33
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	27	914.9	74.0	<10.0/10462	20/305	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		NS			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Thallium and Dieldrin
Fish and Wildlife Propagation not supporting for Dieldrin

North Canadian River at Shawnee

Sample Record	Times Visited	Station ID
February 2002 - Current	229	520510000110-005AT

Stream Data

County	Pottawatomie	View Site Data
Location	East of the Town of Shawnee on State Highway 3E	
Latitude/Longitude	35.41056345, -96.78883533	
Planning Watershed	Central (8-digit HUC - 11100302)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	137	18.1	19.0	-0.4/34.4	11.2/25.2	
	Turbidity (NTU)	137	159	71	3/1001	33/145	39.1% of values>OWQS of 50
	pH (units)	133	8.32	8.25	7.26/9.98	7.90/8.64	12.2% of values>OWQS of 9.0
	Dissolved Oxygen (mg/L)	136	10.03	9.34	2.64/25.01	7.82/12.05	
	Hardness (mg/L)	136	269.0	246.0	92.0/3320.0	198.0/295.3	
Minerals	Total Dissolved Solids (mg/L)	143	535.5	560.5	127.0/980.5	456.2/630.3	16.7% of values>OWQS of 700.0
	Specific Conductivity (uS/cm)	137	842.7	867.0	199.1/1532.0	705.0/1010.5	
	Chloride (mg/L)	97	118.8	127.0	17.5/181.0	96.2/148.0	
	Sulfate (mg/L)	96	113.6	108.0	55.4/266.0	78.7/134.3	
Nutrients	Total Phosphorus (mg/L)	136	0.836	0.750	0.101/2.470	0.535/1.014	
	Total Nitrogen (mg/L)	136	3.635	3.378	<0.050/9.395	2.554/4.403	
	Nitrate/Nitrite (mg/L)	136	1.736	1.263	<0.050/7.790	0.723/2.278	
	Chlorophyll A (mg/m^3)	46	11.2	63.0	0.1/408.0	42.0/134.1	TSI=75.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	67	1377.6	132.0	<10.0/24192	70/700	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	67	559.8	20.0	<10.0/24192	<10.0/74	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	NS	S	S						S	S	S
Aesthetics												NS
Agriculture					S		S	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium and Lead*

Deep Fork River at Stroud

Sample Record	Times Visited	Station ID
November 1998 – December 2012	159	520700040010-001AT

Stream Data

County	Lincoln	View Site Data
Location	South of the Town of Stroud on US 377	
Latitude/Longitude	35.68609365, -96.6622792	
Planning Watershed	Central (8-digit HUC -11100303)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	110	17.8	18.0	-0.3/39.3	11.0/24.7	
	Turbidity (NTU)	108	162	27	4/1001	14/195	16.7% of values >OWQS of 50
	pH (units)	109	8.21	8.23	7.02/9.65	8.04/8.47	
	Dissolved Oxygen (mg/L)	110	9.15	9.12	4.50/14.65	7.63/10.26	
	Hardness (mg/L)	110	262.9	284.0	63.0/541.0	196.0/320.0	
Minerals	Total Dissolved Solids (mg/L)	116	483.2	501.5	11.2/1260.0	330.2/596.3	
	Specific Conductivity (uS/cm)	110	803.3	838.0	17.7/1990.0	549.0/1015.3	
	Chloride (mg/L)	114	111.5	108.0	<10.0/500.0	54.5/144.5	
	Sulfate (mg/L)	114	54.4	47.0	18.9/174.0	35.7/59.7	
Nutrients	Total Phosphorus (mg/L)	114	0.298	0.215	0.017/1.767	0.141/0.371	
	Total Nitrogen (mg/L)	115	1.222	0.990	0.080/5.210	0.650/1.580	
	Nitrate/Nitrite (mg/L)	116	0.407	0.230	<0.050/4.590	<0.050/0.478	
	Chlorophyll A (mg/m^3)	16	11.0	8.9	1.4/35.0	2.2/14.9	TSI=54.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	817.7	282.5	<10.0/6131	88.8/990	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	201.9	63.0	<10.0/1785	20/238.8	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NS
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish consumption not supporting for Thallium and Lead*

Deep Fork River at Beggs

Sample Record	Times Visited	Station ID
November 1998 - Current	147	520700020010-001AT

Stream Data

County	Okmulgee	View Site Data
Location	South of the Town of Beggs off of State Highway 16	
Latitude/Longitude	35.67424336, -96.06876654	
Planning Watershed	Eufaula (8-digit HUC -11100303)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	111	17.9	18.0	1.5/33.0	10.4/25.0	
	Turbidity (NTU)	112	179	93	9/1000	51/225	59.1% of values >OWQS of 50
	pH (units)	111	7.82	7.84	6.82/8.89	7.61/8.02	
	Dissolved Oxygen (mg/L)	111	8.15	7.85	3.73/13.52	6.12/10.07	
	Hardness (mg/L)	109	226.4	204.0	27.0/1500.0	148.0/278.5	
Minerals	Total Dissolved Solids (mg/L)	116	395.0	358.5	50.0/836.2	263.7/522.0	
	Specific Conductivity (uS/cm)	111	658.6	590.0	90.0/1469.0	420.8/899.3	
	Chloride (mg/L)	112	97.6	91.2	<10.0/273.0	46.8/135.0	
	Sulfate (mg/L)	112	45.7	41.0	<10.0/129.0	31.0/58.4	
Nutrients	Total Phosphorus (mg/L)	111	0.180	0.156	0.014/0.790	0.098/0.221	
	Total Nitrogen (mg/L)	112	1.071	0.910	0.230/3.260	0.664/1.274	
	Nitrate/Nitrite (mg/L)	114	0.271	0.205	<0.050/2.660	<0.050/0.343	
	Chlorophyll A (mg/m^3)	6	10.4	10.0	8.3/13.3	8.5/12.9	
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	27	4568.8	100.0	<10.0/113000	20/400	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	27	654.9	41.0	<10.0/14136	<10.0/171	

Beneficial Uses

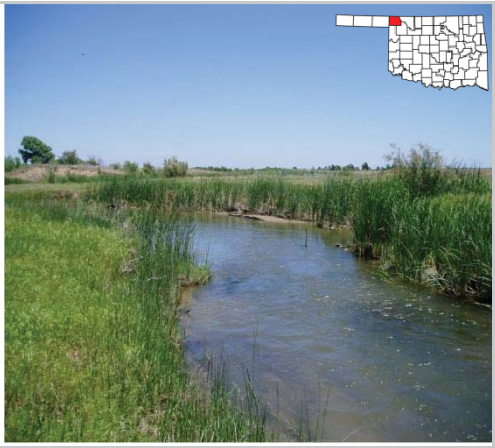
Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NS
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes *Fish consumption not supporting for Lead*

Beaver River at Ft. Supply

Sample Record	Times Visited	Station ID
November 1998 - Current	138	720500020010-002AT



Stream Data

County	Harper	View Site Data
Location	Northwest of the Town of Ft. Supply on State Highway 183	
Latitude/Longitude	36.5908354, -99.59121563	
Planning Watershed	Panhandle (8-digit HUC - 11100201)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	95	18.0	18.8	-0.1/36.0	10.0/26.2	
	Turbidity (NTU)	95	15	8	1/65	5/16	
	pH (units)	91	8.05	8.05	7.26/8.58	7.90/8.23	
	Dissolved Oxygen (ppm)	94	10.19	10.40	0/16.50	8.27/12.01	
	Hardness (ppm)	95	561.8	505.0	238.0/1260.0	440.0/620.0	
Minerals	Total Dissolved Solids (ppm)	98	1099.4	1025.0	401.0/2188.0	901.6/1202.3	
	Specific Conductivity (uS/cm)	95	1686.4	1565.0	650.0/3419.0	1387.0/1840.0	
	Chloride (ppm)	95	250.3	221.0	69.0/786.0	201.0/246.0	
	Sulfate (ppm)	94	320.0	271.0	47.0/1170.0	225.3/327.8	
Nutrients	Total Phosphorus (ppm)	95	0.043	0.028	<0.005/0.169	0.020/0.051	
	Total Nitrogen (ppm)	99	0.594	0.550	0.200/1.600	0.390/0.720	
	Nitrate/Nitrite (ppm)	99	0.103	<0.050	<0.050/1.170	<0.050/0.095	
	Chlorophyll A (mg/m^3)	19	10.0	4.8	0.6/28.4	2.5/12.0	TSI=49.7
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	22	524.10	210.00	20/3000	86/611	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	22	131.00	85.00	<10.0/437	20/174	

Beneficial Uses

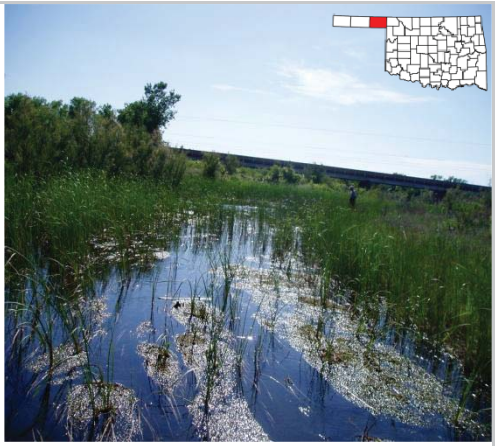
Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

Beaver River at Gate

Sample Record	Times Visited	Station ID
October 2000 – September 2007	46	720500020140-001AT



Stream Data

County	Beaver	View Site Data
Location	South of the Town of Gate on County Road N 1650	
Latitude/Longitude	36.78998597, -100.0574831	
Planning Watershed	Panhandle (8-digit HUC -11100201)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	37	20.04	21.15	2/34.27	13/27.58	
	Turbidity (NTU)	37	11.00	6.00	1/103	3.5/11	
	pH (units)	35	8.03	8.08	7.38/8.6	7.83/8.25	
	Dissolved Oxygen (ppm)	37	9.99	9.96	5.61/18.98	7.91/11.36	
	Hardness (ppm)	37	650.50	625.00	320/1050	508/777.5	
Minerals	Total Dissolved Solids (ppm)	37	2376.90	2265.00	781/6971	1700.5/2733.5	
	Specific Conductivity (uS/cm)	37	3679.50	3477.00	1897/10893	2525/4217	
	Chloride (ppm)	37	963.50	878.00	368/2860	630.5/1195	44.4% of Values>OWQS of 944.7
	Sulfate (ppm)	37	364.70	330.00	175/1230	268/430	
Nutrients	Total Phosphorus (ppm)	37	0.05	0.03	0.009/0.272	0.019/0.061	
	Total Nitrogen (ppm)	37	0.73	0.67	0.24/1.79	0.423/1.03	
	Nitrate/Nitrite (ppm)	37	0.06	<0.050	<0.050/0.2	<0.050/<0.050	
	Chlorophyll A (mg/m^3)						No Data
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	12	621.80	150.50	<10.0/2900	43.3/775	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	12	138.30	75.50	<10.0/496	<10.0/251.3	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						NS	NS	NS
Aesthetics												NS
Agriculture					S		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium and Lead*

Beaver River at Beaver

Sample Record	Times Visited	Station ID
November 1998 - Current	114	720500020290-001AT

Stream Data

County	Beaver	View Site Data
Location	North of the Town of Beaver on State Highway 23	
Latitude/Longitude	36.82280124, -100.5193698	
Planning Watershed	Panhandle (8-digit HUC - 11100102)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	94	16.2	15.2	0/32.0	10.0/23.6	
	Turbidity (NTU)	93	20	7	1/808	4/15	
	pH (units)	91	7.72	7.70	6.93/9.10	7.42/7.99	
	Dissolved Oxygen (ppm)	93	9.10	9.02	0.16/20.28	7.12/11.21	
	Hardness (ppm)	93	1558.0	1373.0	201.0/3510.0	1090.0/2030.0	
Minerals	Total Dissolved Solids (ppm)	97	5545.7	5070.0	751.8/11150.0	4342.0/6785.0	
	Specific Conductivity (uS/cm)	94	8547.6	8062.0	451.0/17157.0	6880.0/10301.3	
	Chloride (ppm)	94	2448.1	2220.0	177.0/6510.0	1866.3/2960.0	92.9% of values> OWQS of 944.7
	Sulfate (ppm)	94	884.8	821.5	103.0/2620.0	608.8/1065.0	38.1% of values >OWQS of 977.3
Nutrients	Total Phosphorus (ppm)	94	0.082	0.036	0.008/2.119	0.023/0.070	
	Total Nitrogen (ppm)	98	1.068	0.805	0.180/12.110	0.580/1.103	
	Nitrate/Nitrite (ppm)	98	0.126	<0.050	<0.050/3.960	<0.050/<0.050	
	Chlorophyll A (mg/m^3)		No data	No data	No data	No data	
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	23	1319.80	199.00	20/9208	100/1100	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	23	1285.00	221.00	<10.0/5794	63/2987	Mean> OWQS of 126

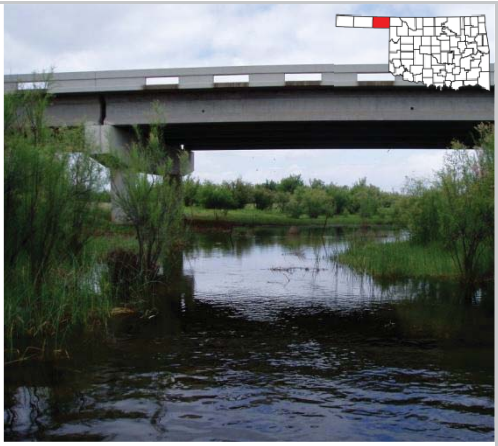
Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	NS	NS
Aesthetics												NS
Agriculture					NS		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium and Lead*

Beaver River at Turpin



Sample Record	Times Visited	Station ID
November 2000 – May 2008	91	720500020450-001AT

Stream Data

County	Beaver	View Site Data
Location	South of the Town of Turpin on State Highway 83	
Latitude/Longitude	36.75941268, -100.8439297	
Planning Watershed	Panhandle (8-digit HUC - 11100102)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	59	14.95	15.68	-0.18/28.91	7.17/21.37	
	Turbidity (NTU)	59	5.60	3.00	1/32	2/7	
	pH (units)	58	7.87	7.87	7.27/8.65	7.66/8.11	
	Dissolved Oxygen (ppm)	58	10.89	11.05	4.53/20.14	8.65/12.71	
	Hardness (ppm)	59	1176.7	1169.0	207/1850	1039/1335	
Minerals	Total Dissolved Solids (ppm)	64	6103.9	5973.0	2749/8509	5590.8/6739	97.7% of values> OWQS of 3010.0
	Specific Conductivity (uS/cm)	59	9287.9	9337.0	4295/12796	8582/10421	
	Chloride (ppm)	63	2674.0	2610.0	729/4595	2320/2870	100% of Values> OWQS of 945.0
	Sulfate (ppm)	64	685.80	664.00	229/1600	587.3/760.5	
Nutrients	Total Phosphorus (ppm)	59	0.04	0.02	0.011/0.263	0.018/0.034	
	Total Nitrogen (ppm)	59	0.85	0.69	0.33/3.86	0.58/0.93	
	Nitrate/Nitrite (ppm)	59	0.06	<0.050	<0.050/0.2	<0.050/<0.050	
	Chlorophyll A (mg/m^3)	15	17.70	7.50	<0.10/78	2.65/19	TSI=58.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	19	2249.9	500.00	<10.0/24000	30/1300	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	19	1108.0	259.00	<10.0/6867	41/911	Mean> OWQS of 126

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						NS	S	NS
Aesthetics												NS
Agriculture					S		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

Beaver River at Guymon

Sample Record	Times Visited	Station ID
April 1999 - Current	149	720510000190-001AT

Stream Data

County	Texas	View Site Data
Location	West of the Town of Guymon off State Highway 64	
Latitude/Longitude	36.70576142, -101.6365036	
Planning Watershed	Panhandle (8-digit HUC - 11100101)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	113	15.2	15.9	-0.2/32.0	7.3/22.8	
	Turbidity (NTU)	113	20	14	2/110	8/25	
	pH (units)	109	8.00	8.00	7.21/8.90	7.76/8.18	
	Dissolved Oxygen (ppm)	113	8.11	8.01	0.06/30.97	5.99/9.82	13.6% of values< OWQS of 5
	Hardness (ppm)	113	264.7	228.0	70.0/1263.0	204.5/267.5	
Minerals	Total Dissolved Solids (ppm)	113	303.4	298.0	110.0/434.0	288.6/320.8	
	Specific Conductivity (uS/cm)	112	482.4	478.4	170.0/668.0	451.6/523.6	
	Chloride (ppm)	99	11.7	10.8	<10.0/24.8	<10.0/12.7	
	Sulfate (ppm)	99	30.5	30.2	17.0/80.5	26.5/32.6	
Nutrients	Total Phosphorus (ppm)	113	0.053	0.035	<0.005/0.504	0.018/0.056	
	Total Nitrogen (ppm)	115	0.540	0.490	<0.050/5.140	0.360/0.660	
	Nitrate/Nitrite (ppm)	108	0.140	<0.050	<0.050/0.760	<0.050/0.174	
	Chlorophyll A (mg/m^3)	20	7.3	2.4	0.2/24.9	1.6/4.4	TSI=44.1
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	22	1841.60	233.00	31/21000	132.3/1325	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	22	1375.80	233.00	74/24192	152/448.3	Mean> OWQS of 126

