



United States Department of the Interior
NATIONAL PARK SERVICE

Buffalo National River
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IN REPLY REFER TO:

1.A.2

November 13, 2017

Mary Barnett
Water Planning
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317
am-comments@adeq.state.ar.us

Dear Ms. Barnett:

My staff have reviewed the Final Draft (October 10, 2017) Assessment Methodology for the preparation of the 2018 Integrated Water Quality Monitoring and Assessment Report. We commend ADEQ's efforts to include public participation in developing the Assessment Methodology (AM). Following are our comments and recommendations:

1. The phrase "and designated use" has been removed from numerous sections, including Sections 3.0, 3.2, 3.2.2, and 3.3 with no clarification as to the reason. Designated use is an important factor in assessing the quality of state waters and we question the removal of the phrase from the assessment methodology.
2. Page 4 – Appendices A-C were not made part of the Assessment Methodology. These appendices are important components of the assessment methodology and should be included, with an additional 30-day public review period for these components.
3. Page 6 – 1.0 Assessment Background, ¶1: The second half of the second sentence indicates that state waters should provide for the protection and propagation of a balanced population of fish, shellfish, and wildlife, and allow recreational activities in and on the water." Do you define "balanced" in this context? That wording does not appear in Section 101(a)(2) of the Clean Water Act, nor in the Code of Federal Regulations (CFR) 40 CFR 130.3. The use of the word "balanced" does not appear in Arkansas Pollution Control and Ecology Commission (APC&EC) Regulation 2.102. Does this use of "balance" in the Assessment Methodology indicate that ADEQ will evaluate the values of potentially competing interests in the determination of whether or not a waterbody is impaired? If so, where is the legal or regulatory authority referenced allowing ADEQ to use such an approach?

4. Page 6 – 1.0 Assessment Background, ¶4, sentence 4: The AM indicates that the assessment only applies to the water quality standards and designated uses. The AM is silent with regard to Antidegradation. According to 40 CFR 130.7(b)(3), states are required to consider Antidegradation as well as numeric and narrative standards. The AM appears to fall short of meeting this requirement.
5. Page 7 – 2.0 Integrated Reporting Categories, ¶1, sentence 2: The AM indicates that water quality standard attainment is determined based on designated uses and/or criteria put in place to protect designated uses. This indicates that the highest criteria of a waterway, such as an Extraordinary Resource Waterbody (ERW), would be considered. Unfortunately, the AM fails to consider Antidegradation in its design and implementation throughout the document. This must be changed to meet the regulatory requirements of 40 CFR 131.12(a)(2) as well as APC&EC Regulations 2.201 and 2.203 which require the high levels of water quality to be protected and maintained.
6. Page 7 – 2.0 Integrated Reporting Categories, ¶3: The AM includes the addition of Section 4c non-attainment not caused by a pollutant: examples “naturally occurring deviations from current criteria where site specific criteria would be more appropriate but are yet to be developed.” A process exists for developing site specific criteria and for providing a timeline to address degradation. Water bodies not attaining the criteria should be placed in Category 5 while criteria for attainment are developed as time and funding allows.
7. Page 7 – 2.0 Integrated Reporting Categories, ¶4, sentence 1: Excessive algae blooms in the mainstem of the Buffalo River constitute impairment of the ERW status of the river as they reduce the scenic qualities of the river, impede fish passage and access to habitat, cause extreme depressions in dissolved oxygen at night, and threaten to smother benthic fauna such as mussels.
8. Page 8 – 2.0 Integrated Reporting Categories, Category 2 and Category 3b, Bullet 3: These seem to overlap each other. It was stated before that section 2 is rarely used, but it may not be used at all with the added text to Category 3b.
9. Page 8 – 2.0 Integrated Reporting Categories, Category 3b: When reviewing the requirements to use all existing and readily available water quality-related data and information to develop the list (40 CFR 130.7(b)(5)), there is no “qualification” required for the data. The Code of Federal Regulations (40 CFR 136.7) says the permittee/laboratory shall use suitable QA/QC procedures as outlined in Part 1000 section of the Standard Methods Compendium. These QA/QC methods should be acceptable to ADEQ. Under 40 CFR 130.7(b)(6) (iii) a rationale to dismiss existing and

readily available data and information for any of the categories of waters listed in 40 CFR 130.7(b)(5) is required.

