Recommendations for the 2018 Assessment Methodology
Comments submitted on behalf of the Ozark River Stewards
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Introduction

Arkansas has an estimated 87,617 stream and river miles, yet only 10,018 river miles were assessed for 2015 (ADEQ, 2016; Keogh, 2016). ADEQ assessed only 11.4% of Arkansas's waters despite the requirement of the Clean Water Act (CWA) to produce a comprehensive assessment of the state's water quality. Of the 10,018 river miles assessed, 33.4% were not attaining their use criteria and could potentially meet the definition of being impaired.

Arkansas is the "Natural State," drawing tourists who spent over $7.28 billion in 2015 (Parks and Tourism, 2016). Much of the state's marketing strategy is centered on tourists who enjoy outdoor activities --specifically fishing, kayaking, and hiking. Arkansas is also home to many large concentrated animal feeding operations (CAFO) and ranks third in the country in terms of production. In 2015, Arkansas produced 198,497,590 chickens (broilers, layers, pullets) and turkeys (USDA, 2016).

The Environmental Protection Agency (EPA) has identified agricultural run-off as the number one reason for degradation of streams, creeks, rivers, ponds, and lakes in the United States. "CAFOs present a greater risk to water quality because of both the increased volume of waste and to contaminants that may be present (e.g., antibiotics, and other veterinary drugs) that may have both environmental and public health importance. Based on available data, generally accepted livestock waste management practices do not adequately or effectively protect water resources from contamination with excessive nutrients, microbial pathogens and pharmaceuticals present in the waste" (Burkholder et al. 2007).

The northern part of Arkansas where much of the industrialized meat production is located is underlain by karst, a highly porous fractured limestone that allows for very little filtration or attenuation of nutrients. Given these factors, northern Arkansas is particularly vulnerable to water quality degradation from nutrient run-off and should have increased restrictive requirements and monitoring for manure application, manure holding ponds, and CAFO facilities.

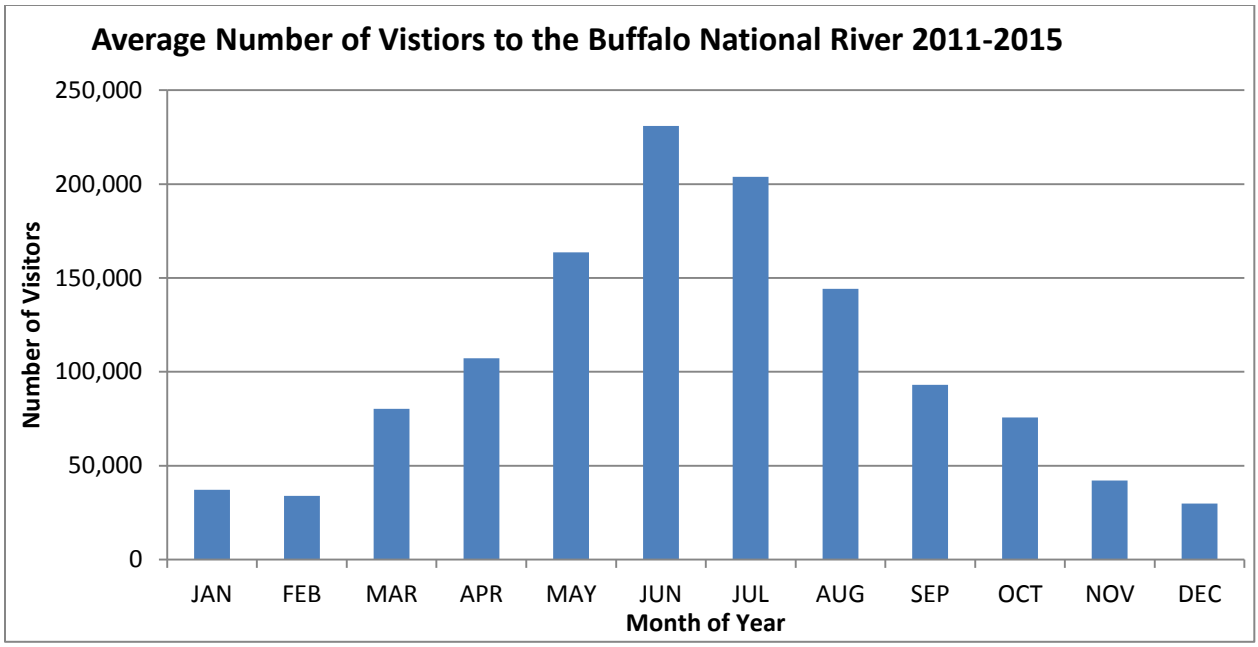
Recommendations

Low monitoring levels, lax regulations, and very few enforcement actions invite additional polluting industries to the state and compromise the welfare of our citizens and the growing tourism industry. For these reasons, it is imperative that the Arkansas Department of Environmental Quality implement revisions to the water quality standards to increase protection of Arkansans as well as visitors to our state and to improve and maintain healthy aquatic ecosystems. There are several revisions that must be implemented.

