BUFFALO RIVER WATERSHED ALLIANCE

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Statement before

Senate Committee on Agriculture, Forestry, and Economic Development House Committee on Agriculture, Forestry, and Economic Development Meeting Jointly

Tuesday, March 29, 2016

Chairman Caldwell, Chairman Douglas and committee members, thank you for the opportunity to speak to you today. I am here as president of the Buffalo River Watershed Alliance, and I also speak on behalf of our Buffalo River Coalition partners - the Ozark Society, the Arkansas Canoe Club, and the National Parks Conservation Association. Our shared goals are to preserve and protect the Buffalo National River, an important economic resource in one of the poorest regions of the state. I am also a resident of Newton County where I have been farming along the Little Buffalo River for almost 40 years and I am also involved in tourism. Our cabin rental business, and much of our farm markets, are almost entirely dependent on the allure of the Buffalo River so I know first-hand the importance of protecting this important state treasure. There are several points which I would like to touch on today.

Economics

The 135 miles of the Buffalo flows through Newton, Searcy, Marion and Baxter counties. The Buffalo National River is an invaluable economic engine for these poor, rural areas. Among your handouts please find a copy of the Buffalo National River 2014 economic report. In 2014, the Buffalo generated $56.6 million in visitor spending, $65.2 million in economic output, and was responsible for 890 jobs in these gateway communities. Small businesses like mine are directly dependent on this economic tourism engine. I am sure everyone here appreciates the role the Buffalo plays in the economies of not only our struggling region but the state as a whole. I hope you also agree on the importance of protecting this unique natural resource.

303(d) Exclusions

Because of our organization's focus on protecting the Buffalo and its watershed, we were concerned when threats to its water quality recently came to light. You will find in your handouts three recent letters from the National Park Service, which identify three tributaries of the Buffalo currently threatened by pollution. The most recent letter, dated March 16, 2016, includes Park Service analysis of data collected by the Big Creek Research and Extension Team on upper reaches of Big Creek and finds that in addition to impairment for low dissolved oxygen found in lower reaches, upper Big Creek is also impaired for high E. coli, a human health hazard. The Park Service recommends that ADEQ include these three major tributaries on the 303(d) List of Impaired Streams. You will also find a letter from Arkansas Game and Fish Commission, which concurs with the Park Service regarding impairment of Big Creek (for dissolved oxygen). Inclusion of these streams on the 303(d) List would result in increased monitoring and would prioritize identification and remediation of the sources of pollution. Inclusion would be an important step in reversing these threats and protecting this critical economic resource. However, due to technicalities, ADEQ has disregarded the advice of these two agencies. The National Park Service/Buffalo National River has long been a trusted partner of ADEQ with regards to monitoring water quality of the Buffalo, a partner who is now raising red flags. Why is ADEQ choosing to ignore these warnings? Regardless of 303(d) technicalities, it behooves ADEQ to pay attention, accept the advice of the Park Service and Arkansas Game and Fish Commission, and afford the Buffalo the protection it deserves. Whether ADEQ includes these streams on the 303(d) List or not, it must make every effort now to identify and halt the sources of pollution in these waterways which feed the Buffalo.

Watershed Protection

Perhaps the larger issue being alerted by these red flags is the importance of watershed protection. The Buffalo National River is a narrow, 135-mile long corridor comprising a mere 11% of its entire watershed. It is fed by numerous springs, creeks, and streams flowing from the remaining 89%. What is a river if not the sum of the tributaries which feed it? The Buffalo National River can only be adequately protected if the quality of its tributaries is also addressed. Regulation 2.302 states that designated uses of Extraordinary Resource waters are defined as, *"... a combination of the chemical, physical and biological characteristics of a waterbody and its watershed which is characterized by scenic beauty, aesthetics, scientific values, broad scope recreation potential and intangible social values."*

We strongly encourage the adoption and enforcement of comprehensive watershed protection regulations for the Buffalo National River.

EPA Non-compliance

Your handouts also include a letter from EPA's Stacy Dwyer, Associate Director, NPDES Permits & TMDL Branch, commenting on the draft 303(d) list. This letter, along with the fact that EPA has not approved ADEQ's 303(d) List since 2008, reveals ongoing concerns by EPA with how ADEQ is managing the 303(d) and NPDES programs. ADEQ is clearly under scrutiny of EPA and, if current management practices continue, there is the very real possibility that EPA will intervene, as when Act 954 of 2013 was enacted and subsequently repealed. If Arkansas does not want this to reoccur, ADEQ should be required to comply with EPA regulations and properly administer the NPDES permitting program.

In closing, we request that when considering clean water policy, each of you, as our elected representatives, listen not only to your own constituents but to all stakeholders across Arkansas. We all live downstream and the full impacts which streams like the Buffalo have on rural communities, not only economic impacts but also public health and safety, must be thoughtfully considered.

Thank you,

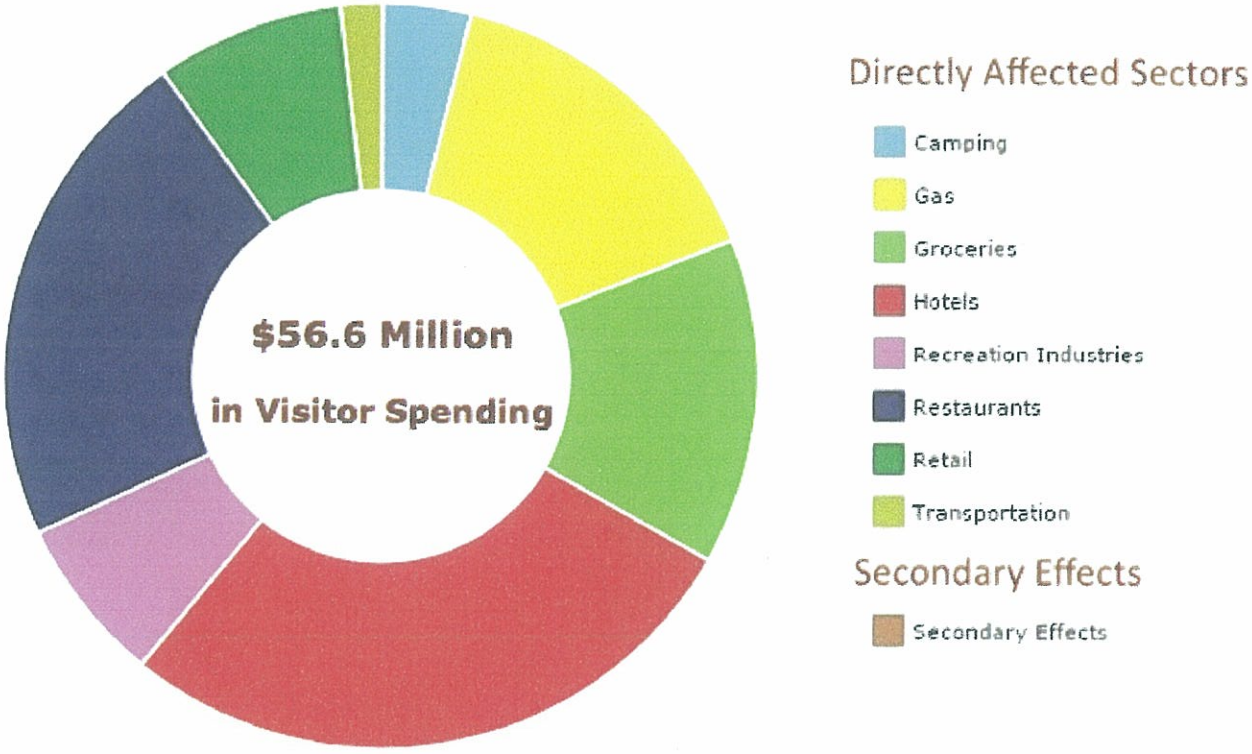
Gordon Watkins, President
Buffalo River Watershed Alliance