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	NS	S						S	S	S
Aesthetics												NS
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

STATION NAME	FWP	PBCR	PPWS	AG	AES
Beaver River, off US 64, Guymon	NS (1)	NS (6, 7, 8)	S	S	NT
Beaver River, US 83, Turpin	NS (16, 18)	NS (6, 7, 8)	N/A	NS (10, 11)	NS(18)
Beaver River, SH 23, Beaver	NS(16)	NS (6, 7, 8)	N/A	NS (10, 11, 12)	NS(18)
Beaver River, CR N1650, Gate	NS(16, 18)	NS (6, 8)	N/A	NS (10, 11)	NS(18)
Beaver River, US 183, Fort Supply	S	NS (6, 8)	N/A	S	S
Deep Fork River, off SH 16, Beggs	NS (5)	NS (6, 8)	S	S	NS(18)
Deep Fork River, US 377, Stroud	NS (5)	NS (6, 8)	S	S	NS(13, 18)
North Canadian River, SH 3E, Shawnee	NS (3, 4, 5)	NS (8)	N/A	NS(10)	T (13, 17)
North Canadian River, off US 62, Harrah	NS (5)	NS (6, 8)	N/A	NS (10)	T (13, 17)
North Canadian River, US 281, Seiling	S	NS (8)	S	S	S
North Canadian River, US 75, Wetumka	NS (5)	NS (8)	S	S	T (13, 17)
North Canadian River, Ind. Nat. Tpk., Dustin	NS (5)	NS (6, 8)	S	S	T (13)
North Canadian River, US 412, Woodward	S	NS (8)	N/A	S	S
North Canadian River, US 81, El Reno	NS(3)	NS (8)	S	S	T (13, 17)
Wolf Creek, off US 270, Fort Supply	S	NS (8)	S	S	S

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1110

Beaver/North Canadian Sub-basin

The Beaver/North Canadian sub-basin (4-digit hydrologic unit 1110) is situated in the Panhandle, northwest, and central portions of the state. It originates in Cimarron County, continues eastward through portions of Texas, Beaver, Harper, Ellis, Woodward, Major, Dewey, Blaine, Canadian, Oklahoma, Logan, Lincoln, Pottawatomie, Seminole, Creek, Okfuskee, Hughes, and Okmulgee Counties and terminates in the central part of McIntosh County. Major cities and County seats located within the basin include Boise City, Guymon, Beaver, Woodward, Watonga, El Reno, Yukon, Oklahoma City, Midwest City, Del City, Choctaw, Harrah, Edmond, Chandler, Shawnee, Tecumseh, Seminole, Bristow, Okemah, Wewoka, Okmulgee, Henryetta, and Eufaula. Minor cities of note include Goodwell, Laverne, Shattuck, Seiling, Meeker, Stroud, Prague, Wetumka, and Beggs.

The sub-basin is subdivided into nine 8-digit hydrologic units (HUC) within the state. These HUC's are the Upper Beaver (11100101), the Middle Beaver (11100102), the Coldwater (11100103), the Palo Duro (11100104), the Lower Beaver (11100201), the Lower Wolf (11100203), the Middle North Canadian (11100301), the Lower North Canadian (11100302), and the Deep Fork (11100303). The major surface water in the sub-basin is the Beaver/North Canadian River. Major tributaries include Goff Creek, Palo Duro Creek, Kiowa Creek, Clear Creek, Wolf Creek, Wewoka Creek, the Deep Fork River, and Little Deep Fork Creek. Ten major lakes are located in the sub-basin—Optima Lake formed by the Beaver River and Coldwater Creek, Fort Supply Lake formed by Wolf Creek, Canton Lake formed by the North Canadian River, Lake Overholser formed by the North Canadian River, Lake Hefner, Lake Arcadia formed by the Deep Fork River, Wes Watkins Lake formed by North Deer Creek, the Shawnee Twin Lakes, Bell Cow Lake formed by Bell Cow Creek, and the upper portion of Eufaula Lake formed by the North Canadian and Deep Fork Rivers. Fourteen active permanent water quality-monitoring stations are located in the basin. Three inactive water quality-monitoring stations (Palo Duro Creek near Bryans Corner, Kiowa Creek near Laverne, and Clear Creek near May) are located in the sub-basin and were last assessed in the 2000 BUMP report.

The basin is characterized by five ecoregions. The Western High Plains cover all Cimarron County, most of Texas County, and half of Beaver County. The Southwestern Tablelands begin in Texas County and terminate in Ellis and Woodward Counties. The Central Great Plains begins in Ellis County and terminates in western Oklahoma County. The Central Oklahoma/Texas Plains begin in eastern Oklahoma County and end in western Okmulgee and McIntosh Counties. The Central Irregular Plains cover eastern Okmulgee and McIntosh Counties. The primary land usage in the sub-basin is rangeland (open grasslands and woody areas). It is prevalent throughout the sub-basin with areas of concentration west central and central portions. The secondary land use is cropland, which is prevalent in the western and central portions and is interspersed throughout the eastern portion. The tertiary land uses is pastureland (brushy or mixed) and forestland (post oak, blackjack oak and bottomland hardwoods). Pastureland is prevalent in the eastern portion and is interspersed through the rest of the sub-basin. Forestland is prevalent in the eastern part of the sub-basin. Other land uses of note are farmsteads, major urban areas, wetlands, and confined animal feeding operations.

Little River at Sasakwa

Sample Record	Times Visited	Station ID
November 1998 - Current	154	520800010010-001AT

Stream Data

County	Seminole	View Site Data
Location	North of the Town of Sasakwa on State Highway 56	
Latitude/Longitude	34.96534987, -96.5120113	
Planning Watershed	Central (8-digit HUC - 11090204)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	115	17.8	19.0	0.3/32.3	10.8/26.2	
In-Situ	Turbidity (NTU)	112	164	42	2/1001	17/146	18.2% of values> OWQS of 50
In-Situ	pH (units)	114	8.05	8.06	6.84/8.67	7.91/8.26	
In-Situ	Dissolved Oxygen (mg/L)	115	8.96	8.63	3.88/17.75	7.38/10.19	
In-Situ	Hardness (mg/L)	115	311.2	302.0	72.0/980.0	220.0/372.0	
Minerals	Total Dissolved Solids (mg/L)	119	704.1	694.0	130.3/2818.0	448.0/870.0	
Minerals	Specific Conductivity (uS/cm)	115	1173.8	1183.0	203.5/4335.0	710.0/1549.0	
Minerals	Chloride (mg/L)	115	245.4	227.0	29.2/1360.0	139.0/290.0	
Minerals	Sulfate (mg/L)	114	41.5	35.8	10.3/261.0	28.6/43.1	
Nutrients	Total Phosphorus (mg/L)	117	0.141	0.060	<0.005/2.05	0.034/0.126	
Nutrients	Total Nitrogen (mg/L)	120	0.855	0.590	<0.100/6.850	0.390/0.910	
Nutrients	Nitrate/Nitrite (mg/L)	121	0.201	0.050	<0.050/6.470	<0.050/0.1600	
Nutrients	Chlorophyll A (mg/m^3)	14	10.8	3.0	0.1/90.3	1.3/8.7	TSI=53.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	29	3826.3	74.0	<10.0/93000	25/350	Mean> OWQS of 33
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	29	409.8	41.0	<10.0/5794	20/151.5	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NS
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish consumption not supporting for Lead and Thallium*

Canadian River at Purcell

Sample Record	Times Visited	Station ID
February 1999 - Current	194	510610010010-001AT

Stream Data

County	McClain	View Site Data
Location	East of the Town of Purcell on State Highway 77	
Latitude/Longitude	35.01433266, -97.35035449	
Planning Watershed	Central (8-digit HUC - 11090202)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	124	17.4	18.6	-2.3/34.1	10.4/24.9	
	Turbidity (NTU)	122	145	42	4/1000	19/150	24.0% of values>OWQS of 50
	pH (units)	123	8.33	8.25	7.36/9.85	8.06/8.55	
	Dissolved Oxygen (ppm)	123	10.24	9.87	4.21/26.87	8.12/11.95	
	Hardness (ppm)	125	420.2	419.0	74.0/990.0	279.5/553.5	
Minerals	Total Dissolved Solids (ppm)	129	807.4	769.0	194.0/1804.0	562.0/1058.5	
	Specific Conductivity (uS/cm)	124	1239.8	1210.0	303.0/2215.0	879.5/1609.8	
	Chloride (ppm)	118	137.8	128.5	19.7/419.0	81.1/189.3	
	Sulfate (ppm)	118	282.5	280.0	40.8/972.0	182.8/356.3	
Nutrients	Total Phosphorus (ppm)	129	0.525	0.383	0.013/2.765	0.247/0.614	55.6% of values>OWQS of 0.360
	Total Nitrogen (ppm)	129	2.617	2.370	0.080/10.430	1.615/3.030	
	Nitrate/Nitrite (ppm)	130	1.009	0.725	<0.050/8.880	0.136/1.235	
	Chlorophyll A (mg/m^3)	48	10.4	43.6	0.5/191.0	9.4/88.7	TSI=70.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	20	3201.1	167.0	<10.0/31700	20.3/675	Mean> OWQS of 165
	E. Coli (cfu/100ml)(*-Geo. Mn.)	20	1088.4	25.0	<10.0/19863	<10.0/214	

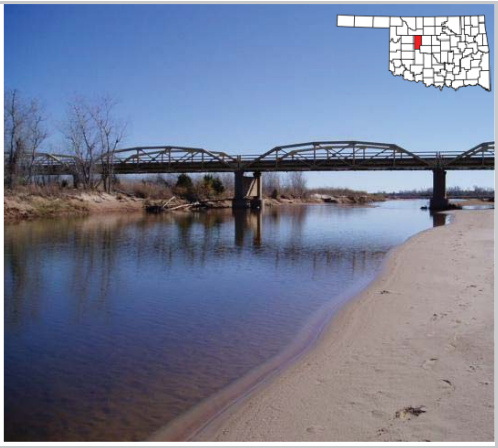
Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NS
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish consumption not supporting for Lead and Thallium*

Canadian River at Bridgeport



Sample Record	Times Visited	Station ID
February 1999 - Current	159	520610020150-001AT

Stream Data

County	Blaine	View Site Data
Location	East of the Town of Bridgeport on U.S. Highway 281	
Latitude/Longitude	35.54292908, -98.31831715	
Planning Watershed	West Central (8-digit HUC - 11090202)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	112	16.9	16.9	-0.6/36.3	9.9/24.0	
	Turbidity (NTU)	109	75	31	4/1000	14/73	19.2% of values>OWQS of 50
	pH (units)	108	8.11	8.12	7.60/8.60	7.95/8.27	
	Dissolved Oxygen (ppm)	111	9.55	9.50	0.38/19.77	8.07/10.49	
	Hardness (ppm)	111	581.6	569.0	126.0/2100.0	463.0/654.0	
Minerals	Total Dissolved Solids (ppm)	116	998.5	1057.5	213.6/1634.0	729.0/1260.0	
	Specific Conductivity (uS/cm)	112	1487.3	1524.5	333.7/2552.0	1068.5/1907.0	
	Chloride (ppm)	111	155.8	184.0	12.0/472.0	31.9/234.0	
	Sulfate (ppm)	113	416.8	412.0	106.0/752.0	356.0/478.5	
Nutrients	Total Phosphorus (ppm)	113	0.155	0.098	0.010/2.140	0.063/0.167	
	Total Nitrogen (ppm)	114	1.279	1.125	0.360/7.470	0.823/1.501	
	Nitrate/Nitrite (ppm)	115	0.455	0.400	<0.050/2.600	0.080/0.670	
	Chlorophyll A (mg/m^3)	22	9.9	13.6	2.6/84.4	5.4/24.6	TSI=60.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	26	765.6	100.0	<10.0/12033	38.5/387.5	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	26	1019.3	36.0	<10.0/24192	<10.0/94.5	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			NS			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

Canadian River at Konawa

Sample Record	Times Visited	Station ID
November 1998 - Current	189	520600010010-001AT

Stream Data

County	Seminole	View Site Data
Location	East of the Town of Konawa on State Highway 377	
Latitude/Longitude	34.93343848, -96.6830356	
Planning Watershed	Central (8-digit HUC - 11090202)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	114	17.6	17.8	0/34.8	10.6/26.4	
	Turbidity (NTU)	114	173	41	6/1001	22/199	25.9% of values>OWQS of 50
	pH (units)	114	8.26	8.26	7.43/9.15	8.02/8.45	
	Dissolved Oxygen (ppm)	112	9.86	9.38	4.49/32.28	8.05/11.21	
	Hardness (ppm)	115	364.5	355.0	89.0/674.0	267.0/462.0	
Minerals	Total Dissolved Solids (ppm)	119	691.1	700.0	131.0/1160.0	477.0/880.0	
	Specific Conductivity (uS/cm)	113	1080.1	1116.0	206.0/1722.0	790.8/1369.5	
	Chloride (ppm)	114	121.9	120.0	17.6/282.0	80.5/160.3	
	Sulfate (ppm)	114	246.1	227.0	41.3/3090.0	146.5/276.0	
Nutrients	Total Phosphorus (ppm)	116	0.331	0.266	0.026/1.260	0.180/0.369	
	Total Nitrogen (ppm)	119	1.743	1.620	0.540/6.550	1.170/2.170	
	Nitrate/Nitrite (ppm)	120	0.411	0.168	<0.050/2.570	<0.050/0.689	
	Chlorophyll A (mg/m^3)	44	10.6	30.0	5.3/135.0	16.8/48.3	TSI=67.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	29	914.9	120.0	<10.0/9100	25.5/500	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	29	433.2	20.0	<10.0/5794	<10.0/73	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish consumption not supporting for Lead and Thallium*

Canadian River at Calvin

Sample Record	Times Visited	Station ID
December 1998 - Current	202	220600010119-001AT

Stream Data

County	Hughes	View Site Data
Location	North of the Town of Calvin on State Highway 270	
Latitude/Longitude	34.97589666, -96.24231022	
Planning Watershed	Central (8-digit HUC - 11090202)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	128	18.5	19.1	0/36.3	12.0/26.0	
	Turbidity (NTU)	124	164	42	7/1001	24/174	32.0% of values>OWQS of 50
	pH (units)	127	8.24	8.26	7.19/9.04	8.04/8.40	
	Dissolved Oxygen (ppm)	127	9.63	9.33	3.79/23.59	7.86/11.22	
	Hardness (ppm)	129	330.7	325.0	99.0/727.0	241.5/410.5	
Minerals	Total Dissolved Solids (ppm)	132	637.4	629.0	207.0/1119.0	459.8/830.5	
	Specific Conductivity (uS/cm)	127	998.2	982.0	318.0/1749.0	717.4/1288.0	
	Chloride (ppm)	125	131.9	134.0	24.1/253.0	96.5/170.5	
	Sulfate (ppm)	126	175.0	156.0	31.8/473.0	104.0/223.0	18.6% of values>OWQS of 247.7
Nutrients	Total Phosphorus (ppm)	130	0.241	0.172	0.023/1.160	0.128/0.285	23.3% of values>OWQS of 0.360
	Total Nitrogen (ppm)	132	1.356	1.233	<0.050/6.360	0.834/1.778	
	Nitrate/Nitrite (ppm)	133	0.249	<0.050	<0.050/1.435	<0.050/0.410	
	Chlorophyll A (mg/m^3)	45	12.0	25.3	3.4/115.0	15.1/46.9	TSI=66.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	30	1115.0	50.0	<10.0/24192	17.5/457.8	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	30	86.0	<10.0	<10.0/794	<10.0/102.8	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						NS	S	NS
Aesthetics												NS
Agriculture					NS		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish and wildlife Propagation not supporting for Lead
Fish consumption not supporting for Lead and Thallium

Canadian River at Taloga

Sample Record	Times Visited	Station ID
November 1998 - Current	110	520620020010-001AT

Stream Data

County	Dewey	View Site Data
Location	North of the Town of Taloga on State Highway 183	
Latitude/Longitude	36.05419703, -98.96894778	
Planning Watershed	West-Central (8-digit HUC - 11090201)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	96	14.8	15.2	-0.5/32.6	6.9/22.5	
In-Situ	Turbidity (NTU)	95	47	19	2/1000	9/36	
In-Situ	pH (units)	93	8.08	8.08	7.36/8.70	7.94/8.25	
In-Situ	Dissolved Oxygen (mg/L)	94	10.14	9.47	0.62/21.02	8.21/11.94	
In-Situ	Hardness (mg/L)	94	709.4	678.0	58.0/1425.0	560.0/793.3	
Minerals	Total Dissolved Solids (mg/L)	98	1584.6	1581.0	615.0/3410.0	1420.0/1748.0	15.1% of values>OWQS of 1849
Minerals	Specific Conductivity (uS/cm)	96	2337.4	2399.5	711.0/4187.0	2101.5/2594.5	
Minerals	Chloride (mg/L)	94	371.4	387.5	65.5/749.0	293.5/444.8	26.5% of values>OWQS of 336
Minerals	Sulfate (mg/L)	95	550.3	462.0	141.0/1681.0	382.0/590.0	14.7% of values>OWQS of 568
Nutrients	Total Phosphorus (mg/L)	95	0.072	0.031	<0.005/1.890	0.017/0.056	
Nutrients	Total Nitrogen (mg/L)	98	1.023	0.700	0.160/9.050	0.470/0.981	
Nutrients	Nitrate/Nitrite (mg/L)	99	0.379	0.130	<0.050/6.690	<0.050/0.330	
Nutrients	Chlorophyll A (mg/m^3)		No Data	No Data	No Data	No Data	
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	17	307.6	50.0	<10.0/3000	<10.0/350	Mean> OWQS of 33
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	17	42.1	20.0	<10.0/253	<10.0/36	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												NS
Agriculture					NS		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Thallium

