



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

W-16J

October 12, 2022

Glenn Skuta, Watershed Division Director
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Dear Mr. Skuta:

The U.S. Environmental Protection Agency has completed its review of the Lower Rainy River-Black River Watershed Total Maximum Daily Load (TMDL). The TMDLs include segments of the Black River and the West Branch of the Black River in Koochiching County, Minnesota. The two *E. coli* TMDLs address impaired aquatic recreation uses due to excessive bacteria.

The TMDLs meet the requirements of Section 303(d) of the Clean Water Act and EPA's implementing regulations set forth at 40 C.F.R. Part 130. Therefore, EPA approves Minnesota's two *E. coli* TMDLs. EPA describes Minnesota's compliance with the statutory and regulatory requirements in the enclosed decision document.

EPA acknowledges Minnesota's efforts in submitting these TMDLs and look forward to future TMDL submissions by the State of Minnesota. If you have any questions, please contact Mr. James Ruppel, at 312-886-1823 or ruppel.james@epa.gov.

Sincerely,

Ireland, Scott
Digitally signed by Ireland,
Scott
Date: 2022.10.12
18:14:15 -05'00'

D. Scott Ireland
Acting Director, Water Division

Enclosure

cc: Mike Kennedy, MPCA

wq-iw10-20g

**U.S. Environmental Protection Agency (EPA)
Final Review & Decision**

**Final Lower Rainy River Watershed / Black River
Total Maximum Daily Load (TMDL)**

Section 303(d) of the Clean Water Act (CWA) and EPA’s implementing regulations at 40 C.F.R. Part 130 describe the statutory and regulatory requirements for approvable TMDLs. Additional information is generally necessary for EPA to determine if a submitted TMDL fulfills the legal requirements for approval under Section 303(d) and EPA regulations and should be included in the submittal package. Use of the verb “must” below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation. Use of the term “should” below denotes information that is generally necessary for EPA to determine if a submitted TMDL is approvable. These TMDL review guidelines are not themselves regulations. They are an attempt to summarize and provide guidance regarding currently effective statutory and regulatory requirements relating to TMDLs. Any differences between these guidelines and EPA’s TMDL regulations should be resolved in favor of the regulations themselves.

This document is a final review and decision documentation for the Minnesota (MN) TMDL document titled:

Lower Rainy River Watershed Total Maximum Daily Load
An *E. coli* TMDL for the Black River – September 2022

Section 1. Identification of Waterbody, Pollutant of Concern, Pollutant Sources, and Priority Ranking

The TMDL submittal should identify the waterbody as it appears on the State’s/Tribe’s 303(d) list. The waterbody should be identified/georeferenced using the National Hydrography Dataset (NHD), and the TMDL should clearly identify the pollutant for which the TMDL is being established. In addition, the TMDL should identify the priority ranking of the waterbody and specify the link between the pollutant of concern and the water quality standard (see Section 2 of this decision document).

The TMDL submittal should include an identification of the point and nonpoint sources of the pollutant of concern, including location of the source(s) and the quantity of the loading, e.g., lbs/per day. The TMDL should provide the identification numbers of the National Pollutant Discharge Elimination System (NPDES) permits within the waterbody. Where it is possible to separate natural background from nonpoint sources, the TMDL should include a description of the natural background. This information is necessary for EPA’s review of the load and wasteload allocations, which are required by regulation.

The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as:

- (1) The spatial extent of the watershed in which the impaired waterbody is located;
- (2) The assumed distribution of land use in the watershed (e.g., urban, forested, agriculture);
- (3) Population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources;
- (4) Present and future growth trends, if taken into consideration in preparing the TMDL (e.g., the TMDL could include the design capacity of a wastewater treatment facility); and
- (5) An explanation and analytical basis for expressing the TMDL through *surrogate measures*, if applicable. *Surrogate measures* are parameters such as percent fines and turbidity for sediment impairments; chlorophyll *a* and phosphorus loadings for excess algae; length of riparian buffer; or number of acres of best management practices.

Section 1 Review Comments:

The waterbody(s) are identified as they appear on the 303(d) list.

Section 1.2 of the final TMDL document identifies the impaired designated uses, the waterbody Assessment Unit Identifications (AUIDs), and the pollutant of concern. This TMDL report addresses *Escherichia coli* (*E. coli*) impairments to the Aquatic Recreation designated use on AUID 09030008-543 (West Fork Black River) and AUID 09030008-547 (Black River). A review of the Minnesota (MN) 2022 303d list of impaired waters¹ shows the AUIDs identified as being addressed by the TMDL are listed as impaired for the designated uses by the pollutants of concern.

The Black River and West Fork Black River are tributaries to the Lower Rainy River. The two rivers flow north and east into the Rainy River, which eventually flows into the Lake of the Woods. The West Fork Black River has a watershed area of approximately 81,000 acres, and the Black River has a watershed area of approximately 173,000 acres (Table 3 of the final TMDL document).

The TMDL document clearly identifies the pollutant for which the TMDL is being established.