Visitor Spending Effects

Buffalo National River

In 2014, park visitors spent an estimated $56.6 Million in local gateway regions while visiting Buffalo National River. These expenditures supported a total of 890 jobs, $22.3 Million in labor income, $36.5 Million in value added, and $65.2 Million in economic output in local gateway economies surrounding Buffalo National River.

◉ **Visitor Spending** ○ **Jobs** ○ **Labor Income** ○ **Value Added** ○ **Economic Output**



United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO
1.A.2

February 25, 2016

Becky Keogh
Director
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317

Dear Director Keogh:

As Superintendent of Buffalo National River, I am required to manage the park in such a way that it conserves the unique scenic and scientific resources and preserves the Buffalo River as a free-flowing stream for the benefit and enjoyment of present and future generations (Public Law 92-237). Water based recreation such as canoeing, swimming, and fishing are primary recreational pursuits enjoyed by our visitors. Clean, clear water is one of the significant scenic and scientific resources of the national river and is vital to maintain. Most park visitors who see the river when it is not in flood stage remark about the clear waters. In addition, the Buffalo River downstream of the Erbie low water crossing is Designated Critical Habitat for the Rabbitsfoot mussel (*Quadrula cylindrica cylindrica*), a species listed as Threatened under the Endangered Species Act (ESA). The Buffalo River is also home to the Endangered Snuffbox mussel (*Epioblasma triquetra*). Buffalo National River provides roosting and foraging habitat for the Endangered Gray bat (*Myotis grisescens*), Indiana bat (*M. sodalis*), Ozark Big-ear bat (*Corynorhinus townsendii ingens*) and the Northern Long-eared bat (*M. septentrionalis*) which is listed as Threatened. In addition to this, the Buffalo River is considered a Blue Ribbon Smallmouth Bass stream by the Arkansas Game and Fish Commission, and provides roosting and foraging habitat for the Bald Eagle (*Haliaeetus leucocephalus*) protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).

As the delegated authority for implementing the Clean Water Act, the NPS relies upon your agency to ensure the resource of clean, clear water is not diminished. I understand that ADEQ sent out a letter on May 26, 2015 asking for information by Friday July 31, 2015. We cannot find a copy of that letter in our files, so I presume we did not receive it. On October 6, 2015, I sent a letter (Attachment 2) to Arkansas Department of Environmental Quality (ADEQ) asking that you consider placing three tributaries of the Buffalo River on the Impaired Waterbodies List pursuant to Section 303(d) of the Clean Water Act. To date, I have not received any formal correspondence relative to that request. My staff has reviewed the draft 303(d) streams list published on your website

(ADEQ, 2016) and see that these three streams are not in the draft list. I would like to receive documentation explaining why these streams were not listed in the draft 303(d) list.

My staff has reviewed the 2008 303(d) list published on your website (ADEQ, 2008) as this appears to be the latest 303(d) list which received a Record of Decision from the United States Environmental Protection Agency (USEPA, 2008). There appear to have been two segments of the Buffalo River and two tributaries listed as impaired at that time.

1. Reach 11010005-001-4J is the lower 11.3 miles of the Buffalo River which was impaired for aquatic life because of temperature. This was based upon NPS data collected at site BUFR09.
2. Reach 11010005-005-4J consists of 6.9 miles of the Buffalo River which was impaired for aquatic life because of low dissolved oxygen. This was based upon data collected by ADEQ at site WHI0049A.
3. The lower 2.6 miles of Big Creek (Reach 11010005-027-4J) was listed as impaired for aquatic life because of low dissolved oxygen. This was based upon NPS data collected at site BUFT18.
4. 23.9 miles of Bear Creek (Reach 11010005-026-4J) was listed as impaired for agricultural and industrial uses because of total dissolved solids based upon data collected at site UWBRK01+.

The current list does not show either reach of the Buffalo River in the table showing streams removed from the list in 2016 (ADEQ, 2016b) or the table showing the draft list of impaired waterbodies for 2016 (ADEQ, 2016a). Since the 2010, 2012, and 2014 lists do not appear to have been approved by an EPA Record of Decision, would ADEQ still need to list these two segments of the Buffalo River in one or the other table? Can you provide me with documentation to show why these streams were removed, and that their removal was appropriate?

Buffalo National River is the first National River, designated by Congress on March 1, 1972 (Public Law 92-237;16 U.S.C. 460m-8 et seq.) to conserve and interpret an area containing unique scenic and scientific features, and preserve as a free-flowing stream an important segment of the Buffalo River in Arkansas for the benefit and enjoyment of present and future generations. In addition, National Park Service Management Policy (2006) specifically calls for park units to work with the appropriate governmental bodies to obtain the highest possible standards available under the Clean Water Act for the protection of park waters; and take all necessary actions to maintain or restore the quality of surface waters and groundwaters consistent with the Clean Water Act and all other applicable federal, state and local laws and regulations. We would very much like to work with you collaboratively in support of these values and this important Act. If the ADEQ does not believe a 303d listing to be appropriate, we would like to discuss other mechanisms to address the impaired water quality.

Thank you for your attention to this matter. I look forward to receiving your response.

Sincerely,

for Kevin G. Cheri
Superintendent

Attachment 1: References Cited
Attachment 2: October 6, 2015 letter to ADEQ

Cc: Nancy Finley
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IN REPLY REFER TO
1.A.2

March 10, 2016

Becky Keogh
Director
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317

REFERENCE: Arkansas 2016 list of impaired streams, 303(d) list

Dear Director Keogh:

This letter is a follow up to the public comments submitted by Natural Resource Program Manager Chuck Bitting on behalf of the National Park Service at the March 1, 2016 public hearing on the proposed 2016 303(d) list for Arkansas. With this letter, we provide further data analysis of why two new streams should be added to the list of impaired waterbodies, and why a third should have an additional impairment parameter added. The information we are submitting is based solely upon Arkansas Pollution Control and Ecology Commission (APC&E) Regulation 2 (Reg. 2). While we recognize that ADEQ must have an assessment methodology for determining which streams to add or remove from the 303(d) list, we also recognize that the 2016 assessment methodology for Arkansas is in draft form.

