



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS TX 75202-2733

MAR 10 2016

Mr. James Wise  
Water Division  
Arkansas Department of Environmental Quality  
5301 Northshore Drive  
North Little Rock, Arkansas 72118-5317

Re: Draft 2016 Impaired Waterbodies List

Dear Mr. Wise:

Thank you for the opportunity to comment on the draft 2016 Arkansas Clean Water Act Section 303(d) list of impaired waters. The Environmental Protection Agency commends the Arkansas Department of Environmental Quality for the significant effort expended in assessing the State's waters and appreciates the emphasis Arkansas places on maintaining and enhancing the State's abundant natural resources.

Based on our initial review, the Region 6 office of the Environmental Protection Agency is providing the attached comments on Arkansas's draft 2016 303(d) list. If you have any questions or need any clarification, please contact Laura Hunt of my staff by phone at (214) 665-9729 or via email at [Hunt.Laura@epa.gov](mailto:Hunt.Laura@epa.gov).

Sincerely,

A handwritten signature in black ink that reads "Stacey B. Dwyer".

Stacey B. Dwyer, P.E.  
Associate Director  
NPDES Permits & TMDL Branch

**A. Segments delisted from Arkansas's draft 2016 303(d) list with no rationale**

Arkansas's draft 2016 303(d) list did not include segments that were previously listed and no new evidence was provided supporting delisting (table 1). The Arkansas Department of Environmental Quality (ADEQ) removed listings as found on their website (see [link](#)) as part of the 2016 public comment period, however, the removed listings did not include a rationale or justification and as such do not meet the requirements for public participation.

Per CFR 130.7(b)(6), *"each State shall provide documentation to the Regional Administrator to support the State's determination to list or not to list its waters as required by §§ 130.7(b)(1) and 130.7(b)(2)."* Based on these regulations, Arkansas's rationale for delisting waters is insufficient. The rationales for delisting segments are important and are further described in EPA's 2006 guidance document which states: *"States should provide detailed rationales for removing segment/pollutant combinations from their previous 303(d) lists in the record of decision for the list."* The public needs detailed information to determine what factors were used to remove waters.

**Table 1. Segments previously listed on the draft 2014 303(d) list where no new data supports delisting**

| Stream Name   | Parameter              | HUC      | RR  | #Exceedances | N  | Comment                                                                      |
|---------------|------------------------|----------|-----|--------------|----|------------------------------------------------------------------------------|
| Beech Creek   | Dissolved Oxygen       | 11140203 | 025 |              |    | Previously listed by Arkansas and no new data was found to support delisting |
| Bodcau Creek  | pH                     | 11140205 | 006 |              |    | Previously listed by Arkansas and no new data was found to support delisting |
| Kings River   | Total dissolved solids | 11010001 | 042 | 10           | 57 | Impaired and needs to be listed                                              |
| Prairie Creek | Dissolved Oxygen       | 08040101 | 048 | 8            | 13 | Impaired and needs to be listed                                              |
| Red River     | Total dissolved solids | 11140201 | 003 | 17           | 57 | Impaired and needs to be listed                                              |
| Red River     | Total dissolved solids | 11140201 | 007 | 23           | 55 | Impaired and needs to be listed                                              |

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| Stream Name     | Parameter              | HUC      | RR  | #Exceedances | N  | Comment                         |
|-----------------|------------------------|----------|-----|--------------|----|---------------------------------|
| Red River       | Total dissolved solids | 11140201 | 011 | 17           | 57 | Impaired and needs to be listed |
| Smackover Creek | Dissolved Oxygen       | 08040201 | 006 | 11           | 20 | Impaired and needs to be listed |
| Sulphur River   | Temperature            | 11140302 | 006 | 9            | 56 | Impaired and needs to be listed |

## B. Segments exceeding Arkansas's site specific minerals criteria but are not on Arkansas's draft 2016 303(d) list

For assessment of site-specific mineral criteria, the state's assessment methodology for the draft 2016 303(d) list states that:

*"Monitoring segments with site specific standards will be listed as non-support when greater than 25 percent of the total samples within the period of record exceed the applicable criteria, listed in APC&EC Reg. 2.511(A)."*

Previous versions of the state's assessment methods have applied a 10 percent exceedance frequency for determining nonsupport of the site specific minerals criteria (see [link](#)).

To facilitate a clearer understanding for the public, ADEQ needs to provide supporting documentation describing how the exceedance rate change (10% to 25%) is an appropriate and scientifically defensible frequency. EPA review of all available data found 33 segments (table 2) that exceeded site specific minerals greater than 10% but were not on Arkansas's draft 2016 303(d) list.