Canadian River at Whitefield

Sample Record	Times Visited	Station ID
September 1999 - Current	151	220300000010-001AT

Stream Data

County	Haskell	View Site Data
Location	North of the Town of Whitefield on State Highway 2	
Latitude/Longitude	35.26306098, -95.23915454	
Planning Watershed	Lower Arkansas (8-digit HUC - 11090204)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	106	18.0	19.9	1.3/33.0	11.4/23.6	
	Turbidity (NTU)	105	20	6	1/812	3/13	
	pH (units)	105	7.89	7.92	6.39/8.64	7.71/8.16	
	Dissolved Oxygen (mg/L)	105	8.76	8.58	2.25/18.95	6.86/10.39	
	Hardness (mg/L)	106	152.8	147.0	93.0/317.0	132.0/165.3	
Minerals	Total Dissolved Solids (mg/L)	110	268.3	261.0	126.3/480.0	226.8/318.3	
	Specific Conductivity (uS/cm)	105	438.9	440.0	197.4/720.0	377.3/509.7	
	Chloride (mg/L)	107	44.8	41.0	17.3/73.6	33.3/57.5	
	Sulfate (mg/L)	107	49.5	49.7	24.7/99.8	39.1/57.7	
Nutrients	Total Phosphorus (mg/L)	109	0.064	0.050	<0.005/0.950	0.028/0.073	
	Total Nitrogen (mg/L)	111	0.613	0.580	<0.050/2.710	0.395/0.795	
	Nitrate/Nitrite (mg/L)	112	0.176	0.138	<0.050/0.535	<0.050/0.265	
	Chlorophyll A (mg/m^3)	26	11.4	3.9	0.4/10.7	2/5.8	TSI=44.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	19	396.5	<10.0	<10.0/6867	<10.0/30	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	19	142.5	30.0	<10.0/1860	<10.0/74	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

Brushy Creek at Haileyville

Sample Record	Times Visited	Station ID
November 1998 - Current	172	220600030010-001AT

Stream Data

County	Pittsburg	View Site Data
Location	Southwest of the Town of Haileyville on State Highway 63	
Latitude/Longitude	34.843370, -95.614373	
Planning Watershed	Eufaula (8-digit HUC - 11090204)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	117	17.9	18.6	1.9/33.0	10.9/24.9	
	Turbidity (NTU)	116	72	41	4/1000	22/78	30.3% of values>OWQS of 50
	pH (units)	117	7.37	7.33	6.31/8.57	7.08/7.68	
	Dissolved Oxygen (ppm)	117	7.19	6.60	1.41/26.38	5.10/8.41	15.0% of values<OWQS of 5
	Hardness (ppm)	117	96.6	74.0	10.0/693.0	52.0/98.5	
Minerals	Total Dissolved Solids (ppm)	118	177.9	116.5	11.0/826.0	92.5/158.0	
	Specific Conductivity (uS/cm)	117	275.6	178.7	18.0/1291.0	123.0/251.6	
	Chloride (ppm)	104	26.8	<10.0	<10.0/178	<10.0/18.1	
	Sulfate (ppm)	105	63.3	34.1	12.0/369.0	26.4/50.1	
Nutrients	Total Phosphorus (ppm)	120	0.116	0.077	0.007/1.060	0.053/0.122	
	Total Nitrogen (ppm)	122	0.901	0.805	0.150/3.390	0.581/1.081	
	Nitrate/Nitrite (ppm)	123	0.174	0.090	<0.050/1.510	<0.050/0.230	
	Chlorophyll A (mg/m^3)	24	10.9	3.4	0.5/33.3	1.4/4.9	TSI=50.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	26	943.7	36.0	<10.0/14136	<10.0/197.5	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	26	1000.5	68.0	<10.0/19863	<10.0/273	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	NS	S						S	S	S
Aesthetics												NEI
Agriculture					NS		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Lead*

STATION NAME	FWP	PBCR	PPWS	AG	AES
Brushy Creek, off US 270, Haileyville	NS (1, 3, 5)	NS (6, 7, 8)	S	NS (12)	NT
Canadian River, SH 2, Whitefield	S	S	S	S	NT
Canadian River, US 183, Taloga	S	NS (8)	N/A	NS (10, 11,12)	NS (18)
Canadian River, US 270, Calvin	NS(3,5,16,18)	NS (8)	S	NS (12)	NS(17, 18)
Canadian River, US 377, Konawa	NS (5)	NS (8)	S	S	T (13, 17)
Canadian River, US 66, Bridgeport	NS (5)	NS (8)	N/A	S	NT
Canadian River, US 77, Purcell	NS (5)	N/A	N/A	S	NS (13,17,18)
Little River, SH 56, Sasakwa	NS (5)	NS (6, 8)	S	S	NS(13, 18)

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1109

Canadian Sub-basin

The Canadian sub-basin (4-digit hydrologic unit 1109) begins in the central west and runs to the east central portion of the state. It originates in the southern portion of Ellis and the northern portion of Roger-Mills Counties, continues eastward through portions of Ellis, Roger Mills, Dewey, Custer, Blaine, Caddo, Canadian, Grady, Cleveland, McClain, Pottawatomie, Pontotoc, Seminole, Hughes, McIntosh, and Muskogee Counties and terminates in Pittsburg, Haskell, and Latimer Counties. Major cities and County seats located within the basin include Arnett, Taloga, Weatherford, Mustang, Moore, Norman, Noble, Oklahoma City, Purcell, Ada, Tecumseh, Holdenville, McAlester, and Stigler. Minor cities of note include Newcastle, Lexington, Konawa, and Hartshorne.

The basin is subdivided into five 8-digit hydrologic units (HUC) within the state. These HUC's are the Rita Blanca (11090103), the Lower Canadian–Deer (11090201), the Lower Canadian–Walnut (11090202), the Little (11090203), and the Lower Canadian (11090204). The major surface water in the basin is the Canadian River. Major tributaries include Little River, Deer Creek, Walnut Creek, Canadian Sandy Creek, Salt Creek, Coal Creek, Gaines Creek, and Brushy Creek. Five major lakes are located in the basin—Lake Stanley Draper formed by East Elm Creek, Lake Thunderbird formed by the Little River, Lake Konawa formed by Jumper Creek, Lake McAlester formed by a tributary of Coal Creek, and the lower half of Lake Eufaula formed by the Canadian River and Coal, Brushy, and Gaines Creeks (among others). Eight permanent water quality-monitoring stations are located in the basin. One inactive water quality-monitoring station (North Canadian River, IND. NAT, TPK, Hanna) is located in the sub-basin. This station was last assessed in the 2000 BUMP report.

The basin is characterized by five ecoregions. The Central Great Plains is one of two primary ecoregions beginning in western Dewey County and continuing to eastern Cleveland and McClain Counties. The other primary ecoregion is the Central Oklahoma/Texas Plains beginning where the Central Great Plains ends and continues through the majority of Pittsburg and McIntosh counties. The Southwestern Tablelands cover an area beginning in the west and ending in the western part of Dewey County. The Arkansas Valley covers the rest of McIntosh, the eastern portions of Pittsburg County, and parts of Haskell and Latimer Counties. The Ouachita Mountains extend over the bottom part of Pittsburg and Latimer Counties. The primary land usage in the sub-basin is rangeland (open grasslands and woody areas). It dominates the western portion of the sub-basin, is prevalent in the central and east central portions, and is further interspersed throughout the remainder of the sub-basin. The secondary land use is pastureland, which is prevalent in the central and eastern portions. The tertiary land uses are cropland and forestland (post oak–blackjack oak and bottomland hardwoods). Cropland is prevalent in the west central portion of the sub-basin and is interspersed throughout the remainder of the sub-basin. Forestland is prevalent in the east central and eastern portions of the sub-basin. Other land uses of note are woodlands, bottom woodlands, farmsteads, major urban areas, and confined animal feeding operations.

Verdigris River at Wagoner

Sample Record	Times Visited	Station ID
September 1999 - Current	115	121500010200-001AT

Stream Data

County	Wagoner	View Site Data
Location	West of the Town of Wagoner on US 51	
Latitude/Longitude	35.95547322, -95.49477619	
Planning Watershed	Middle Arkansas (8-digit HUC -11070105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	71	18.5	19.9	3.4/32.8	11.4/26.0	
	Turbidity (NTU)	72	200	38	6/10324	21/72	19.0% of values> OWQS of 50
	pH (units)	70	7.79	7.77	7.09/8.84	7.55/7.95	
	Dissolved Oxygen (mg/L)	70	8.64	8.12	4.57/16.44	6.98/10.17	
	Hardness (mg/L)	70	143.9	139.0	56.0/740.0	114.8/157.8	
Minerals	Total Dissolved Solids (mg/L)	74	204.6	200.1	108.1/351.0	169.5/232.0	
	Specific Conductivity (uS/cm)	71	328.4	315.8	200.2/615.5	271.0/364.6	
	Chloride (mg/L)	74	21.5	15.0	<10.0/143.0	11.4/25.6	
	Sulfate (mg/L)	73	44.9	40.4	18.0/132.0	33.3/51.1	
Nutrients	Total Phosphorus (mg/L)	74	0.167	0.144	0.055/0.570	0.102/0.199	
	Total Nitrogen (mg/L)	75	1.376	1.125	0.480/4.400	0.815/1.560	
	Nitrate/Nitrite (mg/L)	71	0.720	0.475	<0.050/3.020	0.315/0.890	
	Chlorophyll A (mg/m^3)	27	11.4	4.6	0.1/16.1	2.7/9.0	TSI=47.8
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	20	6442.5	90.0	<10.0/82000	12.5/1250	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	20	351.5	57.0	<10.0/3130	12.5/160	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Verdigris River at Keetonville

Sample Record	Times Visited	Station ID
November 1998 - Current	183	121500030010-001AT

Stream Data

County	Rogers	View Site Data
Location	East of the Town of Keetonville on State Highway 20	
Latitude/Longitude	36.30724953, -95.69794268	
Planning Watershed	Middle Arkansas (8-digit HUC -11070105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	112	17.5	18.0	1.8/32.0	10.1/25.8	
	Turbidity (NTU)	114	68	32	3/919	20/70	
	pH (units)	112	7.83	7.84	5.09/8.76	7.69/8.04	
	Dissolved Oxygen (mg/L)	112	8.78	8.14	3.38/16.05	6.70/10.34	
	Hardness (mg/L)	113	155.8	152.0	16.2/320.0	126.5/186.5	
Minerals	Total Dissolved Solids (mg/L)	114	234.1	225.4	14.0/695.0	181.8/280.4	
	Specific Conductivity (uS/cm)	110	370.3	352.9	21.0/1072.0	284.6/443.5	
	Chloride (mg/L)	102	22.9	14.8	<10.0/120.0	<10.0/30.9	
	Sulfate (mg/L)	102	46.3	40.9	13.0/173.0	33.4/52.9	
Nutrients	Total Phosphorus (mg/L)	116	0.110	0.086	0.022/0.590	0.058/0.131	
	Total Nitrogen (mg/L)	118	0.864	0.760	0.280/2.530	0.604/0.996	
	Nitrate/Nitrite (mg/L)	110	0.262	0.225	<0.050/1.200	0.089/0.356	
	Chlorophyll A (mg/m^3)	45	10.1	5.0	0.5/50.2	3.0/12.6	TSI=52.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	21	5094.2	41.0	<10.0/89000	15/359	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	21	592.2	20.0	<10.0/7915	<10.0/62.5	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

Verdigris River at Lenepah

Sample Record	Times Visited	Station ID
December 1998 - Current	193	121510020010-001AT

Stream Data

County	Nowata	View Site Data
Location	East of the Town of Lenepah on State Highway 10	
Latitude/Longitude	36.85121639, -95.58531345	
Planning Watershed	Middle Arkansas (8-digit HUC -11070103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	115	17.0	18.0	1.5/33.7	10.0/25.2	
	Turbidity (NTU)	118	125	43	6/1002	18/106	36.0% of values> OWQS of 50
	pH (units)	115	7.80	7.81	4.98/8.55	7.60/8.07	
	Dissolved Oxygen (mg/L)	115	8.79	8.35	3.83/16.8	6.79/10.67	
	Hardness (mg/L)	118	157.7	159.5	10.0/300.0	131.5/187.3	
Minerals	Total Dissolved Solids (mg/L)	117	232.7	227.2	64.0/490.0	175.0/293.0	
	Specific Conductivity (uS/cm)	114	361.5	357.1	35.0/764.0	263.8/447.4	
	Chloride (mg/L)	102	21.1	14.4	<10.0/123.0	<10.0/22.6	
	Sulfate (mg/L)	101	35.9	32.2	12.3/96.5	26.9/41.8	
Nutrients	Total Phosphorus (mg/L)	118	0.173	0.108	0.019/1.220	0.069/0.183	
	Total Nitrogen (mg/L)	120	1.116	0.933	<0.100/3.970	0.669/1.318	
	Nitrate/Nitrite (mg/L)	112	0.355	0.320	<0.050/1.400	0.096/0.464	
	Chlorophyll A (mg/m^3)	48	10.0	8.3	0.1/173.0	4.6/14.8	TSI=57.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	115	17.0	18.0	1.5/33.7	10/25.2	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	22	722.8	52.0	<10.0/6294	27.5/443.3	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Lead and Thallium*

Verdigris River at Inola

Sample Record	Times Visited	Station ID
November 2000 - Current	111	121500020260-001AT

Stream Data

County	Rogers	View Site Data
Location	West of Inola on US 412	
Latitude/Longitude	36.16167837, -95.49637137	
Planning Watershed	Middle Arkansas (8-digit HUC -11070105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	63	17.1	17.3	3.3/32.4	9.3/25.2	
In-Situ	Turbidity (NTU)	63	200	42	3/8256	22/81	23.8% of values> OWQS of 50
In-Situ	pH (units)	63	7.83	7.79	7.14/8.71	7.63/8.00	
In-Situ	Dissolved Oxygen (mg/L)	62	9.11	8.66	3.71/18.73	7.12/10.88	
In-Situ	Hardness (mg/L)	63	148.4	141.0	76.0/301.0	123.0/160.0	
Minerals	Total Dissolved Solids (mg/L)	66	225.4	211.7	100.8/392.0	181.6/270.3	
Minerals	Specific Conductivity (uS/cm)	63	356.9	322.8	157.5/626.0	283.0/436.0	
Minerals	Chloride (mg/L)	57	26.6	18.2	<10.0/145.0	12.2/37.4	
Minerals	Sulfate (mg/L)	57	45.6	40.7	20.0/129.0	33.4/53.5	
Nutrients	Total Phosphorus (mg/L)	66	0.257	0.198	0.069/1.039	0.134/0.288	
Nutrients	Total Nitrogen (mg/L)	67	1.779	1.450	<0.100/4.44	1.030/2.350	
Nutrients	Nitrate/Nitrite (mg/L)	62	0.958	0.653	0.105/2.940	0.419/1.545	
Nutrients	Chlorophyll A (mg/m^3)	28	9.3	6.5	1.2/76.7	3.9/13.1	TSI=51.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	20	6867.15	40.0	<10.0/81000.0	<10.0/375.0	Mean> OWQS of 33
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	20	639.5	20.0	<10.0/7270.0	<10.0/63.25	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

Spring River at Quapaw

Sample Record	Times Visited	Station ID
December 1998 - Current	179	121600070010-001AT

Stream Data

County	Ottawa	View Site Data
Location	East of the Town of Quapaw near State Highway 137	
Latitude/Longitude	36.93462871, -94.74614371	
Planning Watershed	Grand (8-digit HUC -11070207)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	119	17.8	17.9	2.5/32.1	11.7/24.9	
	Turbidity (NTU)	116	30	15	1/436	10/25	68.8% of values >OWQS of 10
	pH (units)	118	7.87	7.91	6.64/8.92	7.70/8.06	
	Dissolved Oxygen (mg/L)	119	8.95	8.95	0.16/14.47	7.14/10.68	
	Hardness (mg/L)	118	152.9	156.0	16.9/258.0	135.3/174.3	
Minerals	Total Dissolved Solids (mg/L)	119	224.4	225.4	71.0/384.0	191.0/254.0	
	Specific Conductivity (uS/cm)	119	358.6	358.0	110.6/827.0	304.9/407.0	
	Chloride (mg/L)	105	14.2	11.9	<10.0/35.5	<10.0/16.1	
	Sulfate (mg/L)	104	34.9	33.4	17.8/75.4	27.2/40.8	
Nutrients	Total Phosphorus (mg/L)	118	0.204	0.195	0.048/0.640	0.134/0.251	
	Total Nitrogen (mg/L)	121	2.050	2.100	<0.050/4.755	1.613/2.493	
	Nitrate/Nitrite (mg/L)	122	1.420	1.503	<0.050/3.370	0.875/1.898	
	Chlorophyll A (mg/m^3)	29	11.7	8.8	1.6/37.4	3.6/14.0	TSI=53.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	30	1966.1	<10.0	<10.0/33000	<10.0/40.3	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	30	202.7	20.0	<10.0/3448	<10.0/65.8	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Thallium and Lead
Fish & Wildlife Propagation not supporting for Lead

