# THE 2024 SOUTH DAKOTA INTEGRATED REPORT FOR SURFACE WATER QUALITY ASSESSMENT

*Protecting South Dakota's Tomorrow...Today*

Prepared By
SOUTH DAKOTA DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES

HUNTER ROBERTS, SECRETARY

# SOUTH DAKOTA WATER QUALITY
# WATER YEARS 2018-2023 (streams)
# and
# WATER YEARS 2012-2023
# (lakes and mercury in fish tissue)

## The 2024 South Dakota Integrated Report
## Surface Water Quality Assessment

## By the State of South Dakota

## Pursuant to
## Sections 305(b), 303(d), and 314 of the
## Federal Water Pollution Control Act


## South Dakota Department of Agriculture and
## Natural Resources

## Hunter Roberts, Secretary

## FIGURES



## TABLES

# I. KEY TO ABBREVIATIONS

ATTAINS – EPA's Assessment Database (used for Integrated Report development)
ARSD – Administrative Rules of South Dakota
AUID – Assessment Unit Identifier
BMP – best management practice
cfu/100mL – colony forming units per 100 milliliters
CWA- Clean Water Act
CWSRF – Clean Water State Revolving Fund
DANR – South Dakota Department of Agriculture and Natural Resources
DO – dissolved oxygen
EDWDD – East Dakota Water Development District
EPA – Environmental Protection Agency
*E. coli* -*Escherichia coli*
FDA – Food and Drug Administration
GF&P – South Dakota Department of Game, Fish and Parks
HAB – Harmful Algal Bloom
HCI – Habitat Condition Index
IBI - Index of Biotic Integrity
IPCI – Index of Plant Community Integrity
IQR – interquartile range
IR – Integrated Report
mg/kg – milligrams per kilogram
mg/L – milligrams per liter
NARS- National Aquatic Resource Survey
NLA - National Lake Assessment
NGP - Northern Glaciated Plains
NPDES – National Pollutant Discharge Elimination System
PPR-Prairie Pothole Region
NPS – Nonpoint Source
NRCS – Natural Resources Conservation Service
NRSA – National Rivers and Streams Assessment
QA/QC – quality assurance/quality control
SAR – Sodium adsorption ratio
SDSU – South Dakota State University
SWD – Surface Water Discharge
SWLA – Statewide Lakes Assessments
SRAM – seasonal riparian area management
TMDL – Total Maximum Daily Load
TN – Total Nitrogen
TP – Total Phosphorus
TSI – Carlson's (1977) Trophic State Indices
TSS – total suspended solids
USACE – United States Army Corp of Engineers
USGS – United States Geological Survey
WET - Whole Effluent Toxicity
WQM – ambient water quality monitoring
WQS – South Dakota Surface Water Quality Standards
USFWS – United States Fish and Wildlife Service

# II. EXECUTIVE SUMMARY

This 305(b) and 303(d) Integrated Report (IR) was prepared by the South Dakota Department of Agriculture and Natural Resources (DANR) in accordance with Sections 305(b), 303(d), and 314 of the Federal Water Pollution Control Act, also known as the Clean Water Act (CWA). This document provides an assessment of South Dakota's surface water resources and identifies impaired waterbodies that require Total Maximum Daily Load (TMDL) development. It is the intent of this report to inform the citizens of South Dakota and the United States Environmental Protection Agency (EPA) of the condition of state surface water resources and to serve as the basis for management decisions by government and other entities for the protection of surface water quality.

South Dakota's IR describes the percentage of stream miles and lake acres that support beneficial uses. This general statistic is intended to characterize use support for a given reporting cycle and does not provide for a balanced comparison or trend analysis between reporting cycles. The number of stream miles and lake acres assessed changes between reporting cycles, assessment methodologies evolve, water quality standards may change, GIS geometry may be updated, and datasets can change considerably. In addition, new assessment units are continually being added and removed between reporting cycles. Therefore, DANR recommends users of this information consider these variables, as the appearance of a trend may not reflect actual changes in water quality.

South Dakota has 11,929 miles of perennial rivers and streams (Table 1) and 135,128 miles of intermittent and ephemeral streams. 6,148 stream miles have been assessed in the past five years. For this IR cycle, 21.9% of assessed stream miles support their assigned beneficial uses; 78.1% did not support one or more beneficial uses. DANR has listed a total of 89 different streams or stream segments as impaired requiring TMDL development. Total suspended solids (TSS) contamination from nonpoint sources and natural origin was the primary cause of nonsupport for fishery/aquatic life uses. *Escherichia coli* (*E. coli*) contamination from livestock and wildlife contributions was the primary cause of nonsupport for recreational uses. One hundred percent of stream miles that were assessed for alkalinity, ammonia, arsenic, cadmium, chloride, chromium, copper, cyanide, lead, mercury, nickel, nitrate, radium, silver, uranium, sulfate, and zinc, met water quality standards.

South Dakota has 577 lakes and reservoirs with specific aquatic life and recreational beneficial use classifications. DANR has assessed 180 of the 577 lakes and reservoirs with assigned recreation and/or fish life beneficial uses for a total of 171,110 lake acres. Lakes are sampled on a tiered basis, giving higher priority to lakes with the most recreational use, considering the limited time and resources for each year (sampling only takes place from May 1st through September 30$^{th}$). Twelve lakes were only partially assessed or did not have sufficient data to make a support determination. Twenty percent of the assessed lake acreage supports their assigned beneficial uses. Forty-seven lakes do not support water quality standards for the assigned uses but have approved TMDLs. Eighty-seven lakes do not support water quality standards for the assigned uses and are on the 303(d) impaired waterbodies list and require TMDL development. The primary cause for nonsupport in lakes is due to mercury in fish tissue and chlorophyll-*a* (nutrients). One hundred percent of lake acres assessed for alkalinity, ammonia, ammonia-nitrogen, chloride, conductivity, and nitrate/nitrite, and TSS met water quality standards.

DANR acknowledges that lake and stream water quality monitoring is limited to only a fraction of the total waters in the state. DANR relies on federal, state and local resources and partnerships, including volunteers, to accomplish the current level of water quality monitoring. DANR and

partners focus limited resources on those waters with the greatest public importance, which includes perennial and intermittent streams. It is not possible to increase resources to the level necessary to sample all waters in the state at a frequency required to make water quality-based decisions.

DANR has participated in the National Aquatic Resource Surveys (NARS) since 2007 when the initial lakes survey was conducted. The NARS are statistically designed to assess the status and changes in water quality for several different aquatic resource types. Almost 24% of lakes were classified as good in regard to Total Chlorophyll-α condition, while only 9% and 6% were in the good class for Total Nitrogen Condition and Total Phosphorus Condition, respectively. Dissolved oxygen condition is a measure of the ability of a waterbody to support aquatic life. In the 2017 National Lakes Assessment, 85% of the lakes surveyed in South Dakota fell into the good category (>5 PPM), 10% of lakes were in the moderate category (3-5 PPM), and 6% were in the low category (<3 PPM).

South Dakota's initial 303(d) Vision (2013 to 2022) ended September 30, 2022. The Vision priority commitment included completing 58 TMDLs covering 957 square miles and addressing *E. coli*, total suspended solids, and mercury in fish tissue impairments. DANR achieved 89% of its 2013 Vision goal by completing 49 TMDLs (821 square miles) and initiating TMDL development on three additional impairments. This completion rate was well above regional and national averages according to EPA. South Dakota is currently developing a new 303(d) Vision Strategy. The document will be available for public comment in the winter of 2024 with the goal of finalizing by April 1, 2024. This new 303(d) Vision (2022-2032) will be available in the 2026 IR cycle.

Similar to lakes, the rivers and streams survey points to excessive amounts of nitrogen and phosphorus with over 73% and 60%, respectively, falling into the poor category when compared to their ecoregional benchmarks.

# III. INTRODUCTION

This IR provides an assessment of South Dakota's surface water resources and identifies impaired waterbodies that require TMDL development. It is the intent of this report to inform the citizens of South Dakota and the EPA of the condition of state surface water resources and to serve as the basis for management decisions by government and other entities for the protection of surface water quality.

DANR uses the results of the IR as a tool to stimulate development and prioritization of nonpoint source (NPS) projects and other pollution control activities. This report is shared with the Nonpoint Source Task Force to provide information and guidance. The Nonpoint Source Program also uses this document to supplement news articles released through the DANR Information and Education Project.

States, territories, and authorized tribes are required to use EPA's "Assessment and Total Maximum Daily Load Tracking and Implementation System" (ATTAINS) to develop IR information. ATTAINS is a web-based interface that provides states with a mechanism to record, manage, and report all 305(b), 303(d), and 314 information. Reporting tools available in ATTAINS provide EPA with a method to review IR information including status of waters at the national, state, and site-specific level. For example, assessment unit information like waterbody name, size, category, use support, causes of nonsupport, parameters that meet standards, linked TMDLs, and more information is available. DANR used the ATTAINS system to develop the 2024 IR. To learn more about EPA's ATTAINS system, visit the web address in Appendix J, Reference #1.

## WATER QUALITY DATA

Surface Water Quality

The surface water quality assessments listed in this report rely primarily on the analyses of data generated by DANR, outside organizations, and DANR project sponsors. These groups include but are not limited to the United States Geological Survey (USGS), South Dakota Geological Survey, United States Army Corps of Engineers (USACE), South Dakota Department of Game, Fish, and Parks (GF&P), Nebraska Department of Environmental Quality, East Dakota Water Development District (EDWDD), the city of Watertown, the city of Sioux Falls, James River Water Development District, Belle Fourche River Watershed Partnership, Day County Conservation District, Moody County Conservation District, Minnehaha Conservation District, Wharf Resources, Friends of the Big Sioux River, Volunteer Water Quality Monitoring Program, Black Hills Resource Conservation & Development, RESPEC Consultants, HydroGeoLogic, the University of South Dakota, and South Dakota State University (SDSU). DANR greatly appreciates data submissions from outside organizations and project sponsors. These submissions provide DANR with increased monitoring data, which improve the confidence of support determinations. Outside organizations may also monitor waterbodies that are not currently monitored by DANR, therefore increasing the extent of waterbodies included in the IR. While this assessment is as comprehensive as resources allow some of the state's surface water quality problems may not be identified or documented in this report.

South Dakota has 11,929 miles of perennial rivers and streams (Table 1) and 135,128 miles of intermittent and ephemeral streams. DANR has listed a total of 89 different streams or stream segments as impaired requiring TMDL development. Similar to previous reporting cycles, TSS contamination was the leading cause of nonsupport for fishery/aquatic life uses. *E. coli*

contamination was the leading cause of nonsupport for recreational uses. One hundred percent of stream miles that were assessed for alkalinity, ammonia, arsenic, cadmium, chloride, chromium, copper, cyanide, lead, mercury, nickel, nitrate, radium, silver, uranium, sulfate, and zinc, met water quality standards.

South Dakota has 577 higher-classified lakes and reservoirs designated with an aquatic life use (coldwater permanent, coldwater marginal, warmwater permanent, warmwater semipermanent, or warmwater marginal fish life use) and/or recreation uses (immersion and limited contact recreation). Per ARSD 74:51:01:43, for the purposes of ARSD chapters 74:51:01 through 74:51:03, the Missouri River impoundments are classified as flowing streams and not as reservoirs. Therefore, the four Missouri River reservoirs are not included in the total lake acres but are included in the monitored river mileage. DANR fully assessed 180 of the 577 lakes and reservoirs assigned recreation and/or warmwater or coldwater fish life beneficial uses totaling 171,110 lake acres.

Many lakes and reservoirs meet water quality standards associated with their designated uses. Nearly 100% of the lake acres assessed meet water quality standards for specific conductance, nitrates, total dissolved solids, total suspended solids, ammonia, and alkalinity. In addition, 90% of lake acres assessed meet water quality standards for *E. coli* and pH. Greater than 90% of lake acres assessed meet water quality standards for dissolved oxygen and water temperature.

Waterbodies in this report were not assessed for all possible parameters. The parameters that were assessed for each waterbody are presented in the "Supporting Parameters" or the "Nonsupporting Parameters" columns in Appendix C. If a parameter is not presented in either column, then either the waterbody was not assessed for that parameter or there was not sufficient information for that parameter to make a support determination.

Table 1: Atlas

| | |
|---|---|
| State Population 2020 Census | 886,667 |
| State Surface Area (sq. mi.) | 77,123 |
| Number of water basins (according to state subdivision) | 14 |
| Total number of river/stream miles | 149,753* |
| Number of perennial river miles (subset) | 11,929* |
| Number of intermittent and ephemeral stream miles (subset) | 135,128* |
| Number of border river miles of shared river/streams (subset) | 316* |
| Miles of ditches and canals (man-made waterways) | 995* |
| Number of classified lakes/reservoirs/ponds | 577 |
| Acres of classified lakes/reservoirs/ponds | 249,009 |
| Acres of freshwater wetlands | 1,870,790** |
| Name of border rivers: Missouri River, Big Sioux River, Bois de Sioux River. | |

* Estimated from the USGS (2022) National Hydrography Dataset (1:24,000 scale)
** National Wetlands Inventory

South Dakota has an estimated 1.87 million acres of wetland habitats according to the latest National Wetland Inventory study (Dahl, 2014). The total number of wetlands in South Dakota declined 2.8% from 1997 to 2009 (Dahl, 2014). Small temporary wetlands comprised the primary type of emergent wetland loss. South Dakota exhibited gains in all other emergent wetland classes, especially larger seasonal and semi-permanent classes between 1997 and 2009. The

overall wetland area in South Dakota increased from the early to middle 1990s to 2009 (Johnson and Higgins, 1997 and Dahl, 2014).

GIS Data Geometry

To maintain consistency and to make trend analysis more meaningful, the GIS data model from 2010 had been maintained through the 2022 report. DANR has updated the model used to calculate stream miles and lake areas for this 2024 cycle to the current National Hydrography Dataset model. The update improves the data model from the 1:100,000 scale to the 1:24,000 scale which impacts all of the geometry summary statistics. Updating the GIS data to the latest data model makes comparisons of South Dakota's data to other states more meaningful; however, trend analysis between the 2024 cycle and previous cycles is less meaningful.

## WATER POLLUTION CONTROL PROGRAMS

The water quality goals of the state are to identify water quality problems, set forth effective management programs for water pollution control, alleviate water quality problems, and achieve and preserve water quality for all intended uses.

Point Source Pollution Control (Surface Water Discharge System)

DANR continues to administer the National Pollutant Discharge Elimination System (NPDES) program in South Dakota, referred to as the Surface Water Discharge permitting program. The Water Quality Program issues Surface Water Discharge permits and develops water quality-based effluent limits for point sources of pollution to ensure water quality standards are maintained.

Nonpoint Source Pollution Control

Nonpoint Source (NPS) pollution originates from various sources. Nonpoint source pollution controls must reflect this by wisely using resources available from state, federal, and local organizations, plus landowner support and participation. DANR encourages voluntary measures for the implementation of Best Management Practices (BMPs) to control NPS pollution. The CWA Section 319 program is the focal point for a majority of the existing NPS control programs. Since about 1990, the 319 Section program has been developing and implementing watershed restoration projects throughout the state.

The Riparian Buffer Initiative (RBI) was initiated in 2021 and works on improving water quality of streams and lakes throughout South Dakota. Riparian buffers improve water quality, provide valuable wildlife habitat, stabilize streambanks, provide additional forage for livestock, and increase land values. Riparian buffers are an excellent conservation practice that helps address nonpoint source pollution. For more information about RBI, please visit the RBI website at the link available in Appendix J, Reference #34.

Public information and education efforts have increased awareness of NPS pollution issues. State and federal programs provide technical assistance and financial incentives to landowners to address NPS pollution problems. Landowners have the capability to accomplish much if they understand the problems and the methods to solve them. Many of the solutions involve land management changes that benefit the landowner by making their lands more productive and sustainable.

## DATA USE AND ACCESS

Bordering State's 303(d) and 305(b) Lists

North Dakota, Minnesota, Iowa, Nebraska, Wyoming, and Montana possess interstate or border waterbodies that are shared with South Dakota. Under the authority of the CWA, states are granted the right to prevent, reduce, and eliminate pollution, and to plan the development and use of land and water resources. Under this right, states may adopt federal water quality regulations or promulgate their own. States that promulgate their own water quality standards, with limited exceptions, must be as stringent as federal standards. States that border South Dakota may have differences in water quality criteria and/or waterbody beneficial use designations. Due to these possible differences, 305(b) and 303(d) list support determination may differ on waterbodies that border South Dakota and another state. For more specific information on an interstate or border waterbody, interested parties should contact each state.

Comparison of Beneficial Use Support between Integrated Reporting Cycles

South Dakota's IR describes the percentage of stream miles that support beneficial uses. This general statistic is intended to characterize use support for a given reporting cycle and does not provide for a balanced comparison or trend analysis between reporting cycles. The number of stream miles assessed changes between reporting cycles, assessment methodologies evolve, water quality standards may change, GIS geometry may be updated, and datasets can change considerably. In addition, new assessment units are continually being added and removed between reporting cycles. Therefore, DANR recommends users of this information consider these variables, as the appearance of a trend may not reflect actual changes in water quality.

Interactive Applications Available to the Public

The South Dakota Surface Water Quality Standards Mapping Application is an online mapping application. It serves as an informational reference and links to the water quality standards that apply to each waterbody. The application also includes waterbody support status based on the most recently approved IR. The South Dakota Surface Water Quality Standards Mapping Application is available at the web address in Appendix J, Reference # 2.

The Water Quality Monitoring Access Portal (WQMAP) is an online mapping application that provides access to water quality data collected by DANR and local partners. Data from more than 150,000 water samples and 8,500 fish flesh contaminant samples collected at approximately 3,800 monitoring stations has been made accessible to the public through WQMAP. This application also provides information about the beneficial use support status of waters. The collective water quality data is used for a variety of applications, including beneficial use support assessments for the IR and TMDL development. WQMAP is available at the web address in Appendix J, Reference #3.

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# IV. SURFACE WATER QUALITY ASSESSMENT

## SURFACE WATER QUALITY MONITORING

General Discussion

South Dakota DANR monitors surface waters in the state through an established statewide ambient stream water quality monitoring program and statewide lakes assessment program. Additional monitoring types include regional water quality assessments, stream biological assessment surveys, TMDL watershed assessments, Surface Water Discharge (SWD) permit compliance monitoring, rotating basin assessments, and state nonpoint source implementation projects. The USGS also conducts routine monitoring throughout the state and that data is available on their website. DANR maintains an internal water quality database (NR92) and submits water quality data through EPA's Water Quality Exchange to EPA's Water Quality Portal.

Surface water quality standards were initially established in 1967 by the state's Committee on Water Pollution. The most recent triennial review of surface water quality standards was initiated in 2020 and approved by EPA on June 25, 2021. On December 7, 2022, the Water Management Board held a public hearing and completed a state rule revision for specific surface water quality standards changes outside of the triennial review. The Interim Legislative Rules Review Committee approved these revisions on April 11, 2023. The rules were filed with the Secretary of State on April 25, 2023, and became state law. The revised standards were submitted to EPA on May 15, 2023, and were approved on August 17, 2023. Surface water quality standards consist of beneficial uses, water quality criteria designed to protect assigned beneficial uses, and an antidegradation policy that protects existing uses and high-quality waters.

DANR designates all surface waters in the state for one or more of the following beneficial uses:

(1) Domestic water supply waters;
(2) Coldwater permanent fish life propagation waters;
(3) Coldwater marginal fish life propagation waters;
(4) Warmwater permanent fish life propagation waters;
(5) Warmwater semipermanent fish life propagation waters;
(6) Warmwater marginal fish life propagation waters;
(7) Immersion recreation waters;
(8) Limited contact recreation waters;
(9) Fish and wildlife propagation, recreation, and stock watering waters;
(10) Irrigation waters; and
(11) Commerce and industry waters.

At a minimum, all streams in South Dakota are assigned the beneficial uses (9) and (10) unless otherwise stated in the Administrative Rules of South Dakota (ARSD) Chapter 74:51:03. At a minimum, all lakes and wetlands are assigned the beneficial use of (9). Lakes listed in ARSD Chapter 74:51:02 are assigned the beneficial uses of (7), (8), and (9) unless otherwise specified.

ARSD Chapter 74:51:01 Surface Water Quality Standards is available at the web address in Appendix J, Reference #4. A subset of the standards for the beneficial uses are shown in Table 2. State toxic pollutant standards for human health and aquatic life are available at the web address in Appendix J, Reference #5 and #4. Site specific standards are available in ARSD

Chapters 74:51:01:45.01, 74:51:01:46.01, 74:51:01:48.01, 74:51:01:48.02, 74:51:01:53.01, 74:51:01:56, and are available at the web address in Appendix J, Reference #6.

Fixed Station Ambient Monitoring

The DANR water quality monitoring network is currently made up of 153 stations located on various rivers and creeks within the state. Sampling stations are located within high quality beneficial use classifications, above and below municipal/industrial discharges, or within watersheds of concern. Currently, the department collects these samples on a monthly, quarterly, or seasonal basis. This data collected is invaluable for evaluating historical water quality, establishing natural background conditions, monitoring possible runoff events, and acute or chronic water quality concerns.

The most commonly sampled parameters include *E. coli*, TSS, total dissolved solids, pH, ammonia, nitrates, dissolved oxygen, water temperature, pH, specific conductance, and total phosphorous. Several stations are sampled for sodium, calcium, and magnesium during the irrigation season. Stations located along streams that receive flows from historic Black Hills mining areas are also analyzed for cyanide, cadmium, lead, copper, zinc, chromium, mercury, nickel, selenium, silver, and arsenic. Stations along streams that receive flows from historic uranium mining or current exploration are analyzed for arsenic, uranium, and radium.

Ambient station locations, descriptions, and schedules are available at the web address in Appendix J, Reference #7.

## Table 2: Numeric Criteria Assigned to Beneficial Uses of Surface Waters of the State ARSD 74:51:01

| Parameters (mg/L) except where noted | (1) Domestic water supply | (2) Coldwater permanent fish life propagation | (3) Coldwater marginal fish life propagation | (4) Warmwater permanent fish life propagation | (5) Warmwater semipermanent fish life propagation | (6) Warmwater marginal fish life propagation | (7)[4] Immersion recreation | (8)[4] Limited-contact recreation | (9) Fish, wildlife, propagation, recreation & stock watering | (10)[14] Irrigation | (11) Commerce and industry |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity ($CaCO_3$) | | | | | | | | | ≤750[1]/≤1,313[2] | | |
| Barium | ≤1.0[2] | | | | | | | | | | |
| Chloride | ≤250[1]/≤438[2] | ≤100[1]/≤175[2] | | | | | | | | | |
| Coliform, total (per 100 mL) | ≤5,000 (geomean): ≤20,000 | | | | | | | | | | |
| *Escherichia coli*[4] (per 100mL) | | | | | | | ≤126[6]/ ≤235[2] | ≤630[6]/ ≤1,178[2] | | | |
| Microcystin[4, 8, 9] | | | | | | | ≤8 | ≤8 | | | |
| Cylindro-spermopsin[4, 8, 9] | | | | | | | ≤15 | ≤15 | | | |
| Conductivity (umhos/cm @ 25ºC) | | | | | | | | | ≤4,000[1]/ ≤7,000[2] | ≤2,500[1]/ ≤4,375[2] | |
| Fluoride | ≤4.0[2] | | | | | | | | | | |
| Hydrogen sulfide undisassociated | | ≤0.002[2] | ≤0.002[2] | ≤0.002[2] | ≤0.002[2] | ≤0.002[2] | | | | | |
| Nitrogen, total ammonia as N | | [5]Equation-based standard[,2] | [5]Equation-based standard[,2] | [5]Equation-based standard[,2] | [5]Equation-based standard[,2] | [5]Equation-based standard[,2] | | | | | |
| Nitrogen, nitrates as N | ≤10.0[2] | | | | | | | | ≤50[1]/≤88[2] | | |
| Oxygen, dissolved[3, 15] | | ≥6.0[15]; ≥7.0 [15] (in spawning areas during spawning season) | ≥5.0[15] | ≥5.0[15]; ≥6.0[15] (in Big Stone & Traverse during Apr and May) | ≥5.0[15] | ≥4.0[15] Oct1-Apr30; ≥5.0[15] May1-Sep30 | ≥5.0 [4,15] | ≥5.0 [4,15] | | | |
| pH (standard units) | ≥6.5-9.0 | ≥6.5 - ≤9.0[10] | ≥6.5 - ≤9.0[10] | ≥6.5 - ≤9.0[10] | ≥6.5 - ≤9.0[10] | ≥6.0 - ≤9.0[10] | | | ≥6.0 - ≤9.5[10] | | ≥6.0 - ≤9.5[10] |
| Sodium Adsorption Ratio[7, 11] | | | | | | | | | | ≤10 | |
| Solids, suspended[7] | | ≤30[1]/≤53[2] | ≤90[1]/≤158[2] | ≤90[1]/≤158[2] | ≤90[1]/≤158[2] | ≤150[1]/≤263[2] | | | | | |
| Solids, total dissolved | ≤1,000[1]/ ≤1,750[2] | | | | | | | | ≤2,500[1]/ ≤4,375[2] | | ≤2,000[1]/ ≤3,500[2] |
| Sulfate | ≤500[1]/≤875[2] | | | | | | | | | | |
| Temperature (ºF)[7] | | ≤65 | ≤75 | ≤80 | ≤90 | ≤90 | | | | | |
| Total Petroleum Hydrocarbons | ≤1.0[2] | | | | | | | | ≤10[13] | | |
| Oil and Grease | | | | | | | | | ≤10[13] | | |

[1] 30-day average as defined in ARSD 74:51:01:01(60);[2] daily maximum;[3]DO as measured anywhere in the water column of a non-stratified waterbody, or in the epilimnion of a stratified waterbody;

[4] May 1 through September 30; [5] Refer to Appendix A of Chapter 74:51:01; [6] Geometric mean as defined in ARSD 74:51:01:01(24) and 74:51:01:50-51; [7] Site specific standards exist; [8]Not to be exceeded in more than three 10-day assessment periods over the course of the recreation season; [9] Unit of measure ug/L; [10] See 74:51:01:07; [11] See 74:51:01:01(41); [12] See 74:51:01:31; [13] See 74:51:01:10. [14] April 1 through October 30; [15] daily minimum. **For a complete list of WQS refer to ARSD 74:51**.

Intensive Water Quality Monitoring (Point Sources and Special Studies)

Some of South Dakota's wastewater treatment facilities are required to meet limits beyond the federal technology-based effluent limits. In cases where technology-based effluent limits are not appropriate, water quality-based effluent limits are developed. DANR conducts an intensive water quality survey of the waterbody receiving the discharge. These surveys provide additional information to assist in the development of water quality-based effluent limits for the Surface Water Discharge permits. Point source special studies have been conducted on Moccasin Creek, Boxelder Creek, Whitewood Creek, Spring Creek, South Fork Whetstone, an unnamed tributary near Summerset, and the Redwater River.

Intensive water quality monitoring may also be initiated to investigate quality control issues; collect data for use in compliance; enforcement; site-specific criteria development; or to provide updated information on a waterbody.

Use Attainability Analysis

DANR conducts a Use Attainability Analysis (UAA) to determine if a waterbody is currently assigned the appropriate beneficial uses or if changes should be made. Priority is placed on waters lacking permanent fishery and immersion recreation uses which receive a permitted surface water discharge. During the UAA, physical characteristics of the stream and surrounding land use are documented, physical and chemical properties of the surface water are analyzed, and fish species presence/absence determinations are made. The waterbody is visited multiple times to address seasonality and hydrologic cycles. The data may confirm the uses are appropriate as assigned or be used to recommend changes to the assigned beneficial uses.

General Biological Monitoring and Assessment

Biological samples are often included as part of a use attainability assessment, watershed assessment study, or special project. In limited cases, biological samples may be required under certain permits. DANR's Watershed Protection Program incorporates aquatic plant/algae surveys into lake studies. Stream studies incorporate bioassessment surveys using fish, aquatic macroinvertebrates, periphyton and mussels as biological indicators of water quality.

Perennial-Wadeable Stream Bioassessment

DANR and research partners from SDSU identified stream reference sites and developed bioassessment tools for perennial wadeable streams in the Northern Glaciated Plains (NGP) ecoregion of eastern South Dakota (Appendix E). The project focused on reference site validation, Index of Biological Integrity (IBI) development, and generation of a biomonitoring toolkit to increase the state's biological monitoring and assessment capacity. Final deliverables of the project included identification of validated reference sites, core metrics and an IBI process-quantification tool. The project also yielded biological, habitat and water quality datasets, Kriging (IBI interpolation tool) maps, habitat entry and analysis templates, two Master of Science theses, and several peer-reviewed journal publications. Results of this effort will be used for a variety of water resource management applications including evaluating nutrient-related narrative standards. Future work is being focused on expanding the reference site network and gaining existing reference site data.

DANR and research partners from SDSU expanded reference site development and bioassessment efforts to the Northwestern Great Plains ecoregion (43) in western South Dakota (Appendix E). The project began in 2013 and was completed in the fall of 2017. The project was

based on a random probabilistic survey design stratified by level 4 ecoregions. Final project deliverables were similar to those produced in the aforementioned NGP ecoregion. Results of this effort are expected to be used for a variety of water resource management applications including evaluating nutrient-related narrative standards for the 2024 reporting cycle. Future work will be focused on expanding the reference site network and gaining existing reference site data.

Biological Reference Collection and Database

DANR and GF&P provided financial and technical support for the development of a statewide biological reference collection and database. Support and maintenance of the collection and database is currently being negotiated with research personnel from the Natural Resource Management Department at SDSU. Aquatic macroinvertebrates, fish, and mussel voucher specimens from statewide collection efforts were processed and stored on campus. All information associated with each individual specimen including geo- location was documented in the SPECIFY database cloud developed and maintained by Kansas State University. The long-term goal of the project is to make biological information available to a variety of users.

Fish Contaminants Sampling

In a collaborative effort among GF&P, the Department of Health, and the DANR, fish tissue from lakes and rivers are sampled and analyzed for contaminants including mercury, cadmium, selenium, pesticides, and PCBs. The data are used to monitor and assess the levels of these contaminants present in fish flesh.

The sampling locations and schedule are determined in a joint effort by GF&P and DANR personnel. The rivers and lakes are typically sampled in conjunction with GF&P's survey sampling and occur between early spring and late fall. Waterbodies are selected based on GF&P fishery management objectives, public access, and fishing pressure. Waterbodies are resampled based on contaminant concentrations in fish tissue.

The data is used by both the Department of Health and DANR. The Department of Health will issue a fish consumption advisory when sampling results indicate the mercury threshold may be exceeded in edible fish tissue. The current Food and Drug Administration mercury threshold is 1.0 mg/kg. The purpose of the consumption advisory is to give the public advice on eating fish from the waterbody. DANR also uses mercury in fish tissue results to assess the mercury in fish tissue water quality criterion (0.3 mg/kg). This water quality criterion is used to determine waterbody support but does not provide consumption advice. A fish consumption advisory is different than a waterbody support determination; therefore, different criterion have been established for different purposes. Fish tissue sampling design and procedures are addressed in the Water Quality Program document *South Dakota Fish Contaminants Sampling Protocol*, January 2024.

Statewide Lake Assessment Program

DANR implemented a targeted approach to monitor and assess lakes and reservoirs within the state. The targeted approach focuses exclusively on waterbodies with Assessment Unit Identifications (AUIDs) in the most recent IR cycle. The current annual goal of the program is to sample 35 lakes per year at a minimum of three times during growing season defined as May 1st to September 30th. Annual lake selection is based on priority criteria and a tiered approach to allow flexibility. This tiered approach is described below:

- IR Assessment: Lakes with a nonsupport status that require updated data to determine status (EPA categories 4a and 5). Lakes that lack water quality data to make an assessment determination (EPA categories 2 and 3).
- TMDL Development: High Priority lakes and those on the 303(d) Vision Priority Schedule.
- Public Importance: Lakes are divided into three tiers based on best professional judgment of economic value, recreation use, and public interest.
    - Tier 1 – Lakes with the highest economic value, recreation use, and public interest. Lakes in this tier will be sampled on average four times over the course of a 10-year period.
    - Tier 2 – Lakes with significant economic value, recreation use, and public interest. Lake in this tier will be sampled twice over the course of a 10- year period.
    - Tier 3 – Lakes with the least amount of economic value, recreation use, and public interest. Lakes in this tier will only be assessed when prioritized for TMDL development or IR Assessment.

Rotating Basin-Region Assessment

The rotating basin/regional assessment project relies on partnerships with outside water resource agencies within the state. The goal of the assessment is to monitor lakes and streams in major river basins or large geographic regions for two years during the growing season and then rotate to a new region. The rotating basin assessment will focus on all lake and stream assessment unit ID's (AUIDs) in each basin or region with the goal of assessing all AUIDs over a ten-year period.

DANR staff field personnel assessed 66 stream segments twice per month (May to October) and 25 lakes three times annually (May to September) in the Belle Fourche and Upper Cheyenne River basins during the 2022 and 2023 field season. The monitoring project allowed for collection of data on almost all waterbodies within the Belle Fourche and Upper Cheyenne River Basins. The next rotation (2024-2025) will be in Western South Dakota and will include the following basins: Missouri, Niobrara, Bad, Cheyenne, Grand, Moreau, White, and Little Missouri River Basins. A sample list of specific streams and lakes to sample in those basins is still being developed.

State-Scale Statistical Survey

South Dakota's state-scale statistical survey results were derived from EPA's National Aquatic Resource Surveys. South Dakota participates in both the National Lakes Assessment (NLA) and National Rivers and Streams Assessment (NRSA) conducted on a 5-year rotation. These surveys characterize the water quality of lakes, rivers, and streams by using a representative sample of comparatively few members or sites. Using the sites randomly selected from South Dakota, state scale estimates for biological, chemical, physical habitat and human health indicators were calculated with 95% confidence. As more surveys are conducted in the future, DANR will be able to report on trends for these indicator groups. For the 2024 IR, only estimates from the 2012 and 2017 NLA, and the 2018-2019 NRSA were available for reporting. Indicator estimates from the 2023-2024 NRSA should be available for the 2026-2028 IR cycle. The next NLA survey is set to begin in 2027 and the second year of NRSA sampling will be conducted in 2024.

Toxicity Testing Program

Whole Effluent Toxicity (WET) testing measures the effect of wastewater on specific aquatic organisms' ability to survive, grow, and reproduce. WET limits and monitoring are included in surface water discharge permits if a reasonable potential analysis determines they need to be included in the permit. The permits are developed following the EPA-approved DANR WET

Implementation Plan. This plan helps determine if the permittee will need acute or chronic testing and what limits need to be included. Additionally, it identifies the frequency of testing and other requirements that may need to be included. WET tests are expensive and there are only select labs that are able to perform these tests.

Priority toxic monitoring is included in all major municipal permits. The frequency of analysis depends on the size of the wastewater treatment facility and whether or not the municipality has an approved pretreatment program. The frequency of analysis varies from once every five years for smaller facilities without a pretreatment program to annually for larger wastewater treatment facilities with a pretreatment program. A list of priority toxics is available at the web address in Appendix J, Reference #8.

Total Maximum Daily Loads (TMDLs) and Section 303(d)

*Overview of TMDLs*

TMDLs are an important tool for the management and protection of South Dakota's surface water quality. The goal of TMDLs is to ensure that waters of the state attain and maintain water quality standards to ensure support of designated beneficial uses. EPA defines a TMDL as "the sum of the individual waste load allocations for point sources and load allocations for both nonpoint sources and natural background sources established at a level necessary to achieve compliance with applicable surface water quality standards." In simple terms, a TMDL is the amount of pollution a waterbody can receive and still support its designated beneficial uses. TMDLs must be developed for impaired waters, should address a specific waterbody or watershed, and should specify quantifiable targets and associated actions that will enable the waterbody to support its designated beneficial uses.

Section 303(d) of the CWA requires states to develop and submit a biennial list of impaired waters targeted for TMDL development, referred to as the 303(d) list. Pollutant causes, TMDL priority, and a schedule for TMDL development is required. TMDLs must allow for seasonal variations and provide a margin of safety to account for uncertainty. Appendix A provides a list of waterbodies with EPA-approved TMDLs.

*Types of Waters Listed*

The following information and data sources were used to determine which waterbodies require TMDLs based on the requirements of section 303(d) of the CWA:

- Waters included in the IR that are identified as "not supporting" or also known as "impaired" waters;
- Waters for which modeling indicates nonattainment of water quality standards; and
- Waters for which documented water quality problems have been reported by local, state, or federal agencies, the general public, or academic institutions.

Appendix D provides a summary of DANR's 2024 303(d) list.

*Impaired Waters*

Waterbodies that are identified as "NON" (nonsupporting) under the "Support" column in the basin tables are placed in EPA Category 5 which identifies the waterbody as impaired and requires a TMDL. This is the basis for the 303(d) list. If a waterbody is identified as "NON" but has an approved TMDL for the pollutant cause the waterbody is placed in EPA Category 4a (nonsupporting with a TMDL).

*Waters with Surface Water Discharge-Related Wasteload Allocations*

In 1993, DANR was delegated the authority to administer the NPDES permitting program. As stated earlier, South Dakota's NPDES permitting program is referred to as the Surface Water Discharge (SWD) permitting program. SWD permits are used to control the discharge of pollutants from point sources. At a minimum, most SWD permits contain technology-based effluent limits, which are attained using the best available technology that is economically achievable. Where the application of technology-based effluent limits is not sufficient to ensure the surface water quality standards are maintained, DANR develops water quality-based effluent limits for the permit.

If a SWD permittee discharges a pollutant to an impaired waterbody, the TMDL for that pollutant will include a "wasteload allocation" for the permittee. The wasteload allocation is implemented through the SWD permit.

*Waters Reported by Government Agencies, Members of the General Public, or Academic Institutions*

DANR did not receive any recommendations to list specific water resources on the 2024 303(d) list from outside government agencies, members of the general public, environmental organizations, or academic institutions.

TMDL Prioritization of 303(d) Listed Waters

EPA regulations codify and interpret the requirement in Section 303(d)(1)(A) of the CWA such that states establish a priority ranking for waters listed as impaired in their Integrated Reports. The regulations of 40 CFR Part 130.7(b)(4) require states to prioritize waters in their Section 303(d) lists for TMDL development and to identify those water quality limited segments targeted for TMDL development in the next two years. States may consider other factors relevant to prioritizing waters for TMDL development including programmatic needs such as identification of wasteload allocations for permits; vulnerability of certain waters to degradation; waters in areas of high economic development; ecological, recreational, economic, and aesthetic values; degree of public interest and support; and state or national policies and priorities. DANR has a two-tiered priority scheme.

*High Priority*

- Documented health problems or a threat to human health;
- Streams listed as impaired because of bacteria, TSS and lakes impaired for mercury in fish flesh;
- Waters where TMDL development is expected during the next two years;
- Waters with documented local support for water quality improvement; or
- Waters in areas of high economic development; and
- Select lakes impaired for Chlorophyll-a being considered for the 2024 303(d) Vision Priority.

*Low Priority*

- Water where local support for TMDL development is expected but not documented;
- Waters having impairments not listed as a High Priority;
- Waters with no evident local support for water quality improvements; or
- Waters where impairments are largely due to natural causes.

South Dakota's Long-Term Vision Strategy

In 2013, EPA announced a new collaborative framework for implementing the CWA Section 303(d) Program. Colloquially known as the "Vision," South Dakota implemented this long-term strategy designed to help coordinate and focus efforts regarding the CWA Section 303(d) program activities. This included South Dakota's approach to prioritizing TMDL development and implementing alternative approaches and protection activities on South Dakota waters.

South Dakota's initial 303(d) Vision (2013 to 2022) ended September 30, 2022. The Vision priority commitment included completing 58 TMDLs covering 957 square miles and addressing *E. coli*, total suspended solids, and mercury in fish tissue impairments. DANR achieved 89% of its 2013 Vision goal by completing 49 TMDLs (821 square miles) and initiating TMDL development on three additional impairments. This completion rate was well above regional and national averages, according to EPA. In addition, three of DANR's 2013 TMDL commitments were delisted because more recent quality data indicated the waters were no longer impaired and did not require TMDL development. If these three delisted waters were eligible for inclusion into the completion percentage, DANR would have achieved over 95 percent of its 2013 Vision goals.

Beginning in 2022, EPA began coordinating efforts to build upon the Vision framework establishing a new set of goals for section 303(d) which will carry the states through 2032. South Dakota is currently drafting this new Vision Strategy which includes a priority list of waters for TMDL development, restoration, and protection. This new Vision will undergo a separate public notice process allowing the public and stakeholders the opportunity to specifically comment on the new strategy. Once this process is complete and a final version of the new Vision is available, it will be included in subsequent IRs beginning in 2026.

As part of the new Vision starting with the 2024 IR reporting cycle, states will identify priority waters targeted for TMDL development, restoration and/or protection in two-year increments continuing through FFY2032. In the interim between Vision cycles, the EPA has established a "bridge" metric which identifies waters bridging the gap between the end of the first Vision and the new Vision final approval. These waters will either have a TMDL plan completed or will be in progress in line with the Prioritization Framework at the end of FFY2024. Those waters and their priority status are available in Appendix I.

Summary of the State TMDL Waterbodies

Using the methodologies, data, information, and public input described for the surface water quality assessments, DANR included the waterbodies that require TMDLs in Appendix D. These tables include waterbody names, pollutants of concern, and other information. A total of 176 different waterbodies require TMDL development. Each waterbody may contain several different pollutants and thereby may constitute several TMDLs. This results in 239 required TMDLs due to multiple impairment causes. The 303(d) List of waterbodies that require TMDL development is available in Appendix D.

*Resource Implications*

The development and implementation of TMDLs relies on existing programs, resources, and activities. TMDL development requires effective and continuous coordination from several DANR water programs. In addition, TMDLs must have the support, input, and coordination from affected government agencies, local groups, and citizens. TMDL development involves coordination from many diverse groups sharing the common goal of improving water quality.

Delisting Reasons

*Delisting of Waterbodies*
Waters may be delisted using the following EPA delisting reasons:

- Applicable water quality standard attained, according to new assessment method;
- Applicable water quality standard attained, due to change in water quality standard;
- Applicable water quality standard attained, due to restoration activities;
- Applicable water quality standard attained, based on new data;
- Applicable water quality standard attained, original basis for listing was incorrect;
- Applicable water quality standard attained, reason for recovery unspecified;
- Clarification of listing cause;
- Data and/or information lacking to determine water quality status, original basis for listing was incorrect;
- Listed water not in state's jurisdiction;
- Water determined to not be a water of the state;
- Water determined to not be a water of the US;
- Water quality standard no longer applicable; or
- TMDL Approved or established by EPA (4a).

Appendix B provides a list of waterbodies, causes, and delisting reasons used for the 2024 reporting cycle.

## LISTING METHODOLOGY

Two major types of assessments were used to determine use support status of waterbodies: one based on monitoring, and the other based on qualitative evaluations. Monitoring data were primarily obtained from DANR, outside organizations, and DANR project sponsors.

DANR maintains a Quality Management System to ensure that all environmental water quality data generated or processed meet standard accepted requirements for precision, accuracy, completeness, representativeness, and comparability. This entails the preparation and periodic review and revision of the DANR Quality Management System, Quality Assurance Project Plans, and Standard Operating Procedures. It also includes the preparation of periodic reports to DANR management and EPA; the review of contracts, grants, agreements, etc., for consistency with quality assurance/quality control (QA/QC) requirements; and the administration of QA/QC systems and performance audits. The establishment of schedules for the collection of duplicate and blank samples, laboratory split samples, review of field sampling techniques, and coordination with contracted labs to ensure compliance with QA/QC objectives is required.

DANR maintains an EPA-approved *Quality Management Plan* (Revision VI, January 2023). The Water Quality Program operates under the *Quality Assurance Project Plan for the Water Quality Program,* Revision V, January 2024, and *Surface Water Quality Program and Feedlot Permit Program Standard Operating Procedures, Field Water Quality Sampling,* Revision III, January 2016. These documents are available at the web address in Appendix J, Reference #7.

The Watershed Protection Program operates under the *Watershed Protection Program Quality Assurance Project Plan for the Assessment Team and Implementation Team,* Revision VII, April 2022. This document is available at the web address in Appendix J, Reference #9. *The Standard*

*Operating Procedures for Field Samplers, Volume I* (Revision 6.2, May 2018) *& Volume II* (Revision 3.2, May 2018) is available at the web address in Appendix J, Reference #10.

DANR requires that all outside organizations that submit data or qualitative evaluations for this IR operate under a quality management system and be willing to provide quality assurance documentation upon request.

Rivers and streams were assessed by dividing waterbodies into segments that contain the same designated beneficial uses, water quality standards criteria, and environmental and physical influences. When section, township, and range are used in ARSD Chapter 74:51:03 to describe the beginning or end point of a stream segment, the boundary of the segment is that point where the most downstream portion of the stream crosses the boundary of that section. For lakes, the entire waterbody is assessed as a whole unit. Monitoring data obtained during the current reporting period were analyzed using DANR's NR92 database-generated reports.

The data for each monitored waterbody were compared to numeric water quality standards applicable to the beneficial uses assigned to the segment and nutrient-related narrative standards.

Assessment Methodology for Numeric Water Quality Standards

Table 3 outlines data age and the required number of samples used by DANR to determine waterbody support. Deviations from the above criteria were allowed in specific cases and are generally discussed in the river basin summaries. Use support assessment for all assigned uses was based on the number of exceedances of water quality standards for the following parameters: TSS, total dissolved solids, pH, water temperature, dissolved oxygen, *E. coli*, and others. Exceedances of more than one parameter were not considered additive in determining overall support status for any given waterbody. A waterbody with 10% or less exceedances with respect to the total number of samples for one or more parameters is considered fully supporting. If multiple samples are collected on the same day within an AUID, the worst sample is compared to the daily maximum criteria. Toxic parameters are only allowed one violation in a three-year period to be considered fully supporting. The weekly average temperature is calculated on a rolling seven-day period.

Chronic criteria, including geometric means and 30-day averages, are applied to a calendar month. All chronic criteria samples are averaged for the calendar month with a minimum requirement of three separate samples collected over three separate weeks. For chronic hardness-based metals, the hardness and metal concentrations are averaged for the calendar month. For mercury in fish tissue, the reach is considered nonsupporting if the species mean composite mercury concentration exceeds the WQS. A minimum of three fish per species are required to calculate a species mean. A minimum of ten total fish are required to make a support determination for mercury in fish tissue for the waterbody. Additionally, a waterbody may be considered nonsupporting with less than the minimum data required if other overwhelming evidence suggest impairment.

Some parameters, such as selenium, chromium, and cyanide, may be monitored to collect basic information. The information may be used to determine that a waterbody is meeting the water quality criteria if there are no exceedances to the threshold. However, if the threshold testing does not conclude waterbody support and further parameter speciation would be required, the waterbody parameter status is populated as "Insufficient" in EPA's ATTAINS database until a determination is made.

