



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

### REGION 7

11201 Renner Boulevard  
Lenexa, Kansas 66219

AUG 30 2019

Mr. Chris Wieberg, Director  
Water Protection Program  
Missouri Department of Natural Resources  
1101 Riverside Drive  
Jefferson City, Missouri 65101

Dear Mr. Wieberg:

The U.S. Environmental Protection Agency has completed its review of the 2018 Missouri Clean Water Act Section 303(d) List of water quality-limited segments still requiring Total Maximum Daily Loads that was submitted by the Missouri Department of Natural Resources on February 15, 2019, through the EPA's new electronic, online system ATTAINS (Assessment, Total Maximum Daily Load Tracking and Implementation). In the original submittal, MDNR included the following items in ATTAINS:

- A PDF letter officially submitting the 2018 Missouri Section 303(d) List.
  - Missouri's proposed 2018 CWA Section 303(d) impaired waters list.
  - A copy of the 2018 Section 303(d) Listing Methodology Document.
  - A copy of the 2018 Missouri Section 305(b) Report.
  - A copy of Missouri's TMDL schedule.
  - An administrative record of all written comments received by MDNR on the proposed Section 303(d) List and MDNR's responses.
  - A complete set of water quality assessment files.
  - Sections 303(d) and 305(b) GIS shape files.

The MDNR's submission included the 2018 CWA Section 303(d) List as approved by the Clean Water Commission as the official submission in case there is any discrepancy between ATTAINS and the Missouri Clean Water Commission approved List. The EPA has determined that Missouri's list of water quality-limited segments still requiring TMDLs meets the requirements of Section 303(d) of the CWA and the EPA's implementing regulations. Therefore, today the EPA is approving Missouri's 2018 CWA Section 303(d) List. Enclosure A to this letter provides a more detailed rationale of today's action on Missouri's Section 303(d) list. In today's decision:

- EPA approves the listing of 440 water body/pollutant pairs.
- EPA approves the delisting of 68 water body/pollutant pairs.

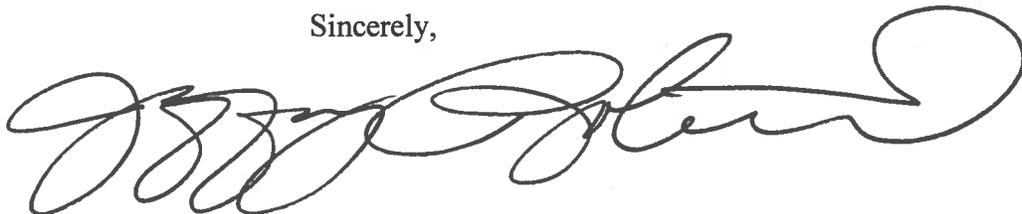
Although the EPA doesn't review Category 2 and 3 of the 2018 Missouri Section 305(b) Report, the EPA is providing data and analysis for the following water body/pollutant pairs: Meramec(2185)/Lead in Sediment and Willow(3280)/Lead in Sediment. Enclosure B of this letter includes further information to assist Missouri during their assessment of waters that might be included on the 2020 303(d) List of water quality-limited segments still requiring a TMDL.



I congratulate you and your staff for the completion of the Section 305(b) water assessment report and the Section 303(d) list development and submission process. This process requires a significant amount of staff resources and involves a complex evaluation and assessment of water quality data. We look forward to working with the MDNR on the development of the 2020 Section 303(d) List.

If you would like to further discuss the EPA's action, please contact me at 913-551-7146, or Amy Shields, Branch Chief, Standard and Water Quality Branch, at 913-551-7396.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeffery Robichaud". The signature is fluid and cursive, with a large loop at the end.

Jeffery Robichaud  
Director  
Water Division

Enclosures

cc: Mr. Robert Voss, MDNR  
Mr. John Hoke, MDNR  
Mr. Jim Havard, EPA Headquarters

Enclosure A

EPA Decision Document for Missouri's 2018 CWA § 303(d) List of Impaired Waters

**U. S. ENVIRONMENTAL PROTECTION AGENCY - REGION 7's REVIEW  
of the  
2018 MISSOURI CLEAN WATER ACT SECTION 303(D) LIST**

The purpose of this review document is to provide the U. S. Environmental Protection Agency's rationale for approving Missouri's 2018 Clean Water Act Section 303(d) List. The EPA's review of Missouri's 2018 CWA Section 303(d) List is based on EPA's analysis of whether the state reasonably considered all existing and readily available data and information, and reasonably identified waters required to be listed by the CWA and the EPA regulations (40 Code of Federal Regulations Section 130.7). Throughout this review document the CWA Section 303(d) List is referred to as the "CWA Section 303(d) List" or the "Section 303(d) List."

303(d) list	Clean Water Act Section 303(d) List
Br.	Branch
C	Streams that maintain permanent pools
C.F.R.	Code of Federal Regulations
Cr.	Creek
CWA	Clean Water Act
EPA	U. S. Environmental Protection Agency
IR	Integrated Report
IR Guidance	<i>Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act</i>
L1	Public drinking water supply lake
L2	Major reservoir
L3	Other lakes
MDNR	Missouri Department of Natural Resources <i>Missouri's Methodology for the Development of the 2018 Section 303(d) List in Missouri</i>
Methodology	(April 6, 2016)
P1	Standing-water reaches of Class P streams
P	Permanently flowing stream
R.	River
(S)	Pollutant in sediment
(T)	Pollutant in tissue
TMDL	Total Maximum Daily Load
Trib.	Tributary
WBID	Water Body Identification
WQS	Water Quality Standards
(W)	Pollutant in water

## **2018 Decision Document of Missouri's Clean Water Act Section 303(d) List, Water Quality Limited Segments Still Requiring TMDLs**

### **I. Executive Summary**

On February 15, 2019, the U.S. Environmental Protection Agency received from the Missouri Department of Natural Resources its 2018 Missouri Clean Water Act Section 303(d) List package through the *Assessment, Total Maximum Daily Load (TMDL) Tracking and Implementation System* (ATTAINS) for review, herein referred to as the submittal. ATTAINS is EPA's new electronic system to accept and track 303(d) submissions and actions. The EPA and MDNR performed a check of MDNR's submittal in ATTAINS for completeness and accuracy. EPA found MDNR's submission complete. Following the EPA's review of Missouri's submittal, the EPA is approving Missouri's 2018 Section 303(d) List. Missouri's 2018 Section 303(d) List includes the addition of 30 new water bodies representing 56 water body/pollutant impairment pairs and the removal of 68 water body/pollutant impairment pairs representing 44 water bodies from its' 2016 CWA Section 303(d) List. In summary, the state's 2018 list consists of 440 water body/pollutant combinations. Missouri's submission through ATTAINS stated, "in the case of any discrepancy between ATTAINS and the Missouri Clean Water Commission approved 303(d) List, the Clean Water Commission approved list stands as the official submission." Therefore, EPA's action applies to the Missouri Clean Water Commission approved 303(d) List. This document summarizes the EPA's review and the basis for its approvals and its proposed actions identified below.

Section 303(d)(1) of the CWA directs states to identify those waters within their jurisdictions for which effluent limitations required by Section 301(b)(1)(A) and (B) are not stringent enough to implement any applicable water quality standard (referred to as 'water quality-limited segments' defined in 40 C.F.R. § 130.7), and to establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters. The CWA Section 303(d) listing requirement applies to water quality-limited segments impaired by pollutant loadings from both point and nonpoint sources. After a state submits its CWA Section 303(d) List to the EPA, the Agency is required to approve or disapprove that list, consistent with 40 C.F.R. § 130.7(d)(2).

The MDNR's submittal for the EPA's review includes a list reflecting, among other things:

- Water bodies included on Missouri's previously approved/established 2016 CWA Section 303(d) List which are still determined to need TMDLs pursuant to Missouri's EPA-approved water quality standards; and
- Additional water bodies which MDNR determined to be water quality-limited segments pursuant to the state's listing methodology and, therefore, included in the 2018 Section 303(d) List which the MDNR submitted to the EPA for review,

MDNR also identified in its submittal water bodies previously included on Missouri's approved/established 2016 CWA Section 303(d) List, and pursuant to 40 C.F.R. § 130.7(b)(6), determined not to need TMDLs pursuant to Missouri's EPA-approved water quality standards and, therefore, with good cause removed from the 2018 Section 303(d) List submitted to the EPA for review (Table 1).

With its submittal, the MDNR provided a description of the data and information it used to develop its list, along with its 2018 assessment methodology used to develop its 2018 Section 303(d) List. The methodology establishes specific protocols and thresholds for assessing water bodies, in addition to data sufficiency and data quality requirements. The methodology contains MDNR's procedures for assessing both aquatic life use support and human health use support. A state's listing methodology is not a revision to a state's EPA-approved water quality standards and, as such, does not have an effect on the underlying protection afforded the water bodies in the state.

While the guidelines, protocols and requirements in state statute and the MDNR methodology might be useful tools for the MDNR to use in identifying impaired waters, they are not part of the state's EPA-approved water quality standards. 40 C.F.R. § 130.7(b) provides that each State shall assemble and evaluate "all existing and readily available water quality-related data and information". Hence, the EPA did not rely solely on the state guidelines, protocols, requirements in state statutes or the methodology in reviewing Missouri's list. Instead, the EPA reviewed all available information including any information excluded under the state's methodology to determine if the state's list was developed consistent with the underlying EPA-approved water quality standards. The EPA's review process generally followed a two-step analysis:

- 1) The EPA Region 7 considered the state's listing methodology, including data collection and data assessment requirements, to determine whether, based on Missouri's EPA-approved water quality standards, the methodology was a reasonable method for identifying water quality-limited segments; and
- 2) EPA requested additional information when it determined that such additional information was necessary to conduct further water body and data analysis independent of the state's listing methodology.

This action by the EPA and the approved waters listed in Table 2 represent a complete decision on the 2018 Missouri submittal, and the 2018 Missouri 303(d) List for CWA purposes.

The statutory and regulatory requirements relevant to Section 303(d) Lists, and the EPA's review of Missouri's compliance with each requirement, are described in more detail below.

## **II. Statutory and Regulatory Background**

### **A. Identification of Water Quality-Limited Segments for Inclusion on the Section 303(d) List**

Section 303(d)(1) of the CWA directs states to identify those waters within its jurisdiction for which effluent limitations required by Section 301(b)(1)(A) and (B) are not stringent enough to implement any applicable water quality standards (WQS), and to establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters. The Section 303(d) listing requirement applies to waters impaired by point and/or nonpoint sources.

The EPA regulations provide that states need to list waters where the following controls are not adequate to implement applicable standards: (1) technology-based effluent limitations required by the Act, (2) more stringent effluent limitations required by federal, state, or local authority, and (3) other pollution

control requirements required by state, local, or federal authority [see Code of Federal Regulations at 40 § C.F.R. § 130.7(b)(1)].

## **B. Consideration of Existing and Readily Available Water Quality-Related Data and Information**

In developing Section 303(d) Lists, states are required by 40 C.F.R. § 130.7(b)(5) to assemble and evaluate all existing and readily available water quality-related data and information, including, at a minimum, consideration of existing and readily available data and information about the following categories of waters:

1. Waters identified as partially meeting or not meeting designated uses, or as threatened, in the state's most recent Section 305(b) report;
2. Waters for which dilution calculations or predictive modeling indicate nonattainment of applicable standards;
3. Waters for which water quality problems have been reported by governmental agencies, members of the public, or academic institutions; and
4. Waters identified as impaired or threatened in any Section 319 nonpoint assessment submitted to the EPA.

States are also required to consider any other data and information that is existing and readily available. The EPA's 2002 *Recommended Framework for EPA Approval Decisions on 2002 State Section 303(d) List Submissions* describes categories of water quality related data and information that may be existing and readily available. While states are required to evaluate all existing and readily available water quality-related data and information, states may provide a rationale describing whether it used or did not use particular data or information in determining whether to list particular waters.

The EPA regulations at 40 C.F.R. § 130.7(b)(6) require states to include, as part of their submittals to the EPA, documentation to support decisions to use or not use particular data and information in decisions to list or not list waters. Such documentation needs to include, at a minimum, the following information: (1) a description of the methodology used to develop the list; (2) a description of the data and information used to identify waters; and (3) any other reasonable information requested by the EPA Region 7.

## **C. Priority Ranking**

The EPA regulations also codify and interpret the requirement in Section 303(d)(1)(A) that states establish a priority ranking for listed waters. The regulations at 40 C.F.R. § 130.7(b)(4) require states to prioritize waters on their Section 303(d) List for TMDL development and identify those targeted for TMDL development in the next two years. In prioritizing and targeting waters, states must, at a minimum, take into account the severity of the pollution and the uses to be made of such waters. As long as these factors are taken into account, the CWA provides that states establish priorities. States may consider other factors relevant to prioritizing waters for TMDL development, including immediate programmatic needs, vulnerability of particular waters as aquatic habitats, recreational, economic, and aesthetic importance of particular waters, degree of public interest and support, and state or national policies and priorities [see, 57 Federal Register 33040, 33045 (July 24, 1992) and the EPA's 1991 Guidance cited above]. The EPA reviews but does not take action to approve or disapprove the priority ranking.

