

Public Notice¹

October 17, 2023

Availability of Draft Bacterial and Turbidity TMDLs for the Waterhole Creek and Lukfata Creek Study Area

Proposed Modification to Incorporate Waterhole Creek and Lukfata Creek Area Bacterial and Turbidity TMDLs into Oklahoma's Water Quality Management Plan

Request for Public Comments

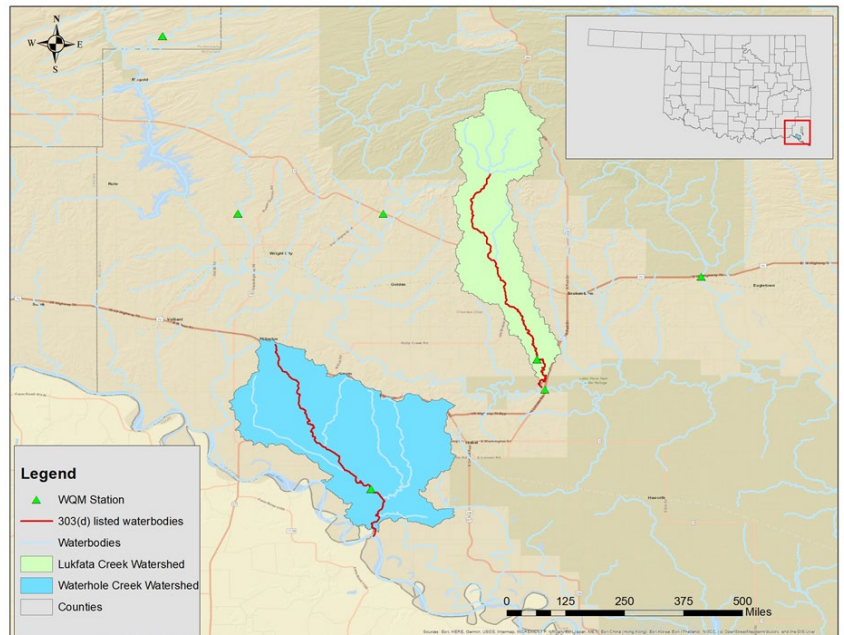
Public Comment Period Ends on December 1, 2023

Watershed:

The Waterhole Creek and Lukfata Creek TMDL Study Area is located in the southeastern portion of Oklahoma in the [Pecan-Waterhole](#) (USGS [HUC](#) 11140106) and [Upper Little](#) (USGS [HUC](#) 11140107) watersheds. The Study Area covers portions of [McCurtain](#) County.

Beneficial Uses in the Waterhole Creek and Lukfata Creek Study Area:

According to the [Oklahoma Water Quality Standards \(WQS\)](#), the designated beneficial uses for the waterbodies in the Waterhole Creek and Lukfata Creek Study Area are Aesthetics (AES), Agriculture (AG), Fish & Wildlife Propagation-Cool Water Aquatic Community Subcategory (CWAC), Fish & Wildlife Propagation-Warm Water Aquatic Community Subcategory (WWAC), Fish Consumption (FISH), Primary Body Contact Recreation (PBCR), and Public & Private Water Supply (PPWS). The designated beneficial uses addressed in the Waterhole Creek and Lukfata Creek TMDL Study Area were CWAC and PBCR. Table 1 is the assessment from Oklahoma's [2022 Integrated Report](#) on whether or not these waterbodies met their beneficial uses.



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Table 1: Designated Beneficial Uses for Waterbodies in the Study Area

Waterbody Name	Waterbody ID	AES	AG	CWAC	WWAC	FISH	PBCR	PPWS	HQW	
Waterhole Creek	OK410100010340_00	F	F		N	X	N	I		
Lukfata Creek	OK410210070010_00	F	F	N		X	F	I	V	
F – Fully supporting information		N – Not supporting		I-Insufficient data		X–Not assessed		V- Listed		Source: DEQ 2022 Integrated Report

Impaired Waterbodies in the Waterhole Creek and Lukfata Creek Study Area:

The TMDL study evaluated two waterbodies in the Waterhole Creek and Lukfata Creek Study Area that Oklahoma DEQ designated as impaired in the [2022 Integrated Report 303\(d\) list](#) for nonsupport of the PBCR or WWAC beneficial uses. The criteria to determine if a stream is listed on the 303(d) list can be found in [Implementation of Oklahoma’s Water Quality Standards](#) (Title 252, Chapter 740).