E. coli is identified by the Minnesota Pollution Control Agency (MPCA) as the pollutant of concern in Section 1.2 of the final TMDL document. Excessive bacteria can negatively impact recreational uses (e.g., swimming, wading, boating, fishing etc.) and public health. At elevated levels, bacteria may cause illness within humans who have contact with or ingest bacteria laden water.

¹ <https://www.pca.state.mn.us/air-water-land-climate/minnesotas-impaired-waters-list>

The link between the pollutant of concern and the water quality impairment is specified.

The link between *E. coli* and the impairment to the designated use of aquatic recreation is established by numerical criteria in the MN Water Quality Standards (WQS). MPCA discusses the water quality monitoring results and impairment due to excessive *E. coli* in Section 3.3 and Tables 5 and 6 of the final TMDL document.

Waters within Indian Country, (as defined in 18 U.S.C. Section 1151) are identified and discussed.

Section 3 of the TMDL document discusses the presence of tribal lands of the Red Lake Nation within the watershed. MPCA noted that while Tribal lands are within the TMDL watershed, no tribal lands are adjacent to the impaired segments (Figure 2 of the final TMDL document) and the TMDL document affirms that the MPCA TMDL does not exert jurisdiction on tribal lands, nor does it assign any pollutant reductions or load allocations to them. MPCA has been communicating and working with the Red Lake Nation during the development of the TMDL. The TMDL summary tables, Tables 8 & 9 of the final TMDL document (Appendix 1 of this Decision Document), show the boundary condition loads that originate from tribal lands. EPA understands that these boundary condition loads do not represent formally assigned load allocations but instead acknowledge existing conditions and are included for informational purposes to account for the total load capacity of the impaired segments.

The location and quantity of point and non-point sources are identified.

Municipal and industrial wastewater treatment plant NPDES permitted discharges.

In Section 4.1.4 of the final TMDL document MPCA states that there are no NPDES permitted discharges of *E. coli* to the impaired waterbodies and no allocations are provided by MPCA for this source category.

Municipal Separate Storm Sewer Systems (MS4s)

In Section 3.4 of the final TMDL document MPCA states that there are no MS4 sources of *E. coli* within the watersheds and therefore no allocations are made by MPCA for this source category.

Construction and Industrial Stormwater Sources.

In Section 4.1.4 of the final TMDL document MPCA clarifies that *E. coli* is not a regulated pollutant for construction stormwater in MN. The section also clarifies that *E. coli* is only regulated in industrial stormwater if it is part of a benchmark study, which have not been developed for facilities in the TMDL watershed. Consequently, neither construction nor industrial stormwater are identified by MPCA as sources of *E. coli* in the TMDL.

Subsurface Sewage Treatment Systems (SSTSs)

In Section 3.4.3 of the final TMDL document MPCA estimates that there are approximately 20-30 seasonally used subsurface sewage treatment systems (SSTS) in the Black River subwatershed, 10% of which are estimated to be failing based on the ratio of compliant to failing septic systems in Koochiching County as a whole. SSTS systems are not a permitted source of *E. coli* to surface waters and therefore are not allocated a load by MPCA as part of the TMDL. EPA understands that any failing septic systems that discharge *E. coli* to the impaired waters are anticipated to be required to be brought into compliance through applicable regulations.

Non-point (non-permitted) sources of *E. coli*.

Non-point sources of *E. coli* identified by MPCA include runoff from pastures, cattle directly accessing streams, wildlife sources, and septic systems (discussed separately above). Each of these sources is discussed in greater detail in Section 3.4 of the final TMDL document. During low flow conditions, septic systems and cattle directly depositing fecal matter into streams constitute the most prominent sources of *E. coli*. During high flow conditions, pasture runoff constitutes a prominent source.

Land use

In Section 3.2, Figure 3 and Table 4 of the final TMDL document, MPCA explains the land use within the TMDL watershed. Over 95% of the two subwatersheds are classified as woody or herbaceous wetlands, with a small number of small farms along the rivers. MPCA noted that some ditching has been performed in the TMDL watersheds.

Future Growth

In Section 5 of the final TMDL document, MPCA notes that population of the TMDL watershed is not expected to grow in the near future, and therefore no allocation for future growth was determined.

The EPA finds that the final TMDL document submitted by the MPCA satisfies the requirements of the first criterion.

Section 2. Description of the Applicable Water Quality Standards and Numeric Water Quality Target

The TMDL submittal must include a description of the applicable State/Tribal water quality standard, including the designated use(s) of the waterbody, the applicable numeric or narrative water quality criterion, and the antidegradation policy (40 C.F.R. §130.7(c)(1)).

EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

The TMDL submittal must identify a numeric water quality target(s) – a quantitative value used to measure whether or not the applicable water quality standard is attained. Generally, the pollutant of concern and the numeric water quality target are, respectively, the chemical causing the impairment and the numeric criteria for that chemical (e.g., chromium) contained in the water quality standard. The TMDL expresses the relationship between any necessary reduction of the pollutant of concern and the attainment of the numeric water quality target. Occasionally, the pollutant of concern is different from the pollutant that is the subject of the numeric water quality target (e.g., when the pollutant of concern is phosphorus, and the numeric water quality target is expressed as Dissolved Oxygen (DO) criteria). In such cases, the TMDL submittal should explain the linkage between the pollutant of concern and the chosen numeric water quality target.

