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Public Notice[1]

March 25, 2025

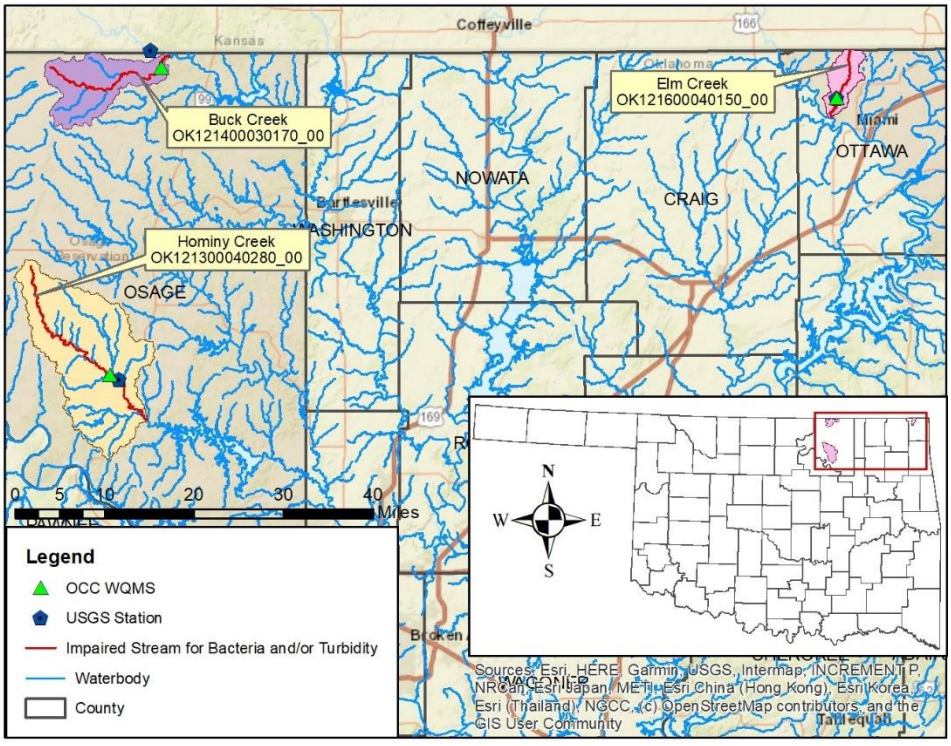
Availability of Draft Bacterial and Turbidity TMDLs for Oklahoma Streams in the Neosho and Verdigris Basins Area

Proposed Modification to Incorporate Neosho and Verdigris Basins Area Bacterial and Turbidity TMDLs into Oklahoma's Water Quality Management Plan

Request for Public Comments

Public Comment Period Ends on May 9th, 2025

Watershed:
The Neosho and Verdigris Basins Study Area is located in the northeastern portion of Oklahoma in the Caney (USGS HUC 11070106), Bird (USGS HUC 11070107), and Lake O Cherokees (USGS HUC 11070206) watersheds. The Study Area covers portions of Osage and Ottawa counties.



Beneficial Uses in the Neosho and Verdigris Basins Study Area:

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

[1] As a convenience, this DEQ public notice includes links to third-party sites. DEQ's inclusion of a linked site does NOT constitute an endorsement, recommendation, or favoring of the contents. Please be aware that we do not control or guarantee the accuracy, relevance, timeliness, or completeness of this outside information. Further, the inclusion of third-party sites is not intended to reflect their importance, nor is it intended to endorse any views expressed by the author or organization of the reference. The purpose of providing these links is to ensure that the recipient or reader of this notice has additional useful information and references to assess this TMDL report.

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

Waterbody ID	Waterbody Name	AES	AG	WWAC	FISH	PBCR	PPWS	SWS
OK121300040280_00	Hominy Creek	F	N	N	X	N	I	X
OK121400030170_00	Buck Creek	I	F	I	X	N	I	
OK121600040150_00	Elm Creek	F	N	N	X	F		

F – Fully supporting | **N** – Not supporting | **I** – Insufficient | **X** – Not assessed | Source: **DEQ 2022 Integrated Report**

Impaired Waterbodies in the Neosho and Verdigris Basins Study Area:

The Total Maximum Daily Load (TMDL) study evaluated three waterbodies in the Neosho and Verdigris Basins 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. One waterbody in the Study Area, Elm Creek (OK121600040150_00), was identified as being removed from the 2022 303(d) list in error and is evaluated as still impaired for nonsupport of the PBCR beneficial use. Therefore, this waterbody was kept in the report to be addressed with a TMDL. 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 for *E. coli* and Enterococci bacteria are listed in the *Assessment of Primary Body Contact Recreation support* [OAC 252:740-15-6(b-c)]. For streams with a PBCR beneficial use, the geometric mean criteria for *E. coli* and Enterococci are 126/100 mL and 33/100 mL, respectively. The geometric mean of samples collected during the PBCR season cannot exceed the geometric mean criteria of *E. coli* or Enterococci. The PBCR season every year is May 1 – September 30.

