Tributaries of the Neches River below Lake Palestine: A Community Project to Protect Recreational Uses

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Four Total Maximum Daily Loads for Indicator Bacteria in Tributaries of the Neches River below Lake Palestine[1]

Adopted October 5, 2022.

Approved by EPA June 7, 2023.

One TMDL for Indicator Bacteria in Cedar Creek

Via the January 2024 Update to the Texas Water Quality Management Plan (SFR-121/2024-02).

Approved by EPA April 17, 2024.

[1] https://www.tceq.texas.gov/downloads/water-quality/tmdl/lufkin-area-watersheds-recreational-118/118-as-222-middle-neches-bacteria-tmdl-adopted.pdf

Appendix III. Addendum One to Four Total Maximum Daily Loads for Indicator Bacteria in Tributaries of the Neches River below Lake Palestine

Adding one TMDL for AU 0604A_03

One TMDL for Indicator Bacteria in Cedar Creek

Introduction

TCEQ adopted *Four Total Maximum Daily Loads for Indicator Bacteria in Tributaries of the Neches River below Lake Palestine* (TCEQ, 2022a) on Oct. 5, 2022. The United States Environmental Protection Agency (EPA) approved the TMDLs on June 7, 2023.

This first addendum includes information specific to one additional assessment unit (AU) for indicator bacteria for Cedar Creek (AU 0604A_03; also referred to in this addendum as the TMDL watershed). This AU is located within the watershed of the approved original TMDLs for the Tributaries of the Neches River below Lake Palestine. The concentration of indicator bacteria in this additional AU exceeds the criterion used to evaluate support of the primary contact recreation 1 use.

This addendum details the development of the added TMDL allocation for this additional AU, which was not specifically addressed in the original TMDL report. For background or other explanatory information, please refer to the *Technical Support Document for One Total Maximum Daily Load for Indicator Bacteria in Cedar Creek*[2] (Yang and Schramm, 2023). Refer to the original, approved TMDL document for details about the overall project watershed, as well as methods and assumptions used in developing the original TMDLs.

Problem Definition

TCEQ first identified the bacteria impairment for Cedar Creek in the *2022 Texas Integrated Report of Surface Water Quality for Clean Water Act Sections 305(b) and 303(d)* (Texas Integrated Report; TCEQ, 2022b), the latest EPA-approved edition. The impaired AU is 0604A_03. The water body includes only three AUs. The downstream AU 0604A_02 was addressed in the original TMDL. Figure III-1 shows the watershed added in this addendum in relation to the entire watershed of the original TMDLs.

The Texas Surface Water Quality Standards (TCEQ, 2022c) identify uses for surface waters and numeric and narrative criteria to evaluate attainment of those uses. The

[2] www.tceq.texas.gov/downloads/water-quality/tmdl/lufkin-area-watersheds-recreational-118/as-485-118h-cedar_creek_tsd.pdf

basis for the water quality target for the TMDL developed in this addendum is the numeric criterion for indicator bacteria from the 2022 Texas Surface Water Quality Standards. *Escherichia coli (E. coli)* are the indicator bacteria for assessing primary contact recreation 1 use in freshwater.

