

Assessment Methodology

BACTERIA

Fact Sheet

Background

The bacteria criteria, specifically *E. coli*, is used in assessing the attainment of the recreational uses such as swimming or paddling (i.e., primary and secondary contact). These thresholds are meant to protect public health. Arkansas Department of Environmental Quality (ADEQ) is the main source of bacteria data for the state that meets data quality requirements for assessment purposes. However, monitoring stations with a sufficient number of *E. coli* samples to assess one year’s primary contact season is limited (Table 1).

Table 1. ADEQ water quality monitoring data were assessed to determine the number of monitoring stations with sufficient data to assess *E. coli* data by contact season¹. Data from the 2017 primary contact season is outside the period of record for the 2018 303(d) list. The 2017-2018 secondary contact season is not over.

| Year | Number of sites meeting data quality requirements for assessment of: | |
|------|--|---------------------------------------|
| | Primary Contact Season ² | Secondary Contact Season ³ |
| 2012 | 0 | 0 |
| 2013 | 0 | 0 |
| 2014 | 0 | 0 |
| 2015 | 0 | 0 |
| 2016 | 48 | 0 |
| 2017 | 18 | n/a |

Proposed Assessment Methodology for Bacteria

To list a waterbody or waterbody segment as impaired and needing a total maximum daily load (TMDL) under Category 5, more than one season of data within the period of record (5 years) is needed. If only one season of data indicating impairment is available, waterbody (or assessment unit) will be placed in Category 4b (Impaired, not needing a TMDL, other pollution control requirements are expected to address pollution concerns).

¹ Water Quality Monitoring Data Access database was downloaded 5 November 2017 from https://www.adeq.state.ar.us/techsvs/env_multi_lab/water_quality_station.aspx.

² May 1 to September 30, Reg. 2.507

³ October 1 to April 30, Reg. 2.507

How does this differ from historical assessments?

Before 2016, only one season of data was necessary to list a waterbody as *truly* impaired and needing a TMDL (Category 5).

Why does this matter?

- Alternative pollution control requirements must be identified to list a waterbody in Category 4b. This determination is generally on a case-by-case basis, as it is dependent on potential sources of contamination and options available.
- Listing in Category 4b requires states to provide a rationale that includes a *description of, and schedule for, monitoring milestones for tracking and reporting progress to EPA on the implementation of the pollution controls and a commitment to revise the implementation strategy and pollution controls if progress towards meeting water quality standards is not being shown*⁴.
- ADEQ does **not** have a robust bacteria monitoring program (Table 1). There are very few waterbodies that will ever meet the requirements to determine if a TMDL is necessary.
 - Only 11 sites sampled by ADEQ between 2012-2017 have two seasons of bacteria data within a period of record⁵. Ten of those sites are part of a two-year bacteria monitoring study of the Mill Creek watershed, a tributary to the Buffalo National River. ADEQ does not routinely collect two seasons of bacteria data.

Additional Concerns

The Draft 2016 Assessment Methodology states that if only one season of data is available, and impairment is indicated, it will be placed in Category 4b *and more data will be collected for re-assessment in a future assessment cycle*⁶.

1. Pollution control *requirements* must be identified when placing a waterbody in 4b; therefore, ADEQ will have to adequately identify the likely sources of contamination. Most sources listed in past 303(d) lists are denoted as “unknown.” This does not foster confidence in ADEQ’s ability to implement additional requirements to the appropriate source.
 - a. What pollution control requirements will be implemented if point source dischargers are the expected source?
 - b. What *requirements* will be implemented to address nonpoint sources?
2. Improper listing categories and insufficient rationale, such as this, will be reason for EPA to delay approving future 303(d) lists.
3. For most waterbodies, it is safe to assume no additional data will ever be collected, let alone in the period of record. This appears to be a tactic for appearing to be diligent in appropriate assessments and reporting while ensuring no action will ever be taken to address sources of impairment.

⁴ 2006 Integrated Reporting Guidance pp. 54-56. <https://www.epa.gov/sites/production/files/2015-10/documents/2006irg-report.pdf>

⁵ Note: Data are from 2016 and 2017 primary contact seasons. The 2017 primary contact season will not be assessed for the 2018 303(d) list. Period of record from 1 April 2012 through 31 March 2017.

⁶ See p. 52 of Draft 2018 Assessment Methodology [https://www.adeq.state.ar.us/water/planning/integrated/assessment/pdfs/final-draft-2018-am_10oct2017-\(2\).pdf](https://www.adeq.state.ar.us/water/planning/integrated/assessment/pdfs/final-draft-2018-am_10oct2017-(2).pdf)