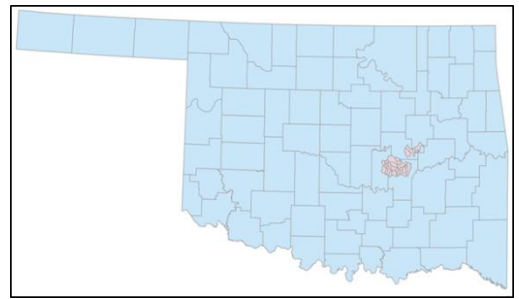


# 208 FACTSHEET FOR BACTERIAL AND TURBIDITY TMDLs in the LOWER NORTH CANADIAN RIVER/ DEEP FORK RIVER STUDY AREA

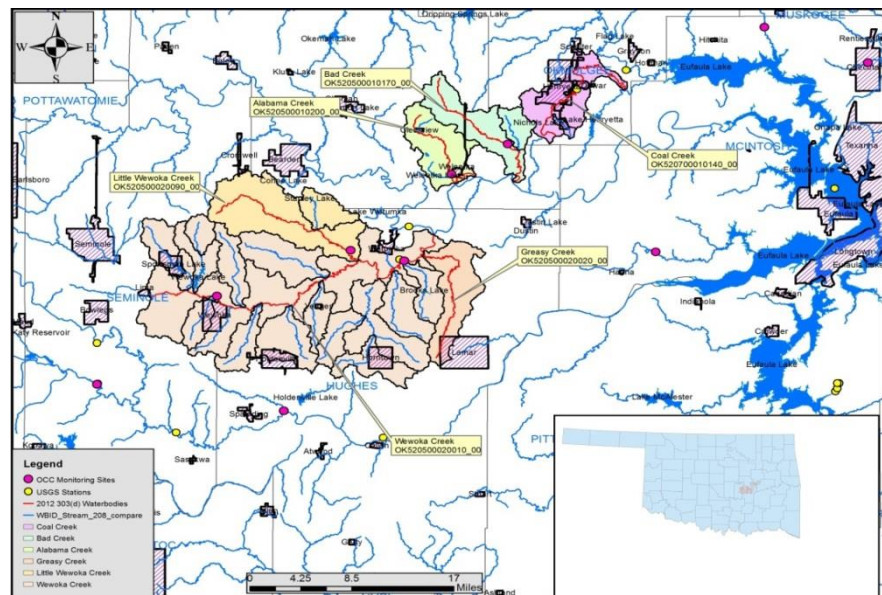


## Watershed:

The Lower North Canadian River/Deep Fork River TMDL Study Area is located central eastern part of Oklahoma in the in the [Deep Fork](#) (USGS [HUC 11100303](#)) and [Lower North Canadian](#) (USGS [HUC 11100302](#)) watersheds. The Study Area covers portions of [Hughes](#), [Okfuskee](#), [Okmulgee](#), and [Seminole](#) counties.

## Beneficial Uses in the Lower North Canadian/Deep Fork TMDL Study Area:

According to the [Oklahoma Water Quality Standards](#), the [designated beneficial uses](#) for the waterbodies in the Arkansas River and North Canadian River Study Area are Aesthetics (AES), Agriculture (AG), Fish & Wildlife Propagation-Warm Water Aquatic Community Subcategory (WWAC), Habitat Limited Aquatic Community (HLAC), Fish Consumption (FISH), Primary Body Contact Recreation (PBCR), Public & Private Water Supply (PPWS), and Emergency Water Supply (EWS). The designated beneficial uses addressed in this TMDL Study were WWAC and PBCR. Table 1 is the assessment from Oklahoma's [2012 Integrated Report](#) on whether or not these waterbodies met their beneficial uses.



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

Waterbody Identification	Waterbody Name	AES	AG	WWAC	FISH	PBCR	PPWS	EWS
OK520500010170_00	<a href="#">Bad Creek</a>	F	F	F	X	N	I	
OK520500010200_00	<a href="#">Alabama Creek</a>	I	N	F	X	N	I	
OK520500020010_00	<a href="#">Wewoka Creek</a>	F	N	HLAC	X	N	I	F
OK520500020020_00	<a href="#">Greasy Creek</a>	F	F	N	X	I		
OK520500020090_00	<a href="#">Little Wewoka Creek</a>	I	F	F	X	N	I	
OK520700010140_00	<a href="#">Coal Creek</a>	I	X	N	X	X <sup>1</sup>		F

**F – Fully supporting that designated use; N – Not supporting that use; I – Insufficient information; X – Not assessed**

<sup>1</sup> Designated use is Secondary Body Contact Recreation but not assessed for that use.

## Impaired Waterbodies in the Lower North Canadian/Deep Fork TMDL Study Area:

Waterbodies that were indicated as impaired for bacteria or turbidity on Oklahoma's 2012 [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 2003 – 2010 (137 samples) and turbidity water quality monitoring results from 2009 – 2010 (24 samples) were examined to verify if these waterbodies were still impaired. The results of the data analyses 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 or turbidity. TMDLs were developed for these waterbodies.