Section 2 Review Comments:

Applicable WQS are identified, described, and a numerical water quality target is included.

Applicable WQS are discussed in Section 2 of the final TMDL document. The Black River and West Fork Black River are designated by MPCA as Class 2B waterbodies, to be protected for aquatic recreational use. Table 2 of the final TMDL document provides the MN numerical water quality criterion applicable to Class 2B waters, which directly serve as the targets for the TMDL. The numerical targets for *E. coli* organisms are as expressed by MN WQS are quoted in the TMDL document. EPA notes that both portions of the WQS must be met.

Not to exceed 126 organisms per 100 milliliters as a geometric mean of not less than five samples representative of conditions within any calendar month, nor shall more than 10% of all samples taken during any calendar month individually exceed 1,260 organisms per 100 milliliters. The standard applies only between April 1 and October 31.²

MPCA noted that although the TMDL does not apply to Red Lake Nation lands or waters, the Tribe is in the process of developing Tribal WQS. MPCA explained that Red Lake Nation has indicated the Tribal WQS for bacteria will be consistent with the MPCA WQS for bacteria (Section 2.4 of the final TMDL document).

The EPA finds that the final TMDL document submitted by the MPCA satisfies the requirements of the second criterion.

² Section 2 page 8 of the TMDL document.

Section 3. Loading Capacity - Linking Water Quality and Pollutant Sources

A TMDL must identify the loading capacity of a water body for the applicable pollutant. EPA regulations define loading capacity as the greatest amount of a pollutant that a water can receive without violating water quality standards (40 C.F.R. §130.2(f)).

The pollutant loadings may be expressed as either mass-per-time, toxicity, or other appropriate measure (40 C.F.R. §130.2(i)). If the TMDL is expressed in terms other than a daily load, e.g., an annual load, the submittal should explain why it is appropriate to express the TMDL in the unit of measurement chosen. The TMDL submittal should describe the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In many instances, this method will be a water quality model.

The TMDL submittal should contain documentation supporting the TMDL analysis, including the basis for any assumptions; a discussion of strengths and weaknesses in the analytical process; and results from any water quality modeling. EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

TMDLs must take into account *critical conditions* for stream flow, loading, and water quality parameters as part of the analysis of loading capacity (40 C.F.R. §130.7(c)(1)). TMDLs should define applicable *critical conditions* and describe their approach to estimating both point and nonpoint source loadings under such *critical conditions*. In particular, the TMDL should discuss the approach used to compute and allocate nonpoint source loadings, e.g., meteorological conditions and land use distribution.

Section 3 Review Comments:

The loading capacity is presented for the pollutant of concern (including daily loads).

The *E. coli* loading capacity for the West Fork of the Black River (AUID 09030008-543) is provided in terms of billions of *E. coli* organisms per day in Figure 7 and Table 8 of the final TMDL document and Appendix 1 of this Decision Document.

The *E. coli* loading capacity for the Black River (AUID 09030008-547) is provided in terms of billions of *E. coli* organisms per day in Figure 8 and Table 9 of the final TMDL document and Appendix 1 of this Decision Document.

Figures 7 and 8 of the final TMDL document are load duration curves and display loading capacity as a continuous curve representing all flow conditions of the stream hydrograph. Tables 8 and 9 of the final TMDL document provide a more detailed breakdown of loads and load allocations using the five separate representative flow

regimes (Very High, High, Mid, Low, & Very Low) as explained in Section 3.3 of the final TMDL document.

The method to establish a cause and effect relationship between the pollutant of concern and the numerical target is described, and the TMDL analysis is documented and supported

Sections 3.3 and 4.1.1 of the final TMDL document discusses how the loading capacity of the impaired streams is determined by MPCA utilizing the load duration curve (LDC) approach.

The load duration curves were calculated by multiplying individual flow values by the WQS (126 orgs/100 mL) and then multiplying that value by a conversion factor. The resulting points are plotted onto a load duration curve graph. LDC graphs, for the bacteria TMDLs, have flow duration interval (percentage of time flow exceeded) on the X-axis and *E. coli* loads (number of bacteria per unit time) on the Y-axis. The LDCs used *E. coli* measurements in billions of bacteria per day. The curved line on a LDC graph represents the TMDL of the respective flow conditions observed at that location.

MPCA used the geometric mean (126 orgs/100 mL) of the *E. coli* water quality standard to calculate loading capacity values for the bacteria TMDLs. MPCA believes the geometric mean of the WQS provides the best overall characterization of the status of the watershed. EPA agrees with this assertion, as stated in the preamble of, “The Water Quality Standards for Coastal and Great Lakes Recreation Waters Final Rule” (69 FR 67218-67243, November 16, 2004) on page 67224, “...the geometric mean is the more relevant value for ensuring that appropriate actions are taken to protect and improve water quality because it is a more reliable measure, being less subject to random variation, and more directly linked to the underlying studies on which the 1986 bacteria criteria were based.” MPCA stated that the bacteria TMDLs will focus on the geometric mean portion of the water quality standard (126 orgs/100 mL) and that it expects that by attaining the 126 orgs/100 mL portion of the *E. coli* WQS the 1,260 orgs/100 mL portion of the *E. coli* WQS will also be attained. EPA finds these assumptions to be reasonable.