The three streams of concern are Mill Creek (sampling station BUF-T04), Big Creek at Carver (sampling station BUF-T06 (USGS Station 7055814)) and Bear Creek at USGS Station 7056515. Mill Creek and Big Creek are completely within the Boston Mountains Ecoregion as shown on Plate BM-2 (page A-14) in Appendix A of Reg. 2. Bear Creek, except for the very lowest reach, is also within the Boston Mountains Ecoregion and is shown on Plate BM-2. The Boston Mountains Ecoregion designated uses and water quality standards apply to each of these three streams (A-11 and A-12). All three of these streams have watersheds in excess of 10 square miles.

Mill Creek is a significant tributary to the Buffalo River with the confluence at Pruitt. Dye tracing studies have shown that Mill Creek gets much of its recharge waters from the Crooked Creek watershed through inter-basin transport in the karst system; much of this groundwater surfaces from two large springs at Marble Falls on the property of the former Dogpatch USA theme park. These large springs and the rest of Mill Creek contribute a large percentage of the base flow of the Buffalo River where Mill Creek joins the river. A study by Maner and Mott in 1991[1] showed that Mill Creek contributes 96 percent of the nitrate loading to the Buffalo River at

their confluence. In the last year, we have collected a substantial amount of *Escherichia coli* (*E. coli*) data from Mill Creek. The data indicate the stream is often impaired because of *E. coli*. The Extraordinary Resource Water (ERW) *E. coli* limit on streams during the primary contact recreation period of May 1 to September 30 for an individual sample is 298 colonies per 100 ml, or a geometric mean of 126 colonies per 100 ml (Figure 2). For non-ERW streams, the individual sample limit is 410 colonies per 100 ml.

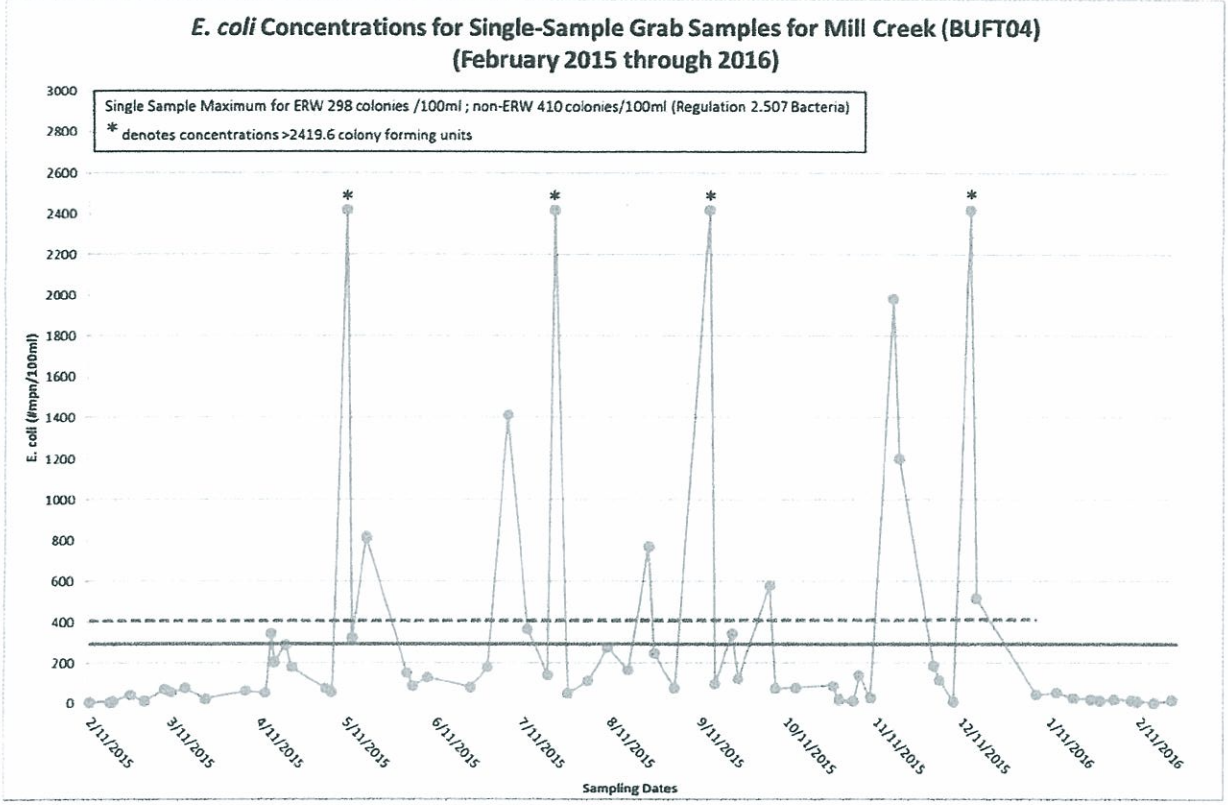

Figure 1: Station BUF-T04 E. coli individual sample results, February 2015 to February 2016.

During the monitoring period, February 2015 through February 2016, there were fifteen occurrences where the *E. coli* concentration was equal or above 298 colony forming units (cfu) per 100-ml, and eleven occurrences above 410 cfu per 100-ml. Of the concentrations above 410 cfu per 100-ml, six samples were during the Primary Contact period and three samples had a concentration >2419.6 cfu/100ml. During the monitoring period, seven months were found to be above the geometric mean of 126 cfu per 100-ml. This equates to four months of the Primary Contact period having conditions that posed an elevated risk to human health for water-based recreation, which is the ultimate designated use within the park. It is our opinion, in light of Reg. 2 Bacteria criteria, that Mill Creek is non-compliant with Arkansas water quality standards and should be considered for listing in the 303(d) process.