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

WBID	Waterbody Name	Waterbody impairments from the 2012 303(d) List			TMDLs needed after sampling results analyzed		
		Enterococci	<i>E. coli</i>	Turbidity	Enterococci	<i>E. coli</i>	Turbidity
OK520500010170_00	<a href="#">Bad Creek</a>		X			X	
OK520500010200_00	<a href="#">Alabama Creek</a>	X	X		X	X	
OK520500020010_00	<a href="#">Wewoka Creek</a>		X			X	
OK520500020020_00	<a href="#">Greasy Creek</a>			X			Delist – no violation
OK520500020090_00	<a href="#">Little Wewoka Creek</a>	X	X		X	X	
OK520700010140_00	<a href="#">Coal Creek</a>			X			Delist – no violation

### Possible Sources of Impairments:

**Point sources - The point sources examined in the Lower North Canadian River/Deep Fork River TMDL Study Area were:**

- **OPDES-regulated [municipal](#) and [industrial wastewater treatment facilities \(WWTF\)](#)** – There are six municipal and three industrial OPDES-permitted facilities that discharge wastewater to waters in the Lower North Canadian/Deep Fork Study Area. These facilities are listed in Table 3-1 and displayed in Figure 3-1 of the TMDL report.
- **[OPDES regulated stormwater discharges:](#)**
  - ☛ [Municipal Separate Storm Sewer Systems \(MS4s\)](#) - There aren't any in the Study Area.
  - ☛ [Industrial Sites](#) – There weren't any facilities in the Study Area with a [Multi-Sector General Permit \(MSGP\)](#).
    - Rock, Sand, and Gravel Quarries – Wastewater generated at quarries is regulated under [DEQ General Permit OKG950000](#). There aren't any quarries in the Study Area.
  - ☛ [Construction Sites](#) - There was one DEQ-permitted construction site during the time period that water samples were taken in the Study Area.
- **No-Discharge Facilities** – In the Study Area, there was one no-discharge facility (Henryetta WWTF). 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.
- **[Sanitary Sewer Overflows \(SSO\)](#)**: In the Study Area between 2000 and 2013, 386 SSO occurrences were reported with amounts ranging from a minimal amount to 90 thousand gallons.
- **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 15 [Swine Feeding Operations \(SFOs\)](#) with 13,622 swine in the Study Area. SFOs must follow [SFO rules](#) and develop a [Swine Waste Management Plan](#) to prevent swine waste from being discharged into surface or groundwater.

**Nonpoint sources - The nonpoint sources examined in the Lower North Canadian River/Deep Fork River TMDL Study Area were:**

- Wildlife – There are about 3,686 deer in the Study Area. They are thought to be a minor contributor of bacteria.
- Farm animals – There are an estimated 34,783 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 11,599 dogs and 15,011 cats in the Study Area. They are considered to be a minor contributor of bacteria in the Study Area.
- Failing Septic Systems – There are 246 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 Lower North Canadian River/Deep Fork River Bacterial and Turbidity TMDL report at the following DEQ webpage: <http://www.deq.state.ok.us/WQDnew/tmdl/index.html>.

**TMDLs:**

Load duration curves were used to calculate six TMDLs (Table 3) for the six streams in the Lower North Canadian River/Deep Fork River Study Area.

**Table 3 Summary of Bacterial TMDLs in the Lower North Canadian/Deep Fork Study Area**

Stream Name	Waterbody ID	Pollutant	TMDL (cfu/day)	WLA <sub>WWTF</sub> (cfu/day)	WLA <sub>MS4</sub> (cfu/day)	LA (cfu/day)	MOS (cfu/day)
Bad Creek	OK520500010170_00	<i>E. coli</i>	1.40E+10	0.00E+00	0.00E+00	1.26E+10	1.40E+09
Alabama Creek	OK520500010200_00	<i>E. coli</i>	1.10E+10	6.87E+08	0.00E+00	9.21E+09	1.10E+09
		ENT	2.88E+09	1.80E+08	0.00E+00	2.41E+09	2.88E+08
Wewoka Creek	OK520500020010_00	<i>E. coli</i>	6.78E+10	3.25E+09	0.00E+00	5.78E+10	6.78E+09
Little Wewoka Creek	OK520500020090_00	<i>E. coli</i>	1.19E+10	0.00E+00	0.00E+00	1.07E+10	1.19E+09
		ENT	3.13E+09	0.00E+00	0.00E+00	2.81E+09	3.13E+08

Table 4 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 4 Percent Reduction Goal Needed for Waterbody to Meet Water Quality Standards**

Waterbody ID	Waterbody Name	Required Reduction Rate	
		<i>E. coli</i>	ENT
OK520500010170_00	Bad Creek	20%	-
OK520500010200_00	Alabama Creek	11%	84%
OK520500020010_00	Wewoka Creek	32%	-
OK520500020090_00	Little Wewoka Creek	36%	79%

TMDLs include bacterial WLAs for point source dischargers. The WLAs are in Table 5.

**Table 5 Bacterial Wasteload Allocations for OPDES-Permitted Facilities**

Waterbody ID & Stream Name	Name	OPDES Permit No.	Dis-infection?	Design Flow (mg/d)	Wasteload Allocation (x10 <sup>8</sup> cfu/day)	
					<i>E. coli</i>	ENT
Alabama Creek OK520500010200_00	<b>Weleetka PWA</b>	OK0028525	No	0.144	6.87	1.8
Wewoka Creek OK520500020010_00	<b>City of Wetumka</b>	OK0032417	Yes	0.102	4.87	-
	<b>City of Wewoka</b>	OK0022659	Yes	0.580	27.7	-

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