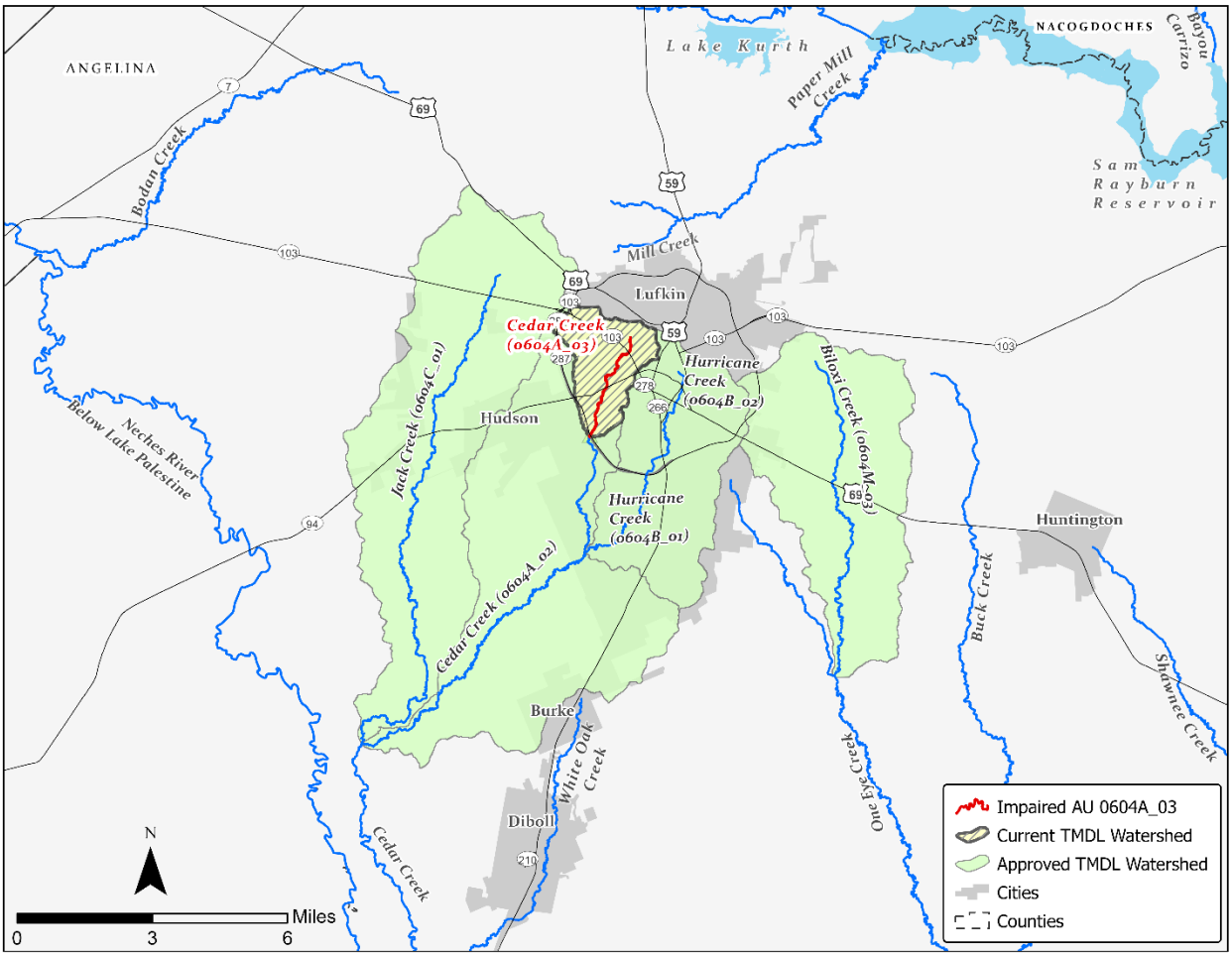

Figure III-1. Map showing the previously approved TMDL watersheds and the Cedar Creek 0604A_03 watershed added by this addendum

Table III-1 summarizes the ambient water quality data for the TCEQ surface water quality monitoring (SWQM) stations in the water body, as reported in the 2022 Texas Integrated Report. The data from the assessment indicate nonsupport of the primary contact recreation 1 use for the AU, because the geometric mean concentration for *E. coli* exceeds the freshwater geometric mean criterion of 126 colony forming units per 100 milliliters (cfu/100 mL) of water. Figure III-2 shows the locations of the TCEQ SWQM stations that were used in evaluating water quality in the 2022 Texas Integrated Report for the water body added by this addendum.

Table III-1. 2022 Texas Integrated Report summary

AU	TCEQ SWQM Station	Parameter	Number of Samples	Date Range	*E. coli* Geometric Mean (cfu/100 mL)
0604A_03	10479 21434	*E. coli*	56	12/01/2013 - 11/30-2020	186.67