To ensure a sufficient number of samples were available for each waterbody, the period of record considered for this report was from October 1, 2018, to September 30, 2023 (5 years unless otherwise noted) for streams, and October 1, 2012, to September 30, 2023, (10 years) for lakes. The ten-year timeframe in lakes was designated to account for climatic variability (wet and dry cycles) and increase the chance of covering multiple sampling events. The ten-year timeframe was thought to provide a more recent description of a lake's support status between reporting cycles in comparison to using all available data.

In addition to the stream and lake listing methodologies, waterbodies were also evaluated based on reported beach closures, fish kills, fish consumption advisories, applicable public complaints, other overwhelming evidence, and best professional judgment.

Stream Assessment Methodology for Nutrient-Related Narrative Standards

EPA considers nutrient pollution one of the nation's top water quality priorities. The agency has called upon states to increase efforts to address nutrient pollution. Item #3 in EPA's 2014 Integrated Report Memo to states, describes considerations for "Identifying nutrient-impacted waters for the Section 303(d) list for states without formal numeric nutrient water quality criteria." This section identifies potential approaches for developing nutrient based criteria to assess attainment of applicable narrative standards and associated beneficial uses.

South Dakota has several narrative water quality standards in ARSD (Chapters; 74:51:01:05, 74:51:01:06, 74:51:01:08, 74:51:01:09, 74:51:01:10, and 74:51:01:12) designed to protect surface waters from nutrient-related impacts. Narrative standards lack general criteria to determine attainment. DANR developed a decision tree-based stream assessment method with multiple lines of evidence to determine attainment of applicable narrative standards and associated designated uses. The assessment criteria identify the applicable stream population, minimum data requirements, numeric targets and other actions required in the decision process.

The assessment is structured to identify streams which exceed regional reference-based nutrient (nitrogen and phosphorus) targets as an initial screening mechanism. Further evaluation of those waters is conducted using measures of ecological integrity and associated targets (Tables 4 and 5). The methodology provides a mechanism for which to evaluate nutrient impacts as well as impacts from multiple environmental stressors. When a stream assessment unit is considered to not meet applicable narrative standards it will be placed on the 303(d) list with cause "unknown" until a stressor analysis or TMDL analysis can determine the pollutant (i.e., nutrients) or pollutants impairing designated aquatic life uses.

The assessment methodology applies exclusively to wadeable-perennial streams in level III Ecoregions 43 and Ecoregion 46, with the exception, of those in level IV Ecoregion 46c (Appendix E). Limitations associated with evaluating all stream assessment units statewide are based on the availability of regional and/or site-specific assessment tools. Building a reference site network and bioassessment capacity at the statewide level is a long-term goal. As regional assessment tools become available, the assessment methodology will evolve accordingly.

## Table 3: Criteria for Determining Support Status

| Description | Minimum Sample Size | Impairment Determination Approach |
|---|---|---|
| FOR CONVENTIONAL PARAMETERS (such as dissolved oxygen, TSS, *E. coli* bacteria, pH, water temperature, etc.) | STREAMS: a minimum of 20 samples (collected on separate days) for any one parameter are required within a waterbody reach.<br>A minimum of 10 chronic (calculated) results are required for chronic criteria (30-day averages and geomeans).<br><br>LAKES: Reference the lake listing methodology. | STREAMS: >10% exceedance for daily maximum criteria or >10% exceedance for 30-day average criteria OR when overwhelming evidence suggests nonsupport/support<br><br>LAKES: Reference the lake listing methodology. |
| FOR TOXIC PARAMETERS (such as metals, total ammonia, etc.) | All Lakes and Streams:<br>Minimum of 2 samples within a consecutive 3-year period within the data age date range. | All Lakes and Streams:<br>More than one exceedance of toxic criteria within a consecutive 3-year period (within the data age date range) for the acute and/or chronic standard. |
| FOR MERCURY IN FISH TISSUE | All Lakes and Streams: A minimum of 10 fish tissue samples are required. A minimum of 3 fish tissue samples per species. No minimum number of sample events. All available data from October 2012 through September 2023 was used. | All Lakes and Streams: The composite mean result of each fish species will be compared to the WQS. If any species mean composite result exceed the WQS it will be considered nonsupporting. OR if a fish consumption advisory has been issued. |
| DATA AGE (for both conventional and toxic parameters) | STREAMS: Data collected from October 1, 2018, through September 30, 2023 (unless otherwise noted).<br>LAKES: All available data collected from October 2012 through September 2023.<br><br>Although the reporting cycle spans two years, that data age does not allow for sufficient temporal variability. Therefore, the above data ages will be used unless there is justification that the data are not representative of current conditions. | |

Table 4: Assessment Methodology for Nutrient-Related Narrative Standards for Applicable Wadeable Streams in Ecoregions 43 and 46

| | | |
|---|---|---|
| Are there at least 20 total phosphorus-nitrogen sample results in the assessment unit? | No | End assessment |
| Yes | | |
| Is the assessment unit located in Level III Ecoregions 43 or 46? | No | End Assessment |
| Yes | | |
| Is the assessment unit located in Level IV Ecoregion 46c? | Yes | End Assessment |
| No | | |
| Is the assessment unit considered wadeable? | No | End Assessment |
| Yes | | |
| Is the average total phosphorous or total nitrogen concentration above the targets? | No | End Assessment |
| Yes | | |
| Is an Invertebrate IBI and Fish IBI score calculated for the assessment unit? | No | Assign assessment unit to category 2N |
| Yes | | |
| Are both IBI scores > 50?<br><br>If one IBI score is <50 and one IBI score is >50, and a Habitat Condition Score is not available see special note:<br><br>If two IBI scores (>50) and one Habitat Condition score is calculated:<br><br>Are 2-of-3 scores meeting the impairment thresholds?<br>Invert and Fish IBI score >50<br>Habitat Condition score >50 | No | List as Nonsupporting<br><br>Special Note: If one IBI score is > 50 and the other IBI score is <50 then assign to category 2N.<br><br>* Category 2N Implies the Assessment unit requires the necessary Invertebrate IBI, Fish IBI and Habitat Condition scores to make a final support/impairment determination. It may also imply reassessment is necessary to make a final determination. |
| Yes | No | List as Nonsupporting |
| Assessment unit is not impaired. | | |

DANR is currently building a reference site network for wadeable-perennial streams in ecoregions 43 and 46. The reference site network will be used to establish water quality targets and criteria for making water quality-based decisions. In the interim, DANR relied on literature-based nutrient targets developed at a larger regional scale (Table 5). Nutrient targets were derived from data collected as part of EPA's National Aquatic Resource Surveys. Nitrogen and phosphorus targets were based on the 75$^{th}$ percentile of the reference site data within EPA nutrient regions which correspond to Ecoregions 43 and 46 in South Dakota (Herlihy and Sifneos 2008).

Table 5: Nutrient Targets for Streams in Ecoregions 43 and 46

| Nutrient Region | Level III Ecoregion in SD | Total Phosphorus mg/L | Total Nitrogen mg/L |
|---|---|---|---|
| Grass Plains | 43 | 0.087 | 0.93 |
| Temperate Plains | 46 | 0.18 | 2.5 |

A minimum of twenty samples collected in the most recent 5-year period were required to generate an average concentration to initiate the screening portion of the assessment. If the average nutrient concentration(s) exceeded the targets further evaluation was required using measures of ecological integrity. If macroinvertebrate and fish Index of Biotic Integrity (IBI) scores were not available the assessment unit was placed in user-defined subcategory 2N, indicating further assessment is required. An assessment unit was also placed in subcategory 2N if macroinvertebrate and fish IBI scores conflicted, and a Habitat Condition Index (HCI) score was not available. When IBI and/or HCI values were borderline (45-49) the water was also assigned to subcategory 2N to imply a reassessment will be conducted prior to a determination. A use support determination was not made for assessment units based solely on meeting the nutrient targets. DANR considers waters in subcategory 2N a top priority for ecological assessment.

Macroinvertebrate and fish community health provide the primary basis for determining attainment of applicable narrative standards. Macroinvertebrates and fish provide a more holistic representation of overall biotic health. Both communities integrate the effects of multiple stressors overtime at different trophic levels. An Index of Biotic Integrity (IBI) was developed for wadeable streams in ecoregions 43 and 46 following processes described in Whittier et al. (2007). An IBI integrates sensitive measures of community structure and function capable of discriminating between good and poor biological health. Core metrics scores are summed and scaled to provide a single IBI score that ranges from 100 to 0, with 100 being best condition. An IBI score of less than 50 was used to indicate poor biological health.

A quantified measure of habitat condition was also used as a line of evidence especially if the fish and macroinvertebrate IBI scores display conflicting status. Habitat condition can provide an indication of a stream's physical potential to support a healthy biological community. It can also identify factors that may be impacting narrative standards and designated uses. An HCI score was developed using core habitat metrics that highly correlated with fish and macroinvertebrate metrics. The HCI scoring convention was developed using the same processes used for IBI development (Whittier et al. 2007). The HCI scores are scaled from 100 to 0 to quantify overall habitat condition. An HCI score of less than 50 signifies poor habitat condition.

There has been no change in the status of 2N assessments from 2020-2023.Therefore, the 2N assessment information below is the same as what was supplied in the 2022 IR. Twenty-five stream assessment units met the criteria to be assessed for nutrient-related narrative standards in ecoregion 46 (Table 6). Twenty of the twenty-five assessment units had average nitrogen or phosphorus concentrations above the respective targets. Fourteen of the assessment units have

IBI and or HCI scores available. Twelve segments meet the criteria and are considered fully supporting and thirteen remain in Category 2N requiring further assessment.

**Table 6: Nutrient-related Assessment Status of Stream Assessment Units in Ecoregion 46 in Eastern, South Dakota**

| Assessment Unit Identifier (AUID) | TN or TP less than Target | IBI/HCI Available | Assessment Status |
|---|---|---|---|
| SD-BS-R-SKUNK_01 | NO | YES | Full Support |
| SD-BS-R-BIG_SIOUX_01 | YES | YES | Full Support |
| SD-BS-R-BEAVER_01 | NO | NO | Category 2N |
| SD-BS-R-MEDARY_01 | NO | NO | Category 2N |
| SD-BS-R-SIXMILE_01 | NO | NO | Category 2N |
| SD-BS-R-STRAYHORSE_01 | NO | NO | Category 2N |
| SD-JA-R-ELM_01 | NO | YES | Category 2N |
| SD-JA-R-FIRESTEEL_01 | NO | YES | Category 2N |
| SD-JA-R-MAPLE_01 | NO | NO | Category 2N |
| SD-JA-R-PIERRE_01 | NO | NO | Category 2N |
| SD-JA-R-TURTLE_01 | NO | NO | Category 2N |
| SD-JA-R-WOLF_01 | NO | YES | Full Support |
| SD-JA-R-WOLF_02 | NO | YES | Full Support |
| SD-JA-R-WOLF_SP_01 | NO | YES | Category 2N |
| SD-MN-R-LAC_QUI_PARLE_W_BR_01 | YES | NO | Full Support |
| SD-MN-R-LITTLE_MINNESOTA_01 | YES | NO | Full Support |
| SD-MN-R-WHETSTONE_01 | NO | YES | Full Support |
| SD-MN-R-WHETSTONE_N_FORK_01 | NO | NO | Category 2N |
| SD-MN-R-WHETSTONE_S_FORK_01 | YES | YES | Full Support |
| SD-MN-R-WHETSTONE_S_FORK_02 | NO | YES | Full Support |
| SD-MN-R-YELLOW_BANK_N_FORK_01 | NO | YES | Full Support |
| SD-MN-R-YELLOW_BANK_S_FORK_01 | YES | YES | Full Support |
| SD-VM-R-LONG_01 | NO | NO | Category 2N |
| SD-VM-R-VERMILLION_E_FORK_01 | NO | YES | Category 2N |
| SD-VM-R-VERMILLION_E_FORK_02 | NO | YES | Full Support |

Twenty-three stream assessment units met the criteria to be assessed for nutrient-related narrative standards in ecoregion 43 (Table 7). Twenty of the twenty-three assessment units had average nitrogen or phosphorus concentrations above the respective targets. Five assessment units have IBI and or HCI scores available. Five segments meet the criteria and are considered fully supporting and eighteen remain in Category 2N requiring further assessment.

**Table 7: Nutrient-related Assessment Status of Stream Assessment Units in Ecoregion 43 in Western, South Dakota**

| Assessment Unit Identifier (AUID) | TN or TP less than Target | IBI/HCI Available | Assessment Status |
|---|---|---|---|
| SD-BF-R-REDWATER_01 | NO | NO | Category 2N |
| SD-BF-R-WHITEWOOD_07 | NO | NO | Category 2N |
| SD-CH-R-CHEYENNE_02 | NO | YES | Full Support |
| SD-CH-R-CHEYENNE_03 | NO | NO | Category 2N |
| SD-CH-R-RAPID_04 | NO | NO | Category 2N |
| SD-CH-R-RAPID_05 | NO | NO | Category 2N |
| SD-GR-R-GRAND_01 | NO | NO | Category 2N |
| SD-GR-R-GRAND_03 | NO | NO | Category 2N |
| SD-GR-R-GRAND_N_FORK_01 | NO | NO | Category 2N |
| SD-GR-R-GRAND_S_FORK_01 | NO | YES | Category 2N |
| SD-GR-R-GRAND_S_FORK_02 | NO | NO | Category 2N |
| SD-LM-R-LITTLE_MISSOURI_01 | NO | YES | Full Support |
| SD-MI-R-CROW_01 | NO | NO | Category 2N |
| SD-MU-R-MOREAU_01 | NO | NO | Category 2N |
| SD-MU-R-MOREAU_03 | NO | NO | Category 2N |
| SD-MU-R-RABBIT_01 | NO | NO | Category 2N |
| SD-WH-R-LITTLE_WHITE_01 | NO | NO | Category 2N |
| SD-WH-R-WHITE_01 | NO | YES | Category 2N |
| SD-WH-R-WHITE_02 | NO | YES | Category 2N |
| SD-WH-R-WHITE_03 | NO | NO | Category 2N |
| SD-CH-R-BEAVER_01 | YES | NO | Full Support |
| SD-CH-R-FALL_01 | YES | NO | Full Support |
| SD-CH-R-RAPID_03 | YES | NO | Full Support |

Lake Assessment Methodology for Numeric Standards

DANR's Watershed Protection Program is responsible for lake water quality monitoring in South Dakota. Lake water quality data is generated from various projects and partnerships in accordance with project specific Quality Assurance Project Plans (QAPPs). Those documents are available at the web address in Appendix J, Reference #10. All applicable lake water quality data acquired from the following projects was used in the lake assessment process:

*Statewide Lakes Assessment Project*
Watershed Protection Program implements a targeted approach to monitor lakes in the state. All lakes with AUIDs represent the core population. The current goal is to sample 35 lakes per year at a minimum of three times during the growing season. Annual lake selection is based on priority criteria and a tiered approach to allow flexibility. More information is available at the web address provided in Appendix J, Reference #11.

*Regional Rotating Basin Assessment Project*
The goal of the Regional Rotating Basin Assessment Project is to monitor all lake and stream AUIDs over a ten-year period. A document describing the project is expected to be available on the Watershed Protection Program website in early 2024 at the web address provided in Appendix J, Reference #12. Lakes in the Belle Fourche and Upper Cheyenne Basins were monitored three times annually (May-September) during the 2022 and 2023 growing seasons by DANR staff as part of Rotation 2. Rotation 3 is scheduled to begin in western South Dakota in the spring of 2024 and will include multiple basins.

*Volunteer Monitoring Project*
The South Dakota Discovery Center and Watershed Protection Program coordinate a water quality monitoring program for volunteers. Funding assistance, recruitment and coordination is provided by the Discovery Center and the Watershed Protection Program provides oversight and technical assistance. More information is available at the web address provided in Appendix J, Reference #13.

*Section 319 Nonpoint Source Assessment Projects and External Data*
Water quality data for lakes and streams may be generated from Section 319 NPS implementation projects. Water quality monitoring is generally conducted on a site-specific basis within a project area to evaluate BMP effectiveness. Water quality data is also used when available from external sources (i.e., outside entities) if data meets QA requirements in accordance with DANR's external party QAPP. The external party QAPP is available at the web address in Appendix J, Reference #14.

Conventional Numeric Water Quality Standards Assessment

Water quality parameters collected during monitoring efforts are generally consistent with numeric standards assigned to protect designated beneficial uses of lakes (ARSD 74:51:02). Water quality data is comprised of parameters associated with water samples (nitrate, ammonia-N, total suspended solids, total dissolved solids, alkalinity, and *E. coli*) and water column profile measurements (water temperature, dissolved oxygen, specific conductance, and pH; refer to Table 2). Chlorophyll-a is also collected in conjunction with nutrients (nitrogen and phosphorus) to address nutrient-related narrative standards. Numeric water quality standards are used as benchmarks to make support determinations and 303(d) impairment decisions. Lake assessments were conducted in accordance with the following minimum criteria:

*Minimum assessment criteria for conventional numeric water quality standard criteria*

- Two years of data available within the 10-year assessment period (10/1/2012 to 10/1/2023).
- At least two individual sample events per year.
- 10% exceedance ≥ 20 samples or 3 exceedances when *10-19 samples available.
- Toxic parameters (i.e., Ammonia-N); more than one exceedance in a three-year period.

* When <10 samples were available an assessment decision was based on overwhelming evidence:

- Meet criteria; 0 to 1 exceedance when 5 to 9 samples available.
- Insufficient data; 2 exceedances when 5 to 9 samples available or < 5 samples available.
- Criteria not met; 3 exceedances when 5 to 9 samples available.

If an assessment decision could not be reached, the waterbody is considered for future monitoring in the interim of the next IR cycle. This applies mainly to water sample-based parameters (i.e., *E. coli*) as water column profile measurements are collected at a higher rate (multiple measurements) during individual lake visits.

Water column profile data is pooled from multiple stations and assessed in accordance with minimum assessment criteria. Surface temperature and pH values are not included in the cumulative profile datasets to avoid anomalous values associated with environmental conditions at the air-water interface. In addition, bottom dissolved oxygen measurements in shallow well-mixed lakes were excluded from the assessment to avoid anomalous values associated with the sediment-water interface. For deeper, thermally stratified lakes, dissolved oxygen measurements were evaluated exclusively within the epilimnion and metalimnion (ARSD 74:51:01:45-51).

If thermal stratification was not well defined, an alternate process was used to define the epilimnetic zone. In such instances, the epilimnion was determined by identifying the depth of the water column above the greatest thermal variation as defined by a change of greater than 1°C per meter (Wetzel, 2001). The water column above this zone of temperature deviation was considered representative of the epilimnion and metalimnion.

Nutrient-Related Narrative Standards Assessment

Nitrogen and phosphorus are essential nutrients in aquatic food webs. Aquatic organisms such as blue-green algae require nitrogen and phosphorus for growth and maintenance. Blue-green algae can reach nuisance bloom levels when excessive nutrient loading occurs from internal (in lake) and external (watershed) nonpoint sources. Blue-green algae blooms can directly impact aquatic life and recreation with implications to human, pet and livestock health (i.e., cyanotoxins). More information is provided at the web address in Appendix J, Reference #15.

South Dakota has several narrative water quality standards (ARSD Sections 74:51:01:05, 74:51:01:06, 74:51:01:08, and 74:51:01:012) designed to protect beneficial uses of surface waters from nutrient-related impacts. Narrative standards lack numeric targets and criteria necessary to make beneficial use support determinations and impairment decisions. Thus, a quantitative assessment methodology was developed to assess nutrient-related narrative standards and associated aquatic life and recreation uses designated to lakes.

*Chlorophyll-a targets-rationale and linkage*

DANR collaborated with EPA Region 8 nutrient team and Tetra Tech Inc., to develop protective nutrient-related targets and assessment criteria for lakes in South Dakota. Target development

focused on algae response to nutrients (i.e., nitrogen and phosphorus). Chlorophyll-*a* provides a surrogate for algae production. It is cost effective to collect and process and is an important predictor of bloom density and blue-green algae dominance. Chlorophyll-*a* is directly linked to nutrient pollution and impacts to nutrient-related narrative standards and associated designated aquatic life and recreation uses of waters.

*Regional Chlorophyll-a Targets*

Waterbodies were classified based on similarities in nutrients and nutrient response (i.e., blue-green algae density and dominance) in relation to physical factors at the lake and watershed scale to minimize natural variability among waterbodies across the state. Classification resulted in grouping waterbodies into 3 distinct classes; Black Hills Lakes, Western Lakes and Eastern Lakes which closely follow Level III ecoregions (Appendix E). In general, Black Hills Lakes have lower nutrient concentrations and associated productivity than waterbodies west and east of the Missouri River (i.e., nutrient gradient). Waterbodies east of the Missouri River are the most productive systems capable of producing significant blue-green algae blooms at relatively high frequency.

Numeric chlorophyll-a targets and criteria were developed for each regional lake class. Chlorophyll-a targets are expressed as a growing season average despite the use of median in target development (Black Hills and Western Lake classes). In general, growing season median and average values among lakes in all classes were similar. When the two measures deviate significantly, the median values tend to be lower suggesting the average criterion is protective of median derived targets. A decision was made to use the average growing season criterion as the basis to assess chlorophyll-*a* for each lake class to maintain consistency.

Black Hills Lakes-Level III Ecoregion 17

Chlorophyll-*a* targets for Black Hills lakes were derived using a reference condition approach. This approach is discussed in greater detail in South Dakota's 2020 IR and is available at the web address provided in Appendix J, Reference #16.

Black Hills lakes were classified as large or small based on physical characteristics (size, depth, and retention time). Chlorophyll-*a* targets were based on median growing season values calculated from reference lakes in each size class:

- Large waterbodies: average growing season chlorophyll-*a* $\leq$ 7 µg/L.
- Small waterbodies: average growing season chlorophyll-*a* $\leq$ 8 µg/L.

The Black Hills Lake targets are designed to protect waterbodies designated with cold water fish life and recreation uses from nutrient-related impacts. Average growing season chlorophyll-a targets for Black Hills Lakes correspond to low algae production with minimal blue-green algae composition and very low risk of cyanotoxin production. During the 2024 reporting cycle five lakes in the Black Hills class did not meet nutrient-related narrative standards associated with designated aquatic life and recreation uses due to chlorophyll-*a*. One lake had insufficient information for chlorophyll-a.

Western Lakes-Level III Ecoregions 25, 43, 44

The Western Lakes chlorophyll-a target was derived from the interquartile range of a subset of lakes in the population considered to have low bloom frequency characteristics as defined by

chlorophyll-*a* concentrations where <25% of the values exceed a bloom level of 30 µg/L. More information is available at the web address provided in Appendix J, Reference #16.

- Western Lakes: average growing season chlorophyll-*a* ≤ 14 µg/L.

The Western Lakes chlorophyll-*a* target intends to protect waterbodies designated with warmwater fish life propagation and recreation uses from experiencing frequent algae blooms dominated by blue-green algae and maintaining low risk cyanotoxin production. During the 2024 reporting cycle, one lake in the Western class did not meet nutrient-related narrative standards associated with designated aquatic life and recreation uses due to chlorophyll-*a*. Two lakes in the Western class were insufficient information (INS) for chlorophyll-a for the 2024 reporting cycle.

Eastern Lakes-Level III Ecoregions 42, 46, 47

Data analysis efforts (i.e., stressor-response analysis) did not yield a definitive chlorophyll-a target for the Eastern Lakes class. The response of chlorophyll-*a* to nutrients across the total population was abated by variation from other factors at the lake and watershed scale (size, depth, wind-waves, abiotic turbidity, light attenuation, N:P, watershed size, lake: watershed ratio). Several analysis techniques were used to correct for these sources of variation. Results provided a range of potential targets (i.e., 6 to 50 µg/L) which was used in the final decision process.

During the target development process, significant emphasis was placed on a chlorophyll-*a* concentration of 30 µg/L. A chlorophyll-a concentration of 30 µg/L indicates a moderate bloom level with increased incidence of blue-green algae domination and moderate risk of cyanotoxin production (MPCA, 2005, WHO, 2003 and Downing et al. 2001). An average growing season chlorophyll-a concentration above 30 µg/L can indicate frequent occurrence of blue-green algae blooms and moderate to high risk of cyanotoxin. The goal was to set an average growing season chlorophyll-a target for Eastern Lakes below 30 µg/L.

Chlorophyll-a targets for Eastern Lakes were adopted from criteria developed by the Minnesota Pollution Control Agency (MPCA). More information is available at the web address provided in Appendix J, Reference #17. MPCA's regional nutrient criteria and targets were developed using a robust multiple line of evidence approach. MPCA's chlorophyll-*a* targets for waterbodies in the Northern Glaciated Plains (NGP) ecoregion (46) were considered applicable to the Eastern Lakes class due to similarities observed during the classification process. DANR used MPCA's rationale and chlorophyll-a targets for waterbodies in the NGP as the basis for setting protective targets for the Eastern Lakes class:

- Deep lakes (>15' max depth): average growing season chlorophyll-*a* ≤ 20 µg/L.
- Shallow lakes (≤15' max depth): average growing season chlorophyll-*a* ≤ 25 µg/L.

Eastern Lakes chlorophyll-*a* targets intend to protect waterbodies designated with warmwater fish life propagation and recreation uses from experiencing frequent algae blooms dominated by blue-green algae at densities consistent with low to moderate risk of cyanotoxin production. During the 2024 reporting cycle, 37 lakes in the Eastern class did not meet nutrient-related narrative standards associated with designated aquatic life and recreation uses due to chlorophyll-*a*.

An average growing season chlorophyll-a target of < 10 µg/L was used for waterbodies designated the Domestic Water Supply use unless a more stringent target was available (i.e., Black Hills lakes) (2020 IR).

The following defines the minimum criteria used to assess waterbodies for nutrient-related narrative standards using regional numeric chlorophyll-a targets:

- Indicator: Chlorophyll-*a* (corrected for pheophytin)
- Growing season: defined as May 1st to September 30th.
- Average growing season: calculated from a minimum of 3 samples collected throughout the growing season.
- Nonsupport: occurs when two or more average growing season chlorophyll-a values exceed the regional target in a 10-year assessment period.
- Applicable beneficial uses: warm and coldwater aquatic life propagation, recreation and domestic water supply uses.

Microcystin and Cylindrospermopsin-Recreation Assessment

Many species of blue-green algae can produce toxins (cyanotoxin) which can be harmful to human health. The Watershed Protection Program integrated cyanotoxin monitoring into lake assessment projects during the 2020 field season and beyond to better understand the prevalence of HABs in recreation waters. More information is available at the web address provided in Appendix J, Reference #18.

Cyanotoxin monitoring results are presented in an interactive HABs web map to provide water resource managers and the public with data to inform recreation-based decisions and response pathways. The web map is available at the web address provided in Appendix J, Reference #19.

EPA recently finalized "Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin." The document is available at the web address provided in Appendix J, Reference #20. DANR adopted EPA recommended standards and criteria for Microcystin and Cylindrospermopsin to protect waters designated the immersion and limited contact recreation uses (ARSD 74:51:01:50-51). The web address to ARSD 74:51:01:50-51 is available at the web address provided in Appendix J, Reference #21-22.

- * Microcystin $\leq$ 8 µg/L
- * Cylindrospermopsin $\leq$ 15 µg/L

*Not to be exceeded in more than three 10-day assessment periods over the course of the recreation season.

EPA also finalized guidance to assist states and authorized tribes with implementing cyanotoxin standards and criteria to protect recreation based human health. The document provides flexible recommendations for using monitoring data and information (i.e., advisories-notifications) to make 303(d) listing decisions. This guidance document is available at the web address located in Appendix J, Reference #23. The following methodology was derived from recommendations described in the document with a focus on magnitude, duration and frequency criteria (Table 8).

## Table 8: Recreation-based Lake Assessment Criteria for Microcystin and Cylindrospermopsin

| Microcystin Magnitude (µg/L) | Cylindrospermopsin Magnitude (µg/L) | Duration | Frequency |
|---|---|---|---|
| 8 | 15 | 1 in 10-day assessment period across recreation season | Not more than 3 excursions in a recreation season in more than 3 years within a 10-year assessment period |

An excursion is defined as a 10-day assessment period with a single toxin concentration or sample exceeding the standard. An excursion is also synonymous with notifications (i.e., advisories) which are posted on the Watershed Protection Programs HABs web page and interactive web map. The assessment method was designed to account for variability in blue-green algae blooms and associated toxin production within and between years. The frequency and duration components provide an indication of excursion pattern within a recreation season across multiple years. Waterbodies designated the immersion and limited contact recreation uses are considered impaired if three excursions occur during the growing season in more than three years within a 10-year assessment period. No waterbodies were assessed during the 2024 reporting period because microcystin and cylindrospermopsin monitoring results have only been available since the 2020 growing season.

Assessment Categories

South Dakota uses assessment categories recommended by EPA. DANR added user-defined subcategories 2N and 2Hg. South Dakota's assessment categories are described below:

| | |
|---|---|
| Category 1: | All designated uses are met (supporting); |
| Category 2: | Attaining some of the designated uses and insufficient information or no data is available to determine if the remaining uses are attained (supporting); |
| Subcategory 2N: | Additional data is required to determine if nutrient-related narrative standards are met; |
| Subcategory 2Hg: | Meets water quality criterion for mercury in fish tissue, but has insufficient data to determine if remaining uses are met (supporting); |
| Category 3: | Insufficient data to determine whether any designated uses are met; |
| Category 4A : | Water is impaired but has an EPA approved TMDL (insufficient or not assessed); |
| Category 4B: | An impairment caused by a pollutant is being addressed by the state through other pollution control requirements (not supporting); |
| Category 4C: | Water is impaired by a parameter that is not considered a "pollutant" (not supporting); and |
| Category 5: | Water is impaired and a TMDL is needed (not supporting). |

Beneficial use support determinations made by South Dakota for border waters may differ from determinations made by bordering states. States may have different beneficial uses and applicable water quality standards assigned to waterbodies. In addition, differences in monitoring strategy, assessment methodology, and other factors may affect the support determination. DANR coordinates with border states to address water quality concerns.

## STATEWIDE SURFACE WATER QUALITY SUMMARY

6,148 miles of rivers and streams have been assessed to determine water quality status for a period covering the last five years (October 2018 through September 2023). The five-year time span is necessary to ensure enough data points are available for each stream segment to properly characterize existing stream conditions and adequately portray the natural variability in water quality. EPA Category 3 waters (not assessed or insufficient information to determine support) are included in Attains and in the basin tables in Appendix C but are not included in the state's summary data of assessed waters because they have not actually been assessed.

Currently, 21.9% of the assessed stream miles (1,349 miles) fully support their assigned beneficial uses and are in EPA Category 1 or 2. 78.1% of stream miles (4,799 miles) do not support one or more uses and are in EPA Category 4 or 5. Table 9 contains a summary of this information.

Table 10 lists waterbody beneficial uses and the percent of South Dakota rivers and streams that are supporting those uses. Immersion recreation and limited contact recreation uses were met for approximately 45% and 50% of stream miles. The irrigation use was fully supporting for approximately 77% of stream miles. Coldwater and warmwater fish life support ranged from 36% to 97% of river miles based on the specific beneficial use.

Nonsupport (EPA Category 4 and 5) in assessed streams was caused primarily by *E. coli* bacteria from nonpoint sources and wildlife. In order of stream miles affected, causes of impairment this reporting cycle include: *E. coli,* TSS, sodium adsorption ratio (salinity), mercury in fish tissue, total dissolved solids, specific conductivity, dissolved oxygen, temperature, pH, and total selenium (one stream less than one mile).

Natural sources of dissolved and suspended solids are exemplified by erosive soils that occur in the western South Dakota Badlands, by considerable exposed marine shale formations that occur within the Missouri River Basin, and by large areas of highly erodible loess soils in southeastern South Dakota. Storm events that produce moderate to significant amounts of precipitation contribute to suspended sediment problems over large areas of the state, particularly in the west and southeast. *E. coli* concentrations also increase significantly during times of precipitation and runoff events. Appropriate best management practices should be applied to treat the sources of these and other parameters whose effects are likely to be masked during periods of low precipitation.

One hundred percent of stream miles that were assessed for alkalinity, ammonia, arsenic, cadmium, chloride, chromium, copper, cyanide, lead, mercury, nickel, nitrate, radium, silver, uranium, sulfate, and zinc, met associated water quality standards. This information is provided in Table 11.

Table 9: 2024 Category Status for Rivers and Streams in South Dakota

| 2024 | | |
|---|---|---|
| EPA Category | Total Size (miles) | Number of Assessment Units |
| 1 | 1,099 | 56 |
| 2 | 250 | 5 |
| 3 | 185 | 7 |
| 4A | 1,001 | 27 |
| 4B | 0 | 0 |
| 4C | 0 | 0 |
| 5 | 3,798 | 89 |

**Table 10: 2024 Rivers and Streams Beneficial Use Status Percent (Stream Miles)**

| Use | Supporting | Nonsupporting |
|---|---|---|
| (1) Domestic Water Supply | 83.0% | 17.0% |
| (2) Coldwater Permanent Fish Life | 61.7% | 38.3% |
| (3) Coldwater Marginal Fish Life | 96.7% | 3.3% |
| (4) Warmwater Permanent Fish Life | 44.1% | 55.9% |
| (5) Warmwater Semipermanent Fish Life | 36.4% | 63.6% |
| (6) Warmwater Marginal Fish Life | 78.6% | 21.4% |
| (7) Immersion Recreation | 45.5% | 54.5% |
| (8) Limited Contact Recreation | 50.3% | 49.7% |
| (9) Fish, Wildlife Prop, Rec and Stock Watering | 85.2% | 14.8% |
| (10) Irrigation | 76.9% | 23.1% |
| (11) Commerce and Industry | 100% | 0% |

Table 11: 2024 Parameters Supporting Uses for Streams

| Parameter | Stream Miles Not Supporting | Stream Miles Supporting | Number of Streams Not Supporting | Number of Streams Supporting | Percent Miles Supporting |
|---|---|---|---|---|---|
| Alkalinity | 0 | 962.9 | 0 | 41 | 100 |
| Ammonia | 0 | 5744.8 | 0 | 163 | 100 |
| Arsenic | 0 | 523.1 | 0 | 25 | 100 |
| Cadmium | 0 | 233.0 | 0 | 17 | 100 |
| Chloride | 0 | 146.0 | 0 | 5 | 100 |
| Chromium | 0 | 233.0 | 0 | 17 | 100 |
| Copper | 0 | 233.0 | 0 | 17 | 100 |
| Cyanide | 0 | 16.5 | 0 | 4 | 100 |
| Lead | 0 | 233.0 | 0 | 17 | 100 |
| Mercury, Total | 0 | 233.0 | 0 | 17 | 100 |
| Nickel | 0 | 233.0 | 0 | 17 | 100 |
| Nitrate | 0 | 5669.0 | 0 | 164 | 100 |
| Radium | 0 | 290.1 | 0 | 8 | 100 |
| Selenium, dissolved** | 0 | 2207.9 | 0 | 79 | 100 |
| Silver | 0 | 233.0 | 0 | 17 | 100 |
| Sulfate | 0 | 146.0 | 0 | 5 | 100 |
| Zinc | 0 | 233.0 | 0 | 17 | 100 |
| Uranium | 0 | 253.7 | 0 | 6 | 100 |
| pH | 18.3 | 5868.5 | 2 | 169 | 99.7 |
| Temperature | 63.4 | 5776.0 | 3 | 164 | 98.9 |
| Dissolved Oxygen | 434.2 | 5353.8 | 12 | 155 | 92.5 |
| Specific Conductivity | 447.6 | 5496.1 | 8 | 165 | 92.5 |
| Total Dissolved Solids | 501.2 | 5263.0 | 10 | 156 | 91.3 |
| Selenium, total** | 0.74 | 0 | 1 | 0 | * |
| Salinity/ Sodium Adsorption Ratio | 1039.3 | 3399.9 | 13 | 81 | 76.6 |
| Total Suspended Solids | 2108.7 | 3756.2 | 50 | 121 | 64.0 |
| Mercury in Fish Tissue | 554.8 | 769.4 | 6 | 14 | 58.1 |
| *Escherichia coli* | 3,064.8 | 2596.5 | 81 | 81 | 45.9 |

Mileage values were generated by ATTAINS and the values were rounded to the nearest whole number. If a stream segment was impaired for multiple beneficial uses, the mileage associated with the stream segment was only counted once. *Only one stream reach (with known issues) was analyzed for total selenium. **Total selenium is the chronic criterion and dissolved selenium is the acute criterion.

South Dakota has 577 lakes and reservoirs listed in ARSD Chapter 74:51:02 with specific aquatic life and recreation beneficial uses. These lakes total approximately 249,009 acres. GF&P presently manages approximately 500 lakes for recreational fishing. The 2024 IR contains assessments for 171,110 lake acres using water quality data collected from October 2012 through September 2023.

Excluding the four Missouri River reservoirs, an estimated 31% of the lakes and reservoirs have been assessed, accounting for 71% of the total lake acreage. An estimated 20% of the lake acreage was considered to support all assessed beneficial uses. These waterbodies are in EPA Category 1 or 2. Eighty percent of lake acreage did not support one or more beneficial uses. These waterbodies are in EPA Category 4 or 5. Table 12 provides a summary of this information.

Table 13 provides a list of waterbody beneficial uses and the percent of supporting lake acres. Fifty percent of lake acres assessed fully support the immersion recreation and limited contact beneficial uses. Domestic water supply and irrigation beneficial uses were fully supporting for over 80% of lake acres. Coldwater and warmwater fish life use support had a broader range of support based on each beneficial use.

Considering approximately 71% of lake acres assessed for mercury in fish tissue do not meet the water quality criterion, it is logical that the percentage of lakes acres meeting all uses will decline as more lakes are assessed for mercury in fish tissue. While many factors influence mercury methylation and bioaccumulation rates, the sources of mercury in fish tissue are mostly atmospheric deposition from sources outside of South Dakota. DANR completed and received final EPA approval for a statewide mercury TMDL, which included 75 waters not supporting the mercury in fish tissue standard. Based on lake acreage, the primary causes of nonsupport are mercury in fish tissue, chlorophyll-*a*, *E. coli* bacteria, pH, dissolved oxygen, salinity/SAR, and temperature. In general, nonsupport is attributed to nonpoint source pollution while temperature and salinity/SAR are attributed to natural sources. One hundred percent of the assessed lake acreage met water quality criteria for alkalinity, ammonia, and total suspended solids, and nearly 100% of acres met criteria for specific conductance, total dissolved solids, and nitrates. Waterbody parameter support is available in Table 14.

Table 12: 2024 Category Status for Lakes in South Dakota

| 2024 | | |
|---|---|---|
| EPA Category | Total Size (acres) | Number of Assessment Units |
| 1 | 33,814 | 31 |
| 2 | 4,747 | 15 |
| 3 | 7,820 | 10 |
| 4A | 60,027 | 47 |
| 4B | 0 | 0 |
| 4C | 0 | 0 |
| 5 | 72,521 | 87 |

The general statistics reported are intended to characterize category status and causes of nonsupport for the 2024 reporting cycle. DANR has moved away from a random design for the statewide lake assessment to a more targeted approach assisted by the rotating basin approach. With these changes in sampling design, DANR will be better able to make support determinations on lakes and reduce the number of lakes that are not assessed or have insufficient data (Category 3).

### Table 13: 2024 Lakes Beneficial Use Status Percent (Acres)

| Use | Supporting | Nonsupporting |
|---|---|---|
| (1) Domestic Water Supply | 89.4% | 10.6% |
| (2) Coldwater Permanent Fish Life | 2.5% | 97.5% |
| (3) Coldwater Marginal Fish Life | 0.0% | 100% |
| (4) Warmwater Permanent Fish Life | 29.3% | 70.7% |
| (5) Warmwater Semipermanent Fish Life | 18.9% | 81.1% |
| (6) Warmwater Marginal Fish Life | 22.2% | 77.8% |
| (7) Immersion Recreation | 50.4% | 49.6% |
| (8) Limited Contact Recreation | 51.2% | 48.8% |
| (9) Fish, Wildlife Prop, Rec and Stock Watering | 38.9% | 61.1% |
| (10) Irrigation | 82.5% | 17.5% |

Most lakes and reservoirs in the state are characterized as eutrophic to hypereutrophic. They tend to be shallow, turbid, and well-supplied with dissolved salts, nutrients, and organic matter. These lakes have sizeable watersheds of nutrient-rich glacial soils that are extensively developed for agriculture. Runoff carrying sediment and nutrients from agricultural land is the most significant source of nonpoint pollution.

Table 14: 2024 Parameters Supporting Uses for Lakes

| Parameter | Acres Not Supporting | Acres Supporting | Lakes Not Supporting | Lakes Supporting | Percent Acres Supporting |
|---|---|---|---|---|---|
| Alkalinity | 0 | 132,041 | 0 | 107 | 100 |
| Ammonia | 0 | 125,874 | 0 | 100 | 100 |
| Total Suspended Solids | 0 | 136,704 | 0 | 110 | 100 |
| Specific Conductivity | 50 | 140,712 | 1 | 107 | 99.9 |
| Total Dissolved Solids | 50 | 136,464 | 1 | 106 | 99.9 |
| Nitrate | 50 | 126,110 | 1 | 100 | 99.9 |
| Temperature | 2599 | 130,252 | 19 | 98 | 98.0 |
| Dissolved Oxygen | 8730 | 134,451 | 23 | 101 | 93.8 |
| pH | 15,474 | 125,624 | 25 | 96 | 89.0 |
| *Escherichia coli* | 2441 | 128,825 | 6 | 89 | 98.1 |
| Chlorophyll-a | 62,362 | 60,433 | 49 | 50 | 49.2 |
| Mercury in Fish Tissue | 103,655 | 33,723 | 71 | 48 | 24.5 |
| Selenium | 50 | 0 | 1 | 0 | 0 |
| Salinity/SAR | 5160 | 0 | 1 | 0 | 0 |

Acreage values are generated by ATTAINS and are rounded to the nearest whole number. If a lake was impaired for multiple beneficial uses, the lake acreage was only counted once.

## LAKE WATER QUALITY ASSESSMENT

A total of 577 lakes and reservoirs are currently designated with the beneficial uses of recreation and/or warmwater or coldwater fish life use in South Dakota. Forty-six assessed lakes in South Dakota have a surface area greater than 1,000 acres and have a combined surface area of 147,070 acres. A decrease in the assessed acres from the last IR cycle is attributed to recalculating acres for lakes based on new imagery. Lake monitoring and assessment efforts have been conducted routinely since 1989 as part of the DANR's SWLA project. Additional lake data have also been acquired from individual assessment projects and citizens' monitoring efforts. Approximately 31% of the 577 lakes have been assessed, accounting for 71% of the total lake acreage.

Water quality standards were evaluated for each lake in accordance with applicable assessment methodologies. The assessment results suggest 46 lakes fully support all assessed beneficial uses and 134 failed to support one or more beneficial uses. Ten lakes had insufficient data to determine use support.

The low number of lakes and reservoirs meeting all assigned beneficial uses is mostly due to mercury in fish tissue. Prior to the 2016 reporting cycle, only 18 lakes were considered nonsupporting for mercury based on fish consumption advisories. In 2016, DANR adopted EPA's mercury in fish tissue criterion of 0.3 mg/kg. In 2020, 15% of lake acres assessed supported aquatic life uses for mercury in fish tissue. In 2022, DANR worked with EPA to improve the assessment methodology to better follow EPA guidance. This update in methodology resulted in a greater number of lake acres (29.4%) meeting the mercury in fish tissue water quality criterion than in previous cycles. Due to all lake acres being updated with new imagery during the 2024 IR cycle, the percent meeting mercury in fish tissue for lake acres is now 24.5%. The change in

beneficial use support for mercury in fish tissue is attributable to changes in the assessment of the data, not actual changes in mercury in the environment or in fish tissue. DANR received EPA approval for a statewide mercury TMDL in 2016, which included 75 waters not supporting mercury in fish tissue. The TMDL documented that the primary source of mercury in South Dakota comes from global atmospheric deposition. Therefore, the high incidence of nonsupport for lakes is not likely to improve until measures to reduce mercury are implemented at a global scale. DANR has provided addendums to the TMDL to include waterbodies that were not included in the 2016 approval.

Another main cause of nonsupport continues to be excessive algae due to nutrient enrichment from watershed scale nonpoint sources and internal loading. Half of lake acres assessed are nonsupporting for chlorophyll-a. Dissolved oxygen problems are caused by excess plant and microbial life decaying and respiring during the night. 6.2% of lake acres are impaired for dissolved oxygen. Likewise, high pH above 9.0 may indicate nutrient problems related to excess productivity. Approximately 11.0% of lake acres assessed have been shown to have high pH problems.

A Trophic State Index (TSI) approach was used to determine the trophic (productivity) status of assessed lakes (Carlson, 1977). The primary trophic state indicators are phosphorus, Secchi depth transparency, and chlorophyll-a. Carlson (1991) suggests the chlorophyll-a index (TSI Chl-a) provides the best measure of lake productivity and trophic state. The average chlorophyll-a value for each water body was used to classify the trophic status of assessed lakes and reservoirs in South Dakota. One hundred thirty-nine lakes were assessed based on two years of data in the past 10 years during the growing season (Table 15). The TSI Chl-a classification scale used for South Dakota can be seen in Table 16.

Table 15: Trophic Status of Assessed Lakes

| Chl-a ug/L | Classification | | Number of Lakes | Lake acreage |
|---|---|---|---|---|
| 0-2.6 | Oligotrophy | O | 4 | 879.92 |
| 2.6-7.3 | Mesotrophy | M | 18 | 21,626.12 |
| 7.3-56 | Eutrophy | E | 95 | 103,728.68 |
| > 56 | Hypereutrophy | H | 22 | 28,167.68 |

## Table 16: Chlorophyll a Trophic State Descriptions

| Chl a (ug/L) | Attributes |
|---|---|
| <0.95 | **Oligotrophy:** Clear water, oxygen throughout the year in the hypolimnion |
| 0.95-2.6 | Hypolimnion of shallower lakes may become anoxic |
| 2.6-7.3 | **Mesotrophy:** Water moderately clear; increasing probability of hypolimnetic anoxia during summer |
| 7.3-20 | **Eutrophy:** Anoxic hypolimnia, macrophyte problems possible |
| 20-56 | Blue-green algae dominate, algal scums and macrophyte problems |
| 56-155 | **Hypereutrophy:** (light limited productivity) dense algae and macrophytes |
| >155 | Algal scums, few macrophytes |

(RMBEL https://www.rmbel.info/tsi/ ) After Moore, 1. And K. Thornton, [Ed.]1988. Lake and Reservoir Restoration Guidance Manual. USEPA>EPA 440/5-88-002.

