



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

October 30, 2016

Ms. Mary Barnett
Arkansas Department of Environmental Quality – Water Planning
5301 Northshore Drive
North Little Rock, AR 72118

Sent via Electronic Mail to: am-comments@adeq.state.ar.us

Dear Ms. Barnett:

My staff conducted a review of the 2016 Assessment Methodology which is being used to develop the 2018 methods over a three phased approach. We submit the following recommendations for changes in the 2018 Assessment Methodology:

Section 3.2.1 – Table 1 states that “continuous monitoring devices” and “continuous monitoring (e.g. use of thermographs, sondes, or similar devices)” would be used for assessments; however, when mentioned during the 2016 listing period, ADEQ stated they were unable to assess continuous data for listing purposes. Upon reading the “Physical, Chemical, and Biological Characteristics of Least-Disturbed Reference Streams in Arkansas’ Ecoregions,” the authors used continuous data for determining certain values reported in Arkansas Pollution Control and Ecology Commission Regulation No. 2 (APC&EC Reg. 2). We believe that continuous data better represents stream conditions and should be used in the 2018 Assessment Methodology presented in Table 1 as Tier IV, when available, above the use of grab samples (noted as Tier III).

Sections 6.3 and 6.4 – Both pH and dissolved oxygen impairment determinations require the use of continuous or repeated measurements from a water body within a 24-hour period (i.e. pH is not allowed to fluctuate in excess of 1.0 standard unit over a period of 24 hours, and dissolved oxygen is allowed a 1 mg/L diurnal depression below the applicable critical standard when water temperature exceeds 22°C for no more than 8 hours during any 24-hour period). This requirement is not met in the description of the “Routine Water Quality Monitoring Activities” defined in Section 3.7 and only in a few of the instances noted in the “Non-Routine Water Quality Monitoring Activities.” Can any stream be listed for these parameters when ADEQ collections are not made to APC&EC Reg. 2 standards without the use of continuous data?

Section 6.6 – A recent creel survey completed by Buffalo National River and the Arkansas Game and Fish Commission, noticed increased river use outside of the defined “primary contact season” in the bacteria section. Notably during March, spring break float trips expose visitors to bacteria levels in the secondary contact criteria. Additional use continues into the month of October, before river use drops during the late fall and winter months. We propose an extension of the primary contact season to include the period of spring break to the current start of primary contact season of May 1 and continue until the end of October (primary contact season for Buffalo National River March 1 – October 31).

Additionally, we recommend that bacteria assessment criteria applied to ERW, ESW, and NSW waters include reaches of tributaries within the jurisdictional boundaries of the Buffalo River. We believe that

visitor protection does not end at the river, but should continue within the reaches of the river's tributaries that are frequently used as camping locations and swimming holes.

Section 6.9 – Under the “Listing Methodology for Wadeable Streams” the first 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. Figure 2, for example, shows a spring within the Buffalo River which has experienced a 300+% increase in nitrate concentrations at base flow over the past 25 years. If this site were used as a comparison for another segment or water body it would be possible neither site would be listed if both sites experienced similar increases in nutrients over time. Also, this section 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) requires 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?

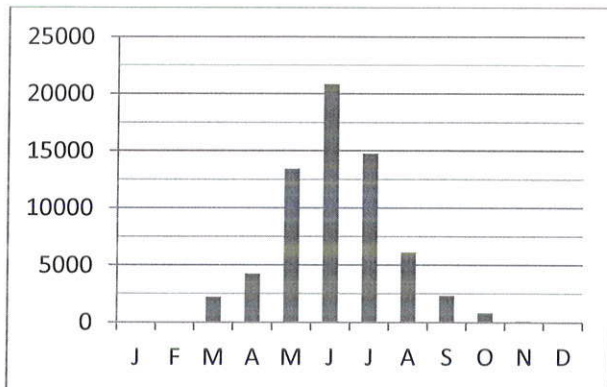


Figure 1: Average annual concessionaire reported visitor use days per month, 2010-2015, for Buffalo National River.

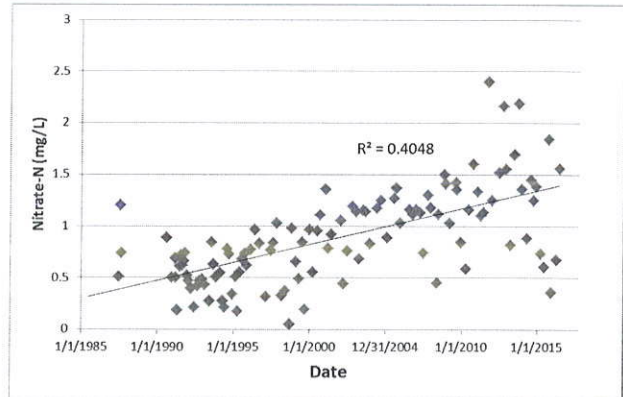


Figure 2: Mitch Hill Spring (BUFS33) sampling site scatter plot of base flow nitrate concentrations over time with computer drawn trend line (mg/L - milligrams per liter).

Finally, as an Outstanding National Resource Water with Extraordinary Resource Waterbody and Natural and Scenic Waterbody designations from ADEQ, the Antidegradation Policy should be used to determine whether the River is impaired or not. If the impairment level was based upon the quality of the water in the “Ten-Years of Water Quality Monitoring, NPS, Buffalo National River” (Mott, 1997) we would be looking at impairment in a different fashion. The Antidegradation Policy supersedes the numeric and narrative criteria in Regulation 2.

Thank you for the opportunity to submit recommended changes for future assessment methods. We look forward to working with you and your staff as you further refine the methodology.

Sincerely,

Kevin G. Cheri
Superintendent

REFERENCES

Mott, D.N., 1997, Ten-Years of Water Quality Monitoring, National Park Service, Buffalo National River, Harrison, AR, accessed at <https://www.nps.gov/buff/learn/nature/upload/Mott-1997-Ten-Years-of-Water-Quality-Monitoring.pdf>