### III. Missouri's Approach to Identifying Waters for the 2018 Section 303(d) List

#### A. Missouri's 2018 Integrated Report Format

The EPA strongly encourages states to submit a single Integrated Report (IR) to satisfy the reporting requirements of CWA Sections 303(d), 305(b) and 314. A summary of states reporting requirements for each of these sections and corresponding regulations is provided below:

**CWA Section 303(d)** – by April 1 of all even numbered years, a list of impaired and threatened waters still requiring TMDLs; identification of the impairing pollutant(s); and priority ranking of these waters, including waters targeted for TMDL development within the next two years.

**CWA Section 305(b)** – by April 1 of all even numbered years, a description of the water quality of all waters of the state (including, rivers/stream, lakes, estuaries/oceans and wetlands). States may also include in their CWA Section 305(b) submittal a description of the nature and extent of ground water pollution and recommendations of state plans or programs needed to maintain or improve ground water quality.

**CWA Section 314** – in each CWA Section 305(b) submittal, an assessment of status and trends of significant publicly owned lakes including extent of point source and nonpoint source impacts due to toxics, conventional pollutants, and acidification.

Each IR will report on the WQS attainment status of all waters, document the availability of data and information for each water body, identify certain trends in water quality conditions and provide information to managers in setting priorities for future actions to protect and restore the health of our nation's waters. The EPA promotes this comprehensive assessment approach to enhance a state's ability to track programmatic and environmental goals of the CWA. The EPA promotes the use of a five-part categorization format for sorting waters in the IR<sup>1</sup> In summary, the categories are:

Category 1: All designated uses are supported, no use is threatened,

Category 2: Available data and/or information indicate that some, but not all of the designated uses are supported,

Category 3: There is insufficient available data and/or information to make any use support determination,

Category 4: Available data and/or information indicate that at least one designated use is not being supported or is threatened, but a TMDL is not needed, and

Category 5: Available data and/or information indicate that at least one designated use is not being supported or is threatened, and a TMDL is needed.

---

<sup>1</sup> EPA. 2005. Guidance for 2006 Assessment, Listing, and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the CWA. EPA Office of Wetlands, Oceans, and Watersheds. July 29, 2005.

- and -

EPA. 2006. Memorandum: Information Concerning 2008 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions. EPA Office of Wetlands, Oceans, and Watersheds. October 12, 2006.

Missouri's 2018 submittal included the CWA Section 303(d) List of Impaired Waters (Category 5) and the state's assessment data. Today's decision is based on the 2018 Missouri Section 303(d) List approved by the Missouri Clean Water Commission, submitted through ATTAINS on February 15, 2019.

## **B. 2018 Missouri Methodology**

Missouri's *Methodology for the Development of the 2018 Section 303(d) List in Missouri* (April 6, 2016), guided the MDNR's evaluation of existing and readily available water quality-related data and information C.F.R. and identification of water quality-limited segments still requiring TMDLs C.F.R. As described earlier, Category 5 of the 2018 IR constitutes Missouri's list of impaired waters for purposes of Section 303(d) of the CWA and is subject to the EPA's review and approval. The EPA is taking action only on Category 5 which consists of water quality-limited segments still requiring TMDLs.

According to the state's "listing methodology, data sources used to assess water quality conditions in Missouri for purposes of Section 305(b) reporting and to aid in developing the state's 303(d) list include:

- 1) Fixed station water quality and sediment data collected and analyzed by MDNR.
- 2) Fixed station water quality data collected under contract by the U.S. Geological Survey.
- 3) Fixed station water quality data collected by the U.S. Geological Survey under other agreements
- 4) Fixed station water quality, sediment quality and aquatic biological data collected by the U.S. Geological Survey under their national programs.
- 5) Fixed station water quality data collected by water supply companies in Kansas City, St. Louis and Springfield.
- 6) Fixed station water quality data collected by the U.S. Army Corps of Engineers.
- 7) Fixed station water quality data collected by agencies from bordering states.
- 8) Fixed station water quality monitoring by corporations.
- 9) Annual fish tissue monitoring programs of the EPA and Missouri Department of Conservation.
- 10) Special water quality surveys conducted by MDNR.
- 11) Special water quality surveys conducted by the U.S. Geological Survey.
- 12) Special water quality surveys conducted by other agencies.
- 13) Fish occurrence and distribution monitoring by the Missouri Department of Conservation.
- 14) Fish kill and water pollution investigations by the Missouri Department of Conservation.
- 15) Selected graduate research projects.
- 16) Water quality, sediment and aquatic biological data collected by the EPA, MNDR or contractors at hazardous waste sites in the state.
- 17) Self-monitoring of receiving streams by dischargers where such monitoring is required.
- 18) Compliance monitoring of receiving waters by the MDNR and the EPA.
- 19) Bacterial monitoring of lakes and streams by county health departments and other organizations using acceptable methodologies.
- 20) Other monitoring under a MDNR approved quality assurance project plan.
- 21) Fixed station water quality and aquatic invertebrate monitoring by qualified volunteers.

The state's methodology also specifies the data quality considerations used to determine if data is acceptable for use in 303(d) assessments.

#### **IV. Analysis of Missouri's Submission**

##### **A. Identification of Water Quality-Limited Segments for Inclusion on the CWA Section 303(d) List**

The EPA has reviewed Missouri's 2018 submission and found that Missouri's submission included all the data and supporting documentation as required by the CWA and federal regulations. The EPA's action is based on its analysis of whether the state reasonably considered existing and readily available water quality-related data and information, and reasonably identified waters to be listed. The EPA finds that Missouri's submission satisfies the statutory and regulatory requirements of Section 303(d) and 40 C.F.R. § 130.7. The EPA hereby approves the 2018 Missouri Section 303(d) List submission. The sections below cover broad categories of the EPA's action on Missouri's 2018 Section 303(d) List submission.

##### **B. Consideration of Existing and Readily Available Water Quality-Related Data and Information**

Missouri used its listing methodology to develop its 2018 submission. The listing methodology provides a detailed explanation of the data generated by the MDNR's monitoring program; describes the procedures and methods for collecting data from other federal agencies, state agencies, universities, and monitoring networks; lists the supporting laboratories; and lists other data sources the MDNR uses for compiling the state's CWA Section 305(b) report (including the Section 314 report) and Section 303(d) list. The listing methodology also explains how the MDNR considers and evaluates each type of data for listing purposes. However, the EPA reviews the state's submittal based on its EPA-approved water quality standards. Where the EPA finds the methodology is not consistent with those EPA-approved water standards, the EPA-approved water quality standards are used for the review.

##### **C. Priority Ranking**

Appendix C of the *Missouri Integrated Water Quality Report and Section 303(d) List, 2018*, submitted by Missouri contains the state's schedule for completing TMDLs for those waters still needing a TMDL and identified goal years for development through the year 2026. The listing methodology submitted with Missouri's IR details the process by which the MDNR ranks waters for TMDL development and states that the TMDL schedule represents the MDNR's priority ranking (see *Methodology for the Development of the 2018 Section 303(d) List in Missouri, April 6, 2016*). As such, the EPA understands that the TMDL development schedule serves as the state's priority ranking as required by federal regulations at 40 C.F.R. § 130.7(b). The EPA is not taking action on these schedules as federal regulations do not require the EPA's approval of priority rankings or schedules.

##### **D. Listing of Waters Impaired by Nonpoint Sources**

Based solely on an evaluation of the final 2018 Missouri Section 303(d) List, the EPA concludes that Missouri listed waters with nonpoint sources causing or expected to cause impairment, consistent with Section 303(d) of the CWA and the EPA's guidance. The EPA believes that Section 303(d) provides ample authority to require states to list waters impaired solely by nonpoint source pollutants. There is no expressed exclusion of the nonpoint source impaired water bodies in the CWA. The EPA's belief that Section 303(d) applies to nonpoint sources is also consistent with the CWA definition of the term

“pollutant” and Congress’ use of that term in other sections of the CWA, such as Section 319 and Section 320. Therefore, state Section 303(d) Lists are to include all water quality-limited segments still needing TMDLs, regardless of whether the source of the impairment is a point or a nonpoint source or a combination of both.

## **E. Public Comments**

The MDNR provided several opportunities for public participation and comment in finalizing the 2018 Missouri CWA Section 303(d) List. Missouri posted its final draft 2018 Section 303(d) List for a 90-day public comment period commencing on July 3, 2017 and ending on October 13, 2017. The state also held two public meetings, and a public hearing on the proposed list. Missouri evaluated and responded to each public comment and, where deemed appropriate, incorporated suggested changes into its 2018 Section 303(d) List. The Missouri Clean Water Commission approved the MDNR draft Section 303(d) List on January 4, 2018. Because the state did not post for public notice in six regional newspapers as specified in its protocol, the state undertook a second public notice period from April 24 through July 23, 2018. The Missouri Clean Water Commission approved a modified Section 303(d) list on October 18, 2018. Missouri included copies of comments and Missouri’s response with its list submission.

## **V. Approved Listings**

### **A. Water Quality-Limited Segments for Inclusion on the Section 303(d) List**

The EPA has reviewed Missouri’s 2018 list submission and concludes that the state developed its list of impaired waters (i.e., Category 5 of its IR) in compliance with Section 303(d) of the CWA and 40 C.F.R. § 130.7, and as a result, approves the listing of the water bodies and corresponding pollutants identified in Table 2. The EPA’s review is based on its analysis of whether the state reasonably considered existing and readily available water quality-related data and information, and reasonably identified waters to be listed. The EPA is approving the state’s submitted CWA Section 303(d) List.

### **B. Segment Length**

As discussed in the EPA’s 2006 IR guidance:

“ideally, all decisions about the WQS attainment status of individual assessment units would be based on a complete census of water quality conditions, which could involve sampling every portion of a water body at frequent intervals. Unfortunately, gathering this vast amount of data is not currently feasible, due to the limitation of current monitoring technology as well as the amount of funding available for gathering and analysis of water quality information. Given this situation, states and EPA will continue to need to make WQS attainment status determination by extrapolating, in time and space, to a substantial degree, from individual points of data.”

It is important that Missouri, the EPA, and the general public be able to track the progress of individual water bodies as they are listed, pollution controls are implemented, and the applicable water quality standards are eventually attained. The EPA’s 2006 IR guidance promotes the use of the IR format, the five category approach, and the assessment database ATTAINS as tools to better enable states to assess and track progress of water quality-limited segments. “Use of the Integrated Report format and the use of the five-part categorization scheme envisions that each state provides a comprehensive description of

the water quality standards attainment status of all segments within a state... Fundamental to this accounting is the use of a consistent and rational segmentation and geo-referencing approach for all segments.” The IR guidance continues, “it is important that the selected segmentation approach be consistent with the state’s water quality standards,” which is critical to tracking progress.

To provide as much information as possible to the public, the EPA is including descriptive information submitted by Missouri for each classified water body (Table 2). This enables one to more readily compare the Section 303(d) list to the state’s WQS regulations and track changes from one assessment cycle to the next. Should Missouri want to assess sub-segments of waters for listing purposes, Missouri could develop smaller assessment units with defined endpoints and unique identifiers. The EPA is willing to work with Missouri on this issue to find a system that meets the needs of both the EPA and the state.

## **VI. Water body/Pollutant Pairs Delisted for Good Cause (Table 1)**

Federal regulations require that the state provide documentation to the EPA to support its decision to list or not to list its waters. Upon request from the EPA, the state must demonstrate good cause for not including a water or waters on its list, pursuant to 40 C.F.R. § 130.7(6). In its *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act* (known as the IR guidance), the EPA describes what constitutes good cause for not including a water body from the Section 303(d) List. Consistent with 40 C.F.R. § 130.7(b), good cause for not including segments on the Section 303(d) List may be based on the following determinations:

- New information or more sophisticated water quality modeling is available that demonstrates that the applicable WQS(s) is being met;
- Flaws in the original analysis of data and information led to the segment being incorrectly listed;
- Effluent limitations required by state or local authorities that are more stringent than technology-based effluent limitations, required by the CWA, will result in the attainment of WQS for the pollutant causing the impairment, pursuant to 40 C.F.R. § 130.7(b)(1)(ii);
- Other pollution control requirements required by state, local, or federal authority will result in attainment of WQS within a reasonable period of time, pursuant to 40 C.F.R. § 130.7(b)(1)(iii);
- Documentation that the state included on a previous Section 303(d) List an impaired segment that was not required to be listed by the EPA regulations, e.g., segments where there is no pollutant associated with the impairment; or
- The water body and pollutants are addressed in a TMDL approved or established by the EPA.

States may assign waters to Category 4 if available data and/or information indicate that one or more designated uses are not being attained or are threatened, but a TMDL is not needed. States may place these water bodies in one of the following three subcategories:

Category 4a – An EPA-approved TMDL has been established to address the water body and pollutant.

Category 4b – Alternative pollution controls required by local, state, or federal authority are sufficiently stringent and expected to achieve WQS within a reasonable period of time. One example of such controls is an EPA-approved state National Pollutant Discharge Elimination System (NPDES) permit in lieu of a TMDL (PIL).

Category 4c – Impairment not caused by a pollutant, but instead caused by other types of “pollution,” as defined by the CWA. Development of a TMDL is not required.

Table 1 contains a summary list of the delisted water body/pollutant pairs, as described below.