Big Creek is another major tributary to the Buffalo discharging into the river at Carver. Dissolved oxygen levels on Big Creek have been oscillating strongly during the summer months (Figure 3). According to Reg. 2, Appendix A, the dissolved oxygen standard for this stream is 6

mg/l. USGS began collecting real time dissolved oxygen data on Big Creek in June of 2014. During 2014, the dissolved oxygen in Big Creek dropped below 6 mg/l for 458 hours during

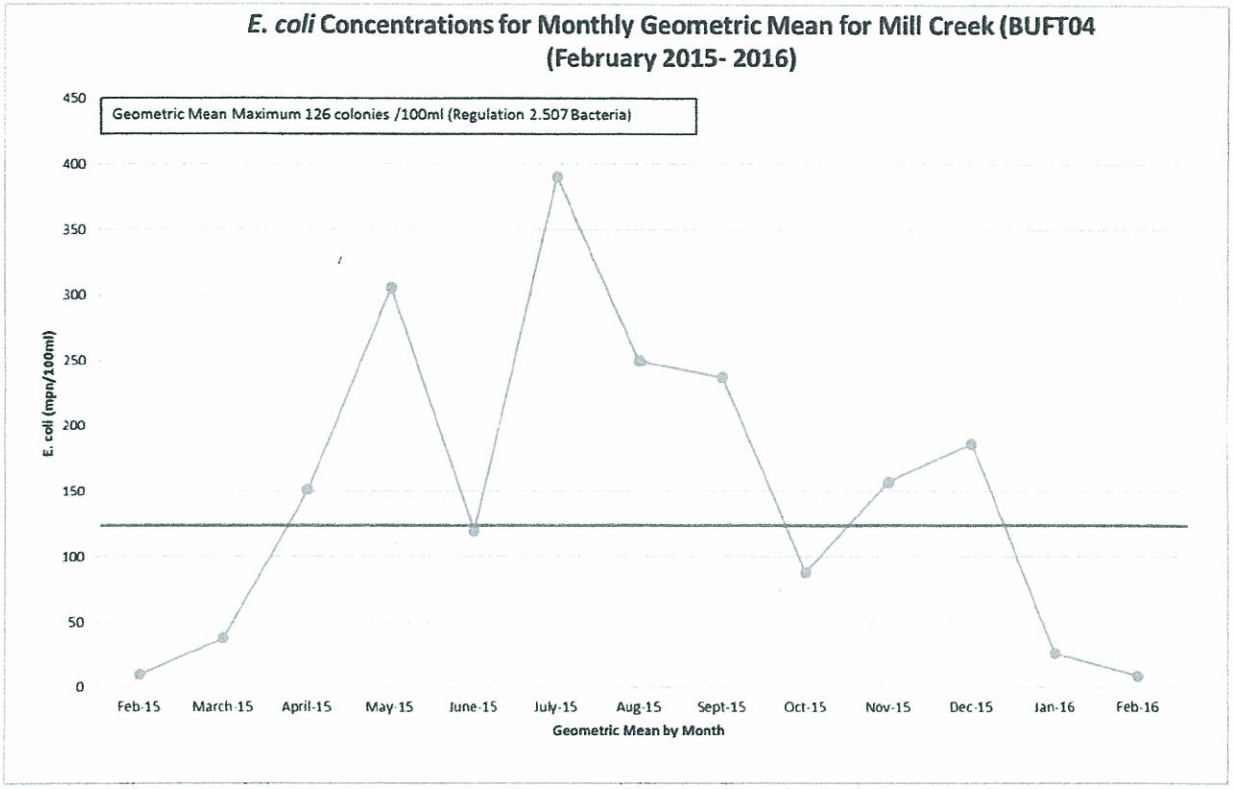

Figure 2: Station BUF-T04 E. coli geometric mean data, February 2015 to February 2016

59 days. For 33 of these 59 days, the dissolved oxygen remained depressed below 6 mg/l for more than eight hours. Big Creek dropped below 5 mg/l for 110 hours and 45 minutes during twenty days. The dissolved oxygen remained depressed below 5 mg/l for more than eight hours in six of these twenty days. The dissolved oxygen dropped to a low of 4 mg/l on August 28, 2014. Dissolved oxygen conditions in the summer of 2015 were not unlike that of 2014, and all of these data were available to ADEQ during the consideration period for the 303(d) listing process. We cannot understand why Big Creek failed to be considered in listing process when data supplied by USGS clearly indicated impairment based on ADEQ's own standards.

Bear Creek has a similar dissolved oxygen issue as Big Creek (Figure 4). Bear Creek is already listed on the 303(d) list for Total Dissolved Solids at site UWBRK01; however, many times during July to September 2014 and again in 2015, dissolved oxygen readings below 6 mg/L were recorded at the USGS station 07056515. We believe these values should place Bear Creek on the 303(d) list for dissolved oxygen impairment based on the information provided in Reg. 2.