The major water quality problems in South Dakota lakes continue to be excessive nutrients, and algae due to nonpoint source pollution (primarily agricultural). Nonpoint source runoff and internal phosphorus cycling continues to negatively impact the trophic state of many lakes. Aging reservoirs have also become more eutrophic as many are now approaching their expected life spans. Water quality degradation due to acid precipitation, acid mine drainage, or toxic pollutants, is presently not a problem in South Dakota lakes.

Acid Effects on Lakes

During lake water quality assessments, each lake is measured for field pH. Monitoring efforts from 2012 to 2023 suggest none of the assessed lakes had acidic pH conditions (Table 17). DANR is not aware of any lakes in South Dakota that are currently impacted by acid deposition. The lack of acidity in South Dakota lakes is attributed to a lack of industrialization and the natural buffering capacity of the soils.

## Table 17: Acid Effects on Lakes

| | Number of Lakes | Acreage of Lakes |
|---|---|---|
| Assessed for pH | 120 | 138,871 |
| Impacted by Acidity (<6.5) | 0 | 0 |
| Vulnerable to Acidity (<6.5) | 0 | 0 |

Trends in Lake Water Quality

The trophic state of a lake can be monitored over time to track changes in water quality for prioritizing management decisions. Long-term trends were determined for South Dakota lakes using growing season (May-September) chlorophyll-a data available from 1989 to 2023. One hundred twenty-six lakes were evaluated for Trophic State Index chlorophyll-a trends. The average chlorophyll-a values were calculated by lake for each year. Lakes with at least five years of data were evaluated for trends by calculating the slope of the linear regression for all chlorophyll-a values recorded for each lake. Of the 126 lakes that were evaluated, three declined over the time period (Table 18). The trend in lake growing season chlorophyll-a is not expected to change significantly in the interim of an IR cycle due to the lack of new data and short timeframe.

Table 18: Long Term Trends in Assessed Lakes (1989-2023)

| | Number of Lakes | Lake Acreage |
|---|---|---|
| Assessed for Trends | 126 | 138,544 |
| Improving | 0 | 0 |
| No Trend | 123 | 136,562.57 |
| Degrading | 3 | 1,981.43 |

## STATE-SCALE STATISTICAL SURVEYS

DANR has participated in the National Aquatic Resource Survey since 2007 when the initial lakes survey was conducted. The NARS are statistically designed to assess the status of and changes in the water quality of several different aquatic resource types. Lakes and reservoirs are assessed through the National Lakes Assessment (NLA) whereas the rivers and stream are assessed through the National Rivers and Streams Assessment (NRSA). The large scale of these statistical surveys requires a significant collaborative effort involving EPA, states and tribes, and because of this scale, they are completed only every five years. Data collection for the NLA takes place over one field work season while the NRSA requires two field seasons for completion. These surveys are designed so that selected sites can be used to characterize the entire population at a national and ecoregional scale using chemical, physical, biological, and human health indicators. They are not intended to assess the condition of individual lakes or rivers.

The NLA target population includes all permanent waterbodies, natural and man-made, with a surface area greater than 2.47 acres (1 hectare). The NRSA target population consists of all perennial rivers and streams within the 48 contiguous states that have flowing water during the study index period. The study index period extends from May to September and is generally characterized by low flow conditions. The most recent version of the National Hydrography Dataset was used to randomly select sites. The technical documents describing the survey designs in more detail can be found on the NARS website available in Appendix J, Reference #24.

Although the sites are selected randomly, there is also a spatial element involved in the selection process to ensure the density of selected sites, i.e., lakes or stream segments, reflects the spatial

pattern (or density) of the resource. This means the sites selected are also dependent on the proximity of other sites relative to the geographic density of the resource.

On a national scale, NARS survey results are estimated to be at a 95% level of confidence. State-scale statistical survey results, however, are estimated to be at a 90% level of confidence. A much greater number of sites are available on the national scale for assessing water quality indicators than are available in South Dakota, which accounts for the difference in the level of confidence between the national and state scale surveys. Reporting at 90% helps states to achieve a reasonable margin of error for state scale results.

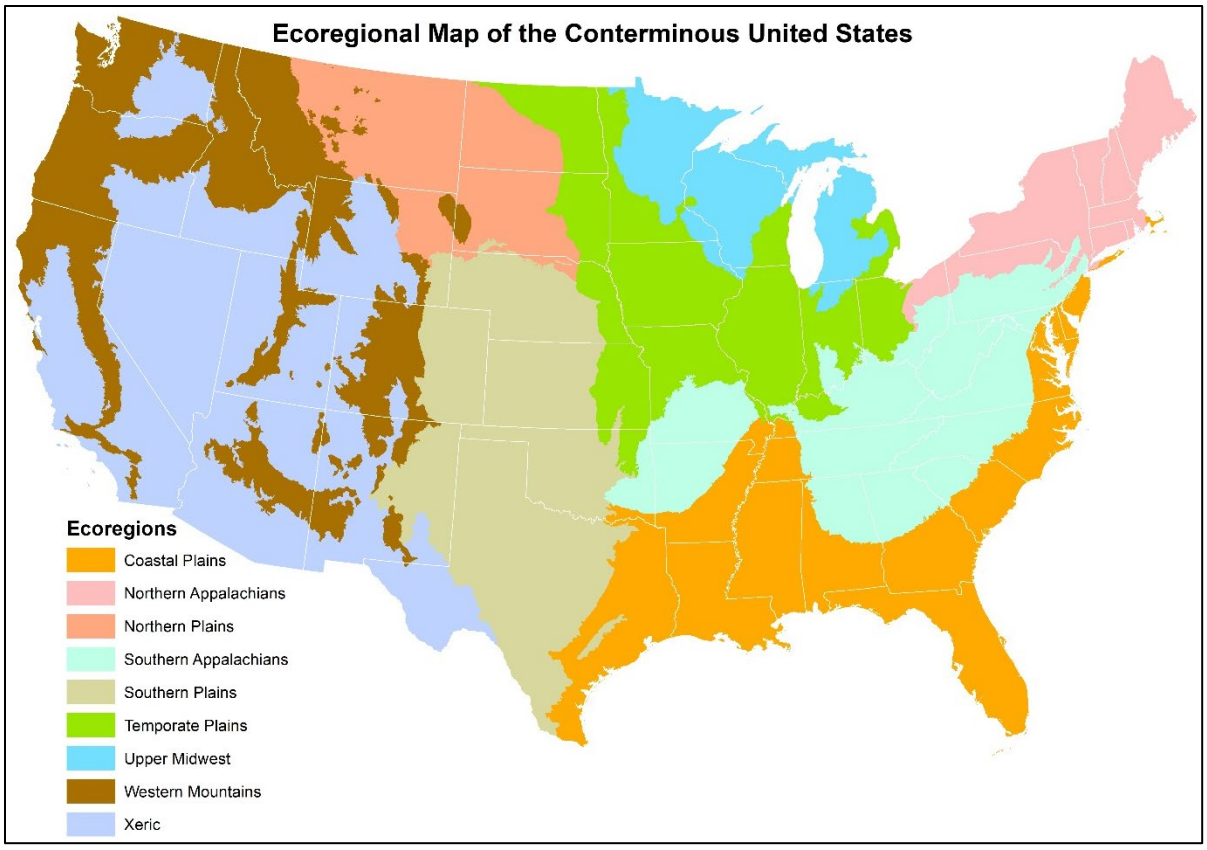


**Figure 1. Nine Aggregate Ecoregions of Conterminous United States used for the National Aquatic Surveys (Source USEPA/NARS).**

Waterbodies from the same ecoregion are grouped together for analysis because sites within the same ecoregion have similar environmental characteristics such as climate, vegetation, soil type, and geology. Portions of four of the nine national aggregated ecoregions are found within South Dakota (Figure 1). They include the western mountains (Black Hills), Northern Plains (western Missouri River), Southern Plains (south-central South Dakota), and Temperate Plains (eastern South Dakota).

Water Quality Indicators and Benchmarks

The suite of biological, chemical, physical habitat, and recreational (human health) indicators shown below in Table 19 were chosen to assess the water quality of each aquatic resource group. These indicators were vetted and deemed to be the most representative of the water quality conditions encountered across the United States, including South Dakota. The survey

design uses indicators from randomly selected lake and stream sites to develop outcomes that represent the entire population.

Assessing conditions using the indicators shown in Table 19 requires a set of water quality benchmarks to compare against. For both surveys, two main methods were used to derive these benchmarks. The first used values reported in peer-reviewed scientific literature. Many resource agencies have already been using these well-established numbers for water quality assessment purposes, including a human health fish tissue concentration for mercury at 300 parts per billion (ppb), and a microcystin toxin level of 8 µg/L. The second method uses an ecoregional specific data screening process to identify a set of least-impacted (reference) waterbodies. These lakes (NLA) and stream segments (NRSA) represent the best available water quality conditions exhibited in each ecoregion. A variety of criteria were used during the screening including water chemistry values and land use characteristics. A full discussion of this process can be found in the technical support documents found on the NARS website available in Appendix J, Reference #24.

Benchmarks were chosen from the range of values observed from all the reference sites in each ecoregion. An ecoregional reference data distribution was created for each indicator so percentiles could be calculated. The indicators from the remaining target waterbodies were compared to this reference site distribution. When an indicator from a target lake or stream site scored as good as the top 75% of the reference site distribution it was classified as "good." When an indicator scored lower than the bottom 5% of the reference site distribution the site was classified as "poor." Scores that fell between these two reference site distribution boundaries (>5%tile and <25%tile) were considered in "fair" condition. This classification process is a widely accepted approach and was used for scoring indicators from both the NLA and NRSA. Final reports from each survey provide a more detailed discussion on this approach, including literature cited, and are available on the NARS website. Note that the described categories do not replace the assessments done by states/tribes on individual waterbodies relative to their state or tribal water quality standards under the Clean Water Act. This process is designed to assess the lake and stream populations both nationally and ecoregionally.

### Table 19: NARS Indicator Groups

| Biological | Chemical | Physical | Recreational |
|---|---|---|---|
| Benthic macroinvertebrates | Acidification | Lakeshore habitat | Algal toxins (microcystin) |
| Chlorophyll *a* | Atrazine | Riparian vegetative cover | Cyanobacteria |
| Fish assemblage | Conductivity | Human disturbance | Enterococci |
| Fish tissue contaminants | Dissolved Oxygen | Physical habitat complexity | Fish tissue contaminants |
| Macrophytes | Nitrogen | Shallow water/in-stream fish habitat | |
| Phytoplankton | Phosphorus | Streambed sediments | |
| Sediment diatoms | Salinity | Water clarity | |
| Zooplankton | Sediment enzymes | | |
| | Sediment Mercury | | |

State Estimates

Estimates for most water quality indicators were available for each state upon request from EPA statisticians. Enough waterbodies were selected from South Dakota from both the NLA and NRSA (43 lakes and 58 river/stream) so that each indicator could be calculated within a 90% confidence interval with minimal change to the margin of error. The South Dakota estimates detail the percentage of lakes and streams in South Dakota that exceed the ecoregional benchmarks of concern or fall within the designated categories of "Good," "Fair," or "Poor" (described in the paragraph above) (EPA, 2012). Condition estimates for indicators from both the NLA and NRSA are discussed in the following sections. All indicator condition estimates can be found in Appendix H. Each is reported with a lower bound confidence limit (LCB90%) and an upper bound confidence limit (UCB90%). The confidence interval for each indicator means that DANR is 90% certain that the indicator derived from the South Dakota lake or stream population falls within the boundaries provided. All randomly selected lakes or streams for South Dakota were compared to their respective ecoregional benchmarks.

NLA Key Findings from South Dakota Lakes

Figure 2 shows condition estimates for selected indicators from the 2017 NLA. Total Nitrogen Condition, Total Phosphorus Condition, Chlorophyll-α Condition, and Trophic State address eutrophication in South Dakota lakes. Higher concentrations of nitrogen and phosphorus lead to greater algal growth and thus, higher chlorophyll-α concentrations. For Total Nitrogen Condition, Total Phosphorus Condition, and Chlorophyll-α Condition over half of South Dakota lakes were categorized as poor when compared to their ecoregional benchmarks, indicating excess nutrients and chlorophyll-α in a majority of South Dakota lakes. Almost 24% of lakes were classified as good in regard to Total Chlorophyll-α condition, while only 9% and 6% were in the good class for Total Nitrogen Condition and Total Phosphorus Condition, respectively.

Lakes were classified into one of four trophic state categories. Lakes with relatively high nutrient and chlorophyll-α concentrations were classified as either hypereutrophic (most extreme chlorophyll-α and nutrient concentrations) or eutrophic, while lakes with relatively lower concentrations were classified as mesotrophic or oligotrophic (lowest nutrient and chlorophyll-α concentrations). Just over half of South Dakota lakes were classified as eutrophic (53%), and almost a quarter of were classified as hypereutrophic (24%). The remainder were in the oligotrophic (4%) and mesotrophic (18%) categories.

Dissolved oxygen condition is a measure of the ability of a waterbody to support aquatic life. In the 2017 NLA, 85% of the lakes surveyed in South Dakota fell into the good category (>5 PPM), 10% of lakes were in the moderate category (3-5 PPM), and 6% were in the low category (<3 PPM).

Microcystin Condition compares microcystin sample results from NLA lakes to the benchmark of 8 µg/L. Microcystin is a common algal toxin that can harm humans and other animals. A total of 91% of South Dakota lakes were below the benchmark for microcystin.

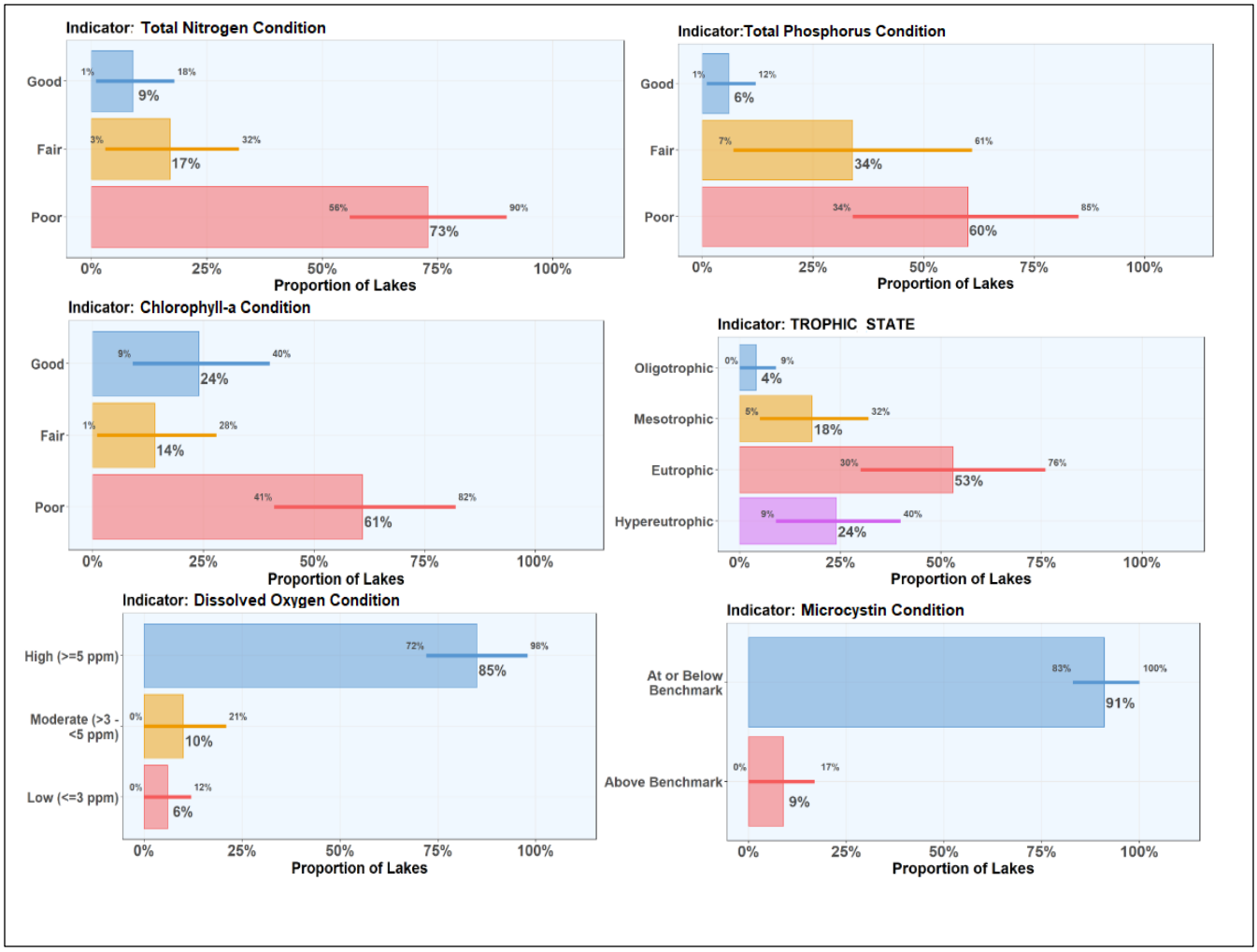


**Figure 2. 2017 National Lakes Assessment state-scale statistical survey condition estimate for South Dakota.**

NRSA Key Findings from South Dakota Streams and Rivers

Figure 3 shows condition estimates for selected indicators from the 2018-2019 NRSA. Similar to lakes, the rivers and streams survey points to excessive amounts of nitrogen and phosphorus with over 73% and 60%, respectively, falling into the poor category when compared to their ecoregional benchmarks.

Most South Dakota river and stream miles exhibited concentrations for human health indicators below levels of concern. This included 79% of the population falling below the human health threshold for enterococci (1,280 cfu/100mL) and 100% of the rivers and streams miles reported microcystin and cylindrospermopsin concentrations below the benchmark levels of ≤ 8 µg/L and ± 15 µg/L, respectively. While 66% of river and stream miles were not assessed for mercury in fish tissue condition because sufficiently sized fish were not collected from those sites, more river and stream miles were at or below the benchmark for mercury in fish tissue (31%) than were above the benchmark (3%).

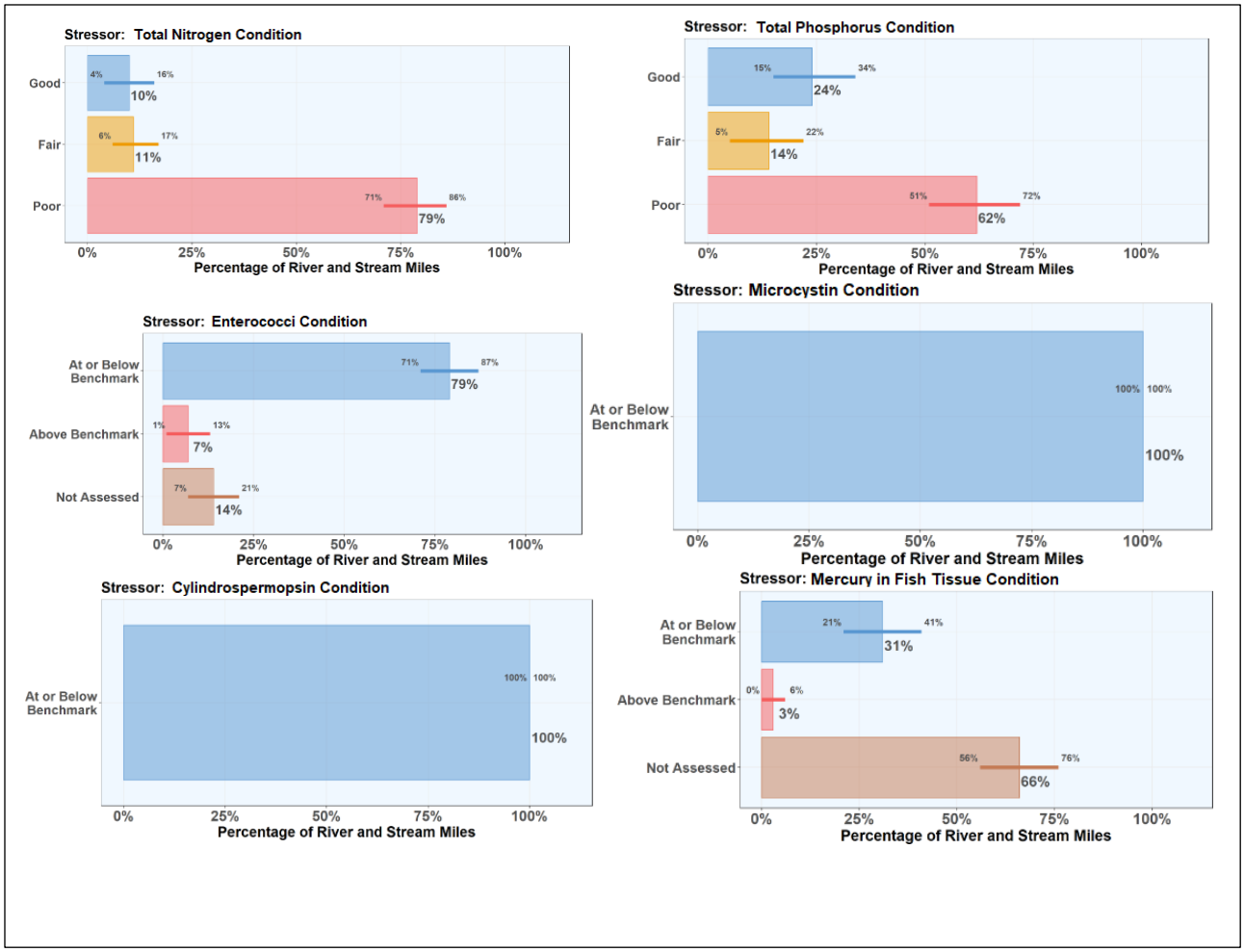


Figure 3. 2018-2019 National Rivers and Streams Assessment State-scale Statistical Survey Condition Estimates for South Dakota.

## RIVER BASIN WATER QUALITY ASSESSMENTS

South Dakota has fourteen major river basins, most of which drain into the Missouri River (Figure 4). The following sections contain brief narratives that discuss noteworthy waterbodies and pollution problems. A detailed state map showing assessed lakes and streams provides general use support information (Figure 5). More specific information is provided in the accompanying river basin tables in Appendix C.

The River Basin Tables (Appendix C) represent South Dakota's 305(b) Surface Water Quality Assessment. The table information contains the waterbody name, assessment unit identification, reach location, beneficial uses, support determinations, cause of nonsupport, parameters that meet criteria, and EPA category.

DANR does not sample all waterbodies for all possible contaminants. Some waterbodies may be nonsupporting for a particular parameter, and another waterbody may not have been sampled for that parameter. The basin tables include parameters that meet water quality criteria and also parameter causes that do not meet water quality criteria. If a parameter is not included in either the cause or meeting column, then the waterbody was not sampled for that parameter or has insufficient data for that parameter, and the status for that particular parameter is unknown. Sampled parameters for each reach have been entered into EPA's ATTAINS system and can be accessed at the web address provided in Appendix J, Reference #1.

Sources of impairment are not included in the basin tables. Sources of impairment are identified during watershed assessments and TMDL development. For more information on sources identified during TMDL development, please refer to the TMDL documents on the DANR website available at the web address in Appendix J, Reference #25.

In 2008, DANR adopted the bacterial indicator *E. coli* into the Surface Water Quality Standards to protect recreation beneficial uses. *E. coli* is a fecal coliform bacterium and both indicators originate from common sources in relatively consistent proportions. In general, most of the assessment units previously identified as impaired for fecal coliform were also impaired for *E. coli.* DANR received EPA approval for many fecal coliform TMDLs in the past (Appendix A). DANR scientists developed a conversion factor using years of paired fecal coliform and *E. coli* data. Results of the analysis suggest nearly a 1:1 ratio. Because the two bacterial indicators were determined to be interrelated, fecal coliform TMDLs can be considered useful for implementing measures to correct *E. coli* impairment. DANR and EPA have developed a process that allows DANR to use existing fecal coliform TMDLs to derive *E. coli* TMDLs for assessment units on the 303(d) list.

Basin waterbody support tables are located in Appendix C. Basin waterbody support maps are located in Appendix F.

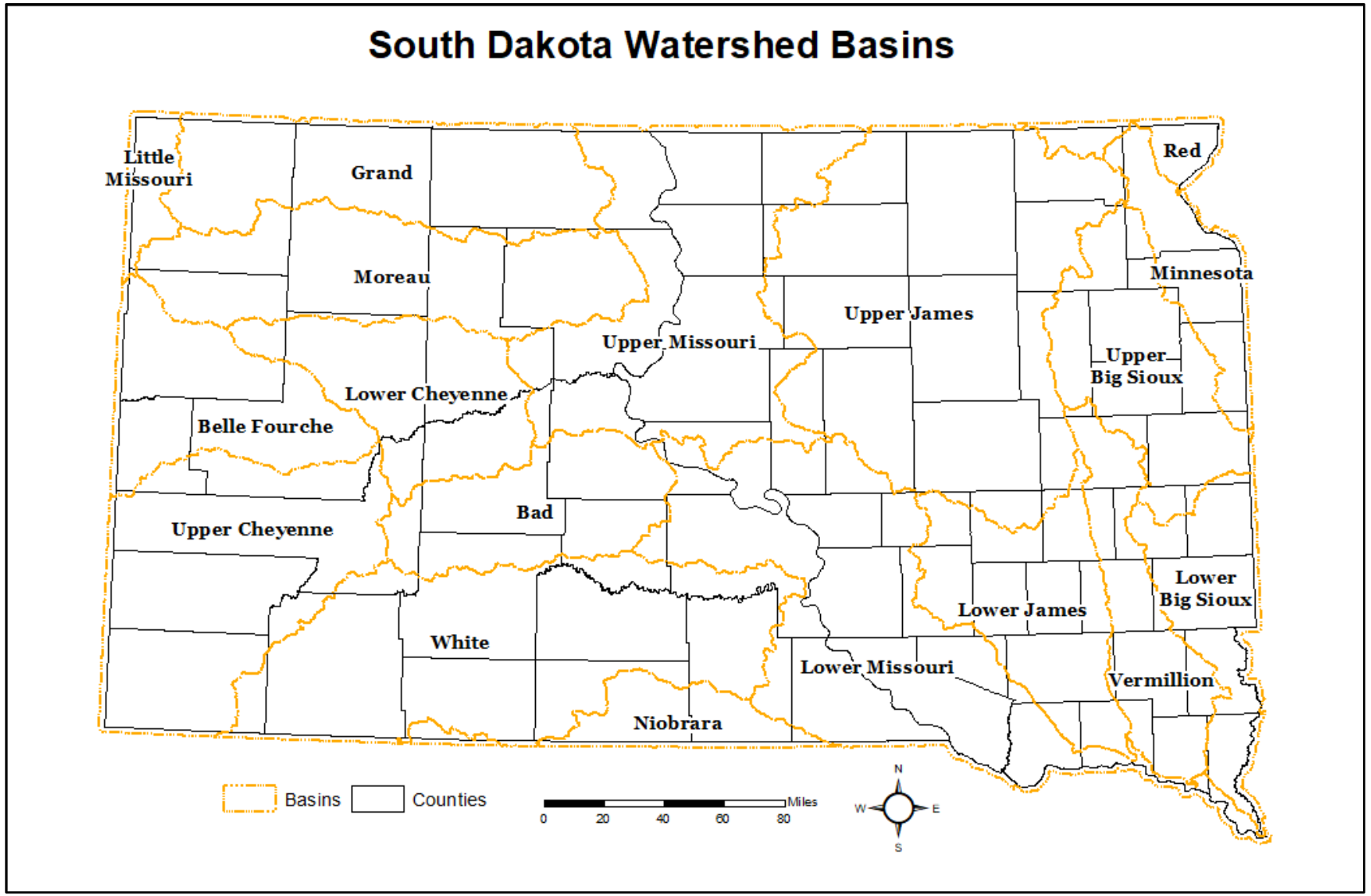


Figure 4: Major River Basins in South Dakota

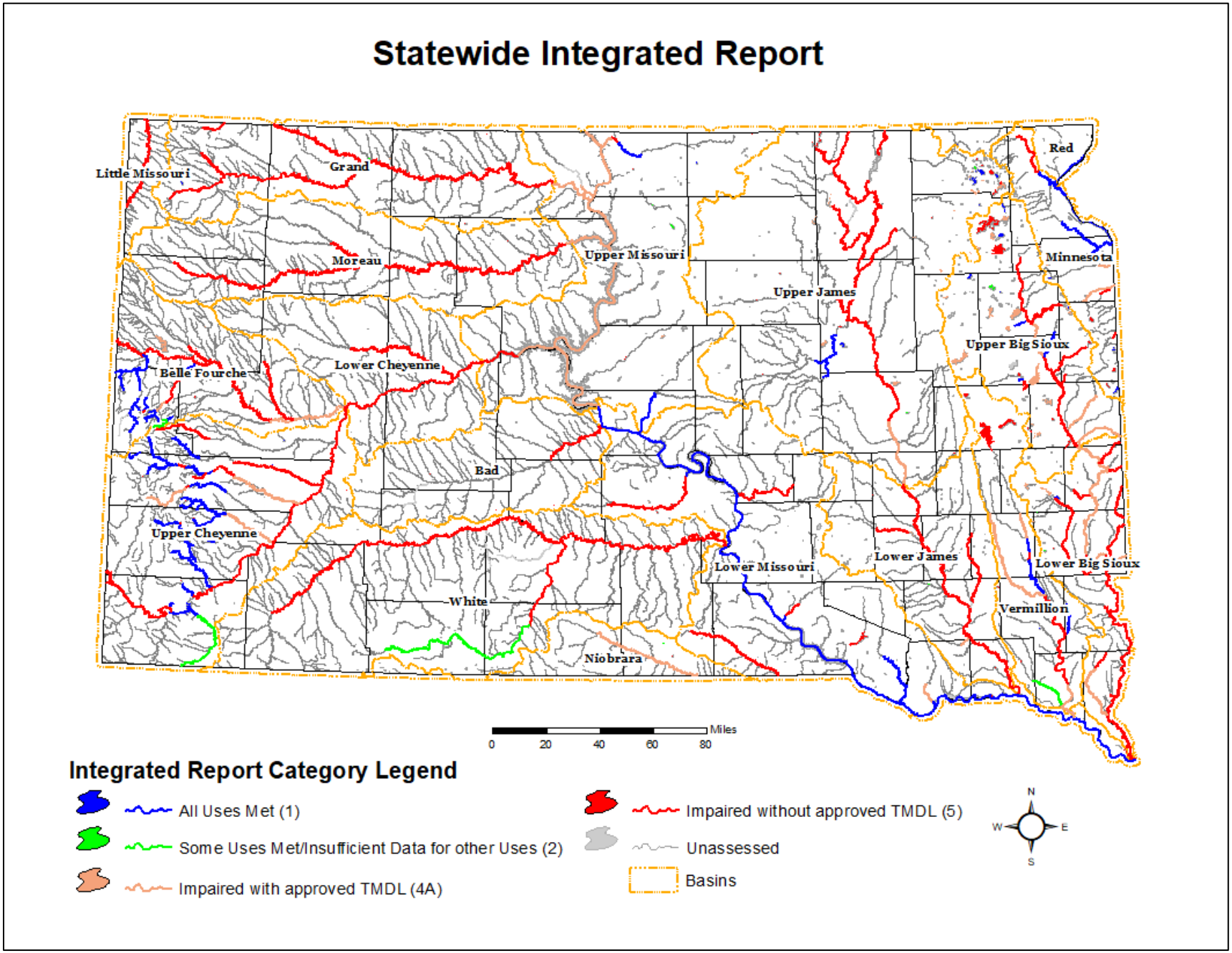


Figure 5: 2024 South Dakota Waterbody Status

Bad River Basin

The Bad River Basin lies in west-central South Dakota between the Cheyenne and White River Basins and drains approximately 3,175 square miles. Historically, a main characteristic of the basin has been a general lack of constant river flow. The upper portion of the Bad River receives water from the Badlands and artesian wells in the Philip area. These wells contribute minimal flow to the upper portion of the Bad River. There are prolonged periods of low or no flow in the Bad River reach from Midland to the Missouri River.

DANR has assessed seven lakes within the basin and also has one water quality monitoring site located on the Bad River. The USGS has a water quality monitoring site on the Bad River. However, the data is limited with minimal parameters.

There are no current watershed assessment or implementation projects ongoing in the Bad River Basin. This basin will be a part of the upcoming Rotating Basins Project (Rotation 3) that takes place in the West River of South Dakota from 2024-2025.

Belle Fourche River Basin

The Belle Fourche River Basin lies in western South Dakota between the Cheyenne and Moreau River Basins and drains approximately 3,271 square miles in South Dakota. The upper portion of the basin contains one active and several historic hardrock mining operations, several small placer mines, and several large decorative stone and bentonite mines. The middle and lower portions of the basin are mainly used for livestock watering and irrigation.

DANR has assessed eight lakes and maintains 26 water quality monitoring sites on many streams within the Belle Fourche Basin. Water quality monitoring sites are located on the Belle Fourche River, Spearfish Creek, Whitewood Creek, and various other streams. Most of the streams are routinely monitored for toxic pollutants, such as heavy metals, because several hardrock mining operations are or were previously located in this basin. Available data from DANR watershed assessment projects and sponsors were used to determine waterbody support.

The USGS has water quality monitoring sites on many waterbodies within the basin. The data on some streams are fairly extensive and may include information on dissolved oxygen, pH, specific conductance, water temperature, and sodium adsorption ratio. Data collected on USGS sites were analyzed for this report.

False Bottom Creek originates near historic tailings and current spent ore and waste rock facilities at Wharf Resources gold mine. Water quality samples collected near False Bottom Springs, the headwaters to False Bottom Creek, contain elevated selenium. This reach of False Bottom Creek is listed as not supporting some of its beneficial uses due to selenium.

Strawberry Creek was impacted by pre-1941 mining activities which resulted in tailings in the creek and acid mine drainage generation. In 1986 the Brohm Mining Co. started re-mining the site and was required to reclaim historic mine wastes including tailings in Strawberry Creek. In July 1999, Brohm Mining Co. declared bankruptcy and the state of South Dakota took over the site including water collection and treatment. On December 1, 2000, the site was listed on the National Priorities List as a Superfund Site. The site has been partially remediated and the current remedial action activities at the Superfund site are collection, conveyance, and treatment of acid mine drainage. Due to remedial activities, copper, low pH, and zinc were delisted as impairment causes in the 2010 cycle. In this 2024 cycle, water samples met the 30-day and daily maximum criterion

for cadmium. A cadmium TMDL was approved for Strawberry Creek in April 2010; and the creek is now reported as fully supporting all beneficial uses for this 2024 cycle.

Several segments of Whitewood Creek near Lead are nonsupporting for *E. coli*. Sources of the high bacteria numbers in the stream's middle reach may be due to aging septic and sewer systems, the combined sewer overflow in Lead, and wildlife and livestock. A SWD permit has been issued to the city of Lead for the combined sewer overflow, requiring compliance with EPA's minimum controls for the combined sewer overflow. The city of Lead continues to make progress to separate their sewer systems and ultimately eliminate the combined sewer overflow. A major construction project to remove combined sanitary-storm sewer connections on Mill Street was completed in 2023, and a similar project is planned on Miners Avenue beginning in 2024. These infrastructure improvements are expected to significantly reduce the city's combined sewer overflows. Upon completion, the city is expected to move forward with infrastructure repairs to the nearby side streets which are minor contributors to combined sewer overflows. TMDLs have been developed for the impaired segments of Whitewood Creek; however, they continue to remain nonsupporting for *E. coli* bacteria.

An implementation project has been ongoing since 2004 to address water quality of the Belle Fourche River and tributaries. Implementation efforts have primarily focused on irrigation practices to reduce TSS. A TMDL was approved in 2005; however, the Belle Fourche River continues to remain nonsupporting for TSS. Recent emphasis is being placed on grazing management practices to reduce bacteria. Fecal coliform and *E. coli* TMDLs have been approved for two segments of the Belle Fourche River.

Big Sioux River Basin

The Big Sioux River Basin is located in eastern South Dakota. The lower portion of the river forms the Iowa-South Dakota border. The basin drains an approximate 5,382 square miles in South Dakota and an additional 3,000 square miles in Minnesota and Iowa. The basin's primary economic activity is agriculture, but it also contains much of the state's light manufacturing, food processing, and wholesale industries. Four state educational institutions, several vocational schools, and Sioux Falls, the state's largest city, are located within this basin, making this the heaviest populated basin in the state.

DANR has assessed 45 lakes and maintains 25 water quality monitoring sites within the Big Sioux Basin. Seventeen water quality monitoring sites are located on the Big Sioux River. In addition, available data from DANR watershed assessment projects and project sponsors were used to determine waterbody support. The City of Sioux Falls, the Minnesota Pollution Control Agency, Friends of the Big Sioux River, SD Geological Survey, South Dakota State University, the University of South Dakota, and East Dakota Water Development District also supplied data for waterbodies within the Big Sioux Basin. EDWDD field personnel assessed 42 stream segments twice per month (May to October) and 34 lakes monthly (May to September) in the Big Sioux, Red, and Minnesota River Basins during the 2020 and 2021 field season. The monitoring project allowed for collection of data on almost all waterbodies within the Big Sioux, Red, and Minnesota River basins.

The USGS has water quality monitoring sites on many waterbodies within the basin. USGS data is often fairly extensive and may include information on dissolved oxygen, pH, specific conductance, water temperature, and sodium adsorption ratio. Data collected on USGS sites were analyzed for this report.

As observed in previous years, the main causes of nonsupport within Big Sioux River Basin streams continue to be *E. coli* and TSS. The presence of bacteria in the Big Sioux Basin is mainly due to runoff from livestock operations, wet weather discharges, and storm sewers within municipal areas. Sediment sources are overland runoff from nearby croplands, inflow from tributaries, and streambank erosion.

Lakes in the Big Sioux River Basin are highly productive due to nutrient enrichment and siltation. Most of the monitored lakes are eutrophic or hypereutrophic. The moderate size and shallow depth of most lakes contribute to the hypereutrophic conditions. Lakes are susceptible to rapid changes produced by large nutrient and sediment loads from sizeable agricultural watersheds comprised of glacial soils.

Mercury in fish tissue affects many lakes in the Big Sioux River Basin. While there are many factors that influence mercury accumulation in fish, a significant factor in this basin is the expansion of surface water and/or changes in areas inundated by water. Water depth, substrate, and increased organic decay influence the rate that elemental mercury is methylated and converted to the biologically available form of methylmercury. The concentration of mercury in the water column is typically very low like other lakes in the basin. However, the methylation rate is typically higher and results in a greater bioavailability of mercury to aquatic life. Thirty-eight waterbodies in the Big Sioux Basin were monitored for mercury in fish tissue. This includes thirty-five lakes and three river/stream segments. Seventeen waterbodies support the mercury in fish tissue criterion, while twenty-one waterbodies do not support the criterion. A statewide mercury TMDL has been approved by EPA that identifies atmospheric deposition as the primary source of elemental mercury.

Watershed implementation projects within the basin are focused on reducing bacteria, sediment, and nutrient loads from both manmade and natural sources. Current implementation projects include the Big Sioux River Watershed Project and the Prairie Coteau Watershed Improvement and Protection Project, which encompasses the entirety of the contributing Big Sioux River watershed from the headwaters to the confluence with the Missouri River. Portions of the non-contributing parts of the watershed are also covered by the Prairie Coteau Watershed Improvement and Protection Project.

Cheyenne River Basin

The portion of the Cheyenne River Basin that lies in southwestern South Dakota drains 9,732 square miles within the boundaries of the state. The area in this basin is very diverse. It includes part of the Black Hills and Badlands, rangeland, irrigated cropland, and some mining areas. The Cheyenne River originates in Wyoming, flows through the southern Black Hills, and enters Lake Oahe near the center of the state.

DANR has assessed 19 lakes and maintains 35 water quality monitoring sites within the Cheyenne River Basin. Monitoring sites are located on the Cheyenne River, French Creek, and Rapid Creek. Other monitoring sites are located on various other streams in the basin. In addition, available data from DANR watershed assessment projects and sponsors were also used to determine waterbody support.

Temperature is the primary cause of impairment for lakes in the Cheyenne River Basin. All temperature impairments on these lakes are due to exceedances of the temperature criterion for the coldwater permanent fish life beneficial use. TMDL development has not been initiated for any of these lakes and sources of the temperature impairments have not yet been identified. In general, ambient air temperature and solar radiation affect water temperature during the peak

summer months. Dissolved oxygen and pH problems also are present in Cheyenne River Basin lakes.

The USGS maintains water quality monitoring on many waterbodies in the Cheyenne River basin. The USGS data are limited for most sites and mostly includes specific conductance and water temperature information. Data collected on USGS sites were analyzed for this report.

The Cheyenne River Basin is home to deposits of natural uranium, historic uranium mining, and current exploration projects. DANR maintains three water quality monitoring locations within the basin to monitor for uranium and other associated parameters. For this 2024 reporting cycle, there are no exceedances to surface water quality standards for any parameters associated with past uranium mining or current explorations.

The Cheyenne River water quality continues to be generally poor due to both natural and agricultural sources. Most of the Cheyenne River drainage basin contains highly erodible soils. The landscape contributes considerable amounts of eroded sediment during periods of heavy rainfall. During normal or lower flow periods, the upper Cheyenne often exceeds irrigation water quality standards for specific conductance and sodium adsorption ratio. Most segments of the Cheyenne River are nonsupporting for *E. coli* bacteria and TSS. Segments below the Fall River have approved TMDLs for bacteria.

For reaches above Rapid City, Rapid Creek meets water quality standards for the designated beneficial uses. Reaches within and below Rapid City to the Cheyenne River continue to display poor water quality due to excessive *E. coli* bacteria levels.

Sediment removal was implemented at Horsethief Lake (SD-CH-L-HORSETHIEF_01), Lakota Lake (SD-CH-L-LAKOTA_01), and Bismark Lake (SD-CH-L-BISMARK_01) under direction of the U.S. Forest Service in the fall of 2014. The waterbodies were dewatered, and the lakebeds were allowed to dry prior to excavation. Sediment removal was completed by the summer of 2015 and the waterbodies were allowed to recharge. Through data analysis in the 2024 report, Lakota Lake is listed for chlorophyll-a and *E. coli*, Horsethief Lake is nonsupporting for chlorophyll-a, pH, and temperature, and Bismark lake is listed for chlorophyll-a.

Twelve waterbodies (nine lakes and three river reaches) were assessed for mercury in fish tissue. Eight of those waterbodies met water quality standards for mercury in fish tissue while four waterbodies did not.

The lower Cheyenne Basin will be part of the upcoming Rotating Basins Project (Rotation 3) that will occur in western South Dakota from 2024-2025.

Grand River Basin

The Grand River Basin covers 4,596 square miles in northwest South Dakota and southwest North Dakota. This is a sparsely populated region with a population density of approximately one person per square mile. Agriculture is the major economic activity in the basin, but energy development is important in the region as well.

DANR has assessed six lakes and evaluated data from eight water quality monitoring sites within the Grand River Basin. For this 2024 IR reporting cycle, assessment unit SD-GR-R-GRAND_03 was merged into SD-GR-R-GRAND_02 because a long-term water quality monitoring site on the Grand River was discontinued.

Due to historic uranium mining in the Grand River Basin, DANR maintains water quality monitoring sites that are monitored for uranium and other associated parameters. For this reporting cycle, there are no surface water quality exceedances for uranium or other parameters associated with uranium mining.

Elevated specific conductance, TSS, and salinity/sodium adsorption ratios (SAR) are typical of the entire basin. The North Fork Grand River watershed drains the southern periphery of the North Dakota Badlands, which may be a major source of high levels of specific conductance and SAR. The South Fork Grand River drainage contains erosive soils, which contribute sediment and suspended solids that often produce high TSS and SAR levels in the South Fork Grand River.

Shadehill Reservoir and the Grand River are considered impaired for irrigation use due to elevated salinity/SAR. High sodium concentration, combined with the clay characteristics of most soils in this region, significantly reduce the acres suitable for continuous irrigation. This condition is measured by the SAR. A SAR value of 10 or greater indicates that the buildup of sodium could break down soil structure and cause serious problems for plant growth. Irrigation is still an existing use and occurs in this basin despite not meeting water quality criterion.

There are no on-going assessment or implementation projects occurring within the basin at this time. This basin will be part of the upcoming Rotating Basins Project (Rotation 3) that takes place in the West River of South Dakota from 2024-2025.

Waters in the Grand River Basin are affected by unique jurisdictional issues. DANR continues discussions with EPA to determine next steps regarding TMDL development and prioritization. Therefore, TMDL priority has been listed as “low” in the Appendix D.

James River Basin

The James River Basin is the second most populated river basin in the state. It drains 14,729 square miles, stretching from the North Dakota border to the Missouri River near the Nebraska border. It is located in east-central South Dakota. Agriculture and related businesses are the predominant sources of income for residents in the watershed.

DANR has assessed 52 lakes and maintains 18 water quality monitoring sites within the James River Basin. There are many monitoring sites on the James River and other streams in the basin. In addition, available data from DANR watershed assessment projects and sponsors were used to determine waterbody support.

The USGS has several water quality monitoring sites in the basin; however, at most sites, the only parameters that were measured were specific conductance and water temperature.

The James River AUID SD-JA-R-FIRESTEEL_01 was edited to only include the portion of Firesteel Creek above Lake Mitchell. DANR staff determined that the water quality monitoring locations and associated impairments were located upstream of the lake. There are no monitoring sites located on Firesteel Creek below the lake. If long-term monitoring is established on Firesteel Creek below the lake, an additional Firesteel AUID will be established and added to this IR.

The James River AUID SD-JA-R-JAMES_02 was retired this cycle because the river segment was entirely contained within Mud Lake Reservoir. The James River AUID SD-JA-R-JAMES_03 was also retired this cycle, as the majority of the reach was contained within the Columbia Road Reservoir. Approximately eight riverine miles from AUID SD-JA-R-JAMES_03 (that was not within

the Columbia Road Reservoir) was added to the northern extent of AUID SD-JA-R-JAMES_04. Both SD-JA-R-JAMES_03 and SD-JA-R-JAMES_04 were determined to not support their Warmwater semipermanent fish life propagation waters and Limited contact recreation waters beneficial uses for not meeting dissolved oxygen water quality in the 2024 IR cycle; therefore, absorbing the eight miles into the downstream reach should not cause an issue with future TMDL development.

AUID SD-JA-R-PIERRE_01 was updated to run from the James River to Lake Hanson to better represent the riverine reach and exclude Lake Hanson from the old reach. This is also consistent with the location of sampling efforts.

Dissolved oxygen was the main impairment observed within the James River Basin during this reporting cycle; past reporting cycles have also identified the same causes of impairment. Substantial organic loading from nonpoint sources throughout the watershed occurs during run-off events. Decaying organic material reduces dissolved oxygen concentration of flood water inundating the flood plain. As water drains back into the river channel, the oxygen is greatly reduced. Agricultural activities such as livestock operations, grazing in riparian zones, lack of riparian vegetation, and row crop production contribute to suspended sediments and bacteria in the James River Basin.