**A. Restored Waters Delisted for Meeting WQS (30 water bodies, Table 1)**

Antire Creek (WBID 2188) - New water quality data indicates this water body is meeting WQS for pH. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no significant excursions of the water quality criteria. Antire Creek is not listed for pH because this water body no longer requires the development of a TMDL for pH, consistent with 40 C.F.R. § 130.7(b).

Big Creek (WBID 2916) - New water quality data indicates this water body is meeting WQS for lead in sediment. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of the translator for lead in sediment. Big Creek is not being listed for lead in sediment because this water body no longer requires the development of a TMDL for lead in sediment, consistent with 40 C.F.R. § 130.7(b).

Bonhomme Creek (WBID 1701) – New water quality data indicates this water body is meeting WQS for pH. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no significant excursions of the water quality criteria. Bonhomme Creek is not being listed for pH because this water body no longer requires the development of a TMDL for pH, consistent with 40 C.F.R. § 130.7(b).

Courtois Creek (WBID 1943) – New water quality data indicates this water body is meeting WQS for zinc in sediment. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of the translator for zinc in sediment. Courtois Creek is not being listed for zinc in sediment because this water body no longer requires the development of a TMDL for zinc in sediment, consistent with 40 C.F.R. § 130.7(b).

Creve Coeur Creek (WBID 1703) – New water quality data indicates this water body is meeting WQS for dissolved oxygen. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of the dissolved oxygen criterion. Creve Coeur Creek is not being listed for dissolved oxygen because this water body no longer requires the development of a TMDL for dissolved oxygen, consistent with 40 C.F.R. § 130.7(b).

East Whetstone Creek (WBID 3964) – New water quality data indicates this water body is meeting WQS for ammonia. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of the ammonia criterion. East Whetstone Creek is not being listed for ammonia because this water body no longer requires the development of a TMDL for ammonia, consistent with 40 C.F.R. § 130.7(b).

Hazel Creek Lake (WBID 7152) – Water quality data indicates this water body is meeting WQS for mercury in fish tissue. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of the mercury in fish narrative translator. Hazel Creek Lake is not being listed for mercury in fish tissue because this water body no longer requires the development of a TMDL for mercury in fish tissue, consistent with 40 C.F.R. § 130.7(b).

Hickory Branch (WBID 0596) – New water quality data indicates this water body is meeting WQS for dissolved oxygen. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no significant excursions of the dissolved oxygen criterion. Hickory Branch is not being listed for dissolved oxygen because this water body no longer requires the development of a TMDL for dissolved oxygen, consistent with 40 C.F.R. § 130.7(b).

Indian Creek (WBID 3256) – New water quality data indicates this water body is meeting WQS for *Escherichia coli*. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of the *E. coli* criterion. Indian Creek is not being listed for *E. coli* because this water body no longer requires the development of a TMDL for *E. coli*, consistent with 40 C.F.R. § 130.7(b).

Little Medicine Creek (WBID 0623) – New water quality data indicates this water body is meeting WQS for aquatic macroinvertebrates. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of the aquatic macroinvertebrates narrative translator. Little Medicine Creek is not being listed for aquatic macroinvertebrates because this water body no longer requires the development of a TMDL for aquatic macroinvertebrates, consistent with 40 C.F.R. § 130.7(b).

Lake St. Louis (WBID 7054) – Water quality data indicates this water body is meeting WQS for mercury in fish tissue. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of the mercury in fish narrative translator. Lake St. Louis is not being listed for mercury in fish tissue because this water body no longer requires the development of a TMDL for mercury in fish tissue, consistent with 40 C.F.R. § 130.7(b).

Lateral #2 Main Ditch (WBID 3105) – New water quality data indicates this water body is meeting WQS for temperature. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of the water quality criteria. Lateral #2 Main Ditch is not being listed for temperature because this water body no longer requires the development of a TMDL for temperature, consistent with 40 C.F.R. § 130.7(b).

Long Branch (WBID 0857) – New water quality data indicates this water body is meeting WQS for dissolved oxygen. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no significant excursions of the dissolved oxygen criterion. Long Branch is not being listed for dissolved oxygen because this water body no longer requires the development of a TMDL for dissolved oxygen, consistent with 40 C.F.R. § 130.7(b).

Mattese Creek (WBID 3596) – New water quality data indicates this water body is meeting WQS for chloride. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no significant excursions of the chloride criterion. Long Branch is not being listed for chloride because this water body no longer requires the development of a TMDL for chloride, consistent with 40 C.F.R. § 130.7(b).

Maple Slough (WBID 3140) – New water quality data indicates this water body is meeting WQS for dissolved oxygen. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no significant excursions of the dissolved oxygen criterion. Maple Slough is not being listed for dissolved oxygen because this water body no longer requires the development of a TMDL for dissolved oxygen, consistent with 40 C.F.R. § 130.7(b).

McCoy Creek (WBID 0214) – New water quality data indicates this water body is meeting WQS for dissolved oxygen. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no significant excursions of the dissolved oxygen criterion. McCoy Creek is not being listed for dissolved oxygen because this water body no longer requires the development of a TMDL for dissolved oxygen, consistent with 40 C.F.R. § 130.7(b).

Meramec River (WBID 2185) – New water quality data indicates this water body is meeting WQS for lead in sediment. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of the translator for lead in sediment. Meramec River is not being listed for lead in sediment because this water body no longer requires the development of a TMDL for lead in sediment, consistent with 40 C.F.R.C.F.R. § 130.7(b).

Muddy Creek (WBID 0853) – New water quality data indicates this water body is meeting WQS for aquatic macroinvertebrates. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of the aquatic macroinvertebrates narrative translator. Muddy Creek is not being listed for aquatic macroinvertebrates because this water body no longer requires the development of a TMDL for aquatic macroinvertebrates, consistent with 40 C.F.R.C.F.R. § 130.7(b).

North Fork Spring River (WBID 3188) – New water quality data indicates this water body is meeting WQS for ammonia. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of the ammonia criterion. North Fork Spring River is not being listed for ammonia because this water body no longer requires the development of a TMDL for ammonia, consistent with 40 C.F.R.C.F.R. § 130.7(b).

Palmer Lake (WBID 7441) – Water quality data indicates this water body is meeting WQS for mercury in fish tissue. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of the mercury in fish narrative translator. Palmer Lake is not being listed for mercury in fish tissue because this water body no longer requires the development of a TMDL for mercury in fish tissue, consistent with 40 C.F.R.C.F.R. § 130.7(b).

St. Johns Ditch (WBID 3138) – New water quality data indicates this water body is meeting WQS for *Escherichia coli*. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of the *E. coli* criterion. St Johns Ditch is not being listed for *E. coli* because this water body no longer requires the development of a TMDL for *E. coli*, consistent with 40 C.F.R.C.F.R. § 130.7(b).

Strother Creek (WBID 2751) – Water quality data collected since a facility upgrade indicates this water body is meeting WQS for lead, nickel and zinc in sediment, lead and zinc in water. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of lead, nickel or zinc in sediment, lead or zinc in water criteria. Strother Creek is not being listed for lead, nickel or zinc in sediment, lead or zinc in water because this water body no longer requires the development of TMDLs for aquatic macroinvertebrate bioassessment, lead, nickel or zinc in sediment, lead or zinc in water, consistent with 40 C.F.R.C.F.R. § 130.7(b).

Strother Creek (WBID 3965) – Water quality data collected since a facility upgrade indicates this water body is meeting WQS for arsenic, lead, nickel and zinc in sediment, and zinc in water. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of arsenic, lead, nickel or zinc in sediment, or zinc in water criteria. Strother Creek is not being listed for arsenic, lead,

nickel or zinc in sediment, or zinc in water because this water body no longer requires the development of TMDLs for aquatic macroinvertebrate arsenic, lead, nickel or zinc in sediment, or zinc in water, consistent with 40 C.F.R.C.F.R. § 130.7(b).

Terre du Lac Lakes (WBID 7297) – Water quality data indicates this water body is meeting WQS for total nitrogen. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of the total nitrogen criterion. Terre du Lac Lakes is not being listed for total nitrogen because this water body no longer requires the development of a TMDL for total nitrogen, consistent with 40 C.F.R. § 130.7(b).

Tributary to Coon Creek (WBID 0133) – New water quality data indicates this water body is meeting WQS for dissolved oxygen. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no significant excursions of the dissolved oxygen criterion. Tributary to Coon Creek is not being listed for dissolved oxygen because this water body no longer requires the development of a TMDL for dissolved oxygen, consistent with 40 C.F.R. § 130.7(b).

Tributary to Red Oak Creek (WBID 3360) – New water quality data collected after a facility upgrade indicates this water body is meeting WQS for dissolved oxygen. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no significant excursions of the dissolved oxygen criterion. Tributary to Red Oak Creek is not being listed for dissolved oxygen because this water body no longer requires the development of a TMDL for dissolved oxygen, consistent with 40 C.F.R. § 130.7(b).

Tributary to Red Oak Creek (WBID 3361) – New water quality data collected after a facility upgrade indicates this water body is meeting WQS for dissolved oxygen. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no significant excursions of the dissolved oxygen criterion. Tributary to Red Oak Creek is not being listed for dissolved oxygen because this water body no longer requires the development of a TMDL for dissolved oxygen, consistent with 40 C.F.R. § 130.7(b).

Warm Fork Spring River (WBID 2579) – New water quality data indicates this water body is meeting WQS for *Escherichia coli*. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed there were no excursions of the *E. coli* criterion. Warm Fork Spring River is not being listed for *E. coli* because this water body no longer requires the development of a TMDL for *E. coli*, consistent with 40 C.F.R. § 130.7(b).

West Fork Black River (WBID2755) – The facility discharging to this segment has been upgraded with new permit limits for zinc. While there is no new water quality data, discharge monitoring reports from the West Fork mining facility show total recoverable zinc concentrations far below the dissolved zinc criteria which apply to this water body. West Fork Black River is not being listed for zinc because this water body no longer requires the development of a TMDL for zinc, consistent with 40 C.F.R. § 130.7(b).

Willow Branch (WBID 3280) – New water quality data indicates this water body is meeting WQS for lead in sediment. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed the percent carbon adjusted concentration of lead in sediment no longer exceeded the state's narrative translator for toxic sediments. Willow Branch is not being listed for lead in sediment because this water

body no longer requires the development of a TMDL for lead in sediment, consistent with 40 C.F.R. § 130.7(b).

#### **B. Waters Delisted for an EPA-Approved TMDL (6 water bodies, Table 1)**

Coldwater Creek (WBID 1706) – This water body has an EPA-approved TMDL for *Escherichia coli*. In its assessment for the 2018 Missouri Section 303(d) List, Missouri proposed delisting this water body for this pollutant based on an EPA-approved TMDL. Coldwater Creek for *E. coli* because this water body no longer requires the development of a TMDL for *E. coli*, consistent with 40 C.F.R. § 130.7(b).

Creve Coeur Creek (WBID 1703) – This water body has an EPA-approved TMDL for *Escherichia coli*. In its assessment for the 2018 Missouri Section 303(d) List, Missouri proposed delisting this water body for this pollutant based on an EPA-approved TMDL. Creve Coeur Creek for *E. coli* because this water body no longer requires the development of a TMDL for *E. coli*, consistent with 40 C.F.R. § 130.7(b).

Fishpot Creek (WBID 2186) – This water body has an EPA-approved TMDL for *Escherichia coli*. In its assessment for the 2018 Missouri Section 303(d) List, Missouri proposed delisting this water body for this pollutant based on an EPA-approved TMDL. Fishpot Creek for *E. coli* because this water body no longer requires the development of a TMDL for *E. coli*, consistent with 40 C.F.R. § 130.7(b).

Mussel Fork (WBID 0674) – This water body has an EPA-approved TMDL for *Escherichia coli*. In its assessment for the 2018 Missouri Section 303(d) List, Missouri proposed delisting this water body for this pollutant based on an EPA-approved TMDL. Mussel Fork for *E. coli* because this water body no longer requires the development of a TMDL for *E. coli*, consistent with 40 C.F.R. § 130.7(b).

Shibboleth Branch (WBID 2119) – This water body has an EPA-approved TMDL for lead and zinc in sediment. In its assessment for the 2018 Missouri Section 303(d) List, Missouri proposed delisting this water body for this pollutant based on an EPA-approved TMDL. In today's action, the EPA is approving the delisting of Shibboleth Branch for lead and zinc in sediment because this water body no longer requires the development of a TMDL for lead and zinc in sediment, consistent with 40 C.F.R. § 130.7(b).

Watkins Creek (WBID 1708) – This water body has an EPA-approved TMDL for *Escherichia coli*. In its assessment for the 2018 Missouri Section 303(d) List, Missouri proposed delisting this water body for this pollutant based on an EPA-approved TMDL. Watkins Creek for *E. coli* because this water body no longer requires the development of a TMDL for *E. coli*, consistent with 40 C.F.R. § 130.7(b).

#### **C. Waters Delisted for Non-Pollutant Impairment (1 water body, Table 1)**

Fox Creek (WBID 1842) – New data analysis indicates this water body is not meeting WQS for aquatic macroinvertebrates based on its flow regime. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed the water body exhibited an intermittent flow regime even though it is classified as a stream with permanent flow. Future assessment of this stream may show a return to a permanent flow regime at which time a future assessment may be undertaken to determine if the stream meets the applicable aquatic macroinvertebrate community narrative translator. Fox Creek is not being listed for aquatic macroinvertebrates because this water body no longer requires the development of a TMDL for aquatic macroinvertebrates, consistent with 40 C.F.R. § 130.7(b).

