

# **Kentucky's 2022-2032 303(d) and Impaired Waters Prioritization Framework**

**Kentucky Energy and Environment Cabinet  
Department for Environmental Protection  
Division of Water  
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## Introduction

Section 303(d) of the Clean Water Act requires states to identify impaired waters that do not meet water quality standards due to one or more pollutants, and to develop a total maximum daily load (TMDL) for each pollutant that does not meet water quality criteria. A [TMDL](#) represents the maximum amount of a pollutant that can be added to a waterbody and still meet water quality standards. The “[303\(d\) list](#)” is the list of impaired waters requiring a TMDL and must be reported to the US Environmental Protection Agency (EPA) every two years. [Priorities for TMDL development](#) are set by states, and in general, take into account the severity of the problem as it relates to waterbodies’ designated uses (e.g., human recreation, support of aquatic life).

The Kentucky Division of Water’s 303(d) program is implementing EPA’s [Clean Water Act 303\(d\) Program Vision](#) which states that the national program

*“...strives to strategically plan and prioritize activities, engage partners, and analyze and utilize data to develop water quality assessments, plans, and implementation approaches to restore, and protect the Nation’s aquatic resources.”*

## Background - 2013 Program Vision

The [2013 Program Vision](#) called for states, territories, and authorized tribes to develop state-specific priorities for the 2014-2022 planning period, encouraging stakeholder engagement and integration with other Clean Water Act program priorities. It sought to foster flexible watershed management that would better leverage efforts of diverse stakeholders – including public, federal, and state agencies – to attain the common goal of water quality restoration.

The Division’s top goal for TMDL development in the 2013 Program Vision planning period was to address all stream bacteria impairments (*E. coli* or fecal coliform) on the 2016 303(d) list. To meet this goal, the Division created a new reporting framework for addressing these impairments, the [Kentucky Statewide Bacteria TMDL](#). Using this streamlined and efficient approach, the Division successfully completed more than 330 *E. coli* and fecal coliform TMDLs.

Another TMDL development goal achieved during this planning period was the completion of a TMDL report for the Pond Creek watershed (Muhlenberg County) containing 55 TMDLs for stream segments impaired for metals, pH, and *E. coli*, which was approved by EPA in 2017.

A final goal for this planning period was to promote and support a concept introduced in the 2013 Program Vision to incorporate the development and implementation of “alternative approaches’, or non-TMDL plans, in watersheds where restoration planning and activities were underway. The Division began working with stakeholders to develop [TMDL Alternative Plans](#) in several watersheds and currently has three completed plans.

Kentucky’s first TMDL Alternative Plan was completed in 2018 with the cooperation of various stakeholders in the Gunpowder Creek watershed (Boone County), addressing several impairments in the watershed through implementation of a comprehensive nonpoint source watershed plan. In 2022, an additional TMDL Alternative Plan was completed for the Threemile Creek watershed (Campbell County), addressing bacteria impairments through infrastructure improvement projects. Significant progress was made during this time on TMDL Alternative Plans in three other watersheds: Sulphur Creek (Anderson,

Mercer, Washington Counties – now complete), Banklick Creek (Kenton and Boone Counties), and Woolper Creek (Boone County).

## Current Prioritization Framework - 2022 Program Vision

In 2022, EPA released an update to the national Clean Water Act 303(d) Program Vision to initiate a new long-term planning period. Following the recommendations in the [2022 Program Vision](#), the Division created a Prioritization Framework that outlines the goals of Kentucky's 303(d) program, the top priorities for restoration and protection plan development, and a strategy for achieving these goals and priorities during the 2022-2032 planning period.

## Goals

Kentucky's 303(d) program has the following goals for the 2022-2032 long term planning period in implementing CWA 303(d) activities:

- Promote and support optimized monitoring and assessment strategies to accurately identify and catalogue impaired waters
- Develop TMDLs that are scientifically sound, readily implementable, and resilient to changing watershed conditions
- Support development of [TMDL Alternative Plans](#) where planned and ongoing restoration activities may be immediately beneficial for improving water quality
- Track progress of activities and measure water quality improvement over time resulting from plan implementation
- Integrate across Clean Water Act and other programs and build partnerships to plan activities, leverage resources, and align priorities
- Emphasize transparency and effective communication in all program areas to promote meaningful public involvement, encourage public participation, and strengthen partnerships

