

**From:** [Michael Armstrong](#)  
**To:** [ImpairedWaterbodies Comments](#)  
**Subject:** Comments on Draft 2016 303d Listing Report  
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Thank you for this opportunity to comment on the draft 2016 303d list of Impaired Water Bodies. My comments are as follows:

Arkansas currently lack numeric criteria for assessing nutrient impairment, with the exception of Beaver Lake. Instead, nutrients are assessed using narrative criteria and impairment is determined using a rigorous hierarchical process as described 2016 Assessment Methodology Report. To be found impaired from nutrients, three conditions must be met in a defined sequence. Each of these three conditions contain assessment thresholds using subjective threshold criteria. When compounded together, the assessment method for nutrients becomes a stringent process that differs substantially from water quality constituents that have numeric standards. The use of water quality translators that reflect dissolved oxygen fluctuations through a diurnal cycle are also more representative of lake impacts rather than running water systems where mechanical aeration of water is a major source of oxygen input. The rigor of the nutrient assessment method likely masks or leads to an under representation of the role nutrients play in impacting water quality and biotic health. This is not a directed criticism of the use of arbitrary the selected criteria per se, but a recognition that measuring the impacts of nutrient enrichment is a difficult task at best. Nutrient enrichment has been well linked to a number of environmental issues throughout the Mississippi River drainage, including the problematic hypoxia zone in the Gulf of Mexico. Further, nutrients are known to effect dissolved oxygen and pH levels through their relationship in the photosynthetic process and the carbon dioxide cycle, particularly in lakes. However, ADEQ uses a different assessment protocol for determining impairment from dissolved oxygen and pH. Erosion from urban and agricultural areas that lead to impairment for turbidity also carry nutrients into the receiving stream. It is reasonable to assume that nutrients are an underlying cause contributing to most dissolved oxygen impairments, however their role in causing these impairments is not reflected in the 303d list. ADEQ should re-visit the methods used to assess nutrient impairment and the role nutrients play in other impairments (e.g. dissolved oxygen) with the aim of better monitoring, and therefore managing, this major water quality constituent.

My appreciation for the fine work of the ADEQ and the thought and diligence that went into producing the draft 303d listings.

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