The tables in Appendix 1 of this Decision Document reports five points (the midpoints of the designated flow regime) on the loading capacity curve. However, it should be understood that the components of the TMDL equation could be illustrated for any point on the entire loading capacity curve. The LDC method can be used to display collected bacteria monitoring data and allows for the estimation of load reductions necessary for attainment of the bacteria water quality standard. Using this method, daily loads were developed based upon the flow in the water body. Loading capacities were determined for the segment for multiple flow regimes. This allows the TMDL to be represented by an allowable daily load across all flow conditions. Appendix 1 of this Decision Document identifies the loading capacity for the water bodies at each flow regime. Although there are numeric loads for each flow regime, the LDC is what is being approved for this TMDL.

Boundary Conditions for Tribal Lands

To account for Tribal lands in the TMDL watershed, MPCA determined the percentage of Tribal lands in the TMDL watershed, and proportionally reduced the loading capacity to address State lands only (Section 4.1.2 of the final TMDL document). As noted above, MPCA did not develop, and EPA is not approving any allocations for Tribal lands in the watershed.

The EPA finds that the final TMDL document submitted by the MPCA satisfies the requirements of the third criterion.

Section 4. Load Allocations (LAs)

EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity attributed to existing and future nonpoint sources and to natural background. Load allocations may range from reasonably accurate estimates to gross allotments (40 C.F.R. §130.2(g)). Where possible, load allocations should be described separately for natural background and nonpoint sources.

Section 4 Review Comments

The load allocations for existing NPS are accounted for (and future if applicable).

Tables 8 and 9 of the final TMDL document and Appendix 1 of this Decision Document provide the load allocations for the two impaired AUIDs in terms of billions of *E. coli* organisms per day broken down by flow regimes. Load allocations for *E. coli* were determined by MPCA by first subtracting the wasteload allocations and margin of safety from the loading capacity (Section 4.1.3 of the final TMDL document). A single load allocation was calculated for all non NPDES permitted sources.

The EPA finds that the final TMDL document submitted by the MPCA satisfies the requirements of the fourth criterion.

Section 5. Wasteload Allocations (WLAs)

EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to individual existing and future point source(s) (40 C.F.R. §130.2(h), 40 C.F.R. §130.2(i)). In some cases, WLAs may cover more than one discharger, e.g., if the source is contained within a general permit. The individual WLAs may take the form of uniform percentage reductions or individual mass based limitations for dischargers

where it can be shown that this solution meets WQSs and does not result in localized impairments. These individual WLAs may be adjusted during the NPDES permitting process. If the WLAs are adjusted, the individual effluent limits for each permit issued to a discharger on the impaired water must be consistent with the assumptions and requirements of the adjusted WLAs in the TMDL. If the WLAs are not adjusted, effluent limits contained in the permit must be consistent with the individual WLAs specified in the TMDL. If a draft permit provides for a higher load for a discharger than the corresponding individual WLA in the TMDL, the State/Tribe must demonstrate that the total WLA in the TMDL will be achieved through reductions in the remaining individual WLAs and that localized impairments will not result. All permittees should be notified of any deviations from the initial individual WLAs contained in the TMDL. EPA does not require the establishment of a new TMDL to reflect these revised allocations as long as the total WLA, as expressed in the TMDL, remains the same or decreases, and there is no reallocation between the total WLA and the total LA.

Section 5 Review Comments

The waste load allocations are properly assigned

No NPDES permitted sources of *E. coli* were identified by MPCA as part of the source assessment and no waste load allocations are provided for either of the impaired reaches (WLA = 0) (Section 4.1.4 of the final TMDL document).

The EPA finds that the final TMDL document submitted by the MPCA satisfies the requirements of the fifth criterion.

Section 6. Margin of Safety (MOS)

The statute and regulations require that a TMDL include a margin of safety (MOS) to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)). EPA's 1991 TMDL Guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.

Section 6 Review Comments:

A margin of safety (MOS) is provided and justified. If an implicit MOS is used, conservative assumptions are identified, and their relative impacts discussed.

An explicit MOS of 10% is allocated by MPCA to account for error and uncertainties in each of the TMDLs (Section 4.1.5 of the final TMDL document; Appendix 1 of this Decision Document). The inherent ability of the load duration curves to account for seasonality and to represent the loading capacity of parameters with numerical concentration based WQS across all flow conditions and the fit of the HSPF modeled flow data used to construct load duration curves provides justification for the MOS selected (Sections 3.3 and 4.1.5 of the final TMDL document).