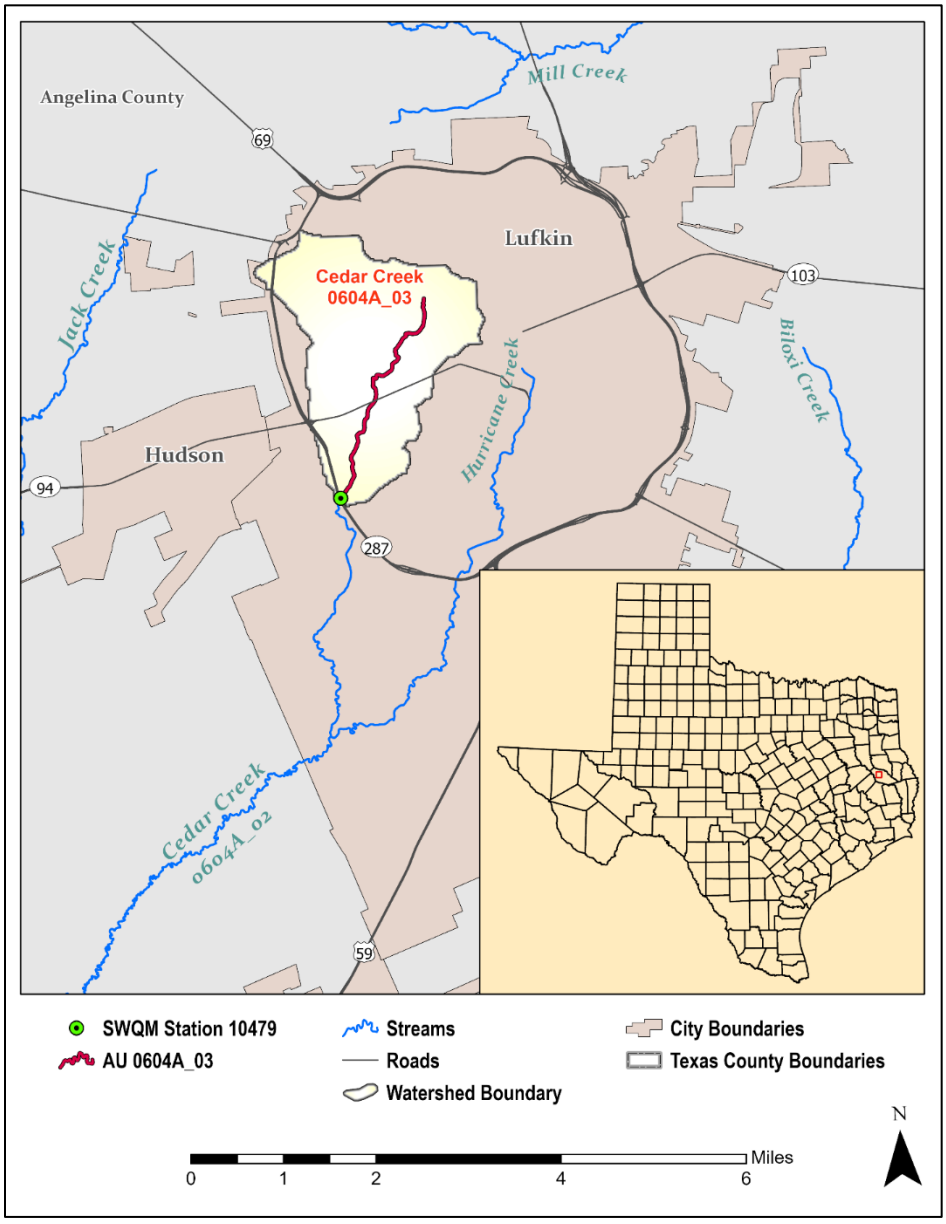

Figure III-2. Active TCEQ SWQM stations

Watershed Overview

The impaired AU (0604A_03) is almost entirely located within the City of Lufkin in Angelina County and measures about 2.79 miles in length. The total area of the Cedar Creek watershed is around 2,509 acres.

The 2022 Texas Integrated Report (TCEQ, 2022b) has the following water body and AU descriptions:

- Cedar Creek – From the confluence of the Neches River southwest of Lufkin in Angelina County to the upstream perennial portion of the stream in Lufkin in Angelina County.
    - AU 0604A_03 – From the confluence with unnamed tributary adjacent to State Highway Loop 287 upstream to headwaters near Hoo Hoo Ave in the City of Lufkin.

Climate

The TMDL watershed is in east Texas primarily under the impact of humid subtropical with hot summers based on the Köppen-Geiger climate classification. Precipitation and temperature data were acquired from the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center database for January 2002 – December 2021. The nearest weather station to the TMDL watershed is USW00093987 located in the Angelina County Airport (NOAA, 2022). As shown in Figure III-3, monthly low temperatures ranged between 37.3°F (January) and 72.6°F (July); meanwhile, monthly high temperatures ranged between 60.6°F (January) and 94.5°F (August). Mean precipitation ranged between 3.53 inches (August) and 5.75 inches (May).

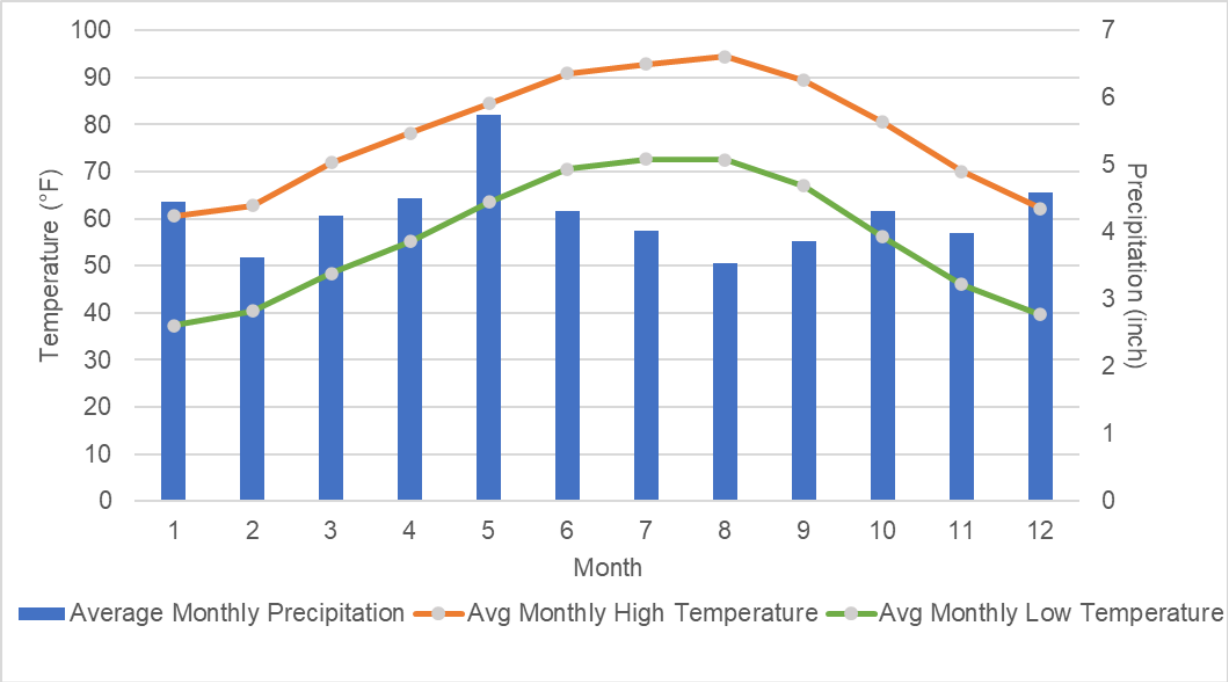

Figure III-3. Average monthly temperature and precipitation (2002–2021) at weather station USW00093987

Population and Population Projections

The TMDL watershed is located within Angelina County. Watershed population estimates were developed using the United States Census Bureau (USCB) 2020 census blocks data (USCB, 2020). Using the methodology described later in this section, the population of the TMDL watershed in 2020 was estimated to be 4,784.

A population projection through 2070 was developed using data from the Texas Water Development Board (TWDB, 2019) to be consistent with the original TMDLs. Table III-2 provides a summary of the population projection for the added TMDL watershed.

Table III-2. 2020 – 2070 population projection

Area	2020 Estimated Population	2070 Projected Population	Projected Population Increase	Percent Change
Cedar Creek AU 0604A_03	4,784	6,089	1,305	27.28%

The following steps detail the method used to estimate the 2020 and projected 2070 populations in the TMDL watershed.