Mercury in fish tissue affects many waterbodies in the James River Basin. While there are many factors that influence mercury accumulation in fish, a significant factor in this basin is the expansion of surface water and/or change in area inundated by water. Water depth, substrate, and increased organic decay influence the rate that elemental mercury is methylated and converted to the biologically available form of methylmercury. The concentration of mercury in the water column is typically very low and similar to other lakes in the basin. However, the methylation rate is typically higher and results in a greater bioavailability of mercury to aquatic life. Thirty-nine waterbodies in the James River Basin were monitored for mercury in fish tissue. Eleven waterbodies met the criterion, while twenty-eight waterbodies did not. A statewide mercury TMDL has been approved by EPA that identifies atmospheric deposition as the primary source of elemental mercury.

A National Water Quality Monitoring Initiative Partnership project sponsored by NRCS is being conducted on three 12-digit hydrologic unit watersheds of Firesteel Creek. The focus area is the West Branch (101600110804), main stem (101600110906) and Storia (101600110905) watersheds. DANR and partners conducted baseline water quality monitoring at several site locations on Firesteel Creek prior to the initiation of the National Water Quality Monitoring Initiative project. Monitoring efforts are currently being conducted to increase baseline data and monitor effectiveness of best management practices as part of the South-Central Water Quality Monitoring Project sponsored by the James River Development District.

The South-Central Watershed Implementation Project is also ongoing in the James River Basin. This project encompasses the James River watershed, including Lake Mitchell and Firesteel Creek. In addition, the Lewis and Clark Reservoir Watershed (Missouri River Basin), the Vermillion River Basin, and Niobrara River Basin are also included in the project area. Grassland and cropland BMPs, grassland management systems, riparian area management, and animal waste systems are the main BMPs used to combat excess nutrients, bacteria, and sediment in waterbodies within the project area. Extensive water quality monitoring is also a component of the project designed to monitor effectiveness of best management practices. Funding for the project is provided by NRCS, DANR, and the James River Development District.

Little Missouri River Basin

The Little Missouri River Basin is a small basin located in the northwestern corner of the state. The river enters the state from southeastern Montana and drains 583 square miles before exiting into North Dakota. The basin's economy is dominated by agriculture with approximately 90% of the land being used for agricultural production. The majority of this land is rangeland due to limited rainfall.

DANR has one water quality monitoring station in the Little Missouri River Basin located on the Little Missouri River. There are currently no formal watershed assessment or implementation projects in the basin. This basin will be part of the upcoming Rotating Basins Project (Rotation 3) that takes place in the West River of South Dakota from 2024-2025.

Minnesota River Basin

The Minnesota River Basin is located in the northeastern corner of the state. The basin is bordered on the north by the Red River tributaries, on the west by the Prairie Coteau Pothole region, on the south by the Big Sioux River, and on the east by the South Dakota/Minnesota border. The basin drains an area of 1,637 square miles within South Dakota.

DANR has assessed ten lakes and maintains nine water quality monitoring sites within the Minnesota Basin. EDWDD also submitted data for waterbodies within the Minnesota River Basin. Most stream impairments are due to bacteria, while lake impairments were due to mercury in fish tissue and temperature.

Implementation efforts are currently ongoing in the Upper Minnesota River Basin in Grant and Roberts counties with focus on the Whetstone and Yellow Bank watersheds within the Prairie Coteau Watershed Improvement and Protection Project that also encompasses Day and Marshall counties. Grazing management, riparian buffers, and livestock stream crossings are some of the best management practices used to improve water quality.

Missouri River Basin

The Missouri River is the largest body of water in South Dakota. It flows through the middle of the state to form what is commonly referred to as either "east" or "west" river. The river enters the state on the north from North Dakota and flows south until it reaches the vicinity of Pierre. Along this southern course it receives significant flows from the Grand, Moreau, and Cheyenne River Basins. From Pierre, the river flows generally east-southeast until it exits the state on the southeast tip after receiving contributing flows from the Bad, White, James, Vermillion, Niobrara, and Big Sioux River Basins. The Missouri River Basin is the largest basin in South Dakota and drains approximately 15,865 square miles.

The dominant feature of the Missouri River in South Dakota is the presence of four impoundments: Lake Oahe at Pierre (Oahe Dam), Lake Sharpe at Fort Thompson (Big Bend Dam), Lake Francis Case at Pickstown (Ft. Randall Dam), and Lewis and Clark Lake at Yankton (Gavins Point Dam). The largest of these reservoirs is Lake Oahe with 22,240,000 acre-feet of storage capacity covering 374,000 acres. The impoundments serve for flood control, hydroelectric generation, irrigation, municipal water use, water-related recreation, and downstream navigation. The Missouri River is home to the only two segments of river designated as "Wild and Scenic" under the Wild and Scenic Rivers Act. The 70-mile reach from the Gavins Point Dam to Sioux City, Iowa, is the last major free-flowing segment of the Missouri River in the state.

DANR has assessed twenty-five lakes and maintains eleven water quality monitoring stations within the Missouri River Basin. USGS also has several water quality sites located on the mainstem of the Missouri River and several tributaries. USGS data on the Missouri River itself are fairly extensive and include data for dissolved oxygen, pH, water temperature, sodium adsorption ratio, alkalinity, sulfate, nitrates, total dissolved solids, ammonia, and chlorides. USACE summary data from the 2018 Report "Water Quality Conditions in the Missouri River Mainstem System" were also used in determining waterbody support on Lake Oahe and Lake Sharpe. Water quality data for Lewis and Clark Lake was provided by Nebraska Department of Environmental Quality and USACE.

A significant temperature-depth gradient occurs on Lake Oahe in the near-dam lacustrine area during summer months. This results in the development of a strong thermocline approximately 20 to 25 meters below the surface. The longitudinal extent of the coldwater habitat is dependent upon pool elevation and thermocline depth. The shallower upper reaches of the reservoir are well-mixed by late summer and do not display significant vertical variations in temperature. However, this area may still provide coldwater habitat based on pool elevation.

USACE profile data summaries were used to assess water temperature and resulting coldwater habitat in Lake Oahe. Thermal profile contour plots measured during the months of May through September 2018, indicate the temperature criterion was met longitudinally during most months throughout most the length of the reservoir within the state boundary. Thermal profile contour plots measured in August 2018 indicate the temperature criterion was met longitudinally from Oahe Dam to near river mile 1200 (Indian Creek). During this time, pool elevation was high and ranged from 1614 to 1618 feet above mean sea level (ft-msl). At the time this 2024 IR was written, the USACE 2018 report was the most recent report available regarding lake temperature.

In 2022-2023, DANR conducted a water quality standards rule change to update the fishery use on Lake Sharpe from a coldwater permanent to a warmwater permanent fish life use to better reflect existing conditions and existing uses. Previous to the rule change, Lake Sharpe was not meeting the temperature criterion for a coldwater permanent fishery. However, with the more appropriate warmwater fish life beneficial use and associated temperature criteria, in this 2024 IR cycle, Lake Sharpe is fully supporting all beneficial uses and associated water quality criteria.

Eighteen waterbodies, including the four mainstem Missouri River reservoirs were assessed for mercury in fish tissue. Eleven waterbodies met the water quality criterion for mercury in fish tissue while seven did not.

Most lakes in the Missouri River Basin are highly eutrophic because of nutrient enrichment and siltation. Agricultural activities are the primary sources of pollution.

For implementation in the watershed, the South-Central Watershed Improvement Project collects data associated with E. *coli,* flows, and BMP's. There are currently no active assessment projects in the Missouri River Basin. This basin will be part of the upcoming Rotating Basins Project (Rotation 3) that will occur in western South Dakota from 2024-2025.

Moreau River Basin

The Moreau River Basin is located in the northwest part of South Dakota and drains an area of 4,995 square miles. As with the Grand River Basin to the north, agriculture is the mainstay of this

sparsely populated basin. Population density is approximately two persons per square mile. A majority of the basin is devoted to ranching operations.

DANR has assessed two lakes and maintains four water quality monitoring sites within this basin. Monitoring sites are located on the Moreau River, the South Fork Moreau, and Rabbit Creek. In this 2024 IR cycle, DANR retired assessment reaches SD-MU-R-MOREAU_02 and SD-MU-R-MOREAU_03 and combined them into reach SD-MU-R-MOREAU_02&03. These reaches were merged because a long-term water quality monitoring site was discontinued.

Much of the sediment in the Moreau River Basin comes from erosive Cretaceous shales that also mineralize the water. As in the adjoining Grand River Basin to the north, this leads to high levels of total dissolved solids, primarily sulfate, iron, manganese, sodium, and other minerals. Other pollutants in the basin include TSS, salinity/SAR, and specific conductance due to natural conditions, and *E. coli* bacteria from livestock and wildlife contributions.

The Moreau River is located downstream from historic uranium mining operations and is monitored for standard parameters and those associated with historic uranium mining. Waterbody support determination for the Moreau River was based on all measured parameters including those associated with uranium mining. There were no exceedances for any parameters associated with uranium mining. As in previous reporting cycles, the Moreau River is listed as not supporting some beneficial use designations based on exceedances of TSS, *E. coli*, and salinity/SAR.

There are currently no on-going assessment or implementation projects occurring within the Moreau basin. This basin will be part of the upcoming Rotating Basins Project (Rotation 3) that takes place in the West River of South Dakota from 2024-2025.

Waters in the Moreau River Basin are affected by unique jurisdictional issues. DANR continues discussions with EPA to determine next steps regarding TMDL development and prioritization. Therefore, TMDL priority has been listed as “low” in the Appendix D.

Niobrara River Basin

The tributaries of the Niobrara Basin that lie in South Dakota are located in the very south-central part of the state. These tributaries include the Keya Paha River and Minnechaduza Creek. These streams drain approximately 1,742 square miles in South Dakota. Agriculture is the leading source of income to the basin.

DANR has assessed two lakes and maintains one water quality monitoring site on the Keya Paha River.

The Keya Paha River originates at the confluence with Antelope Creek in the Rosebud Indian Reservation. The river flows in a south-east direction and exits the state east of Wewela, South Dakota. The river is not supporting its designated uses due to TSS and *E. coli* bacteria. Land use along the Keya Paha River is primarily agriculture. Livestock grazing in the riparian or shoreline areas has been identified as the primary source of bacteria. There are no point source discharges to the Keya Paha River. A TMDL has been approved for the Keya Paha River to address the contaminants.

Implementation efforts are being conducted through the South-Central Watershed Project.

This basin will be part of the upcoming Rotating Basins Project (Rotation 3) that takes place in the West River of South Dakota from 2024-2025.

Red River Basin

The Red River Basin covers the extreme northeastern corner of the state. The tributaries of the Red River that are in South Dakota drain a total of 627 square miles. Agriculture is the leading economic industry in the basin.

DANR has assessed two lakes and does not maintain any water quality monitoring sites in the Red River Basin.

There are currently no on-going assessment or implementation projects occurring within the Red River Basin.

Vermillion River Basin

The Vermillion River Basin covers an area of 2,673 square miles in southeastern South Dakota. The basin is about 150 miles in length and varies in width from 12 miles in the north to 36 miles in the south. Much of the lower 22 miles of the river basin is channelized. Streams in the Vermillion River Basin drain to the Vermillion River, which drains to the Missouri River near Vermillion, South Dakota. Agriculture is the leading source of income in the basin. It is estimated that 96% of the total surface area is devoted to agriculture. The remaining areas include municipalities, sand and gravel operations, and other uses.

DANR has assessed eight lakes and maintains six water quality monitoring sites within this basin. Three sites are located on the Vermillion River, two are located on the East Fork Vermillion River, and one on Long Creek.

The USGS has water quality monitoring sites in the basin including sites on the Vermillion River, East Fork Vermillion River, and West Fork Vermillion River. The data are limited, and the only parameters measured were specific conductance and water temperature.

The Vermillion River is nonsupporting due to exceedances of *E. coli* and TSS. Row crops account for approximately 73% of the land use in the lower segments. Sediment sources are overland runoff from nearby croplands and feedlots, inflow from tributaries, and streambank erosion. There are approved TSS TMDLs for the two lower reaches and an approved *E. coli* TMDL for the lower reach of the Vermillion River.

Implementation efforts are being conducted through the South-Central Watershed Project.

White River Basin

The White River Basin is the southernmost of the five major west-river drainages in South Dakota. The total drainage area of the basin in the state is 8,246 square miles. Agriculture dominates the basin's economy, with the majority of the land used as rangeland or cropland.

DANR has assessed one lake in the White River Basin and maintains four water quality monitoring sites within this basin. Three monitoring sites are located on the White River and the other is located on the Little White River. This reporting cycle, assessment unit SD-WH-R-WHITE_01, which covered the NE/SD border to Willow Creek, was retired because the water quality

monitoring site, 460842, was discontinued. DANR is not planning any other long-term monitoring projects for this reach and is not aware of monitoring projects done by other agencies in the area. If long term monitoring data is provided by any other agencies, DANR may consider adding the reach back to this report.

The USGS has water quality monitoring sites in the basin, however the parameters are limited and mainly include specific conductance and water temperature.

The White River Basin receives the majority of the runoff and drainage from the western Badlands. The exposed Badlands are a major natural source of both suspended and dissolved solids to the river. Severe erosion and leaching of soils occur in the Badlands and throughout the entire length of the basin. Site specific water quality standards for TSS were established by DANR in 2009 for the White River and Little White River. Portions of the White River are listed as impaired for *E. coli* and salinity/SAR.

Assessment projects have been completed for the White River, Little White River, and Cottonwood Creek watersheds. There are currently no on-going implementation projects in the White River Basin. This basin will be part of the upcoming Rotating Basins Project (Rotation 3) that takes place in the West River of South Dakota from 2024-2025.

## WETLANDS

Wetland resources across the Prairie Pothole Region (PPR) of eastern South Dakota provide many ecological services (Figure 6). Wetlands provide hydrologic services such as water and nutrient storage and flood relief. They also enhance waterfowl production and promote biodiversity. Growing awareness of the importance of wetlands prompted the U.S. Fish and Wildlife Service (USFWS) in 1974 to conduct an inventory of U.S. wetlands, also known as the National Wetlands Inventory. The Cowardin et al. (1979), classification system was adopted by the USFWS to classify wetlands based on hydrologic, geomorphologic, biologic, and chemical characteristics. The National Wetlands Inventory provides valuable documentation regarding identity, extent, characteristics, and distribution of wetland resources in the PPR.


Figure 6: Map Depicting Prairie Pothole Region

The PPR of eastern South Dakota had an estimated 1,780,859 acres of wetlands with shallow water habitat in the early to middle 1990's (Johnson and Higgins, 1997). By 2009, South Dakota had an estimated 1,870,790 acres of shallow water wetlands (Dahl, 2014). The total number of wetlands in South Dakota declined by 2.8% from 1997 to 2009 (Dahl, 2014). Small temporary wetlands comprised the primary type of emergent wetland loss. South Dakota did exhibit gains in all other emergent wetland classes especially larger seasonal and semipermanent classes between 1997 and 2009. This implies that the overall wetland area in South Dakota increased from the early to middle 1990s to 2009, which is consistent with the wetland area estimates provided by Johnson and Higgins (1997) and Dahl (2014). The wetland acreage estimates provided by Dahl (2014) represent the most recent documentation of wetland extent available for South Dakota.

The general loss of small temporary wetlands and gain in larger seasonal and semipermanent wetlands can be attributed to agricultural drainage practices. Portions of eastern South Dakota lack open channel ditch networks to convey water from wetland depressions in agricultural fields to riverine systems. Drainage from small temporary wetlands is often conveyed by drain tile networks to downstream basins contributing to the increase in seasonal or semipermanent wetland habitats. The general loss of temporary wetlands and overall increase in acreage of seasonal and semi-permanent is likely the present trend.

> ***ARSD 74:51:01:01(53):*** *"Wetlands," those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions including swamps, marshes, bogs, and similar areas.*

Wetlands are designated the beneficial use of fish and wildlife propagation, recreation, and stock watering waters, which provides protection under existing narrative and numeric water quality standards and are specifically protected as waters of the state under ARSD 74:51:01:11.

The USACE is responsible for the control of activities that place fill material in wetlands. The USACE authority stems from Section 404 of the CWA. For purposes of Federal 404 identification and delineation, wetlands must have each of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes, (2) the substrate is predominantly hydric soil, and (3) the substrate is saturated with water or covered by shallow water at some time during the growing season of each year. Before issuing a 404 permit, the USACE issues a public notice, taking into consideration the comments of the EPA, GF&P, DANR, NRCS, USFWS, other resource agencies, and the general public. Construction projects involving wetlands must receive certification from DANR under Section 401 of the CWA to certify the action will not violate South Dakota Surface Water Quality Standards. DANR regulates the discharge of pollutants from point sources to wetlands under the Surface Water Discharge permitting program. Currently, per ARSD 74:51:01:11, wetlands may not be filled without a federal 402 or 404 permit, even if the wetland is not under federal jurisdiction.

The USFWS and private entities, such as Ducks Unlimited, work to protect and preserve wetland resources in South Dakota. An estimated 700 USFWS Waterfowl Production Areas covering about 183,000 acres of uplands and wetlands were purchased by South Dakota prior to 1994 (Johnson and Higgins 1997). The USFWS also obtained easements on an estimated 613,000 acres of eastern South Dakota wetlands. Approximately 51,000 acres of wetlands are currently owned by GF&P and managed as State Game Production Areas and Public Shooting Areas. Many organizations, including the Forest Service, Bureau of Land Management, School and

Public Lands, cities, counties, and other private entities, continue to purchase, obtain easements, and manage wetland habitats for the purpose of preservation.

EPA is encouraging states to develop monitoring and assessment tools to determine the ecological integrity of wetland environments. EPA currently promotes three approaches to wetland assessment. A Level-1 assessment is a landscape level screening process using GIS technology and other geo-database information systems to evaluate potential impacts to wetland environments. Level-2 assessments incorporate Level-1 information and rapid on-site evaluations of wetland attributes for comparison among wetlands. Level-3 assessments require a more rigorous and comprehensive physiochemical and biological assessment of wetland resources.

The Natural Resource Management Department at SDSU, in cooperation with GF&P, developed a Level-1 and Level-2 wetland rapid assessment protocol for prairie pothole wetlands in eastern South Dakota. The assessment method was modified from a protocol developed by the South Florida Water Management District (Miller and Gunsalus 1999) for evaluating wetland condition. The South Dakota wetland rapid assessment protocol was developed for the state's Natural Heritage and Wildlife Habitat Programs (GF&P) for identifying reference wetlands, monitoring randomly selected sites, and evaluating wetland restoration efforts.

A Level-3 wetland assessment was developed within the Prairie Pothole Region of South Dakota. This Level-3 assessment focused on development of an Index of Plant Community Integrity (IPCI) originally developed to assess seasonal wetlands in the Prairie Pothole Region (DeKeyser et al. 2003). The IPCI was modified to evaluate the vegetative composition of wetlands across classification (temporary and semipermanent) and disturbance (native grass to cropland) gradients within the Northern Glaciated Plains and Northwestern Glaciated Plains ecoregions of South Dakota, North Dakota, and Montana. The IPCI method can be used in South Dakota to allow the placement of wetlands into disturbance classes for ecological and mitigation needs (Hargiss et al. 2007). During the IPCI development in South Dakota, researchers noted that the ecological health of eastern South Dakota prairie pothole wetlands decreases from north to south. This was attributed to greater agricultural intensity in southeast South Dakota (DeKeyser, personal communication).

Draining wetlands through the use of subsurface drain tiles continues to be a common agricultural practice in eastern South Dakota. Agricultural producers are motivated to drain small wetlands or wet pockets in fields to increase tillable acres. Producers enrolled in USDA or NRCS programs are required to gain approval from that agency before installing drain tile or otherwise draining wetlands. The NRCS conducts criteria-based wetland determinations to determine a wetland's eligibility for drainage.

Potential environmental impacts associated with wetland drainage have become topics of concern within the natural resource management community. There is concern that the installation of drain tile will expedite the discharge of nutrients to other surface waters and bypass the soil's natural filtering capabilities. Further, the loss of wetland acres diminishes the availability of habitat for waterfowl and other wildlife that rely on these systems during migration. Drainage activities are commonly associated with isolated, non-navigable wetlands, and as such are not regulated under the CWA. Furthermore, state agencies such as DANR do not currently regulate the installation of drain tile. The South Dakota legislature has granted counties and townships the authority to address drainage issues at the local level.

## PUBLIC HEALTH/AQUATIC LIFE CONCERNS

The cost of routinely monitoring most toxic pollutants is prohibitive. Priority toxins as defined in Section 307a of the CWA and also found in 40 CFR 401.15, are routinely monitored at several WQM stream sites located near historic or current mining activities in the northern Black Hills. Ammonia, a priority toxin, is routinely monitored throughout the DANR ambient monitoring network and the statewide lake assessment project. Miles or acres affected by toxins are detailed below in Table 20.

### Table 20: Amount of Surface Waters Impacted by Toxic Pollutants

| Waterbody | Acres and Miles Monitored For Toxics* | Acres and Miles with Elevated Levels of Toxics** |
|---|---|---|
| Rivers (miles) | 6,148 | 0.74 |
| Lakes (acres) | 171,110 | 50 |

* EPA's list of Priority Pollutants based on CWA 307(a)

** Elevated levels are defined as exceedances of state water quality standards, 304(a) criteria, and/or FDA action levels, or levels of concern (where numeric criteria do not exist).

Unsafe Beaches

Bacteria data collection and decisions related to public swimming beach closures are the responsibility of the individual management entity. DANR solicits water quality information including beach closure information from federal, state and local natural resource agencies during the department's request for data process. DANR lists a waterbody as impaired if three beach closures per season occur in a consecutive three-week sampling period. For the 2024 reporting period, no data was received from GFP or any entity that controls/monitors beaches in the state.

Aquatic Life Fish Kills

Fish kills are documented and investigated by GFP. There were 59 separate aquatic life concern incidents documented and/or investigated by GFP from October 1, 2021, through September 30, 2023. Most of these kills occurred due to oxygen depletion during winter months, commonly referred to as winter kill. None of the kills resulted from any type of point source discharge or known spill. DANR reviews the cause(s) of a fish kill, the waterbody's designated beneficial uses, and the water quality sample data to determine impairment. Marginal fisheries may experience frequent fish kills, while semipermanent fisheries may experience occasional fish kills due to natural environmental conditions. DANR may consider a waterbody as impaired due to a fish kill if water quality data suggest that the cause of impairment is related to human influence. However, a waterbody that experiences a fish kill due to a single occurrence spill and has been remediated, will not be listed as impaired. For this 2024 IR cycle, there were no waterbodies listed as impaired due to fish kills. Table 21 below provides detailed information specific to reported fish kill events. This information was provided to DANR from GFP. Several of the known causes (eg: winter kill, fall kill, turnover kill) are attributed to naturally occurring events.

## Table 21: Summary of Fish Kill Investigations

# State of South Dakota
# Reported Fish Kills
# (Oct. 2021 – Sept 2023)

| Date Reported | County | Waterbody Name | Cause | Latitude | Longitude |
|---|---|---|---|---|---|
| 10/04/2021 | Lincoln | Alvin | Fall Kill | 43.44163018 | -96.61956398 |
| 11/29/2021 | Roberts | Big Stone | unknown fish sent to U of M | 45.3804947 | -96.57045327 |
| 12/11/2021 | Yankton | Lower Missouri | Fall Kill | 42.85152002 | -97.477277 |
| 03/31/2022 | Hutchinson | Silver | unknown | 43.449624 | -97.41144 |
| 05/18/2022 | Lyman | Reliance | Winterkill | 43.88144558 | -99.59601487 |
| 07/05/2022 | Hutchinson | Silver | low oxygen | 43.4492885 | -97.41063757 |
| 08/09/2022 | Hand | Jones | unknown | 44.4702275 | -98.9473765 |
| 09/14/2022 | Hutchinson | Tripp | Turnover Kill | 43.20269 | -98.07922 |
| 10/03/2022 | Hand | Crystal City Park | high water temps | 44.52319467 | -98.99284237 |
| 01/19/2023 | Beadle | James Dam | Winterkill | 44.36320178 | -98.19915213 |
| 02/15/2023 | Faulk | Faulkton | Winterkill | 45.03407811 | -99.17945487 |
| 02/15/2023 | Corson | Pudwell | Winterkill | 45.92454014 | -101.2683347 |
| 03/15/2023 | Faulk | Cresbard | Winterkill | 45.17445751 | -99.00724963 |
| 03/29/2023 | Lincoln | Big Sioux River | Winterkill | 43.38918728 | -96.52302727 |
| 04/03/2023 | Turner | Swan | unknown | 43.22458106 | -97.09787545 |
| 04/12/2023 | Minnehaha | Loss | Winterkill | 43.57876493 | -97.08162591 |
| 04/12/2023 | McCook | Lehrman Slough | Winterkill | 43.67359 | -97.58035 |
| 04/13/2023 | McCook | Forsch | Winterkill | 43.64248 | -97.51257 |
| 04/13/2023 | Hanson | Miller FMA | Winterkill | 43.69645057 | -97.88544448 |
| 04/13/2023 | Minnehaha | Clear | Winterkill | 43.76346832 | -97.01170947 |
| 04/13/2023 | McCook | Gross | Winterkill | 43.66934 | -97.50344 |
| 04/13/2023 | Minnehaha | Family Park Urban Fishing Pond | Winterkill | 43.54727134 | -96.82362315 |
| 04/13/2023 | Pennington | New Underwood Dam | unknown | 44.10699462 | -102.8415426 |
| 04/13/2023 | Jackson | Unnamed pond | unknown | 43.83590206 | -101.2366663 |
| 04/13/2023 | Meade | Unnamed - CHE-Lake-131-000 | unknown | 44.89854357 | -102.6242592 |
| 04/13/2023 | Bennett | Little White River Project | unknown | 43.16813191 | -101.5486822 |
| 04/14/2023 | Brookings | Interstate Urban Fishing Pond | Winterkill | 44.26588353 | -96.76170959 |
| 04/14/2023 | Lake | Herman Pond | Winterkill | 43.98823629 | -97.16550818 |
| 04/14/2023 | Lake | Long | Winterkill | 43.93342 | -97.00737 |
| 04/14/2023 | Lake | Round | Winterkill | 43.93512 | -96.98007 |

| Date Reported | County | Waterbody Name | Cause | Latitude | Longitude |
|---|---|---|---|---|---|
| 04/14/2023 | Minnehaha | Diamond | Winterkill | 43.84201 | -97.10211 |
| 04/14/2023 | Lake | George | Winterkill | 43.89659 | -97.31272 |
| 04/14/2023 | McCook | Island South | Winterkill | 43.78785816 | -97.13068122 |
| 04/15/2023 | Kingsbury | Albert | Winterkill | 44.53329 | -97.15742 |
| 04/15/2023 | Brookings | Campbell | Winterkill | 44.21144877 | -96.84344479 |
| 04/15/2023 | Brookings | Oakwood East | Winterkill | 44.43939 | -96.96757 |
| 04/15/2023 | Brookings | Oakwood West | Winterkill | 44.44404728 | -96.99091595 |
| 04/15/2023 | McPherson | Leola | Winterkill | 45.727721 | -98.93121704 |
| 04/18/2023 | Tripp | King | Winterkill | 43.55455268 | -99.80875093 |
| 04/18/2023 | Brule | Wanalain | Winterkill | 43.81075077 | -99.25141359 |
| 04/18/2023 | Douglas | Corsica | Winterkill | 43.41047906 | -98.29458994 |
| 04/18/2023 | Douglas | Armour Kids Fishing Pond | Winterkill | 43.32294785 | -98.34124233 |
| 04/18/2023 | Charles Mix | Geddes | Winterkill | 43.19443511 | -98.71297093 |
| 04/18/2023 | Tripp | Dog Ear | Winterkill | 43.16934465 | -99.90186872 |
| 04/18/2023 | Tripp | Rahn | Winterkill | 43.10521653 | -99.83525966 |
| 04/18/2023 | Tripp | Beauleau | Winterkill | 43.31089063 | -99.80923308 |
| 04/18/2023 | Tripp | Geddes | Winterkill | 43.20317609 | -99.61460195 |
| 04/18/2023 | Gregory | Fairfax | Winterkill | 43.04937207 | -98.88087397 |
| 04/18/2023 | Gregory | Burke | Winterkill | 43.17719348 | -99.25817964 |
| 04/18/2023 | Brule | Sixteen | Winterkill | 43.72078154 | -98.85596778 |
| 04/20/2023 | Beadle | Byron | Winterkill | 44.56685 | -98.13695 |
| 04/20/2023 | Beadle | Cavour | Winterkill | 44.40655335 | -98.05321288 |
| 04/20/2023 | Kingsbury | Spirit | Winterkill | 44.49329 | -97.60866 |
| 05/05/2023 | Marshall | Red Iron South | Winterkill | 45.65893226 | -97.31816718 |
| 05/05/2023 | Marshall | Nine Mile | Winterkill | 45.76600616 | -97.4646753 |
| 05/30/2023 | Edmunds | Scatterwood North | Winterkill | 45.26129651 | -98.75215541 |
| 06/01/2023 | Corson | Trail City | Winterkill | 45.47983354 | -100.745162 |
| 08/09/2023 | Beadle | Ravine Park | Turnover Kill | 44.38009574 | -98.18621171 |
| 08/10/2023 | McCook | West Fork Vermillion River | Summer Kill | 43.54340217 | -97.35322827 |

Fish Flesh Contaminants

The Water Quality Program, in partnership with the South Dakota Department of Game, Fish, and Parks, and the South Dakota Department of Health, sample and analyze fish from a variety of waterbodies. DANR has been collecting and actively studying fish flesh contaminant data since 1994. The purpose of this work is to determine the concentration of various contaminants in fish to protect public health. Waterbodies are selected for monitoring based on GF&P fishery management objectives, public access, and fishing pressure. Subsequently, this data is also used to assess support of the surface water quality criterion of mercury in fish tissue. A list of waterbodies sampled for fish flesh contaminants is available at the web address in Appendix J, Reference #26. Not all waterbodies in this report have been assessed for mercury in fish tissue.

The Food and Drug Administration (FDA) has set 1.0 mg/kg total mercury as the action level for commercial fish. In South Dakota, the Department of Health is responsible for issuing fish consumption advisories and under the guidance of the FDA, uses the FDA action level. For a list of South Dakota waterbodies with fish consumption advisories refer to the Department of Health website in Appendix J, Reference #27.

Mercury fish tissue concentration is a complex issue. There are many factors that affect mercury concentration in fish tissue, such as the species and feeding guild of fish collected, the age of fish collected, waterbody geomorphology, and subsequent methylation rates, and others. Due to these factors, some waterbodies may have a fish consumption advisory while others do not. DANR also assesses mercury in fish tissue but with the purpose of determining if the waterbody is supporting its beneficial uses.

Because fish consumption advisories are issued on waterbodies that exceed 1.0 mg/kg mercury in fish tissue (FDA criterion) and the DANR assesses waterbody support using the surface water quality criterion of 0.3 mg/kg mercury in fish tissue, there are waterbodies in this IR that are not meeting their designated uses due to mercury in fish tissue based on a water quality standard but may not have a fish consumption advisory. Although mercury in fish tissue is the common factor, public advice on fish consumption and waterbody beneficial use support are separate issues that are addressed by different state agencies. While DANR makes the determination if a waterbody is not meeting its beneficial uses due to mercury in fish tissue, the South Dakota Department of Health provides public health advice. Waterbodies with fish consumption advisories and/or waterbodies that exceed the surface water quality criterion are considered nonsupporting.

Domestic Water Supply Restrictions

There are currently no water consumption restrictions on waterbodies with the domestic water supply beneficial use designation. However, Firesteel Creek, a segment on the James River and the Big Sioux River, Maple River, Elm River, Lake Mitchell, Lake Waggoner, and Durkee Lake are listed as not supporting the domestic water supply beneficial use.

The James River (segment 07), Firesteel Creek, Lake Mitchell, Lake Waggoner, and Durkee Lake are no longer being used as drinking water sources. Many of the drinking water suppliers have replaced surface water intakes with rural water distribution to customers. DANR would like to remove the domestic water supply beneficial use from these waterbodies because the use is no longer occurring and will not occur in the future. The newly built infrastructure does not include surface water intakes from these waterbodies; therefore, the public water supplier does not use these waterbodies for domestic water supply. However, EPA's definition of "existing use" does not allow the removal of the use if the use was occurring on or after November 28, 1975. DANR disagrees and believes the 1975 date should only have been used to establish the original

beneficial use, but not determine if the beneficial use still exists fifty years later, regardless of actual conditions or use. DANR would like to work with EPA on a resolution to ensure that waterbody beneficial use designations are appropriate and accurate for South Dakota waters.

The segments listed below for the Big Sioux, Elm, and Maple Rivers are currently being used as a source water for public water suppliers. Tables 22 and 23 contain information on reach descriptions and pollutant causes.

### Table 22: Waterbodies Affected by Domestic Water Supply Restrictions

| Name of Waterbody | Waterbody Type | Type of Restriction | | | Cause(s)/ Pollutant(s) of Concern | Source(s) of Pollutants |
|---|---|---|---|---|---|---|
| | | Closure (Y/N) | Advisory (Y/N) | Other (explain) | | |
| None | - | - | - | - | - | - |

[a]Closures- restrict all consumption from a domestic water supply.
[b]Advisories- require that consumers disinfect water (through boiling or chemical treatment before ingestions).

### Table 23: Summary of Waterbodies Not Fully Supporting Domestic Water Supply Use

| AUID | Waterbody Name | Location | Domestic Water Supply Support Determination | Cause |
|---|---|---|---|---|
| SD-BS-R-BIG_SIOUX_10 | Big Sioux River | I-90 to diversion return | Not Supporting | TDS |
| SD-JA-R-ELM_01 | Elm River | Elm Lake to mouth | Not Supporting | TDS |
| SD-JA-R-FIRESTEEL_01 | Firesteel Creek | West Fork Firesteel Creek to Lake Mitchell | Not Supporting | TDS |
| SD-JA-R-JAMES_07 | James River | James River Diversion Dam to Huron 3rd Street Dam | Not Supporting | TDS |
| SD-JA-R-MAPLE_01 | Maple River | ND border to Elm River | Not Supporting | TDS |
| SD-JA-L-MITCHELL_01 | Lake Mitchell | Davison County | Not Supporting | Chlorophyll-a |
| SD-BA-L-WAGGONER_01 | Waggoner Lake | Haakon County | Not Supporting | Chlorophyll-a |
| SD-CH-L-DURKEE_01 | Durkee Lake | Meade County | Not Supporting | pH |

# V. POLLUTION CONTROL PROGRAMS

## POINT SOURCE POLLUTION CONTROL PROGRAM

The state received delegation of the federal NPDES program from the EPA on December 30, 1993. The NPDES permits issued by the state are referred to as Surface Water Discharge (SWD) permits. EPA continues to issue NPDES permits in South Dakota for facilities over which they retained jurisdiction. As of September 30, 2023, the state has issued a total of 226 individual SWD permits for discharges of industrial and municipal wastewater and three individual SWD permits for CAFOs. In addition, DANR has issued coverage to 1,220 projects under the general permit to discharge storm water during construction activities. There are currently 16 entities covered under the general MS4 permit and one city, Sioux Falls, with a large MS4 permit. The state has issued coverage for 1,465 facilities and/or activities under other general permits, including water treatment plants, metal finishers, CAFOs, and others. DANR has also issued a total of 23 general or individual biosolids-only permits.

Technology-based controls are placed in all appropriate SWD permits. However, technology-based controls alone do not necessarily provide comprehensive protection to the waters of the state. Water quality-based limits are developed when technology-based limits alone are not adequate to protect the beneficial uses of the receiving stream. Therefore, water quality-based limits and toxicity testing requirements are also placed in many of the permits to ensure the surface water quality standards are met and maintained.

The state continues to require WET testing for all major SWD permittees and certain significant minor SWD permittees. The goal of the WET approach is to ensure that point source discharges do not contain toxic pollutants in toxic amounts. If toxicity is found, the discharger is required to conduct an evaluation of the discharge to determine the source of the toxicity and eliminate the toxicity. This testing is supported by ARSD Section 74:51:01:12.

The South Dakota Surface Water Quality Standards contain the following provision concerning discharges to lakes:

> ***ARSD 74:51:01:27. Lakes not allowed a zone of mixing.*** *No zone of mixing is allowed for lakes. Discharges to lakes must meet the water quality standards at the point of discharge. No discharge of pollutants is allowed which reaches a lake classified for the beneficial use of coldwater permanent, coldwater marginal, warmwater permanent, warmwater semipermanent, or warmwater marginal fish life propagation or causes impairment of an assigned beneficial use.*

DANR's Surface Water Discharge permitting program regulates the discharge of pollutants from point sources. In most cases, DANR has not allowed discharges to lakes classified for the fish life propagation uses outlined in ARSD Section 74:51:01:27. There have been only limited exceptions to this rule.

Some of South Dakota's streams eventually drain into higher-classified lakes. If a point source discharges into a tributary of a lake, DANR takes into account the distance from the lake and the natural attenuation of any pollutants present before issuing a permit for the discharge. During the reissuance of each of these permits, DANR re-evaluates these discharges. If DANR determines that a discharge has the potential to impact a higher-classified lake, the permittee will be required to cease discharging those pollutants into the receiving waters.

To date, this approach has protected South Dakota's lakes and has not caused or contributed to a violation of the surface water quality standards from a point source discharge.

To help ensure that wastewater collection and treatment systems are compliant, the department provides cost share funding for planning, design, and construction. The department administers the Clean Water State Revolving Fund (CWSRF) Loan Program, which provides low interest loans to publicly owned wastewater facilities. The department's CWSRF Intended Use Plan establishes the criteria the department uses for fund awards. The FY2024 Intended Use Plan is available at the web address provided in Appendix J, Reference #28.

Between October 1, 2021, and September 30, 2023, the Department's Board of Water and Natural Resources awarded 113 CWSRF loans and four loan amendments totaling $599,664,686. Portions of eight of the awards were provided as additional subsidy in the form of principal forgiveness. The principal forgiveness totaled $11,099,953. These funds were used for the design and construction of sanitary sewer collection systems, wastewater treatment facilities, storm sewers, and landfill construction associated with the protection of groundwater.

The current CWSRF interest rates are 3.25% for loans with a term of 10 years or less, 3.50% for loans with a term greater than 10 years up to 20 years, and 3.75% for loans with a term greater than 20 years up to a maximum of 30 years. There is also a nonpoint source incentive loan rate for communities that are sponsoring a nonpoint source implementation project. The loan rate for these projects ranges from 2.50% for up to 10 years, 2.75% for loans with a term greater than 10 years up to 20 years, and 3.00% for loans with a term greater than 20 years up to a maximum of 30 years.

CWSRF administrative surcharge fees have been used to provide grant assistance for various clean water activities. To encourage responsible and proactive engineering planning, the Board uses CWSRF administrative surcharge funds to cost share engineering planning studies for small communities (2,500 population and below). Between October 1, 2021, and September 30, 2023, the department awarded a total of $150,000 for 15 engineering studies. The Board awarded $1,392,323 for the construction of three wastewater improvement projects.

South Dakota has a state water planning process that was established in 1972. This establishes an orderly planning process for water development. In addition, the state established a dedicated water funding program in 1993. The dedicated funding sources provided approximately $11.0 million annually. Between October 1, 2021, and September 30, 2023, $12,126,087 in state grants and $528,455 in state loans were awarded to 15 wastewater collection or treatment and storm water projects.

## COST/BENEFIT ASSESSMENT

DANR provides the Governor and Legislature with annual reports summarizing water and wastewater development activities for the preceding calendar year. These annual reports are available at the web address provided in Appendix J, Reference #29.

Information on operation and maintenance costs for local units of government is not readily available. Not all benefit data are readily available, but some information has been included in the Statewide Surface Water Quality Summary section of this report.

## NONPOINT SOURCE POLLUTION CONTROL PROGRAM

Nonpoint source (NPS) pollution is the most serious and pervasive threat to the quality of South Dakota's waters. Nonpoint source is defined as a source of water pollution that does not meet the legal definition of "point source" in section 502(14) of the Clean Water Act.

> *'The term point source means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural storm water discharges and return flows from irrigated agriculture.'*- Section 502(14) of the Clean Water Act.

Sources of nonpoint source pollution are diverse. Examples include fertilizer, herbicide and topsoil runoff from agricultural fields, livestock waste deposited in or near streams from unfenced livestock, sediment runoff from overgrazed pastures, manure applied to frozen fields, pet waste in urban areas, sediment from construction sites, sediment from improper logging techniques, leaking contents from failing septic tanks, drainage of acids or metals from abandoned mines and improperly applied chemicals and fertilizers in agricultural and urban environments. More information on nonpoint source pollution is available at the web address provided in Appendix J, Reference #30.

While substantial progress has been made toward reducing pollution from point sources such as wastewater and industrial plants after the passage and implementation of the Clean Water Act, nonpoint source pollution remains an entrenched problem. NPS pollution is unregulated as agricultural activities are exempt from most of the provisions of the Clean Water Act. The technical and financial assistance currently available is not sufficient to solve all NPS pollution issues in the state. Landowners need to understand the nonpoint source issues and how their activities contribute to NPS pollution. Educating the public about NPS pollution issues may prompt landowners to voluntarily implement activities that control NPS pollution. The continuation of existing activities coupled with the addition of innovative new programs may reduce nonpoint source pollution in South Dakota.

South Dakota's nonpoint source pollution management activities are implemented through the South Dakota Nonpoint Source Pollution Management Program. The primary focus of the program is the control of nonpoint source pollution through the use of voluntary implementation of BMPs and holistic resource management plans. The program coordinates its NPS control activities with local, state, and federal agencies and stakeholder organizations. These agencies and organizations provide BMPs and financial and technical assistance that increase the program's capacity to develop and implement NPS management projects. A copy of the current management plan provides detail on NPS-reducing best management practices and is available at the web address in Appendix J, Reference #31.

### South Dakota Nonpoint Source Projects

While the size, target audience, and structure of projects may vary, all share common elements of increasing awareness of NPS pollution issues. Each project identifies, quantifies, and locates sources of nonpoint source impairment, and reduces or prevents the delivery of NPS pollutants to waters of the state with emphasis on meeting targets established through TMDLs. Historically, the majority of the projects focused on reducing NPS pollution originating from agricultural operations. More recently, increased resources have been directed toward local initiatives that

evaluate water quality conditions, determine sources, and causes of NPS pollution within priority watersheds, and develop and implement TMDLs for impaired waterbodies.

Assessment/development projects generally range from one to three years and are designed to assess the water quality and beneficial uses of waterbodies in a predetermined area. The information attained through the assessment project will be used to identify sources of water quality impairments and will lead to the establishment of pollution reduction goals or TMDL endpoints.

Information and education projects are designed to provide information about NPS pollution issues and solutions. Information transfer tools typically used by the department and its project partners include brochures, print and electronic media, workshops, BMP implementation manuals, tours, exhibits, and demonstrations. Information and education projects usually range from one to five years in length. The Watershed Protection Program has formed a partnership with the South Dakota Discovery Center for the implementation of the statewide information and education efforts that target a wider cross section of the state's population.

Watershed implementation projects are the most comprehensive type of project implemented through the South Dakota NPS Program. Watershed implementation projects are typically long term, three to five years, in duration and designed to implement TMDLs that address NPS pollution sources and beneficial use impairments identified during the completion of an assessment project. Watershed implementation projects promote and encourage the use of voluntary BMPs that help prevent or reduce NPS pollution being delivered to impaired waterbodies.

For information about specific South Dakota NPS projects funded using CWA Section 319 funds, contact DANR or access EPA's Nonpoint Source Grants Reporting and Tracking System database. Information regarding watersheds where NPS assessment and implementation projects have been conducted is available at the web address provided in Appendix J, Reference #32.

Nonpoint Source Pollution Control Program Funding Strategy

DANR receives approximately $2.7 million in Section 319 funds annually from EPA. Administrative costs total about $842,000. The remaining $1.9 million is made available for project awards. DANR attempts to package the funding for TMDL assessment and implementation projects using a variety of other department, state, federal, or private funding. Other department funds include department fee funds, 604(b) funds, 106 funds, Clean Water SRF administrative surcharge funds, and Clean Water SRF conventional loan funds.

State financial resources from other programs commonly used in implementing NPS projects include the DANR's Soil and Water Conservation Grant funds, Game, Fish & Parks funds, and Water Development District funds. Private funds include wildlife groups and conservation organizations. Other federal funding sources commonly used in completing NPS projects include U.S. Department of Agriculture's Environmental Quality Incentives Program, Conservation Stewardship Program, Agricultural Conservation Easement Program, Regional Conservation Partnership Program, and Conservation Reserve Program.

# VI. PUBLIC PARTICIPATION PROCESS

To fulfill the requirements of the CWA and involve the affected community and stakeholders in the water quality improvement process, a public participation process for the IR has been implemented. Summarized below are the procedures employed by DANR to involve the public and affected parties in the development of this report.

Process Description

*First Public Review/Input Period*
A public notice was published in eleven statewide newspapers and placed on DANR's One-Stop Public Notice page, announcing that DANR is developing the IR and requesting water quality data to aid in the assessment of South Dakota's waters. This announcement was also sent to approximately 120 individuals and organizations.

*Second Public Review Period*
Data received after the first public review period and additional data gathered by DANR are reviewed and a draft IR is developed. The draft report is released for a 30-day public review and comment period. The announcement on the availability of the draft report is mailed out to "interested parties" and again published in the eleven statewide newspapers. The draft report is also made available on DANR's One-Stop Public Notice page. At this time, the draft report is also provided to EPA Region 8 for review and comment. The web address to the One-Stop Public Notice page is available in Appendix J, Reference #33.

Personnel from DANR respond to inquiries and are available to meet with interested groups about the list and listing process. Copies of public participation documents and responses to oral and written comments received during the comment period will be included in Appendix K.