Spring Creek at Murphy

Sample Record	Times Visited	Station ID
November 1998 - Current	222	121600010290-001AT

Stream Data

County	Mayes	View Site Data
Location	South of the Town of Locust Grove off State Highway 82	
Latitude/Longitude	36.13104241, -95.19015604	
Planning Watershed	Grand (8-digit HUC -11070209)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	118	16.5	16.5	7.2/26.8	12.2/21.1	
	Turbidity (NTU)	115	2	1	1/15	1/2	
	pH (units)	117	7.46	7.46	6.8/8.59	7.21/7.68	
	Dissolved Oxygen (mg/L)	118	9.00	8.86	2.68/13.82	7.65/10.49	
	Hardness (mg/L)	118	84.7	78.0	10.0/728.0	69.8/88.0	
Minerals	Total Dissolved Solids (mg/L)	120	107.1	99.9	20.5/498.0	87.3/116.0	
	Specific Conductivity (uS/cm)	117	160.8	156.0	32.2/425.0	137.8/177.7	
	Chloride (mg/L)	111	10.8	<10.0	<10.0/95.9	<10.0/<10.0	
	Sulfate (mg/L)	110	10.5	<10.0	<10.0/39.6	<10.0/<10.0	
Nutrients	Total Phosphorus (mg/L)	123	0.022	0.013	<0.005/0.392	0.010/0.019	
	Total Nitrogen (mg/L)	128	0.634	0.533	<0.100/3.005	0.366/0.760	
	Nitrate/Nitrite (mg/L)	119	0.462	0.420	<0.050/1.500	0.260/0.570	
	Chlorophyll A (mg/m^3)	53	12.2	0.4	0.1/29.5	0.2/0.7	TSI=35.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	38	220.5	30.5	<10.0/3000	<10.0/125	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	38	137.8	<10.0	<10.0/4352	<10.0/31	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Neosho River at Chouteau

Sample Record	Times Visited	Station ID
November 1998 - Current	171	121600010280-001AT

Stream Data

County	Mayes	View Site Data
Location	East of the Town of Chouteau on US 412	
Latitude/Longitude	36.17655098, -95.27570708	
Planning Watershed	Grand (8-digit HUC - 11070209)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	103	17.8	17.9	4.0/35.3	10.4/25.1	
	Turbidity (NTU)	102	16	12	4/72	9/19	
	pH (units)	103	7.94	7.89	7.11/9.41	7.61/8.22	
	Dissolved Oxygen (mg/L)	103	9.43	9.19	2.45/17.25	7.43/11.35	See Notes
	Hardness (mg/L)	104	125.3	124.4	74.8/200.0	109.5/139.5	
Minerals	Total Dissolved Solids (mg/L)	104	180.9	174.0	90.0/347.0	152.4/204.2	
	Specific Conductivity (uS/cm)	103	281.1	276.2	141.0/535.0	241.0/315.0	
	Chloride (mg/L)	72	12.9	<10.0	<10.0/25.6	<10.0/15.2	
	Sulfate (mg/L)	72	34.8	30.9	21.7/157.0	26.6/35.5	
Nutrients	Total Phosphorus (mg/L)	106	0.258	0.143	0.049/1.380	0.107/0.332	
	Total Nitrogen (mg/L)	109	1.185	1.145	<0.100/2.410	0.800/1.510	
	Nitrate/Nitrite (mg/L)	101	0.556	0.490	<0.050/1.370	0.270/0.840	
	Chlorophyll A (mg/m^3)	36	10.4	12.6	1.5/70.0	6.1/19.6	TSI=58.82
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	26	86.8	<10.0	<10.0/1400	<10.0/56	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	26	59.2	<10.0	<10.0/882	<10.0/33.5	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	NS	NS						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Upstream(~6.0 miles) water quality probes show 13.7% of real-time samples exceed OWQS criterion and numerous samples were below the OWQS acute criterion of 2mg/l
Fish and Wildlife Propagation not supporting for Lead

Neosho River at Langley

Sample Record	Times Visited	Station ID
December 1998 - Current	192	121600020170-001AT

Stream Data

County	Mayes	View Site Data
Location	South of the Town of Langley on State Highway 82	
Latitude/Longitude	36.44372767, -95.05554329	
Planning Watershed	Grand (8-digit HUC - 11070209)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	110	16.3	16.7	2.1/27.1	10.8/23.2	
	Turbidity (NTU)	110	11	7	1/59	5/11	
	pH (units)	110	7.72	7.76	6.89/9.26	7.50/7.96	
	Dissolved Oxygen (mg/L)	111	7.98	7.67	2.12/15.73	5.76/9.85	See Notes
	Hardness (mg/L)	112	124.4	122.0	11.0/236.0	107.3/135.8	
Minerals	Total Dissolved Solids (mg/L)	111	169.9	168.6	75.0/308.0	148.5/190.0	
	Specific Conductivity (uS/cm)	111	264.4	265.5	116.0/475.0	232.0/295.0	
	Chloride (mg/L)	101	10.6	<10.0	<10.0/64.7	<10.0/<10.0	
	Sulfate (mg/L)	101	27.5	26.3	17.1/61.2	22.8/30.6	
Nutrients	Total Phosphorus (mg/L)	114	0.094	0.082	0.030/0.251	0.067/0.120	
	Total Nitrogen (mg/L)	117	1.027	0.910	<0.050/3.560	0.625/1.378	
	Nitrate/Nitrite (mg/L)	111	0.553	0.405	<0.050/3.140	0.170/0.760	
	Chlorophyll A (mg/m^3)	46	10.8	4.1	0.6/23.2	2.2/9.0	TSI=48.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	29	44.3	<10.0	<10.0/300	<10.0/60.5	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	29	16.6	<10.0	<10.0/86	<10.0/15	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	NS	NS						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Upstream Water Quality Probes(~1.0 mile) show 13.7% of real-time samples exceed OWQS criterion
Fish consumption not supporting for Thallium
Fish and wildlife propagation not supporting for Lead

Neosho River at Connor Bridge

Sample Record	Times Visited	Station ID
December 1998 – March 2007	105	121600040010-001AT

Stream Data

County	Ottawa	View Site Data
Location	Northeast of the Town of Fairland on County Road S 590	
Latitude/Longitude	36.79864906, -94.81927419	
Planning Watershed	Grand (8-digit HUC -11070206)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	68	17.47	17.97	2.92/33.05	8.29/24.46	
	Turbidity (NTU)	68	87.4	36.5	4/1000	17.3/97.5	16.7% of values >OWQS of 50
	pH (units)	67	7.83	7.80	6.66/9.33	7.43/8.2	
	Dissolved Oxygen (mg/L)	68	8.54	8.35	1.69/13.58	6.59/11.03	
	Hardness (mg/L)	69	181.0	191.0	76/277	135.5/217.5	
Minerals	Total Dissolved Solids (mg/L)	69	233.3	235.0	88/413.3	192.7/272.9	
	Specific Conductivity (uS/cm)	68	375.9	377.4	137/860	301.3/448.8	
	Chloride (mg/L)	69	11.6	<10.0	<10.0/30.5	<10.0/11.6	
	Sulfate (mg/L)	69	66.4	67.4	<10.0/117	46.5/85.5	
Nutrients	Total Phosphorus (mg/L)	70	0.198	0.163	0.047/0.89	0.118/0.251	
	Total Nitrogen (mg/L)	68	1.285	1.180	0.31/3.14	0.77/1.543	
	Nitrate/Nitrite (mg/L)	69	0.438	0.300	<0.050/1.63	0.123/0.718	
	Chlorophyll A (mg/m^3)	15	13.88	11.40	0.86/45.4	4.6/18	TSI=56.4
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	23	1697.0	<10.0	<10.0/37000	<10.0/30	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	23	152.0	<10.0	<10.0/2359	<10.0/52	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes *Fish & Wildlife Propagation not supporting for Lead and Zinc*

Neosho River at Commerce

Sample Record	Times Visited	Station ID
October 2000 - Current	178	121600040220-001AT

Stream Data

County	Ottawa	View Site Data
Location	West of the Town of Commerce on County Road E60	
Latitude/Longitude	36.92899836, -94.95707349	
Planning Watershed	Grand (8-digit HUC - 11070206)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	97	16.9	17.8	0.3/33.2	8.7/25.5	
	Turbidity (NTU)	96	98	43	5/1000	25/94	33.3% of values>OWQS of 50
	pH (units)	98	7.91	7.94	6.53/9.05	7.70/8.14	
	Dissolved Oxygen (mg/L)	98	9.01	8.25	3.34/15.43	6.97/11.38	
	Hardness (mg/L)	98	176.6	177.5	15.0/294.0	148.8/218.0	
Minerals	Total Dissolved Solids (mg/L)	98	247.2	251.9	51.6/456.0	194.0/298.7	
	Specific Conductivity (uS/cm)	98	383.4	388.7	80.6/701.0	303.8/461.3	
	Chloride (mg/L)	84	11.6	<10.0	<10.0/19.7	<10.0/13.3	
	Sulfate (mg/L)	84	61.4	57.0	21.7/166.0	39.2/77.2	
Nutrients	Total Phosphorus (mg/L)	98	0.196	0.147	0.038/1.040	0.102/0.239	
	Total Nitrogen (mg/L)	102	1.273	0.970	<0.100/4.420	0.660/1.740	
	Nitrate/Nitrite (mg/L)	94	0.435	0.253	<0.050/3.590	<0.050/0.670	
	Chlorophyll A (mg/m^3)	49	8.7	12.9	0.1/200.0	5.2/27.1	TSI=62.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	29	10157.1	41.0	<10.0/282000	<10.0/295	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	29	433.1	20.0	<10.0/8074	<10.0/73.5	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						NS	NS	NS
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish consumption not supporting for Lead and Thallium*

Honey Creek at Grove

Sample Record	Times Visited	Station ID
December 1998-June 2006	146	121600030290-001AT

Stream Data

County	Delaware	View Site Data
Location	Southeast of the city of Grove on County Road N4670	
Latitude/Longitude	36.54773713, -94.12072263	
Planning Watershed	Grand (8-digit HUC - 11070206)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	88	16.69	16.79	6/27	11.89/21.62	
	Turbidity (NTU)	88	3.5	2.0	1/24	1.4/3.8	
	pH (units)	88	7.69	7.65	6.29/9.04	7.49/7.89	
	Dissolved Oxygen (mg/L)	87	8.63	8.34	4.38/13.89	7.36/10.01	
	Hardness (mg/L)	88	149.3	149.5	17.5/260	128/168.8	
Minerals	Total Dissolved Solids (mg/L)	89	311.3	285.1	102/593	229/397.5	
	Specific Conductivity (uS/cm)	88	494.5	449.4	181.6/929	369.3/626.2	
	Chloride (mg/L)	86	57.9	45.5	<10.0/148	26.6/92.3	
	Sulfate (mg/L)	86	35.6	27.7	<10.0/112	17.3/50.3	
Nutrients	Total Phosphorus (mg/L)	89	0.090	0.074	0.025/0.403	0.05/0.1	
	Total Nitrogen (mg/L)	87	2.857	2.705	0.19/9	2.05/3.18	
	Nitrate/Nitrite (mg/L)	88	2.538	2.285	<0.050/8.71	1.669/2.883	
	Chlorophyll A (mg/m^3)	28	2.33	0.72	<0.10/17.9	0.43/1.2	TSI=38.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	2107.2	200.0	41/35000	89.5/700	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	211.2	103.0	<10.0/2046	46.5/210.5	Mean> OWQS of 126

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Elk River at Tiff City (MO)

Sample Record	Times Visited	Station ID
May 1999 – December 2012	197	121600030440-001AT

Stream Data

County	McDonald	View Site Data
Location	Southeast of the Town of Tiff City (MO) on SH 43	
Latitude/Longitude	36.6314, -94.5867	
Planning Watershed	Grand (8-digit HUC -11070208)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	114	17.5	17.0	4.1/32.9	11.2/24.0	
	Turbidity (NTU)	111	4	2	1/26	2/4	
	pH (units)	113	7.95	7.91	6.64/8.89	7.74/8.18	
	Dissolved Oxygen (mg/L)	114	9.63	9.58	0.02/19.55	7.68/11.25	
	Hardness (mg/L)	113	139.3	139.0	15.0/240.0	126.5/152.5	
Minerals	Total Dissolved Solids (mg/L)	114	185.2	179.5	105.0/331.0	167.0/201.3	
	Specific Conductivity (uS/cm)	113	291.8	285.3	3.0/790.0	261.2/316.0	
	Chloride (mg/L)	100	11.0	<10.0	<10.0/19.0	<10.0/10.3	
	Sulfate (mg/L)	100	10.8	<10.0	<10.0/22.7	<10.0/10.6	
Nutrients	Total Phosphorus (mg/L)	114	0.101	0.056	<0.005/0.559	0.031/0.122	
	Total Nitrogen (mg/L)	116	1.694	1.650	<0.050/4.520	1.044/2.168	
	Nitrate/Nitrite (mg/L)	110	1.528	1.528	<0.050/4.280	0.901/2.016	
	Chlorophyll A (mg/m^3)	50	11.2	1.2	0.1/37.4	0.7/2.0	TSI=40.8
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	32	112.6	45.5	<10.0/1300	<10.0/90.8	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	32	79.6	25.5	<10.0/563	<10.0/51.8	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes *Fish Consumption not supporting for Thallium*

Bird Creek at Port of Catoosa

Sample Record	Times Visited	Station ID
November 1998 - Current	206	121300010010-001AT

Stream Data

County	Tulsa	View Site Data
Location	Northwest of the Town of Catoosa on State Highway 266	
Latitude/Longitude	36.22311412, -95.81921244	
Planning Watershed	Middle Arkansas (8-digit HUC - 11070107)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	136	17.7	18.1	2.8/31.0	11.0/24.6	
	Turbidity (NTU)	136	92	36	6/1000	22/79	21.4% of values> OWQS of 50
	pH (units)	133	7.54	7.48	6.88/9.12	7.36/7.68	
	Dissolved Oxygen (ppm)	136	8.01	7.54	0/19.26	6.39/9.54	
	Hardness (ppm)	136	130.3	125.0	58.0/294.0	105.0/156.8	
Minerals	Total Dissolved Solids (ppm)	138	244.8	231.2	17.0/1008.0	195.6/284.9	
	Specific Conductivity (uS/cm)	135	387.8	377.0	26.0/1570.0	306.0/457.3	
	Chloride (ppm)	102	40.5	37.5	<10.0/219.0	27.8/47.3	
	Sulfate (ppm)	102	45.3	38.1	18.6/293.0	27.9/47.3	
Nutrients	Total Phosphorus (ppm)	115	0.399	0.382	0.050/0.953	0.249/0.500	
	Total Nitrogen (ppm)	119	2.543	2.485	<0.100/6.170	1.520/3.510	
	Nitrate/Nitrite (ppm)	111	1.743	1.520	0.155/4.990	0.625/2.650	
	Chlorophyll A (mg/m^3)	42	11.0	5.6	1.7/86.4	3.7/8.2	TSI=52.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	26	4608.9	155.0	<10.0/73000	30/782	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	26	968.6	79.0	<10.0/17329	41/494.5	Mean> OWQS of 126

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish consumption not supporting for Lead*

Big Cabin Creek at Big Cabin

Sample Record	Times Visited	Station ID
September 1999 - Current	188	121600060060-001AT

Stream Data

County	Craig	View Site Data
Location	Northeast of the Town of Big Cabin on road 310	
Latitude/Longitude	36.56838771, -95.15177919	
Planning Watershed	Grand (8-digit HUC - 11070209)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	108	16.9	17.2	0.3/32.4	9.9/24.5	
	Turbidity (NTU)	107	41	24	7/755	18/40	
	pH (units)	108	7.60	7.56	6.78/8.79	7.39/7.81	
	Dissolved Oxygen (ppm)	108	7.84	7.37	3.08/18.5	5.84/9.59	
	Hardness (ppm)	106	244.1	218.0	13.0/671.0	174.8/294.8	
Minerals	Total Dissolved Solids (ppm)	111	360.5	356.0	105.8/964.0	281.1/422.0	
	Specific Conductivity (uS/cm)	107	567.7	557.0	165.3/1385.0	440.8/674.5	
	Chloride (ppm)	109	21.3	<10.0	<10.0/84.6	<10.0/25.9	
	Sulfate (ppm)	110	161.0	140.0	33.8/538.0	95.7/200.0	83.0% of values>OWQS of 59.4
Nutrients	Total Phosphorus (ppm)	110	0.195	0.142	0.026/1.090	0.094/0.217	
	Total Nitrogen (ppm)	112	1.685	1.260	<0.050/11.160	0.889/1.854	
	Nitrate/Nitrite (ppm)	113	0.765	0.355	<0.050/10.100	0.143/0.805	
	Chlorophyll A (mg/m^3)	47	9.9	8.0	1.2/76.6	3.3/24.0	TSI=55.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	31	15901.1	52.0	<10.0/437000	20/616	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	31	1558.0	110.0	<10.0/24196	31/847	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					NS		S	S				
Primary Body Contact Recreation									S			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

STATION NAME	FWP	PBCR	PPWS	AG	AES
Big Cabin Creek, off US 69, Big Cabin	S	N/A	S	NS (12)	S
Bird Creek, SH 266, Port of Catoosa	NS (5)	NS (6,7, 8)	S	S	S
Caney River, off US 75, Ramona	NS (5)	NS (8)	S	S	NS(18)
Elk River, SH 43, Tiff City (MO)	S	S	S	S	NT
Honey Creek, off SH 25, Grove	S	NS (7)	S	S	T(15)
Neosho River, off US 66, Commerce	NS (5, 16, 18)	NS(8)	S	S	NT
Neosho River, off SH 137, Connor Bridge	NS (2, 3, 5)	S	S	S	NT
Neosho River, SH 82, Langley	NS(1, 3)	S	S	S	NT
Neosho River, US 412, Chouteau	NS(1, 3)	S	NS(15)	S	T(13, 15)
Spring Creek, off US 412, Murphy	S	S	S	S	S
Spring River, off SH 137, Quapaw	NS (3, 5)	NS (8)	S	S	NT
Verdigris River, US 412, Inola	NS (5)	NS (8)	S	S	NT
Verdigris River, SH 10, Lenepah	NS (5)	NS (8)	S	S	NT
Verdigris River, SH 20, Keetonville	S	NS (8)	S	S	NT
Verdigris River, SH 51, Wagoner	NS (5)	NS (8)	S	S	NT

ASSIGNED OWQS BENEFICIAL USES

FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES

S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES

1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1107

Neosho/Grand Sub-basin

The Neosho/Grand sub-basin (4-digit hydrologic unit 1107) is situated in the northeast portion of the state. It originates in the west central portion of Osage County, continues eastward through portions of Washington, Tulsa, Nowata, Rogers, Wagoner, Muskogee, Craig, Mayes, and Cherokee Counties and terminates in Ottawa and Delaware Counties. Major cities and County seats located within the basin include Pawhuska, Dewey, Bartlesville, Skiatook, Collinsville, Sperry, Owasso, Tulsa, Nowata, Oologah, Port of Catoosa, Claremore, Pryor, Chouteau, Locust Grove, Wagoner, Fort Gibson, Vinita, Langley, Miami, Grove, and Jay. Minor cities of note include South Coffeyville, Adair, Quapaw, Afton, and Ketchum.