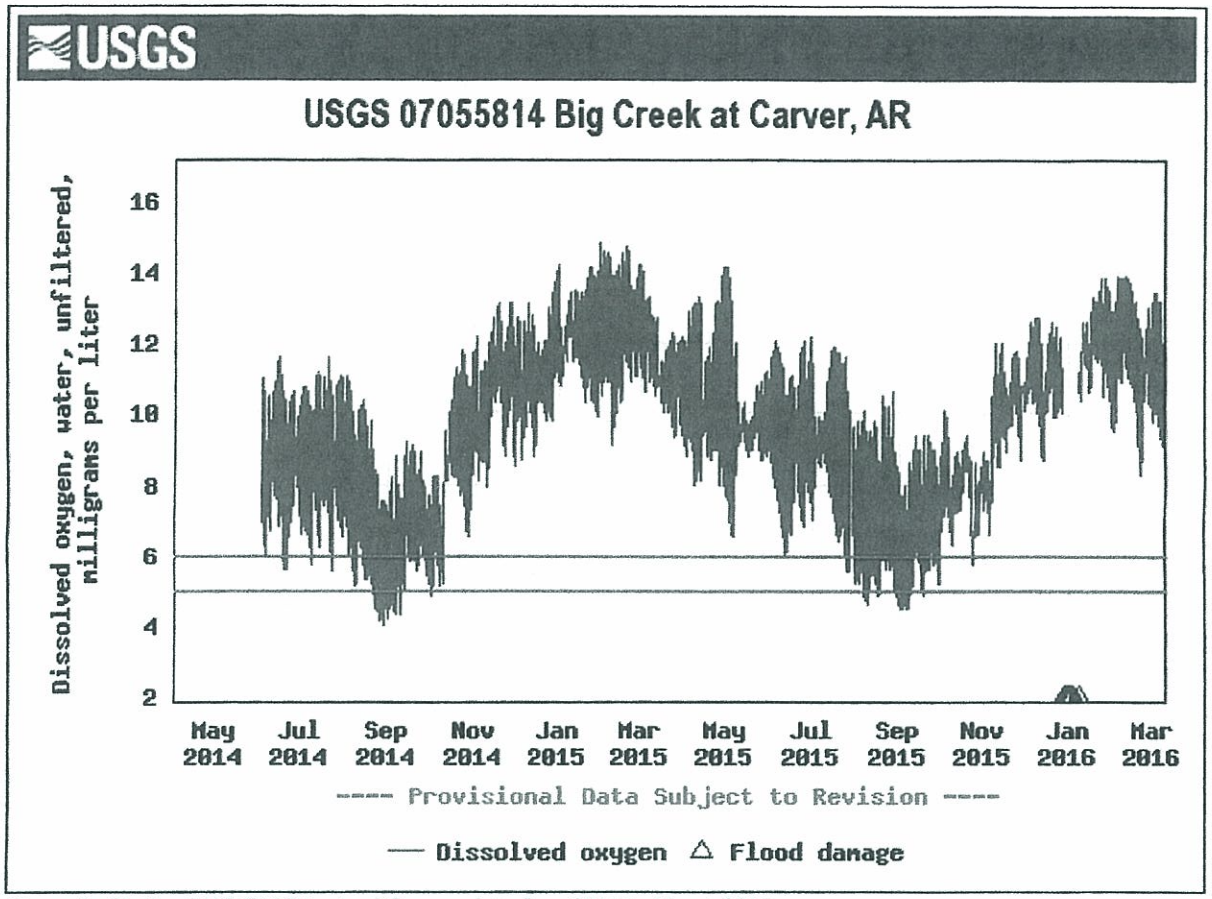

Figure 3: Station BUF-T06 Dissolved Oxygen data June 2014 to March 2016

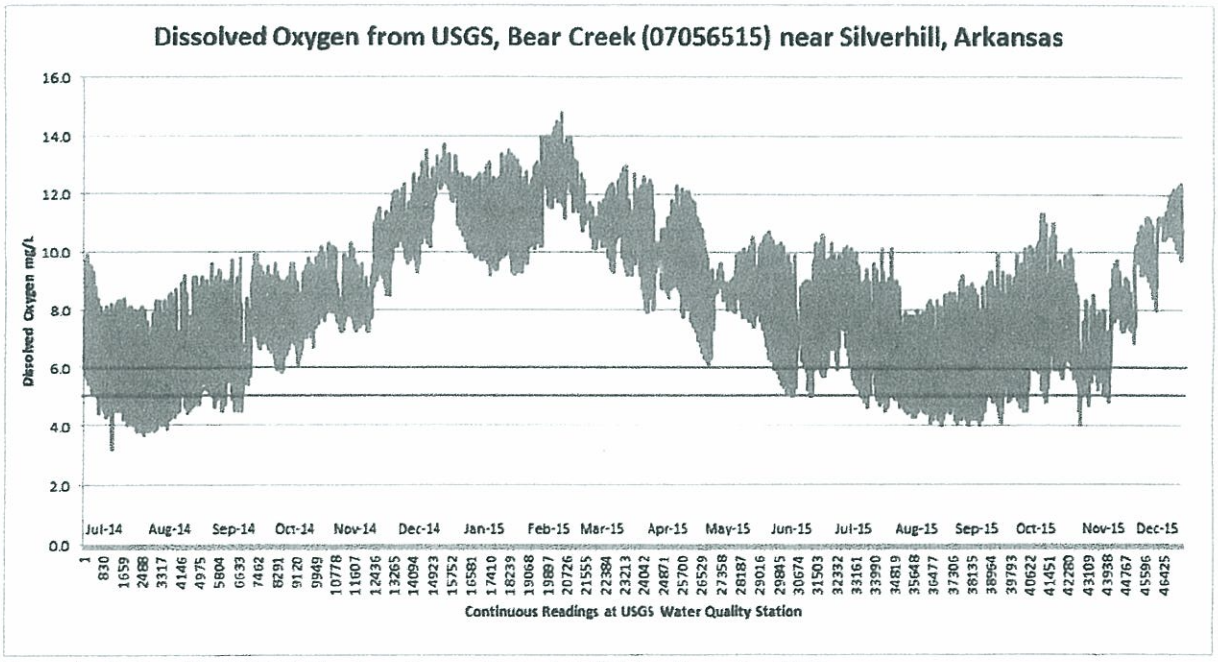

Figure 4: Station UWBRK01 Dissolved Oxygen Data, July 2014 to December 2015

We would like to point out that while the Buffalo River is an ERW under Reg. 2, the Regulations implementing the Clean Water Act consider the Buffalo River, and its tributaries (at least those included within the boundary) to be outstanding National resource waters:

> Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected. [emphasis added] [40 CFR§131.12(a)(3)]

Furthermore, Reg. 2.302(A) describes Extraordinary Resource Waters as:

> This beneficial use is a combination of the chemical, physical, and biological characteristics of a waterbody and its watershed which is characterized by scenic beauty, aesthetics, scientific values, broad scope recreation potential and intangible social values. [emphasis added]

This indicates that the watershed of the all of the Buffalo River should be considered part of the ERW and should be held to the highest water quality standards.

Buffalo National River hosted 1.36 million visitors in 2014. A large percentage of these visitors are interested in water-based, primary contact recreation and should expect the water quality to be high, whether it is the Buffalo River or one of its tributaries. We owe it to our visitors to hold these tributaries to the highest standards.

We look forward to collaboratively resolving this issue.

Sincerely,

for

Kevin G. Cheri
Superintendent

Cc: Laura Hunt, EPA, Region 6
Kane Webb, Director, Arkansas Parks and Tourism
Nathaniel Smith, MD, Director, Arkansas Department of Health
Mike Knoedl, Director, Arkansas Game and Fish Commission

[1] Maner, M. and Mott, D., 1991. Mill Creek Survey: Arkansas Department of Pollution Control and Ecology, Little Rock, Arkansas.

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IN REPLY REFER TO
1.A.2

March 16, 2016

Becky Keogh
Director
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317

REFERENCE: Arkansas 2016 list of impaired streams, 303(d) list

Dear Director Keogh:

Natural resource staff at Buffalo National River has recently conducted an analysis of the Big Creek Research and Extension Team (BCRET) water quality data. Two stations of particular interest are on the main stem of Big Creek, Newton County, above its confluence with the Left Fork of Big Creek. Analysis of this data indicates that this reach of stream, Headwaters Big Creek, [12-digit Hydrologic Unit Code (HUC12) 110100050302] was impaired for *Escherichia coli* (*E. coli*) bacteria based upon Regulation 2.507 during the primary contact period of May 1 to September 30, 2014. According to the Arkansas Water Information System, this HUC12 has an area of approximately 45 square miles, making this segment of Big Creek a Primary Contact Stream. The BCRET sites BC 6 and 7 (Figure 1) are located on the main stem of Big Creek within this segment, topographically upstream and downstream, respectively, of the C&H Hog Farm, Inc. facility and manure spreading fields.