## Priorities and Rationale

Kentucky's 303(d) program will focus the development of restoration and protection plans for the following priorities during the 2022-2032 long term planning period:

- Develop TMDLs in waters impaired due to excess nutrients
- Develop TMDLs for waters not supporting Primary or Secondary Contact Recreation designated uses due to bacteria impairments
- Promote and support the development of [TMDL Alternative Plans](#) where such plans may be immediately beneficial as a precursor to TMDL development or as a path to full restoration

## Nutrient Impairments

Adverse effects from excess nutrients (nitrogen and phosphorus) are among the top causes of impairment in Kentucky's waters. Excess nutrients have the potential to impact waterbodies across all uses, including recreation (e.g., swimming, boating), domestic water supply, and aquatic life, including fisheries. Excess nutrients create costs to communities in treating water for drinking, damage the integrity of sensitive biological communities, and reduce the tourism value of lakes and rivers. Kentucky has developed a [Nutrient Reduction Strategy](#) to prioritize ongoing and future efforts to reduce the amount of nutrients entering Kentucky waters. The 303(d) program has been working closely with the Nutrient Reduction team to advance the Nutrient Reduction Strategy by aligning 303(d) activities

wherever possible. The main roles of the 303(d) program in this effort are providing data, assessments, and TMDLs to facilitate effective wastewater permitting, supporting the development of restoration plans in priority waters, assisting with tracking of implementation activities, and monitoring water quality improvements.

### Bacteria Impairments

Recreation in and on the water is an important part of life in the Commonwealth. All Kentucky waters are designated for Primary Contact Recreation (e.g., swimming) and Secondary Contact Recreation (e.g., wading, boating) uses. *E. coli* and/or fecal coliform bacteria comprise the top cause of impairment in Kentucky's waters, indicating possible contamination by human pathogens and the potential for illness due to ingesting water while engaging in recreation. The [Kentucky Statewide Bacteria TMDL](#) framework has proven to be an effective way to highlight the widespread nature of bacteria impairment, communicate important information on the severity and potential sources in individual impaired waterbodies, and provide a comprehensive resource for communities to guide actions in restoring water quality. Kentucky plans to continue completing TMDLs under this framework during the 2022-2032 Program Vision period. To date, the Statewide Bacteria TMDL framework has primarily been used in developing TMDLs for impaired stream segments within Kentucky's borders. For impaired lakes, springs, and the mainstem of the Ohio River, different approaches will likely be necessary. The Division is evaluating approaches to these waterbody types and will update this framework document in the coming years to reflect new information.

### TMDL Alternative Plans

The Division will continue to promote and support innovative and collaborative approaches to water quality restoration and protection where these approaches may be immediately beneficial. Incorporating current and upcoming water quality improvement actions into the 303(d) program as [TMDL Alternative Plans](#) facilitates ongoing tracking of progress in impaired waterbodies and promotes close collaboration among monitoring, assessment, planning, and implementation activities. Nonpoint source watershed plans are a natural fit to serve as TMDL Alternatives due to many common elements with TMDLs. The 303(d) program will continue to collaborate with the Nonpoint Source program on plans in development and plans being implemented that may be good candidates for a TMDL Alternative. Emphasis will be on priority watersheds identified by the [Nonpoint Source and Basin Team](#) and the [Nutrient Reduction Strategy](#).

### Strategy

Meeting the 303(d) program goals and completing priority plans described above will require a unified approach across all program areas. The following outline identifies specific strategies that will be utilized to carry out the goals of monitoring and assessment, prioritization, and success tracking following implementation. The Division recognizes that success for the 303(d) program relies on strong partnerships with outside agencies and communities to foster meaningful involvement and active participation. The set of strategies for communication listed below highlights the importance of this critical element of building and strengthening those partnerships.

## 1. Monitoring and Assessment

- Continue to update the Division's statewide surface water monitoring plan; perform targeted data collection efforts in unassessed waters where point or nonpoint sources are likely impacting water quality
- Develop or refine sampling methodologies and assessment approaches to identify nutrient impairments
- Identify waters most in need of new or updated assessments to facilitate KPDES permitting decisions
- Identify waters for updated monitoring and assessments to establish baseline conditions and to measure success of point and nonpoint source management actions
- Expand data management systems, including the continued development of automated tools for water quality data processing, analysis, and reporting
- Strengthen existing partnerships with outside agencies and local governments involved in water quality monitoring throughout the Commonwealth, including US Army Corps of Engineers, US Geological Survey, Ohio River Sanitation Commission, and municipalities