Challenges associated with quantifying *E. coli* loads include the dynamics and complexity of bacteria in stream environments. Factors such as die-off and re-growth contribute to general uncertainty that makes quantifying stormwater bacteria loads particularly difficult. The MOS for the bacteria TMDLs also incorporated certain conservative assumptions in the calculation of the TMDLs. No rate of decay, or die-off rate of pathogen species, was used in the TMDL calculations or in the creation of load duration curves for *E. coli*. Bacteria have a limited capability of surviving outside their hosts, and normally a rate of decay would be incorporated. MPCA determined that it was more conservative to use the WQS (126 orgs/100 mL) and not to apply a rate of decay, which could result in a discharge limit greater than the WQS.

As stated in *EPA's Protocol for Developing Pathogen TMDLs* (EPA 841-R-00-002), many different factors affect the survival of pathogens, including the physical condition of the water. These factors include, but are not limited to sunlight, temperature, salinity, and nutrient deficiencies. These factors vary depending on the environmental condition/circumstances of the water, and therefore it would be difficult to assert that the rate of decay caused by any given combination of these environmental variables was sufficient to meet the WQS of 126 orgs/100 mL. Thus, it is more conservative to apply the State's WQS as the bacteria target value because this standard must be met at all times under all environmental conditions.

The EPA finds that the final TMDL document submitted by the MPCA satisfies the requirements of the sixth criterion.

Section 7. Seasonal Variation

The statute and regulations require that a TMDL be established with consideration of seasonal variations. The TMDL must describe the method chosen for including seasonal variations. (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)).

Section 7 Review Comments:

Seasonal variation in loads and/or effects are described and accounted for.

Seasonal variation is represented in the WQS themselves by specifying their applicability during the warmer period from April 1 to October 31, when aquatic recreation is more prevalent, and temperatures more favorable to the survival of *E. coli*. Seasonal variation is further accounted for by using the LDC method which automatically accounts for seasonal variation in stream flows (Section 4.1.6 of the final TMDL document).

The EPA finds that the final TMDL document submitted by the MPCA satisfies the requirements of the seventh criterion.

Section 8. Reasonable Assurances

When a TMDL is developed for waters impaired by point sources only, the issuance of a NPDES permit(s) provides the reasonable assurance that the wasteload allocations contained in the TMDL will be achieved. This is because 40 C.F.R. 122.44(d)(1)(vii)(B) requires that effluent limits in permits be consistent with “the assumptions and requirements of any available wasteload allocation” in an approved TMDL.

When a TMDL is developed for waters impaired by both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur, EPA’s 1991 TMDL Guidance states that the TMDL should provide reasonable assurances that nonpoint source control measures will achieve expected load reductions in order for the TMDL to be approvable. This information is necessary for EPA to determine that the TMDL, including the load and wasteload allocations, has been established at a level necessary to implement water quality standards.

EPA’s August 1997 TMDL Guidance also directs Regions to work with States to achieve TMDL load allocations in waters impaired only by nonpoint sources. However, EPA cannot disapprove a TMDL for nonpoint source-only impaired waters, which do not have a demonstration of reasonable assurance that LAs will be achieved, because such a showing is not required by current regulations.

Section 8 Review Comments:

Reasonable Assurance that point source load reductions will occur is provided in the document.

MPCA did not identify any point sources or provide any WLAs for any facilities in the TMDL watershed (Section 4.1.4 of the final TMDL document).

Reasonable Assurance that NPS load reductions will occur is provided in the document.

The parties responsible for implementation are identified:

Section 6 of the final TMDL document identifies local, regional, state, and federal authorities which will play a role in the implementation of Best Management Practices (BMPs) needed to meet the TMDL allocations. Koochiching County and the Koochiching County Soil and Water Conservation District (SWCD) are expected to play a lead role with state and federal agencies providing support as well as NGOs and local residents playing an active role.

Potential measures and resources to achieve load reductions are identified.

Section 6 of the TMDL document identifies a number of measures that may be implemented as appropriate to achieve the NPS load allocations. A detailed restoration strategy document is also drafted by Minnesota known as a Watershed Restoration and Protection Strategy (WRAPS) report. The Lower Rainy River Watershed WRAPS was approved by the State on September 9, 2022, <https://www.pca.state.mn.us/sites/default/files/wq-ws4-91a.pdf>.

Regulation and compliance of septic systems is done at the county level. The MN feedlot program aids livestock operations in implementing manure management measures. The MN Buffer law ensures that farms in the watershed maintain a 50 foot wide vegetative strip along rivers and stream banks. The Minnesota Agricultural Water Quality Certification Program provides incentives for farmers to implement conservation practices in exchange for future regulatory certainty. The Environmental Quality Incentives Program can provide financial and technical assistance to farmers who voluntarily implement BMPs that reduce pollutant loads. The Sustainable Forest Incentive Act provides incentives for landowners to develop and implement plans for sustainable management of forest properties. Finally, conservation easements are also discussed as a means of compensating landowners who implement conservation practices on their lands that reduce pollutant loads.

Over \$500,000 has been spent on watershed implementation projects in the Lower Rainy Watershed within Koochiching County since 2004 (Section 6.4 and Figure 10 of the final TMDL document). The overall cost of the implementation activities needed to achieve the pollutant reductions is discussed in Section 8.2 of the final TMDL document. The State estimates that between \$97,700 and \$3,810,000 may be required over the next 10 years to implement the measures needed to achieve the load reductions necessary to meet the TMDL allocations.