#### **D. Waters Delisted for Assessment Error (4 water bodies, Table 1)**

North Fork Cuivre River (WBID 0170) – New water quality assessment indicates the *Escherichia coli* data used to assess this segment as impaired was from a location in an adjacent segment of the North Fork Cuivre River. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed the previous assessment was in error. North Fork Cuivre River is not being listed for *E. coli* because this water body no longer requires the development of a TMDL for *E. coli*, consistent with 40 C.F.R. § 130.7(b).

Peruque Creek (WBID 0217) – New water quality assessment indicates the fisheries data used to assess this segment as impaired was from a location in an adjacent segment of Peruque Creek. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed the previous assessment was in error. Peruque Creek is not being listed for fisheries bioassessment because this water body no longer requires the development of a TMDL for fisheries bioassessment, consistent with 40 C.F.R. § 130.7(b).

Peruque Creek (WBID 0218) – In its assessment for the 2018 Missouri Section 303(d) List, Missouri replaced the listing for its fisheries bioassessment/ unknown pollutant with its aquatic macroinvertebrates bioassessment narrative translator. The state determined that the original listing was in error. Peruque Creek is not being listed for fisheries bioassessment because this water body no longer requires the development of a TMDL for fisheries bioassessment, consistent with 40 C.F.R. § 130.7(b).

River des Peres (WBID 1710) – New water quality assessment indicates that some of the dissolved oxygen data used to assess this segment as impaired was from a location under the influence elevated flow from the Mississippi River and not indicative of the River des Peres. In its assessment for the 2018 Missouri Section 303(d) List, Missouri showed the previous assessment was in error. River des Peres is not being listed for dissolved oxygen because this water body no longer requires the development of a TMDL for dissolved oxygen, consistent with 40 C.F.R. § 130.7(b).

#### **E. Waters Delisted for Identification of a Specific Pollutant(s) or Consolidation of Pollutant(s) (4 water bodies, Table 1)**

Brush Creek (WBID 3986) – In its assessment for the 2018 Missouri Section 303(d) List, Missouri replaced the listings for chrysene, fluoranthene, phenanthrene and pyrene in sediment with a more general listing of the class of pollutants (polycyclic aromatic hydrocarbons) in sediment. Brush Creek is not being listed for species specific polycyclic aromatic hydrocarbons and the replacement of these with a listing for the class of pollutant, consistent with 40 C.F.R. § 130.7(b).

Jordan Creek (WBID 3374) – In its assessment for the 2018 Missouri Section 303(d) List, Missouri replaced the listings for benzo-a-anthracene, benzo-a-pyrene, chrysene, fluoranthene, phenanthrene and pyrene in sediment with a more general listing of the class of pollutants (polycyclic aromatic hydrocarbons) in sediment. Jordan Creek is not being listed for species specific polycyclic aromatic hydrocarbons and the replacement of these with a listing for the class of pollutant, consistent with 40 C.F.R. § 130.7(b).

Salt Pine Creek (WBID 2113) – In its assessment for the 2018 Missouri Section 303(d) List, Missouri replaced the listing for its aquatic macroinvertebrates narrative translator with specific pollutant(s). This water body is listed for the pollutants lead and zinc in sediment. Salt Pine Creek is not being listed for

aquatic macroinvertebrates because it now requires the development of a TMDL for specific pollutants, consistent with 40 C.F.R. § 130.7(b).

Wilsons Creek (WBID 2375) – In its assessment for the 2018 Missouri Section 303(d) List, Missouri replaced the listings for chrysene, fluoranthene, phenanthrene and pyrene in sediment with a more general listing of the class of pollutants (polycyclic aromatic hydrocarbons) in sediment. Wilsons Creek is not being listed for species specific polycyclic aromatic hydrocarbons and the replacement of these with a listing for the class of pollutant, consistent with 40 C.F.R. § 130.7(b).

**Table 1****Changes from the 2016 Approved/Established Missouri Section 303(d) List**

No.	Water Body Name	WBID	County	2016 Pollutant	2018 Pollutant	Comment
1	Antire Cr.	2188	St. Louis	pH		New data indicates recovery
2	Ashley Cr	2688	Dent		<i>Escherichia coli</i>	New listing
3	August A Busch Lake No. 36	7637	St. Charles		<i>Escherichia coli</i>	New listing
4	Barn Hollow	2693	Texas/Howell		Dissolved Oxygen	New listing
5	Ben Branch Lake	7186			Mercury (T)	New listing
6	Bens Br.	3980			Cadmium	New listing
7	Big Cr.	2916	Iron/Wayne	Lead (S)		New data indicates recovery
8	Big R.	2080	Washington/Jefferson	Lead (S)		EPA-approved TMDL
9	Big R.	2080	Washington/Jefferson	Lead (T)		EPA-approved TMDL
10	Bonhomme Cr.	1701	St. Louis	pH		New data indicates recovery
11	Brush Cr.	3986	Jackson	Chrysene (S)		Change to PAHs (S)
12	Brush Cr.	3986	Jackson	Fluoranthene (S)		Change to PAHs (S)
13	Brush Cr.	3986	Jackson	Phenanthrene (S)		Change to PAHs (S)
14	Brush Cr.	3986	Jackson	Pyrene (S)		Change to PAHs (S)
15	Burr Oak Cr.	3414	Jackson		<i>Escherichia coli</i>	New listing
16	Center Cr.	3203	Jasper		<i>Escherichia coli</i>	New listing
17	Chat Cr.	3168	Lawrence		Cadmium	New listing
18	Clark Fk.	1000	Cole		Dissolved Oxygen	New listing
19	Coldwater Cr.	1706	St. Louis	<i>Escherichia coli</i>		EPA-approved TMDL

No.	Water Body Name	WBID	County	2016 Pollutant	2018 Pollutant	Comment
20	Courtois Cr.	1943	Washington	Zinc (S)		New data indicates recovery
21	Creve Coeur Cr.	1703	St. Louis	Dissolved Oxygen		New data indicates recovery
22	Creve Coeur Cr.	1703	St. Louis	<i>Escherichia coli</i>		EPA-approved TMDL
23	Current R.	2662	Shannon/Dent		Mercury (T)	New listing
24	Dardenne Cr	0221	St. Charles		<i>Escherichia coli</i>	New listing
25	E. Fk. Blue R.	0428	Jackson		<i>Escherichia coli</i>	New listing
26	E. Fk. Tebo Cr.	1282	Henry		Ammonia, Total	New listing
27	East Whetstone Cr.	3964	Wright	Ammonia		New data indicates recovery
28	Eaton Br.	2166	St. Francois		Lead	New listing
29	Engelholm Cr.	4110	St. Louis		<i>Escherichia coli</i>	New listing
31	Fishpot Cr.	2186	St. Louis	<i>Escherichia coli</i>		EPA-approved TMDL
32	Fourche Lake	7324	Ripley		Chlorophyll-a	New listing
33	Fourche Lake	7324	Ripley		Nitrogen, Total	New listing
34	Fox Cr.	1842	St. Louis	Aquatic Macroinvertebrate Community		Non-Pollutant Impairment - Flow
35	Hazel Creek Lake	7152	Adair	Mercury (T)		New data indicates recovery
36	Hazel Creek Lake	7152	Adair		Nitrogen, Total	New listing
37	Hickory Br.	0596	Chariton	Dissolved Oxygen		New data indicates recovery
38	Honey Cr.	1251	Henry		Dissolved Oxygen	New listing
39	Indian Cr.	3256	Newton/McDonald	<i>Escherichia coli</i>		New data indicates recovery
40	Joplin Cr.	5006	Jasper		Zinc	New listing
41	Jordan Cr.	3374	Greene	Benzo-a-anthracene (S)		Change to PAHs (S)
42	Jordan Cr.	3374	Greene	Benzo-a-pyrene (S)		Change to PAHs (S)

No.	Water Body Name	WBID	County	2016 Pollutant	2018 Pollutant	Comment
43	Jordan Cr.	3374	Greene	Chrysene (S)		Change to PAHs (S)
44	Jordan Cr.	3374	Greene	Fluoranthene (S)		Change to PAHs (S)
45	Jordan Cr.	3374	Greene	Phenanthrene (S)		Change to PAHs (S)
46	Jordan Cr.	3374	Greene	Pyrene (S)		Change to PAHs (S)
47	L. Medicine Cr.	0623	Mercer/Grundy	Aquatic Macroinvertebrate Community		New data indicates recovery
48	L. Niangua R.	1189	Dallas/Camden		Dissolved Oxygen	New listing
49	Lake Lincoln	7049	Lincoln		Chlorophyll-a	New listing
50	Lake St. Louis	7054	St. Charles	Mercury (T)		New data indicates recovery
51	Lateral #2 Main Ditch	3105	Stoddard	Temperature		New data indicates recovery
52	Lateral #2 Main Ditch	3105	Stoddard		Ammonia, Total	New listing
53	Lewis Lake	7346	Stoddard		Mercury (T)	New listing
54	Little Antire Cr.	4115	Jefferson/St. Louis		<i>Escherichia coli</i>	New listing
55	Little Blue River Tributary	4107	Jackson		<i>Escherichia coli</i>	New listing
56	Long Branch	0857	Johnson/Pettis	Dissolved Oxygen		New data indicates recovery
57	Maple Slough	3140	Mississippi/ New Madrid	Dissolved Oxygen		New data indicates recovery
58	Martigney Cr.	4109	St. Louis		<i>Escherichia coli</i>	New listing
59	Mattese Creek	0359	St. Louis	Chloride		New data indicates recovery
60	McCoy Cr.	0214	St. Charles	Dissolved Oxygen		New data indicates recovery
61	Meramec River	2185	Jefferson/St. Louis	Lead (S)		New data indicates recovery
62	Monsanto Lake	7301	St. Francois		Chlorophyll-a	New listing
63	Monsanto Lake	7301	St. Francois		Phosphorus, Total	New listing
64	Muddy Cr.	0853	Pettis	Aquatic Macroinvertebrate Community		New data indicates recovery

No.	Water Body Name	WBID	County	2016 Pollutant	2018 Pollutant	Comment
65	Muddy Cr.	0853	Pettis		<i>Escherichia coli</i>	New listing
66	Mussel Fk.	0674	Sullivan/Macon	<i>Escherichia coli</i>		EPA-approved TMDL
67	N. Fk. Cuivre R.	0170	Pike	<i>Escherichia coli</i>		Assessment Error, sample location
68	N. Fk. Salt R.	0110	Shelby/Monroe		Mercury (T)	New listing
69	N. Fk. Spring R.	3188	Dade/Jasper	Ammonia		New data indicates recovery
70	Opossum Cr.	3190	Jasper		<i>Escherichia coli</i>	New listing
71	Palmer Lake	7441	Washington	Mercury (T)		New data indicates recovery
72	Peruque Cr.	0217	St. Charles	Fisheries Bioassessment		New data indicates recovery
73	Peruque Cr.	0218	St. Charles	Fisheries Bioassessment	Aquatic Macroinvertebrate Community/Unknown	Error, changed to aquatic macroinvertebrate bioassessment/unknown
74	Peruque Cr.	0218	St. Charles		Aquatic Macroinvertebrate Community/Unknown	New listing
75	Petite Saline Cr.	0785	Cooper/Moniteau		Dissolved Oxygen	New listing
76	Renfro Cr.	0743	Callaway/Boone		Dissolved Oxygen	New listing
77	River des Peres	1710	St. Louis City	Dissolved Oxygen		Error, used data not from River des Peres
78	River des Peres Tributary	4111	St. Louis		Chloride	New listing
79	River des Peres Tributary	4111	St. Louis		<i>Escherichia coli</i>	New listing
80	Rock Cr.	4106	Jackson/Clay		<i>Escherichia coli</i>	New listing
81	Sadler Br.	3577	Polk		Dissolved Oxygen	New listing
82	Salt Pine Cr.	2113	Washington	Aquatic Macroinvertebrate Community		Impairment now listed under specific pollutant(s)
83	Salt Pine Cr.	2113	Washington		Contaminated Sediment (Lead)	New listing
84	Salt Pine Cr.	2113	Washington		Contaminated Sediment (Zinc)	New listing