Assuming that Big Creek is not part of an Extraordinary Resource Water, Ecologically Sensitive Waterbody, or Natural and Scenic Waterway (ERW, ESW, or NSW) the upper *E. coli* limit is 410 colonies per 100 ml (410 col/100ml). Data from BCRET, during the primary contact period in 2014, shows *E. coli* exceeded 410 col/100ml in six of twenty-two samples for a 27% exceedance. According to Regulation 2.507, for assessment of ambient waters as impaired by bacteria, the *E. coli* standard shall not be exceeded in more than 25% of samples in no less than eight samples taken during the primary contact season.

The regulations enacting the Federal Clean Water Act appear to take a more conservative approach to Outstanding National Resource Waters (ONRW) [40 CFR§131.12(a)(3)] which streams are analogous to ERW, WSW, and NSW streams. Buffalo National River certainly meets the criteria as an ONRW. 40 CFR indicates that the watershed of ONRWs is part and

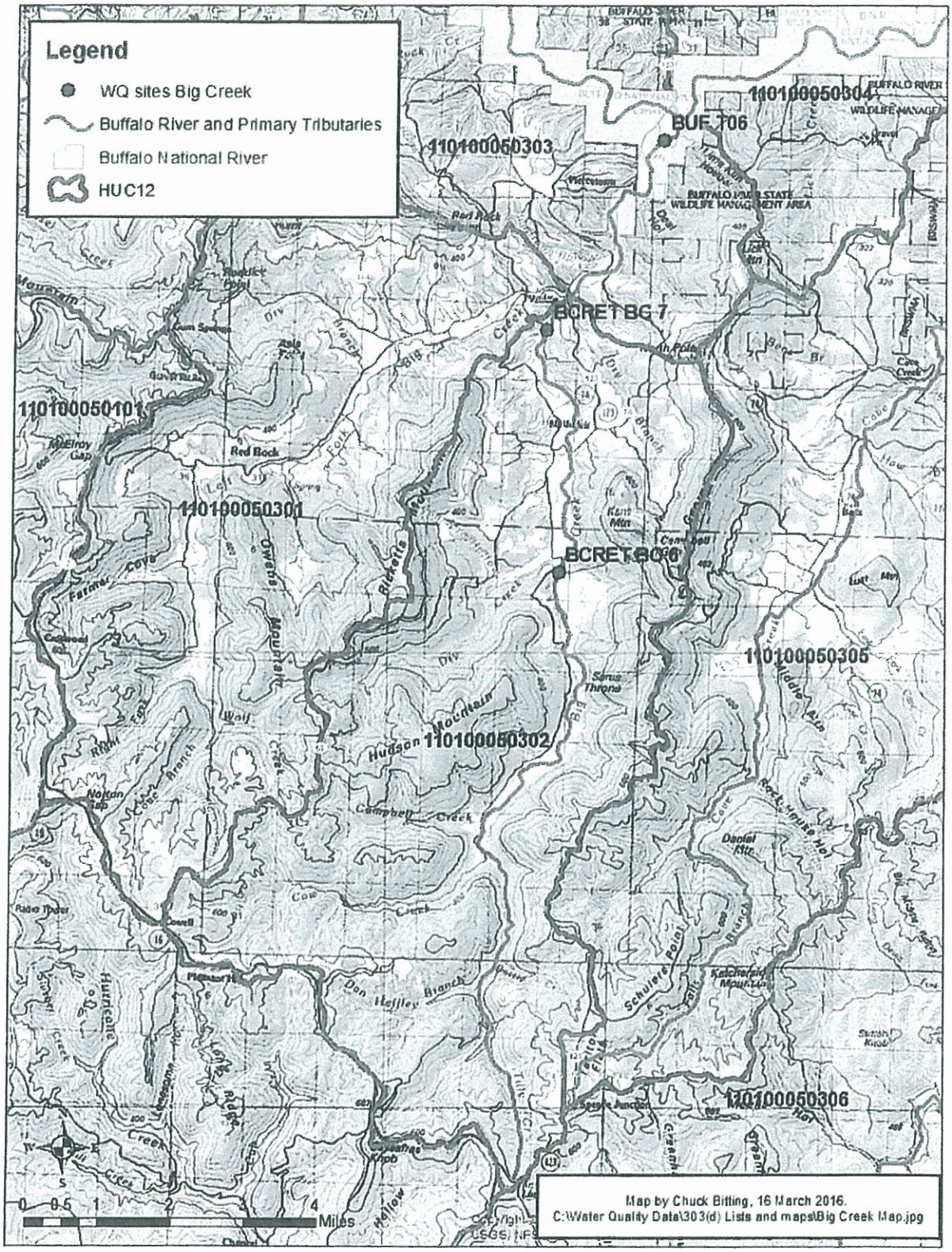

Figure 1. Map of Big Creek HUC 110100050302 showing site locations for BC 6, BC 7 and BUFT06.

parcel with the ONRW itself, and strongly encourages watershed protection for maintenance and protection of the ONRW. Taking this more conservative approach to *E. coli*, the standard for Big Creek should be 298 col/100ml for an individual sample and 126 col/100ml for a geometric mean of at least five samples over a 30-day period.

During the primary contact period of 2014, BCRET Station BC 6 exceeded 298 col/100ml in eight of twenty-two samples for a 36% exceedance. Also, during the primary contact period there were three periods when the geometric mean was exceeded. These were: May 13 through June 9, 2014 when the geometric mean was 339 col/100ml; June 19 through July 15, 2014 when the geometric mean was 783 col/100ml; and August 20 through September 18, 2014 when the geometric mean was 146 col/100ml.

BCRET BC 7 is a station on the main stem of Big Creek downstream of the C&H Hog Farm, Inc. facility and manure spreading fields. During the primary contact period in 2014, the stream exceeded 410 col/100ml in seven out of twenty-two samples for a 32% exceedance of the standard. The stream exceeded 298 col/100 ml in seven out of twenty-two samples for a 32% exceedance of the ERW standard. The stream had two periods where the ERW geometric mean was exceeded. These were: May 13 to June 9, 2014 with a geometric mean of 283 col/100ml and June 24 to July 23, 2014 with a geometric mean of 697 col/100ml.

To further corroborate the BCRET observations from the Headwaters Big Creek hydrologic unit further down the system at ADEQ monitoring site BUFT06, data were collected by Buffalo National River within the park's boundary. *E. coli* concentrations were also elevated during the primary contact period in 2014, similar to the BCRET observations. Geometric means (five samples within a 30-day period) of *E. coli* concentrations observed two months above 126 col/100ml during that same time (Figure 2). Although the causality linkages between the *E. coli* concentrations at the BCRET sites and within the park are not fully documented, the similarity in timeframe and exceedingly high concentrations of *E. coli* at all sites during this primary contact period clearly shows the connectivity of the watershed, and what happens within the headwaters directly impacts the quality of water further downstream, in this case within the Buffalo National River. Please give this evidence strong consideration when evaluating any site within Big Creek (BUFT06) for 303(d) listing.