**Table 2. Segments exceeding site specific minerals criteria and not on Arkansas's draft 2016 303(d) list**

| Stream Name   | HUC      | RR  | Parameter              | Criteria | #Exceedances | N  | %Exceedance |
|---------------|----------|-----|------------------------|----------|--------------|----|-------------|
| Saline River  | 08040204 | 002 | Sulfate                | 10       | 46           | 56 | 82.14       |
| Saline River  | 08040204 | 002 | Sulfate                | 10       | 43           | 55 | 78.18       |
| Red River     | 11140201 | 007 | Total dissolved solids | 500      | 23           | 55 | 41.81       |
| Tyronza River | 08020203 | 909 | Sulfate                | 30       | 5            | 13 | 38.46       |

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| Stream Name             | HUC      | RR  | Parameter              | Criteria | #Exceedances | N  | %Exceedance |
|-------------------------|----------|-----|------------------------|----------|--------------|----|-------------|
| Saline River            | 08040204 | 002 | Total dissolved solids | 90       | 21           | 55 | 38.18       |
| Bayou DeView            | 08020302 | 009 | Chloride               | 20       | 19           | 56 | 33.92       |
| Cache River             | 08020302 | 020 | Sulfate                | 30       | 4            | 12 | 33.33       |
| Tyronza River           | 08020203 | 909 | Sulfate                | 30       | 4            | 13 | 30.76       |
| Saline River            | 08040204 | 002 | Total dissolved solids | 90       | 17           | 56 | 30.35       |
| Red River               | 11140201 | 011 | Total dissolved solids | 500      | 17           | 57 | 29.82       |
| Red River               | 11140201 | 003 | Total dissolved solids | 500      | 17           | 57 | 29.82       |
| Cache River             | 08020302 | 028 | Sulfate                | 30       | 3            | 11 | 27.27       |
| Saint Francis River     | 08020203 | 014 | Chloride               | 10       | 15           | 57 | 26.31       |
| Bayou DeView            | 08020302 | 004 | Total dissolved solids | 270      | 3            | 12 | 25          |
| Bayou DeView            | 08020302 | 004 | Chloride               | 20       | 3            | 12 | 25          |
| North Fork Saline River | 08040203 | 011 | Total dissolved solids | 90       | 13           | 57 | 22.80       |
| Bayou DeView            | 08020302 | 009 | Total dissolved solids | 270      | 12           | 56 | 21.42       |
| Cache River             | 08020302 | 018 | Sulfate                | 30       | 3            | 14 | 21.42       |
| Cache River             | 08020302 | 018 | Total dissolved solids | 270      | 3            | 14 | 21.42       |
| Red River               | 11140106 | 005 | Total dissolved solids | 850      | 12           | 57 | 21.05       |
| Sulphur River           | 11140302 | 006 | Sulfate                | 100      | 12           | 57 | 21.05       |
| Mine Creek              | 11140109 | 934 | Chloride               | 90       | 11           | 58 | 18.96       |
| Mine Creek              | 11140109 | 933 | Chloride               | 90       | 11           | 58 | 18.96       |

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| Stream Name             | HUC      | RR  | Parameter              | Criteria | #Exceedances | N  | %Exceedance |
|-------------------------|----------|-----|------------------------|----------|--------------|----|-------------|
| Kings River             | 11010001 | 042 | Total dissolved solids | 150      | 10           | 57 | 17.54       |
| Sulphur River           | 11140302 | 006 | Total dissolved solids | 500      | 10           | 57 | 17.54       |
| White River             | 11010003 | 902 | Total dissolved solids | 160      | 10           | 57 | 17.54       |
| L'Anguille River        | 08020205 | 001 | Sulfate                | 30       | 10           | 58 | 17.24       |
| Red River               | 11140106 | 005 | Chloride               | 250      | 9            | 56 | 16.07       |
| Red River               | 11140106 | 005 | Sulfate                | 200      | 8            | 56 | 14.28       |
| North Fork Saline River | 08040203 | 011 | Sulfate                | 10       | 8            | 57 | 14.03       |
| Mine Creek              | 11140109 | 933 | Sulfate                | 65       | 8            | 58 | 13.79       |
| Mine Creek              | 11140109 | 934 | Sulfate                | 65       | 8            | 58 | 13.7        |
| White River             | 11010001 | 023 | Chloride               | 20       | 7            | 55 | 12.7        |

## C. Segments exceeding Arkansas's ammonia criteria but are not on Arkansas's draft 2016 303(d) list

Arkansas's draft 2016 303(d) list omitted 5 waterbodies (see table 3) where more than one exceedance of the ammonia criteria was found in a 3 year period. For toxics criteria, the EPA CWA section 304(a) guidance recommends an average frequency for criteria excursions not to exceed one in three years (see [link](#)). Arkansas's water quality standards for toxics states that *"toxic substances shall not be present in receiving waters, after mixing, in such quantities as to be toxic to human, animal, plant or aquatic life or to interfere with the normal propagation, growth and survival of the indigenous aquatic biota."* Based on EPA's guidance and Arkansas's WQS, there is sufficient data to conclude that the applicable water quality standards are not being attained and the 5 water bodies in table 3 need to be added to Arkansas's 2016 303(d) list as impaired for ammonia.