The sub-basin is subdivided into nine 8-digit hydrologic units (HUC) within the state. These HUC's are the Middle Verdigris (11070103), the Lower Verdigris (11070103), the Caney (11070106), the Bird (11070107), the Middle Neosho (11070205), the Grand Lake (11070206), the Spring (11070207), the Elk (11070208), and the Lower Neosho (11070209). The major surface waters in the basin are the Verdigris and Grand/Neosho Rivers. Major tributaries include Caney River, Little Caney River, Spring River, Elk River, Sand Creek, Bird Creek, Big Creek, Dog Creek, Tar Creek, Honey Creek, Big Cabin Creek, Spavinaw Creek, Pryor Creek, and Spring Creek. Nine major lakes are located in the basin—Hulah Lake formed by the Caney River, Copan Lake formed the Little Caney River, Bluestem Lake formed by the headwaters of Bird Creek, Skiatook Lake formed by Hominy Creek, Oologah Lake formed by the Verdigris River, Grand Lake formed by the Neosho, Spring, and Elk Rivers (among other creeks), Lake Eucha formed by Spavinaw Creek, Spavinaw Lake formed by Spavinaw Creek, Lake Hudson formed by the Neosho River and Spavinaw, Rock, and Saline Creek, and Fort Gibson Lake formed by the Neosho River and Clear and Fourteen Mile Creek. Fifteen active permanent water quality-monitoring stations are located in the basin. Three inactive water quality-monitoring stations (Verdigris River near Nowata, Big Cabin Creek near Pensacola, and Pryor Creek near Sportsman Acres) are located in the sub-basin. Verdigris River near Nowata and Big Cabin Creek near Pensacola were last assessed in the 1999 BUMP report while Pryor Creek near Sportsman Acres was last assessed in the 2000 BUMP report.

The sub-basin is characterized by four ecoregions. The Central Irregular Plains is the primary ecoregion covering the central portion of the sub-basin, the majority of Ottawa and Cherokee Counties, and part of Delaware County. The Central Oklahoma/Texas Plains covers the majority of Osage County and parts of Tulsa and Washington Counties. The Ozark Highlands typify the majority of Delaware County, one-quarter (¼) of Ottawa County, and a small part of western Mayes County. The Boston Mountains ecoregion is represented in a small part of eastern Cherokee County. The primary land usage in the sub-basin is rangeland (open grasslands and woody areas). It dominates the western and north central portions of the sub-basin and is further interspersed throughout the southern, central and east central portions of the sub-basin. The secondary land uses are pastureland and forestland. Pastureland is interspersed throughout the eastern, central, and southern portions of the sub-basin with concentrations in Ottawa, Cherokee, Delaware, Craig, Rogers, Tulsa, and Washington Counties. Forestland (post oak–blackjack oak, hickory, and bottomland hardwoods) is interspersed throughout the entire sub-basin with heavy concentrations in Cherokee and Delaware Counties. The tertiary land use is cropland with heaviest concentrations in the central and east central portions of the sub-basing. Other land uses of note include farmsteads, major urban areas, wetlands, and confined animal feeding operations.

Salt Fork Of The Arkansas River at Tonkawa

Sample Record	Times Visited	Station ID
October 2000 - Current	190	621000010010-001AT

Stream Data

County	Kay	View Site Data
Location	South of the Town of Tonkawa on US 77	
Latitude/Longitude	36.67070374, -97.30951657	
Planning Watershed	Upper Arkansas (8-digit HUC -11060004)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	139	17.6	17.9	-0.9/36.6	10.3/25.2	
	Turbidity (NTU)	142	161	61	6/1000	24/205	36.0% of values> OWQS of 50
	pH (units)	139	8.11	8.15	6.79/9.45	7.95/8.34	
	Dissolved Oxygen (mg/L)	139	10.39	10.21	1.69/24.35	7.92/12.28	
	Hardness (mg/L)	136	443.2	446.0	126.0/927.0	360.0/520.0	
Minerals	Total Dissolved Solids (mg/L)	141	2162.1	1909.0	101.0/10230.0	1275.0/2850.5	
	Specific Conductivity (uS/cm)	139	3462.9	3120.0	158.0/15758.0	2119.0/4588.0	
	Chloride (mg/L)	117	965.7	872.0	58.8/4860.0	504.5/1270.0	
	Sulfate (mg/L)	118	261.1	246.5	49.0/637.0	191.3/305.8	
Nutrients	Total Phosphorus (mg/L)	118	0.247	0.217	0.033/0.975	0.149/0.311	
	Total Nitrogen (mg/L)	119	1.423	1.345	<0.050/3.890	1.040/1.680	
	Nitrate/Nitrite (mg/L)	120	0.284	<0.050	<0.050/3.790	<0.050/0.366	
	Chlorophyll A (mg/m^3)	26	10.3	42.0	2.7/124.0	23.9/67.0	TSI=67.9
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	24	8036.9	734.0	20/161000	181.3/1800	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	25	499.7	31.0	<10.0/9804	<10.0/116	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Lead and Thallium*

Salt Fork of the Arkansas River at Ingersol

Sample Record	Times Visited	Station ID
December 1998 - Current	186	621010010160-001AT

Stream Data

County	Alfalfa	View Site Data
Location	Northeast of the town of Ingersol on State Highway 58	
Latitude/Longitude	36.82018011, -98.35994081	
Planning Watershed	Upper Arkansas (8-digit HUC - 11060002)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	127	17.5	18.0	-0.8/36.7	9.5/25.1	
	Turbidity (NTU)	127	103	49	1/1000	14/97	19.2% of values > OWQS of 50
	pH (units)	123	7.91	7.91	7.15/8.42	7.80/8.06	
	Dissolved Oxygen (mg/L)	126	9.69	9.27	4.49/26.91	7.98/11.21	
	Hardness (mg/L)	123	892.3	900.0	432.0/1660.0	804.0/980.0	
Minerals	Total Dissolved Solids (mg/L)	128	1357.7	1376.0	520.0/3170.0	1219.3/1510.0	
	Specific Conductivity (uS/cm)	126	1988.1	2014.5	905.0/3688.0	1809.5/2170.3	
	Chloride (mg/L)	111	160.0	154.0	28.8/591.0	125.0/190.0	
	Sulfate (mg/L)	112	741.1	737.5	150.0/1130.0	664.3/831.3	81.4% of values > OWQS of 639
Nutrients	Total Phosphorus (mg/L)	125	0.109	0.059	<0.005/1.710	0.028/0.112	
	Total Nitrogen (mg/L)	128	1.120	0.805	<0.050/18.710	0.611/1.058	
	Nitrate/Nitrite (mg/L)	129	0.328	0.300	<0.050/0.970	0.178/0.458	
	Chlorophyll A (mg/m^3)	20	9.5	4.6	0.1/53.4	2.4/8.6	TSI=50.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	36	4810.3	1200.0	50/46080	300/6500	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	36	1061.7	162.0	<10.0/19863	88.8/495.5	Mean> OWQS of 126

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						NS	S	NS
Aesthetics												NS
Agriculture					NS		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Thallium

Chikaskia River at Blackwell

Sample Record	Times Visited	Station ID
December 1998 - Current	198	621100000010-001AT

Stream Data

County	Kay	View Site Data
Location	East of the Town of Blackwell on State Highway 177	
Latitude/Longitude	36.81155311, -97.27808293	
Planning Watershed	Upper Arkansas (8-digit HUC - 11060005)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	124	16.5	16.6	-0.9/34.0	9.1/25.9	
	Turbidity (NTU)	125	239	45	6/13753	22/111	20.0% of values>OWQS of 50
	pH (units)	122	8.01	8.03	6.79/9.29	7.85/8.22	
	Dissolved Oxygen (mg/L)	124	10.72	9.76	2.53/48.86	8.01/12.42	
	Hardness (mg/L)	122	357.1	313.0	80.0/3720.0	228.0/390.0	
Minerals	Total Dissolved Solids (mg/L)	126	633.9	555.0	90.0/3840.0	409.3/662.0	
	Specific Conductivity (uS/cm)	123	1018.5	885.0	114.0/6238.0	652.0/1080.0	
	Chloride (mg/L)	117	156.5	112.0	11.8/1970.0	64.2/152.5	
	Sulfate (mg/L)	117	116.6	103.0	30.0/765.0	80.2/126.5	
Nutrients	Total Phosphorus (mg/L)	117	0.205	0.155	0.020/1.240	0.098/0.253	
	Total Nitrogen (mg/L)	118	1.860	1.810	0.150/6.630	1.220/2.304	
	Nitrate/Nitrite (mg/L)	119	1.021	0.915	<0.050/3.670	0.375/1.485	
	Chlorophyll A (mg/m^3)	49	9.1	10.0	0.1/138.0	2.8/29.8	TSI=57.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	6267.6	130.5	20/147000	54.5/1475	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	372.9	20.0	<10.0/3968	<10.0/247.5	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes *Fish consumption not supporting for Lead and Thallium*

Black Bear Creek at Pawnee

Sample Record	Times Visited	Station ID
December 1998 - Current	153	621200030010-001AT

Stream Data

County	Pawnee	View Site Data
Location	North of the Town of Pawnee on State Highway 18	
Latitude/Longitude	36.34341161, -96.79985204	
Planning Watershed	Upper Arkansas (8-digit HUC - 11060006)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	122	17.2	17.3	-0.3/33.3	9.5/24.9	
	Turbidity (NTU)	121	208	54	5/8256	21/172	27.6% of values> OWQS of 50
	pH (units)	122	7.94	7.98	6.26/8.70	7.68/8.17	
	Dissolved Oxygen (ppm)	122	9.14	8.35	1.70/30.01	7.02/10.34	
	Hardness (ppm)	121	226.7	219.0	42.0/442.0	153.5/295.5	
Minerals	Total Dissolved Solids (ppm)	124	491.7	460.5	100.0/1329.0	278.0/659.8	
	Specific Conductivity (uS/cm)	121	814.2	758.0	158.0/2076.0	431.6/1096.0	
	Chloride (ppm)	121	138.1	123.0	<10.0/460.0	63.9/197.0	
	Sulfate (ppm)	121	47.0	42.3	10.3/145.0	32.2/57.7	
Nutrients	Total Phosphorus (ppm)	121	0.228	0.188	0.030/1.330	0.125/0.288	
	Total Nitrogen (ppm)	122	1.545	1.405	0.470/4.920	0.908/1.933	
	Nitrate/Nitrite (ppm)	123	0.427	0.350	<0.050/2.690	<0.050/0.580	
	Chlorophyll A (mg/m^3)	2	9.5	13.3	10.7/15.9	NEI	TSI=56.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	27	1338.7	200.0	<10.0/19000	40/1100	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	27	551.0	63.0	<10.0/10462	<10.0/173	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes *Fish consumption not supporting for Lead*

Arkansas River at Ralston

Sample Record	Times Visited	Station ID
December 1998 - Current	162	621200010200-001AT

Stream Data

County	Pawnee	View Site Data
Location	East of the Town of Ralston on State Highway 18	
Latitude/Longitude	36.50481274, -96.72547095	
Planning Watershed	Upper Arkansas (8-digit HUC - 11060006)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	127	18.0	18.8	-0.4/38.0	10.1/25.0	
	Turbidity (NTU)	128	247	37	3/13749	14/153	32.1% of values> OWQS of 50
	pH (units)	127	8.18	8.21	6.96/8.88	8.00/8.40	
	Dissolved Oxygen (ppm)	127	10.03	9.63	1.73/26.76	8.12/11.57	
	Hardness (ppm)	126	261.6	250.0	82.0/635.0	195.5/324.3	
Minerals	Total Dissolved Solids (ppm)	129	720.4	643.0	119.1/3173.0	476.6/832.0	
	Specific Conductivity (uS/cm)	127	1161.3	1036.0	186.1/4882.0	742.4/1429.0	
	Chloride (ppm)	120	238.9	206.5	18.4/1380.0	143.0/279.3	
	Sulfate (ppm)	120	111.9	106.5	37.3/268.0	87.0/134.8	
Nutrients	Total Phosphorus (ppm)	120	0.253	0.194	0.020/1.390	0.128/0.277	
	Total Nitrogen (ppm)	121	1.426	1.290	0.350/5.780	0.870/1.753	
	Nitrate/Nitrite (ppm)	122	0.568	0.518	<0.050/2.040	0.165/0.830	
	Chlorophyll A (mg/m^3)	15	10.1	14.2	3.8/113.0	7.1/39.2	TSI=61.81
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	24	3049.80	69.00	<10.0/65000	12.5/450	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	24	496.60	20.00	<10.0/9804	<10.0/167.5	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes *Fish Consumption not supporting for Thallium and Lead*

STATION NAME	FWP	PBCR	PPWS	AG	AES
Arkansas River, SH 18, Ralston	NS (5)	NS (8)	S	S	NT
Black Bear Creek, SH 18, Pawnee	NS (5)	NS (6, 8)	S	S	NT
Chickaskia River, US 177, Blackwell	NS (5)	NS (6, 8)	S	S	NT
Salt Fork of the Arkansas, SH 58, Ingersoll	NS (5, 16, 18)	NS (6, 7, 8)	S	NS(12)	NS(18)
Salt Fork of the Arkansas, US 77, Tonkawa	NS (5)	NS (8)	S	S	S

ASSIGNED OWQS BENEFICIAL USES	
FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES		
S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES		
1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1106

Upper Arkansas Sub-basin

The Upper Arkansas sub-basin (4-digit hydrologic unit 1106) is situated in the north central portion of the state. It originates in the northeast portion of Woods County, continues eastward through portions of Alfalfa, Grant, Garfield, Kay, Noble, and Payne Counties and terminates in the western part of Osage County and northern one-half (½) of Pawnee County. Major cities and County seats located within the sub-basin include Alva, Ponca City, Perry, Pawnee, Tonkawa, Blackwell, and Cleveland. Minor cities of note include Cherokee, Medford, and Ralston.

The sub-basin is subdivided into six 8-digit hydrologic units (HUC) within the state. These HUC's are the Kaw Lake (11060001), the Upper Salt Fork of the Arkansas (11060002), the Medicine Lodge (11060003), the Lower Salt Fork of the Arkansas (11060004), the Chickaskia (11060005), and the Black Bear–Red Rock (11060006). The major surface water in the sub-basin is the upper Arkansas River. Major tributaries include the Salt Fork of the Arkansas River, the Chickaskia River, Black Bear Creek, Beaver Creek, Salt Creek, Sand Creek, Pond Creek, Deer Creek, Bois d'Arc Creek, and Red Rock Creek. Three major lakes are located in the sub-basin—the Great Salt Plains Lake formed by the Salt Fork of the Arkansas River, Kaw Lake formed by the Arkansas River and Beaver Creek, Sooner Lake formed by Greasy Creek, and the Arkansas River arm of Keystone Lake. Five active permanent water quality-monitoring stations are located in the sub-basin. Two inactive water quality-monitoring stations (Salt Fork of the Arkansas river, US 177, White Eagle and Arkansas River, off US 277, Newkirk) are located in the sub-basin. These stations were last assessed in the 2001 and 2003 BUMP reports, respectively.