10. Pages 8-9 – 2.0 Integrated Reporting Categories, Category 5b: This portion of the AM seems to indicate that there will be changes to Regulation 2 or future permit restrictions. The AM only assesses conditions which are, by definition, already in the past. Looking for future changes to Regulation 2, which is only reviewed every three years, or changes in permit requirements in the future will not change conditions in the past nor in the present. Sub-categories of Category 5 are invalid. There should be no “high”, “medium”, or “low” sub-categories.
11. Page 10 – 3.0 Data Management, ¶1, second sentence: The requirement that data must “adhere to robust quality and quantity considerations” does not appear to be directly reflected in 40 CFR or APC&E Regulation 2.
12. Page 10 – 3.1 Water Quality Data Types, ¶4: This paragraph contains subjective statements which should be quantified to provide assurances to entities collecting water quality data. The phrases in question include in sentence two that continuous data is “from several weeks to years,” and in sentence four where short term data is “typically a 72-96 hour period.” It would be beneficial for the AM to quantify definitions of short-term and long-term to ensure consistency in utilizing continuous data.
13. Page 11 – 3.2 Data Assembly, ¶2, second sentence: The selective use of data that meets ADEQ or USGS standards appears to exclude potentially important existing data that is readily available. This appears to exceed the EPA regulations which the AM is developed to implement.
14. Page 11 – 3.2 Data Assembly, Period of Record table: There are three periods of record for the 2018 report that vary from 3 to 5 years. What is the purpose of these variations in the period of record?
15. Page 13 – 3.3 Data Quality Considerations, Phase I Data Quality Requirements, Essential data requirements, Bullet 3: The same comments as in points 6, 8, and 10 apply to this comment.
16. Page 15 – 3.3.2 Aggregate Data Sets, ¶1: This paragraph indicates that all Assessment Units (AUs) are selected to be relatively homogenous and that any sample taken from an AU is representative of conditions within that particular AU. Such an approach sounds reasonable, but in reality may not adequately describe the AU, particularly in a karst environment where loss or gain to the groundwater can occur without any easily defined

boundary visible on topographic maps or GIS coverages. For instance Big Creek, which is tributary to the Buffalo River at Carver, has a number of relatively permanent sampling stations established along its length. We know from the data collected by USGS gaging stations that somewhere in the lower several miles of Big Creek there exists a losing reach which discharges to the underlying karst aquifer. We also know that the Buffalo River downstream of Carver and upstream of Lick Creek gains approximately the same amount of recharge during low flow conditions. The sampling station BUF-T06 is likely not fully representative of the entire Big Creek waterbody. Dividing this particular waterbody into several AUs is necessary to understand its overall conditions.

17. Page 15 – 3.4 Tiered Approach to Qualifying Data, ¶2, second sentence, item 4: This requires data to be “analyzed in a certified lab.” Arkansas Code Annotated 8-2-206(B)(2) indicates that certification of laboratories other than consulting laboratories is not mandatory. Pursuant to ACA 8-2-203(4), a laboratory that does not perform analyses for any person other than itself is not a consulting laboratory. The law would seem to allow ADEQ the authority to use data from laboratories that are not consulting laboratories, unless ADEQ can show reasonable cause to exclude those data. The Arkansas Code appears to invalidate the remainder of this paragraph.

Page 16 – 3.4 Tiered Approach to Qualifying Data, Table 1: This table does not seem to comport with the Arkansas Code in the Tier 1 row. All of the Phase 1 data quality requirements show either “Fail” or “---“. The AM should be modified to allow data from non-consulting labs which have not been excluded through reasonable means.

18. Page 18 – 3.7 Statistical Confidence, ¶6, third sentence: The requirement of a >90% confidence level in the data may be reasonable when dealing with streams not protected under the Antidegradation Policy, but is too high when dealing with ERWs and other waterbodies protected by an Antidegradation Policy where the intent is to maintain and protect such high levels of water quality, rather than prevent them from becoming impaired under non-ERW standards.
19. Page 23 – 3.11 Final Attainment Decision Process, ¶1: This paragraph indicates that the most appropriate and protective decision will be made for an AU. Is there a formal definition of “appropriate” in this context? We have the same concern for the phrase “weight of evidence approach.” Where is this defined?
20. Page 23 – 3.11 Final Attainment Decision Process, ¶2: Again the “weight of evidence approach” as well as “ADEQ personnel’s unique understanding of a particular AU”

inserts a degree of subjectivity into the results

21. Page 24 – 4.1 Antidegradation: The statement in the second sentence regarding beneficial uses and water quality does not seem to comply with 40 CFR 131.12 in several ways:
 - a. Arkansas does not have an Antidegradation Plan (40 CFR 131.12(a)). Until such time as a plan is developed and implemented, ADEQ must err on the side of caution in protecting Outstanding National Resource Waters (ONRW) which includes Outstanding Resource Waters as described in Reg. 2.203.
 - b. 40 CFR 131.12(a)(3) describes ONRW as high quality waters which constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance. The quality of such waters are to be maintained and protected. The maintenance and protection should be against the conditions present at the time of enactment of the law (1977).
 - c. Where the quality of the water exceeds levels necessary to support the protection and propagation of fish, shellfish, wildlife, and recreation in and on the water, that quality shall be maintained and protected (40 CFR 131.12(a)(2)).
 - d. In addition, according to 40 CFR 131.10(b) the State shall take into consideration downstream waters to ensure that the standards applied to an upstream AU provide for the attainment and maintenance of the water quality standards of downstream waters. This does not appear to be the case in Arkansas, especially the Buffalo River where most of the tributaries are not considered ERW streams.