The Clean Water Legacy Act (CWLA) was passed in Minnesota in 2006 for the purposes of protecting, restoring, and preserving Minnesota water. The CWLA provides the protocols and practices to be followed in order to protect, enhance, and restore water quality in Minnesota. The CWLA outlines how MPCA, public agencies and private

entities should coordinate in their efforts toward improving land use management practices and water management. The CWLA anticipates that all agencies (i.e., MPCA, public agencies, local authorities, and private entities, etc.) will cooperate regarding planning and restoration efforts. Cooperative efforts would likely include informal and formal agreements to jointly use technical, educational, and financial resources.

The CWLA also provides details on public and stakeholder participation, and how the funding will be used. In part to attain these goals, the CWLA requires MPCA to develop WRAPS. The WRAPS are required to contain such elements as the identification of impaired waters, watershed modeling outputs, point and nonpoint sources, load reductions, etc. (Chapter 114D.26; CWLA). The WRAPS also contain an implementation table of strategies and actions that are capable of achieving the needed load reductions, for both point and nonpoint sources (Chapter 114D.26, Subd. 1(8); CWLA). Implementation plans developed for the TMDLs are included in the table and are considered “priority areas” under the WRAPS process (Watershed Restoration and Protection Strategy Report Template, MPCA). This table includes not only needed actions but a timeline for achieving water quality targets, the reductions needed from both point and nonpoint sources, the governmental units responsible, and interim milestones for achieving the actions. MPCA has developed guidance on what is required in the WRAPS (Watershed Restoration and Protection Strategy Report Template, MPCA).

The Minnesota Board of Soil and Water Resources administers the Clean Water Fund as well and has developed a detailed grants policy explaining what is required to be eligible to receive Clean Water Fund money (http://bwsr.state.mn.us/cwf_programs).

The EPA finds that the final TMDL document submitted by the MPCA satisfies the requirements of the eight criterion.

Section 9. Monitoring Plan to Track TMDL Effectiveness

EPA’s 1991 document, *Guidance for Water Quality-Based Decisions: The TMDL Process* (EPA 440/4-91-001), recommends a monitoring plan to track the effectiveness of a TMDL, particularly when a TMDL involves both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur. Such a TMDL should provide assurances that nonpoint source controls will achieve expected load reductions and, such TMDL should include a monitoring plan that describes the additional data to be collected to determine if the load reductions provided for in the TMDL are occurring and leading to attainment of water quality standards.

Section 9 Review Comments

An effectiveness monitoring plan is provided.

Section 7 of the final TMDL document addresses monitoring. Follow up monitoring will be accomplished through a number of existing water quality monitoring programs. The Intensive Watershed Monitoring Program monitors the basin for a period of 1 to 2 years once every ten years, with the next round of monitoring scheduled to begin in 2028. MPCA also coordinates two different citizen monitoring programs, the Citizen Lake Monitoring Program, and the Citizen Stream Monitoring Program. The need for additional monitoring to better assess individual sources and evaluate BMP placement and effectiveness is also discussed and will be prioritized as resources allow.

The EPA finds that the final TMDL document submitted by the MPCA satisfies the requirements of the ninth criterion.

Section 10. Implementation

EPA policy encourages Regions to work in partnership with States/Tribes to achieve nonpoint source load allocations established for 303(d)-listed waters impaired by nonpoint sources. Regions may assist States/Tribes in developing implementation plans that include reasonable assurances that nonpoint source LAs established in TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. In addition, EPA policy recognizes that other relevant watershed management processes may be used in the TMDL process. EPA is not required to and does not approve TMDL implementation plans.

Section 10 Review Comments

Section 8 of the TMDL document discusses implementation planning. Implementation efforts are divided into 4 areas including source assessment, providing guidance and assistance for pasture grazing management, septic system inventory and upgrading, and education and outreach. More detailed information about how these four categories of activities may be implemented and by which parties is discussed above in Section 8 of this review document and in the Minnesota WRAPS document. Finally, the State discusses how adaptive management and planning will be used to adjust and refine its implementation approach as efforts move forward.

While the implementation plan provides additional support to a demonstration of reasonable assurance, The EPA does not directly approve or disapprove of implementation plans.

Section 11. Public Participation

EPA policy is that there should be full and meaningful public participation in the TMDL development process. The TMDL regulations require that each State/Tribe must subject calculations to establish TMDLs to public review consistent with its own continuing planning process (40 C.F.R. §130.7(c)(1)(ii)). In guidance, EPA has explained that final TMDLs submitted to EPA for review and approval should describe the State's/Tribe's public participation process, including a summary of significant comments and the State's/Tribe's responses to those comments. When EPA establishes a TMDL, EPA regulations require EPA to publish a notice seeking public comment (40 C.F.R. §130.7(d)(2)).

Provision of inadequate public participation may be a basis for disapproving a TMDL. If EPA determines that a State/Tribe has not provided adequate public participation, EPA may defer its approval action until adequate public participation has been provided for, either by the State/Tribe or by EPA.

Section 11 Review Comments

TMDL development provided for adequate public participation.