Data from the BCRET researchers indicate that Big Creek is indeed impaired for *E. coli* upstream of the Left Fork. Impairment of that segment can also lead to impairment within the national river as shown in our data for *E. coli* at BUFT06. *E. coli* contamination of the Buffalo River and its tributaries adversely and directly impacts the public's ability to enjoy water-based recreation within Buffalo National River.

On a final note, during a number of email exchanges between Aquatic Ecologist Faron Usrey of my staff and Craig Uyeda and Sarah Clem of ADEQ, we noted depressed dissolved oxygen values in Big Creek. The dates of these emails are July 23 and 27, 2013 and August 6 and 27, 2013. The data and information in these emails should be added to the dataset for determination of impairment for Big Creek.

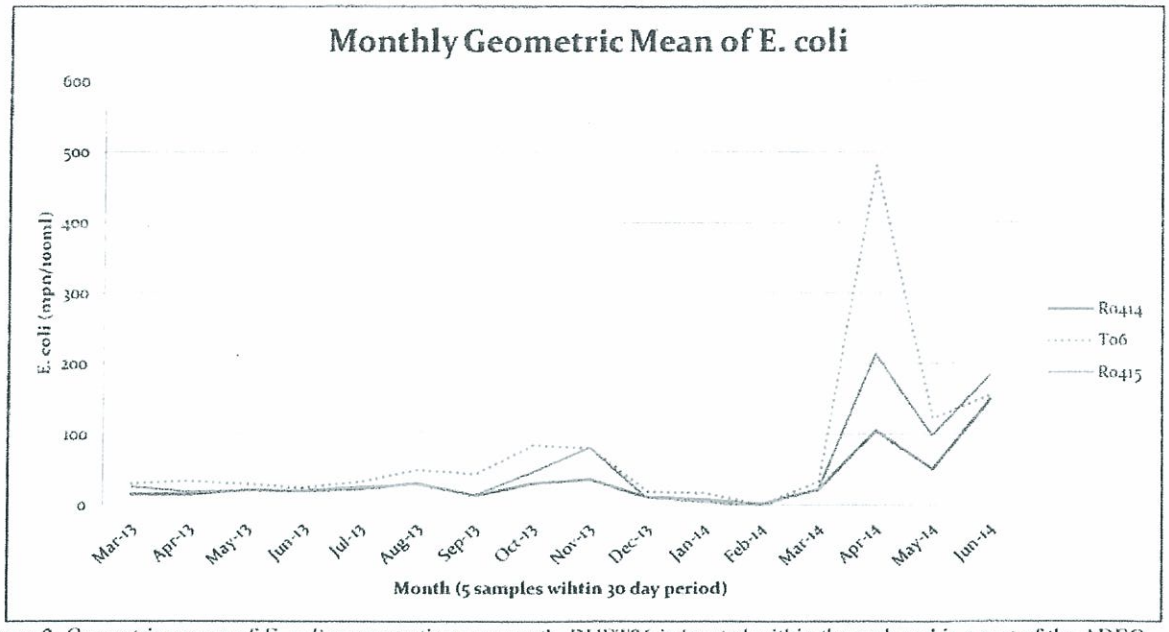

Figure 2. Geometric means of *E. coli* concentration per month. BUFT06 is located within the park and is a part of the ADEQ Water Quality Monitoring Network.

Sincerely,

Kevin G. Cheri

Kevin G. Cheri
Superintendent

Electronic Cc:
Laura Hunt, EPA, Region 6 (Hunt.laura@epa.gov)
Kane Webb, Director, Arkansas Parks and Tourism (kane.webb@governor.arkansas.gov)
Nathaniel Smith, MD, Director, Arkansas Department of Health (Nathaniel.smith@arkansas.gov)
Mike Knoedl, Director, Arkansas Game and Fish Commission (Mike.Knoedl@agfc.ar.gov)

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Assistant Deputy Director

Caroline Cone
Assistant Deputy Director

Arkansas Game and Fish Commission

Mike Knoedl
Director

March 16, 2016

Mr. Jim Wise
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317

Re: 2016 List of 303(d) Impaired Waterbodies

Mr. Wise,

Biologists with the Arkansas Game & Fish Commission (AGFC) have reviewed the proposed 2016 list of impaired waterbodies. AGFC would like to offer the following comments in regards to this proposed list:

1.) Biologists have concerns with the re-classification of the North Fork River on the 303(d) list from a Category 5 to a Category 1a-Non-Impaired Stream with a TMDL. Our agency has also received several calls and e-mails from concerned stakeholders regarding this issue. Upon reviewing the 2009 TMDL addressing Dissolved Oxygen (DO) concerns in the North Fork, many of the justifications for keeping the North Fork on the 303(d) list still are applicable. There appears to also have been a misconception that a liquid oxygen injection system was installed at Norfork Dam. No such system was installed, there was merely a test conducted in 2009. To reclassify the waterbody based on a test conducted in 2009 would be inappropriate. It also appears the only data that ADEQ considered for DO during the period of record was at the River Ridge Road monitoring station. This station is located approximately 3 miles downstream of the Norfork Dam. Since 2009, two to three USGS gages have been located directly below Norfork Dam that provide continuous (hourly) DO readings during critical periods (May through December). August, September, and the beginning of October are especially notable in that DO levels are well under the state water quality standard of 6.0 mg/L. DO levels are typically around 4.0 mg/L during this period. We request that ADEQ obtain DO data from the appropriate gages prior to making a final decision to categorize Norfork as Category 1b- Non-Impaired Stream with a TMDL. To utilize only one monthly DO reading from the River Ridge Gage (~3 miles downstream) is inappropriate since it is not representative of the overall DO conditions during the critical period. These data are available from both USGS and the USACE upon request.

2.) Biologists also have concerns with the de-listing of the Eleven Point River as being impaired due to exceeding the turbidity standard. The Eleven Point River is one of the last rivers that the federally listed Ozark Hellbender is found. The Ozark Hellbender faces

a rapid, range wide decline due to the increasing sediment loading occurring within the streams. Land use practices, such as the clearing of riparian corridors to increase pasture land acreage, have resulted in mass wasting events of erodible soils along the river banks. These fine sediments accumulate in the interstitial spaces between cobbles, limiting the ability for Hellbenders to utilize these spaces for nesting cavities and refugia. These Suspended Sediments Concentrations, while being a distinct water quality criterion from Total Suspended Solids and Turbidity, do have a functional relationship with each other. We would encourage further monitoring stations or sampling events within the Eleven Point River. With changing agricultural practices rapidly occurring in the basin, and the fact that this river remains one of the last vestiges of the declining Ozark Hellbender, we recommend that this river remain on the 303(d) list as a Category 5 impaired stream. The potential loss of Clean Water Act section (319) funding availability to this basin is concerning.