22. Page 40 – 6.2 Turbidity: The values for Base Flow for both Ozark Highlands and Boston Mountains ecoregions are high. For the Buffalo River to have a chronic turbidity of 9 NTU during base flow conditions the scenic value of the river would be impaired. A more realistic number for this particular ERW is 4 NTU for base flow in the Ozark Highlands and 5 NTU for the Boston Mountains ecoregion.

23. Page 47 – Phase II Data Quality Requirements for Dissolved Oxygen, Primary Season, Temporal Requirements:
 - a. Part 1 indicates that discrete, short-term, and long-term continuous data may be used.
 - b. Part 2 has no minimum data distribution and quantity requirement for short-term data. We recommend the development of a continuous, short-term data requirement for the primary season.

24. Page 48 – Phase II Data Quality Requirements for Dissolved Oxygen, Listing Methodology: The AM does not take into account ERW streams. The same standards for

all other streams appear to apply to ERW streams.

25. Page 48 – Phase II Data Quality Requirements for Dissolved Oxygen, Delisting Methodology: Under no circumstances should discrete data be used to de-list an AU listed using continuous data since discrete data are collected during peak dissolved oxygen periods and may not represent diurnal variation or the system as a whole. The justification used does not provide a valid argument for protecting the waters of the state nor does it agree with the Antidegradation policy.
26. Page 52 – 6.6 Bacteria: The example given for the assessment of non-support gives an example that equals 25% but would not lead to listing of the AU since the table gives the value of $\leq 25\%$. We suggest increasing the exceedances in the example to 3 to provide a listing scenario. Additionally, on page 53, clarification is needed for the assessment of non-support using geometric mean data, if it would be placed in Category 4b, or 5, based on a single season data set.
27. Page 58 – 6.9 Nutrients, ¶1: The insert of Reg. 2.509(A) considers algal growth which causes objectionable algal densities an impairment of the designated use of a waterbody. Because ADEQ has not established numerical criteria for nutrients, a serpentine flow chart using proxies for nutrients is described. Unfortunately, the flow chart does not take into account nuisance algal densities that impair designated uses. It would appear that designating a stream impaired for nuisance algae growth would be relatively straight forward, especially combined with continuous dissolved oxygen measurements. The proposed nutrient assessment flow chart (Page 63) establishes a moving target which will allow even more nutrient enrichment over time, and does not meet the standard for impairment listing in Reg. 2.509(A) because it requires multiple data sets, not “...by any Arkansas established numeric water quality standard.” In short, the AM does not appear to comply with Arkansas regulations.
28. Page 62 – Listing Methodology for Wadeable Streams, ¶, Bullet 1: This bullet represents a shifting baseline for nutrient comparisons. A major assumption of this criterion is that surrounding sites within the same ecoregion, sites used for the computation of the 75th percentile values, will not experience similar increases in nutrients. Comparing sites among themselves during the same time period removes the ability to document slow increases in nutrients over time, both short and long-term. This section also uses dissolved oxygen fluctuation, dissolved oxygen concentrations, and dissolved oxygen percent saturation within 72-hour data sets as a listing mechanism for nutrients. This seems to: 1) contradict part of Section 6.4 on duration of allowable levels below the applicable standard (4 hours compared to 8 hours), and 2) require the use of a continuous data set (as does the ability to determine if dissolved oxygen fluctuates more

than 3 mg/L in concentration). Does ADEQ collect 72-hour dissolved oxygen data? If so, what instruments and methodology are used for collection? The National Park Service strongly recommends the development of numeric values for all nutrients.

29. Page 62 – Figure 3: Nutrient assessment flowchart for Wadeable streams and rivers:

The first box in the flowchart establishes a sliding or moving standard by requiring mean TP or TN concentrations for a monitoring segment greater than the 75th percentile of the given ecoregion during the period of record. The concentrations should be compared to those present in the least impacted reference reaches established in the 1980s. In that way, the TP and TN are being compared to a firm baseline, not a moving target. As nutrient pollution of streams has increased over the past 30+ years, all streams in an ecoregion will become impaired for nutrients, but ADEQ will not treat them as impaired. This will inevitably result in loss of pollution intolerant aquatic fauna such as Threatened and Endangered species and Species of Greatest Conservation Need. Please reconsider the nutrient assessment and adjust accordingly.

Again, thank you for the opportunity to comment on the proposed Assessment Methodology. We look forward to continuing this important work with you.

Sincerely,



Kevin G. Cheri
Superintendent