1. The 2020 USCB block level population data was obtained for Angelina County.
2. The 2020 watershed population was estimated by adding the total population of the census blocks located entirely within the watershed.

3. For the census blocks partially located in the watershed, the block population was determined by multiplying the total block population by the proportion of the block area within the watershed. This was added to the population estimate from step 2.
4. Decadal population projections for Angelina County between 2020-2070 were obtained from the TWDB county population projections dataset (TWDB, 2019).
5. Projected decadal population percentage increases in Angelina County were calculated for each decade between 2020-2070.
6. The county level projected population percentage increases calculated in Step 5 were added to the 2020 watershed population determined in steps 1-3 to obtain population projections for the TMDL watershed.

Land Cover

The land cover data for the TMDL watershed were obtained from the United States Geological Survey 2019 National Land Cover Database (NLCD; USGS, 2021) The land cover for the addendum TMDL watershed is shown in Figure III-4. A summary of the land cover data is provided in Table III-3 and indicates that the addendum TMDL watershed is mostly developed (79.45%) with some Mixed Forests (8.09%) and Evergreen Forests (7.84%).

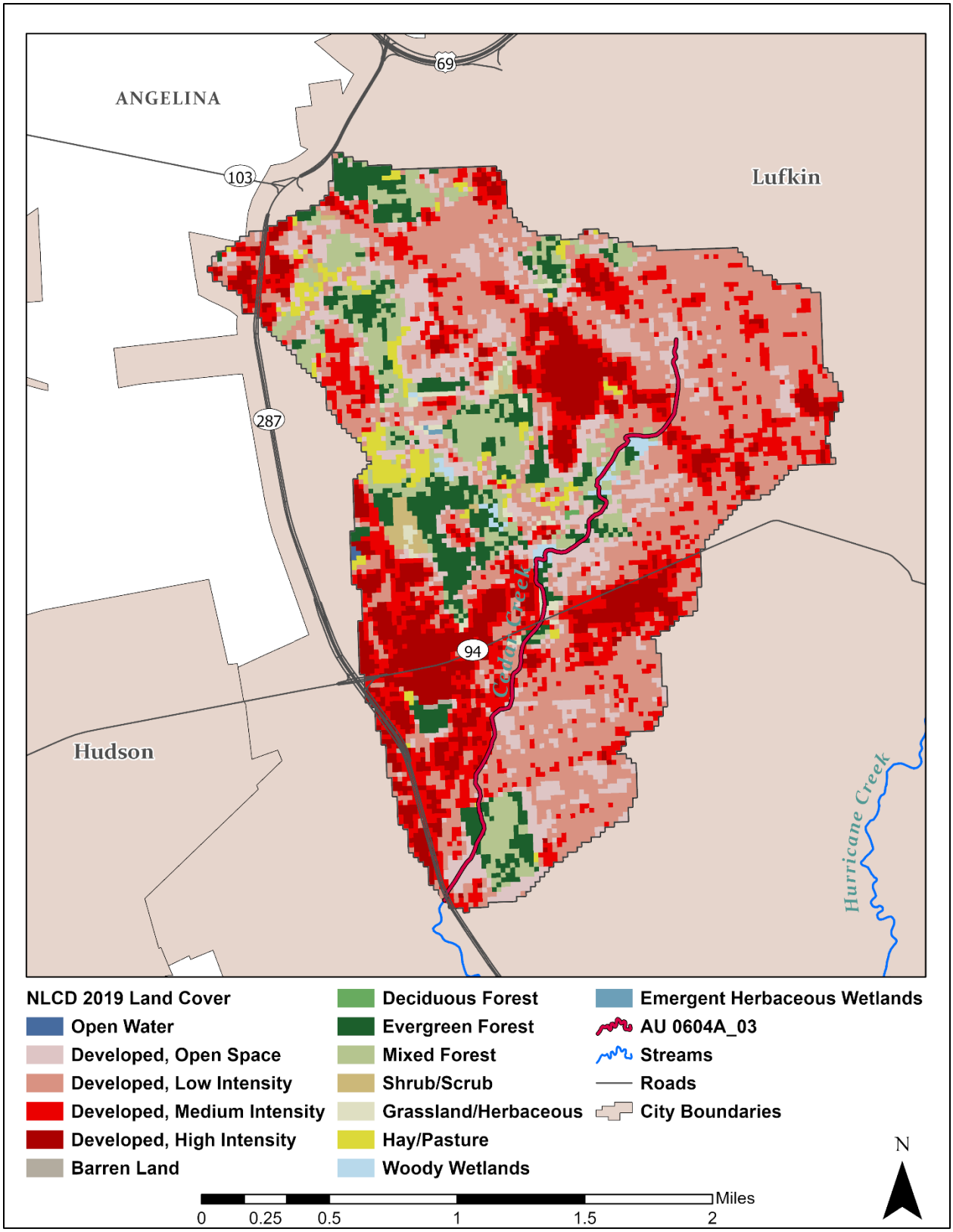

Figure III-4. Land cover map showing classifications

Table III-3. Land cover classification by area and percentage

NLCD 2019 Land Classification	Area (Acres)	% of Total
Open Water	0.89	0.04%
Developed, Open Space	322.02	12.84%
Developed, Low Intensity	891.77	35.55%
Developed, Medium Intensity	462.34	18.43%
Developed, High Intensity	316.90	12.63%
Barren Land	2.89	0.12%
Deciduous Forest	0.89	0.04%
Evergreen Forest	196.59	7.84%
Mixed Forest	203.04	8.09%
Shrub/Scrub	18.24	0.73%
Grassland/Herbaceous	19.35	0.77%
Pasture/Hay	56.49	2.25%
Woody Wetlands	16.46	0.66%
Emergent Herbaceous Wetlands	0.89	0.04%
Total	2,508.76	100%

Endpoint Identification

The endpoint for the TMDL is to maintain the concentration of *E. coli* below the geometric mean criterion of 126 cfu/100 mL, which is protective of the primary contact recreation 1 use in freshwater.