No.	Water Body Name	WBID	County	2016 Pollutant	2018 Pollutant	Comment
85	Shibboleth Br.	2119	Washington	Lead (S)		EPA-approved TMDL
86	Shibboleth Br.	2119	Washington	Zinc (S)		EPA-approved TMDL
87	Silver Cr.	3244	Newton		Contaminated Sediment (Zinc)	New listing
88	Spring Br.	5004	Jackson		<i>Escherichia coli</i>	New listing
89	Spring River Tributary	4112	Jasper		<i>Escherichia coli</i>	New listing
90	Spring Valley Cr.	2677	Shannon		Dissolved Oxygen	New listing
91	St. Johns Ditch	3138	New Madrid	<i>Escherichia coli</i>		New data indicates recovery
92	Strother Cr.	2751	Iron/Reynolds	Aquatic Macroinvertebrate Community		New data indicates recovery
93	Strother Cr.	2751	Iron/Reynolds	Lead (S)		New data indicates recovery
94	Strother Cr.	2751	Iron/Reynolds	Nickel (S)		New data indicates recovery
95	Strother Cr.	2751	Iron/Reynolds	Zinc (S)		New data indicates recovery
96	Strother Cr.	2751	Iron/Reynolds	Lead (W)		New data indicates recovery
97	Strother Cr.	2751	Iron/Reynolds	Zinc (W)		New data indicates recovery
98	Strother Cr.	3965	Iron/Reynolds	Arsenic (S)		New data indicates recovery
99	Strother Cr.	3965	Iron/Reynolds	Lead (S)		New data indicates recovery
100	Strother Cr.	3965	Iron/Reynolds	Nickel (S)		New data indicates recovery
101	Strother Cr.	3965	Iron/Reynolds	Zinc (S)		New data indicates recovery
102	Strother Cr.	3965	Iron/Reynolds	Zinc (W)		New data indicates recovery
103	Sugar Cr.	0686	Randolph		Sulfate + Chloride	New listing
104	Sugar Cr.	4108	St. Louis		<i>Escherichia coli</i>	New listing
105	Sugar Cr.	4117	St. Louis		<i>Escherichia coli</i>	New listing
106	Terre du Lac Lakes	7297	St. Francois	Total Nitrogen		New data indicates recovery

No.	Water Body Name	WBID	County	2016 Pollutant	2018 Pollutant	Comment
107	Trib. Old Mines Cr.	2114	Washington		Contaminated Sediment (Lead)	New listing
108	Trib. Old Mines Cr.	2114	Washington		Contaminated Sediment (Zinc)	New listing
109	Trib. to Coon Cr.	0133	Randolph	Dissolved Oxygen		New data indicates recovery
110	Trib. To Red Oak	3360	Gasconade	Dissolved Oxygen		New data indicates recovery
111	Trib. To Red Oak	3361	Gasconade	Dissolved Oxygen		New data indicates recovery
112	Turkey Cr.	2985	Stoddard		Ammonia, Total	New listing
113	Turkey Cr.	2985	Stoddard		Dissolved Oxygen	New listing
114	Turkey Cr.	3216	Jasper		<i>Escherichia coli</i>	New listing
115	Warm Fk. Spring R.	2579	Oregon	Fecal Coliform		New data indicates recovery
116	Watkins Cr.	1708	St. Louis/St. Louis City	<i>Escherichia coli</i>		EPA-approved TMDL
117	West Fork Black River	2755	Reynolds	Zinc (W)		New data indicates recovery
118	West Fork Black River	2755	Reynolds	Nutrients		New data indicates recovery
119	Willow Br.	3280	Newton	Lead (S)		New data indicates recovery
120	Wilson Cr.	2375	Greene	Benzo-a-anthracene (S)		Change to PAHs (S)
121	Wilson Cr.	2375	Greene	Chrysene (S)		Change to PAHs (S)
122	Wilson Cr.	2375	Greene	Fluoranthene (S)		Change to PAHs (S)
123	Wilson Cr.	2375	Greene	Phenanthrene (S)		Change to PAHs (S)
124	Wilson Cr.	2375	Greene	Pyrene (S)		Change to PAHs (S)

**Table 2**

**Missouri Water Quality-Limited Segments the EPA Approves for Inclusion on Missouri's 2018 Section 303(d) List**

No.	Water Body Name	WBID	Class	MDNR Water Body Size (mi/acres)	County Upstream/Downstream	Pollutant/Cause
1	Antire Cr.	2188	P	1.9	St. Louis	<i>Escherichia coli</i> (W)
2	Ashley Cr.	2668	P	2.5	Dent	<i>Escherichia coli</i> (W)
3	August A Busch Lake No. 36	7637	UL	16	St. Charles	Mercury in Fish Tissue (T)
4	August A Busch Lake No. 37	7627	L3	30	St. Charles	Mercury in Fish Tissue (T)
5	Barn Hollow	2693	C	8.2	Howell/Texas	Dissolved Oxygen
6	Barker Creek Tributary	4083	C	1.2	Henry	Dissolved Oxygen
7	Bass Cr.	0752	C	4.4	Boone	<i>Escherichia coli</i> (W)
8	Baynham Br.	3240	P	4	Newton	<i>Escherichia coli</i> (W)
9	Bee Fk.	2760	C	8.7	Reynolds	Lead (W)
10	Bee Tree Lake	7309	L3	10	St. Louis	Mercury in Fish Tissue (T)
11	Beef Br.	3224	P	2.5	Newton	Cadmium (S)
12	Beef Br.	3224	P	2.5	Newton	Cadmium (W)
13	Beef Br.	3224	P	2.5	Newton	Lead (S)
14	Beef Br.	3224	P	2.5	Newton	Zinc (S)
15	Beef Br.	3224	P	2.5	Newton	Zinc (W)
16	Belcher Branch Lake	7365	L3	42	Buchanan	Mercury in Fish Tissue (T)
17	Ben Branch Lake	7186	L3	37	Osage	Mercury in Fish Tissue (T)
18	Bens Br.	3980	C	5.8	Jasper	Cadmium (S)
19	Bens Br.	3980	C	5.8	Jasper	Cadmium (W)
20	Bens Br.	3980	C	5.8	Jasper	Lead (S)
21	Bens Br.	3980	C	5.8	Jasper	Zinc (S)
22	Bens Br.	3980	C	5.8	Jasper	Zinc (W)
23	Big Cr.	2916	P	34.1	Iron	Cadmium (S)
24	Big Piney R.	1578	P	7.8	Texas	Oxygen, Dissolved (W)
25	Big R.	2080	P	81.3	St. Francois	Cadmium (S)
26	Big R.	2080	P	81.3	St. Francois	Zinc (S)
27	Black Cr.	0111	C	19.4	Shelby	<i>Escherichia coli</i> (W)

No.	Water Body Name	WBID	Class	MDNR Water Body Size (mi/acres)	County Upstream/ Downstream	Pollutant/Cause
28	Black Cr.	3825	P	1.6	St. Louis	Chloride (W)
29	Black Cr.	3825	P	1.6	St. Louis	<i>Escherichia coli</i> (W)
30	Black R.	2769	P	47.1	Butler	Mercury in Fish Tissue (T)
31	Black R.	2784	P	39.0	Wayne/Butler	Mercury in Fish Tissue (T)
32	Blackberry Cr.	3184	C	6.5	Jasper	Chloride (W)
33	Blackberry Cr.	3184	C	6.5	Jasper	Sulfate plus chloride (W)
34	Blackberry Cr.	3184	C	6.5	Jasper	Oxygen, Dissolved (W)
35	Blue R.	0417	P	4.4	Jackson	<i>Escherichia coli</i> (W)
36	Blue R.	0418	P	9.4	Jackson	<i>Escherichia coli</i> (W)
37	Blue R.	0419	P	7.7	Jackson	<i>Escherichia coli</i> (W)
38	Bonhomme Cr.	1701	C	2.5	St. Louis	<i>Escherichia coli</i> (W)
39	Bonne Femme Cr.	0750	P	7.8	Boone	<i>Escherichia coli</i> (W)
40	Bonne Femme Cr.	0753	C	7.0	Boone	<i>Escherichia coli</i> (W)
41	Bourbeuse R.	2034	P	136.7	Phelps/Franklin	Mercury in Fish Tissue (T)
42	Bowling Green (Old) Lake	7003	L1	7.0	Pike	Chlorophyll-a(W)
43	Bowling Green (Old) Lake	7003	L1	7.0	Pike	Nitrogen, Total (W)
44	Bowling Green (Old) Lake	7003	L1	7.0	Pike	Phosphorus, Total (W)
45	Brazeau Cr.	1796	C	10.8	Perry	<i>Escherichia coli</i> (W)
46	Brush Cr.	1371	P	4.7	Polk/St. Clair	Oxygen, Dissolved (W)
47	Brush Cr.	3896	C	5.4	Jackson	<i>Escherichia coli</i> (W)
48	Brush Cr.	3896	C	5.4	Jackson	PAH (S)
49	Brush Cr.	3896	C	5.4	Jackson	Oxygen, Dissolved (W)
50	Buffalo Bill Lake	7117	L3	45.0	DeKalb	Mercury in Fish Tissue (T)
51	Buffalo Cr.	3273	P	8.0	Newton/McDonald	Fishes Bioassessments (W)
52	Burgher Br.	1865	C	1.5	Phelps	Oxygen, Dissolved (W)
53	Burr Oak Cr.	3414	C	6.8	Jackson	<i>Escherichia coli</i> (W)
54	Busch W.A. Lake #35	7057	L3	51.0	St. Charles	Mercury in Fish Tissue (T)
55	Capps Cr.	3234	P	5.0	Barry	<i>Escherichia coli</i> (W)
56	Carver Br.	3241	P	3.0	Newton	<i>Escherichia coli</i> (W)
57	Castor R.	2288	P	7.5	Bollinger	<i>Escherichia coli</i> (W)
58	Cedar Cr.	0737	C	37.4	Boone	Aquatic Macroinvertebrate Bioassessments/Unknown (W)
59	Cedar Cr.	1344	P	31.0	Cedar	Aquatic Macroinvertebrate Bioassessments/Unknown (W)
60	Cedar Cr.	1344	P	31.0	Cedar	<i>Escherichia coli</i> (W)

No.	Water Body Name	WBID	Class	MDNR Water Body Size (mi/acres)	County Upstream/ Downstream	Pollutant/Cause
61	Cedar Cr.	1344	P	31.0	Cedar	Oxygen, Dissolved (W)
62	Cedar Cr.	1357	C	16.2	Cedar	Aquatic Macroinvertebrate Bioassessments/Unknown (W)
63	Cedar Cr.	1357	C	16.2	Cedar	Oxygen, Dissolved (W)
64	Center Cr.	3203	P	26.8	Jasper	Cadmium (S)
65	Center Cr.	3203	P	26.8	Jasper	Cadmium (W)
66	Center Cr.	3203	P	26.8	Jasper	Lead (S)
67	Center Cr.	3203	P	26.8	Jasper	<i>Escherichia coli</i> (W)
68	Center Cr.	3210	P	21.0	Newton/Jasper	<i>Escherichia coli</i> (W)
69	Center Cr.	3214	P	4.9	Lawrence/Newton	<i>Escherichia coli</i> (W)
70	Center Creek Trib.	5003	C	2.7	Jasper	Cadmium (W)
71	Center Creek Trib.	5003	C	2.7	Jasper	Zinc (W)
72	Chat Cr.	3168	C	2.1	Lawrence	Cadmium (W)
73	Chat Creek Trib.	3963	US	0.9	Lawrence	Cadmium (W)
74	Chat Creek Trib.	3963	US	0.9	Lawrence	Zinc (W)
75	Chaumiere Lake	7634	UL	3.4	Clay	Mercury in Fish Tissue (T)
76	Cinque Hommes Cr.	1781	C	17.1	Perry	<i>Escherichia coli</i> (W)
77	Clark Fk.	1000	C	6.0	Cole	Oxygen, Dissolved (W)
78	Clear Cr.	1333	P	28.2	Vernon/St. Clair	Oxygen, Dissolved (W)
79	Clear Cr.	1336	C	22.3	Vernon	Oxygen, Dissolved (W)
80	Clear Cr.	3238	P	11.1	Barry/Newton	<i>Escherichia coli</i> (W)
81	Clear Cr.	3239	C	3.5	Barry/Newton	Nutrient/Eutrophication Biol. Indicators (W)
82	Clear Cr.	3239	C	3.5	Barry/Newton	Oxygen, Dissolved (W)
83	Clear Fk.	0935	P	25.8	Johnson	Oxygen, Dissolved (W)
84	Clearwater Lake	7326	L2	1635	Reynolds/Wayne	Chlorophyll-a (W)
85	Clearwater Lake	7326	L2	1635	Reynolds/Wayne	Mercury in Fish Tissue (T)
86	Clearwater Lake	7326	L2	1635	Reynolds/Wayne	Phosphorus, Total (W)
87	Coldwater Cr.	1706	C	6.9	St. Louis	Chloride (W)
88	Coonville Cr.	2177	C	1.3	St. Francois	Lead (W)
89	Coot Lake	7378	L3	20.0	Jackson	Mercury in Fish Tissue (T)
90	Cottontail Lake	7379	L3	22.0	Jackson	Mercury in Fish Tissue (T)
91	Courtois Cr.	1943	P	32.0	Washington	Lead (S)
92	Crane Cr.	2382	P	13.2	Stone	Aquatic Macroinvertebrate Bioassessments/Unknown (W)