# VII. REFERENCES


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# APPENDICES

# APPENDIX A

# WATERBODIES WITH EPA APPROVED TMDLS

| River Basin | Waterbody | AUID | Segment or Lake Location | Impairment | TMDL Approved | TMDL ID |
|---|---|---|---|---|---|---|
| Bad | Freeman Lake | SD-BA-L-FREEMAN_01 | Jackson County | Nitrates/Selenium | 2/7/2001 | 1507 |
| Bad | Freeman Lake | SD-BA-L-FREEMAN_01 | Jackson County | Total dissolved solids | 9/26/2012 | 42516 |
| Bad | Hayes Lake | SD-BA-L-HAYES_01 | Stanley County | TSI | 9/29/2004 | 10976 |
| Bad | Hayes Lake | SD-BA-L-HAYES_01 | Stanley County | Mercury in Fish Tissue | 3/1/2016 | 65381 |
| Bad | Murdo Dam | SD-BA-L-MURDO_01 | Jones County | Mercury in Fish Tissue | 3/1/2016 | 65382 |
| Bad | Sheriff Dam | SD-BA-L-SHERIFF_01 | Jones County (FPNG) | Mercury in Fish Tissue | 8/18/2016 | 65867 |
| Bad | Bad River | SD-BA-R-BAD_01 | Stanley County line to mouth | TSS | 2/7/2001 | 1537 |
| Belle Fourche | Belle Fourche River | | Wyoming to near Fruitdale | TSS | 2/2/2005 | 11383 |
| Belle Fourche | Belle Fourche River | | Near Fruitdale to Whitewood Creek | TSS | 2/2/2005 | 11384 |
| Belle Fourche | Newell Lake | SD-BF-L-NEWELL_01 | Butte County | Mercury in Fish Tissue | 3/1/2016 | 64500 |
| Belle Fourche | Orman Dam (Belle Fourche Reservoir) | SD-BF-L-ORMAN_01 | Butte County | Mercury in Fish Tissue | 3/1/2016 | 65384 |
| Belle Fourche | Bear Butte Cr. | SD-BF-R-BEAR_BUTTE_02 | Strawberry Cr. To near Bear Den Mountain | TSS | 8/8/2007 | 33703 |
| Belle Fourche | Belle Fourche River | SD-BF-R-BELLE_FOURCHE_01 | Wyoming to Redwater River | Fecal coliform | 10/17/2011 | 41417 |
| Belle Fourche | Belle Fourche River | SD-BF-R-BELLE_FOURCHE_01 | Wyoming to Redwater River | *E. coli* | 8/31/2017 | 68243 |
| Belle Fourche | Belle Fourche River | SD-BF-R-BELLE_FOURCHE_03 | Whitewood Creek to Willow Creek | TSS | 2/2/2005 | 11385 |
| Belle Fourche | Belle Fourche River | SD-BF-R-BELLE_FOURCHE_04 | Willow Creek to Alkali Creek | TSS | 2/2/2005 | 11386 |

| River Basin | Waterbody | AUID | Segment or Lake Location | Impairment | TMDL Approved | TMDL ID |
|---|---|---|---|---|---|---|
| Belle Fourche | Belle Fourche River | SD-BF-R-BELLE_FOURCHE_05 | Alkali Creek to mouth | *E. coli*/fecal coliform | 10/17/2011 | 41418/ 41419 |
| Belle Fourche | Belle Fourche River | SD-BF-R-BELLE_FOURCHE_05 | Alkali Creek to mouth | TSS | 2/2/2005 | 11387 |
| Belle Fourche | Deadwood Creek | SD-BF-R-DEADWOOD_01 | Rutabaga Gulch to Whitewood Creek | *E. coli* | 09/29/2020 | R8-SD-2020-03 |
| Belle Fourche | Horse Creek | SD-BF-R-HORSE_01_USGS | Indian Creek to mouth | TSS | 2/2/2005 | 11382 |
| Belle Fourche | Strawberry Creek | SD-BF-R-STRAWBERRY_01 | Bear Butte Creek to S5, T4N, R4E | Cadmium | 4/19/2010 | 38462 |
| Belle Fourche | West Strawberry Creek | SD-BF-R-W_STRAWBERRY_01 | Headwaters to mouth | Fecal coliform | 4/6/2011 | 40169 |
| Belle Fourche | Whitewood Creek | SD-BF-R-WHITEWOOD_03 | Deadwood Creek to Spruce Gulch | *E. coli*/fecal coliform | 7/28/2011 | 41058/41059 |
| Belle Fourche | Whitewood Creek | SD-BF-R-WHITEWOOD_04 | Spruce Gulch to Sandy Creek | *E. coli* | 8/02/2022 | R8-SD-2022-05 |
| Big Sioux | Big Sioux River | | I-29 to near Dell Rapids | TSS | 5/28/2008 | 34495 |
| Big Sioux | Big Sioux River | | Near Dell Rapids to Below Baltic | Fecal coliform | 5/28/2008 | 34494 |
| Big Sioux | Big Sioux River | | SD/IA border to Nine Mile Creek | Fecal coliform | 1/23/2008 | 34093 |
| Big Sioux | Lake Albert | SD-BS-L-ALBERT_01 | Kingsbury County | Mercury in Fish Tissue | 3/1/2016 | 65387 |
| Big Sioux | Lake Alvin | SD-BS-L-ALVIN_01 | Lincoln County | TSI/fecal coliform | 11/9/2001 | 2193/ 2194 |
| Big Sioux | Antelope Lake | SD-BS-L-ANTELOPE_01 | Day County | Mercury in Fish Tissue | 3/1/2016 | 65388 |
| Big Sioux | Bitter Lake | SD-BS-L-BITTER_01 | Day County | Mercury in Fish Tissue | 3/1/2016 | 64501 |
| Big Sioux | Blue Dog Lake | SD-BS-L-BLUE_DOG_01 | Day County | TSI/fecal coliform | 2/7/2001 | 1436 |

| River Basin | Waterbody | AUID | Segment or Lake Location | Impairment | TMDL Approved | TMDL ID |
|---|---|---|---|---|---|---|
| Big Sioux | Brant Lake | SD-BS-L-BRANT_01 | Lake County | TSI | 4/12/1999 | 169 |
| Big Sioux | Brush Lake | SD-BS-L-BRUSH_01 | Brookings County | Mercury in Fish Tissue | 3/1/2016 | 65389 |
| Big Sioux | Clear Lake | SD-BS-L-CLEAR_01 | Deuel County | TSI/Sediment | 2/7/2001 | 1467 |
| Big Sioux | Clear Lake (Hamlin) | SD-BS-L-CLEAR_H_01 | Hamlin County | Mercury in Fish Tissue | 3/1/2016 | 65390 |
| Big Sioux | Diamond Lake | SD-BS-L-DIAMOND_01 | Minnehaha County | Mercury in Fish Tissue | 3/1/2016 | 65391 |
| Big Sioux | Dry Lake | SD-BS-L-DRY_01 | Codington County | Mercury in Fish Tissue | 3/1/2016 | 65396 |
| Big Sioux | Dry Lake Number 2 | SD-BS-L-DRY_NO2_01 | Clark County | Mercury in Fish Tissue | 3/1/2016 | 65392 |
| Big Sioux | East Oakwood Lake | SD-BS-L-E_OAKWOOD_01 | Brookings County | TSI/pH | 6/13/2008 | 34521 |
| Big Sioux | Enemy Swim Lake | SD-BS-L-ENEMY_SWIM_01 | Day County | Mercury in Fish Tissue | 3/1/2016 | 65397 |
| Big Sioux | Goldsmith Lake | SD-BS-L-GOLDSMITH_01 | Brookings County | Mercury in Fish Tissue | 3/1/2016 | 65398 |
| Big Sioux | Goose Lake | SD-BS-L-GOOSE_01 | Codington County | Mercury in Fish Tissue | 3/1/2016 | 65399 |
| Big Sioux | Lake Herman | SD-BS-L-HERMAN_01 | Lake County | TSI | 9/29/2004 | 10978 |
| Big Sioux | Lake Herman | SD-BS-L-HERMAN_01 | Lake County | Mercury in Fish Tissue | 3/1/2016 | 65400 |
| Big Sioux | North Island Lake | SD-BS-L-ISLAND_N_01 | Minnehaha/McCook counties (formerly SD-VM-L-ISLAND_N_01) | Mercury in Fish Tissue | 3/1/2016 | 64502 |
| Big Sioux | Lake Kampeska | SD-BS-L-KAMPESKA_01 | Codington County | Nutrients/Sediment - special approval | 12/26/1996 | 635 |
| Big Sioux | Lake Kampeska | SD-BS-L-KAMPESKA_01 | Codington County | Mercury in Fish Tissue | 3/1/2016 | 65401 |

| River Basin | Waterbody | AUID | Segment or Lake Location | Impairment | TMDL Approved | TMDL ID |
|---|---|---|---|---|---|---|
| Big Sioux | Long Lake | SD-BS-L-LONG_COD_01 | Codington County | Mercury in Fish Tissue | 3/1/2016 | 64504 |
| Big Sioux | Lake Madison | SD-BS-L-MADISON_01 | Lake County | TSI/fish kill | 4/12/1999 | 639 |
| Big Sioux | Minnewasta Lake | SD-BS-L-MINNEWASTA_01 | Day County | Mercury in Fish Tissue | 3/1/2016 | 64506 |
| Big Sioux | Pelican Lake | SD-BS-L-PELICAN_01 | Codington County | Nutrients/Sediment-special approval | 12/26/1996 | 918 |
| Big Sioux | Lake Poinsett | SD-BS-L-POINSETT_01 | Hamlin County | Nutrients-special approval | 12/26/1996 | 2255 |
| Big Sioux | Lake Poinsett | SD-BS-L-POINSETT_01 | Hamlin County | Mercury in Fish Tissue | 3/1/2016 | 65402 |
| Big Sioux | Reid Lake | SD-BS-L-REID_01 | Clark County | Mercury in Fish Tissue | 3/1/2016 | 64508 |
| Big Sioux | Rush Lake | SD-BS-L-RUSH_01 | Day County | Mercury in Fish Tissue | 3/1/2016 | 65403 |
| Big Sioux | School Lake | SD-BS-L-SCHOOL_01 | Deuel County | TSI | 9/2/2008 | 35132 |
| Big Sioux | Lake Sinai | SD-BS-L-SINAI_01 | Brookings County | Mercury in Fish Tissue | 3/1/2016 | 65417 |
| Big Sioux | Swan Lake | SD-BS-L-SWAN_01 | Clark County | Mercury in Fish Tissue | 3/1/2016 | 64509 |
| Big Sioux | Twin Lakes/W. Hwy 81 | SD-BS-L-TWIN_01 | Kingsbury County | Mercury in Fish Tissue | 3/1/2016 | 64510 |
| Big Sioux | Twin Lakes | SD-BS-L-TWIN_02 | Minnehaha County | Mercury in Fish Tissue | 3/1/2016 | 64511 |
| Big Sioux | West Oakwood Lake | SD-BS-L-W_OAKWOOD_01 | Brookings County | TSI | 6/13/2008 | 34522 |
| Big Sioux | Waubay Lake | SD-BS-L-WAUBAY_01 | Day County | Mercury in Fish Tissue | 3/1/2016 | 65418 |
| Big Sioux | Beaver Creek | SD-BS-R-BEAVER_01 | Big Sioux River to S9, T98N, R49W | Fecal coliform | 8/10/2011 | 41067 |

| River Basin | Waterbody | AUID | Segment or Lake Location | Impairment | TMDL Approved | TMDL ID |
|---|---|---|---|---|---|---|
| Big Sioux | Beaver Creek | SD-BS-R-BEAVER_02 | Split Rock Creek to SD-MN border | Fecal coliform/TSS | 5/28/2008 | 34499 |
| Big Sioux | Beaver Creek | SD-BS-R-BEAVER_02 | Split Rock Creek to SD-MN border | *E. coli* | 11/07/2020 | R8-SD-2021-01 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_01 | S28, T121N, R52W to Lake Kampeska | *E. coli* | 04/22/2020 | R8-SD-2020-02 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_03 | Willow Creek to Stray Horse Creek | Fecal coliform | 6/4/2008 | 34506 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_03 | Willow Creek to Stray Horse Creek | *E. coli* | 8/8/2011 | 41060 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_07 | Brookings/Moody County Line to S2, T104N, R49W | Mercury in Fish Tissue | 3/1/2016 | 65405 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_08 | S2, T104N, R49W to I-90 | *E. coli*/fecal coliform | 9/26/2012 Updated-7/14/2019 | 42519 (old) R8-SD-2019-01 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_08 | S2, T104N, R49W to I-90 | TSS | 12/6/2012 Updated-7/14/2019 | 53280 (old) R8-SD-2019-02 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_10 | I-90 to diversion return | *E. coli*/fecal coliform | 9/26/2012 Updated-7/14/2019 | 42520 (old) R8-SD-2019-01 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_10 | I-90 to diversion return | TSS | 12/6/2012 Updated-7/14/2019 | 53281 (old) R8-SD-2019-02 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_11 | Diversion return to SF WWTF | *E. coli*/fecal coliform | 9/26/2012 Updated-7/14/2019 | 42522 (old) R8-SD-2019-01 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_11 | Diversion return to SF WWTF | TSS | 12/6/2012 Updated-7/14/2019 | 53282 (old) R8-SD-2019-02 |

| River Basin | Waterbody | AUID | Segment or Lake Location | Impairment | TMDL Approved | TMDL ID |
|---|---|---|---|---|---|---|
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_12 | SF WWTF to above Brandon | *E. coli*/fecal coliform | 9/26/2012 Updated-7/14/2019 | 42523 (old) R8-SD-2019-01 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_12 | SF WWTF to above Brandon | TSS | 12/6/2012 Updated-7/14/2019 | 53283 (old) R8-SD-2019-02 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_13 | Above Brandon to Nine Mile Creek | fecal coliform | 1/23/2008 | 34093 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_14 | Nine Mile Creek to near Fairview | fecal coliform | 1/23/2008 | 34094 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_15 | Fairview to near Alcester | fecal coliform | 1/23/2008 | 34095 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_15 | Fairview to near Alcester | TSS | 2/1/2010 | 38211 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_16 | Near Alcester to Indian Creek | fecal coliform | 1/23/2008 | 34096 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_16 | Near Alcester to Indian Creek | TSS | 2/1/2010 | 38213 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_17 | Indian Creek to Mouth | fecal coliform | 1/23/2008 | 34098 |
| Big Sioux | Big Sioux River | SD-BS-R-BIG_SIOUX_17 | Indian Creek to Mouth | TSS | 2/01/2010 | 38212 |
| Big Sioux | Brule Creek | SD-BS-R-BRULE_01 | Big Sioux River to confluence with its east and west forks | Fecal coliform | 6/2/2011 | 40438 |
| Big Sioux | Brule Creek | SD-BS-R-BRULE_01 | Big Sioux River to confluence with its east and west forks | *E. coli* | 11/07/2020 | R8-SD-2021-01 |
| Big Sioux | Brule Creek | SD-BS-R-BRULE_01 | Big Sioux River to confluence with its east and west forks | *TSS* | 3/18/2022 | R8-SD-2022-01 |
| Big Sioux | East Brule Creek | SD-BS-R-EAST_BRULE_01 | Confluence with Brule Creek to S3, T95N, R49W | Fecal coliform | 3/24/2011 | 40025 |

| River Basin | Waterbody | AUID | Segment or Lake Location | Impairment | TMDL Approved | TMDL ID |
|---|---|---|---|---|---|---|
| Big Sioux | Flandreau Creek | SD-BS-R-FLANDREAU_01 | Big Sioux River to MN border | Fecal coliform | 5/28/2008 | 34496 |
| Big Sioux | Hidewood Creek | SD-BS-R-HIDEWOOD_01 | Big Sioux River to US Hwy 77 | Fecal coliform | 6/4/2008 | 34509 |
| Big Sioux | Jack Moore Creek | SD-BS-R-JACK_MOORE-01 | Big Sioux River to S33, T 107N, R 49W | Fecal coliform | 5/28/2008 | 34500 |
| Big Sioux | Medary Creek | SD-BS-R-MEDARY_01 | MN border to Big Sioux River | *E. coli* | 04/11/2023 | R8-SD-2023-01 |
| Big Sioux | North Deer Creek | SD-BS-R-NORTH_DEER_01 | Six Mile Creek to US Hwy 77 | Fecal coliform | 5/28/2008 | 34501 |
| Big Sioux | Peg Munky Run | SD-BS-R-PEG_MUNKY_RUN_01 | Big Sioux River to S17, T113N, R50W | Fecal coliform | 8/10/2011 | 41071 |
| Big Sioux | Pipestone Creek | SD-BS-R-PIPESTONE_01 | Split Rock Creek to MN border (SD/MN border to SD/MN border) | Fecal coliform | 5/28/2008 | 34502 |
| Big Sioux | Pipestone Creek | SD-BS-R-PIPESTONE_01 | Split Rock Creek to MN border (SD/MN border to SD/MN border) | *E. coli* | 9/26/2012 | 42524 |
| Big Sioux | Sixmile Creek | SD-BS-R-SIXMILE_01 | North Deer Creek to S30, T112N, R48W | *E. coli* | 09/20/2022 | R8-SD-2022-08 |
| Big Sioux | Skunk Creek | SD-BS-R-SKUNK_01 | Brandt Lake to mouth | Fecal coliform | 5/28/2008 | 34503 |
| Big Sioux | Split Rock Creek | SD-BS-R-SPLIT_ROCK_01_USGS | At Corson, SD (West Pipestone Creek to Big Sioux River) | TSS/fecal coliform | 5/28/2008 | 34504 |
| Big Sioux | Spring Creek | SD-BS-R-SPRING_01 | Big Sioux River to S22, T109N, R47W | Fecal coliform | 5/28/2008 | 34505 |
| Big Sioux | Stray Horse Creek | SD-BS-R-STRAYHORSE_01 | Big Sioux River to S26, T116N, R51W | Fecal coliform | 6/4/2008 | 34508 |
| Big Sioux | Union Creek | SD-BS-R-UNION_01 | Big Sioux River to confluence with east and west forks | Fecal coliform | 8/8/2011 | 41062 |

| River Basin | Waterbody | AUID | Segment or Lake Location | Impairment | TMDL Approved | TMDL ID |
|---|---|---|---|---|---|---|
| Big Sioux | Willow Creek | SD-BS-R-WILLOW_01 | Big Sioux River to S7, T117N, R50W | Fecal coliform | 6/4/2008 | 34507 |
| Cheyenne | Center Lake | SD-CH-L-CENTER_01 | Custer County | pH | 8/08/2007 | 33707 |
| Cheyenne | Center Lake | SD-CH-L-CENTER_01 | Custer County | TSI | 8/8/2007 | 33707 |
| Cheyenne | Curlew Lake | SD-CH-L-CURLEW_01 | Meade County | Mercury in Fish Tissue | 3/1/2016 | 65406 |
| Cheyenne | Durkee Lake | SD-CH-L-DURKEE_01 | Meade County | Mercury in Fish Tissue | 9/13/2022 | R8-SD-2022-07 |
| Cheyenne | Horsethief Lake | SD-CH-L-HORSETHIEF_01 | Pennington | pH | 3/24/2011 | 40026 |
| Cheyenne | Legion Lake | SD-CH-L-LEGION_01 | Custer County | pH | 9/02/2008 | 35136 |
| Cheyenne | Legion Lake | SD-CH-L-LEGION_01 | Custer County | TSI | 9/2/2008 | 35136 |
| Cheyenne | Sheridan Lake | SD-CH-L-SHERIDAN_01 | Pennington County | TSI | 8/30/2006 | 31136 |
| Cheyenne | Sheridan Lake | SD-CH-L-SHERIDAN_01 | Pennington County | Mercury in Fish Tissue | 8/18/2016 | 65871 |
| Cheyenne | Stockade Lake | SD-CH-L-STOCKADE_01 | Custer County | Mercury in Fish Tissue | 8/18/2016 | 65870 |
| Cheyenne | Sylvan Lake | SD-CH-L-SYLVAN_01 | Custer County | TSI | 9/1/2005 | 12351 |
| Cheyenne | Sylvan Lake | SD-CH-L-SYLVAN_01 | Custer County | pH (high) | 8/18/2016 | 65861 |
| Cheyenne | Battle Creek | SD-CH-R-BATTLE_01_USGS | Hwy 79 to mouth | *E. coli*/fecal coliform | 2/18/2014 | 56640 |
| Cheyenne | Battle Creek | SD-CH-R-BATTLE_02 | Teepee Gulch Creek to SD HWY 79 | *E. coli*/fecal coliform | 2/18/2014 | 56641 |
| Cheyenne | Beaver Creek | SD-CH-R-BEAVER_01 | Wyoming border to Cheyenne River | Fecal coliform | 3/12/2010 | 38253 |
| Cheyenne | Beaver Creek | SD-CH-R-BEAVER_01_USGS | Near Buffalo Gap | Fecal coliform | 9/26/2012 | 42518 |
| Cheyenne | Cheyenne River | SD-CH-R-CHEYENNE_03 | Fall River to Cedar Creek | *E. coli*/fecal coliform | 9/29/2010 | 39434/ 39429 |

| River Basin | Waterbody | AUID | Segment or Lake Location | Impairment | TMDL Approved | TMDL ID |
|---|---|---|---|---|---|---|
| Cheyenne | Cheyenne River | SD-CH-R-CHEYENNE_04 | Cedar Creek to Belle Fourche River | *E. coli*/fecal coliform | 9/29/2010 | 39435/ 39430 |
| Cheyenne | Cheyenne River | SD-CH-R-CHEYENNE_05 | Belle Fourche River to Bull Creek | *E. coli*/fecal coliform | 9/29/2010 | 39436/ 39431 |
| Cheyenne | Cheyenne River | SD-CH-R-CHEYENNE_06 | Bull Creek to Lake Oahe | *E. coli* /fecal coliform | 9/29/2010 | 39437/ 39432 |
| Cheyenne | Rapid Creek | SD-CH-R-RAPID_03 | Canyon Lake to S15, T1N, R8E | Fecal coliform | 9/28/2010 | 39426 |
| Cheyenne | Rapid Creek | SD-CH-R-RAPID_04 | S15, T1N, R8E to above Farmingdale | Fecal coliform | 9/28/2010 | 39427 |
| Cheyenne | Rapid Creek | SD-CH-R-RAPID_04 | S15, T1N, R8E to above Farmingdale | *E. coli* | 11/07/2020 | R8-SD-2021-01 |
| Cheyenne | Rapid Creek | SD-CH-R-RAPID_05 | Above Farmingdale to Cheyenne River | *E. coli*/fecal coliform | 9/28/2010 | 39433/ 39428 |
| Cheyenne | Rapid Creek | SD-CH-R-RAPID_05 | Above Farmingdale to Cheyenne River | TSS | 9/27/2011 | 41087 |
| Cheyenne | Spring Creek | SD-CH-R-SPRING_01 | Headwaters to Sheridan Lake | Fecal coliform | 12/11/2008 | 35790 |
| Cheyenne | Spring Creek | SD-CH-R-SPRING_01 | Headwaters to Sheridan Lake | *E. coli* | 9/05/2022 | R8-SD-2022-06 |
| Grand | East Lemmon Lake | SD-GR-L-EAST_LEMMON_01 | Perkins County | Mercury in Fish Tissue | 9/13/2022 | R8-SD-2022-07 |
| Grand | Shadehill Reservoir | SD-GR-L-SHADEHILL_01 | Perkins County | Mercury in Fish Tissue | 3/1/2016 | 65407 |
| James | Moccasin Creek | | Aberdeen to Warner | Ammonia | 3/19/2001 | 1581 |
| James | Amsden Dam | SD-JA-L-AMSDEN_01 | Day County | Mercury in Fish Tissue | 3/1/2016 | 65408 |
| James | Lake Byron | SD-JA-L-BYRON_01 | Beadle County | Nutrients/Sediment-special approval | 4/12/1999 | 618 |

| River Basin | Waterbody | AUID | Segment or Lake Location | Impairment | TMDL Approved | TMDL ID |
|---|---|---|---|---|---|---|
| James | Lake Carthage | SD-JA-L-CARTHAGE_01 | Miner County | Mercury in Fish Tissue | 3/1/2016 | 65409 |
| James | Cattail Lake | SD-JA-L-CATTAIL_01 | Marshall County (formerly SD-BS-L-CATTAIL_01) | Mercury in Fish Tissue | 3/1/2016 | 65410 |
| James | Lake Cavour | SD-JA-L-CAVOUR_01 | Beadle County | Mercury in Fish Tissue | 03/1/2016 | 65411 |
| James | Clubhouse Lake | SD-JA-L-CLUBHOUSE_01 | Marshall County | Mercury in Fish Tissue | 8/18/2016 | 65868 |
| James | Cottonwood Lake | SD-JA-L-COTTONWOOD_ | Spink County | TSI | 11/9/2001 | 2195 |
| James | Cottonwood Lake | SD-JA-L-COTTONWOOD_01 | Spink County | Mercury in Fish Tissue | 3/1/2016 | 65413 |
| James | Cresbard Lake | SD-JA-L-CRESBARD_01 | Faulk County | TSI | 12/3/2003 | 9745 |
| James | Elm Lake | SD-JA-L-ELM_01 | Brown County | TSI | 4/12/1999 | 420 |
| James | Elm Lake | SD-JA-L-ELM_01 | Brown County | Mercury in Fish Tissue | 3/1/2016 | 64512 |
| James | Lake Faulkton | SD-JA-L-FAULKTON_01 | Faulk County | TSI/Sediment | 4/12/1999 | 623 |
| James | Lake Faulkton | SD-JA-L-FAULKTON_01 | Faulk County | Mercury in Fish Tissue | 3/1/2016 | 65414 |
| James | Lake Hanson | SD-JA-L-HANSON_01 | Hanson County | TSI | 6/3/2004 | 10623 |
| James | Lake Hanson | SD-JA-L-HANSON_01 | Hanson County | Mercury in Fish Tissue | 3/1/2016 | 65415 |
| James | Hazeldon Lake | SD-JA-L-HAZELDON_01 | Day County | Mercury in Fish Tissue | 3/1/2016 | 65420 |
| James | Henry Reservoir | SD-JA-L-HENRY_01 | Near Scotland, SD | Mercury in Fish Tissue | 3/1/2016 | 65419 |
| James | Horseshoe Lake | SD-JA-L-HORSESHOE_01 | Marshall County | Mercury in Fish Tissue | 3/1/2016 | 65421 |
| James | Jones Lake | SD-JA-L-JONES_01 | Hand County | TSI | 4/2/2003 | 9747 |

| River Basin | Waterbody | AUID | Segment or Lake Location | Impairment | TMDL Approved | TMDL ID |
|---|---|---|---|---|---|---|
| James | Lardy Lake | SD-JA-L-LARDY_01 | Day County (Formerly SD-BS-L-LARDY_01) | Mercury in Fish Tissue | 3/1/2016 | 64503 |
| James | Lilly Lake | SD-JA-L-LILY_01 | Day County | Mercury in Fish Tissue | 3/1/2016 | 65422 |
| James | Lake Louise | SD-JA-L-LOUISE_01 | Hand County | TSI | 11/9/2001 | 2196 |
| James | Lake Louise | SD-JA-L-LOUISE_01 | Hand County | Mercury in Fish Tissue | 3/1/2016 | 65423 |
| James | Loyalton Dam | SD-JA-L-LOYALTON_01 | Edmunds County | TSI | 4/2/2003 | 9748 |
| James | Lynn Lake | SD-JA-L-LYNN_01 | Day County | Mercury in Fish Tissue | 3/1/2016 | 65424 |
| James | Middle Lynn Lake | SD-JA-L-MID_LYNN_01 | Day County (formerly SD-BS-L-MID_LYNN_01) | Mercury in Fish Tissue | 3/1/2016 | 64505 |
| James | Mina Lake | SD-JA-L-MINA_01 | Edmunds County | TSI | 4/2/2003 | 9749 |
| James | Mina Lake | SD-JA-L-MINA_01 | Edmunds County | Mercury in Fish Tissue | 3/1/2016 | 65425 |
| James | Lake Mitchell | SD-JA-L-MITCHELL_01 | Davison County | Nutrients-special approval | 4/22/1997 | 2254 |
| James | Opitz Lake | SD-JA-L-OPITZ_01 | Day County (Formerly SD-BS-L-OPITZ_01) | Mercury in Fish Tissue | 03/1/2016 | 64507 |
| James | Ravine Lake | SD-JA-L-RAVINE_01 | Beadle County | TSI/fecal coliform | 4/12/1999 | 976 |
| James | Ravine Lake | SD-JA-L-RAVINE_01 | Beadle County | Mercury in Fish Tissue | 3/1/2016 | 65426 |
| James | Lake Redfield | SD-JA-L-REDFIELD_01 | Spink County | Nutrients/Sediment-special approval | 4/12/1999 | 645/984 |
| James | Reetz Lake | SD-JA-L-REETZ_01 | Day County | Mercury in Fish Tissue | 3/1/2016 | 65427 |
| James | Richmond Lake | SD-JA-L-RICHMOND_01 | Brown County | TSI | 8/8/2007 | 33708 |

| River Basin | Waterbody | AUID | Segment or Lake Location | Impairment | TMDL Approved | TMDL ID |
|---|---|---|---|---|---|---|
| James | Richmond Lake | SD-JA-L-RICHMOND_01 | Brown County | Mercury in Fish Tissue | 3/1/2016 | 65428 |
| James | Rosehill Lake | SD-JA-L-ROSEHILL_01 | Hand County | TSI | 4/2/2003 | 9750 |
| James | South Buffalo Lake | SD-JA-L-SOUTH_BUFFALO_01 | Marshall County (formerly SD-BS-L-SOUTH_BUFFALO_01) | Mercury in Fish Tissue | 3/1/2016 | 65429 |
| James | Staum Dam | SD-JA-L-STAUM_01 | Beadle County | Mercury in Fish Tissue | 3/1/2016 | 65430 |
| James | Stink Lake | SD-JA-L-STINK_01 | Marshall County | Mercury in Fish Tissue | 9/13/2022 | R8-SD-2022-07 |
| James | Wilmarth Lake | SD-JA-L-WILMARTH_01 | Aurora County | Mercury in Fish Tissue | 3/1/2016 | 65431 |
| James | Dawson Creek | SD-JA-R-DAWSON_01 | James River to Lake Henry | *E. coli*/fecal coliform | 6/2/2011 | 40437 |
| James | Firesteel Creek | SD-JA-R-FIRESTEEL_01 | West Fork Firesteel to mouth | Nutrients-special approval | 4/22/1997 | 2254 |
| James | James River | SD-JA-R-JAMES_08 | Huron 3rd Street Dam to Sand Creek | Mercury in Fish Tissue | 8/18/2016 | 65869 |
| James | James River | SD-JA-R-JAMES_11 | Yankton County line to mouth | Fecal coliform | 3/24/2011 | 40029 |
| James | James River | SD-JA-R-JAMES_11 | Yankton County line to mouth | TSS | 7/12/2022 | R8-SD-2022-04 |
| James | Pierre Creek | SD-JA-R-PIERRE_01 | James River to S11, T102N, R58W | Fecal coliform | 9/29/2009 | 37333 |
| James | Pierre Creek | SD-JA-R-PIERRE_01 | James River to S11, T102N, R58W | *E. coli* | 12/5/2011 | 41443 |
| James | Wolf Creek | SD-JA-R-WOLF_01 | Wolf Creek Colony to S5, T103N, R56W | *E. coli* | 04/16/2020 | R8-SD-2020-01 |
| James | Wolf Creek | SD-JA-R-WOLF_02 | Just above Wolf Creek Colony to mouth | TSS | 8/8/2011 | 41061 |

| River Basin | Waterbody | AUID | Segment or Lake Location | Impairment | TMDL Approved | TMDL ID |
|---|---|---|---|---|---|---|
| James | Wolf Creek | SD-JA-R-WOLF_02 | Just above Wolf Creek Colony to mouth | *E. coli* | 04/16/2020 | R8-SD-2020-01 |
| Little Missouri | Little Missouri River | SD-LM-R-LITTLE_MISSOURI_01 | Montana border to North Dakota border | Mercury in Fish Tissue | 3/1/2016 | 65433 |
| Minnesota | Lake Alice | SD-MN-L-ALICE_01 | Deuel County | TSI | 6/3/2004 | 10622 |
| Minnesota | Lake Alice | SD-MN-L-ALICE_01 | Deuel County | Mercury in Fish Tissue | 3/1/2016 | 65440 |
| Minnesota | Big Stone Lake | SD-MN-L-BIG_STONE_01 | Roberts County | Nutrients-special approval | 12/26/1996 | 123 |
| Minnesota | Fish Lake | SD-MN-L-FISH_01 | Deuel County | TSI | 9/29/2004 | 10971 |
| Minnesota | Lake Hendricks | SD-MN-L-HENDRICKS_01 | Brookings County | TSI/Sediment | 4/12/1999 | 631 |
| Minnesota | Lake Oliver | SD-MN-L-OLIVER_01 | Deuel County | TSI | 11/9/2001 | 2197 |
| Minnesota | Punished Woman Lake | SD-MN-L-PUNISHED_WOMAN_01 | Codington County | TSI/Sediment | 2/7/2001 | 1621 |
| Minnesota | Summit Lake | SD-MN-L-SUMMIT_01 | Grant County | Mercury in Fish Tissue | 3/1/2016 | 65441 |
| Minnesota | South Fork Whetstone River | SD-MN-R-WHETSTONE_S_FORK_01 | Headwaters to Lake Farley | *E. coli* | 06/08/2022 | RB-SD-2022-02 |
| Minnesota | South Fork Whetstone River | SD-MN-R-WHETSTONE_S_FORK_02 | Lake Farley to mouth | *E. coli* | 06/08/2022 | RB-SD-2022-02 |
| Minnesota | North Fork Yellow Bank River | SD-MN-R-YELLOW_BANK_N_FORK_01 | SD/MN border to S27, T120N, R48W | *E. coli* | 5/20/2018 | R8-SD-2018-01 |
| Minnesota | South Fork Yellow Bank River | SD-MN-R-YELLOW_BANK_S_FORK_01 | SD/MN border to S33, T118N, R49W | *E. coli* | 5/20/2018 | R8-SD-2018-01 |
| Missouri | Brakke Dam | SD-MI-L-BRAKKE_01 | Lyman County | TSI | 9/29/2004 | 10967 |
| Missouri | Brakke Dam | SD-MI-L-BRAKKE_01 | Lyman County | Mercury in Fish Tissue | 3/1/2016 | 65434 |
| Missouri | Burke Lake | SD-MI-L-BURKE_01 | Gregory County | DO/pH/TSI | 8/8/2007 | 33706 |
| Missouri | Byre Lake | SD-MI-L-BYRE_01 | Lyman County | TSI | 6/3/2004 | 10983 |

| River Basin | Waterbody | AUID | Segment or Lake Location | Impairment | TMDL Approved | TMDL ID |
|---|---|---|---|---|---|---|
| Missouri | Corsica Lake | SD-MI-L-CORSICA_01 | Douglas County | TSI | 8/30/2006 | 31143 |
| Missouri | Cottonwood Lake | SD-MI-L-COTTONWOOD_01 | Sully County | Mercury in Fish Tissue | 3/1/2016 | 65435 |
| Missouri | Dante Lake | SD-MI-L-DANTE_01 | Charles Mix County | TSI/DO | 9/27/2006 | 31192 |
| Missouri | Fate Dam | SD-MI-L-FATE_01 | Lyman County | TSI | 1/14/2005 | 11380 |
| Missouri | Fate Dam | SD-MI-L-FATE_01 | Lyman County | Mercury in Fish Tissue | 03/1/2016 | 65436 |
| Missouri | Geddes Lake | SD-MI-L-GEDDES_01 | Charles Mix County | TSI/DO | 5/6/2008 | 34513 |
| Missouri | Hiddenwood Lake | SD-MI-L-HIDDENWOOD_01 | Walworth County | TSI/Sediment | 4/12/1999 | 632 |
| Missouri | Lake Hurley | SD-MI-L-HURLEY_01 | Potter County | Mercury in Fish Tissue | 3/1/2016 | 64513 |
| Missouri | McCook Lake | SD-MI-L-MCCOOK_01 | Union County | TSI | 4/12/1999 | 770 |
| Missouri | Potts Lake | SD-MI-L-POTTS_01 | Potter County | Mercury in Fish Tissue | 9/13/2022 | R8-SD-2022-07 |
| Missouri | Roosevelt Lake | SD-MI-L-ROOSEVELT_01 | Tripp County | Mercury in Fish Tissue | 3/01/2016 | 64514 |
| Missouri | Choteau Creek | SD-MI-R-CHOTEAU_01 | Lewis & Clark Lake to S34, T96N, R63W | TSS | 5/6/2010 | 38613 |
| Missouri | Emanuel Creek | SD-MI-R-EMANUEL_01 | Lewis and Clark Lake to S20, T94N, R60W | *E. coli* | 8/10/2011 | 41068 |
| Missouri | Emanuel Creek | SD-MI-R-EMANUEL_01 | Lewis and Clark Lake to S20, T94N, R60W | Fecal coliform/TSS | 9/29/2009 | 37330/ 37331 |
| Missouri | Medicine Creek | SD-MI-R-MEDICINE_01 | Lake Sharpe to US Hwy 83 | Fecal coliform/TSS | 8/30/2006 | 31146 |
| Missouri | Missouri River (Lake Oahe) | SD-MI-R-OAHE_01 | North Dakota border to Oahe Dam | Mercury in Fish Tissue | 3/1/2016 | 65439 |
| Missouri | Ponca Creek | SD-MI-R-PONCA_01 | SD/NE border to US Hwy 183 | Fecal coliform | 8/2/2010 | 39029 |

| River Basin | Waterbody | AUID | Segment or Lake Location | Impairment | TMDL Approved | TMDL ID |
|---|---|---|---|---|---|---|
| Missouri | Ponca Creek | SD-MI-R-PONCA_01 | SD/NE border to US Hwy 183 | TSS | 4/27/2010 | 38463 |
| Missouri | Missouri River (Sharpe) | SD-MI-R-SHARPE_01 | Oahe Dam to Big Bend Dam | Sediment | 2/7/2001 | 1537 |
| Moreau | Coal Springs Reservoir | SD-MU-L-COAL_SPRINGS_01 | Perkins County | Mercury in Fish Tissue | 3/1/2016 | 64515 |
| Moreau | Little Moreau No. 1 | SD-MU-L-LITTLE_MOREAU_NO1_01 | Dewey County | Mercury in Fish Tissue | 3/1/2016 | 65442 |
| Niobrara | Keya Paha River | SD-NI-R-KEYA_PAHA_01 | Keya Paha to NE border | *E. coli* | 9/22/2011 | 41085 |
| Niobrara | Keya Paha River | SD-NI-R-KEYA_PAHA_01 | Keya Paha to NE border | TSS | 9/29/2009 | 37332 |
| Niobrara | Keya Paha River | SD-NI-R-KEYA_PAHA_01 | Keya Paha to NE border | Fecal coliform | 2/1/2010 | 38214 |
| Red River | White Lake | SD-RD-L-WHITE_01 | Marshall County | DO/TSI | 8/30/2006 | 31133 |
| Vermillion | Turkey Ridge Creek | | Vermillion River to S31, T98N, R53W | Fecal coliform | 9/27/2006 | 31212 |
| Vermillion | East Vermillion Lake | SD-VM-L-E_VERMILLION_01 | McCook County | Mercury in Fish Tissue | 3/1/2016 | 65443 |
| Vermillion | Lake Henry | SD-VM-L-HENRY_01 | Kingsbury County | Mercury in Fish Tissue | 3/1/2016 | 65444 |
| Vermillion | Swan Lake | SD-VM-L-SWAN_01 | Turner County | TSI/Sediment | 4/12/1999 | 1169/ 1168 |
| Vermillion | Lake Thompson | SD-VM-L-THOMPSON_01 | Kingsbury County | Mercury in Fish Tissue | 3/1/2016 | 65445 |
| Vermillion | Whitewood Lake | SD-VM-L-WHITEWOOD_01 | Kingsbury County | Mercury in Fish Tissue | 3/1/2016 | 65446 |
| Vermillion | Long Creek | SD-VM-R-LONG_01 | Vermillion River to Highway 44 | *E. coli* | 06/16/2021 | R8-SD-2021-02 |
| Vermillion | Vermillion River | SD-VM-R-VERMILLION_02 | Turkey Ridge Creek to Baptist Creek | TSS | 9/27/2010 | 39404 |
| Vermillion | Vermillion River | SD-VM-R-VERMILLION_03 | Baptist Creek to mouth | TSS | 7/5/2011 | 40439 |

| River Basin | Waterbody | AUID | Segment or Lake Location | Impairment | TMDL Approved | TMDL ID |
|---|---|---|---|---|---|---|
| Vermillion | Vermillion River | SD-VM-R-VERMILLION_03 | Baptist Creek to mouth | *E. coli* | 6/30/2022 | RB-SD-2022-03 |
| Vermillion | East Fork Vermillion River | SD-VM-R-VERMILLION_EAST_FORK_01 | McCook/Lake County to Little Vermillion River | Fecal coliform | 9/26/2012 | 42525 |
| Vermillion | East Fork Vermillion River | SD-VM-R-VERMILLION_EAST_FORK_01 | McCook/Lake County to Little Vermillion River | *E. coli* | 11/07/2020 | R8-SD-2021-01 |
| Vermillion | West Fork Vermillion River | SD-VM-R-VERMILLION_WEST_FORK_01_USGS | Vermillion River to McCook-Miner County line | *E. coli* | 7/31/2019 | R8-SD-2019-03 |

# APPENDIX B

# DANR 2024 WATERBODY DELISTING REPORT

| AUID | Waterbody Name | Cause | Delisting Reason |
|---|---|---|---|
| SD-BA-R-BAD_01 | Bad River | SPECIFIC CONDUCTIVITY | WQS attained due to change in WQS |
| SD-BF-R-ELM_01 | Elm Creek | ESCHERICHIA COLI | WQS attained based on new data |
| SD-BF-R-ELM_01 | Elm Creek | SPECIFIC CONDUCTIVITY | WQS attained based on new data |
| SD-BF-R-WHITEWOOD_04 | Whitewood Creek | ESCHERICHIA COLI | TMDL approved by EPA 4A |
| SD-BS-L-COVELL_01 | Covell Lake | TEMPERATURE | WQS attained based on new data |
| SD-BS-L-NORDEN_01 | Lake Norden | DISSOLVED OXYGEN | WQS attained based on new data |
| SD-BS-L-POINSETT_01 | Lake Poinsett | ESCHERICHIA COLI | WQS attained based on new data |
| SD-BS-L-SCHOOL_01 | School Lake | PH | WQS attained based on new data |
| SD-BS-R-BIG_SIOUX_04 | Big Sioux River | DISSOLVED OXYGEN | WQS attained based on new data |
| SD-BS-R-BRULE_01 | Brule Creek | TOTAL SUSPENDED SOLIDS | TMDL approved by EPA 4A |
| SD-BS-R-MEDARY_01 | Medary Creek | ESCHERICHIA COLI | TMDL approved by EPA 4A |
| SD-BS-R-SIXMILE_01 | Six Mile Creek | ESCHERICHIA COLI | TMDL approved by EPA 4A |
| SD-BS-R-SIXMILE_01 | Six Mile Creek | DISSOLVED OXYGEN | WQS attained based on new data |
| SD-BS-R-SPLIT_ROCK_01_USGS | Split Rock Creek | TOTAL SUSPENDED SOLIDS | TMDL approved by EPA 4A |
| SD-BS-R-WILLOW_01 | Willow Creek | DISSOLVED OXYGEN | WQS attained based on new data |
| SD-CH-L-DURKEE_01 | Durkee Lake | MERCURY IN FISH TISSUE | TMDL approved by EPA 4A |
| SD-CH-R-HIGHLAND_01_USGS | Highland Creek | PH | WQS attained based on new data |
| SD-CH-R-HIGHLAND_01_USGS | Highland Creek | TEMPERATURE | WQS attained based on new data |
| SD-CH-R-HORSEHEAD_01_USGS | Horsehead Creek | SPECIFIC CONDUCTIVITY | WQS attained based on new data |
| SD-CH-R-SPRING_01 | Spring Creek | ESCHERICHIA COLI | TMDL approved by EPA 4A |
| SD-GR-L-EAST_LEMMON_01 | East Lemmon Lake | MERCURY IN FISH TISSUE | TMDL approved by EPA 4A |
| SD-GR-R-GRAND_N_FORK_01 | Grand River, North Fork | SPECIFIC CONDUCTIVITY | WQS attained based on new data |
| SD-JA-L-BEAVER_01 | Beaver Lake | DISSOLVED OXYGEN | WQS attained based on new data |
| SD-JA-L-STINK_01 | Stink Lake | MERCURY IN FISH TISSUE | TMDL approved by EPA 4A |
| SD-JA-R-FIRESTEEL_01 | Firesteel Creek | DISSOLVED OXYGEN | WQS attained based on new data |
| SD-JA-R-FIRESTEEL_01 | Firesteel Creek | TOTAL SUSPENDED SOLIDS | WQS attained based on new data |
| SD-JA-R-JAMES_11 | James River | TOTAL SUSPENDED SOLIDS | TMDL approved by EPA 4A |
| SD-JA-R-MOCCASIN_02 | Moccasin Creek | ESCHERICHIA COLI | WQS attained based on new data |
| SD-JA-R-MOCCASIN_02 | Moccasin Creek | PH | WQS attained based on new data |

| AUID | Waterbody Name | Cause | Delisting Reason |
|---|---|---|---|
| SD-MI-L-POTTS_01 | Potts Lake | MERCURY IN FISH TISSUE | TMDL approved by EPA 4A |
| SD-MI-R-SHARPE_01 | Missouri River (Lake Sharpe) | TEMPERATURE | WQS attained due to change in WQS |
| SD-MI-R-SPRING_01 | Spring Creek | DISSOLVED OXYGEN | WQS attained based on new data |
| SD-MN-R-WHETSTONE_S_FORK_01 | South Fork Whetstone River | ESCHERICHIA COLI | TMDL approved by EPA 4A |
| SD-MN-R-WHETSTONE_S_FORK_02 | South Fork Whetstone River | ESCHERICHIA COLI | TMDL approved by EPA 4A |
| SD-VM-R-LONG_01 | Long Creek | TOTAL SUSPENDED SOLIDS | WQS attained based on new data |
| SD-VM-R-VERMILLION_03 | Vermillion River | ESCHERICHIA COLI | TMDL approved by EPA 4A |
| SD-WH-R-COTTONWOOD_01 | Cottonwood Creek | SPECIFIC CONDUCTIVITY | WQS attained due to change in WQS |

# APPENDIX C

# 2024 305(b) REPORT

# RIVER BASIN TABLES

# RIVER BASIN TABLES KEY

Waterbody AUID – Waterbody Assessment Unit Identification
Waterbody- Name of Waterbody
Location- Best available description or reach segment
Map ID- Map identification
Use- Beneficial use assigned to waterbody

EPA Category- EPA Support Category
Category 1: All designated uses are met;
Category 2: Some of the designated uses are met but there is insufficient data to determine if remaining designated uses are met;
Category3: Insufficient data to determine whether any designated uses are met;
Category 4A: Water is impaired but has an EPA approved TMDL;
Category 4B: An impairment caused by a pollutant is being addressed by the state through other pollution control requirements;
Category 4C: Water is impaired by a parameter that is not considered a "pollutant;"
Category 5: Water is impaired and a TMDL is needed.

Support
Full = Full Support
Non = Nonsupport
INS = Insufficient sampling information (limited sample data)
NA = Not Assessed

Supporting Parameters
The waterbody has been assessed and meets criteria for the listed parameters.