Source Analysis

Pollutants may come from several sources, both regulated and unregulated. Pollutants in regulated discharges, referred to as “point sources,” come from a single definable point, such as a pipe, and are regulated by permit under the Texas Pollutant Discharge Elimination System (TPDES) program. Wastewater treatment facilities (WWTFs) and stormwater discharges from industries, construction activities, and the separate storm sewer systems of cities are considered point sources of pollution.

Unregulated sources are typically nonpoint source in origin, meaning the pollutants originate from multiple locations and rainfall runoff washes them into surface waters. Nonpoint sources are not regulated by permit.

Except for WWTFs, which receive individual wasteload allocations (WLAs; see the Wasteload Allocation section), the regulated and unregulated sources in this section are

presented to give a general account of the different sources of bacteria expected in the watershed. These are not meant to be used for allocating bacteria loads or interpreted as precise inventories and loadings.

Regulated Sources

Regulated sources are controlled by permit under the TPDES program. The regulated sources in the TMDL watershed include Sanitary Sewer Overflows (SSOs), stormwater discharge from industrial and regulated sites and other miscellaneous sources.

Domestic and Industrial WWTFs

As of November 2022, there were no WWTFs with TPDES permits within the TMDL watershed (TCEQ, 2022d; EPA, 2022).

TCEQ/TPDES Water Quality General Permits

Certain types of activities are required to be covered by one of several TCEQ/TPDES wastewater general permits:

- TXG110000 – concrete production facilities
- TXG130000 – aquaculture production
- TXG340000 – petroleum bulk stations and terminals
- TXG640000 – conventional water treatment plants
- TXG670000 – hydrostatic test water discharges
- TXG830000 – water contaminated by petroleum fuel or petroleum substances
- TXG870000 – pesticides (application only)
- TXG920000 – concentrated animal feeding operations
- WQG100000 – wastewater evaporation
- WQG200000 – livestock manure compost operations (irrigation only)

A review of active general permit coverage (TCEQ, 2022e) in the TMDL watershed as of November 2022, found one general permit authorization for a concrete production facility. This facility, however, does not have bacteria reporting requirements or limits in its permit; therefore, it is assumed to contain inconsequential amounts of indicator bacteria in the effluent. Therefore, it was considered unnecessary to allocate bacteria loads to this facility. There are no other active general wastewater permit authorizations found in the TMDL watershed.

Sanitary Sewer Overflows

A summary of SSO incidents that occurred during a six-year period from 2016 through 2022 in TMDL watershed was obtained from TCEQ Central Office in Austin. The summary data indicated four SSO incidents had been reported within the TMDL watershed. The SSOs had a total discharge of 2,501 gallons with a minimum of one gallon and a maximum of 1,500 gallons.

TPDES-Regulated Stormwater

When evaluating stormwater for a TMDL allocation, a distinction must be made between stormwater originating from an area under a TPDES-regulated discharge permit and stormwater originating from areas not under a TPDES-regulated discharge permit. Stormwater discharges fall into two categories:

1. Stormwater subject to regulation, which is any stormwater originating from TPDES-regulated municipal separate storm sewer system (MS4) entities, stormwater discharges associated with regulated industrial facilities, and construction activities.
2. Stormwater runoff not subject to regulation.

Discharges of stormwater from a Phase II MS4 area, regulated industrial facility, construction area, or other facility involved in certain activities must be covered under the following TCEQ/TPDES general permits:

- TXR040000 – Phase II MS4 General Permit for MS4s located in urbanized areas
- TXR050000 – Multi-sector general permit (MSGP) for industrial facilities
- TXR150000 – Construction general permit (CGP) for construction activities disturbing more than one acre or are part of a common plan of development disturbing more than one acre

A review of active stormwater general permit authorizations (TCEQ, 2022e) in the TMDL watershed as of December 2021, found five active MSGP authorizations and two CGP authorizations within the watershed. There are currently no Phase I MS4 permits or Phase II MS4 authorizations within the TMDL watershed.

Illicit Discharges

Pollutant loads can enter water bodies from MS4 outfalls that carry authorized sources as well as illicit discharges under both dry- and wet-weather conditions. The term “illicit discharge” is defined in TPDES General Permit TXR040000 for Phase II MS4s as “Any discharge to a municipal separate storm sewer system that is not entirely composed of stormwater, except discharges pursuant to this general permit or a separate authorization and discharges resulting from emergency firefighting activities.” Illicit discharges can be categorized as either direct or indirect contributions.

Unregulated Sources

Unregulated sources of bacteria are nonpoint and can originate from wildlife and feral hogs, various agricultural activities, agricultural animals, land application fields, urban runoff not covered by a permit, failing on-site sewage facilities (OSSFs), and domestic pets.

Unregulated Agricultural Activities and Domesticated Animals

A number of agricultural activities that do not require permits can be potential sources of fecal bacteria loading. Livestock are present throughout the more rural portions of the project watershed but are considered to have a minimal impact given how developed the TMDL watershed is.