1. Add geology as a risk assessment parameter. Although the ADEQ engages in an eco-region approach to assessment of water quality throughout the state, the ADEQ does not include critical factors, such as the geology of the eco-region. At present the ADEQ does not direct appropriate restrictions to areas that are underlain by highly-fractured karst limestone, and this lack of restrictions significantly increases the potential pollution from surface water of our lakes and streams. Creating a "geo-region" approach should be a factor in environmental assessments, methodology, and standards that incorporate risk associated with geological subsurface conditions.

2. Expand the primary recreational contact season for the Buffalo National River, Kings River, and Mulberry River to March 1-October 31 and include key tributaries of ORWs. Arkansas is known for its beautiful rivers and is a kayaking and canoeing destination for many tourists and locals. Currently, the primary recreational contact season is from May 1-September 30. Many people start kayaking and canoeing at the beginning of March, and, if we experience an extended summer as we have this year, they continue to kayak and canoe until the end of October. These recreational users are in contact with the water during this time period. Recreational users are not confined to the main stem of the 3 rivers, but frequently use many of the main tributaries of these streams. The state limits for E. coli and other pathogens should be most protective when people are in contact with the water and should be informed and guided by user activity, rather than solely by the State's current water use designation. Climate change and better outdoor clothing also allow recreational users to be in contact longer with our water resources than in the past.

   Data from the National Park Service displayed in the chart below support the recommendation to extend the primary contact season to start March 1 and to end October 31 each year. At least 70,000 people visit the Buffalo National River starting in March and heavy visitation continues through October. Spring Break at the University of Arkansas and other local college and universities occurs in March each year. Campgrounds at the Buffalo National River and the Ozark-St. Francis national forest are usually at or near capacity. River outfitters also experience a surge in canoe/kayak rentals from university students. A similar pattern likely exists for the Mulberry and Kings Rivers and other popular canoeing and kayaking destinations.



3. Create an anti-degradation procedure and method for implementing a policy.40CFR 131.12 of the Clean Water Act requires states to "develop and adopt a statewide anti-degradation policy and identify the methods for implementing such a policy pursuant to subpart." The state of Arkansas has a minimal anti-degradation policy at Regulation 2.203 that is absent of process or enforcement of this key requirement of the Clean Water Act. The underlying concept of the anti-degradation regulations is that it does not allow loss of existing use nor does it allow water quality to drop below levels needed to "maintain an existing use that was actually attained in the waterbody on or after November 28, 1975." At present ADEQ does not have any regulations that are in compliance with the CWA's Anti-Degradation requirement.

   Development and implementation of this policy should include the following:

- Processes for identifying the anti-degradation protection level (i.e., the "*tier*") that applies to a surface water;
- Procedures for determining baseline water quality (BWQ);
- Approaches for assessing water quality degradation;
- Procedures for identifying and assessing less degrading or non-degrading alternatives*;*
- Procedures for determining the importance of economic or social development to justify significant degradation of high quality surface waters*;*
- Information on intergovernmental coordination and public participation processes*.*

4. Improve scientific, statistical and analytical capabilities within ADEQ. The USGS has many gauging stations within the state of Arkansas that provide critical water quality data to ADEQ. These data are often collected at 15 minute intervals. During the analysis and review of dissolved oxygen data on Big Creek (Newton County), ADEQ noted that they did not have

the analytical capabilities or identified methodologies capable of utilizing the rich dataset provided by USGS. This is a serious oversight on the part of ADEQ. It is very easy to subsample a large data set and be able to apply this information to determine if a stream meets the impairment standard. For example, Washington State uses the lowest dissolved oxygen sample reading within a 24 hour period to characterize the daily sample. ADEQ should adopt similar procedures that are most protective of our state's waters instead of rejecting the use of a robust dataset.

5. Remove the Arkansas Phosphorous Index (API) as the standard to determine the rates and limits of phosphorus levels and replace this standard with agronomic rates. The current Arkansas Phosphorous Index (API) is not an appropriate standard for use in karst environments of the state. The API does not consider geology in its application and is not precautionary in its approach to ensuring that high concentrations of nitrogen and phosphorous are not present on fields and does not allow a timely response to this standard. The API is not transparent as it requires intensive calculations with many parameters that may not be available or appropriate, and it is not easily understood by the general public. Many states employ an age old technique of using the agronomic rate (utilization capacity of plants) to absorb nutrients-phosphorous and nitrogen. While agronomic rates do not include consideration of geology, these rates are more transparent and protective of potential over application of manure that degrades water quality.