No.	Water Body Name	WBID	Class	MDNR Water Body Size (mi/acres)	County Upstream/ Downstream	Pollutant/Cause
93	Crane Lake	7334	L3	109.0	Iron	Chlorophyll-a (W)
94	Crane Lake	7334	L3	109.0	Iron	Phosphorus, Total (W)
95	Craven Ditch	2816	C	11.6	Butler	Oxygen, Dissolved (W)
96	Creve Coeur Cr.	1703	C	3.8	St. Louis	Chloride (W)
97	Crooked Cr.	1928	P	3.5	Dent/Crawford	Cadmium (S)
98	Crooked Cr.	1928	P	3.5	Dent/Crawford	Cadmium (W)
99	Crooked Cr.	1928	P	3.5	Dent/Crawford	Lead (S)
100	Crooked Cr.	3961	C	6.5	Iron/Dent	Cadmium (W)
101	Crooked Cr.	3961	C	6.5	Iron/Dent	Copper (W)
102	Crowder St. Park Lake	7135	L3	18.0	Grundy	Mercury in Fish Tissue (T)
103	Current R.	2636	P	124.0	Shannon/Ripley	Mercury in Fish Tissue (T)
104	Current R.	2662	P	18.8	Dent/Shannon	Mercury in Fish Tissue (T)
105	Dardenne Cr.	0219	P1	7.0	St. Charles	Oxygen, Dissolved (W)
106	Dardenne Cr.	0221	P	16.5	St. Charles	<i>Escherichia coli</i> (W)
107	Deer Cr.	3826	P	1.6	St. Louis/St. Louis City	Chloride (W)
108	Deer Cr.	3826	P	1.6	St. Louis/St. Louis City	<i>Escherichia coli</i> (W)
109	Deer Ridge Community Lake	7015	L3	39.0	Lewis	Mercury in Fish Tissue (T)
110	Ditch # 36	3109	P	7.8	Dunklin	Oxygen, Dissolved (W)
111	Douger Br.	3810	C	2.8	Lawrence	Lead (S)
112	Douger Br.	3810	C	2.8	Lawrence	Zinc (S)
113	Dousinbury Cr.	1180	P	3.9	Dallas	<i>Escherichia coli</i> (W)
114	Dry Fk.	1792	C	3.2	Perry	<i>Escherichia coli</i> (W)
115	Dry Fk.	3189	C	10.2	Jasper	<i>Escherichia coli</i> (W)
116	Dry Hollow	3163	C	0.5	Lawrence	<i>Escherichia coli</i> (W)
117	Dutro Carter Cr.	3569	P	1.5	Phelps	Oxygen, Dissolved (W)
118	Dutro Carter Cr.	3570	P	0.5	Phelps	<i>Escherichia coli</i> (W)
119	Duval Cr.	3199	C	7	Jasper	<i>Escherichia coli</i> (W)
120	East Fk. Crooked R.	0372	P	19.9	Ray	Oxygen, Dissolved (W)
121	East Fk. Grand R.	0457	P	28.7	Worth/Gentry	<i>Escherichia coli</i> (W)
122	E. Fk. L. Blue R.	0428	C	3.7	Jackson	<i>Escherichia coli</i> (W)
123	East Fk. Locust Cr.	0608	P	16.7	Sullivan	<i>Escherichia coli</i> (W)
124	East Fk. Locust Cr.	0610	C	15.7	Sullivan	<i>Escherichia coli</i> (W)

No.	Water Body Name	WBID	Class	MDNR Water Body Size (mi/acres)	County Upstream/ Downstream	Pollutant/Cause
125	East Fk. Locust Cr.	0610	C	15.7	Sullivan	Oxygen, Dissolved (W)
126	East Fk. Tebo Cr.	1282	C	14.5	Henry	Ammonia, Total (W)
127	East Fk. Tebo Cr.	1282	C	14.5	Henry	Oxygen, Dissolved (W)
128	Eaton Br.	2166	C	1.2	St. Francois	Cadmium (S)
129	Eaton Br.	2166	C	1.2	St. Francois	Cadmium (W)
130	Eaton Br.	2166	C	1.2	St. Francois	Lead (S)
131	Eaton Br.	2166	C	1.2	St. Francois	Lead (W)
132	Eaton Br.	2166	C	1.2	St. Francois	Zinc (S)
133	Eaton Br.	2166	C	1.2	St. Francois	Zinc (W)
134	Eleven Point R.	2593	P	22.7	Oregon	Mercury in Fish Tissue (T)
135	Eleven Point R.	2597	P	11.4	Oregon	Mercury in Fish Tissue (T)
136	Eleven Point R.	2601	P	22.3	Oregon	Mercury in Fish Tissue (T)
137	Elkhorn Cr.	0189	C	21.4	Montgomery	Oxygen, Dissolved (W)
138	Elm Br.	1283	C	3.0	Henry	Oxygen, Dissolved (W)
139	Engleholm Cr.	4110	C	3.0	St. Louis	<i>Escherichia coli</i> (W)
140	Fee Fee Cr. (new)	1704	P	1.5	St. Louis	Chloride (W)
141	Fee Fee Cr. (new)	1704	P	1.5	St. Louis	<i>Escherichia coli</i> (W)
142	Fellows Lake	7237	L1	800.0	Greene	Mercury in Fish Tissue (T)
143	Fenton Cr.	3595	P	0.5	St. Louis	Chloride (W)
144	Fenton Cr.	3595	P	0.5	St. Louis	<i>Escherichia coli</i> (W)
145	Fenton Cr. Tributary	4119	C	1.1	St. Louis	<i>Escherichia coli</i> (W)
146	Fishpot Cr.	2186	P	3.5	St. Louis	Chloride (W)
147	Fivemile Cr	3220	P	5.0	Newton	<i>Escherichia coli</i> (W)
148	Flat Cr.	0864	P	23.7	Pettis/Morgan	Mercury in Fish Tissue (T)
149	Flat River Cr.	2168	C	10.0	St. Francois	Cadmium (W)
150	Flat River Tributary	3938	US	0.3	St. Francois	Zinc (W)
151	Forest Lake	7151	L1	580.0	Adair	Chlorophyll-a (W)
152	Forest Lake	7151	L1	580.0	Adair	Mercury in Fish Tissue (T)
153	Forest Lake	7151	L1	580.0	Adair	Nitrogen, Total (W)
154	Forest Lake	7151	L1	580.0	Adair	Phosphorus, Total (W)
155	Foster Branch Trib.	3943	C	0.2	Boone	Oxygen, Dissolved (W)
156	Fourche Lake	7324	L3	49.0	Ripley	Chlorophyll-a (W)
157	Fourche Lake	7324	L3	49.0	Ripley	Nitrogen, Total (W)
158	Fowler Cr.	0747	C	6.0	Boone	Oxygen, Dissolved (W)
159	Fox R.	0038	P	42.0	Clark	<i>Escherichia coli</i> (W)

No.	Water Body Name	WBID	Class	MDNR Water Body Size (mi/acres)	County Upstream/ Downstream	Pollutant/Cause
160	Fox Valley Lake	7008	L3	89.0	Clark	Chlorophyll-a (W)
161	Fox Valley Lake	7008	L3	89.0	Clark	Nitrogen, Total (W)
162	Fox Valley Lake	7008	L3	89.0	Clark	Phosphorus, Total (W)
163	Foxboro Lake	7382	L3	22.0	Franklin	Mercury in Fish Tissue (T)
164	Frisco Lake	7280	L3	5.0	Phelps	Mercury in Fish Tissue (T)
165	Gailey Br.	4061	C	3.2	Pike	Oxygen, Dissolved (W)
166	Gans Cr.	1004	C	5.5	Boone	<i>Escherichia coli</i> (W)
167	Gasconade R.	1455	P	264.0	Pulaski	Mercury in Fish Tissue (T)
168	Grand Glaize Cr.	2184	C	4.0	St. Louis	Chloride (W)
169	Grand Glaize Cr.	2184	C	4.0	St. Louis	<i>Escherichia coli</i> (W)
170	Grand Glaize Cr.	2184	C	4.0	St. Louis	Mercury in Fish Tissue (T)
171	Grand R.	0593	P	56.0	Livingston/Chariton	<i>Escherichia coli</i> (W)
172	Gravois Cr.	1712	P	2.3	St. Louis/St. Louis City	Chloride (W)
173	Gravois Cr.	1712	P	2.3	St. Louis/St. Louis City	<i>Escherichia coli</i> (W)
174	Gravois Cr.	1713	C	6.0	St. Louis/St. Louis City	Chloride (W)
175	Gravois Cr.	1713	C	6.0	St. Louis/St. Louis City	<i>Escherichia coli</i> (W)
176	Gravois Creek Trib.	4051	C	1.9	St. Louis	<i>Escherichia coli</i> (W)
177	Grindstone Cr.	1009	C	2.5	Boone	<i>Escherichia coli</i> (W)
178	Harrison County Lake	7386	L1	280.0	Harrison	Mercury in Fish Tissue (T)
179	Hazel Creek Lake	7152	L1	453.0	Adair	Chlorophyll-a (W)
180	Hazel Creek Lake	7152	L1	453.0	Adair	Nitrogen, Total (W)
181	Headwater Diversion Channel	2196	P	20.3	Cape Girardeau	Mercury in Fish Tissue (T)
182	Heath's Cr.	0848	P	21.0	Pettis/Cooper	Oxygen, Dissolved (W)
183	Hickory Cr.	3226	P	4.9	Newton	<i>Escherichia coli</i> (W)
184	Hinkson Cr.	1007	P	7.6	Boone	<i>Escherichia coli</i> (W)
185	Hinkson Cr.	1008	C	18.8	Boone	<i>Escherichia coli</i> (W)
186	Holden City Lake	7193	L1	290.2	Johnson	Mercury in Fish Tissue (T)
187	Hominy Br.	1011	C	1.0	Boone	<i>Escherichia coli</i> (W)
188	Honey Cr.	1251	C	8.5	Henry	Oxygen, Dissolved (W)
189	Honey Cr.	3169	P	16.5	Lawrence	<i>Escherichia coli</i> (W)

No.	Water Body Name	WBID	Class	MDNR Water Body Size (mi/acres)	County Upstream/ Downstream	Pollutant/Cause
190	Honey Cr.	3170	C	2.7	Lawrence	<i>Escherichia coli</i> (W)
191	Horse Cr.	1348	P	27.7	Vernon/Cedar	Aquatic Macroinvertebrate Bioassessments/Unknown (W)
192	Horse Cr.	1348	P	27.7	Vernon/Cedar	Oxygen, Dissolved (W)
193	Horseshoe Cr.	3413	C	5.8	Lafayette/Jackson	Oxygen, Dissolved (W)
194	Hough Park Lake	7388	L3	10.0	Cole	Mercury in Fish Tissue (T)
195	Hunnewell Lake	7029	L3	228.0	Shelby	Mercury in Fish Tissue (T)
196	Indian Cr.	0420	C	3.4	Jackson	Chloride (W)
197	Indian Cr.	0420	C	3.4	Jackson	<i>Escherichia coli</i> (W)
198	Indian Cr.	1946	P	1.9	Washington	Lead (S)
199	Indian Cr.	1946	P	1.9	Washington	Zinc (S)
200	Indian Creek Community Lake	7389	L3	185.0	Livingston	Mercury in Fish Tissue (T)
201	Jacobs Br.	3223	P	1.6	Newton	Cadmium (S)
202	Jacobs Br.	3223	P	1.6	Newton	Cadmium (W)
203	Jacobs Br.	3223	P	1.6	Newton	Lead (S)
204	Jacobs Br.	3223	P	1.6	Newton	Zinc (S)
205	Jacobs Br.	3223	P	1.6	Newton	Zinc (W)
206	Jenkins Cr.	3207	P	2.8	Jasper	<i>Escherichia coli</i> (W)
207	Jenkins Cr.	3208	C	4.8	Newton/Jasper	<i>Escherichia coli</i> (W)
208	Jones Cr.	3205	P	7.5	Newton/Jasper	<i>Escherichia coli</i> (W)
209	Joplin Cr.	5006	C	3.9	Jasper	Cadmium (W)
210	Joplin Cr.	5006	C	3.9	Jasper	Zinc (W)
211	Jordan Cr.	3374	P	3.8	Greene	PAHs (S)
212	Kiefer Cr.	3592	P	1.2	St. Louis	Chloride (W)
213	Kiefer Cr.	3592	P	1.2	St. Louis	<i>Escherichia coli</i> (W)
214	Knox Village Lake	7657	L3	3.0	Jackson	Mercury in Fish Tissue (T)
215	Koen Cr.	2171	C	1.0	St. Francois	Lead (S)
216	L. St. Francis R.	2854	P	32.4	Madison	Lead (S)
217	Labelle Lake #2	7023	L1	98.0	Lewis	Mercury in Fish Tissue (T)
218	Lake Boutin	7659	L3	20.0	Cape Girardeau	Mercury in Fish Tissue (T)
219	Lake Buteo	7469	L3	7.0	Johnson	Mercury in Fish Tissue (T)
220	Lake of the Woods	7436	L3	3.0	Boone	Mercury in Fish Tissue (T)
221	Lake of the Woods	7629	U	7.0	Jackson	Mercury in Fish Tissue (T)
222	Lake Lincoln	7049	L3	88.0	Lincoln	Chlorophyll-a (W)