Table III-4 provides estimated numbers of selected livestock in the watershed based on the 2017 Census of Agriculture conducted by United States Department of Agriculture (USDA, 2019). The county-level estimated livestock populations were reviewed by Texas State Soil and Water Conservation Board (TSSWCB) staff and were distributed based on Geographic Information System (GIS) calculations of pastureland in the watershed, based on the 2019 NLCD (NLCD, 2019). These livestock numbers, however, were not used to develop an allocation of allowable bacteria loading to livestock.

Table III-4. Estimated livestock populations

AU	Cattle and Calves	Hogs and Pigs	Goats and Sheep	Horses
0604A_03	15	0	2	2

Fecal bacteria from dogs and cats is transported to water bodies by runoff in both urban and rural areas and can be a potential source of bacteria loading. Table III-5 summarizes the estimated number of dogs and cats within the TMDL watershed. Pet population estimates were calculated as the estimated number of dogs (0.614) and cats (0.457) per household (AVMA, 2018). The number of households in the TMDL watershed was estimated using 2020 Census data (USCB, 2020). The actual contribution and significance of bacteria loads from pets reaching the TMDL watershed is unknown.

Table III-5. Estimated households and pet population

Estimated Households	Estimated Dog Population	Estimated Cat Population
2,136	1,312	976

Wildlife and Unmanaged Animals

Fecal bacteria are common inhabitants of the intestines of all warm-blooded animals, including wildlife such as mammals and birds. In developing bacteria TMDLs, it is important to identify by watershed the potential for bacteria contributions from wildlife. Wildlife are naturally attracted to riparian corridors of water bodies. With direct access to the stream channel, the direct deposition of wildlife waste can be a concentrated source of bacteria loading to a water body. Fecal bacteria from wildlife are also deposited onto land surfaces, where they may be washed into nearby water bodies by rainfall runoff.

For feral hogs, AgriLife Extension estimates one hog per 39 acres as a statewide average density for feral hogs (Timmons et.al., 2012). Suitable habitat for feral hogs include the following: Hay/Pasture, Shrub/Scrub, Grassland/Herbaceous, Deciduous Forest, Evergreen Forest, Mixed Forest, Woody Wetlands, and Emergent Herbaceous Wetlands defined in NLCD (2019). The estimated feral hog density was applied to the area suitable (511.95 acres) for feral hog habitat which estimated that there are approximately 13 feral hogs in the watershed.

For deer, the Texas Parks and Wildlife Department (TPWD) provided deer population density estimates by Resource Management Unit (RMU) and Ecoregion in the state (TPWD, 2020). The TMDL watershed lies entirely in RMU 14 with an average deer density of 20.98 deer per 1,000 acres over the period 2005 through 2018 (TPWD, 2020). Applying this value to the suitable habitat area (511.95 acres) of the TMDL watershed estimates that there are approximately 11 deer within the watershed. The *E. coli* contribution from feral hogs and wildlife in the TMDL watershed could not be determined based on existing information.

On-site Sewage Facilities

Failing OSSFs were not considered a major source of bacteria loading in the TMDL watershed because the entire watershed area is served by a wastewater collection and treatment system. Estimates of the number of OSSFs in the TMDL watershed were determined using GIS datasets, including 911 addresses (TNRIS, 2021), city boundaries, Certificates of Convenience and Necessity (CCN) boundaries (PUC, 2017), and aerial imagery. Address data points located outside of the city and CCN boundaries were manually examined on the aerial imagery to determine whether they were located on residential buildings or businesses, which were assumed to have been equipped with OSSFs. Data from these sources indicated that there may not be any OSSFs within the TMDL watershed, as the watershed completely lies within the city limit of Lufkin and is almost completely within the CCN boundary except for its northwestern corner near State Loop 287, which is approximately 11 acres or 0.4% of the watershed.

Linkage Analysis

The load duration curve (LDC) method was used to examine the relationship between instream water quality and the source of indicator bacteria loads. Inherent to the use of LDCs as the mechanism of linkage analysis is the assumption of a one-to-one relationship between instream loadings and loadings originating from point sources as regulated and from the landscape as unregulated sources. Further, this one-to-one relationship was also inherently assumed when using the LDC to define the TMDL pollutant load allocation. The LDC method allows for estimation of TMDL loads by utilizing the cumulative frequency distribution of streamflow and measured pollutant concentration data (Cleland, 2003). In addition to estimating stream loads, this method allows for the determination of the hydrologic conditions under which impairments are typically occurring, can give indications of the broad origins of the bacteria (i.e., point or

nonpoint source), and provides a means to allocate allowable loadings. The technical support document for this addendum (Yang and Schramm, 2023) provides details about the linkage analysis along with the LDC method and its application.

The *E. coli* event data plotted on the LDC for TCEQ SWQM Station 10479 in Figure III-5 show exceedances of the geometric mean criterion have occurred regardless of streamflow conditions. However, bacteria loads were the most elevated under high-flow and the upper end of moist conditions. Meanwhile, under other flow conditions, most bacteria loads were not significantly above the geometric mean criterion and some loads were below the criterion. The allowable load at the single sample criterion (399 cfu/100 mL) is included on the LDC for comparison with individual *E. coli* samples, although it is not used for assessment or allocation purposes.