Nonsupporting Parameters
The waterbody has been assessed and does not meet criterion for the listed parameters.

Parameter Codes:
Alkalinity (ALK); Arsenic (As); Ammonia (NH3); Cadmium (Cd); Chloride (Cl), Chlorophyll-a (CHL-A); Chromium (Cr); Copper (Cu); Cyanide (CN); Dissolved Oxygen (DO); Escherichia coli (*E. coli*); Lead (Pb); Mercury in Fish Tissue (MeHg); Mercury Total (Hg); Nickel (Ni); Nitrate (NO3); pH (pH); Radium (Ra); Salinity (Sal); Selenium (Se); Silver (Ag); Sodium Adsorption Ratio (SAR); Specific Conductivity (SC); Sulfate (SO4); Uranium (U) Temperature (Temp); Total Dissolved Solids (TDS); Total Suspended Solids (TSS); Zinc (Zn)

If a parameter is not listed in either the "Supporting Parameters" column or the "Nonsupporting Parameters" column, then the waterbody did not have sufficient information to make a support determination for that parameter or was not assessed for that parameter.

**Bad River Basin**

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BA-L-COOKSTOVE_01<br>Cookstove Lake | Lyman County | L1 | Fish and Wildlife Prop, Rec, Stock | NON | 5 | MeHg | |
| SD-BA-L-FREEMAN_01<br>Freeman Lake | Jackson County | L2 | Warmwater Permanent Fish Life | NON | 5 | CHL-A, DO, Se | TSS |
| | | | Immersion Recreation | NON | | CHL-A, DO | |
| | | | Limited Contact Recreation | NON | | CHL-A, DO | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | NO3, SC, TDS | |
| SD-BA-L-HAYES_01<br>Hayes Lake | Stanley County | L3 | Warmwater Semipermanent Fish Life | NON | 5 | CHL-A, DO, | ALK, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS, MeHg |
| | | | Immersion Recreation | NON | | CHL-A, DO | |
| | | | Limited Contact Recreation | NON | | CHL-A, DO | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-BA-L-MURDO_01<br>Murdo Dam | Jones County | L4 | Warmwater Permanent Fish Life | NON | 5 | DO, | MeHg |
| | | | Immersion Recreation | NON | | DO | |
| | | | Limited Contact Recreation | NON | | DO | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-BA-L-RICHLAND_01<br>Richland Dam | Jones County | L5 | Warmwater Permanent Fish Life | FULL | 2 | | MeHg |
| | | | Immersion Recreation | NA | | | |
| | | | Limited Contact Recreation | NA | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-BA-L-SHERIFF_01<br>Sheriff Dam | Jones County (FPNG) | L6 | Fish and Wildlife Prop, Rec, Stock | NON | 4A | MeHg | |
| SD-BA-L-WAGGONER_01<br>Waggoner Lake | Haakon County | L7 | Domestic Water Supply | NON | 5 | CHL-A | ALK, DO, MeHg, NH3, NO3, pH, SC, Temp, TSS |
| | | | Warmwater Permanent Fish Life | NON | | CHL-A | |
| | | | Immersion Recreation | NON | | CHL-A | |
| | | | Limited Contact Recreation | NON | | CHL-A | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-BA-R-BAD_01<br>Bad River | Stanley County line to mouth | R1 | Warmwater Marginal Fish Life | NON | 5 | TSS | DO, NH3, NO3, pH, Sal/SAR, TDS, Temp, SC |
| | | | Limited Contact Recreation | NON | | *E. coli* | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BA-R-S_FORK_BAD_01_USGS<br>South Fork Bad River | Near Cottonwood, SD | R2 | Warmwater Marginal Fish Life | NA | 3 | | |
| | | | Limited Contact Recreation | NA | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NA | | | |
| | | | Irrigation Waters | NA | | | |

**Belle Fourche River Basin**

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BF-L-BEARBUTTE_01<br>Bear Butte Lake | Meade County | L1 | Warmwater Semipermanent Fish Life | NON | 5 | CHL-A | DO, *E. coli*, MeHg, Temp |
| | | | Immersion Recreation | NON | | CHL-A | |
| | | | Limited Contact Recreation | NON | | CHL-A | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | pH | |
| SD-BF-L-COX_01<br>Cox Lake | Lawrence County | L2 | Coldwater Permanent Fish Life | FULL | 1 | | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, Temp, TDS, TSS |
| | | | Domestic Water Supply | FULL | | | |
| | | | Immersion Recreation Waters | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-BF-L-IRON_CREEK_01<br>Iron Creek Lake | Lawrence County | L3 | Coldwater Permanent Fish Life | NON | 5 | Temp | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, TDS, TSS, |
| | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-BF-L-MIRROR_EAST_01<br>Mirror Lake East | Lawrence County | L4 | Coldwater Permanent Fish Life | NON | 5 | Temp | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, TDS, TSS |
| | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-BF-L-MIRROR_WEST_01<br>Mirror Lake West | Lawrence County | L5 | Coldwater Permanent Fish Life | NON | 5 | Temp | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, TDS, TSS |
| | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BF-L-NEWELL_01 | Butte County | L6 | Warmwater Permanent Fish Life | NON | 4A | MeHg | ALK, DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| Newell Lake | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |
| SD-BF-L-NEWELL_CITY_01 | Butte County | L7 | Coldwater Marginal Fish Life | NON | 5 | Temp | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, TDS, TSS |
| Newell City Pond | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-BF-L-ORMAN_01 | Butte County | L8 | Warmwater Permanent Fish Life | NON | 4A | MeHg | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, Temp, TDS, TSS |
| Orman Dam (Belle Fourche Reservoir) | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |
| | | | Irrigation Waters | FULL | | | |
| SD-BF-R-ANNIE_01 | Spearfish Creek to S3, T4N, R2E | R1 | Coldwater Marginal Fish Life | FULL | 1 | | Ag, ALK, As, Cd, CN, Cr, Cu, DO, *E. coli*, Hg, NH3, Ni, NO3, Pb, pH, SC, TDS, Temp, TSS, Se, Zn |
| Annie Creek | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-BF-R-BEAR_BUTTE_01 | Headwaters to Strawberry Creek | R2 | Coldwater Permanent Fish Life | FULL | 2 | | NO3, pH, TDS, SC, TSS, TEMP |
| Bear Butte Creek | | | Limited Contact Recreation | INS | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-BF-R-BEAR_BUTTE_02 | Strawberry Creek to S2, T4N, R4E | R3 | Coldwater Permanent Fish Life | FULL | 1 | | ALK, NO3, pH, TDS, TSS DO, *E. coli*, NH3, SAR, SC, TEMP |
| Bear Butte Creek | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-BF-R-BELLE_FOURCHE_01 | Wyoming border to Redwater River | R4 | Warmwater Permanent Fish Life | NON | 5 | TSS, TEMP | pH, SC |
| Belle Fourche River | | | Immersion Recreation | NON | | *E. coli* | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BF-R-BELLE_FOURCHE_02<br>Belle Fourche River | Redwater River to Whitewood Creek | R5 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL<br>FULL | 5 | *E. coli* | DO, pH, SC Temp, TSS |
| SD-BF-R-BELLE_FOURCHE_03<br>Belle Fourche River | Whitewood Creek to Willow Creek | R6 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL<br>FULL | 5 | *E. coli* | Ag, As, Cd, Cr, Cu, DO, Hg, MeHg, Hg, NH3, Ni, NO3, Pb, pH, SC, Se, TDS, Temp, Zn, TSS, Sal/SAR |
| SD-BF-R-BELLE_FOURCHE_04<br>Belle Fourche River | Willow Creek to Alkali Creek | R7 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>FULL<br>FULL | 5 | TSS<br>*E. coli* | DO, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp |
| SD-BF-R-BELLE_FOURCHE_05<br>Belle Fourche River | Alkali Creek to mouth | R8 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>FULL<br>FULL<br>FULL<br>FULL | 4A | TSS | DO, NH3, NO3, pH, *E. coli,* Sal/SAR, SC, TDS, Temp |
| SD-BF-R-CLEOPATRA_01<br>Cleopatra Creek | Confluence with East Branch Cleopatra Creek to mouth | R9 | Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL<br>FULL | 1 | | Ag, As, Cd, CN, Cr, Cu, DO, *E. coli*, Hg, NH3, Ni, NO3, Pb, pH, SC, TDS, Temp, TSS, Se, Zn |
| SD-BF-R-CROW_01_USGS<br>Crow Creek | S22, T6N, R1E to Redwater River | R10 | Coldwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, DO, *E. coli*, NO3, NH3, pH, SAR, SC, TEMP, TDS, TSS |
| SD-BF-R-DEADWOOD_01<br>Deadwood Creek | Rutabaga Gulch to Whitewood Creek | R11 | Coldwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL<br>FULL | 1 | | Ag, As, Cd, CN, Cr, Cu, DO, Hg, NH3, Ni, NO3, Pb, pH, SC, TDS, Temp, *E. coli*, TSS, Se, Zn |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BF-R-ELM_01<br>Elm Creek | S8, T8N, R10E to Belle Fourche River | R12 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>FULL<br>FULL<br>FULL | 5 | TSS | DO, NH3, NO3, pH, TDS, Temp, *E. coli*, SC |
| SD-BF-R-FALSE_BOTTOM_01<br>False Bottom Creek | WB False Bottom to Burno Gulch Creek | R13 | Coldwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | Ag, As, Cd, CN, Cr, Cu, DO, *E. coli*, Hg, NH3, Ni, NO3, Pb, pH, SC, TDS, Se, Temp, TSS, Zn |
| SD-BF-R-FALSE_BOTTOM_02<br>False Bottom Creek | S26, T5N, R2E to W Branch False Bottom | R14 | Coldwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NA<br>NON<br>NA | 5 | Se<br><br>Se | |
| SD-BF-R-FANTAIL_01<br>Fantail Creek | Headwaters to Nevada Gulch | R15 | Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, NH3, DO, *E. coli*, NO3, pH, SC, Temp, TDS, TSS |
| SD-BF-R-HORSE_01_USGS<br>Horse Creek | Indian Creek to mouth | R16 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>FULL | 5 | TSS<br>*E. coli* | DO, pH, SC, Temp |
| SD-BF-R-LITTLE_SPEARFISH_01_USGS<br>Little Spearfish Creek | S16, T4N, R1E to Spearfish Creek | R17 | Coldwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | INS<br>INS<br>INS<br>INS | 3 | | |
| SD-BF-R-REDWATER_01<br>Redwater River | US HWY 85 to mouth | R18 | Coldwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BF-R-REDWATER_01_USGS<br>Redwater River | WY border to Hwy 85 | R19 | Coldwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, DO, *E. coli*, NH3, NO3, pH, SC, Temp, TDS |
| SD-BF-R-SPEARFISH_01<br>Spearfish Creek | Intake Gulch to Annie Creek | R20 | Domestic Water Supply<br>Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters<br>Commerce / Industry | FULL<br>FULL<br>FULL<br>FULL<br>FULL<br>FULL<br>FULL | 1 | | Ag, As, Cd, CN, Cr, Cu, DO, *E. coli*, MeHg, Hg, NH3, Ni, NO3, Pb, pH, SC, Se, TDS, Temp, TSS, Zn |
| SD-BF-R-SPEARFISH_02<br>Spearfish Creek | Annie Creek to Cleopatra Creek | R21 | Domestic Water Supply<br>Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters<br>Commerce / Industry | FULL<br>FULL<br>FULL<br>FULL<br>FULL<br>FULL<br>FULL | 1 | | Ag, As, Cd, Cr, Cu, DO, *E. coli*, Hg, NH3, Ni, NO3, Pb, pH, SC, Se, TDS, Temp, TSS, Zn |
| SD-BF-R-SPEARFISH_04<br>Spearfish Creek | Cleopatra Creek to Spearfish City intake dam in S33, T6N, R2E | R22 | Coldwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | Ag, As, Cd, MeHg, Cr, Cu, DO, *E. coli*, Hg, NH3, Ni, NO3, Pb, pH, Se, SC, TDS, Temp, TSS, Zn |
| SD-BF-R-SPEARFISH_05<br>Spearfish Creek | Homestake Hydroelectric Plant at Spearfish in S15, T6N, R2E to Higgens Gulch | R23 | Domestic Water Supply<br>Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, SC, MeHg, TDS, Temp, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BF-R-SPEARFISH_06<br>Spearfish Creek | Higgens Gulch to mouth | R24 | Domestic Water Supply<br>Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Se, SC, TDS, Temp, TSS |
| SD-BF-R-STEWART_01<br>Stewart Gulch | Whitetail Creek to NW1/4, NW1/4, S7, T4N, R3E | R25 | Coldwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | Ag, As, Cd, Cr, Cu, DO, Hg, NH3, Ni, NO3, Pb, pH, Se, SC, TDS, Temp, *E. coli*, TSS, Zn |
| SD-BF-R-STRAWBERRY_01<br>Strawberry Creek | Bear Butte Creek to S5, T4N, R4E | R26 | Coldwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NA<br>FULL<br>FULL | 2 | | Ag, As, CN, Cu, Cd, NH3, Ni, Pb, pH, SC, Se, TDS, TSS, Zn, Hg |
| SD-BF-R-W_STRAWBERRY_01<br>West Strawberry Creek | Headwaters to mouth | R27 | Coldwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, DO, *E. coli*, NH3, NO3, pH, SAR, SC, Temp, TDS, TSS |
| SD-BF-R-WHITETAIL_01<br>Whitetail Creek | Whitewood Creek to S18, T4N, R3E | R28 | Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL<br>FULL | 1 | | Ag, As, Cd, Cr, Cu, DO, *E. coli*, Hg, NH3, Ni, NO3, Pb, pH, SC, TDS, Temp, TSS, Zn |
| SD-BF-R-WHITEWOOD_01<br>Whitewood Creek | Whitetail Summit to Gold Run Creek | R29 | Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, NH3, DO, *E. coli*, NO3, pH, SAR, SC, Temp, TDS, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BF-R-WHITEWOOD_02<br>Whitewood Creek | Gold Run Creek to Deadwood Creek | R30 | Coldwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL<br>FULL | 1 | | Ag, As, Cd, Cr, Cu, DO, Hg, NH3, Ni, NO3, pH, Sal/SAR, Se, SC, TDS, Temp, TSS, Zn, *E. coli* |
| SD-BF-R-WHITEWOOD_03<br>Whitewood Creek | Deadwood Creek to Spruce Gulch | R31 | Coldwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL<br>FULL | 4A | *E. coli* | Ag, As, Cd, Cr, Cu, DO, Hg, NH3, Ni, NO3, Pb, pH, Se, SC, TDS, Temp, TSS, Zn |
| SD-BF-R-WHITEWOOD_04<br>Whitewood Creek | Spruce Gulch to Sandy Creek | R32 | Coldwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL<br>FULL | 4A | *E. coli* | Ag, As, Cd, Cr, Cu, DO, Hg, NH3, Ni, NO3, Pb, pH, Sal/SAR, Se, SC, TDS, Temp, TSS, Zn |
| SD-BF-R-WHITEWOOD_05<br>Whitewood Creek | Sandy Creek to I-90 | R33 | Coldwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>FULL<br>FULL<br>FULL<br>FULL | 5 | pH | Ag, As, Cd, Cr, Cu, DO, *E. coli*, Hg, NH3, Ni, NO3, Pb, Se, SC, TDS, Temp, TSS, Zn |
| SD-BF-R-WHITEWOOD_06<br>Whitewood Creek | I-90 to Crow Creek | R34 | Warmwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>FULL<br>FULL<br>FULL | 5 | pH | ALK, DO, *E. coli*, NH3, NO3, SC, TDS, Temp, TSS |
| SD-BF-R-WHITEWOOD_07<br>Whitewood Creek | Crow Creek to mouth | R35 | Warmwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | Ag, As, Cd, Cr, Cu, DO, Hg, NH3, Ni, NO3, Pb, pH, Se, SC, TDS, Temp, *E. coli*, TSS, Zn |

**Big Sioux River Basin**

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BS-L-ALBERT_01<br>Lake Albert | Kingsbury County | L1 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>NON | 5 | CHL-A, MeHg<br>CHL-A<br>CHL-A<br>MeHg | ALK, DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-BS-L-ALVIN_01<br>Lake Alvin | Lincoln County | L2 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | Temp<br>CHL-A<br>CHL-A | ALK, NH3, DO, *E. coli*, MeHg, NO3, pH, SC, TDS, TSS |
| SD-BS-L-ANTELOPE_01<br>Antelope Lake | Day County | L3 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>NON | 4A | MeHg<br>MeHg | DO, pH, SC, Temp |
| SD-BS-L-BEAVER_01<br>Beaver Lake | Minnehaha | L4 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>NA<br>NA<br>FULL | 2 | | MeHg |
| SD-BS-L-BITTER_01<br>Bitter Lake | Day County | L5 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>NON | 5 | MeHg<br>CHL-A<br>CHL-A<br>MeHg | ALK, DO, *E. coli*, pH, SC, TDS, Temp, TSS |
| SD-BS-L-BLUE_DOG_01<br>Blue Dog Lake | Day County | L6 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, NH3, CHL-A, DO, *E. coli*, MeHg, NO3, pH, SC, Temp, TDS, TSS |
| SD-BS-L-BRANT_01<br>Brant Lake | Lake County | L7 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, CHL-A, DO, *E. coli*, MeHg, NO3, pH, SC, TDS, Temp, TSS |
| SD-BS-L-BRUSH_01<br>Brush Lake | Brookings County | L8 | Fish and Wildlife Prop, Rec, Stock | NON | 4A | MeHg | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BS-L-BULLHEAD_01<br>Bullhead Lake | Deuel County | L9 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-BS-L-CAMPBELL_01<br>Lake Campbell | Brookings County | L10 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | CHL-A<br>CHL-A<br>CHL-A | ALK, NH3, DO, *E. coli*, MeHg, NH3, NO3, SC, Temp, TDS, TSS |
| SD-BS-L-CLEAR_D_01<br>Clear Lake | Deuel County | L11 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>NON<br>FULL<br>FULL | 5 | *E. coli* | ALK, NH3, CHL-A, NO3, pH, SC, Temp, TDS, TSS |
| SD-BS-L-CLEAR_H_01<br>Clear Lake (Hamlin) | Hamlin County | L12 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>NA<br>NA<br>FULL | 2 | | MeHg |
| SD-BS-L-COVELL_01<br>Covell Lake | Minnehaha County | L13 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | pH<br>CHL-A<br>CHL-A | ALK, NH3, DO, *E. coli*, NO3, SC, Temp, TDS, TSS |
| SD-BS-L-DIAMOND_01<br>Diamond Lake | Minnehaha County | L14 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>NA<br>NA<br>FULL | 2 | | MeHg |
| SD-BS-L-DRY_01<br>Dry Lake | Codington County | L15 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, DO, *E. coli*, MeHg, pH, SC, TDS, Temp, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BS-L-DRY_NO2_01<br>Dry Lake Number 2 | Clark County | L16 | Fish and Wildlife Prop, Rec, Stock | NON | 4A | MeHg | |
| SD-BS-L-E_OAKWOOD_01<br>East Oakwood Lake | Brookings County | L17 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 4A | CHL-A<br>CHL-A<br>CHL-A | ALK, DO, *E. coli*, pH, SC, TDS, Temp, TSS |
| SD-BS-L-ENEMY_SWIM_01<br>Enemy Swim Lake | Day County | L18 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>NON | 4A | MeHg<br>MeHg | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-BS-L-GOLDSMITH_01<br>Goldsmith Lake | Brookings County | L19 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>NON | 5 | MeHg<br>CHL-A<br>CHL-A<br>MeHg | ALK, DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-BS-L-GOOSE_01<br>Goose Lake | Codington County | L20 | Fish and Wildlife Prop, Rec, Stock | NON | 4A | MeHg | |
| SD-BS-L-GRASS_01<br>Grass Lake | Codington County | L21 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>NA<br>NA<br>FULL | 2 | | MeHg |
| SD-BS-L-HERMAN_01<br>Lake Herman | Lake County | L22 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 4A | CHL-A<br>CHL-A<br>CHL-A | ALK, DO, *E. coli*, MeHg, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-BS-L-ISLAND_N_01<br>North Island Lake | Minnehaha/McCook counties (formerly SD-VM-L-ISLAND_N_01) | L23 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>INS<br>INS<br>NON | 4A | MeHg<br>MeHg | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BS-L-KAMPESKA_01<br>Lake Kampeska | Codington County | L24 | Domestic Water Supply | FULL | 4A | | CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, Temp, TDS, TSS |
| | | | Warmwater Permanent Fish Life | NON | | MeHg | |
| | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |
| SD-BS-L-LAKOTA_01<br>Lakota Lake | Lincoln County | L25 | Warmwater Permanent Fish Life | FULL | 1 | | *E. coli*, NO3, TSS |
| | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-BS-L-LONG_COD_01<br>Long Lake | Codington County | L26 | Fish and Wildlife Prop, Rec, Stock | NON | 4A | MeHg | |
| SD-BS-L-MADISON_01<br>Lake Madison | Lake County | L27 | Warmwater Permanent Fish Life | NON | 4A | CHL-A | ALK, DO, *E. coli*, MeHg, NH3, NO3, pH, SC, TDS, Temp, TSS |
| | | | Immersion Recreation | NON | | CHL-A | |
| | | | Limited Contact Recreation | NON | | CHL-A | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-BS-L-MARSH_01<br>Lake Marsh | Hamlin County | L28 | Warmwater Marginal Fish Life | NA | 3 | | |
| | | | Immersion Recreation | NA | | | |
| | | | Limited Contact Recreation | NA | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | INS | | | |
| SD-BS-L-MINNEWASTA_01<br>Minnewasta Lake | Day County | L29 | Warmwater Semipermanent Fish Life | NON | 5 | CHL-A, MeHg | |
| | | | Immersion Recreation | NON | | CHL-A | |
| | | | Limited Contact Recreation | NON | | CHL-A | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |
| SD-BS-L-NORDEN_01<br>Lake Norden | Hamlin County | L30 | Warmwater Marginal Fish Life | NON | 5 | CHL-A | ALK, DO, NH3, *E. coli*, NO3, pH, SC, TDS, Temp, TSS |
| | | | Immersion Recreation | NON | | CHL-A | |
| | | | Limited Contact Recreation | NON | | CHL-A | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-BS-L-PELICAN_01<br>Pelican Lake | Codington County | L31 | Warmwater Semipermanent Fish Life | FULL | 1 | | ALK, DO, *E. coli*, NH3, pH, SC, TDS, Temp, TSS |
| | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BS-L-PICKEREL_01<br>Pickerel Lake | Day County | L32 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, CHL-A, DO, *E. coli*, MeHg, pH, SC, TDS, Temp, TSS |
| SD-BS-L-POINSETT_01<br>Lake Poinsett | Hamlin County | L33 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>NON | 4A | MeHg<br>CHL-A<br>CHL-A<br>MeHg | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-BS-L-REID_01<br>Reid Lake | Clark County | L34 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>NON | 4A | MeHg<br><br><br>MeHg | CHL-A, DO, *E. coli*, pH, SC, Temp |
| SD-BS-L-RUSH_01<br>Rush Lake | Day County | L35 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NA<br>NA<br>NON | 4A | MeHg<br><br><br>MeHg | |
| SD-BS-L-SCHOOL_01<br>School Lake | Deuel County | L36 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 4A | CHL-A<br>CHL-A<br>CHL-A<br> | ALK, NH3, DO, *E. coli*, pH, SC, TDS, Temp, TSS |
| SD-BS-L-SCOTT_01<br>Scott Lake | Minnehaha County | L37 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NA<br>NA<br>NON | 5 | MeHg<br><br><br>MeHg | |
| SD-BS-L-SINAI_01<br>Lake Sinai | Brookings County | L38 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>NON | 4A | MeHg<br><br><br>MeHg | DO, *E. coli*, pH, Temp |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BS-L-ST_JOHN_01<br>Lake St. John | Hamlin County | L39 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, CHL-A, DO, *E. coli*, NH3, NO3, SC, TDS, TSS |
| SD-BS-L-SWAN_01<br>Swan Lake | Clark County | L40 | Fish and Wildlife Prop, Rec, Stock | FULL | 1 | | MeHg |
| SD-BS-L-TWIN_01<br>Twin Lakes/W. Hwy 81 | Kingsbury County | L41 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>FULL<br>NON | 5 | MeHg<br>*E. coli*<br><br>MeHg | ALK, DO, NH3, CHL-A, NO3, pH, SC, Temp |
| SD-BS-L-TWIN_02<br>Twin Lakes | Minnehaha County | L42 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NA<br>NA<br>NON | 4A | MeHg<br><br><br>MeHg | |
| SD-BS-L-W_OAKWOOD_01<br>West Oakwood Lake | Brookings County | L43 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 4A | CHL-A<br>CHL-A<br>CHL-A | ALK, DO, *E. coli*, MeHg, NH3, NO3, pH, SC, Temp, TDS, TSS |
| SD-BS-L-WALL_01<br>Wall Lake | Minnehaha County | L44 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | DO<br>DO<br>DO | ALK, NH3, CHL-A, *E. coli*, MeHg, NO3, pH, Temp, TDS, TSS |
| SD-BS-L-WAUBAY_01<br>Waubay Lake | Day County | L45 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>NON | 5 | CHL-A, MeHg<br>CHL-A<br>CHL-A<br>MeHg | ALK, NH3, DO, *E. coli*, NO3, pH, SC, Temp, TDS, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BS-R-BACHELOR_01<br>Bachelor Creek | S28, T106N, R 50W to Big Sioux River | R1 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 5 | *E. coli*, DO | NH3, NO3, pH, SC, TDS, TSS, TSS |
| SD-BS-R-BEAVER_01<br>Beaver Creek | Big Sioux River to S9, T98N, R49W | R2 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 5 | *E. coli* | DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-BS-R-BEAVER_02<br>Beaver Creek | Split Rock Creek to South Dakota-Minnesota border | R3 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 4A | *E. coli* | DO, NO3, NH3, pH, SC, Temp, TSS |
| SD-BS-R-BIG_SIOUX_01<br>Big Sioux River | S28, T121N, R52W to Lake Kampeska | R4 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>FULL | 5 | DO<br>DO, *E. coli* | NH3, NO3, pH, Sal/SAR, SC, TDS, Temp, TSS |
| SD-BS-R-BIG_SIOUX_02<br>Big Sioux River | Lake Kampeska to Willow Creek | R5 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 5 | *E. coli* | ALK, NH3, NO3, pH, Sal/SAR, DO, SC, TDS, Temp, TSS |
| SD-BS-R-BIG_SIOUX_03<br>Big Sioux River | Willow Creek to Stray Horse Creek | R6 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 4A | *E. coli* | DO, NH3, NO3, pH, Sal/SAR, SC, TDS, TSS |
| SD-BS-R-BIG_SIOUX_04<br>Big Sioux River | Stray Horse Creek to near Volga | R7 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>FULL<br>FULL<br>FULL | 5 | TSS | ALK, DO, *E. coli*, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BS-R-BIG_SIOUX_05<br>Big Sioux River | Near Volga to Brookings | R8 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>FULL<br>FULL<br>FULL | 5 | TSS | ALK, DO, *E. coli*, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp |
| SD-BS-R-BIG_SIOUX_06<br>Big Sioux River | Brookings to Brookings/Moody County Line | R9 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>FULL<br>FULL<br>FULL | 5 | TSS | DO, *E. coli*, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp |
| SD-BS-R-BIG_SIOUX_07<br>Big Sioux River | Brookings/Moody County Line to S2, T104N, R49W | R10 | Domestic Water Supply<br>Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>NON<br>FULL | 4A | MeHg, TSS<br><br><br>MeHg | ALK, Cl, DO, *E. coli*, NH3, NO3, pH, Sal/SAR, SC, SO4, TDS, Temp |
| SD-BS-R-BIG_SIOUX_08<br>Big Sioux River | S2, T104N, R49W to I-90 | R11 | Domestic Water Supply<br>Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>NON<br>FULL<br>FULL<br>FULL | 4A | TSS<br>*E. coli* | ALK, Cl, DO, NH3, NO3, pH, Se, Sal/SAR, SC, SO4, TDS, Temp, MeHg |
| SD-BS-R-BIG_SIOUX_10<br>Big Sioux River | I-90 to diversion return | R12 | Domestic Water Supply<br>Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>NON<br>NON<br>FULL<br>FULL | 5 | TDS<br>TSS<br>*E. coli*<br>*E. coli* | ALK, DO, NH3, NO3, pH, Se, Sal/SAR, SC, Temp |
| SD-BS-R-BIG_SIOUX_11<br>Big Sioux River | Diversion return to SF WWTF | R13 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>NON<br>FULL<br>FULL | 4A | *E. coli*<br>*E. coli* | DO, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BS-R-BIG_SIOUX_12<br>Big Sioux River | SF WWTF to above Brandon | R14 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>NON<br>FULL<br>FULL | 4A | TSS<br>*E. coli*<br>*E. coli* | ALK, DO, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp |
| SD-BS-R-BIG_SIOUX_13<br>Big Sioux River | Above Brandon to Nine Mile Creek | R15 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>NON<br>FULL<br>FULL | 5 | TSS<br>*E. coli*<br>*E. coli* | ALK, DO, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp |
| SD-BS-R-BIG_SIOUX_14<br>Big Sioux River | Nine Mile Creek to near Fairview | R16 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>NON<br>FULL<br>FULL | 5 | TSS<br>*E. coli*<br>*E. coli* | ALK, DO, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp, MeHg |
| SD-BS-R-BIG_SIOUX_15<br>Big Sioux River | Fairview to near Alcester | R17 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>NON<br>FULL<br>FULL | 5 | TSS<br>*E. coli*<br>*E. coli* | ALK, DO, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp |
| SD-BS-R-BIG_SIOUX_16<br>Big Sioux River | Near Alcester to Indian Creek | R18 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>NON<br>FULL<br>FULL | 5 | TSS<br>*E. coli*<br>*E. coli* | ALK, DO, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp |
| SD-BS-R-BIG_SIOUX_17<br>Big Sioux River | Indian Creek to mouth | R19 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>FULL<br>FULL | 5 | TSS<br>*E. coli* | ALK, DO, NH3, NO3, pH, Se, SC, TDS, Temp |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BS-R-BRULE_01<br>Brule Creek | Big Sioux River to confluence of its east and west forks | R20 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>FULL | 4A | TSS<br>*E. coli* | ALK, DO, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp |
| SD-BS-R-EAST_BRULE_01<br>East Brule Creek | confluence with Brule Creek to S3, T95N, R49W | R21 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>FULL | 5 | TSS<br>*E. coli* | ALK, DO, pH, Temp, NO3, NH3, SC |
| SD-BS-R-FLANDREAU_01<br>Flandreau Creek | Big Sioux River to Minnesota Border | R22 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 5 | *E. coli* | ALK, DO, NO3, NH3, pH, SC, Temp, TDS, TSS |
| SD-BS-R-HIDEWOOD_01<br>Hidewood Creek | Big Sioux River to U.S. Highway 15 | R23 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 5 | *E. coli* | ALK, DO, pH, SC, NO3, NH3, Temp, TDS, TSS |
| SD-BS-R-MEDARY_01<br>Medary Creek | MN border to Big Sioux River | R24 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 4A | *E. coli* | DO, NH3, NO3, pH, SC, Se, TDS, Temp, TSS |
| SD-BS-R-PEG_MUNKY_RUN_01<br>Peg Munky Run | Big Sioux River to S17, T113N, R50W | R25 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 5 | *E. coli* | DO, pH, SC, Temp, ALK, NO3, TDS, TSS |
| SD-BS-R-PIPESTONE_01<br>Pipestone Creek | SD/MN border in Minnehaha County to SD/MN border in Moody County | R26 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>NON<br>FULL<br>FULL | 5 | TSS<br>*E. coli*<br>*E. coli* | DO, NH3, NO3, pH, SC, TDS, Temp |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BS-R-SIXMILE_01<br>Six Mile Creek | North Deer Creek to S30, T112N, R48W | R27 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 4A | *E. coli* | ALK, DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-BS-R-SKUNK_01<br>Skunk Creek | Brandt Lake to Big Sioux River | R28 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 5 | *E. coli* | ALK, DO, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp, TSS |
| SD-BS-R-SPLIT_ROCK_01_USGS<br>Split Rock Creek | West Pipestone Creek to Big Sioux River | R29 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>NON<br>FULL<br>FULL | 5 | TSS<br>*E. coli*<br>*E. coli* | DO, NH3, NO3, pH, SC, TDS, Temp |
| SD-BS-R-SPLIT_ROCK_02<br>Split Rock Creek | SD/MN border to West Pipestone Creek | R30 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>NON<br>FULL<br>FULL | 5 | TSS<br>*E. coli*<br>*E. coli* | DO, NO3, pH, SC, Temp |
| SD-BS-R-SPRING_01<br>Spring Creek | Big Sioux River to MN border | R31 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>FULL | 5 | TSS<br>*E. coli* | ALK, DO, NH3, NO3, pH, SC, Temp, TDS |
| SD-BS-R-STRAYHORSE_01<br>Stray Horse Creek | Big Sioux River to S26, T116N, R51W | R32 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-BS-R-UNION_01<br>Union Creek | Big Sioux River to confluence with East and West Forks | R33 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>FULL | 5 | TSS<br>*E. coli* | ALK, DO, NH3, NO3, pH, SC, Temp, TDS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-BS-R-WILLOW_01<br>Willow Creek | Big Sioux River to S7, T117N, R50W | R34 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 5 | *E. coli* | NH3, NO3, pH, SC, TDS, DO, Temp, TSS |

**Cheyenne River Basin**

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-CH-L-ANGOSTURA_01<br>Angostura Reservoir | Fall River County | L1 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, CHL-A, NH3, DO, *E. coli*, MeHg, NO3, pH, SC, Temp, TDS, TSS |
| SD-CH-L-BISMARK_01<br>Bismark Lake | Custer County | L2 | Coldwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | CHL-A<br>CHL-A<br>CHL-A | ALK, DO, *E. coli*, pH, SC, Temp, TDS, TSS |
| SD-CH-L-CANYON_01<br>Canyon Lake | Pennington County | L3 | Domestic Water Supply<br>Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>FULL<br>FULL<br>FULL<br>FULL | 1 | | CHL-A, DO, *E. coli*, pH, SC, Temp |
| SD-CH-L-CENTER_01<br>Center Lake | Custer County | L4 | Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | pH, Temp<br>CHL-A<br>CHL-A | ALK, DO, *E. coli*, NH3, NO3, SC, TDS, TSS |
| SD-CH-L-COLD_BROOK_01<br>Cold Brook Reservoir | Fall River County | L5 | Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>FULL | 5 | Temp | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, TDS, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-CH-L-COTTONWOOD_SPRINGS_01<br>Cottonwood Springs Lake | Fall River County | L6 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-CH-L-CURLEW_01<br>Curlew Lake | Meade County | L7 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, CHL-A, DO, *E. coli*, MeHg, NH3, NO3, pH, SC, Temp, TDS, TSS |
| SD-CH-L-DEERFIELD_01<br>Deerfield Lake | Pennington County | L8 | Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>FULL | 5 | Temp | ALK, CHL-A, DO, *E. coli*, MeHg, NH3, NO3, pH, SC, TDS, TSS |
| SD-CH-L-DURKEE_01<br>Durkee Lake | Meade County | L9 | Domestic Water Supply<br>Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>FULL<br>FULL<br>NON | 5 | pH<br>MeHg<br><br><br>MeHg | ALK, NH3, DO, *E. coli*, NO3, SC, Temp, TDS, TSS |
| SD-CH-L-HORSETHIEF_01<br>Horsethief Lake | Pennington County | L10 | Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | Temp, pH<br>CHL-A<br>CHL-A | ALK, NH3, DO, *E. coli*, NO3, SC, TDS, TSS |
| SD-CH-L-LAKOTA_01<br>Lakota Lake | Custer County | L11 | Coldwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | CHL-A<br>*E. coli*<br>*E. coli* | ALK, DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-CH-L-LEGION_01<br>Legion Lake | Custer County | L12 | Coldwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>FULL | 4A | pH | ALK, CHL-A, DO, *E. coli*, NH3, NO3, SC, TDS, Temp, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-CH-L-NEW_UNDERWOOD_01<br>New Underwood Lake | Pennington County | L13 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, MeHg, pH, SC, Temp, TDS, TSS |
| SD-CH-L-NEW_WALL_01<br>New Wall Lake | Pennington County | L14 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>NON | 5 | DO<br>DO<br>DO<br>MeHg | ALK, *E. coli*, NH3, NO3, pH, SC, Temp, TDS, TSS |
| SD-CH-L-PACTOLA_01<br>Pactola Reservoir | Pennington County | L15 | Domestic Water Supply<br>Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL<br>FULL<br>FULL | 5 | Temp | ALK, CHL-A, *E. coli*, DO, MeHg, NH3, NO3, pH, SC, TDS, TSS |
| SD-CH-L-ROUBAIX_01<br>Roubaix Lake | Lawrence County | L16 | Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>FULL | 5 | Temp | ALK, DO, pH, SC |
| SD-CH-L-SHERIDAN_01<br>Sheridan Lake | Pennington County | L17 | Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>NON | 5 | MeHg, Temp<br><br><br>MeHg | ALK, CHL-A, DO, *E. coli*, NH3, NO3, SC, TDS, TSS |
| SD-CH-L-STOCKADE_01<br>Stockade Lake | Custer County | L18 | Coldwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>NON | 5 | MeHg<br>*E. coli*<br>CHL-A<br>MeHg | ALK, DO, NH3, NO3, pH, SC, Temp, TDS, TSS |
| SD-CH-L-SYLVAN_01<br>Sylvan Lake | Custer County | L19 | Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>FULL | 5 | Temp | ALK, CHL-A, *E. coli*, NH3, DO, NO3, pH, SC, TDS, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-CH-R-BATTLE_01<br>Battle Creek | Near Horsethief Lake to Teepee Gulch Creek | R1 | Coldwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-CH-R-BATTLE_01_USGS<br>Battle Creek | Hwy 79 to mouth | R2 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 4A | *E. coli* | ALK, DO, NH3, pH, SAR, SC, Temp, TDS, TSS |
| SD-CH-R-BATTLE_02<br>Battle Creek | Teepee Gulch Creek to SD HWY 79 | R3 | Coldwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Se, SC, TDS, Temp, TSS |
| SD-CH-R-BEAVER_01<br>Beaver Creek | WY border to Cheyenne River | R4 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>NON | 5 | TSS<br>*E. coli*<br>SC | ALK, As, DO, NH3, NO3, pH, Ra, Sal/SAR, Temp, TDS |
| SD-CH-R-BEAVER_01_USGS<br>Beaver Creek | Near Buffalo Gap | R5 | Warmwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, DO, *E. coli*, NO3, NH3, pH, SAR, SC, Temp, TDS, TSS |
| SD-CH-R-BEAVER_02_USGS<br>Beaver Creek | S13, T5S, R4E to SD Hwy 79 | R6 | Coldwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, NH3, NO3, pH, SC, TDS, Temp, TSS, *E. coli* |
| SD-CH-R-BOX_ELDER_01<br>Box Elder Creek | Cheyenne River to S22, T2N, R8E | R7 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 5 | *E. coli* | ALK, DO, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-CH-R-BOX_ELDER_02<br>Box Elder Creek | S16, T2N, R6E to S14, T3N, R4E | R8 | Coldwater Permanent Fish Life | FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-CH-R-CASCADE_01<br>Cascade Creek | headwaters to Cheyenne River | R9 | Coldwater Marginal Fish Life | FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-CH-R-CASTLE_01<br>Castle Creek | Deerfield Reservoir to Rapid Creek | R10 | Coldwater Permanent Fish Life | FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Se, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-CH-R-CHERRY_01<br>Cherry Creek | Cheyenne River to Sulphur Creek | R11 | Warmwater Marginal Fish Life | FULL | 5 | | NH3, DO, *E. coli*, NO3, pH, Temp, TSS |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | SC, TDS | |
| | | | Irrigation Waters | NON | | SC | |
| SD-CH-R-CHEYENNE_01<br>Cheyenne River | WY border to Beaver Creek | R12 | Warmwater Semipermanent Fish Life | NON | 5 | TSS | |
| | | | Limited Contact Recreation | INS | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | TDS | |
| | | | Irrigation Waters | NON | | Sal/SAR, SC | |
| SD-CH-R-CHEYENNE_02<br>Cheyenne River | Beaver Creek to Cascade Creek | R13 | Warmwater Semipermanent Fish Life | NON | 5 | TSS | As, DO, NH3, NO3, pH, Ra, Sal/SAR, TDS, Se, Temp, U |
| | | | Limited Contact Recreation | NON | | *E. coli* | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | NON | | SC | |
| SD-CH-R-CHEYENNE_02B<br>Cheyenne River | Cascade Creek to Angostura Reservoir | R14 | Warmwater Semipermanent Fish Life | NON | 5 | TSS | ALK, As, DO, NH3, NO3, pH, Ra, U, Sal/SAR, Se, SC, TDS, Temp |
| | | | Limited Contact Recreation | NON | | *E. coli* | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-CH-R-CHEYENNE_03 | Fall River to Cedar Creek | R15 | Warmwater Semipermanent Fish Life | NON | 5 | TSS | DO, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp |
| Cheyenne River | | | Immersion Recreation | NON | | *E. coli* | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-CH-R-CHEYENNE_04 | Cedar Creek to Belle Fourche River | R16 | Warmwater Semipermanent Fish Life | NON | 5 | TSS | DO, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp |
| Cheyenne River | | | Immersion Recreation | NON | | *E. coli* | |
| | | | Limited Contact Recreation | NON | | *E. coli* | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-CH-R-CHEYENNE_05 | Belle Fourche River to Bull Creek | R17 | Warmwater Permanent Fish Life | NON | 5 | TSS | ALK, DO, MeHg, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp |
| Cheyenne River | | | Immersion Recreation | NON | | *E. coli* | |
| | | | Limited Contact Recreation | NON | | *E. coli* | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-CH-R-CHEYENNE_06 | Bull Creek to Lake Oahe | R18 | Warmwater Permanent Fish Life | NON | 5 | TSS | DO, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp |
| Cheyenne River | | | Immersion Recreation | NON | | *E. coli* | |
| | | | Limited Contact Recreation | NON | | *E. coli* | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-CH-R-ELK_01_USGS | S9, T3N, R7E to S27, T4N, R3E | R19 | Coldwater Permanent Fish Life | FULL | 5 | | DO, NH3, NO3, pH, Se, SC, TDS, Temp, TSS |
| Elk Creek | | | Immersion Recreation | NON | | *E. coli* | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-CH-R-FALL_01 | Hot Springs to mouth | R20 | Warmwater Permanent Fish Life | FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp, TSS |
| Fall River | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-CH-R-FLYNN_01<br>Flynn Creek | SF Lame Johnny Creek to S23, T4S, R5E | R21 | Coldwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Se, SC, TDS, Temp, TSS |
| SD-CH-R-FRENCH_01<br>French Creek | S23, T3S, R3E to Custer | R22 | Coldwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp, TSS |
| SD-CH-R-FRENCH_02<br>French Creek | Custer to Stockade Lake | R23 | Coldwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Se, SC, TDS, Temp, TSS |
| SD-CH-R-FRENCH_03<br>French Creek | Stockade Lake to SD HWY 79 | R24 | Coldwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Se, SC, TDS, Temp, TSS |
| SD-CH-R-GRACE_COOLIDGE_01<br>Grace Coolidge Creek | Center Lake to Battle Creek | R25 | Coldwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Se, SC, TDS, Temp, TSS |
| SD-CH-R-GRIZZLY_BEAR_01_USGS<br>Grizzly Bear Creek | Near Keystone, SD | R26 | Coldwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Se, SC, TDS, Temp, TSS |
| SD-CH-R-HIGHLAND_01_USGS<br>Highland Creek | Wind Cave Natl Park and near Pringle, SD | R27 | Coldwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, DO, *E. coli*, NH3, NO3, pH, SAR, SC, Temp, TDS, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-CH-R-HORSEHEAD_01_USGS<br>Horsehead Creek | At Oelrichs | R28 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>INS<br>FULL<br>FULL | 2 | | ALK, NH3, pH, SAR, SC, Temp, TDS, TSS |
| SD-CH-R-IRON_01<br>Iron Creek | Lakota Lake to Battle Creek | R29 | Coldwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Se, SC, TDS, Temp, TSS |
| SD-CH-R-RAPID_01<br>Rapid Creek | Headwaters to Pactola Reservoir | R30 | Domestic Water Supply<br>Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL<br>FULL<br>FULL | 1 | | Cl, DO, *E. coli*, NH3, NO3, pH, Se, Sal/SAR, SC, SO4, TDS, Temp, TSS |
| SD-CH-R-RAPID_02<br>Rapid Creek | Pactola Reservoir to Canyon Lake | R31 | Domestic Water Supply<br>Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL<br>FULL<br>FULL | 1 | | Cl, DO, *E. coli*, NH3, NO3, pH, Se, Sal/SAR, SC, SO4, TDS, Temp, TSS |
| SD-CH-R-RAPID_03<br>Rapid Creek | Canyon Lake to S15, T1N, R8E | R32 | Domestic Water Supply<br>Coldwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>NON<br>NON<br>FULL<br>FULL | 5 | *E. coli*<br>*E. coli* | Cl, DO, NH3, NO3, pH, Se, Sal/SAR, SC, SO4, TDS, Temp, TSS |
| SD-CH-R-RAPID_04<br>Rapid Creek | S15, T1N, R8E to above Farmingdale | R33 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>NON<br>NON<br>FULL | 4A | *E. coli*<br>*E. coli* | DO, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| | | | Irrigation Waters | FULL | | | |
| SD-CH-R-RAPID_05<br>Rapid Creek | Above Farmingdale to Cheyenne River | R34 | Warmwater Permanent Fish Life | NON | 4A | TSS | DO, MeHg, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp |
| | | | Immersion Recreation | NON | | *E. coli* | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-CH-R-RAPID_N_FORK_01<br>North Fork Rapid Creek | From confluence with Rapid Creek to S8, T3N, R3E | R35 | Coldwater Permanent Fish Life | FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Se, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-CH-R-RHOADS_FORK_01_USGS<br>Rhoads Fork | Near Rochford, SD | R36 | Coldwater Permanent Fish Life | FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-CH-R-SPRING_01<br>Spring Creek | S5, T2S, R3E to Sheridan Lake | R37 | Coldwater Permanent Fish Life | FULL | 4A | | DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| | | | Immersion Recreation | NON | | *E. coli* | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-CH-R-SPRING_02<br>Spring Creek | Sheridan Lake to SD HWY 79 | R38 | Coldwater Marginal Fish Life | FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Se, SC, TDS, Temp, TSS |
| | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-CH-R-VICTORIA_01_USGS<br>Victoria Creek | Rapid Creek to S19, T1N, R6E | R39 | Coldwater Permanent Fish Life | NON | 5 | Temp | pH, SC, TSS |
| | | | Limited Contact Recreation | INS | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |

**Grand River Basin**

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-GR-L-EAST_LEMMON_01<br>East Lemmon Lake | Perkins County | L1 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NA<br>NA<br>NON | 4A | MeHg<br><br><br>MeHg | |
| SD-GR-L-FLAT_CREEK_01<br>Flat Creek Dam | Perkins County | L2 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>INS<br>INS<br>FULL | 2 | | MeHg |
| SD-GR-L-GARDNER_01<br>Lake Gardner | Harding County | L3 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-GR-L-ISABEL_01<br>Lake Isabel | Dewey County | L4 | Domestic Water Supply<br>Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | INS<br>NON<br>NON<br>NON<br>NON | 5 | <br>CHL-A, MeHg<br>CHL-A<br>CHL-A<br>MeHg | DO, pH, SC, Temp |
| SD-GR-L-PUDWELL_01<br>Pudwell Dam | Corson County | L5 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NA<br>NA<br>NON | 5 | MeHg<br><br><br>MeHg | |
| SD-GR-L-SHADEHILL_01<br>Shadehill Reservoir | Perkins County | L6 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>FULL<br>FULL<br>NON<br>NON | 5 | MeHg<br><br><br>MeHg<br>Sal/SAR | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, Temp, TDS, TSS |
| SD-GR-R-BULL_01<br>Bull Creek | SF Grand River to S15, T21N, R5E | R1 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>FULL | 5 | TSS<br>*E. coli* | As, DO, NH3, NO3, pH, Ra, Se, SC, TDS, Temp, U |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| | | | Irrigation Waters | NON | | Sal/SAR | |
| SD-GR-R-CROOKED_01<br>Crooked Creek | ND border to S34, T23N, R5E | R2 | Warmwater Marginal Fish Life | FULL | 5 | | As, DO, NH3, NO3, pH, Ra, Temp, TSS |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | TDS | |
| | | | Irrigation Waters | NON | | Sal/SAR, SC | |
| SD-GR-R-GRAND_01<br>Grand River | Shadehill Reservoir to Corson County line | R3 | Coldwater Marginal Fish Life | FULL | 5 | | As, DO, *E. coli*, NH3, NO3, pH, Ra, Se, SC, TDS, Temp, TSS, U |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | NON | | Sal/SAR | |
| SD-GR-R-GRAND_02<br>Grand River | Corson County line to Missouri | R4 | Warmwater Permanent Fish Life | NON | 5 | TSS | DO, NH3, NO3, pH, SC, TDS, Temp |
| | | | Limited Contact Recreation | NON | | *E. coli* | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | NON | | Sal/SAR | |
| SD-GR-R-GRAND_N_FORK_01<br>Grand River, North Fork | North Dakota border to Shadehill Reservoir | R5 | Warmwater Marginal Fish Life | FULL | 5 | | DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| | | | Immersion Recreation | NON | | *E. coli* | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | NON | | Sal/SAR | |
| SD-GR-R-GRAND_S_FORK_01<br>Grand River, South Fork | S13, T18N, R3E to SD Hwy 79 | R6 | Warmwater Semipermanent Fish Life | NON | 5 | TSS | As, DO, NH3, NO3, pH, Ra, SC, TDS, Temp, U |
| | | | Limited Contact Recreation | NON | | *E. coli* | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | NON | | Sal/SAR | |
| SD-GR-R-GRAND_S_FORK_02<br>Grand River, South Fork | SD Hwy 79 to Shadehill Reservoir | R7 | Warmwater Semipermanent Fish Life | NON | 5 | TSS | DO, NH3, NO3, pH, SC, TDS, Temp |
| | | | Immersion Recreation | NON | | *E. coli* | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | NON | | Sal/SAR | |

**James River Basin**

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-JA-L-AMSDEN_01<br>Amsden Dam | Day County | L1 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>NON | 4A | MeHg<br><br><br>MeHg | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-JA-L-BEAVER_01<br>Beaver Lake | Yankton County | L2 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | CHL-A<br>CHL-A<br>CHL-A | ALK, *E. coli*, DO, NH3, NO3, pH, SC, Temp, TDS, TSS |
| SD-JA-L-BIERMAN_01<br>Bierman Dam | Spink County | L3 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | CHL-A<br>CHL-A<br>CHL-A | ALK, NH3, NO3, SC, TDS, TSS |
| SD-JA-L-BULLHEAD_02<br>Bullhead Lake | Marshall County (formerly SD-BS-L-BULLHEAD_02) | L4 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | INS<br>INS<br>INS<br>INS | 3 | | |
| SD-JA-L-BYRON_01<br>Lake Byron | Beadle County | L5 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>NON<br>FULL<br>FULL | 4A | CHL-A<br>CHL-A<br>CHL-A | ALK, NH3, DO, *E. coli*, MeHg, NO3, pH, SC, Temp, TDS, TSS |
| SD-JA-L-CARTHAGE_01<br>Lake Carthage | Miner County | L6 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | CHL-A<br>CHL-A<br>CHL-A | ALK, DO, *E. coli*, NH3, NO3, MeHg, pH, SC, TDS, Temp, TSS |
| SD-JA-L-CATTAIL_01<br>Cattail Lake | Marshall County (formerly SD-BS-L-CATTAIL_01) | L7 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, CHL-A, DO, *E. coli*, MeHg, NH3, NO3, pH, SC, TDS, Temp, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-JA-L-CAVOUR_01<br>Lake Cavour | Beadle County | L8 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>INS<br>INS<br>FULL | 2 | | MeHg |
| SD-JA-L-CLEAR_M_01<br>Clear Lake | Marshall County (formerly SD-BS-L-CLEAR_M_01) | L9 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>NON | 5 | MeHg<br><br><br>MeHg | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, TDS, TSS |
| SD-JA-L-CLUBHOUSE_01<br>Clubhouse Lake | Marshall County | L10 | Fish and Wildlife Prop, Rec, Stock | NON | 4A | MeHg | |
| SD-JA-L-COTTONWOOD_01<br>Cottonwood Lake | Spink County | L11 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>NON | 4A | MeHg<br><br><br>MeHg | ALK, NH3, CHL-A, DO, *E. coli*, NO3, pH, SC Temp, TDS, TSS |
| SD-JA-L-COTTONWOOD_M_01<br>Cottonwood Lake | Marshall County (formerly SD-BS-L-COTTONWOOD_01) | L12 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>FULL | 5 | pH | ALK, DO, *E. coli*, NH3, NO3, SC, TDS, Temp, TSS |
| SD-JA-L-CRESBARD_01<br>Cresbard Lake | Faulk County | L13 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>INS | 5 | CHL-A, pH<br>CHL-A<br>CHL-A | |
| SD-JA-L-DIMOCK_01<br>Dimock Lake | Hutchinson County | L14 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>NA<br>NA<br>FULL | 2 | | MeHg |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-JA-L-ELM_01 | Brown County | L15 | Domestic Water Supply | FULL | 5 | | ALK, NH3, NO3, pH, SC, TDS, TSS |
| Elm Lake | | | Warmwater Permanent Fish Life | NON | | MeHg | |
| | | | Immersion Recreation | NON | | DO | |
| | | | Limited Contact Recreation | NON | | DO | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |
| SD-JA-L-FAULKTON_01 | Faulk County | L16 | Warmwater Semipermanent Fish Life | NON | 5 | CHL-A, DO, MeHg, pH | ALK, NH3, NO3, TDS, Temp, TSS |
| Lake Faulkton | | | Immersion Recreation | NON | | CHL-A, DO | |
| | | | Limited Contact Recreation | NON | | CHL-A, DO | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |
| SD-JA-L-FOUR_MILE_01 | Marshall County (formerly SD-BS-L-FOUR_MILE_01) | L17 | Warmwater Marginal Fish Life | FULL | 2 | | DO, pH, SC, Temp |
| Four Mile Lake | | | Immersion Recreation | INS | | | |
| | | | Limited Contact Recreation | INS | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-JA-L-HANSON_01 | Hanson County | L18 | Warmwater Semipermanent Fish Life | NON | 4A | MeHg | |
| Lake Hanson | | | Immersion Recreation | INS | | | |
| | | | Limited Contact Recreation | INS | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |
| SD-JA-L-HAZELDON_01 Hazeldon Lake | Day County | L19 | Fish and Wildlife Prop, Rec, Stock | FULL | 1 | | MeHg |
| SD-JA-L-HENRY_01 | Near Scotland, SD | L20 | Warmwater Permanent Fish Life | NON | 5 | DO, MeHg | ALK, *E. coli*, NH3, NO3 pH, SC, TDS, Temp, TSS |
| Henry Reservoir | | | Immersion Recreation | NON | | DO | |
| | | | Limited Contact Recreation | NON | | DO | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |
| SD-JA-L-HORSESHOE_01 | Marshall County | L21 | Warmwater Marginal Fish Life | NON | 4A | MeHg | |
| Horseshoe Lake | | | Immersion Recreation | NA | | | |
| | | | Limited Contact Recreation | NA | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-JA-L-JAIL_POND_01<br>Jail Pond | Aurora County | L22 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | INS<br>INS<br>INS<br>INS | 3 | | |
| SD-JA-L-JONES_01<br>Jones Lake | Hand County | L23 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>FULL | 5 | pH | DO, SC, Temp, TDS, TSS |
| SD-JA-L-LARDY_01<br>Lardy Lake | Day County (Formerly SD-BS-L-LARDY_01) | L24 | Fish and Wildlife Prop, Rec, Stock | NON | 4A | MeHg | |
| SD-JA-L-LATHAM_01<br>Latham | Faulk County | L25 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>INS | 5 | DO<br>DO<br>DO | |
| SD-JA-L-LILY_01<br>Lily Lake | Day County | L26 | Fish and Wildlife Prop, Rec, Stock | NON | 4A | MeHg | |
| SD-JA-L-LOUISE_01<br>Lake Louise | Hand County | L27 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>NON | 5 | DO, MeHg,<br>DO, CHL-A<br>DO, CHL-A<br>MeHg | ALK, NH3, *E. coli*, NO3, pH, SC, Temp, TDS, TSS |
| SD-JA-L-LYNN_01<br>Lynn Lake | Day County | L28 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NA<br>NA<br>NON | 4A | MeHg<br><br><br>MeHg | |
| SD-JA-L-MENNO_01<br>Menno, Lake | Hutchinson County | L29 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>INS<br>INS<br>FULL | 2 | | MeHg |
| SD-JA-L-MID_LYNN_01<br>Middle Lynn Lake | Day County (formerly SD-BS-L-MID_LYNN_01) | L30 | Fish and Wildlife Prop, Rec, Stock | NON | 4A | MeHg | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-JA-L-MINA_01<br>Mina Lake | Edmunds County | L31 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>NON | 4A | MeHg<br><br><br>MeHg | ALK, NH3, NO3, DO, pH, SC, TDS, Temp, TSS |
| SD-JA-L-MITCHELL_01<br>Lake Mitchell | Davison County | L32 | Domestic Water Supply<br>Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>NON<br>FULL | 4A | CHL-A<br>CHL-A<br>CHL-A<br>CHL-A<br> | ALK, DO, *E. coli*, NH3, NO3, pH, SC, Temp, TDS, TSS |
| SD-JA-L-N_BUFFALO_01<br>North Buffalo Lake | Marshall County (formerly SD-BS-L-N_BUFFALO_01) | L33 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>NON | 5 | MeHg<br><br><br>MeHg | ALK, DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-JA-L-NINE_MILE_01<br>Nine Mile Lake | Marshall County (formerly SD-BS-L-NINE_MILE_01) | L34 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>NON | 5 | pH<br><br><br>pH | ALK, CHL-A, NH3, DO, *E. coli*, NO3, SC, Temp, TDS, TSS |
| SD-JA-L-NORTH_SCATTERWOOD_01<br>North Scatterwood Lake | Edmunds County | L35 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | INS<br>INS<br>INS<br>INS | 3 | | |
| SD-JA-L-OPITZ_01<br>Opitz Lake | Day County (Formerly SD-BS-L-OPITZ_01) | L36 | Fish and Wildlife Prop, Rec, Stock | NON | 4A | MeHg | |
| SD-JA-L-PIERPONT_01<br>Pierpont Lake | Day County | L37 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>FULL | 5 | Temp<br><br><br> | ALK, DO, *E. coli*, NH3, NO3, pH, SC, TDS, TSS |
| SD-JA-L-PIYAS_01<br>Piyas Lake | Marshall | L38 | Fish and Wildlife Prop, Rec, Stock | NON | 5 | MeHg | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-JA-L-RAVINE_01<br>Ravine Lake | Beadle County | L39 | Warmwater Semipermanent Fish Life | NON | 5 | DO, MeHg, pH | |
| | | | Immersion Recreation | NON | | DO | ALK, NH3, NO3, *E. coli*, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | NON | | DO | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |
| SD-JA-L-REDFIELD_01<br>Lake Redfield | Spink County | L40 | Warmwater Marginal Fish Life | NON | 5 | DO | |
| | | | Immersion Recreation | NON | | DO | ALK, MeHg, NH3, NO3, pH, TDS, Temp, TSS |
| | | | Limited Contact Recreation | NON | | DO | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-JA-L-REETZ_01<br>Reetz Lake | Day County | L41 | Fish and Wildlife Prop, Rec, Stock | NON | 4A | MeHg | |
| SD-JA-L-RICHMOND_01<br>Richmond Lake | Brown County | L42 | Warmwater Permanent Fish Life | NON | 4A | MeHg | |
| | | | Immersion Recreation | FULL | | | ALK, NH3, DO, *E. coli*, NO3, pH, SC, Temp |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | TDS, TSS |
| SD-JA-L-ROSETTE_01<br>Rosette Lake | Edmunds County | L43 | Warmwater Marginal Fish Life | NON | 5 | CHL-A | |
| | | | Immersion Recreation | NON | | CHL-A | |
| | | | Limited Contact Recreation | NON | | CHL-A | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-JA-L-ROY_01<br>Roy Lake | Marshall County (formerly SD-BS-L-ROY_01) | L44 | Warmwater Permanent Fish Life | FULL | 1 | | |
| | | | Immersion Recreation | FULL | | | ALK, CHL-A, DO, *E. coli*, MeHg, NH3, NO3, pH, SC, TDS, TSS |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-JA-L-S_RED_IRON_01<br>South Red Iron Lake | Marshall County (formerly SD-BS-L-S_RED_IRON_01) | L45 | Warmwater Permanent Fish Life | FULL | 1 | | |
| | | | Immersion Recreation | FULL | | | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-JA-L-SOUTH_BUFFALO_01<br>South Buffalo Lake | Marshall County (formerly SD-BS-L-SOUTH_BUFFALO_01) | L46 | Warmwater Semipermanent Fish Life | NON | 4A | MeHg | |
| | | | Immersion Recreation | FULL | | | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-JA-L-STAUM_01 | Beadle County | L47 | Warmwater Semipermanent Fish Life | NON | 4A | MeHg | |
| Staum Dam | | | Immersion Recreation | NA | | | |
| | | | Limited Contact Recreation | NA | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |
| SD-JA-L-STINK_01 | Marshall County | | | | | | |
| Stink Lake | | L48 | Fish and Wildlife Prop, Rec, Stock | NON | 4A | MeHg | |
| SD-JA-L-TWIN_01 | Sanborn County | L49 | Warmwater Semipermanent Fish Life | NON | 5 | CHL-A, DO | |
| Twin Lakes | | | Immersion Recreation | NON | | CHL-A, DO | ALK, NH3, NO3, pH, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | NON | | CHL-A, DO | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-JA-L-TWIN_02 | Spink County | L50 | Warmwater Semipermanent Fish Life | FULL | 1 | | |
| Twin Lakes | | | Immersion Recreation | FULL | | | ALK, DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-JA-L-WILMARTH_01 | Aurora County | L51 | Warmwater Permanent Fish Life | NON | 5 | MeHg, pH | |
| Wilmarth Lake | | | Immersion Recreation | INS | | | |
| | | | Limited Contact Recreation | INS | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |
| SD-JA-L-WYLIE_01 | Brown County | L52 | Warmwater Marginal Fish Life | INS | 3 | | |
| Wylie Lake | | | Immersion Recreation | INS | | | |
| | | | Limited Contact Recreation | INS | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | INS | | | |
| SD-JA-R-DAWSON_01 | James River to Lake Henry | R1 | Warmwater Marginal Fish Life | FULL | 4A | | |
| Dawson Creek | | | Limited Contact Recreation | NON | | *E. coli* | DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-JA-R-ELM_01<br>Elm River | Elm Lake to mouth | R2 | Domestic Water Supply<br>Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>FULL<br>FULL<br>FULL<br>FULL | 5 | TDS | DO, *E. coli*, NH3, NO3, pH, Se, Sal/SAR, SC, Temp, TSS |
| SD-JA-R-FIRESTEEL_01<br>Firesteel Creek | West Fork Firesteel Creek to Lake Mitchell | R3 | Domestic Water Supply<br>Warmwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>NON<br>FULL<br>FULL | 5 | TDS<br>Temp<br>*E. coli* | DO, NH3, NO3, pH, Sal/SAR, SC, TSS |
| SD-JA-R-FOOT_01_USGS<br>Foot Creek | Richmond Lake to Moccasin Creek | R4 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>INS<br>INS | 5 | DO<br>DO | |
| SD-JA-R-JAMES_01<br>James River | North Dakota border to Mud Lake Reservoir | R5 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>FULL | 5 | DO<br>DO | *E. coli*, NH3, NO3, pH, Sal/SAR, SC, TDS, TSS |
| SD-JA-R-JAMES_04<br>James River | Columbia Road Reservoir to US HWY 12 | R6 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>FULL | 5 | DO<br>DO | *E. coli*, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp, TSS |
| SD-JA-R-JAMES_05<br>James River | US HWY 12 to Mud Creek | R7 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>FULL | 5 | DO<br>DO | *E. coli*, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp, TSS |
| SD-JA-R-JAMES_06<br>James River | Mud Creek to James River Diversion Dam | R8 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>FULL | 5 | DO<br>DO | *E. coli*, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-JA-R-JAMES_07<br>James River | James River Diversion Dam to Huron 3rd Street Dam | R9 | Domestic Water Supply<br>Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>NON<br>FULL<br>FULL | 5 | TDS<br>DO<br>DO | *E. coli*, NH3, NO3, pH, Sal/SAR, SC, Temp, TSS |
| SD-JA-R-JAMES_08<br>James River | Huron 3rd Street Dam to Sand Creek | R10 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>FULL<br>NON<br>FULL | 4A | MeHg<br>MeHg | DO, *E. coli*, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp, TSS |
| SD-JA-R-JAMES_09<br>James River | Sand Creek to I-90 | R11 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>FULL<br>FULL<br>FULL | 5 | TSS | DO, *E. coli*, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp |
| SD-JA-R-JAMES_10<br>James River | I-90 to Yankton County line | R12 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>FULL<br>NON<br>FULL | 5 | MeHg<br>MeHg | DO, *E. coli*, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp, TSS |
| SD-JA-R-JAMES_11<br>James River | Yankton County line to mouth | R13 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>FULL<br>NON<br>FULL | 5 | MeHg, TSS<br>MeHg | DO, NH3, NO3, pH, Sal/SAR, SC, TDS, *E. coli*, Temp |
| SD-JA-R-MAPLE_01<br>Maple River | ND border to Elm River | R14 | Domestic Water Supply<br>Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>FULL<br>FULL<br>FULL<br>FULL | 5 | TDS | DO, *E. coli*, NH3, NO3, pH, Se, SAR, SC, Temp, TSS |
| SD-JA-R-MOCCASIN_01<br>Moccasin Creek | S24, T123N, R64W to headwaters | R15 | Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NA<br>NA | 3 | | |
| SD-JA-R-MOCCASIN_02<br>Moccasin Creek | James River to S24, T123N, R64W | R16 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>NON<br>FULL | 5 | DO | NH3, NO3, SC, TDS, Temp, pH, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| | | | Irrigation Waters | FULL | | | |
| SD-JA-R-MUD_01 | | R17 | Warmwater Marginal Fish Life | NON | 5 | DO | |
| Mud Creek | James River to Hwy 37 | | Limited Contact Recreation | NON | | DO | NH3, NO3, pH, Sal/SAR, SC, TDS, Temp, TSS |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-JA-R-PIERRE_01 | | R18 | Warmwater Semipermanent Fish Life | NON | 5 | TSS | |
| Pierre Creek | James River to Lake Hanson | | Limited Contact Recreation | NON | | *E. coli* | DO, NH3, NO3, pH, SC, TDS, Temp |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-JA-R-SNAKE_01 | James River to confluence with SF Snake Creek | R19 | Warmwater Semipermanent Fish Life | NON | 5 | DO | |
| Snake Creek | | | Limited Contact Recreation | NON | | DO | NH3, NO3, pH, SC, Se, TDS, Temp, TSS |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-JA-R-TURTLE_01 | | R20 | Warmwater Marginal Fish Life | FULL | 1 | | |
| Turtle Creek | James River to Lake Redfield | | Limited Contact Recreation | FULL | | | DO, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp, TSS |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-JA-R-WOLF_01 | | R21 | Warmwater Marginal Fish Life | FULL | 5 | | |
| Wolf Creek | Wolf Creek Colony to S5, T103N, R56W | | Limited Contact Recreation | NON | | *E. coli* | DO, NH3, NO3, pH, Sal/SAR, TDS, Temp, TSS |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | NON | | SC | |
| SD-JA-R-WOLF_02 | | R22 | Warmwater Marginal Fish Life | INS | 3 | | |
| Wolf Creek | Just above Wolf Creek Colony to the mouth. | | Limited Contact Recreation | INS | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | INS | | | |
| | | | Irrigation Waters | INS | | | |
| SD-JA-R-WOLF_SP_01 | | R23 | Warmwater Marginal Fish Life | FULL | 1 | | |
| Wolf Creek | Turtle Creek to S10, T114N, R66W | | Limited Contact Recreation | FULL | | | DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |

**Little Missouri River Basin**

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-LM-R-LITTLE_MISSOURI_01<br>Little Missouri River | Montana border to North Dakota border | R1 | Warmwater Semipermanent Fish Life | NON | 5 | MeHg, TSS | DO, *E. coli*, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |
| | | | Irrigation Waters | FULL | | | |

**Missouri River Basin**

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-MI-L-ANDES_01<br>Lake Andes | Charles Mix County | L1 | Warmwater Marginal Fish Life | NON | 5 | DO, pH | ALK, NH3, NO3, SC, TDS, TSS |
| | | | Immersion Recreation | NON | | DO | |
| | | | Limited Contact Recreation | NON | | DO | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-MI-L-BRAKKE_01<br>Brakke Dam | Lyman County | L2 | Warmwater Permanent Fish Life | NON | 5 | CHL-A | pH, SC, Temp |
| | | | Immersion Recreation | NON | | CHL-A, DO | |
| | | | Limited Contact Recreation | NON | | CHL-A, DO | |
| | | | Fish and Wildlife Prop, Rec, Stock | INS | | | |
| SD-MI-L-BURKE_01<br>Burke Lake | Gregory County | L3 | Warmwater Semipermanent Fish Life | NON | 4A | CHL-A, DO | ALK, *E. coli*, MeHg, NH3, NO3, pH, SC, TDS, TSS |
| | | | Immersion Recreation | NON | | CHL-A | |
| | | | Limited Contact Recreation | NON | | CHL-A | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-MI-L-BYRE_01<br>Byre Lake | Lyman County | L4 | Warmwater Permanent Fish Life | NON | 5 | CHL-A, Temp | ALK, NH3, DO, MeHg, NO3, pH, SC, TDS, TSS |
| | | | Immersion Recreation | NON | | CHL-A | |
| | | | Limited Contact Recreation | NON | | CHL-A | |
| | | | Fish and Wildlife Prop, Rec, Stock | INS | | | |
| SD-MI-L-CAMPBELL_01<br>Lake Campbell | Campbell County | L5 | Warmwater Semipermanent Fish Life | NON | 5 | DO, pH | ALK, NH3, NO3, SC, TDS, Temp, TSS |
| | | | Immersion Recreation | NON | | DO | |
| | | | Limited Contact Recreation | NON | | DO | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-MI-L-CORSICA_01<br>Corsica Lake | Douglas County | L6 | Warmwater Semipermanent Fish Life | NON | 5 | CHL-A, pH | |
| | | | Immersion Recreation | NON | | CHL-A | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| | | | Limited Contact Recreation | NON | | CHL-A | |
| | | | Fish and Wildlife Prop, Rec, Stock | INS | | | |
| SD-MI-L-COTTONWOOD_01 | | L7 | Warmwater Semipermanent Fish Life | NON | 4A | MeHg | |
| Cottonwood Lake | Sully County | | Immersion Recreation | INS | | | |
| | | | Limited Contact Recreation | INS | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |
| SD-MI-L-DANTE_01 | | L8 | Warmwater Permanent Fish Life | NON | 5 | DO, Temp | |
| Dante Lake | Charles Mix County | | Immersion Recreation | NON | | DO | |
| | | | Limited Contact Recreation | NON | | DO | |
| | | | Fish and Wildlife Prop, Rec, Stock | INS | | | |
| SD-MI-L-EUREKA_01 | | L9 | Warmwater Semipermanent Fish Life | FULL | 1 | | |
| Eureka Lake | McPherson County | | Immersion Recreation | FULL | | | ALK, DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-MI-L-FAIRFAX_01 | | L10 | Warmwater Semipermanent Fish Life | FULL | 2 | | |
| Fairfax Lake | Gregory County | | Immersion Recreation | INS | | | MeHg |
| | | | Limited Contact Recreation | INS | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-MI-L-FATE_01 | | L11 | Warmwater Permanent Fish Life | NON | 4A | MeHg | |
| Fate Dam | Lyman County | | Immersion Recreation | INS | | | |
| | | | Limited Contact Recreation | INS | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |
| SD-MI-L-GEDDES_01 | | L12 | Warmwater Semipermanent Fish Life | NON | 4A | CHL-A, DO | |
| Geddes Lake | Charles Mix County | | Immersion Recreation | NON | | CHL-A, DO | ALK, NH3, NO3, pH, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | NON | | CHL-A, DO | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-MI-L-HIDDENWOOD_01 | | L13 | Warmwater Semipermanent Fish Life | FULL | 2 | | |
| Lake Hiddenwood | Walworth County | | Immersion Recreation | INS | | | MeHg |
| | | | Limited Contact Recreation | INS | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-MI-L-HURLEY_01<br>Lake Hurley | Potter County | L14 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NA<br>NA<br>NON | 4A | MeHg<br><br><br>MeHg | |
| SD-MI-L-KIESZ_01<br>Kiesz Lake | McPherson County | L15 | Fish and Wildlife Prop, Rec, Stock | NON | 5 | MeHg | |
| SD-MI-L-MCCOOK_01<br>McCook Lake | Union County | L16 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>FULL | 5 | Temp | ALK, CHL-A, DO, NH3, NO3, pH, SC, TDS, TSS |
| SD-MI-L-PLATTE_01<br>Platte Lake | Aurora County | L17 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | INS<br>INS<br>INS<br>INS | 3 | | |
| SD-MI-L-POCASSE_01<br>Lake Pocasse | Campbell County | L18 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | CHL-A<br>CHL-A<br>CHL-A | ALK, DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-MI-L-POTTS_01<br>Potts Dam | Potter County | L19 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NA<br>NA<br>NON | 4A | MeHg<br><br><br>MeHg | |
| SD-MI-L-ROOSEVELT_01<br>Roosevelt Lake | Tripp County | L20 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>NON | 5 | DO, MeHg<br>DO<br>DO<br>MeHg | |
| SD-MI-L-SIMON_01<br>Simon Lake | Potter County | L21 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>NA<br>NA<br>FULL | 2 | | MeHg |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-MI-L-SPRING_01<br>Spring Lake | Walworth County | L22 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>NA<br>NA<br>FULL | 2 | | MeHg |
| SD-MI-L-SULLY_01<br>Sully Lake | Sully County | L23 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | CHL-A<br>CHL-A<br>CHL-A | ALK, DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-MI-L-SULLY_DAM_01<br>Sully Dam | Tripp County | L24 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NA<br>NA<br>NA<br>INS | 3 | | |
| SD-MI-L-SWAN_01<br>Swan Lake | Walworth County | L25 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | INS<br>NA<br>NA<br>INS | 3 | | |
| SD-MI-L-TWIN_01<br>Twin Lakes | Stanley County | L26 | Fish and Wildlife Prop, Rec, Stock | FULL | 1 | | MeHg |
| SD-MI-L-YANKTON_01<br>Lake Yankton | Yankton County | L27 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>FULL | 5 | Temp | CHL-A, DO, *E. coli*, pH, SC |
| SD-MI-R-CHOTEAU_01<br>Choteau Creek | Lewis & Clark Lake to S34, T96N, R63W | R1 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp, TSS |
| SD-MI-R-CROW_01<br>Crow Creek | Bedashosha Lake to Jerauld County line | R2 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 5 | *E. coli* | DO, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-MI-R-EMANUEL_01<br>Emanuel Creek | Lewis and Clark Lake to S20, T94N, R60W | R3 | Warmwater Semipermanent Fish Life | FULL | 4A | | |
| | | | Limited Contact Recreation | NON | | *E. coli* | DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-MI-R-FRANCIS_CASE_01<br>Missouri River (Lake Francis Case) | Big Bend Dam to Fort Randall Dam | R4 | Domestic Water Supply | FULL | 1 | | |
| | | | Warmwater Permanent Fish Life | FULL | | | DO, *E. coli*, MeHg, NO3, pH, Sal/SAR, SC, TDS, Temp, TSS |
| | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| | | | Commerce / Industry | FULL | | | |
| SD-MI-R-LEWIS_AND_CLARK_01<br>Missouri River (Lewis and Clark Lake) | Fort Randall Dam to North Sioux City | R5 | Domestic Water Supply | FULL | 1 | | |
| | | | Warmwater Permanent Fish Life | FULL | | | As, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Zn, DO, *E. coli*, MeHg, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp, TSS |
| | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| | | | Commerce / Industry | FULL | | | |
| SD-MI-R-MEDICINE_01<br>Medicine Creek | Lake Sharpe to US Hwy 83 | R6 | Warmwater Marginal Fish Life | FULL | 5 | | |
| | | | Limited Contact Recreation | FULL | | | DO, *E. coli*, NH3, NO3, pH, Sal/SAR, Temp, TSS |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | TDS | |
| | | | Irrigation Waters | NON | | SC | |
| SD-MI-R-MEDICINE_KNOLL_01<br>Medicine Knoll Creek | Lake Sharpe to confluence with its north and south forks | R7 | Warmwater Marginal Fish Life | FULL | 1 | | |
| | | | Limited Contact Recreation | FULL | | | *E. coli*, NH3, NO3, pH, Se, SAR, SC, TDS, Temp, TSS |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-MI-R-OAHE_01 | North Dakota border to Oahe Dam | R8 | Domestic Water Supply | FULL | 4A | | DO, *E. coli*, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp, TSS |
| Missouri River (Lake Oahe) | | | Coldwater Permanent Fish Life | NON | | MeHg | |
| | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg | |
| | | | Irrigation Waters | FULL | | | |
| | | | Commerce / Industry | FULL | | | |
| SD-MI-R-OAK_01_USGS | S20, T21N, R28E to Oahe | R9 | Warmwater Marginal Fish Life | INS | 3 | | |
| Oak Creek | | | Limited Contact Recreation | NA | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | INS | | | |
| | | | Irrigation Waters | INS | | | |
| SD-MI-R-PLATTE_01_USGS | Platte Lake to Missouri River | R10 | Warmwater Marginal Fish Life | FULL | 5 | | DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| Platte Creek | | | Limited Contact Recreation | NON | | *E. coli* | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-MI-R-PONCA_01 | SD/NE border to US Hwy 183 | R11 | Warmwater Semipermanent Fish Life | NON | 5 | TSS | DO, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp |
| Ponca Creek | | | Limited Contact Recreation | NON | | *E. coli* | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-MI-R-SHARPE_01 | Oahe Dam to Big Bend Dam | R12 | Domestic Water Supply | FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, MeHg, Temp, TSS |
| Missouri River (Lake Sharpe) | | | Warmwater Permanent Fish Life | FULL | | | |
| | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| | | | Commerce / Industry | FULL | | | |
| SD-MI-R-SPRING_01 | Lake Pocasse to US HWY 83 | R13 | Warmwater Semipermanent Fish Life | FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp, TSS |
| Spring Creek | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |

**Minnesota River Basin**

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-MN-L-ALICE_01<br>Lake Alice | Deuel County | L1 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>NON | 5 | MeHg, pH<br><br><br>MeHg, pH | ALK, NH3, CHL-A, DO, *E. coli*, NO3, SC, Temp, TDS, TSS |
| SD-MN-L-BIG_STONE_01<br>Big Stone Lake | Roberts County | L2 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, Temp, TDS, TSS |
| SD-MN-L-COCHRANE_01<br>Lake Cochrane | Deuel County | L3 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, Temp, TDS, TSS |
| SD-MN-L-DRYWOOD_NORTH_01<br>Lake Drywood North | Roberts County (formerly SD-BS-L-DRYWOOD_NORTH_01) | L4 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | INS<br>INS<br>INS<br>INS | 3 | | |
| SD-MN-L-FISH_01<br>Fish Lake | Deuel County | L5 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | pH, CHL-A<br>*E. coli*, CHL-A<br>*E. coli*, CHL-A | ALK, DO, NH3, NO3, SC, TDS, Temp, TSS |
| SD-MN-L-HENDRICKS_01<br>Lake Hendricks | Brookings County | L6 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-MN-L-OAK_01<br>Oak Lake | Brookings County | L7 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | CHL-A<br>*E. coli*<br>*E. coli* | ALK, NH3, DO, NO3, pH, SC, Temp, TDS, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-MN-L-OLIVER_01<br>Lake Oliver | Deuel County | L8 | Warmwater Marginal Fish Life | FULL | 1 | | ALK, CHL-A, DO, *E. coli*, NH3, NO3, PH, SC, TDS, Temp, TSS |
| | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-MN-L-PUNISHED_WOMAN_01<br>Punished Woman Lake | Codington County | L9 | Warmwater Semipermanent Fish Life | FULL | 1 | | ALK, CHL-A, DO, *E. coli*, NH3, NO3, PH, SC, TDS, Temp, TSS |
| | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-MN-L-SUMMIT_01<br>Summit Lake | Grant County | L10 | Warmwater Semipermanent Fish Life | NON | 5 | MeHg, pH | DO, *E. coli*, SC, Temp |
| | | | Immersion Recreation | FULL | | | |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg, pH | |
| SD-MN-L-TURTLE_FOOT_01<br>Turtle Foot Lake | Marshall County | L11 | Warmwater Marginal Fish Life | INS | 3 | | |
| | | | Immersion Recreation | INS | | | |
| | | | Limited Contact Recreation | INS | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | INS | | | |
| SD-MN-R-LAC_QUI_PARLE_W_BR_01<br>Lac Qui Parle River, West Branch | SD/MN border to S8, T115N, R47W | R1 | Coldwater Marginal Fish Life | FULL | 5 | | DO, NH3, NO3, pH, Se, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | NON | | *E. coli* | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-MN-R-LITTLE_MINNESOTA_01<br>Little Minnesota River | Big Stone Lake to S24, T126N, R51W | R2 | Warmwater Semipermanent Fish Life | FULL | 1 | | ALK, DO, *E. coli*, NH3, NO3, pH, Se, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-MN-R-LITTLE_MINNESOTA_02<br>Little Minnesota River | S24, T126N, R51W to S15, T128N, R52W | R3 | Warmwater Semipermanent Fish Life | NON | 5 | DO | NH3, NO3, pH, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | NON | | DO | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-MN-R-MUD_01<br>Mud Creek | SF Yellowbank River to S22, T118N, R48W | R4 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 5 | *E. coli* | ALK, DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-MN-R-WHETSTONE_01<br>Whetstone River | SD/MN border to confluence with its north and south forks | R5 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, Se, SC, TDS, Temp, TSS |
| SD-MN-R-WHETSTONE_N_FORK_01<br>North Fork Whetstone River | SD Hwy 15 to Whetstone River | R6 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, NH3, NO3, pH, Se, SC, *E. coli*, TDS, Temp, TSS |
| SD-MN-R-WHETSTONE_S_FORK_01<br>South Fork Whetstone River | Headwaters to Lake Farley | R7 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 4A | *E. coli* | DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-MN-R-WHETSTONE_S_FORK_02<br>South Fork Whetstone River | Lake Farley to mouth | R8 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-MN-R-YELLOW_BANK_N_FORK_01<br>North Fork Yellow Bank River | SD/MN border to S27, T120N, R48W | R9 | Warmwater Permanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 4A | *E. coli* | DO, NH3, NO3, pH, Se, SC, TDS, Temp, TSS |
| SD-MN-R-YELLOW_BANK_S_FORK_01<br>South Fork Yellow Bank River | SD/MN border to S33, T118N, R49W | R10 | Coldwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 4A | *E. coli* | DO, NH3, NO3, pH, Se, SC TDS, Temp, TSS |

**Moreau River Basin**

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-MU-L-COAL_SPRINGS_01<br>Coal Springs Reservoir | Perkins County | L1 | Warmwater Permanent Fish Life | NON | 5 | MeHg, pH | |
| | | | Immersion Recreation | INS | | | ALK, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | INS | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg, pH | |
| SD-MU-L-LITTLE_MOREAU_NO1_01<br>Little Moreau No. 1 | Dewey County | L2 | Warmwater Permanent Fish Life | NON | 5 | MeHg, pH | |
| | | | Immersion Recreation | FULL | | | ALK, CHL-A, DO, NH3, NO3, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | MeHg, pH | |
| SD-MU-R-MOREAU_01<br>Moreau River | North and South Forks to Ziebach/Perkins County line | R1 | Warmwater Semipermanent Fish Life | NON | 5 | TSS | |
| | | | Limited Contact Recreation | FULL | | | As, DO, NH3, NO3, pH, *E. coli*, Ra, SC, TDS, Temp, U |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | NON | | Sal/SAR | |
| SD-MU-R-MOREAU_02&03<br>Moreau River | Ziebach/Perkins County line to Missouri | R2 | Warmwater Semipermanent Fish Life | NON | 5 | TSS | |
| | | | Limited Contact Recreation | NON | | *E. coli* | DO, NH3, NO3, pH, SC, TDS, Temp |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | NON | | Sal/SAR | |
| SD-MU-R-MOREAU_S_FORK_01<br>South Fork Moreau River | Alkali Creek to mouth | R3 | Warmwater Marginal Fish Life | FULL | 5 | | |
| | | | Limited Contact Recreation | FULL | | | DO, *E. coli*, NH3, NO3, pH, Temp, TSS |
| | | | Fish and Wildlife Prop, Rec, Stock | NON | | SC, TDS | |
| | | | Irrigation Waters | NON | | Sal/SAR, SC | |
| SD-MU-R-RABBIT_01<br>Rabbit Creek | Antelope Creek to Moreau River | R4 | Warmwater Marginal Fish Life | NON | 5 | TSS | |
| | | | Limited Contact Recreation | NON | | *E. coli* | DO, NH3, NO3, pH, Se, SC, TDS, Temp |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |

**Niobrara River Basin**

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-NI-L-DOG_EAR_01<br>Dog Ear Lake | Tripp County | L1 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>NA<br>NA<br>FULL | 2 | | MeHg |
| SD-NI-L-RAHN_01<br>Rahn Lake | Tripp County | L2 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | CHL-A, DO<br>CHL-A, DO<br>CHL-A, DO | ALK, NH3, NO3, pH, Temp, TSS |
| SD-NI-R-KEYA_PAHA_01<br>Keya Paha River | SD/NE border to confluence with Antelope Creek | R1 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>FULL | 4A | TSS<br>*E. coli* | DO, NH3, NO3, pH, Sal/SAR, Se, SC, TDS, Temp |

**Red River Basin**

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-RD-L-TRAVERSE_01<br>Lake Traverse | Roberts County | L1 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, NH3, CHL-A, DO, *E. coli*, NO3, pH, SC, Temp, TDS, TSS |
| SD-RD-L-WHITE_01<br>White Lake | Marshall County | L2 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, CHL-A, DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |

**Vermillion River Basin**

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-VM-L-E_VERMILLION_01<br>East Vermillion Lake | McCook County | L1 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>NON | 5 | CHL-A, MeHg,<br>CHL-A<br>CHL-A<br>MeHg | ALK, NH3, DO, *E. coli*, NO3, pH, SC, Temp, TDS, TSS |
| SD-VM-L-HENRY_01<br>Lake Henry | Kingsbury County | L2 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>NON | 5 | MeHg, pH<br><br><br>MeHg | ALK, CHL-A, DO, NH3, *E. coli*, NO3, SC, Temp, TDS, TSS |
| SD-VM-L-MARINDAHL_01<br>Marindahl Lake | Yankton County | L3 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>FULL | 5 | CHL-A, Temp<br>CHL-A, DO<br>CHL-A, DO | ALK, NH3, *E. coli*, MeHg, NO3, pH, SC, TDS, TSS |
| SD-VM-L-SILVER_01<br>Silver Lake | Hutchinson County | L4 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>INS<br>INS<br>INS | 5 | pH | |
| SD-VM-L-SPIRIT_01<br>Spirit Lake | Kingsbury County | L5 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>NON | 5 | MeHg, DO<br>DO<br>DO<br>MeHg | CHL-A, *E. coli*, pH, SC, Temp |
| SD-VM-L-SWAN_01<br>Swan Lake | Turner County | L6 | Warmwater Semipermanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | FULL<br>FULL<br>FULL<br>FULL | 1 | | ALK, NH3, DO, *E. coli*, NO3, pH, SC, Temp, TDS, TSS |
| SD-VM-L-THOMPSON_01<br>Lake Thompson | Kingsbury County | L7 | Warmwater Permanent Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>NON<br>NON<br>NON | 5 | CHL-A, MeHg<br>CHL-A<br>CHL-A<br>MeHg | ALK, DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-VM-L-WHITEWOOD_01<br>Whitewood Lake | Kingsbury County | L8 | Warmwater Marginal Fish Life<br>Immersion Recreation<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock | NON<br>FULL<br>FULL<br>FULL | 1 | pH | ALK, DO, *E. coli*, NH3, NO3, MeHg, SC, TDS, Temp, TSS |
| SD-VM-R-CLAY-DITCH_01<br>Clay County Ditch | Turkey Creek to Vermillion | R1 | Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NA | 2 | | NO3 |
| SD-VM-R-LONG_01<br>Long Creek | Vermillion River to Highway 44 | R2 | Irrigation Waters<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, *E. coli*, NH3, NO3, pH, SC, TDS, Temp, TSS |
| SD-VM-R-VERMILLION_01<br>Vermillion River | Headwaters to Turkey Ridge Creek | R3 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>FULL | 5 | TSS<br>*E. coli* | DO, NH3, NO3, pH, Se, Sal/SAR, SC, TDS, Temp |
| SD-VM-R-VERMILLION_02<br>Vermillion River | Turkey Ridge Creek to Baptist Creek | R4 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>FULL | 5 | TSS<br>*E. coli* | DO, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp |
| SD-VM-R-VERMILLION_03<br>Vermillion River | Baptist Creek to mouth | R5 | Warmwater Semipermanent Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | NON<br>NON<br>FULL<br>FULL | 4A | TSS<br>*E. coli* | DO, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp |
| SD-VM-R-VERMILLION_E_FORK_01<br>East Fork Vermillion River | McCook/Lake County line to Little Vermillion River | R6 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>NON<br>FULL<br>FULL | 4A | *E. coli* | DO, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp, TSS |
| SD-VM-R-VERMILLION_E_FORK_02<br>East Fork Vermillion River | Little Vermillion River to mouth | R7 | Warmwater Marginal Fish Life<br>Limited Contact Recreation<br>Fish and Wildlife Prop, Rec, Stock<br>Irrigation Waters | FULL<br>FULL<br>FULL<br>FULL | 1 | | DO, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp TSS |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-VM-R-VERMILLION_WEST_FORK_01_USGS<br>West Fork Vermillion River | Vermillion River to McCook-Miner County Line | R8 | Warmwater Marginal Fish Life | INS | 4A | | |
| | | | Limited Contact Recreation | NON | | *E. coli* | |
| | | | Fish and Wildlife Prop, Rec, Stock | INS | | | |
| | | | Irrigation Waters | INS | | | |

**White River Basin**

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-WH-L-ALLAN_DAM_01<br>Allan Dam | Bennett County | L1 | Coldwater Marginal Fish Life | NON | 5 | pH | |
| | | | Immersion Recreation | FULL | | | ALK, DO, NH3, NO3, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | FULL | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| SD-WH-R-BLACKPIPE_01_USGS<br>Black Pipe Creek | S25, T42N, R33W to White River | R1 | Warmwater Marginal Fish Life | INS | 3 | | |
| | | | Limited Contact Recreation | NA | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | INS | | | |
| | | | Irrigation Waters | INS | | | |
| SD-WH-R-COTTONWOOD_01<br>Cottonwood Creek | Headwaters to White River | R2 | Fish and Wildlife Prop, Rec, Stock | INS | 3 | | |
| | | | Irrigation Waters | INS | | | |
| SD-WH-R-LITTLE_WHITE_01<br>Little White River | Rosebud Creek to mouth | R3 | Warmwater Semipermanent Fish Life | FULL | 5 | | |
| | | | Limited Contact Recreation | NON | | *E. coli* | DO, NH3, NO3, pH, Sal/SAR, SC, TDS, TSS, Temp |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |
| SD-WH-R-LITTLE_WHITE_02_USGS<br>Little White River | S6, T36N, R39W to Rosebud Creek | R4 | Warmwater Semipermanent Fish Life | FULL | 2 | | MeHg |
| | | | Limited Contact Recreation | NA | | | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | INS | | | |
| SD-WH-R-WHITE_02<br>White River | Willow Creek to Pass Creek | R5 | Warmwater Semipermanent Fish Life | FULL | 5 | | |
| | | | Limited Contact Recreation | NON | | *E. coli* | DO, NH3, NO3, pH, SC, TDS, Temp TSS |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | NON | | Sal/SAR | |

| Waterbody / AU-ID | Location | Map ID | Use | Support | EPA Category | Nonsupporting Parameters: | Supporting Parameters: |
|---|---|---|---|---|---|---|---|
| SD-WH-R-WHITE_03<br>White River | Pass Creek to Little White River | R6 | Warmwater Semipermanent Fish Life | FULL | 5 | | DO, NH3, NO3, pH, SC, TDS, Temp, TSS, |
| | | | Limited Contact Recreation | NON | | *E. coli* | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | NON | | Sal/SAR | |
| SD-WH-R-WHITE_04<br>White River | Little White River to confluence with Missouri River | R7 | Warmwater Semipermanent Fish Life | FULL | 5 | | DO, NH3, NO3, pH, Sal/SAR, SC, TDS, Temp, TSS |
| | | | Limited Contact Recreation | NON | | *E. coli* | |
| | | | Fish and Wildlife Prop, Rec, Stock | FULL | | | |
| | | | Irrigation Waters | FULL | | | |