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**Table 3. Segments with more than one exceedance of the ammonia criteria and not on Arkansas's draft 2016 303(d) list**

| Waterbody Name | HUC      | RR  | Parameter | Criteria          | #Exceedances           | Comments                                            |
|----------------|----------|-----|-----------|-------------------|------------------------|-----------------------------------------------------|
| Gilham Lake    | 11140109 | 018 | Ammonia   | chronic           | 3                      | Exceedances are from station near the dam           |
| Lake DeQueen   | 11140109 | 027 | Ammonia   | chronic           | 4                      | Exceedances are from station near the dam           |
| Lake Austelle  | 08020203 | 008 | Ammonia   | chronic/<br>acute | 12 chronic/ 3<br>acute | Exceedances are from station near the dam           |
| Dierks Lake    | 11140109 |     | Ammonia   | chronic           | 3                      | Exceedances are from station near the dam           |
| Whig Creek     | 11110203 | 931 | Ammonia   | chronic           | 16                     | Exceedances are from station downstream from a WWTP |

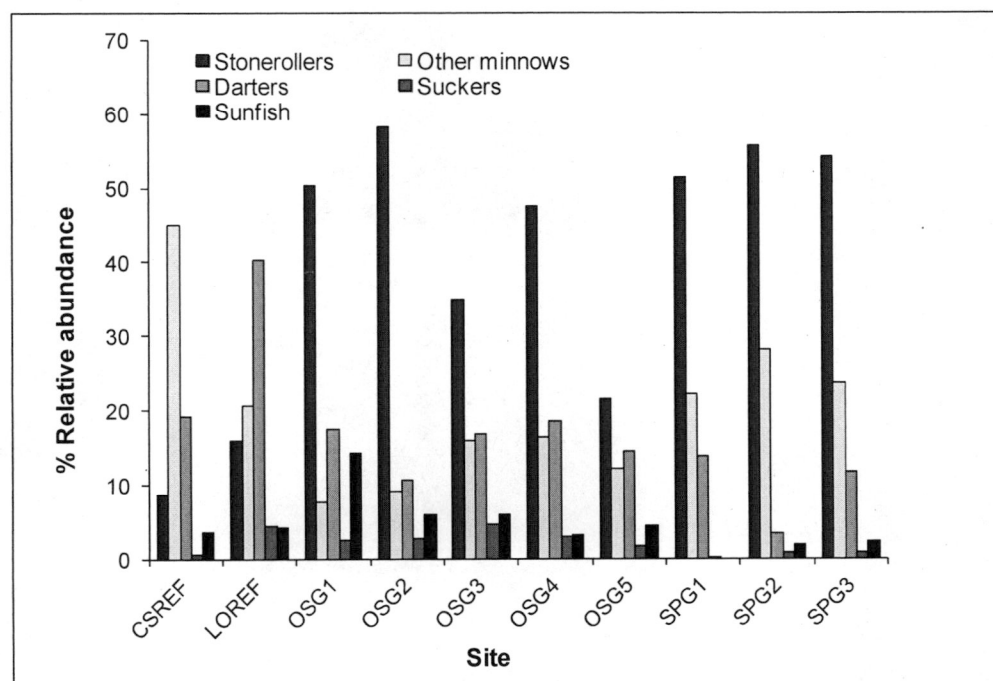
## D. Osage Creek and Spring Creek

During the 2002 303(d) cycle, EPA added Spring Creek and Osage Creek (table 4) to the State of Arkansas §303(d) lists of impaired waters because of elevated phosphorus concentrations. In 2009, the Cities of Rogers and Springdale conducted a study on Osage Creek and Spring Creek which concluded that there was no violation of Arkansas's narrative nutrient criterion in these waters. During the 2010 303(d) cycle, EPA reviewed the study results and found that indicators of nutrient enrichment are still prevalent in Osage Creek and Spring Creek and that the fish assemblages in the creeks were not representative of designated uses described in the standards for an Ozark Highland Ecoregion fishery. For example, the study noted that fish collections were dominated by species typically encountered in nutrient enriched streams including Largescale Stoneroller and Central Stoneroller (figure 1), rather than the key species, such as diverse minnows, sunfishes, and darters, that define the Designated Use (Reg. 2.302(F)(3)(a)) applicable to Ozark Highland streams. Also, the study reported total phosphorus (TP) concentrations in Spring Creek and Osage Creek were at concentrations that scientific studies associate with shifts in aquatic assemblages. Given that the study documents elevated TP and biotic responses expected with excess TP, such as shifts in fish assemblages, Osage Creek and Spring Creek are not attaining the Designated Use [*Aquatic Life/Fisheries*] portions of Arkansas's water quality standards (Reg. 2.302(F)(3)(a)) and associated Biological Integrity narrative water quality criteria (Reg. 2.405). Until new data indicate that the segments are no longer impaired, Osage Creek and Spring Creek need to be listed on Arkansas's 2016 303(d) list.