The Oklahoma WQS for turbidity is 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 50 NTUs (nephelometric turbidity units) for streams with a WWAC 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 the half of **Table 2** with a dark blue header. Bacterial water quality monitoring results from 2007 – 2022 (62 samples) and turbidity water quality monitoring results from 2018 – 2023 (71 after high flow samples were excluded) were examined to verify if these waterbodies were still impaired. The results of the data analysis are also summarized in **Table 2**. An "**x**" in the half of the table with the yellow header indicates that sampling data showed the waterbody to still be impaired for bacteria and/or turbidity. TMDLs were developed for these waterbodies. The "**x**" in red represents a waterbody that was found to be impaired when the water quality data was analyzed but that the waterbody had not been on the 2022 303(d) list as being impaired. That was the case with Elm Creek (OK121600040150_00) which was found to be impaired for *E. coli*. As a result, the *E. coli* TMDL for Elm Creek was developed and is included in the report. Because of new data collected from 2018 to 2023 on Hominy Creek (OK121300040280_00), the *E. coli* and turbidity impairments were assessed to be attaining WQSs. Therefore, these impairments are recommended to be removed from the 2024 303(d) list and are not included in this report.

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

Table 2: Assessed Impairments and Actual Impairments in the Study Area

WBID	Waterbody Name	Category 5 Impairments from the 2022 303(d) List			TMDLs needed after sampling results analyzed		
		Enterococci	*E. coli*	Turbidity	Enterococci	*E. coli*	Turbidity
OK121300040280_0	Hominy Creek		X	X			
OK121400030170_0	Buck Creek	X			X		
OK121600040150_0	Elm Creek					X	

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 the Oklahoma Pollutant Discharge Elimination System (OPDES) Act [Title 252, Chapter 606 (https://www.deq.ok.gov/wp-content/uploads/deqmainresources/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:

TMDL = WLA (waste load allocations from point sources) **+ LA** (from nonpoint sources) **+ MOS** (margin of safety)

Possible Sources of Impairments:

Point sources - The point sources examined in the Neosho and Verdigris Basins Study Area were:

- **OPDES-regulated municipal and industrial wastewater treatment facilities (WWTF)** – There are no OPDES-regulated facilities in the TMDL watersheds.
- **OPDES regulated stormwater discharges**:
  - **Municipal Separate Storm Sewer Systems (MS4s)** – Elm Creek (OK121600040150_00) watershed has 0.2% of the area covered by the Miami Phase II MS4. Because of the small proportional contribution to the pollutant load (less than 0.5% of the watershed area) it will not be included in the WLA but considered part of the LA in the bacterial TMDL.
- **Sanitary Sewer Overflows (SSO)** – In the TMDL watersheds, there are no municipal or industrial facilities therefore there are no records of any SSOs having occurred in the Buck Creek or Elm Creek watersheds.
- **No-Discharge Facilities** – In the TMDL watersheds, there are no no-discharge facilities.
- **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). Based on data provided by ODAFF in September of 2023, there are no concentrated animal feeding operations (CAFOs), swine feeding operations (SFOs), or poultry feeding operations (PFOs) in the TMDL

watersheds.

Nonpoint sources - The nonpoint sources examined in the Neosho and Verdigris Basins Study Area were:

- Wildlife – There are about 977 deer in the TMDL watersheds. They are thought to be a minor contributor of bacteria.
- Farm animals – There are an estimated 6,039 head of cattle in the TMDL watersheds. They are considered to be a major contributor of fecal coliform in the Study Area.
- Pets – There are an estimated 744 dogs and 529 cats in the TMDL watersheds. They are considered to be a minor contributor of bacteria in the Study Area.
- Failing Septic Systems – There are 50 failing septic systems in the TMDL watersheds 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 Neosho and Verdigris Basins 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 Neosho and Verdigris Basins Study Area contains waterbodies that are in violation of Oklahoma WQS with respect to bacteria. The TMDL calculates the reduction in bacteria 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 two waterbodies in the Neosho and Verdigris Basins 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	
		E. coli	Enterococci
OK121400030170_00	Buck Creek		74.7%
OK121600040150_00	Elm Creek	16.8%	

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: Tamara Scott, Water Quality Division, Oklahoma Department of Environmental Quality, P.O. Box 1677, Oklahoma City, OK 73101-1677; (405) 702-8234; E-mail: Water.Comments@deq.ok.gov

Comments must be received by 4:30 pm on Friday, May 9th, 2025

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: https://www.deq.ok.gov/water-quality-division/watershed-planning/tmdl/.

You are receiving this notice because you are either on DEQ's list to receive all public notices, or you requested notices about your watershed. In addition to proposed TMDL reports, DEQ's TMDL, Modeling, 208, & 303(d) Section sends out public notices about proposed wasteload allocations (208s), proposed changes to the CPP or Integrated Report, 404 projects, and 401 Certification requests.

If you would like to receive any or all of these public notices via e-mail, please send your e-mail address to Water.Comments@deq.ok.gov. Also, please let us know if you want to receive notices for the entire State or just for your USGS HUC 8 watershed.

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