No.	Water Body Name	WBID	Class	MDNR Water Body Size (mi/acres)	County Upstream/Downstream	Pollutant/Cause
223	Lake Paho	7132	L3	273.0	Mercer	Mercury in Fish Tissue (T)
224	Lake Ste. Louise	7055	L3	71.0	St. Charles	Mercury in Fish Tissue (T)
225	Lake Tom Sawyer	7035	L3	4.0	Monroe	Mercury in Fish Tissue (T)
226	Lake Winnebago	7212	L3	272.0	Cass	Mercury in Fish Tissue (T)
227	Lamine R.	0847	P	64.0	Morgan/Cooper	<i>Escherichia coli</i> (W)
228	Lat. #2 Main Ditch	3105	P	11.5	Stoddard	Oxygen, Dissolved (W)
229	Lat. #2 Main Ditch	3105	P	11.5	Stoddard	Ammonia, Total (W)
230	Lee Rowe Ditch	3137	C	6.0	Mississippi	Oxygen, Dissolved (W)
231	Lewis Lake	7346	L3	6.0	Stoddard	Mercury in Fish Tissue (T)
232	Lewistown Lake	7020	L1	35.0	Lewis	Atrazine (W)
233	Line Cr.	3575	C	7.0	Platte	<i>Escherichia coli</i> (W)
234	Little Antire Cr.	4115	C	4.0	Jefferson/St. Louis	<i>Escherichia coli</i> (W)
235	Little Blue R. Tributary	4107	C	5.5	Jackson	<i>Escherichia coli</i> (W)
236	Little Beaver Cr.	1529	C	3.5	Phelps	<i>Escherichia coli</i> (W)
237	Little Beaver Cr.	1529	C	3.5	Phelps	Sedimentation/Siltation (S)
238	Little Blue R.	0422	P	35.1	Jackson	<i>Escherichia coli</i> (W)
239	Little Bonne Femme Cr.	1003	P	9.0	Boone	<i>Escherichia coli</i> (W)
240	Little Dry Fk.	1863	P	5.2	Phelps	Oxygen, Dissolved (W)
241	Little Dry Fk.	1864	C	4.7	Phelps	Oxygen, Dissolved (W)
242	Little Dry Wood Cr.	1325	P	20.5	Vernon	Oxygen, Dissolved (W)
243	Little Dry Wood Cr.	1326	C	15.6	Barton/Vernon	Oxygen, Dissolved (W)
244	Little Lost Cr.	3279	P	5.8	Newton	<i>Escherichia coli</i> (W)
245	Little Medicine Cr.	0623	P	39.8	Mercer/Grundy	<i>Escherichia coli</i> (W)
246	Little Niangua R.	1189	P	43.8	Dallas/Camden	Oxygen, Dissolved (W)
247	Little Osage R.	3652	C	23.6	Vernon	<i>Escherichia coli</i> (W)
248	Locust Cr.	0606	P	91.7	Putnam/Sullivan	<i>Escherichia coli</i> (W)
249	Logan Cr.	2763	P	36.0	Reynolds	Lead (S)
250	Long Branch Cr.	0696	C	14.8	Macon	Oxygen, Dissolved (W)
251	Longview Lake	7097	L2	953.0	Jackson	Mercury in Fish Tissue (T)
252	Lost Cr.	3278	P	8.5	Newton	<i>Escherichia coli</i> (W)
253	M. Fk. Salt R.	0123	C	25.4	Macon	Oxygen, Dissolved (W)
254	Main Ditch	2814	C	13.0	Butler	pH (W)
255	Main Ditch	2814	C	13.0	Butler	Temperature, water (W)
256	Maline Cr.	1709	C	0.6	St. Louis/St. Louis City	<i>Escherichia coli</i> (W)

No.	Water Body Name	WBID	Class	MDNR Water Body Size (mi/acres)	County Upstream/ Downstream	Pollutant/Cause
257	Maline Cr.	3839	C	0.5	St. Louis City	Chloride (W)
258	Maline Cr.	3839	C	0.5	St. Louis City	<i>Escherichia coli</i> (W)
259	Maple Leaf Lake	7398	L3	127.0	Lafayette	Mercury in Fish Tissue (T)
260	Mark Twain Lake	7033	L2	18132.0	Ralls	Mercury in Fish Tissue (T)
261	Martigney Cr.	4109	C	1.6	St. Louis	<i>Escherichia coli</i> (W)
262	Mattese Cr.	3596	P	1.1	St. Louis	<i>Escherichia coli</i> (W)
263	McClanahan Cr.	1786	C	2.5	Perry	<i>Escherichia coli</i> (W)
264	Medicine Cr.	0619	P	43.8	Putnam/Grundy	<i>Escherichia coli</i> (W)
265	Meramec R.	2183	P	22.8	St. Louis	<i>Escherichia coli</i> (W)
266	Meramec R.	2183	P	22.8	St. Louis	Lead (S)
267	Miami Cr.	1299	P	19.6	Bates	Oxygen, Dissolved (W)
268	Middle Fork Grand R.	0468	P	27.5	Worth/Gentry	<i>Escherichia coli</i> (W)
269	Middle Indian Cr.	3262	C	3.5	Newton	Aquatic Macroinvertebrate Bioassessments/Unknown (W)
270	Middle Indian Cr.	3263	P	2.2	Newton	Aquatic Macroinvertebrate Bioassessments/Unknown (W)
271	Middle Indian Cr.	3263	P	2.2	Newton	<i>Escherichia coli</i> (W)
272	Mill Cr.	4066	C	3.4	Jackson	<i>Escherichia coli</i> (W)
273	Mill Cr.	4066	C	3.4	Jackson	Oxygen, Dissolved (W)
274	Mississippi R.	1707.03	P	44.6	St. Louis/St. Genevieve	<i>Escherichia coli</i> (W)
275	Missouri R.	0226	P	184.5	Atchison/Jackson	<i>Escherichia coli</i> (W)
276	Missouri R.	0356	P	129.0	Jackson/Saline	<i>Escherichia coli</i> (W)
277	Missouri R.	1604	P	104.5	Gasconade/St. Charles	<i>Escherichia coli</i> (W)
278	Monroe City Lake	7031	L1	94.0	Ralls	Mercury in Fish Tissue (T)
279	Monsanto Lake	7301	L3	18.0	St. Francois	Chlorophyll-a (W)
280	Monsanto Lake	7301	L3	18.0	St. Francois	Nitrogen, Total (W)
281	Monsanto Lake	7301	L3	18.0	St. Francois	Phosphorus, Total (W)
282	Mozingo Lake	7402	L1	898.0	Nodaway	Mercury in Fish Tissue (T)
283	Muddy Cr.	0853	P	62.2	Pettis	<i>Escherichia coli</i> (W)
284	Niangua R.	1170	P	56.0	Webster/Dallas	<i>Escherichia coli</i> (W)
285	Nishnabotna R.	0227	P	10.2	Atchison	<i>Escherichia coli</i> (W)
286	No Cr.	0550	P	28.7	Grundy/Livingston	<i>Escherichia coli</i> (W)
287	No Cr.	0550	P	28.7	Grundy/Livingston	Oxygen, Dissolved (W)

No.	Water Body Name	WBID	Class	MDNR Water Body Size (mi/acres)	County Upstream/Downstream	Pollutant/Cause
288	Noblett Lake	7316	L3	26.0	Douglas	Chlorophyll-a (W)
289	Noblett Lake	7316	L3	26.0	Douglas	Mercury in Fish Tissue (T)
290	Noblett Lake	7316	L3	26.0	Douglas	Phosphorus, Total (W)
291	Nodaway R.	0279	P	59.3	Nodaway	<i>Escherichia coli</i> (W)
292	Norfork Lake	7317	L2	1000.0	Ozark	Mercury in Fish Tissue (T)
293	North Bethany City Reservoir	7109	L3	78.0	Harrison	Mercury in Fish Tissue (T)
294	North Branch Wilsons Cr.	3811	P	3.8	Greene	Zinc (S)
295	North Fk. Cuivre R.	0158	P	25.1	Pike/Lincoln	<i>Escherichia coli</i> (W)
296	North Fork Salt R.	0110	P	84.9	Shelby/Monroe	Mercury in Fish Tissue (T)
297	North Fk. Spring R.	3186	P	17.4	Jasper	<i>Escherichia coli</i> (W)
298	North Fk. Spring R.	3188	C	55.9	Dade/Jasper	<i>Escherichia coli</i> (W)
299	North Fk. Spring R.	3188	C	55.9	Dade/Jasper	Oxygen, Dissolved (W)
300	North Indian Cr.	3260	P	5.2	Newton	Aquatic Macroinvertebrate Bioassessments/Unknown (W)
301	North Indian Cr.	3260	P	5	Newton	<i>Escherichia coli</i> (W)
302	Omete Cr.	1794	C	1.2	Perry	<i>Escherichia coli</i> (W)
303	Opossum Cr.	3190	C	6.4	Jasper	<i>Escherichia coli</i> (W)
304	Osage R.	1293	P	50.7	Vernon/St.Clair	<i>Escherichia coli</i> (W)
305	Osage R.	1293	P	50.7	Vernon/St.Clair	Oxygen, Dissolved (W)
306	Panther Cr.	1373	C	9.7	St. Clair/Polk	Oxygen, Dissolved (W)
307	Pearson Cr.	2373	P	8.0	Greene	Aquatic Macroinvertebrate Bioassessments/Unknown (W)
308	Pearson Cr.	2373	P	8.0	Greene	<i>Escherichia coli</i> (W)
309	Peno Cr.	0099	C	14.4	Pike	Oxygen, Dissolved (W)
310	Perry County Community Lake	7273	L3	89.0	Perry	Mercury in Fish Tissue (T)
311	Perry Phillips Lake	7628	UL	32.0	Boone	Mercury in Fish Tissue (T)
312	Peruque Cr.	0215	P1	9.6	St. Charles	Oxygen, Dissolved (W)
313	Peruque Cr.	0218	P	10.9	Warren/St. Charles	Oxygen, Dissolved (W)
314	Peruque Cr.	0218	P	10.9	Warren/St. Charles	Aquatic Macroinvertebrate Bioassessments/Unknown (W)
315	Petite Saline Cr.	0785	P	21.0	Cooper/Moniteau	Oxygen, Dissolved (W)
316	Pike Cr.	2815	C	6.0	Butler	Oxygen, Dissolved (W)
317	Platte R.	0312	P	142.4	Worth/Platte	<i>Escherichia coli</i> (W)

No.	Water Body Name	WBID	Class	MDNR Water Body Size (mi/acres)	County Upstream/ Downstream	Pollutant/Cause
318	Pleasant Run Cr.	1327	C	7.6	Vernon	Oxygen, Dissolved (W)
319	Pole Cat Slough	3120	P	12.6	Dunklin	Oxygen, Dissolved (W)
320	Pole Cat Slough	3120	P	12.6	Dunklin	Temperature, water (W)
321	Pomme de Terre R.	1440	P	69.1	Webster/Polk	<i>Escherichia coli</i> (W)
322	Red Oak Cr.	2038	C	10.0	Gasconade	Oxygen, Dissolved (W)
323	Renfro Cr.	0743	C	1.5	Callaway/Boone	Oxygen, Dissolved (W)
324	Rinquelin Trail Community Lake	7204	L3	27.0	Maries	Mercury in Fish Tissue (T)
325	River des Peres	1710	C	2.6	St. Louis City	Chloride (W)
326	River des Peres	1710	C	2.6	St. Louis City	<i>Escherichia coli</i> (W)
327	River des Peres	3972	C	13.6	St. Louis	Chloride (W)
328	River des Peres	3972	C	13.6	St. Louis	<i>Escherichia coli</i> (W)
329	River des Peres Tributary	4111	C	1.8	St. Louis	Chloride (W)
330	River des Peres Tributary	4111	C	1.8	St. Louis	<i>Escherichia coli</i> (W)
331	Rock Cr.	4106	C	6.2	Jackson/Clay	<i>Escherichia coli</i> (W)
332	Sadler Br.	3577	C	0.8	Polk	Oxygen, Dissolved (W)
333	Salt Cr.	0594	C	14.9	Livingston/Chariton	Oxygen, Dissolved (W)
334	Salt Fk.	0893	P	26.7	Saline	Oxygen, Dissolved (W)
335	Salt Pine Cr.	2113	C	1.2	Washington	Lead (S)
336	Salt Pine Cr.	2113	C	1.2	Washington	Zinc (S)
337	Salt R.	0091	P	29.0	Ralls/Pike	Oxygen, Dissolved (W)
338	Salt R.	0103	P1	9.3	Ralls	Mercury in Fish Tissue (T)
339	Salt R.	0103	P1	9.3	Ralls	Oxygen, Dissolved (W)
340	Shoal Cr.	3222	P	50.5	Newton	Zinc (S)
341	Silver Cr.	3244	P	1.9	Newton	Zinc (S)
342	Slater Br.	3754	C	3.7	Jasper	<i>Escherichia coli</i> (W)
343	Sni-a-bar Cr.	0399	P	36.6	Jackson/Lafayette	Oxygen, Dissolved (W)
344	South Blackbird Cr.	0655	C	13.0	Putnam	Ammonia, Total (W)
345	South Fk. Salt R.	0142	C	40.1	Callaway/Audrain	Oxygen, Dissolved (W)
346	South Grand R.	1249	P	66.8	Cass/Henry	<i>Escherichia coli</i> (W)
347	South Indian Cr.	3259	P	8.7	McDonald/Newton	Aquatic Macroinvertebrate Bioassessments/Unknown (W)
348	South Indian Cr.	3259	P	8.7	McDonald/Newton	<i>Escherichia coli</i> (W)
349	Spencer Cr.	0224	C	1.5	St. Charles	Chloride (W)
350	Spring Br.	5004	C	6.7	Jackson	<i>Escherichia coli</i> (W)