The Public Participation Process is described.

Public participation is discussed in Section 9 of the final TMDL document. Seven separate public meetings were held between May of 2017 and October of 2020 to discuss the project and gather input from stakeholders.

A regional team of resource professionals was formed and met several times during development of the TMDL to advise the State. The team included representatives from, the Koochiching SWCD, the Lake of the Woods County SWCD, the Koochiching County Environmental Services Department, the Minnesota Department of Natural Resources, the 1854 Treaty Authority, the Minnesota Pollution Control Agency, the Minnesota Board of Water & Soil Resources, the Minnesota Department of Health, the Minnesota Department of Agriculture, the United States Forest Service, the National Park Service, the Ontario Ministry of Natural Resources, the Red Lake Band of Chippewa (Miskwaagamiiwi-zaaga'igan), and the Rainy River First Nations (Emo, Ontario).

An opportunity for public comment was provided and a summary of significant comments and the State's responses is included in/with the final TMDL submission.

The TMDL document was made available for public review and comment from April 4, 2022, through May 4, 2022. The TMDL report was public noticed concurrently with the Rainy River - Rainy Lake and Lower Rainy River WRAPS report. One comment letter was received by the State during the comment period, however, the comments received addressed issues pertinent to the WRAPS document but are beyond the scope of the TMDL report under review here. EPA’s review of this TMDL report, including its review of the sufficiency of the opportunities for public participation, is limited to issues related to the waterbody pollutant combinations and TMDL development addressed as part of this specific TMDL report. Therefore, the comments made and addressed that are beyond the scope of this specific TMDL document are not addressed by this decision document.

The EPA finds that the final TMDL document submitted by the MPCA satisfies the requirements of the eleventh criterion.

Section 12. Submittal Letter

A submittal letter should be included with the TMDL submittal and should specify whether the TMDL is being submitted for a *technical review* or *final review and approval*. Each final TMDL submitted to EPA should be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under Section 303(d) of the Clean Water Act for EPA review and approval. This clearly establishes the State’s/Tribe’s intent to submit, and EPA’s duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final review and approval, should contain such identifying information as the name and location of the waterbody, and the pollutant(s) of concern.

Section 12 Review Comments:

Submittal Letter is provided if formal review is desired.

A letter from the Water Division Director of the Minnesota Pollution Control Agency, addressed to the Water Division Director of EPA Region 5, requesting final review and approval of the TMDL report in question, accompanied the submission of the final TMDL report. The letter was received by the EPA on September 14, 2022. The letter requested final review of the Total Maximum Daily Load (TMDL) study for impairments of *E. coli* for the Lower Rainy River-Black River Watershed.

The EPA finds that the final TMDL document submitted by the MPCA satisfies the requirements of the twelfth criterion.

Section 13: Conclusions

After a full and complete review, EPA finds that the TMDL study satisfies all of the elements of an approvable TMDL. The EPA is approving two TMDLs for *E. coli*.

The Lower Rainy River-Black River Watershed includes Red Lake Nation Reservation lands (Section 3 of the final TMDL document). EPA invited representatives of the Red Lake Nation to consult with EPA regarding EPA’s review and decision on the Lower Rainy River-Black River TMDLs, but no consultation was requested. EPA’s approval of this TMDL extends to the water body/parameter combinations identified in Table DD-1 below, with the exception of any portions of the water body that is within Indian Country, as defined in 18 U.S.C. Section 1151. EPA is taking no action to approve or disapprove TMDLs for those waters at this time. EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under the CWA Section 303(d) for those waters.

Table DD-1 - TMDLs approved as part of this decision document.

Assessment Unit ID	Waterbody Name	Designated Use	Parameter
09030008-543	West Fork Black River	Aquatic Recreation	<i>E. coli</i>
09030008-547	Black River	Aquatic Recreation	<i>E. coli</i>

Appendix 1. Selected Tables and Figures Excerpted from the TMDL document.

Figure 7. *E. coli* load duration curve, West Fork Black River (09030008-543)