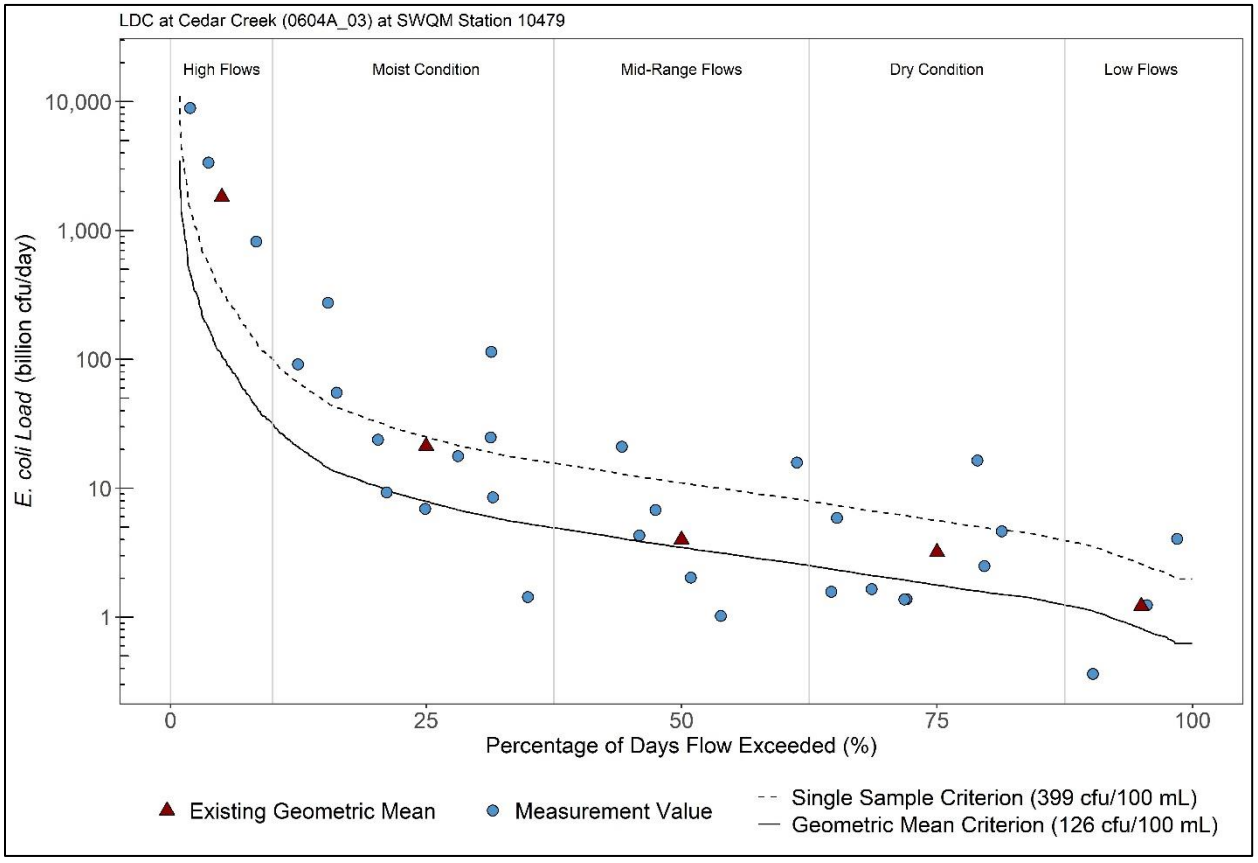

Figure III-5. LDC for TCEQ SWQM Station 10479

Margin of Safety

The margin of safety (MOS) is designed to account for any uncertainty that may arise in specifying water quality control strategies for the complex environmental processes that affect water quality. Quantification of this uncertainty, to the extent possible, is the basis for assigning an MOS. The TMDL in this report incorporates an explicit MOS of 5% of the total TMDL allocation.

Pollutant Load Allocation

The TMDL represents the maximum amount of a pollutant that the stream can receive in a single day without exceeding water quality standards. The pollutant load allocations for the selected scenarios were calculated using the following equation:

TMDL = WLA + LA + FG + MOS

Where:

WLA = wasteload allocations, the amount of pollutant allowed by regulated dischargers

LA = load allocations, the amount of pollutant allowed by unregulated sources

FG = loadings associated with future growth from potential regulated facilities

MOS = margin of safety load

For the remainder of this report some calculations have been rounded and may not lead to the exact final amounts listed in the text, tables, or figures.

AU-Level TMDL Calculation

To be consistent with previously completed TMDLs in the original watershed, the TMDL for Cedar Creek was derived using the median flow within the high flow regime (or 5% load duration exceedance) of the LDC developed for TCEQ SWQM Station 10479. This station represents the location within the TMDL watershed where an adequate number of *E. coli* samples were collected.

Margin of Safety Calculation

The TMDL in this report incorporates an explicit MOS of 5%.

Wasteload Allocation

The WLA is the sum of loads from regulated sources, which are WWTFs and regulated stormwater.

Wastewater Treatment Facilities

TPDES-permitted WWTFs are allocated a daily wasteload (WLA_{WWTF}) calculated as their full permitted discharge flow rate multiplied by the instream geometric mean criterion (126 cfu/100 mL for *E. coli*). Due to the absence of any permitted dischargers in the TMDL watershed, the WLA_{WWTF} component is zero.

Regulated Stormwater

Stormwater discharges from MS4, industrial, and construction areas are also considered regulated point sources. Therefore, the WLA calculations must also include an allocation

for regulated stormwater discharges (WLA_{SW}). The percentage of the land area included in the project watershed that is under the jurisdiction of stormwater permits is used to estimate the amount of the overall runoff load that should be allocated as the permitted stormwater contribution in the WLA_{SW} component.

Acreages associated with MSGP authorizations (30.345 acres), and CGP authorizations (11.300 acres) were estimated by importing location information into GIS and measuring the estimated disturbed area from available aerial imagery. The percentage of land under the jurisdiction of stormwater permits (a total of 41.645 acres) in the TMDL watershed is 1.66%.