The Oklahoma WQS used to contain three bacterial indicators (fecal coliform, *E. coli*, and Enterococci). In keeping with EPA’s recommended [Recreational Water Quality Criteria for States](#), the Oklahoma WQS were revised on July 1, 2011 to contain only *E. coli* and Enterococci. There have been no more fecal coliform TMDLs developed since then. The Oklahoma WQS for *E. coli* and Enterococci bacteria are listed in the *Assessment of Primary Body Contact Recreation support* [OAC 252:740-15-6(b-c)]. The PBCR season is May 1 – September 30 every year.

The Oklahoma WQS for turbidity are listed under the *Protection of Fish and Wildlife Propagation* beneficial use (OAC 252:730-5-12(f)(7)). Turbidity, from other than natural sources, cannot exceed 10 NTUs (nephelometric turbidity units) for streams with a CWAC beneficial use in 10% or more of the samples.² This criterion applies only to seasonal base flow conditions. Turbidity levels are expected to be elevated during, and for several days after, a storm event. If a waterbody is impaired by a pollutant so that it is unable to meet its designated beneficial use, then the impairment is listed on the 303(d) list in the Integrated Report.

Waterbodies that were indicated as impaired for bacteria and/or turbidity on Oklahoma’s 2022 [303\(d\) list](#), are designated with an “X” in Table 2. Bacterial water quality monitoring results from 2006 – 2017 (12 samples) and turbidity water quality monitoring results from 2016 – 2021 (16 after high flow samples were excluded) were examined to verify if these waterbodies were still impaired. TMDLs for Enterococci and turbidity were developed for Waterhole Creek (OK410100010340_00) and Lukfata Creek (OK410210070010_00), respectively.

Table 2: Impairments in the Study Area

WBID	Waterbody Name	Waterbody impairments from the 2022 303(d) List		
		Enterococci	<i>E. coli</i>	Turbidity
OK410100010340_00	Waterhole Creek	X	X*	
OK410210070010_00	Lukfata Creek			X

*TMDL has been completed or in progress.

TMDLs: A TMDL is a plan of action to reduce pollutant loads so that impaired waterbodies will be able to meet their beneficial uses. TMDLs calculate the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will be able to meet water quality standards for that particular pollutant. The TMDL report uses scientific data collection, analysis, and [water quality modeling](#) to determine the sources and amounts of the pollutants entering the waterbodies. Then the TMDL allocates loads to point sources (these are known as waste load allocation or WLA) and [nonpoint sources](#) (NPS) which are given a load allocation or LA.

The [National Pollutant Discharge Elimination System \(NPDES\) program](#) regulates point source discharges. The NPDES Program in Oklahoma, in accordance with an agreement between DEQ and EPA, is implemented via

² OAC 252:740-15-4(b)(2): <https://www.deq.ok.gov/wp-content/uploads/deqmainresources/740.pdf>.

the Oklahoma Pollutant Discharge Elimination System (OPDES) Act [Title 252, Chapter 606 (<http://www.deq.state.ok.us/rules/606.pdf>)]. A point source is described as a “discernable, confined, and discrete conveyance from which pollutants are or may be discharged to surface waters.” These are usually, but not always, discharges from a pipe. TMDLs must provide WLAs for all NPDES regulated point sources. Nonpoint sources (NPS) are ones, like agricultural runoff, that cannot be identified as entering a waterbody at a single location.

An important part of TMDL analysis is the identification of all sources of pollutants (both point and nonpoint) in the watershed. Once identified, all contributing sources of the pollutants are allocated a portion of the allowable load. This usually requires a reduction in the amount of pollution the source is discharging in order to help the waterbody no longer be impaired. Natural background sources, seasonal variations, and a margin of safety (usually at least 10%) are all taken into account in the allocations. The TMDL equation is as follows:

$$\text{TMDL} = \text{WLA (waste load allocations from [point sources](#))} + \text{LA (from [nonpoint sources](#))} + \text{MOS (Margin of safety)}$$

Possible Sources of Impairments:

Point sources - The point sources examined in the Waterhole Creek and Lukfata Creek Study Area were:

- **OPDES-regulated [municipal](#) and [industrial wastewater treatment facilities \(WWTF\)](#)** – There are no active permitted municipal point source facilities within the Waterhole Creek and Lukfata Creek Study Area. There is one industrial WWTF within the Waterhole Creek (OK410100010340_00) Watershed Area (Weyerhaeuser Company, OK0043885, SIC 2421). However, this facility primarily discharges stormwater and is not considered a source of bacterial loading.
- **[OPDES regulated stormwater discharges:](#)**
 - [Municipal Separate Storm Sewer Systems \(MS4s\)](#) - There are no MS4s in the Study Area.
 - [Industrial Sites](#) – There are four facilities with a [Multi-Sector General Permit \(MSGP\)](#) in the Waterhole Creek Watershed Area. However, none of these facilities are considered a potential source of bacteria.
 - [Construction Sites](#) – There is one facility with a construction general permit in the Waterhole Creek Watershed Area. However, this facility is not considered a potential source of bacteria.
- **[Sanitary Sewer Overflows \(SSO\)](#)**: There are no SSOs in the Study Area.
- **No-Discharge Facilities** – There are no no-discharge facilities in the Study Area. For the purposes of these TMDLs, it is assumed that no-discharge facilities (such as towns with [total retention lagoons](#)) do not contribute bacteria or TSS into the waterbodies.
- **NPDES-regulated [Animal Feeding Operations \(AFOs\)](#)** –The Oklahoma Department of Agriculture, Food and Forestry (ODAFF) has been approved by EPA to issue NPDES permits in Oklahoma under what ODAFF calls the [Agriculture Pollutant Discharge Elimination System \(AgPDES\)](#). There are ten [Poultry Feeding Operations \(PFOs\)](#) in the Study Area. PFOs must follow [PFO rules](#) and develop an Animal Waste Management Plan (AWMP) or an equivalent [Nutrient Management Plan \(NMP\)](#) to describe how litter will be stored and applied properly in order to protect water quality of streams and lakes in the watershed.

Nonpoint sources - The nonpoint sources examined in the Waterhole Creek and Lukfata Creek Study Area were:

- Wildlife – There are about 909 deer in the Study Area. They are thought to be a minor contributor of bacteria.
- Farm animals – There are an estimated 4,648 head of cattle in the Study Area. They are considered to be a major contributor of fecal coliform in the Study Area.

- Pets – There are an estimated 650 dogs and 458 cats in the Study Area. They are considered to be a minor contributor of bacteria in the Study Area.
- Failing Septic Systems – There are 60 failing septic systems in the Study Area which are considered to be a minor contributor of bacteria.

For details about each of these sources and their impact on the impairment of waterbodies in the Study Area, consult the full Waterhole Creek and Lukfata Creek Bacterial and Turbidity TMDL report at the following DEQ webpage: <https://www.deq.ok.gov/water-quality-division/watershed-planning/tmdl/>.

TMDL Calculations:

The purpose of a TMDL is to identify sources of pollutants in a watershed and calculate the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. The Waterhole Creek and Lukfata Creek Study Area contains waterbodies that are in violation of Oklahoma WQS with respect to bacteria and/or turbidity. The TMDL calculates the reduction in bacteria and turbidity that would be needed in order for these streams to be in compliance with Oklahoma WQS. This was done using load duration curves. The calculations include present and future sources as well as a margin of safety. For more information on how the TMDLs were developed, read Sections 4 & 5 and Appendix B of the TMDL report.

TMDL Results:

The TMDLs were calculated using load duration curves and in this report two TMDLs (Table 3) were developed for the two streams in the Waterhole Creek and Lukfata Creek Study Area. Table 3 indicates the amount that each pollutant will need to be reduced [Percent Reduction Goal (PRG)] in order for that waterbody to meet water quality standards and its designated beneficial uses:

Table 3: Percent Reduction Goal Needed for Waterbody to Meet Water Quality Standards

WBID	Waterbody Name	These impairments must be reduced by the following amounts in order to meet water quality standards.		
		<i>E. coli</i>	Enterococci	Turbidity
OK410100010340_00	Waterhole Creek		77.1%	
OK410210070010_00	Lukfata Creek			41.4%

Providing comments

- DEQ invites your comments. The comment period will be open for 45 days. The TMDL report is a draft document and is subject to change based on comments received during the public participation process.
- You may also request a public meeting in writing. If there is a significant degree of interest, DEQ will schedule a public meeting.
- All official comments for the record must be submitted either in writing or by e-mail before the end of the comment period. DEQ will prepare a responsiveness summary addressing all comments received. After evaluating comments received and making any necessary changes, the TMDL report will be submitted to EPA for final approval. The final results of the TMDL will be incorporated into Oklahoma’s Water Quality Management Plan.

Please submit your comments in writing to: Nicole Newcomer, Water Quality Division, Oklahoma Department of Environmental Quality, P.O. Box 1677, Oklahoma City, OK 73101-1677; (405) 702-8290; E-mail: Water.Comments@deq.ok.gov

Comments must be received by 4:30 pm on Friday December 1, 2023

Obtaining copies: You may view the full TMDL Report by picking up copies at the DEQ main office, Water Quality Division, 707 North Robinson, Oklahoma City from 8:30 am – 4:30 pm. A document copying fee may apply. You may also view the TMDL report by going to the DEQ website at: www.deq.state.ok.us/WQDnew/tmdl/index.html.

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