The sub-basin is characterized by four ecoregions. The Central Great Plains is the primary ecoregion beginning in the far western portion and continuing through the east part of the sub-basin. The Central Oklahoma/Texas Plains represent the eastern quarter (¼) of the sub-basin. The Flint Hills characterize the northeast portion of Kay County and part of Osage County. The Southwestern Tablelands typify portions of Woods County. The primary land usage in the sub-basin is cropland. It dominates the central part of the sub-basin from eastern Woods County to the east central parts of Kay and Noble Counties. Cropland is further interspersed through the far western and eastern portions. The secondary land use is rangeland (open grasslands, sand sagebrush, upland shrubs, eastern red cedar, and post oak–blackjack oak). Rangeland dominates the far western and eastern portions of the sub-basin as well the northeastern portion of Alfalfa County and the southern portion of Payne and Pawnee Counties. It is further interspersed throughout the sub-basin. The tertiary land use is forestland (bottomland hardwoods and post oak–blackjack oak) that dominates the eastern portion of Payne County and the north and eastern portions of Pawnee County. Forestland is also present in portions of Kay and Osage Counties. Other land uses of note are pastureland, woodlands, farmsteads, major urban areas, wetlands, and confined animal feeding operations.

Skeleton Creek at Lovell

Sample Record	Times Visited	Station ID
December 1998 - Current	142	620910030010-001AT

Stream Data

County	Logan	View Site Data
Location	East of the Town of Lovell on State Highway 74	
Latitude/Longitude	36.06098714, -97.58584155	
Planning Watershed	Upper Arkansas (8-digit HUC -11050002)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	119	17.0	17.9	-1.4/33.9	7.9/24.9	
	Turbidity (NTU)	119	138	73	4/1000	39/147	44.4% of values> OWQS of 50
	pH (units)	119	8.18	8.17	7.51/8.79	8.01/8.39	
	Dissolved Oxygen (mg/L)	118	10.18	9.99	2.69/19.68	7.53/12.36	
	Hardness (mg/L)	119	386.7	408.0	100.0/690.0	300.0/475.0	
Minerals	Total Dissolved Solids (mg/L)	123	1010.9	1040.0	216.3/1824.0	779.0/1219.0	
	Specific Conductivity (uS/cm)	119	1629.0	1682.0	338.0/2904.0	1287.0/1978.0	
	Chloride (mg/L)	120	237.9	242.0	53.3/458.0	186.3/276.8	
	Sulfate (mg/L)	120	202.3	204.5	64.3/440.0	156.0/240.5	
Nutrients	Total Phosphorus (mg/L)	121	0.520	0.448	0.078/1.560	0.329/0.703	
	Total Nitrogen (mg/L)	122	4.405	3.805	0.290/15.510	2.725/5.433	
	Nitrate/Nitrite (mg/L)	123	3.201	2.480	<0.050/14.550	1.440/4.220	20.9% of values>OWQS of 4.65
	Chlorophyll A (mg/m^3)						No Data
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	27	3439.0	300.0	20/41000	63/2000	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	27	532.9	61.0	<10.0/9804	20/213	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	NS						S	S	S
Aesthetics												NS
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		NS			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Thallium
Fish & Wildlife Propagation not supporting for Selenium

Cimarron River at Waynoka

Sample Record	Times Visited	Station ID
March 2003 - Current	102	620920020010-001RS

Stream Data

County	Woods	View Site Data
Location	South of the Town of Waynoka on State Highway 281	
Latitude/Longitude	36.516709, -98.87990179	
Planning Watershed	Central (8-digit HUC - 11050001)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	66	18.2	19.2	-1.5/35.7	10.9/25.3	
In-Situ	Turbidity (NTU)	67	13	5	2/134	3/13	
In-Situ	pH (units)	64	7.89	7.91	7.28/8.27	7.75/8.06	
In-Situ	Dissolved Oxygen (mg/L)	65	8.72	8.45	3.70/13.52	7.68/9.79	
In-Situ	Hardness (mg/L)	66	1432.4	1445.0	162.0/2700.0	1133.3/1703.8	
Minerals	Total Dissolved Solids (mg/L)	70	23864.7	21600.0	4923/64000	16660/30725	72.7% of values>OWQS
Minerals	Specific Conductivity (uS/cm)	66	36859.1	34198.0	7575/100000	25495/44708	
Minerals	Chloride (mg/L)	70	12675.3	11800.0	804/33200	7350/15625	79.4% of values>OWQS
Minerals	Sulfate (mg/L)	70	1098.4	1070.0	426.0/1800.0	865.3/1322.5	
Nutrients	Total Phosphorus (mg/L)	69	0.039	0.033	<0.005/0.189	0.0200/0.043	
Nutrients	Total Nitrogen (mg/L)	74	0.671	0.600	0.160/1.600	0.469/0.779	
Nutrients	Nitrate/Nitrite (mg/L)	74	0.136	<0.050	<0.050/0.990	<0.050/0.115	
Nutrients	Chlorophyll A (mg/m^3)	14	10.9	4.6	0.9/26.0	3.0/14.0	TSI=51.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	14	49.5	20.0	<10.0/197	<10.0/80.5	
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	14	1615.1	1073.0	52/7270	453/2333.8	Mean> OWQS of 126

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						NS	S	S
Aesthetics												S
Agriculture					S		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Cimarron River at Ripley

Sample Record	Times Visited	Station ID
October 2000 - Current	212	620900030010-001AT

Stream Data

County	Payne	View Site Data
Location	South of the Town of Ripley on State Highway 33	
Latitude/Longitude	35.98570275, -96.91305015	
Planning Watershed	Upper Arkansas (8-digit HUC - 11050003)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	127	17.7	18.6	-1.0/35.5	9.1/25.5	29.0% of values>OWQS of 50
	Turbidity (NTU)	129	194	43	5/1001	15/132	
	pH (units)	126	8.16	8.18	6.90/9.18	7.89/8.44	
	Dissolved Oxygen (mg/L)	127	9.91	9.65	4.44/16.91	7.38/11.98	
	Hardness (mg/L)	126	513.7	504.5	142.0/1050.0	409.8/649.5	
Minerals	Total Dissolved Solids (mg/L)	128	3767.0	3952.5	470.0/8777.0	2370.5/5153.0	26.9% of values>OWQS of 4103
	Specific Conductivity (uS/cm)	127	5937.6	5950.0	465.0/13560.0	3847.0/8255.0	
	Chloride (mg/L)	90	1666.7	1619.0	168.0/4490.0	1075.0/2205.0	
	Sulfate (mg/L)	119	344.9	322.0	61.3/660.0	251.0/449.0	
Nutrients	Total Phosphorus (mg/L)	90	0.361	0.282	0.112/1.270	0.194/0.448	
	Total Nitrogen (mg/L)	89	1.915	1.685	0.830/6.270	1.230/2.160	
	Nitrate/Nitrite (mg/L)	90	0.528	0.290	<0.050/4.960	<0.050/0.906	
	Chlorophyll A (mg/m^3)	29	9.1	23.9	0.7/474.0	12.1/46.1	TSI=70.8
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	59	817.3	60.0	<10.0/18000	<10.0/300	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	59	250.8	20.0	<10.0/3654	<10.0/120	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

Cimarron River at Dover

Sample Record	Times Visited	Station ID
December 1998 - Current	178	620910020010-001AT

Stream Data

County	Kingfisher	View Site Data
Location	South of the Town of Dover on US 81	
Latitude/Longitude	35.95153084, -97.91407037	
Planning Watershed	Central (8-digit HUC -11050002)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	117	17.7	17.5	-0.3/37.7	9.7/25.3	
	Turbidity (NTU)	119	248	19	4/13749	11/84	
	pH (units)	117	8.04	8.08	7.00/8.56	7.91/8.20	
	Dissolved Oxygen (mg/L)	116	10.09	9.78	4.73/20.53	8.27/11.89	
	Hardness (mg/L)	119	832.7	836.0	100.0/2160.0	632.0/997.0	
Minerals	Total Dissolved Solids (mg/L)	122	7208.2	7114.5	87.0/18760.0	4826.0/9401.0	21.4% of values >OWQS of 10027.8
	Specific Conductivity (uS/cm)	117	11376.2	11352.0	134.0/28860.0	7765.0/14831.5	
	Chloride (mg/L)	118	3461.5	2948.5	46.6/10300.0	2165.3/4785.0	19.0% of values >OWQS of 5902.3
	Sulfate (mg/L)	119	611.7	639.0	95.5/1025.0	489.0/741.0	
Nutrients	Total Phosphorus (mg/L)	119	0.195	0.084	<0.005/2.350	0.051/0.197	
	Total Nitrogen (mg/L)	120	1.472	1.115	0.565/7.540	0.875/1.534	
	Nitrate/Nitrite (mg/L)	121	0.541	0.325	<0.050/3.890	0.120/0.813	
	Chlorophyll A (mg/m^3)	29	9.7	18.1	1.3/46.5	5.9/31.3	TSI=60.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	27	4634.3	60.0	<10.0/87000	<10.0/600	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	27	1390.2	487.0	<10.0/9208	183/1483	Mean> OWQS of 126

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	S	S
Aesthetics												NEI
Agriculture					S		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish consumption not supporting for Thallium
Fish & Wildlife Propagation not supporting for Selenium

Cimarron River at Guthrie

Sample Record	Times Visited	Station ID
December 1998 - Current	203	620910010010-001AT

Stream Data

County	Logan	View Site Data
Location	North of the Town of Guthrie on US 77	
Latitude/Longitude	35.91981845, -97.4257038	
Planning Watershed	Central (8-digit HUC -11050002)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	125	17.5	17.4	-1.1/37.3	10.0/25.0	
	Turbidity (NTU)	128	269	35	4/13750	15/130	
	pH (units)	125	8.11	8.12	7.06/9.72	7.89/8.27	
	Dissolved Oxygen (mg/L)	124	9.88	9.79	4.55/18.09	7.91/11.75	
	Hardness (mg/L)	123	641.3	620.0	196.0/1890.0	484.0/770.0	
Minerals	Total Dissolved Solids (mg/L)	128	4783.5	4623.5	560.0/12670.0	3100.5/6165.0	
	Specific Conductivity (uS/cm)	124	7795.1	7410.5	863.0/19499.0	5268.5/9906.5	
	Chloride (mg/L)	121	2108.8	2000.0	102.0/6500.0	1389.0/2540.0	
	Sulfate (mg/L)	120	449.6	456.0	115.0/851.0	335.3/563.0	
Nutrients	Total Phosphorus (mg/L)	121	0.380	0.305	0.029/1.580	0.216/0.488	
	Total Nitrogen (mg/L)	122	1.978	1.780	0.250/6.400	1.400/2.320	
	Nitrate/Nitrite (mg/L)	123	0.944	0.740	<0.050/4.990	0.380/1.240	
	Chlorophyll A (mg/m^3)	49	10.0	22.3	2.3/86.2	12.9/43.1	TSI=64.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	24	1510.8	92.5	<10.0/18000	25/375	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	24	322.0	97.5	<10.0/2415	50.5/276.3	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish Consumption not supporting for Thallium*

Cimarron River at Oilton

Sample Record	Times Visited	Station ID
December 1998 - Current	178	620900010170-001AT

Stream Data

County	Creek	View Site Data
Location	North of the Town of Oilton off State Highway 99	
Latitude/Longitude	36.09442186, -96.5787792	
Planning Watershed	Upper Arkansas (8-digit HUC - 11050003)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	128	17.6	17.5	-0.9/35.3	9.1/26.1	
In-Situ	Turbidity (NTU)	130	307	52	4/13752	23/157	18.5% of values>OWQS of 50
In-Situ	pH (units)	127	8.21	8.23	7.10/9.31	7.94/8.50	
In-Situ	Dissolved Oxygen (mg/L)	128	9.75	9.13	0.72/24.36	7.23/11.57	
In-Situ	Hardness (mg/L)	123	481.5	498.0	34.0/1300.0	359.0/594.0	
Minerals	Total Dissolved Solids (mg/L)	130	3166.3	3041.5	332.0/10610.0	1875.0/4137.3	19.6% of values>OWQS of 4103
Minerals	Specific Conductivity (uS/cm)	128	5108.7	5017.0	518.0/16339.0	2931.3/6850.5	
Minerals	Chloride (mg/L)	116	1463.9	1353.0	115.0/5600.0	848.3/1992.5	
Minerals	Sulfate (mg/L)	118	317.5	304.5	86.3/681.0	215.5/405.5	
Nutrients	Total Phosphorus (mg/L)	119	0.365	0.268	<0.005/1.780	0.176/0.455	
Nutrients	Total Nitrogen (mg/L)	119	1.880	1.575	0.300/5.700	1.180/2.360	
Nutrients	Nitrate/Nitrite (mg/L)	121	0.477	0.370	<0.050/1.860	<0.050/0.865	
Nutrients	Chlorophyll A (mg/m^3)	128	17.6	17.5	-0.9/35.3	9.1/26.1	TSI=62.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	738.3	85.5	<10.0/6000	30.3/420.8	Mean> OWQS of 33
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	162.3	20.0	<10.0/2014	<10.0/96.5	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes: *Fish consumption not supporting for Lead and Thallium*

Cimarron River at Buffalo

Sample Record	Times Visited	Station ID
November 1998 - Current	133	620920030010-001AT

Stream Data

County	Woods	View Site Data
Location	East of the Town of Buffalo on State Highway 34	
Latitude/Longitude	36.85209062, -99.31622871	
Planning Watershed	Panhandle (8-digit HUC - 11050001)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	110	18.1	17.9	-1.0/36.2	9.8/26.5	
	Turbidity (NTU)	110	23	7	2/715	4/18	
	pH (units)	109	8.06	8.10	7.17/8.70	7.89/8.26	
	Dissolved Oxygen (mg/L)	107	9.76	9.30	0.67/23.17	8.01/11.43	
	Hardness (mg/L)	109	1001.6	800.0	119.0/7000.0	640.0/1236.0	
Minerals	Total Dissolved Solids (mg/L)	112	10360.3	7758.5	1470.0/40000.0	4692.3/12295.0	17.1% of values>OWQS of 10353
	Specific Conductivity (uS/cm)	110	15830.9	12465.5	2030.0/61252.0	7712.5/19014.3	
	Chloride (mg/L)	110	5073.3	3890.0	630.0/24100.0	2220.0/5955.8	17.1% of values>OWQS of 4429.5
	Sulfate (mg/L)	110	612.8	497.5	196.0/1620.0	366.0/790.0	
Nutrients	Total Phosphorus (mg/L)	110	0.080	0.054	<0.005/0.392	0.035/0.096	
	Total Nitrogen (mg/L)	112	0.779	0.630	0.230/2.590	0.466/0.988	
	Nitrate/Nitrite (mg/L)	113	0.236	<0.050	<0.050/1.870	<0.050/0.268	
	Chlorophyll A (mg/m^3)						No Data
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	22	1160.5	154.5	<10.0/11000	37.5/1500	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	22	5817.5	4242.0	<10.0/24199	413.5/7816.8	Mean> OWQS of 126

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						NS	NS	NS
Aesthetics												S
Agriculture					S		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes *Fish Consumption not supporting for Thallium*

Cimarron river at Ames

Sample Record	Times Visited	Station ID
March 2003 - Current	137	620910020010-004RS

Stream Data

County	Major	View Site Data
Location	West of the Town of Ames off State Highway 8	
Latitude/Longitude	36.27979304, -98.31895336	
Planning Watershed	Central (8-digit HUC - 11050002)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	78	17.9	18.3	-0.9/39.2	9.3/26.5	
	Turbidity (NTU)	81	215	9	2/13748	4/25	
	pH (units)	78	8.07	8.12	7.40/8.57	7.93/8.21	
	Dissolved Oxygen (mg/L)	78	10.47	10.51	5.07/21.06	8.83/11.90	
	Hardness (mg/L)	79	1002.6	1038.0	422/1815	768/1210	
Minerals	Total Dissolved Solids (mg/L)	82	10105.1	9854.0	2050/24040	6600/13452.5	45.2% of values>OWQS of 10027.8
	Specific Conductivity (uS/cm)	78	15806.8	14913.0	3765/36987	10154/21742.5	
	Chloride (mg/L)	73	4962.1	4410.0	596/13500	2825/6305	31.0% of values>OWQS of 4217.7
	Sulfate (mg/L)	73	833.7	830.0	300/3210	673.0/922.5	50.0% of values>OWQS of 679.5
Nutrients	Total Phosphorus (mg/L)	73	0.056	0.032	<0.005/0.364	0.023/0.057	
	Total Nitrogen (mg/L)	75	1.003	0.955	0.260/2.300	0.760/1.230	
	Nitrate/Nitrite (mg/L)	75	0.359	0.260	<0.050/1.430	0.080/0.530	
	Chlorophyll A (mg/m^3)	31	9.3	12.3	1.0/64.9	6.0/20.0	TSI=58.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	23	122.8	31.0	<10.0/1017	<10.0/134	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	23	585.0	408.0	20/3255	156/813	Mean> OWQS of 126