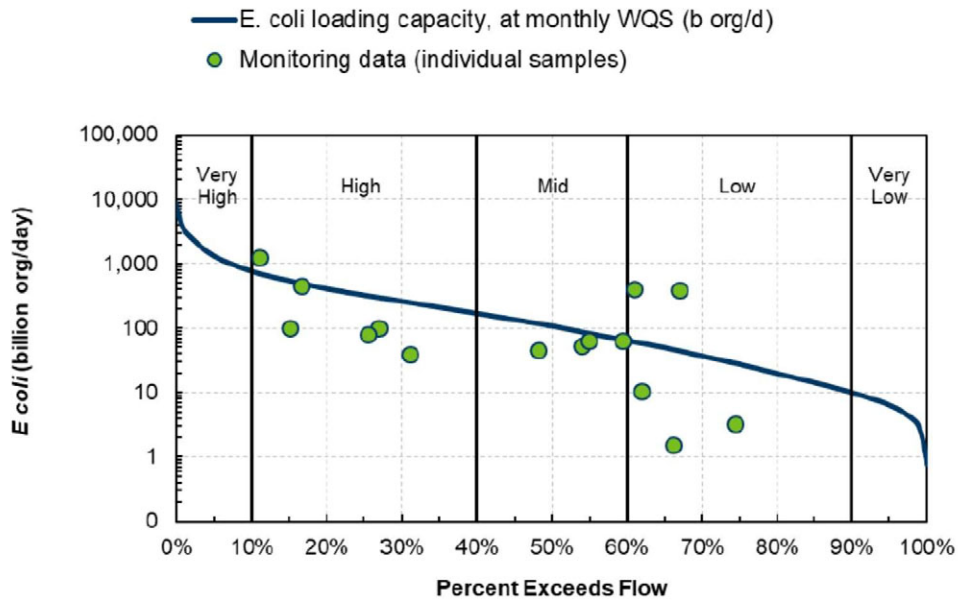


Table 8. West Fork Black River (09030008-543) *E. coli* TMDL summary

- Listing year: 2020
- Baseline year(s): 2017
- Numeric standard used to calculate TMDL: 126 org/100 mL *E. coli*
- TMDL and allocations apply Apr–Oct

TMDL parameter	<i>E. coli</i> load (B org/day ^a) by flow zone				
	Very High (249–2,877 cfs)	High (55–249 cfs)	Mid (21–55 cfs)	Low (3–21 cfs)	Very Low (0.2–3 cfs)
Boundary condition: Red Lake Band of Chippewa Indians	19	4.7	1.6	0.41	0.093
Load allocation	1,168	287	95	25	5.7
Margin of safety	132	32	11	2.8	0.64
TMDL	1,319	324	108	28	6.4
Total MN load ^b	1,300	319	106	28	6.3
Maximum observed monthly geometric mean (org / 100 mL)	173				
Overall estimated percent reduction	27%				

a. b org/day = billion organisms per day

b. Total MN load = TMDL minus boundary condition for Red Lake Band of Chippewa Indians.

Loads are rounded to two significant digits, except in the case of values greater than 100, which are rounded to the nearest whole number.

Figure 8. *E. coli* load duration curve, Black River (09030008-547)

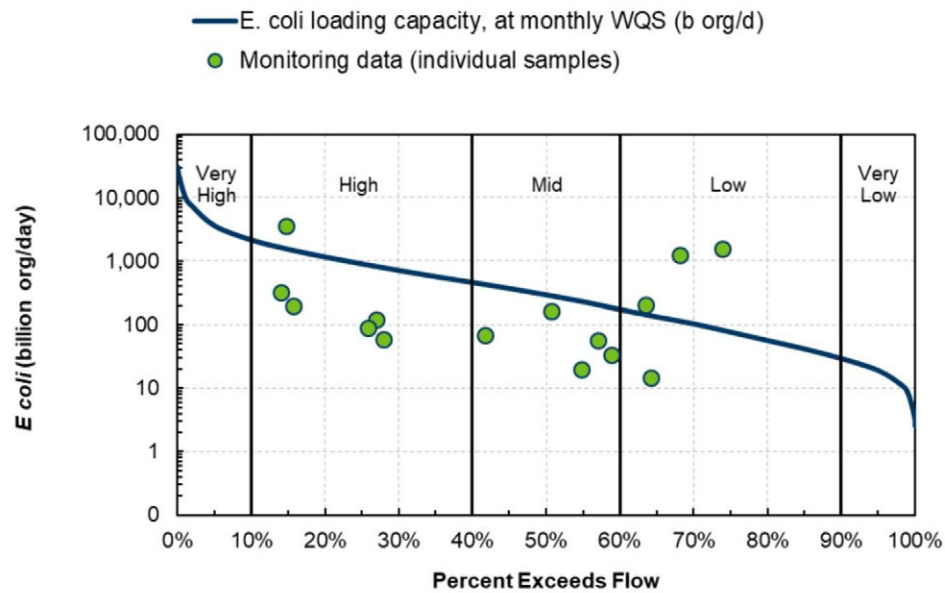


Table 9. Black River (09030008-547) *E. coli* TMDL summary

- Listing year: 2020
- Baseline year(s): 2017
- Numeric standard used to calculate TMDL: 126 org/100 mL *E. coli*
- TMDL and allocations apply Apr–Oct

TMDL parameter	<i>E. coli</i> load (B org/day ^a) by flow zone				
	Very High (691–9805 cfs)	High (149–691 cfs)	Mid (56–149 cfs)	Low (10–56 cfs)	Very Low (0.7–10 cfs)
Boundary condition: Red Lake Band of Chippewa Indians	200	50	17	4.3	1.1
Load allocation	2,994	757	247	65	16
Margin of safety	355	90	29	7.7	1.9
TMDL	3,549	897	293	77	19
Total MN load^b	3,349	847	276	73	18
Maximum observed monthly geometric mean (org / 100 mL)	163				
Overall estimated percent reduction	23%				

a. b org/day = billion organisms per day

b. Total MN load = TMDL minus boundary condition for Red Lake Band of Chippewa Indians.

Loads are rounded to two significant digits, except in the case of values greater than 100, which are rounded to the nearest whole number.