## 2. Prioritization of Plans

- In close collaboration with permitting staff, identify waters most in need of TMDLs or TMDL revisions to guide permit limits, with emphasis on waters impaired for or threatened by excess nutrients
- Using the [Kentucky Statewide Bacteria TMDL](#) framework, develop TMDLs as new waters are listed for bacteria (*E. coli*, fecal coliform) impairments of Primary and Secondary Contact Recreation uses
- Collaborate with Division staff on continued identification and refinement of [Basin Team priority watersheds](#) and [Nutrient Reduction priority watersheds](#), and the development of TMDL Alternative Plans
- Assist with the development of new tools for nonpoint source and nutrient watershed prioritization, including participating in efforts to explore applications of the [Recovery Potential Screening Tool](#)
- Collaborate with Nonpoint Source and Basin Team on tools and approaches to advance the Cabinet's [environmental justice](#) goals in the prioritization of watershed planning and implementation
- Collaborate with border states on opportunities for joint data collection and watershed planning/protection efforts, including in two nutrient reduction priority watersheds shared with Tennessee

## 3. Restoration and Protection Plan Development

- Expand staff expertise with scientific modeling approaches to ensure the best and most efficient tools can be used for each situation
- Collaborate with permitting staff to ensure TMDLs are written with clear language on how they will be implemented in permits
- Ensure long term resilience of TMDLs and other plans by considering vulnerability to changes in climate, population growth, and anticipated expansion/addition of permitted discharges

- Provide technical assistance in early stages of Nonpoint Source watershed plan conception to maximize potential for these plans to serve as TMDL Alternative Plans

#### 4. Progress Tracking and Success Monitoring

- Collaborate with Division staff on monitoring strategies to measure success of point source management actions, such as treatment improvements and wastewater regionalization
- Collaborate across the Division to maintain awareness of facility changes or watershed plan implementation that may prompt re-assessments for measuring water quality improvements
- Enhance data management systems to facilitate tracking implementation of TMDLs and non-TMDL plans ([TMDL Alternatives](#)), and to manage schedules for success monitoring activities
- Review progress of TMDL Alternative Plans each Integrated Reporting/303(d) cycle to ensure plans are on track and that TMDL development priority level is appropriate
- Collaborate with Division staff on interactive [map resources for communicating water quality improvement successes](#)

#### 5. Communication

- Continue to expand features of the Kentucky [Water Health Portal](#) to share more information on assessments, plans, and plan implementation
- Continue to enhance the [Integrated Report website](#) and [303\(d\) List Public Notice website](#) to promote understanding and facilitate public review of the 303(d) List of Impaired Waters
- Expand the use of Story Maps and other media tools that can be directed to a wide variety of audiences and can focus on elements of 303(d) program areas most relevant to each
- Increase accessibility of monitoring data to the public via the National Water Quality Monitoring Council's [Water Quality Portal](#)
- Continue to maintain the [tmdl@ky.gov](mailto:tmdl@ky.gov) email distribution list to keep stakeholders informed of activities, calls for data, and public comment periods

### Public Participation

The Division elected to include the draft Prioritization Framework as part of the Public Notice of the draft 2024 303(d) List of Impaired Waters. The Public Notice period was held from April 12 through June 15, 2024. The draft 303(d) list, the draft Framework, additional interactive resources, and information on how to comment, were shared via the Division's [303\(d\) Public Notice website](#). Responses to comments on the 303(d) and Framework were included in the 2024 Integrated Report. The final version of the Prioritization Framework, future updates, and resources will be maintained on the [TMDL Priorities webpage](#).

### Final Thoughts

Kentucky's 303(d) program looks forward to working with EPA, partners, stakeholders, and the public to build upon our past successes and enact the aspirations outlined in this Framework. Please join our email distribution list by submitting a request to [tmdl@ky.gov](mailto:tmdl@ky.gov). This email address can be used to submit questions or comments and to receive updates on program activities, including public comment periods.

Please also visit our webpages ([TMDL program](#), [Approved TMDLs](#), [TMDL Alternative Plans](#), [TMDL Priorities, Assessment, Integrated Reports and 305\(b\)/303\(d\) lists](#)) and interactive resources linked throughout this document and give us feedback about how to make them better. Thank you for your

commitment to our shared goal of managing, protecting, and enhancing the quality of the Commonwealth's water resources for present and future generations.