6. Implement a permanent moratorium on medium and large size CAFOs in the Buffalo National River Watershed (BNRW) and prohibit any CAFO animal waste from other operations to be deposited within the BNRW. At present a five year moratorium is in place to prevent any additional medium or large scale hog CAFOs from being built in the Buffalo National River watershed. The current moratorium is inadequate because waste could be transported from an area outside of the BNRW and applied on fields that will contaminate the BNRW. A long term solution and prohibition are needed to protect the first national river. This action requires rulemaking and sufficient enforcement to be effective.

7. Replace the current E.coli limits with the 2012 EPA recommended limits and lower the exceedance rate to 10%. Current E.coli limits (Regulation 2.507) for bacteria are significantly less protective of human health than the EPA recommended 2012 limits found at https://www.epa.gov/sites/production/files/2015-10/documents/rec-factsheet-2012.pdf.

   At the recommended EPA limit of 126 cfu/100 ml of E. coli allowed, EPA estimates that 36 people out of 1,000 could become sick due to the presence of E.coli in the water. To put this in context, out of the 230,000 people that visited the Buffalo National River in June 2015 and assuming all 230,000 swam in the river with an E.coli count of 126 cfu/100 ml, 8,280 visitors could have some form of E. coli poisoning in a single month. The current ADEQ E. coli exceedance levels are much higher-630 cfu/100 ml-in secondary contact season-than recommended EPA levels and allow far too many people to be exposed to dangerous levels of pathogens.

The 2016 Assessment Methodology prescribes that levels for E. coli bacteria cannot exceed these values more than 25% of the time in no less than eight samples in a season. The EPA recommendation is that the exceedance rate be no more than 10% of samples collected. Once again, the regulations in Arkansas are not as protective as needed to ensure healthy streams for Arkansas residents and visitors. In all cases, ADEQ should implement the most protective human health guidelines available and be consistent with EPA recommendations and regulations.

8. Develop and Implement Numeric Criteria for Nutrients. Arkansas' waters are most vulnerable due to agricultural runoff primarily in the form of phosphorous and nitrogen. "Nutrient pollution contributes to increasing harmful algal blooms (HABs) that can release toxins that pose risk to human health", the loss of potable drinking water, and the loss of aquatic life. Please see the EPA's HAB link for additional information: https://www.epa.gov/nutrient-policy-data/cyanohabs
In 2015, 183 community water systems exceeded the allowable level of nitrate in drinking water. (Beauvais, 2016). By developing and implementing nutrient criteria ADEQ will be able to provide a measureable water quality standard.

9. Revise the current hierarchy of Category 5 waters to be considered for a TMDL and improve the definition of "impairment". The 2016 Assessment Methodology identifies 3 tiers of high, medium and low to category 5 streams that have met the criteria for impairment. The "High" category states "Truly impaired". What does that mean? All of these streams have met the definition of impairment under the ADEQ criteria. It seems that it is completely at the State's discretion on whether to consider a stream "truly impaired" although the stream has already met the definition.

   The "Medium" category is as unsound in reason as the "High" category. "Waters…may be delisted with future revisions to APC&E Regulation 2…" or "Waters which are impaired by point source discharges and future permit restrictions are expected to correct the problem". This category is all about knowing the future. Yogi Berra said, "It's tough to make predictions, especially about the future." That is the case here and this category should be removed.

   The ADEQ designated "Low" category 5 for creating a TMDL contains the following "Waters ADEQ assessed as unimpaired but where assessed as impaired by EPA". This speaks to the very low environmental criteria and standards of ADEQ and should be removed.

   Recommended hierarchy of Category 5 waters for development of TMDLs:

   1. Any national river or ORW stream that is not attaining one or more water quality standards.
   2. Waters assessed by EPA or ADEQ to be impaired.

Conclusion

ADEQ is not meeting its obligation to the citizens of Arkansas by allowing

1. Minimal or non-existent stream monitoring;
2. Constricted designation of primary recreation season that is inconsistent with high recreational usage patterns;
3. Exceedingly lax regulations and in some cases antiquated methodology that is incompatible with robust data sets (USGS data);
4. Non-precautionary approaches to preserve and protect healthy river ecosystems which may affect tourism revenue for trout and bass fishing streams and kayaking and canoeing streams;
5. Does not consider geology in any of its regulations, particularly the Arkansas Phosphorous Index;
6. Is not in compliance with the CWA Anti-Degradation Act provision;
7. Is not protective of human health by allowing high E. coli levels and high frequency of E.coli exceedance.

We believe ADEQ can perform much better as an agency in meeting its mandate to "to protect, restore and enhance the natural environment for the well-being of all Arkansans" by implementing the recommendations made by the Ozark River Stewards.

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