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					NS		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes *Fish Consumption not supporting for Thallium*

STATION NAME	FWP	PBCR	PPWS	AG	AES
Cimarron River, off SH 8, near Ames	S	NS (6, 8)	N/A	NS (10, 11, 12)	NT
Cimarron River, SH 34, Buffalo	NS(16, 18)	NS (6, 7, 8)	N/A	NS (10,11)	S
Cimarron River, SH 99, Oilton	NS (5)	NS (6, 8)	N/A	NS(10)	NT
Cimarron River, US 77, Guthrie	S	NS (8)	N/A	S	T (17)
Cimarron River, US 81, Dover	NS (3)	NS (7, 8)	N/A	NS (10, 11)	NT
Cimarron River, SH 33, Ripley	NS (5)	NS (8)	N/A	NS(10)	NT
Cimarron River, US 281, near Waynoka	NS (16)	NS (7)	N/A	NS (10, 11)	S
Skeleton Creek, SH 74, Lovell	NS (3, 5)	NS (6, 8)	S	S	NS(15, 18)

ASSIGNED OWQS BENEFICIAL USES	
FWP = Fish & Wildlife Propagation	PBCR = Primary Body Contact Recreation
PPWS = Public and Private Water Supply	AG = Agriculture
AES = Aesthetics	

SUPPORT CODES		
S—Fully Supporting	NS—Not Supporting	T-Threatened (Nutrients)
NT-Not Threatened (Nutrients)	NEI—Not Enough Information	N/A—Not Applicable

WATER QUALITY VARIABLES		
1—Dissolved Oxygen	2—Metals (Acute)	3—Metals (Chronic)
4—pH	5—Turbidity	6—Fecal Coliform
7— *Escherichia coli*	8— Enterococci	9—Metals
10— Total Dissolved Solids	11— Chlorides	12— Sulfates
13— Total Phosphorus (TP)	14—TP Ok Scenic River Criterion	15— Nitrite + Nitrate
16—Biocriteria	17—Sestonic Chlorophylll-a (TSI)	18—Sedimintation

HUC 1105

Lower Cimarron Sub-basin

The Lower Cimarron sub-basin (4-digit hydrologic unit 1105) is situated in the near northwest and north central portions of the state. It originates in the eastern portion of Harper County, continues eastward through portions of Woodward, Woods, Alfalfa, Major, Garfield, Blaine, Kingfisher, Logan, Noble, Payne, Lincoln, and Pawnee Counties and terminates in the northern part of Creek County. Major cities and county seats located within the sub-basin include Enid, Kingfisher, Guthrie, Stillwater, and north Edmond. Minor cities of note include Buffalo, Fairview, Hennessey, Langston, Cushing, and Drumright.

The sub-basin is subdivided into three 8-digit hydrologic units (HUC) within the state. These HUC's are the Lower Cimarron – Eagle Chief (11050001), the Lower Cimarron – Skeleton (11050002), and the Lower Cimarron (11050003). The major surface water in the sub-basin is the lower Cimarron River. Major tributaries include Buffalo Creek, Eagle Chief Creek, Turkey Creek, Kingfisher Creek, Cottonwood Creek, Skeleton Creek, and Stillwater Creek. Three major lakes are located in the sub-basin—Lake Carl Blackwell formed by Stillwater Creek, Lake McMurtry formed by a tributary of Stillwater Creek, and the Cimarron River Arm of Lake Keystone. Eight permanent water quality-monitoring stations are located in the sub-basin.

The sub-basin is characterized by three ecoregions. The Central Great Plains is the primary ecoregion beginning in the far eastern portion and continuing through the central part of the sub-basin. The Central Oklahoma/Texas Plains represent the eastern quarter (¼) of the sub-basin. The Southwestern Tablelands typify portions of Woodward and Woods Counties. The primary land usage in the sub-basin is rangeland (open grasslands). It dominates the southern portion of the sub-basin from the far western portions through Kingfisher County and is further interspersed throughout the northern portion and in parts of Payne, Creek, and Noble Counties to the east. The secondary land use is cropland, which dominates the north central portion of the sub-basin and is further interspersed in areas to the western, central, and eastern portions. The tertiary land use is pastureland (brushy or mixed) that covers much of Creek Logan, Lincoln and Payne Counties and is further interspersed throughout each of the remaining counties in the sub-basin. Other land uses of note are forestland, rangeland, farmsteads, major urban areas, wetlands, and bare sand channels.

Cimarron River at Mocane

Sample Record	Times Visited	Station ID
October 1999 - Current	145	620930000010-001AT

Stream Data

County	Beaver	View Site Data
Location	North of the Town of Mocane off of US 64	
Latitude/Longitude	36.97516467, -100.3141738	
Planning Watershed	Panhandle (8-digit HUC -11040006)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	105	18.9	18.0	-0.6/34.9	11.6/26.6	12.2% of value>OWQS
	Turbidity (NTU)	105	31	16	3/1000	8/28	
	pH (units)	99	8.38	8.37	7.64/9.40	8.19/8.53	
	Dissolved Oxygen (mg/L)	105	10.13	9.68	5.25/21.82	8.58/11.26	
	Hardness (mg/L)	105	451.1	452.0	47.0/840.0	400.0/512.0	
Minerals	Total Dissolved Solids (mg/L)	108	2715.1	2720.5	521.8/5401.0	2560.0/2914.8	
	Specific Conductivity (uS/cm)	105	4354.7	4434.0	405.0/8438.0	4187.0/4676.0	
	Chloride (mg/L)	103	1301.5	1271.0	184.0/2347.0	1184.0/1440.0	
	Sulfate (mg/L)	104	201.7	199.5	95.6/339.0	186.3/213.0	
Nutrients	Total Phosphorus (mg/L)	105	0.394	0.339	0.021/1.320	0.175/0.570	
	Total Nitrogen (mg/L)	107	1.919	1.710	<0.100/6.075	0.870/2.710	
	Nitrate/Nitrite (mg/L)	107	1.124	0.850	<0.050/5.455	<0.050/1.730	
	Chlorophyll A (mg/m^3)	20	11.6	20.3	9.8/441.0	10.5/90.7	TSI=71.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	645.1	104.0	<10.0/9000	40/450	Mean> OWQS of 33
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	123.6	57.0	<10.0/687	31/152	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish consumption not supporting for Thallium
Fish & Wildlife Propagation not supporting for Selenium
Fish & Wildlife Propagation not supporting for Temperature

HUC 1104

Upper Cimarron Sub-basin

The Upper Cimarron sub-basin (4-digit hydrologic unit 1104) is situated in the far northwest portion of the state. It originates in the northwestern portion of Cimarron County and continues along the northern third of the county until exiting at the northwest corner of Texas County. The sub-basin reenters Oklahoma in the upper reaches of Beaver County and terminates in the northwest section of Harper County. No major cities or County seats are located within the sub-basin. Minor cities of note include Kenton and Knowles.

The sub-basin is subdivided into four 8-digit hydrologic units (HUC) within the state. These HUC's are the Cimarron Headwaters (11040001), the Upper Cimarron (11040002), the Upper Cimarron-Liberal (11040006), and the Upper Cimarron-Bluff (11040008). The Cimarron River dominates the sub-basin. Near the headwaters of the Cimarron River, Lake Carl Etling is formed by South Carrizo Creek. There is only one water quality monitoring station in this sub-basin.

The sub-basin is dominated by two major ecoregions. The Southwestern Tablelands are prominent in the far west and appear in portions of Beaver County while the Western High Plains are foremost in the near west, central and eastern portions of the sub-basin. The Central Great Plains touches the sub-basin in the far eastern reaches of Harper County. The primary land usage in the sub-basin is rangeland with open grasslands to the west and east and sand sagebrush in portions of Beaver County. Irrigated croplands are scattered throughout the sub-basin. Other land uses of note include pastureland, woodlands, large farmsteads, and bare exposed rock.

STATION NAME	FWP	PBCR	PPWS	AG	AES
CIMARRON RIVER, OFF US 64, MOCANE	NS(3)	NS (6, 8)	S	S	S

ASSIGNED OWQS BENEFICIAL USES	
FWP = FISH & WILDLIFE PROPAGATION	PBCR = PRIMARY BODY CONTACT RECREATION
PPWS = PUBLIC AND PRIVATE WATER SUPPLY	AG = AGRICULTURE
AES = AESTHETICS	

SUPPORT CODES		
S—FULLY SUPPORTING	NS—NOT SUPPORTING	T-THREATENED (NUTRIENTS)
NT-NOT THREATENED (NUTRIENTS)	NEI—NOT ENOUGH INFORMATION	N/A—NOT APPLICABLE

WATER QUALITY VARIABLES		
1—DISSOLVED OXYGEN	2—METALS (ACUTE)	3—METALS (CHRONIC)
4—PH	5—TURBIDITY	6—FECAL COLIFORM
7— *ESCHERICHIA COLI*	8— ENTEROCOCCI	9—METALS
10— TOTAL DISSOLVED SOLIDS	11— CHLORIDES	12— SULFATES
13— TOTAL PHOSPHORUS (TP)	14—TP OK SCENIC RIVER CRITERION	15— NITRITE + NITRATE
16—BIOCRITERIA	17—SESTONIC CHLOROPHYLLL-A (TSI)	18—SEDIMINTATION

Verdigris River at Inola

Sample Record	Times Visited	Station ID
November 2000 - Current	94	121500020260-001AT

Stream Data

County	Rogers	View Site Data
Location	West of Inola on US 412	
Latitude/Longitude	36.16167837, -95.49637137	
Planning Watershed	Middle Arkansas (8-digit HUC -11070105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	80	17.6	18.0	3.3/32.4	10.2/25.4	
	Turbidity (NTU)	79	67	40	3/891	21/74	25% of values>OWQS
	pH (units)	80	7.84	7.80	7.14/8.71	7.62/8.05	
	Dissolved Oxygen (mg/L)	79	9.06	8.26	3.71/18.73	7.14/10.86	
	Hardness (mg/L)	79	146	140	<10/301	124/161	
Minerals	Total Dissolved Solids (mg/L)	12	215	223	156/276	182/238	
	Specific Conductivity (uS/cm)	79	356	326	158/626	285/422	
	Chloride (mg/L)	57	27	18	7/145	12/37	
	Sulfate (mg/L)	57	46	41	20/129	33/53	
Nutrients	Total Phosphorus (mg/L)	81	0.240	0.189	0.069/1.039	0.121/0.279	
	Total Nitrogen (mg/L)	81	1.87	1.52	0.61/5.98	1.09/2.52	
	Nitrate/Nitrite (mg/L)	81	0.98	0.63	0.13/4.67	0.4/1.56	
	Chlorophyll A (mg/m^3)	47	11.2	6.8	1.2/76.7	3.9/14.2	TSI=54.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	22	6245	37	<10/81000	<10/325	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	22	583	20	<10/7270	<10/42	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						U	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Verdigris River at Keetonville

Sample Record	Times Visited	Station ID
November 1998 – December 2012	131	121500030010-001AT

Stream Data

County	Rogers	View Site Data
Location	East of the Town of Keetonville on State Highway 20	
Latitude/Longitude	36.30724953, -95.69794268	
Planning Watershed	Middle Arkansas (8-digit HUC -11070105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	113	17.5	18.0	1.8/32	10.3/25.7	
	Turbidity (NTU)	115	68	31	3/919	20/70	
	pH (units)	114	7.84	7.85	5.09/8.76	7.7/8.03	
	Dissolved Oxygen (mg/L)	113	8.79	8.18	3.38/16.05	6.7/10.39	
	Hardness (mg/L)	114	156	152	16/320	127/187	
Minerals	Total Dissolved Solids (mg/L)	35	226	214	88/556	169/261	
	Specific Conductivity (uS/cm)	111	372	353	21/1072	285/445	
	Chloride (mg/L)	102	22	15	<5/120	10/31	
	Sulfate (mg/L)	102	46	41	13/173	33/53	
Nutrients	Total Phosphorus (mg/L)	116	0.110	0.086	0.022/0.59	0.058/0.131	
	Total Nitrogen (mg/L)	115	0.88	0.78	0.28/2.53	0.63/1.02	
	Nitrate/Nitrite (mg/L)	116	0.27	0.24	<0.05/1.2	0.07/0.37	
	Chlorophyll A (mg/m^3)	53	8.5	5.4	0.5/50.2	3/11.7	TSI=51.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	21	5094.2	41.0	<10/89000	15/359	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	21	592.2	20.0	<10/7915	<10/62.5	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	NEI	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Verdigris River at Lenepah

Sample Record	Times Visited	Station ID
December 1998 - Current	169	121510020010-001AT

Stream Data

County	Nowata	View Site Data
Location	East of the Town of Lenepah on State Highway 10	
Latitude/Longitude	36.85121639, -95.58531345	
Planning Watershed	Middle Arkansas (8-digit HUC -11070103)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	138	17.0	17.9	0.7/33.7	10.3/25.2	
	Turbidity (NTU)	145	135	38	6/>1000	17/106	
	pH (units)	139	7.84	7.84	4.98/8.78	7.64/8.09	
	Dissolved Oxygen (mg/L)	138	9.02	8.39	3.83/18.49	6.91/10.85	
	Hardness (mg/L)	141	162	164	<10/300	135/191	
Minerals	Total Dissolved Solids (mg/L)	36	210	211	92/327	175/249	
	Specific Conductivity (uS/cm)	137	370	370	5/764	269/462	
	Chloride (mg/L)	102	21	14	<5/123	10/23	
	Sulfate (mg/L)	101	36	32	12/97	27/42	
Nutrients	Total Phosphorus (mg/L)	142	0.170	0.101	0.019/1.22	0.063/0.178	
	Total Nitrogen (mg/L)	141	1.27	1.02	<0.05/4.55	0.76/1.45	
	Nitrate/Nitrite (mg/L)	142	0.39	0.34	<0.05/1.95	0.11/0.5	
	Chlorophyll A (mg/m^3)	80	17.2	10.3	<0.1/173	5.1/22.2	TSI=58.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	31	12433	67	<10/321000	20/826	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	31	791	63	<10/6294	30/1236	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	NS						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish & Wildlife Propagation not supporting for Lead
Fish Consumption not supporting for Lead

Sampling and Assessment by the **Oklahoma Water Resources Board** – 3800 Classen Blvd, Oklahoma City, OK, 73118 – 405.530.8800 – http://www.owrb.ok.gov

Verdigris River at Wagoner

Sample Record	Times Visited	Station ID
September 1999 - Current	103	121500010200-001AT

Stream Data

County	Wagoner	View Site Data
Location	West of the Town of Wagoner on US 51	
Latitude/Longitude	35.95547322, -95.49477619	
Planning Watershed	Middle Arkansas (8-digit HUC -11070105)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	88	18.6	20.4	1.8/32.8	11.2/26.7	
	Turbidity (NTU)	90	56	32	6/383	19/68	13% of values>OWQS
	pH (units)	87	7.80	7.80	6.98/8.84	7.56/7.99	
	Dissolved Oxygen (mg/L)	87	8.77	8.06	4.57/16.44	7.2/10.42	
	Hardness (mg/L)	87	145	140	56/740	118/159	
Minerals	Total Dissolved Solids (mg/L)	40	197	192	108/304	177/210	
	Specific Conductivity (uS/cm)	87	330	319	200/616	272/365	
	Chloride (mg/L)	89	21	14	<5/143	11/23	
	Sulfate (mg/L)	88	45	40	18/132	33/51	
Nutrients	Total Phosphorus (mg/L)	89	0.162	0.140	0.052/0.57	0.101/0.194	
	Total Nitrogen (mg/L)	89	1.44	1.19	0.48/4.4	0.89/1.63	
	Nitrate/Nitrite (mg/L)	90	0.72	0.51	<0.05/3.02	0.29/0.89	
	Chlorophyll A (mg/m^3)	44	8.2	6.0	<0.1/39.5	3.2/11.4	TSI=51.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	24	5425	70	<10/82000	13/1100	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	24	297	47	<10/3130	<10/118	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						U	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Walnut Bayou at Burneyville

Sample Record	Times Visited	Station ID
January 2013 - Current	15	311100010250-001AT

Stream Data

County	Love	View Site Data
Location	North of the Town of Burneyville on State Highway 96	
Latitude/Longitude	33.916559, -97.282427	
Planning Watershed	Lower Washita (8-digit HUC - 11130201)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	11	20.7	22.7	4.6/33.7	13.4/29.6	
In-Situ	Turbidity (NTU)	11	44	10	6/189	7/53	22% of values>OWQS
In-Situ	pH (units)	11	7.99	7.98	7.68/8.36	7.9/8.1	
In-Situ	Dissolved Oxygen (mg/L)	11	9.60	9.18	6.24/12.54	8.27/12.09	
In-Situ	Hardness (mg/L)	11	254	204	132/685	167/302	
Minerals	Total Dissolved Solids (mg/L)	12	347	343	229/428	302/406	
Minerals	Specific Conductivity (uS/cm)	11	607	631	372/767	526/703	
Minerals	Chloride (mg/L)	12	57	57	23/93	43/72	
Minerals	Sulfate (mg/L)	12	48	48	27/74	40/57	
Nutrients	Total Phosphorus (mg/L)	12	0.104	0.081	<0.005/0.224	0.038/0.2	
Nutrients	Total Nitrogen (mg/L)	12	0.88	0.77	0.45/1.9	0.54/0.94	
Nutrients	Nitrate/Nitrite (mg/L)	12	0.06	<0.05	<0.05/0.12	<0.05/0.05	
Nutrients	Chlorophyll A (mg/m^3)	12	6.5	2.7	0.6/29.6	1.1/6.2	TSI=49.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	4	735	231	60/2420	75/1901	
Bacteria	E. Coli (cfu/100ml)(*-Geo. Mn.)	4	239	68	<10/816	<10/645	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NEI			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Walnut Creek at Purcell