No.	Water Body Name	WBID	Class	MDNR Water Body Size (mi/acres)	County Upstream/ Downstream	Pollutant/Cause
351	Spring Br.	5007	C	3.1	St. Louis	<i>Escherichia coli</i> (W)
352	Spring R.	3160	C	61.7	Lawrence/Jasper	<i>Escherichia coli</i> (W)
353	Spring R.	3164	P	8.8	Lawrence	<i>Escherichia coli</i> (W)
354	Spring R.	3165	P	11.9	Lawrence	<i>Escherichia coli</i> (W)
355	Spring River Tributary	4112	C	4.0	Jasper	<i>Escherichia coli</i> (W)
356	Spring Valley Cr.	2677	P	10.8	Shannon	Oxygen, Dissolved (W)
357	St. Francis R.	2835	P	93.1	St. Francois	Temperature, water (W)
358	St. John's Ditch	3138	P	15.3	New Madrid	Mercury in Fish Tissue (T)
359	Stevenson Bayou	3135	C	6.4	Mississippi	Oxygen, Dissolved (W)
360	Straight Fk.	0959	C	6.0	Morgan	Oxygen, Dissolved (W)
361	Sugar Cr.	0686	P	6.8	Randolph	Oxygen, Dissolved (W)
362	Sugar Cr.	0686	P	6.8	Randolph	Sulfate plus Chloride
363	Sugar Cr.	4108	C	1.8	St. Louis	<i>Escherichia coli</i> (W)
364	Sugar Cr.	4117	C	3.6	St. Louis	<i>Escherichia coli</i> (W)
365	Sugar Creek Lake	7166	L1	308.0	Randolph	Mercury in Fish Tissue (T)
366	Sunset Lake	7399	L3	6.0	Cole	Mercury in Fish Tissue (T)
367	Table Rock Lake, James, Kings and Long Cr. Arms	7313	L2	41747.0	Barry/Taney/Stone	Nutrient/Eutrophication Biol. Indicators (W)
368	Table Rock Lake, White River Arm	7313	L2	41747.0	Barry/Taney	Chlorophyll (W)
369	Table Rock Lake, White River Arm	7313	L2	41747.0	Barry/Taney	Nitrogen, Total (W)
370	Thirtyfour Corner Blue Hole	7352	L3	9.0	Mississippi	Mercury in Fish Tissue (T)
371	Thompson R.	0549	P	70.6	Harrison	<i>Escherichia coli</i> (W)
372	Thurman Cr.	3243	P	3.0	Newton	<i>Escherichia coli</i> (W)
373	Trib. To Goose Cr.	1420	C	3.0	Lawrence	<i>Escherichia coli</i> (W)
374	Trib. To Little Muddy Cr.	3490	C	1.0	Pettis	Chloride (W)
375	Trib. To Old Mines Cr.	2114	C	1.5	Washington	Lead (S)
376	Trib. To Old Mines Cr.	2114	C	1.5	Washington	Zinc (S)
377	Trib. To Old Mines Cr.	2114	C	1.5	Washington	Sedimentation/Siltation (S)
378	Trib. to Shoal Cr.	3981	US	1.6	Jasper/Newton	Cadmium (W)
379	Trib. to Shoal Cr.	3981	US	1.6	Jasper/Newton	Zinc (W)
380	Trib. to Shoal Cr.	3982	US	2.2	Jasper/Newton	Zinc (W)
381	Trib. to Turkey Cr.	3983	US	2.9	Jasper	Cadmium (W)
382	Trib. to Turkey Cr.	3983	US	2.9	Jasper	Cadmium (S)

No.	Water Body Name	WBID	Class	MDNR Water Body Size (mi/acres)	County Upstream/ Downstream	Pollutant/Cause
383	Trib. to Turkey Cr.	3983	US	2.9	Jasper	Lead (S)
384	Trib. to Turkey Cr.	3983	US	2.9	Jasper	Zinc (S)
385	Trib. to Turkey Cr.	3983	US	2.9	Jasper	Zinc (W)
386	Trib. to Turkey Cr.	3984	US	2.2	Jasper	Cadmium (W)
387	Trib. to Turkey Cr.	3984	US	2.2	Jasper	Zinc (W)
388	Trib. to Turkey Cr.	3985	US	1.6	Jasper	Zinc (W)
389	Trib. To Willow Fk.	0956	C	0.5	Moniteau	Oxygen, Dissolved (W)
390	Trib. To Wolf Cr.	3589	C	1.5	St. Francois	Oxygen, Dissolved (W)
391	Troublesome Cr.	0074	C	41.3	Knox	Oxygen, Dissolved (W)
392	Troublesome Cr.	0074	C	41.3	Knox/Marion	Sedimentation/Siltation (S)
393	Truitt Cr.	3174	P	1.5	Lawrence	<i>Escherichia coli</i> (W)
394	Truitt Cr.	3175	C	6.4	Lawrence	<i>Escherichia coli</i> (W)
395	Turkey Cr.	0751	C	6.3	Boone	<i>Escherichia coli</i> (W)
396	Turkey Cr.	2985	C	3.1	Stoddard	Ammonia, Total (W)
397	Turkey Cr.	2985	C	3.1	Stoddard	Oxygen, Dissolved (W)
398	Turkey Cr.	3216	P	7.7	Jasper	Cadmium (S)
399	Turkey Cr.	3216	P	7.7	Jasper	Cadmium (W)
400	Turkey Cr.	3216	P	7.7	Jasper	<i>Escherichia coli</i> (W)
401	Turkey Cr.	3216	P	7.7	Jasper	Lead (S)
402	Turkey Cr.	3216	P	7.7	Jasper	Zinc (S)
403	Turkey Cr.	3217	P	6.1	Jasper	Cadmium (S)
404	Turkey Cr.	3217	P	6.1	Jasper	<i>Escherichia coli</i> (W)
405	Turkey Cr.	3217	P	6.1	Jasper	Lead (S)
406	Turkey Cr.	3217	P	6.1	Jasper	Zinc (S)
407	Turkey Cr.	3282	P	2.4	St. Francois	Cadmium (S)
408	Turkey Cr.	3282	P	2.4	St. Francois	Cadmium (W)
409	Turkey Cr.	3282	P	2.4	St. Francois	Copper (S)
410	Turkey Cr.	3282	P	2.4	St. Francois	Lead (S)
411	Turkey Cr.	3282	P	2.4	St. Francois	Lead (W)
412	Turkey Cr.	3282	P	2.4	St. Francois	Nickel (S)
413	Turkey Cr.	3282	P	2.4	St. Francois	Zinc (S)
414	Turkey Cr.	3282	P	2.4	St. Francois	Zinc (W)
415	Turnback Cr.	1414	P	19.9	Lawrence/Dade	<i>Escherichia coli</i> (W)
416	Twomile Cr.	4079	C	5.6	St. Louis	<i>Escherichia coli</i> (W)
417	Unity Village Lake #2	7099	L1	26.0	Jackson	Mercury in Fish Tissue (T)

No.	Water Body Name	WBID	Class	MDNR Water Body Size (mi/acres)	County Upstream/ Downstream	Pollutant/Cause
418	Watkins Cr.	1708	C	1.4	St. Louis/St. Louis City	Chloride (W)
419	Watkins Creek Trib.	4097	C	1.2	St. Louis	<i>Escherichia coli</i> (W)
420	Watkins Creek Trib.	4098	C	1.2	St. Louis	<i>Escherichia coli</i> (W)
421	Weatherby Lake	7071	L3	185.0	Platte	Chlorophyll-a (W)
422	Weatherby Lake	7071	L3	185.0	Platte	Mercury in Fish Tissue (T)
423	Weatherby Lake	7071	L3	185.0	Platte	Nitrogen, Total (W)
424	Weatherby Lake	7071	L3	185.0	Platte	Phosphorus, Total (W)
425	Weldon R.	0560	P	43.4	Mercer/Grundy	<i>Escherichia coli</i> (W)
426	West Fork Black R.	2755	P	32.3	Reynolds	Lead (S)
427	West Fork Black R.	2755	P	32.3	Reynolds	Nickel (S)
428	West Fork Dry Wood Cr.	1317	C	8.1	Vernon	Oxygen, Dissolved (W)
429	Whetstone Cr.	1504	P	12.2	Wright	Oxygen, Dissolved (W)
430	White Oak Cr.	3182	C	18.0	Lawrence/Jasper	<i>Escherichia coli</i> (W)
431	Wildhorse Cr.	1700	C	3.9	St. Louis	<i>Escherichia coli</i> (W)
432	Williams Cr.	3171	P	1.0	Lawrence	<i>Escherichia coli</i> (W)
433	Williams Cr.	3172	P	8.5	Lawrence	<i>Escherichia coli</i> (W)
434	Williams Cr.	3594	P	1.0	St. Louis	<i>Escherichia coli</i> (W)
435	Willow Br.	3280	P	2.2	Newton	Cadmium (S)
436	Willow Br.	3280	P	2.2	Newton	<i>Escherichia coli</i> (W)
437	Willow Br.	3280	P	2.2	Newton	Zinc (S)
438	Willow Fk.	0955	C	6.8	Moniteau	Oxygen, Dissolved (W)
439	Wilson Cr.	2375	P	14.0	Greene/Christian	PAHs (S)
440	Woods Fk.	2429	C	5.5	Christian	Fisheries Bioassessment/Unknown (W)

## Enclosure B

### Additional Information for Water Body/Pollutant Pairs

Meramec River (WBID 2185)/Lead in Sediment

Willow Branch (WBID 3280)/Lead in Sediment

## Enclosure B

Although EPA doesn't review Category 2 and 3 of the 2018 Missouri CWA § 305(b) Report, EPA is providing data and analysis for the following water body/pollutant pairs as a discussion to assist in further refining the sediment toxicity assessment procedures:

Meramec (2185)/Lead in Sediment, and  
Willow (3280)/Lead in Sediment.

This information is being shared to assist Missouri during their assessment of waters that might be included on the 2020 303(d) List of water quality-limited segments still requiring a TMDL.

As MDNR engages in efforts to mature listing methodology, the EPA would like to extend an offer of availability for scientific and technical assistance. EPA encourages MDNR to contact Region 7 for additional information.

---

## Background

The Meramec River Basin is located southwest of St. Louis and discharges to the Mississippi River. Meramec River (WBID 2185) is a segment directly downstream of tributary Big River. The Big River watershed has significant lead mining history. Sediments highly contaminated with lead continue to be remobilized and migrate downstream.

Examples of current activity for the Meramec River Basin include EPA Remedial Action NPL sites, Natural Resource Damage Assessment and Restoration (NRDAR) work, Urban Waters Federal Partnership, and a MoDNR-USACE Joint Feasibility Study for ecosystem restoration.

Willow Branch (WBID 3280) is located roughly 14 miles south of Joplin in the Tri-State Lead/Zinc District. This segment has also been affected by historical mining activity and is within the study area of Tar Creek Superfund Site Operable Unit 5. Missouri has retained listing impairments for cadmium and zinc in sediment for this water body.

See attached figures for water body locations and assessment data.

---

## State Assessment

Missouri's 2018 Listing Methodology indicates that for all metals in benthic sediment except arsenic, pollutant geometric means will be compared to 150% of the recommended Probable Effect Concentration (PEC) values given by MacDonald et al. (2000). The Listing Methodology further explains that this comparison should meet confidence requirements applied elsewhere in the document.

In following the 2018 Listing Methodology, the State delisted Meramec River (WBID 2185) and Willow Branch (WBID 3280) for lead in sediment.

---

## Additional Information

The MacDonald et al. (2000) Consensus-Based PEC for lead in sediment is 128 ppm. Missouri's 2018 Listing Methodology uses 150% of the PEC which is 192 ppm. As explained in the draft MoDNR-USACE Joint Feasibility Study, recent studies on the Big River have shown reduction in mussel communities correlated to lead levels in sediment at the PEC.

In addition, the 2018 Listing Methodology for toxic chemicals in sediment requires the calculation of a geometric mean from an adequate number of samples. The State's assessment calculated a geometric mean using data from multiple sampling sites along the water body. Upon reviewing the data, it was found that one site in these water bodies was consistently impaired at 150% of the PEC.

Given the known variabilities of sediment transport, careful consideration should be given as to the representativeness of sampling data and the appropriate scale at which to apply statistics. Sediments are regularly transported and redistributed during high water events. As a result, the concentration of toxins in sediment are likely to be dynamic both spatially and temporally.

For the assessment of the Meramec River (WBID 2185), the last sample was collected in 2009. For Willow Branch (WBID 3280), more recent data was collected in 2016 at the most downstream location. But the last sample at the most upstream location was collected in 2007 with a concentration of lead in sediment at 1260 ppm.

The State's Listing Methodology acknowledges that it may be appropriate to assess impacted conditions separately from unimpacted areas. To increase confidence in reliable determinations of lead in sediment impairments, future assessments should incorporate newer data, the latest local science, and a more focused parceling of impacted areas. With the extent of historical activity affecting these and other water bodies in Missouri, State efforts to continue to refine assessments will lead to more successful outcomes in addressing such legacy issues.

EPA is prepared to offer any additional assistance that may be needed. Included with this enclosure are a few of the latest local materials for consideration regarding lead in sediment.

---