Load Allocation

The load allocation (LA) component of the TMDL corresponds to direct nonpoint runoff and is the difference between the total load from stormwater runoff and the portion allocated to WLA_{SW}.

Allowance for Future Growth

The future growth (FG) component of the TMDL equation addresses the requirement of TMDLs to account for future loadings that might occur as a result of population growth, changes in community infrastructure, and development. Specifically, this TMDL component takes into account the probability that new flows from WWTF discharges may occur in the future. The assimilative capacity of water bodies increases as the amount of flow increases. The allowance for FG in this TMDL report will result in protection of existing uses and conform to Texas' antidegradation policy.

The FG component of the TMDL watershed was based on the population projections for the entire TMDL watershed. Due to the absence of any WWTFs in the TMDL watershed, the FG component considers the potential construction of a new WWTF. New WWTFs are to be designed for a daily wastewater flow of 75-100 gallons per capita per day [gpcd; 30 TAC 217.32(a)]. Conservatively taking the higher daily wastewater flow capacity (100 gpcd) and multiplying it by a potential population change gives an FG flow. Based on the information in Table III-2, the projected population change within the TMDL watershed for the time period 2020-2070 is 1,305. Multiplying the projected population growth by the higher daily wastewater flow capacity yields a value of 0.131 MGD, or 0.622 billion cfu/day of *E. coli*. This value would be considered the full permitted discharge of a potential future WWTF.

FG of existing or new point sources is not limited by this TMDL as long as the sources do not cause bacteria to exceed the limits. The assimilative capacity of water bodies increases as the amount of flow increases. Consequently, increases in flow allow for increased loadings. The LDC and tables in this TMDL report will guide determination of the assimilative capacity of the water body under changing conditions, including FG.

Summary of TMDL Calculations

Table III-6 summarizes the TMDL calculations for the TMDL watershed. The TMDL was calculated based on the median flow in the 90-percentile range (5% exceedance, high flow regime) from the LDC developed for TCEQ SWQM Station 10479. Allocations are based on the current geometric mean criterion for *E. coli* of 126 cfu/100 mL for each component of the TMDL.

Table III-6. TMDL allocation summary

All loads expressed as billion cfu/day *E. coli*

Water Body	AU	TMDL	MOS	WLA_{WWTF}	WLA_{SW}	LA	FG
Cedar Creek	0604A_03	95.705	4.785	0	1.499	88.799	0.622

The final TMDL allocations (Table III-7) needed to comply with federal requirements include the FG component within the WLA_{WWTF} (40 CFR Section 103.7).

Table III-7. Final TMDL allocation

All loads expressed as billion cfu/day *E. coli*

Water Body	AU	TMDL	MOS	WLA_{WWTF}	WLA_{SW}	LA
Cedar Creek	0604A_03	95.705	4.785	0.622	1.499	88.799

Seasonal Variation

Federal regulations require that TMDLs account for seasonal variation in watershed conditions and pollutant loading [40 CFR Section 130.7(c)(1)]. Analysis of the seasonal differences in indicator bacteria concentrations were assessed by comparing *E. coli* concentrations obtained from eight years (2013 – 2021) of routine monitoring data collected in the warmer months (May through September) against those collected during the cooler months (November through March). The months of April and October were considered transitional between warm and cool seasons and were excluded from the seasonal analysis. Differences in *E. coli* concentrations obtained in warmer versus cooler months were then evaluated by performing a Wilcoxon Rank Sum test (also known as the "Mann-Whitney" test). This analysis of *E. coli* data indicated that there was no significant difference (α=0.05) in indicator bacteria between cool and warm weather seasons for Cedar Creek. Seasonal variation was also addressed by using all available flow and indicator bacteria records (covering all seasons) from the period of record used in LDC development for this project.

Public Participation

TCEQ maintains an inclusive public participation process. From the inception of TMDL development, the project team sought to ensure that stakeholders were informed and

involved. Communication and comments from the stakeholders in the watershed strengthen TMDL projects and their implementation.

The technical support document for this TMDL addendum (Yang and Schramm, 2023) was published on the TCEQ website on Dec. 12, 2023. Project staff presented information about this addendum at the Angelina & Neches River Authority's Clean Rivers Program meeting on June 21, 2023. The public had an opportunity to comment on this addendum during the public comment period (Feb. 9 through March 12, 2024) for the WQMP update in which this addendum is included. Notice of the public comment period for this addendum was emailed to stakeholders and posted on the TCEQ's TMDL Program News webpage.[3] Notice of the comment period, along with the document, was also posted on the WQMP Updates webpage.[4] TCEQ accepted public comments on the original TMDL report from March 25, 2022 through April 25, 2022. No comments were submitted.

Implementation and Reasonable Assurance

The water body covered by this addendum is within the existing bacteria TMDL watershed for the Tributaries of the Neches River below Lake Palestine. That TMDL watershed, including Cedar Creek, is within the area covered by the Implementation Plan (I-Plan) developed by stakeholders for the TMDL watershed, which was approved by the Commission on Aug. 16, 2023. The I-Plan outlines an adaptive management approach in which measures are assessed annually by the stakeholders for efficiency and effectiveness. The iterative process of evaluation and adjustment ensures continuing progress toward achieving water quality goals and expresses stakeholder commitment to the process. Please refer to the original TMDL document for additional information regarding implementation and reasonable assurance.

[3] www.tceq.texas.gov/waterquality/tmdl/tmdlnews.html
[4] www.tceq.texas.gov/permitting/wqmp/WQmanagement_updates.html

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