3.) AGFC Biologists are also concerned with the Dissolved Oxygen levels of Big Creek, a Buffalo River tributary in Newton County near Gene Rush Wildlife Management Area. Summer algal blooms, likely caused by excess nutrient levels, appear to be impairing this creek. Smallmouth bass require 6.0 mg/L DO for optimal growth, and this water quality standard is not being met for several months of the year, per the USGS gage station at Big Creek. We concur with the recommendations of the National Parks Service that Big Creek should be considered for the list of 303(d) streams.

The AGFC appreciates the opportunity to comment on the 2016 list of 303(d) impaired waterbodies.

Sincerely,

Chris Racey, Chief – Fisheries Division

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Caroline Cone
Assistant Deputy Director

March 16, 2016

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Arkansas Department of Environmental Quality
5301 Northshore Drive
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Mr. Wise,

Biologists with the Arkansas Game & Fish Commission (AGFC) have reviewed the proposed 2016 list of impaired waterbodies. AGFC would like to offer the following comments in regards to this proposed list:

1.) Biologists have concerns with the re-classification of the North Fork River on the 303(d) list from a Category 5 to a Category 1a-Non-Impaired Stream with a TMDL. Our agency has also received several calls and e-mails from concerned stakeholders regarding this issue. Upon reviewing the 2009 TMDL addressing Dissolved Oxygen (DO) concerns in the North Fork, many of the justifications for keeping the North Fork on the 303(d) list still are applicable. There appears to also have been a misconception that a liquid oxygen injection system was installed at Norfork Dam. No such system was installed, there was merely a test conducted in 2009. To reclassify the waterbody based on a test conducted in 2009 would be inappropriate. It also appears the only data that ADEQ considered for DO during the period of record was at the River Ridge Road monitoring station. This station is located approximately 3 miles downstream of the Norfork Dam. Since 2009, two to three USGS gages have been located directly below Norfork Dam that provide continuous (hourly) DO readings during critical periods (May through December). August, September, and the beginning of October are especially notable in that DO levels are well under the state water quality standard of 6.0 mg/L. DO levels are typically around 4.0 mg/L during this period. We request that ADEQ obtain DO data from the appropriate gages prior to making a final decision to categorize Norfork as Category 1b- Non-Impaired Stream with a TMDL. To utilize only one monthly DO reading from the River Ridge Gage (~3 miles downstream) is inappropriate since it is not representative of the overall DO conditions during the critical period. These data are available from both USGS and the USACE upon request.

2.) Biologists also have concerns with the de-listing of the Eleven Point River as being impaired due to exceeding the turbidity standard. The Eleven Point River is one of the last rivers that the federally listed Ozark Hellbender is found. The Ozark Hellbender faces

a rapid, range wide decline due to the increasing sediment loading occurring within the streams. Land use practices, such as the clearing of riparian corridors to increase pasture land acreage, have resulted in mass wasting events of erodible soils along the river banks. These fine sediments accumulate in the interstitial spaces between cobbles, limiting the ability for Hellbenders to utilize these spaces for nesting cavities and refugia. These Suspended Sediments Concentrations, while being a distinct water quality criterion from Total Suspended Solids and Turbidity, do have a functional relationship with each other. We would encourage further monitoring stations or sampling events within the Eleven Point River. With changing agricultural practices rapidly occurring in the basin, and the fact that this river remains one of the last vestiges of the declining Ozark Hellbender, we recommend that this river remain on the 303(d) list as a Category 5 impaired stream. The potential loss of Clean Water Act section (319) funding availability to this basin is concerning.

3.) AGFC Biologists are also concerned with the Dissolved Oxygen levels of Big Creek, a Buffalo River tributary in Newton County near Gene Rush Wildlife Management Area. Summer algal blooms, likely caused by excess nutrient levels, appear to be impairing this creek. Smallmouth bass require 6.0 mg/L DO for optimal growth, and this water quality standard is not being met for several months of the year, per the USGS gage station at Big Creek. We concur with the recommendations of the National Parks Service that Big Creek should be considered for the list of 303(d) streams.

The AGFC appreciates the opportunity to comment on the 2016 list of 303(d) impaired waterbodies.

Sincerely,

Chris Racey, Chief – Fisheries Division

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
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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.

Sincerely,

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

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

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

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.

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/ acute	12 chronic/ 3 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.

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

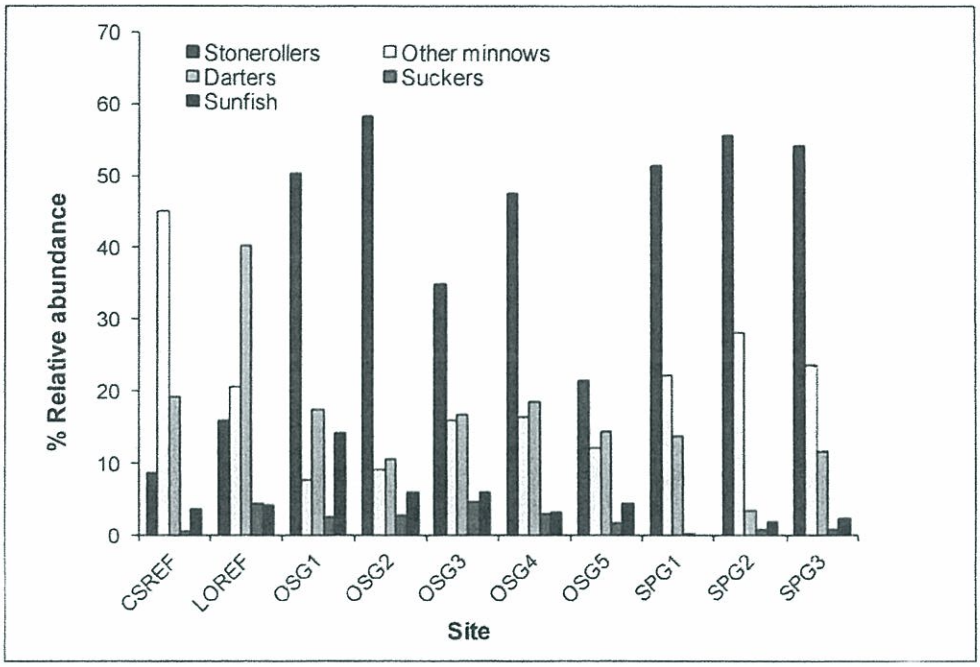

Figure 1. Relative abundance of selected fish taxa collected as part of the Rogers and Springdale study during the 2009 Critical Season
CSREF=Chambers Creek Reference Site, LOREF=Little Osage Reference Site, OSG1-5= Osage Creek Sites, and SPG1-3=Spring Creek Sites.

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.*

i. 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.

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 above	Ouachita River 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"*

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.