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**Table 4. Osage Creek and Spring Creek segments not on Arkansas's draft 2016 303(d) list**

| Waterbody Name | HUC      | RR  |
|----------------|----------|-----|
| Osage Creek    | 11110103 | 030 |
| Osage Creek    | 11110103 | 930 |
| Spring Creek   | 11110103 | 931 |



**Figure 1. Relative abundance of selected fish taxa collected as part of the Rogers and Springdale study during the 2009 Critical Season**

CSREF=Chambers Creek Reference Site, LOREF=Little Osage Reference Site, OSG1-5= Osage Creek Sites, and SPG1-3=Spring Creek Sites.

## E. Ouachita River for Toxicity

EPA evaluated water and sediment toxicity data from an EPA 2007 study publication entitled *Use Attainability Analysis and Water Quality Assessment of Ouachita River*.

- The Ouachita River was sampled at two stations: one located 100 yards upstream of the confluence with Coffee Creek and one located one-mile downstream of the confluence with Coffee Creek.

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- ii. The study included toxicity analysis of water and sediment samples during five sampling events. Sediment was only collected during two sampling events (1 and 4). Toxicity was observed in sediment and water samples collected at Ouachita River stations (table 5) using two standard laboratory test species, *C. dubia* and *P. promelas*.

**Table 5.** Summary of toxicity results for Ouachita River during five sampling events

| Sampling Event | Ouachita River<br>above | Ouachita River<br>below |
|----------------|-------------------------|-------------------------|
| 1*             | S                       | WS                      |
| 2              | W                       | W                       |
| 3              | W                       | --                      |
| 4*             | S                       | S                       |
| 5              | --                      | --                      |

W=toxicity detected in water sample to at least one test species (*C. dubia* or *P. promelas*), S=toxicity detected in sediment sample to at least one test species (*C. dubia* or *P. promelas*), \*=indicates a sediment sample was collected for analysis during sampling event

The State of Arkansas water quality standards (Reg 2.508) provide that “*toxic substances shall not be present in receiving waters, after mixing, in such quantities as to be toxic to human, animal, plant or aquatic life or to interfere with the normal propagation, growth and survival of the indigenous aquatic biota.*” Until new data indicates that the segment is no longer impaired, the Ouachita River from OUA0008B station (08040202-002) to the Louisiana state line needs to be listed on Arkansas’s 2016 303(d) list.

### **F. Lake Ouachita Fish Advisory**

On August 11, 2014 the Arkansas Department of Health issued a fish consumption advisory for Lake Ouachita which included a ban of fish consumption to high risk groups (see [link](#)). Specifically, the advisory states that:

*“High Risk Groups (women of childbearing age, pregnant women, breastfeeding women, and children under the age of seven years): Should not eat largemouth bass (13 inches or longer), white bass (13 inches or longer), or striped bass (25 inches or longer) from this lake. General Public (men, women, and children seven years and older): Lake Ouachita Fish Consumption Advisory Eat no more than 2 meals per month of largemouth bass (13 inches or longer), white bass (13 inches or longer), or striped bass (25 inches or longer) from this lake. Eating fish with mercury will not make people sick right away, but as you eat more and more, it can build up in the body and, over time, potentially cause adverse health effects. The Arkansas Department of Health issues fish consumption advisories when enough data indicates elevated levels of mercury have been reached”*

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Arkansas's draft 2016 303(d) list did not include Lake Ouachita based on the state's assessment methodology for fish consumption advisories which reads:

*"However, if a consumption restriction is recommended, e.g., no more than two meals per month or no consumption of fish over 15-inches, these waters will not be listed as non-support."*

Long-standing EPA guidance states that waterbodies should be included on §303(d) lists where fish/shellfish bans and fish/shellfish consumption advisories (or restrictions) have been issued, unless the state demonstrates that the risk assessment parameters considered in developing an advisory are more protective than the applicable water quality standard (see [link](#)). EPA was not able to find where the state has demonstrated this for Lake Ouachita. Therefore, based on the applicable fish consumption advisories, there is sufficient data to conclude that the applicable water quality standards for toxic substances (Reg. 2.508) are not being attained and Lake Ouachita needs to be added to Arkansas's 2016 303(d) list.



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