Sample Record	Times Visited	Station ID
February 2015 - Current	14	520610030010-001AT

Stream Data

County	McClain	View Site Data
Location	South of the Town of Purcell on US Highway 77	
Latitude/Longitude	34.99932, -97.366951	
Planning Watershed	Central (8-digit HUC - 11090202)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	8	21.1	19.3	13.8/33.2	14.8/26.5	
	Turbidity (NTU)	8	195	11	3/996	4/344	
	pH (units)	8	8.09	8.17	7.58/8.4	7.86/8.3	
	Dissolved Oxygen (mg/L)	8	8.86	8.63	6.99/10.8	7.71/10.25	
	Hardness (mg/L)	8	363	393	182/442	321/408	
Minerals	Total Dissolved Solids (mg/L)	6	427	449	290/476	396/470	
	Specific Conductivity (uS/cm)	8	762	853	367/906	592/893	
	Chloride (mg/L)	8	28	32	10/34	21/34	
	Sulfate (mg/L)	8	51	51	30/63	46/58	
Nutrients	Total Phosphorus (mg/L)	8	0.131	0.030	0.017/0.484	0.023/0.258	
	Total Nitrogen (mg/L)	8	0.94	0.45	0.27/2.56	0.35/1.67	
	Nitrate/Nitrite (mg/L)	8	0.15	0.06	<0.05/0.38	<0.05/0.32	
	Chlorophyll A (mg/m^3)	8	3.8	3.5	1.1/6.5	1.5/6.4	TSI=43.8
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	5	1214	816	121/2420	206/2420	
	E. Coli (cfu/100ml)(*-Geo. Mn.)	5	719	118	22/2420	23/1715	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NEI	NEI	NEI	NEI						NEI	NEI	NEI
Aesthetics												NEI
Agriculture					NEI		NEI	NEI				
Primary Body Contact Recreation									NEI			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				NEI								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Washita River at Alex

Sample Record	Times Visited	Station ID
January 2003 – Current	88	310810020010-001AT

Stream Data

County	Grady	View Site Data
Location	North of the Town of Alex on Highway 19C	
Latitude/Longitude	34.9261546, -97.77397966	
Planning Watershed	Lower Washita (8-digit HUC -11130303)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	71	17.8	18.3	0.3/33.6	10.8/25.3	
	Turbidity (NTU)	71	243	59	6/>1000	25/245	18% of values>OWQS
	pH (units)	70	8.07	8.05	7.22/9.26	7.86/8.21	
	Dissolved Oxygen (mg/L)	71	9.53	8.81	4.59/15.76	7.67/11.85	
	Hardness (mg/L)	71	763	826	180/1668	536/980	
Minerals	Total Dissolved Solids (mg/L)	27	1135	1210	340/1670	789/1480	
	Specific Conductivity (uS/cm)	70	1595	1719	353/2690	1290/1973	
	Chloride (mg/L)	71	86	85	11/202	56/118	
	Sulfate (mg/L)	71	608	650	151/1260	460/768	
Nutrients	Total Phosphorus (mg/L)	71	0.369	0.184	0.01/2.06	0.104/0.424	
	Total Nitrogen (mg/L)	71	1.81	1.35	0.68/5.77	1.09/2.12	
	Nitrate/Nitrite (mg/L)	71	0.34	0.15	<0.05/1.8	<0.05/0.56	
	Chlorophyll A (mg/m^3)	50	46.7	33.2	3.8/169	19/64.2	TSI=68.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	24	1328	148	<10/11000	41/2420	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	24	685	58	<10/9208	<10/774	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						U	S	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead
U = Assessment yielded undetermined supporting status

Washita River at Anadarko

Sample Record	Times Visited	Station ID
February 1999 - Current	175	310830010010-001AT

Stream Data

County	Caddo	View Site Data
Location	North of the Town of Anadarko on US 281	
Latitude/Longitude	35.08448153, -98.24330303	
Planning Watershed	Lower Washita (8-digit HUC -11130302)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	136	18.2	19.5	-0.1/35	9.9/25.9	
	Turbidity (NTU)	138	171	37	4/>1000	17/138	
	pH (units)	134	8.09	8.10	7.01/8.8	7.94/8.25	
	Dissolved Oxygen (mg/L)	136	9.87	9.62	1.33/19.66	7.99/11.92	
	Hardness (mg/L)	135	851	888	185/1580	632/1056	
Minerals	Total Dissolved Solids (mg/L)	72	1305	1450	150/2260	951/1686	
	Specific Conductivity (uS/cm)	135	1736	1912	144/2925	1400/2127	
	Chloride (mg/L)	140	84	83	<5/233	51/113	
	Sulfate (mg/L)	139	694	755	56/1280	495/860	
Nutrients	Total Phosphorus (mg/L)	140	0.287	0.175	0.026/3.297	0.091/0.274	
	Total Nitrogen (mg/L)	139	1.60	1.34	0.52/7.1	0.92/1.8	
	Nitrate/Nitrite (mg/L)	140	0.45	0.31	<0.05/2.28	0.05/0.71	
	Chlorophyll A (mg/m^3)	73	42.3	24.7	3.5/597	13.9/45.5	TSI=67.3
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	31	1380	400	<10/12997	86/1968	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	31	445	106	<10/2723	<10/382	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						NS	U	NS
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

Washita River at Cordell

Sample Record	Times Visited	Station ID
November 1998 - Current	180	310830030010-001AT

Stream Data

County	Washita	View Site Data
Location	East of the Town of Cordell on State Highway 152	
Latitude/Longitude	35.29115498, -98.83671818	
Planning Watershed	West Central (8-digit HUC -11130302)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	144	17.2	17.9	-1/35.3	8.8/24.7	
	Turbidity (NTU)	143	92	22	3/>1000	9/82	
	pH (units)	141	8.01	8.01	5.93/9.02	7.84/8.2	
	Dissolved Oxygen (mg/L)	142	10.00	9.68	1.95/22.1	7.8/12.06	
	Hardness (mg/L)	143	1303	1320	415/2835	1120/1525	
Minerals	Total Dissolved Solids (mg/L)	83	2068	2130	450/4150	1750/2389	11% of values>OWQS
	Specific Conductivity (uS/cm)	144	2414	2468	348/5634	2103/2793	
	Chloride (mg/L)	142	113	88	10/862	63/140	15% of values>OWQS
	Sulfate (mg/L)	142	1119	1150	223/1880	995/1281	44% of values>OWQS
Nutrients	Total Phosphorus (mg/L)	143	0.283	0.202	0.046/3.09	0.135/0.325	
	Total Nitrogen (mg/L)	142	1.97	1.83	0.7/8.68	1.47/2.38	
	Nitrate/Nitrite (mg/L)	143	0.88	0.84	<0.05/3.09	0.43/1.29	
	Chlorophyll A (mg/m^3)	33	25.8	14.0	1.8/114	6.6/22.5	TSI=62.5
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	43	1946	308	<10/24192	96/1500	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	43	1740	74	<10/24192	20/272	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						NS	S	NEI
Aesthetics												NEI
Agriculture					NS		NS	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Sampling and Assessment by the **Oklahoma Water Resources Board** – 3800 Classen Blvd, Oklahoma City, OK, 73118 – 405.530.8800 – http://www.owrb.ok.gov

Washita River at Durwood

Sample Record	Times Visited	Station ID
November 1998 - Current	128	310800020010-001AT

Stream Data

County	Carter	View Site Data
Location	Northwest of the Town of Durwood on US 177	
Latitude/Longitude	34.23354963, -96.97638301	
Planning Watershed	Lower Washita (8-digit HUC -11130303)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	109	19.6	20.1	3.8/33.7	13.4/27	
	Turbidity (NTU)	107	293	69	4/>1000	39/559	
	pH (units)	108	8.08	8.05	7.1/8.86	7.9/8.26	
	Dissolved Oxygen (mg/L)	109	9.15	8.71	3.45/19.04	7.34/10.89	
	Hardness (mg/L)	108	532	534	187/910	401/670	
Minerals	Total Dissolved Solids (mg/L)	42	864	913	258/1604	609/1148	
	Specific Conductivity (uS/cm)	108	1199	1257	355/2037	889/1552	
	Chloride (mg/L)	108	77	77	10/163	44/112	
	Sulfate (mg/L)	109	367	347	26/787	256/504	
Nutrients	Total Phosphorus (mg/L)	109	0.391	0.183	0.008/4.183	0.116/0.405	
	Total Nitrogen (mg/L)	108	1.62	1.16	0.33/7.42	0.78/2.16	
	Nitrate/Nitrite (mg/L)	109	0.26	0.12	<0.05/1.04	<0.05/0.42	
	Chlorophyll A (mg/m^3)	44	26.2	19.1	<0.1/177	8.6/30.7	TSI=62.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	28	366	105	<10/1900	23/480	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	28	394	31	<10/8164	<10/154	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						U	NEI	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead
U = Assessment yielded undetermined supporting status

Washita River at McClure

Sample Record	Times Visited	Station ID
November 1998 - Current	102	310840010010-003RS

Stream Data

County	Custer	View Site Data
Location	North of the Town of McClure off of State Highway 33	
Latitude/Longitude	35.656289, -99.306207	
Planning Watershed	West Central (8-digit HUC -11130301)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	70	16.6	18.6	-0.8/33.3	8.4/23.9	
	Turbidity (NTU)	71	93	25	1/>1000	8/102	
	pH (units)	70	8.09	8.09	7.46/9.11	7.94/8.22	
	Dissolved Oxygen (mg/L)	69	9.89	10.15	3.77/19.46	8.46/11.31	16% of values<OWQS and 16% of values<alt OWQS
	Hardness (mg/L)	70	1158	1115	250/2255	980/1385	
Minerals	Total Dissolved Solids (mg/L)	57	1630	1660	340/2760	1465/1980	
	Specific Conductivity (uS/cm)	70	1929	1966	561/2903	1683/2316	
	Chloride (mg/L)	72	61	63	10/409	40/71	
	Sulfate (mg/L)	72	884	877	170/1760	653/1118	
Nutrients	Total Phosphorus (mg/L)	71	0.163	0.065	<0.005/1.71	0.04/0.195	
	Total Nitrogen (mg/L)	72	1.63	1.23	0.57/5.49	0.9/1.86	
	Nitrate/Nitrite (mg/L)	72	0.58	0.30	<0.05/4.96	0.14/0.45	
	Chlorophyll A (mg/m^3)	36	27.8	8.8	1.7/318	3.9/20.3	TSI=63.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	24	1118	456	63/5172	124/2420	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	24	1626	218	<10/24192	58/1155	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	NS	S						NS	U	NS
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				S		S			S			
Fish Consumption				NS								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Fish Consumption not supporting for Lead
U = Assessment yielded undetermined supporting status

Washita River at Pauls Valley

Sample Record	Times Visited	Station ID
December 1998 - Current	166	310810010010-001AT

Stream Data

County	Garvin	View site data
Location	East of the Town of Pauls Valley on county road E1570	
Latitude/Longitude	34.73848401, -97. 16538162	
Planning Watershed	Lower Washita (8-digit HUC -11130303)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	141	18.3	19.2	0.1/33	9.8/26.5	
	Turbidity (NTU)	142	286	74	3/>1000	41/420	16% of values>OWQS
	pH (units)	141	8.08	8.08	7.01/8.74	7.94/8.23	
	Dissolved Oxygen (mg/L)	141	9.45	9.01	3.83/22.13	7.35/11.12	
	Hardness (mg/L)	140	635	645	171/1210	473/804	
Minerals	Total Dissolved Solids (mg/L)	77	1003	1020	250/2577	698/1315	
	Specific Conductivity (uS/cm)	142	1407	1500	304/2237	1097/1785	
	Chloride (mg/L)	145	77	71	10/238	46/102	
	Sulfate (mg/L)	142	495	523	94/1240	320/654	
Nutrients	Total Phosphorus (mg/L)	152	0.398	0.186	0.027/3.16	0.109/0.425	
	Total Nitrogen (mg/L)	142	1.76	1.35	0.46/7.2	0.93/2.2	
	Nitrate/Nitrite (mg/L)	144	0.30	<0.05	<0.05/1.71	<0.05/0.53	
	Chlorophyll A (mg/m^3)	59	53.0	27.9	1.6/783	17.9/49.7	TSI=69.6
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	27	1094	200	<10/10462	41/1900	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	27	337	31	<10/3873	<10/169	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						U	NEI	S
Aesthetics												NEI
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

U = Assessment yielded undetermined supporting status

West Cache Creek at Taylor

Sample Record	Times Visited	Station ID
November 1998 - Current	143	311310020010-001AT

Stream Data

County	Cotton	View Site Data
Location	North of the Town of Taylor on State Highway 5B	
Latitude/Longitude	34.2095473, -98.33061891	
Planning Watershed	Beaver-Cache (8-digit HUC - 11130203)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	117	18.9	20.0	2.6/35.2	10/26.8	
	Turbidity (NTU)	121	139	41	4/>1000	17/89	25% of values>OWQS
	pH (units)	116	8.03	8.05	6.51/8.78	7.84/8.22	
	Dissolved Oxygen (mg/L)	117	8.66	8.71	3.71/15.3	6.64/10.42	
	Hardness (mg/L)	121	268	214	78/790	154/332	
Minerals	Total Dissolved Solids (mg/L)	65	588	441	144/2260	262/722	100% of values>OWQS
	Specific Conductivity (uS/cm)	116	1117	887	137/4559	560/1422	
	Chloride (mg/L)	123	210	136	<5/1010	72/273	
	Sulfate (mg/L)	123	87	62	18/300	44/112	
Nutrients	Total Phosphorus (mg/L)	123	0.205	0.135	0.031/1.204	0.096/0.24	
	Total Nitrogen (mg/L)	123	1.14	0.76	0.22/6.33	0.58/1.39	
	Nitrate/Nitrite (mg/L)	123	0.30	<0.05	<0.05/2.91	0.05/0.43	
	Chlorophyll A (mg/m^3)	28	16.7	13.6	1.1/55.1	5.5/22.7	TSI=58.2
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	25	1028	300	<10/10000	180/826	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	25	362	134	<10/2420	58/417	Mean>OWQS

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	NS	S	S	S						S	NEI	S
Aesthetics												NEI
Agriculture					S		S	NS				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes

Wolf Creek at Ft. Supply

Sample Record	Times Visited	Station ID
November 1998 - Current	147	720500030010-001AT

Stream Data

County	Woodward	View Site Data
Location	East of the Town of Ft. Supply off US 270	
Latitude/Longitude	36.44954552, -99.58872133	
Planning Watershed	Panhandle (8-digit HUC -11100203)	

Parameters

	Parameter (Descriptions)	n	Mean	Median	Min./Max	p25/p75	Comments
In-Situ	Water Temperature (°C)	116	17.8	19.0	-0.1/34	11.2/25.1	
	Turbidity (NTU)	117	21	14	2/81	9/30	
	pH (units)	113	8.16	8.18	7.33/9	8.03/8.31	
	Dissolved Oxygen (mg/L)	115	10.06	10.03	0.12/26.42	8.59/11.18	
	Hardness (mg/L)	117	317	305	163/615	279/342	
Minerals	Total Dissolved Solids (mg/L)	56	606	608	424/920	575/634	
	Specific Conductivity (uS/cm)	115	967	961	464/1835	898/1033	
	Chloride (mg/L)	117	132	129	89/186	122/143	
	Sulfate (mg/L)	117	104	103	48/164	90/117	
Nutrients	Total Phosphorus (mg/L)	125	0.057	0.042	<0.005/0.228	0.027/0.073	
	Total Nitrogen (mg/L)	118	1.23	1.22	0.42/2.83	0.92/1.52	
	Nitrate/Nitrite (mg/L)	118	0.71	0.69	<0.05/2.2	0.4/0.95	
	Chlorophyll A (mg/m^3)	12	7.3	4.3	0.9/21.4	2.4/11.6	TSI=50.0
Bacteria	Enterococcus (cfu/100ml)(*-Geo. Mn.)	23	1156	100	<10/10000	20/900	Mean>OWQS
	E. Coli (cfu/100ml)(*-Geo. Mn.)	23	185	74	<10/2282	30/85	

Beneficial Uses

Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	Sulfates	Nitrates	Chlorides	Total Dissolved Solids	Bacteria	Bio. Fish	Bio. BMI	Sediment
Fish & Wildlife Propagation	S	S	S	S						S	S	S
Aesthetics												S
Agriculture					S		S	S				
Primary Body Contact Recreation									NS			
Public & Private Water Supply				NEI		NEI			NEI			
Fish Consumption				S								

S = Fully Supporting
NS = Not Supporting
NEI = Not Enough Information

Notes