# APPENDIX D

# 303(D) SUMMARY

| AUID | Waterbody Name | Cause | Cycle First Listed | TMDL Schedule | Priority |
|---|---|---|---|---|---|
| SD-BA-L-COOKSTOVE_01 | Cookstove Lake | MERCURY IN FISH TISSUE | 2022 | 2025 | High |
| SD-BA-L-FREEMAN_01 | Freeman Lake | CHLOROPHYLL-A | 2014 | 2035 | Low |
| SD-BA-L-FREEMAN_01 | Freeman Lake | DISSOLVED OXYGEN | 2010 | 2035 | Low |
| SD-BA-L-HAYES_01 | Hayes Lake | DISSOLVED OXYGEN | 2020 | 2035 | Low |
| SD-BA-L-MURDO_01 | Murdo Dam | DISSOLVED OXYGEN | 2012 | 2035 | Low |
| SD-BA-L-WAGGONER_01 | Waggoner Lake | CHLOROPHYLL-A | 2010 | 2027 | High |
| SD-BA-R-BAD_01 | Bad River | ESCHERICHIA COLI | 2016 | 2030 | High |
| SD-BF-L-BEARBUTTE_01 | Bear Butte Lake | CHLOROPHYLL-A | 2024 | 2034 | Low |
| SD-BF-L-BEARBUTTE_01 | Bear Butte Lake | PH | 2024 | 2034 | Low |
| SD-BF-L-IRON_CREEK_01 | Iron Creek Lake | TEMPERATURE | 2010 | 2035 | Low |
| SD-BF-L-MIRROR_EAST_01 | Mirror Lake East | TEMPERATURE | 2006 | 2035 | Low |
| SD-BF-L-MIRROR_WEST_01 | Mirror Lake West | TEMPERATURE | 2008 | 2035 | Low |
| SD-BF-L-NEWELL_CITY_01 | Newell City Pond | TEMPERATURE | 2010 | 2035 | Low |
| SD-BF-R-BELLE_FOURCHE_01 | Belle Fourche River | TEMPERATURE | 2024 | 2036 | Low |
| SD-BF-R-BELLE_FOURCHE_02 | Belle Fourche River | ESCHERICHIA COLI | 2020 | 2026 | High |
| SD-BF-R-BELLE_FOURCHE_03 | Belle Fourche River | ESCHERICHIA COLI | 2016 | 2026 | High |
| SD-BF-R-BELLE_FOURCHE_04 | Belle Fourche River | ESCHERICHIA COLI | 2020 | 2026 | High |
| SD-BF-R-ELM_01 | Elm Creek | TOTAL SUSPENDED SOLIDS | 2022 | 2030 | High |
| SD-BF-R-FALSE_BOTTOM_02 | False Bottom Creek | SELENIUM, TOTAL | 2022 | 2035 | Low |
| SD-BF-R-HORSE_01_USGS | Horse Creek | ESCHERICHIA COLI | 2024 | 2034 | High |
| SD-BF-R-WHITEWOOD_05 | Whitewood Creek | PH | 2006 | 2035 | Low |
| SD-BF-R-WHITEWOOD_06 | Whitewood Creek | PH | 2008 | 2035 | Low |
| SD-BS-L-ALBERT_01 | Lake Albert | CHLOROPHYLL-A | 2020 | 2028 | High |
| SD-BS-L-ALVIN_01 | Lake Alvin | TEMPERATURE | 2022 | 2035 | Low |
| SD-BS-L-BITTER_01 | Bitter Lake | CHLOROPHYLL-A | 2022 | 2035 | Low |
| SD-BS-L-CAMPBELL_01 | Lake Campbell | CHLOROPHYLL-A | 2022 | 2030 | Low |
| SD-BS-L-CLEAR_D_01 | Clear Lake | ESCHERICHIA COLI | 2022 | 2035 | High |
| SD-BS-L-COVELL_01 | Covell Lake | CHLOROPHYLL-A | 2022 | 2035 | Low |
| SD-BS-L-COVELL_01 | Covell Lake | PH | 2022 | 2035 | Low |

| AUID | Waterbody Name | Cause | Cycle First Listed | TMDL Schedule | Priority |
|---|---|---|---|---|---|
| SD-BS-L-GOLDSMITH_01 | Goldsmith Lake | CHLOROPHYLL-A | 2022 | 2035 | Low |
| SD-BS-L-MINNEWASTA_01 | Minnewasta Lake | CHLOROPHYLL-A | 2014 | 2035 | Low |
| SD-BS-L-NORDEN_01 | Lake Norden | CHLOROPHYLL-A | 2024 | 2034 | Low |
| SD-BS-L-SCOTT_01 | Scott Lake | MERCURY IN FISH TISSUE | 2020 | 2025 | High |
| SD-BS-L-TWIN_01 | Twin Lakes/W. Hwy 81 | ESCHERICHIA COLI | 2022 | 2035 | High |
| SD-BS-L-WALL_01 | Wall Lake | DISSOLVED OXYGEN | 2022 | 2035 | Low |
| SD-BS-L-WAUBAY_01 | Waubay Lake | CHLOROPHYLL-A | 2014 | 2027 | Low |
| SD-BS-R-BACHELOR_01 | Bachelor Creek | DISSOLVED OXYGEN | 2022 | 2035 | Low |
| SD-BS-R-BACHELOR_01 | Bachelor Creek | ESCHERICHIA COLI | 2020 | 2028 | High |
| SD-BS-R-BEAVER_01 | Beaver Creek | ESCHERICHIA COLI | 2020 | 2028 | High |
| SD-BS-R-BIG_SIOUX_01 | Big Sioux River | DISSOLVED OXYGEN | 2004 | 2035 | Low |
| SD-BS-R-BIG_SIOUX_02 | Big Sioux River | ESCHERICHIA COLI | 2024 | 2036 | High |
| SD-BS-R-BIG_SIOUX_04 | Big Sioux River | TOTAL SUSPENDED SOLIDS | 2022 | 2024 | High |
| SD-BS-R-BIG_SIOUX_05 | Big Sioux River | TOTAL SUSPENDED SOLIDS | 2004 | 2024 | High |
| SD-BS-R-BIG_SIOUX_06 | Big Sioux River | TOTAL SUSPENDED SOLIDS | 2004 | 2024 | High |
| SD-BS-R-BIG_SIOUX_10 | Big Sioux River | TOTAL DISSOLVED SOLIDS | 2022 | 2035 | Low |
| SD-BS-R-BIG_SIOUX_13 | Big Sioux River | ESCHERICHIA COLI | 2012 | 2024 | High |
| SD-BS-R-BIG_SIOUX_13 | Big Sioux River | TOTAL SUSPENDED SOLIDS | 2004 | 2026 | High |
| SD-BS-R-BIG_SIOUX_14 | Big Sioux River | ESCHERICHIA COLI | 2010 | 2026 | High |
| SD-BS-R-BIG_SIOUX_14 | Big Sioux River | TOTAL SUSPENDED SOLIDS | 2004 | 2026 | High |
| SD-BS-R-BIG_SIOUX_15 | Big Sioux River | ESCHERICHIA COLI | 2010 | 2026 | High |
| SD-BS-R-BIG_SIOUX_16 | Big Sioux River | ESCHERICHIA COLI | 2010 | 2026 | High |
| SD-BS-R-BIG_SIOUX_17 | Big Sioux River | ESCHERICHIA COLI | 2010 | 2026 | High |
| SD-BS-R-EAST_BRULE_01 | East Brule Creek | ESCHERICHIA COLI | 2020 | 2028 | High |
| SD-BS-R-EAST_BRULE_01 | East Brule Creek | TOTAL SUSPENDED SOLIDS | 2008 | 2028 | High |
| SD-BS-R-FLANDREAU_01 | Flandreau Creek | ESCHERICHIA COLI | 2014 | 2028 | High |
| SD-BS-R-HIDEWOOD_01 | Hidewood Creek | ESCHERICHIA COLI | 2020 | 2028 | High |
| SD-BS-R-PEG_MUNKY_RUN_01 | Peg Munky Run | ESCHERICHIA COLI | 2022 | 2031 | High |
| SD-BS-R-PIPESTONE_01 | Pipestone Creek | TOTAL SUSPENDED SOLIDS | 2020 | 2028 | High |

| AUID | Waterbody Name | Cause | Cycle First Listed | TMDL Schedule | Priority |
|---|---|---|---|---|---|
| SD-BS-R-SKUNK_01 | Skunk Creek | ESCHERICHIA COLI | 2014 | 2024 | High |
| SD-BS-R-SPLIT_ROCK_01_USGS | Split Rock Creek | ESCHERICHIA COLI | 2018 | 2026 | High |
| SD-BS-R-SPLIT_ROCK_02 | Split Rock Creek | ESCHERICHIA COLI | 2022 | 2026 | High |
| SD-BS-R-SPLIT_ROCK_02 | Split Rock Creek | TOTAL SUSPENDED SOLIDS | 2024 | 2036 | High |
| SD-BS-R-SPRING_01 | Spring Creek | ESCHERICHIA COLI | 2022 | 2024 | High |
| SD-BS-R-SPRING_01 | Spring Creek | TOTAL SUSPENDED SOLIDS | 2022 | 2030 | High |
| SD-BS-R-UNION_01 | Union Creek | ESCHERICHIA COLI | 2022 | 2029 | High |
| SD-BS-R-UNION_01 | Union Creek | TOTAL SUSPENDED SOLIDS | 2008 | 2028 | High |
| SD-BS-R-WILLOW_01 | Willow Creek | ESCHERICHIA COLI | 2018 | 2024 | High |
| SD-CH-L-BISMARK_01 | Bismark Lake | CHLOROPHYLL-A | 2024 | 2034 | Low |
| SD-CH-L-CENTER_01 | Center Lake | CHLOROPHYLL-A | 2024 | 2034 | Low |
| SD-CH-L-CENTER_01 | Center Lake | TEMPERATURE | 2008 | 2035 | Low |
| SD-CH-L-COLD_BROOK_01 | Cold Brook Reservoir | TEMPERATURE | 2006 | 2035 | Low |
| SD-CH-L-DEERFIELD_01 | Deerfield Lake | TEMPERATURE | 2010 | 2035 | Low |
| SD-CH-L-DURKEE_01 | Durkee Lake | PH | 2022 | 2035 | Low |
| SD-CH-L-HORSETHIEF_01 | Horsethief Lake | CHLOROPHYLL-A | 2024 | 2034 | Low |
| SD-CH-L-HORSETHIEF_01 | Horsethief Lake | PH | 2022 | 2035 | Low |
| SD-CH-L-HORSETHIEF_01 | Horsethief Lake | TEMPERATURE | 2022 | 2035 | Low |
| SD-CH-L-LAKOTA_01 | Lakota Lake | CHLOROPHYLL-A | 2024 | 2034 | Low |
| SD-CH-L-LAKOTA_01 | Lakota Lake | ESCHERICHIA COLI | 2024 | 2034 | High |
| SD-CH-L-NEW_WALL_01 | New Wall Lake | DISSOLVED OXYGEN | 2022 | 2035 | Low |
| SD-CH-L-NEW_WALL_01 | New Wall Lake | MERCURY IN FISH TISSUE | 2018 | 2024 | High |
| SD-CH-L-PACTOLA_01 | Pactola Reservoir | TEMPERATURE | 2020 | 2035 | Low |
| SD-CH-L-ROUBAIX_01 | Roubaix Lake | TEMPERATURE | 2024 | 2034 | Low |
| SD-CH-L-SHERIDAN_01 | Sheridan Lake | TEMPERATURE | 2006 | 2035 | Low |
| SD-CH-L-STOCKADE_01 | Stockade Lake | CHLOROPHYLL-A | 2024 | 2034 | Low |
| SD-CH-L-STOCKADE_01 | Stockade Lake | ESCHERICHIA COLI | 2024 | 2034 | High |
| SD-CH-L-SYLVAN_01 | Sylvan Lake | TEMPERATURE | 2008 | 2035 | Low |
| SD-CH-R-BEAVER_01 | Beaver Creek | ESCHERICHIA COLI | 2024 | 2036 | High |

| AUID | Waterbody Name | Cause | Cycle First Listed | TMDL Schedule | Priority |
|---|---|---|---|---|---|
| SD-CH-R-BEAVER_01 | Beaver Creek | SPECIFIC CONDUCTIVITY | 2004 | 2035 | Low |
| SD-CH-R-BEAVER_01 | Beaver Creek | TOTAL SUSPENDED SOLIDS | 2024 | 2036 | High |
| SD-CH-R-BOX_ELDER_01 | Box Elder Creek | ESCHERICHIA COLI | 2024 | 2036 | High |
| SD-CH-R-CHERRY_01 | Cherry Creek | SPECIFIC CONDUCTIVITY | 2024 | 2036 | Low |
| SD-CH-R-CHERRY_01 | Cherry Creek | TOTAL DISSOLVED SOLIDS | 2024 | 2036 | Low |
| SD-CH-R-CHEYENNE_01 | Cheyenne River | SALINITY/SAR | 2018 | 2035 | Low |
| SD-CH-R-CHEYENNE_01 | Cheyenne River | SPECIFIC CONDUCTIVITY | 2004 | 2035 | Low |
| SD-CH-R-CHEYENNE_01 | Cheyenne River | TOTAL DISSOLVED SOLIDS | 2004 | 2035 | Low |
| SD-CH-R-CHEYENNE_01 | Cheyenne River | TOTAL SUSPENDED SOLIDS | 2012 | 2028 | High |
| SD-CH-R-CHEYENNE_02 | Cheyenne River | ESCHERICHIA COLI | 2014 | 2028 | High |
| SD-CH-R-CHEYENNE_02 | Cheyenne River | SPECIFIC CONDUCTIVITY | 2004 | 2035 | Low |
| SD-CH-R-CHEYENNE_02 | Cheyenne River | TOTAL SUSPENDED SOLIDS | 2004 | 2028 | High |
| SD-CH-R-CHEYENNE_02B | Cheyenne River | ESCHERICHIA COLI | 2024 | 2036 | High |
| SD-CH-R-CHEYENNE_02B | Cheyenne River | TOTAL SUSPENDED SOLIDS | 2018 | 2028 | High |
| SD-CH-R-CHEYENNE_03 | Cheyenne River | TOTAL SUSPENDED SOLIDS | 2004 | 2028 | High |
| SD-CH-R-CHEYENNE_04 | Cheyenne River | TOTAL SUSPENDED SOLIDS | 2004 | 2028 | High |
| SD-CH-R-CHEYENNE_05 | Cheyenne River | TOTAL SUSPENDED SOLIDS | 2004 | 2028 | High |
| SD-CH-R-CHEYENNE_06 | Cheyenne River | TOTAL SUSPENDED SOLIDS | 2004 | 2028 | High |
| SD-CH-R-ELK_01_USGS | Elk Creek | ESCHERICHIA COLI | 2018 | 2028 | High |
| SD-CH-R-RAPID_03 | Rapid Creek | ESCHERICHIA COLI | 2018 | 2024 | High |
| SD-CH-R-VICTORIA_01_USGS | Victoria Creek | TEMPERATURE | 2016 | 2035 | Low |
| SD-GR-L-ISABEL_01 | Lake Isabel | CHLOROPHYLL-A | 2022 | 2032 | Low |
| SD-GR-L-ISABEL_01 | Lake Isabel | MERCURY IN FISH TISSUE | 2016 | 2030 | High |
| SD-GR-L-PUDWELL_01 | Pudwell Dam | MERCURY IN FISH TISSUE | 2016 | 2030 | High |
| SD-GR-L-SHADEHILL_01 | Shadehill Reservoir | SALINITY/SAR | 2004 | 2035 | Low |
| SD-GR-R-BULL_01 | Bull Creek | ESCHERICHIA COLI | 2024 | 2036 | High |
| SD-GR-R-BULL_01 | Bull Creek | SALINITY/SAR | 2012 | 2035 | Low |
| SD-GR-R-BULL_01 | Bull Creek | TOTAL SUSPENDED SOLIDS | 2024 | 2036 | High |
| SD-GR-R-CROOKED_01 | Crooked Creek | SALINITY/SAR | 2012 | 2035 | Low |

| AUID | Waterbody Name | Cause | Cycle First Listed | TMDL Schedule | Priority |
|---|---|---|---|---|---|
| SD-GR-R-CROOKED_01 | Crooked Creek | SPECIFIC CONDUCTIVITY | 2014 | 2035 | Low |
| SD-GR-R-CROOKED_01 | Crooked Creek | TOTAL DISSOLVED SOLIDS | 2022 | 2035 | Low |
| SD-GR-R-GRAND_01 | Grand River | SALINITY/SAR | 2016 | 2035 | Low |
| SD-GR-R-GRAND_02 | Grand River | ESCHERICHIA COLI | 2024 | 2036 | Low |
| SD-GR-R-GRAND_02 | Grand River | SALINITY/SAR | 2004 | 2035 | Low |
| SD-GR-R-GRAND_02 | Grand River | TOTAL SUSPENDED SOLIDS | 2004 | 2035 | Low |
| SD-GR-R-GRAND_N_FORK_01 | Grand River, North Fork | ESCHERICHIA COLI | 2022 | 2030 | High |
| SD-GR-R-GRAND_N_FORK_01 | Grand River, North Fork | SALINITY/SAR | 2004 | 2035 | Low |
| SD-GR-R-GRAND_S_FORK_01 | Grand River, South Fork | ESCHERICHIA COLI | 2016 | 2030 | High |
| SD-GR-R-GRAND_S_FORK_01 | Grand River, South Fork | SALINITY/SAR | 2006 | 2035 | Low |
| SD-GR-R-GRAND_S_FORK_01 | Grand River, South Fork | TOTAL SUSPENDED SOLIDS | 2004 | 2030 | High |
| SD-GR-R-GRAND_S_FORK_02 | Grand River, South Fork | ESCHERICHIA COLI | 2016 | 2030 | High |
| SD-GR-R-GRAND_S_FORK_02 | Grand River, South Fork | SALINITY/SAR | 2004 | 2035 | Low |
| SD-GR-R-GRAND_S_FORK_02 | Grand River, South Fork | TOTAL SUSPENDED SOLIDS | 2004 | 2030 | High |
| SD-JA-L-BEAVER_01 | Beaver Lake | CHLOROPHYLL-A | 2024 | 2034 | Low |
| SD-JA-L-BIERMAN_01 | Bierman Dam | CHLOROPHYLL-A | 2010 | 2028 | Low |
| SD-JA-L-CARTHAGE_01 | Lake Carthage | CHLOROPHYLL-A | 2010 | 2035 | Low |
| SD-JA-L-CLEAR_M_01 | Clear Lake | MERCURY IN FISH TISSUE | 2020 | 2026 | High |
| SD-JA-L-COTTONWOOD_M_01 | Cottonwood Lake | PH | 2020 | 2035 | Low |
| SD-JA-L-CRESBARD_01 | Cresbard Lake | PH | 2010 | 2035 | Low |
| SD-JA-L-ELM_01 | Elm Lake | DISSOLVED OXYGEN | 2022 | 2035 | Low |
| SD-JA-L-FAULKTON_01 | Lake Faulkton | DISSOLVED OXYGEN | 2018 | 2035 | Low |
| SD-JA-L-FAULKTON_01 | Lake Faulkton | PH | 2022 | 2035 | Low |
| SD-JA-L-HENRY_01 | Henry Reservoir | DISSOLVED OXYGEN | 2020 | 2035 | Low |
| SD-JA-L-JONES_01 | Jones Lake | PH | 2006 | 2035 | Low |
| SD-JA-L-LATHAM_01 | Latham | DISSOLVED OXYGEN | 2012 | 2035 | Low |
| SD-JA-L-LOUISE_01 | Lake Louise | CHLOROPHYLL-A | 2024 | 2034 | Low |
| SD-JA-L-LOUISE_01 | Lake Louise | DISSOLVED OXYGEN | 2014 | 2035 | Low |
| SD-JA-L-N_BUFFALO_01 | North Buffalo Lake | MERCURY IN FISH TISSUE | 2020 | 2026 | High |

| AUID | Waterbody Name | Cause | Cycle First Listed | TMDL Schedule | Priority |
|---|---|---|---|---|---|
| SD-JA-L-PIERPONT_01 | Pierpont Lake | TEMPERATURE | 2012 | 2035 | Low |
| SD-JA-L-PIYAS_01 | Piyas Lake | MERCURY IN FISH TISSUE | 2020 | 2026 | High |
| SD-JA-L-RAVINE_01 | Ravine Lake | CHLOROPHYLL-A | 2022 | 2035 | Low |
| SD-JA-L-RAVINE_01 | Ravine Lake | DISSOLVED OXYGEN | 2012 | 2035 | Low |
| SD-JA-L-RAVINE_01 | Ravine Lake | PH | 2022 | 2035 | Low |
| SD-JA-L-REDFIELD_01 | Lake Redfield | DISSOLVED OXYGEN | 2010 | 2035 | Low |
| SD-JA-L-ROSETTE_01 | Rosette Lake | CHLOROPHYLL-A | 2014 | 2028 | Low |
| SD-JA-L-TWIN_01 | Twin Lakes | CHLOROPHYLL-A | 2010 | 2030 | High |
| SD-JA-L-TWIN_01 | Twin Lakes | DISSOLVED OXYGEN | 2016 | 2035 | Low |
| SD-JA-L-WILMARTH_01 | Wilmarth Lake | PH | 2012 | 2035 | Low |
| SD-JA-R-ELM_01 | Elm River | TOTAL DISSOLVED SOLIDS | 2022 | 2035 | Low |
| SD-JA-R-FIRESTEEL_01 | Firesteel Creek | ESCHERICHIA COLI | 2010 | 2024 | High |
| SD-JA-R-FIRESTEEL_01 | Firesteel Creek | TEMPERATURE | 2004 | 2035 | Low |
| SD-JA-R-FIRESTEEL_01 | Firesteel Creek | TOTAL DISSOLVED SOLIDS | 2004 | 2035 | Low |
| SD-JA-R-FOOT_01_USGS | Foot Creek | DISSOLVED OXYGEN | 2012 | 2035 | Low |
| SD-JA-R-JAMES_01 | James River | DISSOLVED OXYGEN | 2024 | 2036 | Low |
| SD-JA-R-JAMES_04 | James River | DISSOLVED OXYGEN | 2012 | 2035 | Low |
| SD-JA-R-JAMES_05 | James River | DISSOLVED OXYGEN | 2020 | 2035 | Low |
| SD-JA-R-JAMES_06 | James River | DISSOLVED OXYGEN | 2024 | 2036 | Low |
| SD-JA-R-JAMES_07 | James River | DISSOLVED OXYGEN | 2024 | 2036 | Low |
| SD-JA-R-JAMES_07 | James River | TOTAL DISSOLVED SOLIDS | 2022 | 2035 | Low |
| SD-JA-R-JAMES_09 | James River | TOTAL SUSPENDED SOLIDS | 2022 | 2030 | High |
| SD-JA-R-JAMES_10 | James River | MERCURY IN FISH TISSUE | 2020 | 2028 | High |
| SD-JA-R-JAMES_11 | James River | MERCURY IN FISH TISSUE | 2020 | 2028 | High |
| SD-JA-R-MAPLE_01 | Maple River | TOTAL DISSOLVED SOLIDS | 2020 | 2035 | Low |
| SD-JA-R-MOCCASIN_02 | Moccasin Creek | DISSOLVED OXYGEN | 2024 | 2036 | Low |
| SD-JA-R-MUD_01 | Mud Creek | DISSOLVED OXYGEN | 2006 | 2035 | Low |
| SD-JA-R-PIERRE_01 | Pierre Creek | TOTAL SUSPENDED SOLIDS | 2022 | 2030 | High |
| SD-JA-R-SNAKE_01 | Snake Creek | DISSOLVED OXYGEN | 2024 | 2036 | Low |

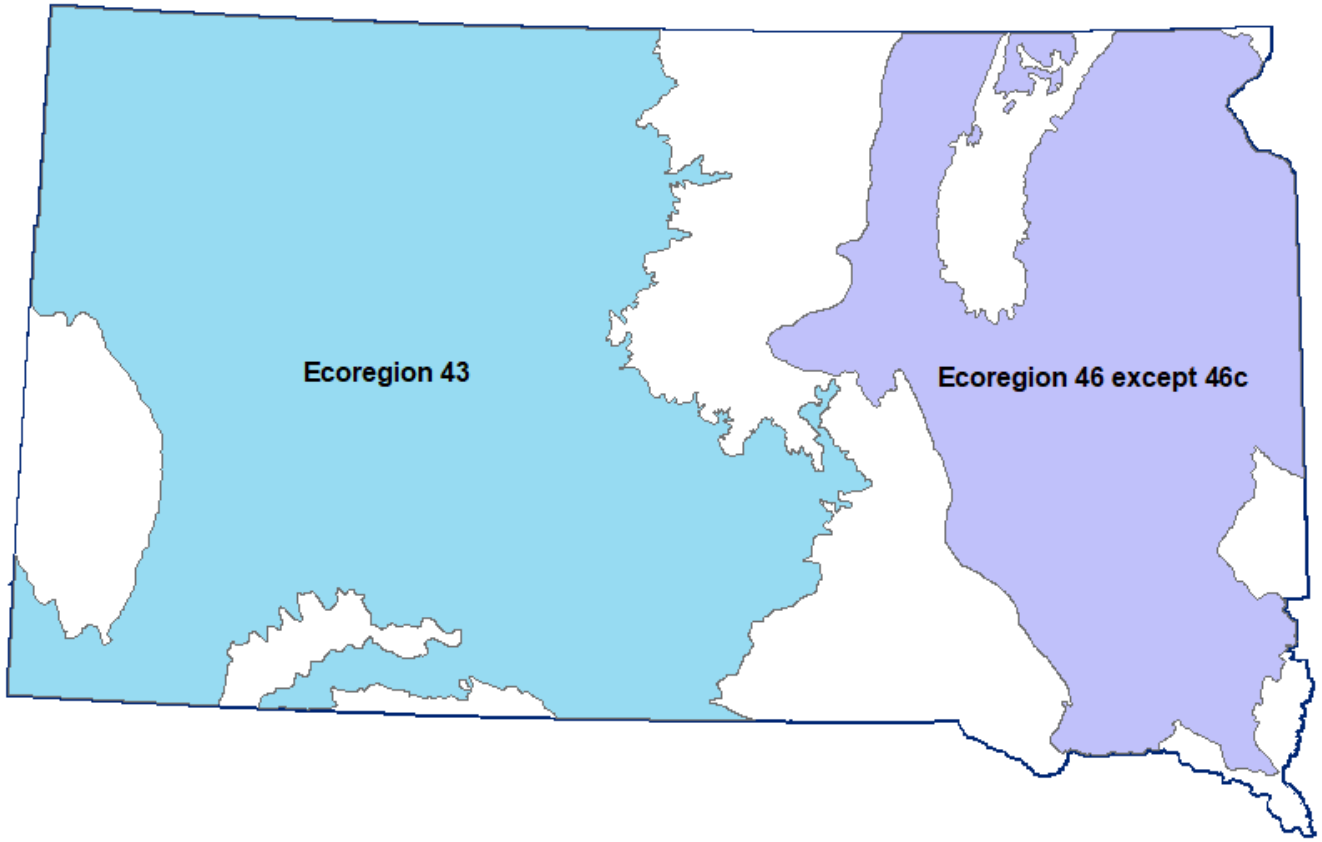
| AUID | Waterbody Name | Cause | Cycle First Listed | TMDL Schedule | Priority |
|---|---|---|---|---|---|
| SD-LM-R-LITTLE_MISSOURI_01 | Little Missouri River | TOTAL SUSPENDED SOLIDS | 2010 | 2028 | High |
| SD-MI-L-ANDES_01 | Lake Andes | DISSOLVED OXYGEN | 2006 | 2035 | Low |
| SD-MI-L-ANDES_01 | Lake Andes | PH | 2018 | 2035 | Low |
| SD-MI-L-BRAKKE_01 | Brakke Dam | DISSOLVED OXYGEN | 2022 | 2035 | Low |
| SD-MI-L-BYRE_01 | Byre Lake | TEMPERATURE | 2022 | 2035 | Low |
| SD-MI-L-CAMPBELL_01 | Lake Campbell | DISSOLVED OXYGEN | 2020 | 2035 | Low |
| SD-MI-L-CAMPBELL_01 | Lake Campbell | PH | 2010 | 2035 | Low |
| SD-MI-L-CORSICA_01 | Corsica Lake | PH | 2008 | 2035 | Low |
| SD-MI-L-DANTE_01 | Dante Lake | TEMPERATURE | 2014 | 2035 | Low |
| SD-MI-L-KIESZ_01 | Kiesz Lake | MERCURY IN FISH TISSUE | 2022 | 2028 | High |
| SD-MI-L-MCCOOK_01 | McCook Lake | TEMPERATURE | 2010 | 2035 | Low |
| SD-MI-L-POCASSE_01 | Lake Pocasse | CHLOROPHYLL-A | 2010 | 2030 | High |
| SD-MI-L-ROOSEVELT_01 | Roosevelt Lake | DISSOLVED OXYGEN | 2018 | 2035 | Low |
| SD-MI-L-SULLY_01 | Sully Lake | CHLOROPHYLL-A | 2020 | 2030 | High |
| SD-MI-L-YANKTON_01 | Lake Yankton | TEMPERATURE | 2022 | 2035 | Low |
| SD-MI-R-CROW_01 | Crow Creek | ESCHERICHIA COLI | 2016 | 2028 | High |
| SD-MI-R-MEDICINE_01 | Medicine Creek | SPECIFIC CONDUCTIVITY | 2004 | 2035 | Low |
| SD-MI-R-MEDICINE_01 | Medicine Creek | TOTAL DISSOLVED SOLIDS | 2018 | 2035 | Low |
| SD-MI-R-PLATTE_01_USGS | Platte Creek | ESCHERICHIA COLI | 2020 | 2026 | High |
| SD-MI-R-PONCA_01 | Ponca Creek | ESCHERICHIA COLI | 2016 | 2026 | High |
| SD-MN-L-ALICE_01 | Lake Alice | PH | 2024 | 2034 | Low |
| SD-MN-L-FISH_01 | Fish Lake | ESCHERICHIA COLI | 2022 | 2035 | High |
| SD-MN-L-FISH_01 | Fish Lake | PH | 2022 | 2035 | Low |
| SD-MN-L-OAK_01 | Oak Lake | CHLOROPHYLL-A | 2022 | 2035 | Low |
| SD-MN-L-OAK_01 | Oak Lake | ESCHERICHIA COLI | 2022 | 2035 | High |
| SD-MN-L-SUMMIT_01 | Summit Lake | PH | 2024 | 2034 | Low |
| SD-MN-R-LAC_QUI_PARLE_W_BR_01 | Lac Qui Parle River, West Branch | ESCHERICHIA COLI | 2022 | 2030 | High |
| SD-MN-R-LITTLE_MINNESOTA_02 | Little Minnesota River | DISSOLVED OXYGEN | 2020 | 2035 | Low |

| AUID | Waterbody Name | Cause | Cycle First Listed | TMDL Schedule | Priority |
|---|---|---|---|---|---|
| SD-MU-L-COAL_SPRINGS_01 | Coal Springs Reservoir | PH | 2012 | 2035 | Low |
| SD-MU-L-LITTLE_MOREAU_NO1_01 | Little Moreau No. 1 | PH | 2020 | 2035 | Low |
| SD-MU-R-MOREAU_01 | Moreau River | SALINITY/SAR | 2016 | 2035 | Low |
| SD-MU-R-MOREAU_01 | Moreau River | TOTAL SUSPENDED SOLIDS | 2006 | 2035 | High |
| SD-MU-R-MOREAU_02&03 | Moreau River | ESCHERICHIA COLI | 2024 | 2034 | Low |
| SD-MU-R-MOREAU_02&03 | Moreau River | SALINITY/SAR | 2024 | 2036 | Low |
| SD-MU-R-MOREAU_02&03 | Moreau River | TOTAL SUSPENDED SOLIDS | 2024 | 2034 | Low |
| SD-MU-R-MOREAU_S_FORK_01 | South Fork Moreau River | SALINITY/SAR | 2018 | 2035 | Low |
| SD-MU-R-MOREAU_S_FORK_01 | South Fork Moreau River | SPECIFIC CONDUCTIVITY | 2016 | 2035 | Low |
| SD-MU-R-MOREAU_S_FORK_01 | South Fork Moreau River | TOTAL DISSOLVED SOLIDS | 2004 | 2035 | Low |
| SD-MU-R-RABBIT_01 | Rabbit Creek | ESCHERICHIA COLI | 2020 | 2030 | High |
| SD-MU-R-RABBIT_01 | Rabbit Creek | TOTAL SUSPENDED SOLIDS | 2020 | 2030 | High |
| SD-NI-L-RAHN_01 | Rahn Lake | CHLOROPHYLL-A | 2010 | 2035 | Low |
| SD-NI-L-RAHN_01 | Rahn Lake | DISSOLVED OXYGEN | 2020 | 2035 | Low |
| SD-VM-L-E_VERMILLION_01 | East Vermillion Lake | CHLOROPHYLL-A | 2010 | 2030 | High |
| SD-VM-L-HENRY_01 | Lake Henry | PH, HIGH | 2018 | 2035 | Low |
| SD-VM-L-MARINDAHL_01 | Marindahl Lake | CHLOROPHYLL-A | 2024 | 2034 | Low |
| SD-VM-L-MARINDAHL_01 | Marindahl Lake | DISSOLVED OXYGEN | 2022 | 2035 | Low |
| SD-VM-L-MARINDAHL_01 | Marindahl Lake | TEMPERATURE | 2022 | 2035 | Low |
| SD-VM-L-SILVER_01 | Silver Lake | PH | 2010 | 2035 | Low |
| SD-VM-L-SPIRIT_01 | Spirit Lake | DISSOLVED OXYGEN | 2024 | 2034 | Low |
| SD-VM-L-SPIRIT_01 | Spirit Lake | MERCURY IN FISH TISSUE | 2022 | 2028 | High |
| SD-VM-L-THOMPSON_01 | Lake Thompson | CHLOROPHYLL-A | 2014 | 2026 | High |
| SD-VM-L-WHITEWOOD_01 | Whitewood Lake | PH | 2024 | 2034 | Low |
| SD-VM-R-VERMILLION_01 | Vermillion River | ESCHERICHIA COLI | 2020 | 2024 | High |
| SD-VM-R-VERMILLION_01 | Vermillion River | TOTAL SUSPENDED SOLIDS | 2020 | 2028 | High |
| SD-VM-R-VERMILLION_02 | Vermillion River | ESCHERICHIA COLI | 2020 | 2024 | High |
| SD-WH-L-ALLAN_DAM_01 | Allan Dam | PH | 2014 | 2035 | Low |

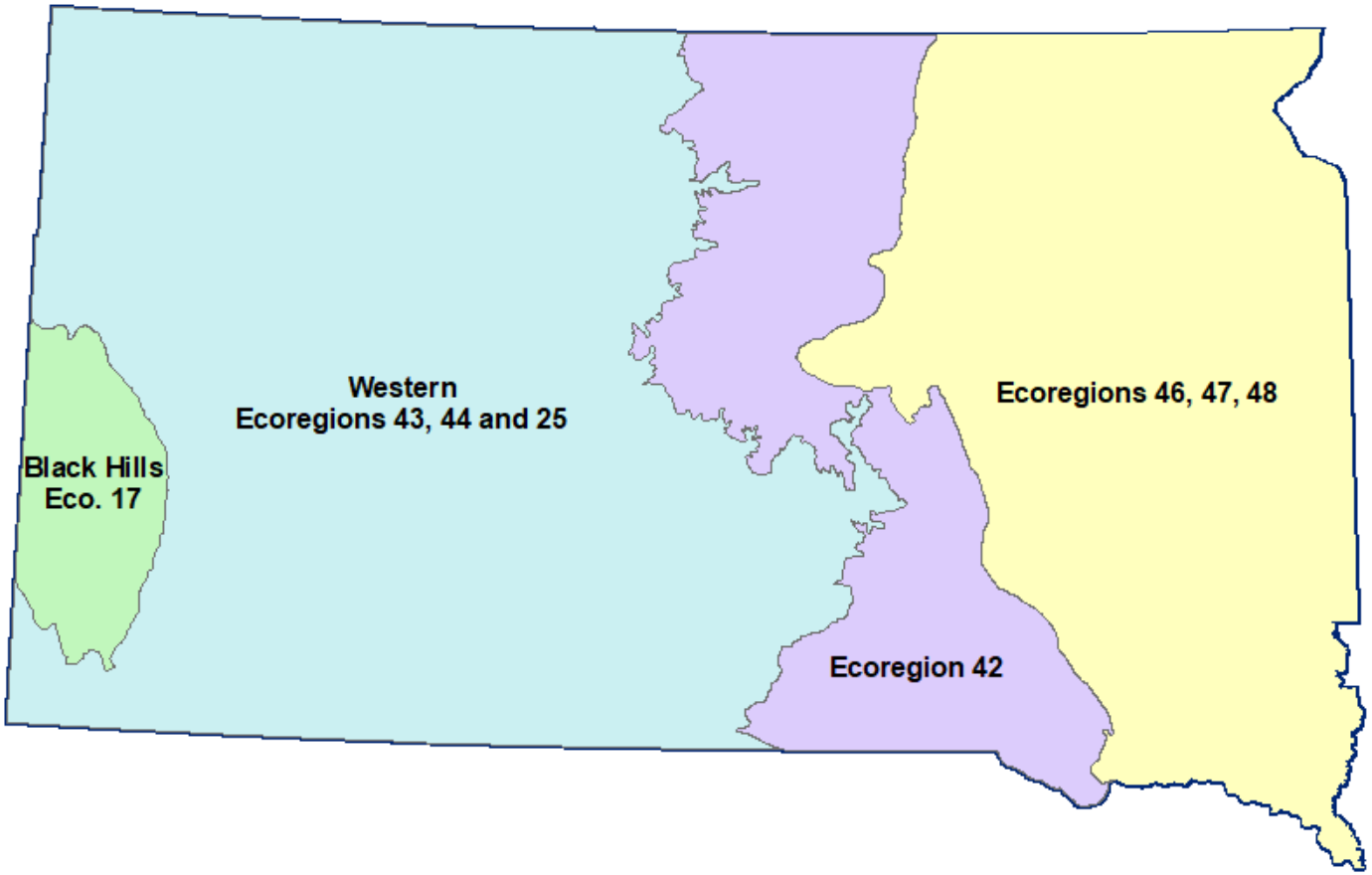
| AUID | Waterbody Name | Cause | Cycle First Listed | TMDL Schedule | Priority |
|---|---|---|---|---|---|
| SD-WH-R-WHITE_02 | White River | ESCHERICHIA COLI | 2010 | 2028 | High |
| SD-WH-R-WHITE_02 | White River | SALINITY/SAR | 2024 | 2036 | Low |
| SD-WH-R-WHITE_03 | White River | ESCHERICHIA COLI | 2012 | 2028 | High |
| SD-WH-R-WHITE_03 | White River | SALINITY/SAR | 2024 | 2036 | Low |
| SD-WH-R-WHITE_04 | White River | ESCHERICHIA COLI | 2010 | 2028 | High |

# APPENDIX E

# ECOREGION MAPS




Ecoregion Map for Nutrient Criteria- Streams

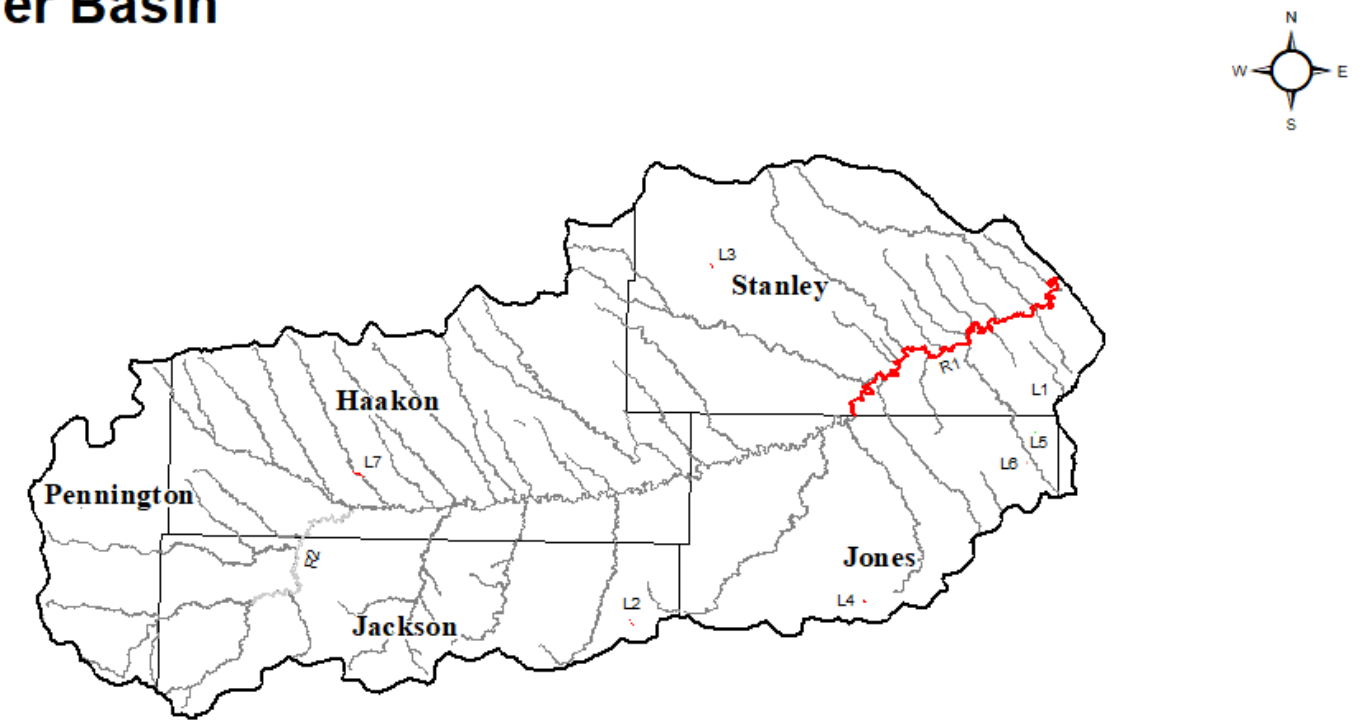



Ecoregion Map for Nutrient Criteria- Lakes

# APPENDIX F

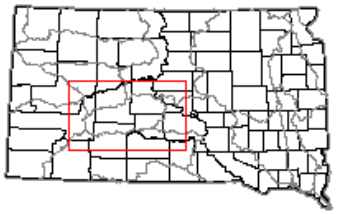
# GIS - BASIN SUPPORT MAPS

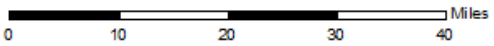
# Bad River Basin



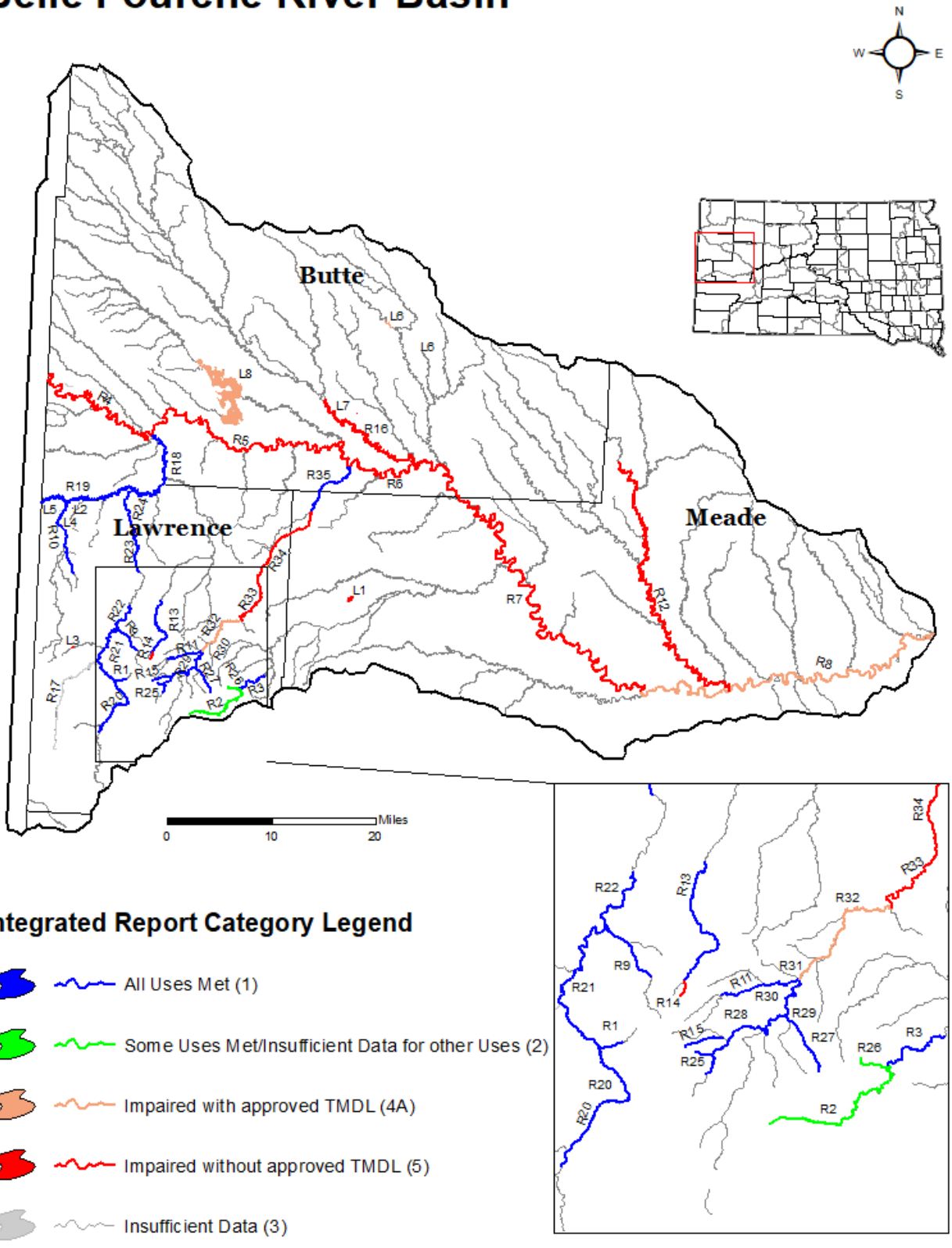

## Integrated Report Category Legend

- All Uses Met (1)
- Some Uses Met/Insufficient Data for other Uses (2)
- Impaired with approved TMDL (4A)
- Impaired without approved TMDL (5)
- Insufficient Data (3)





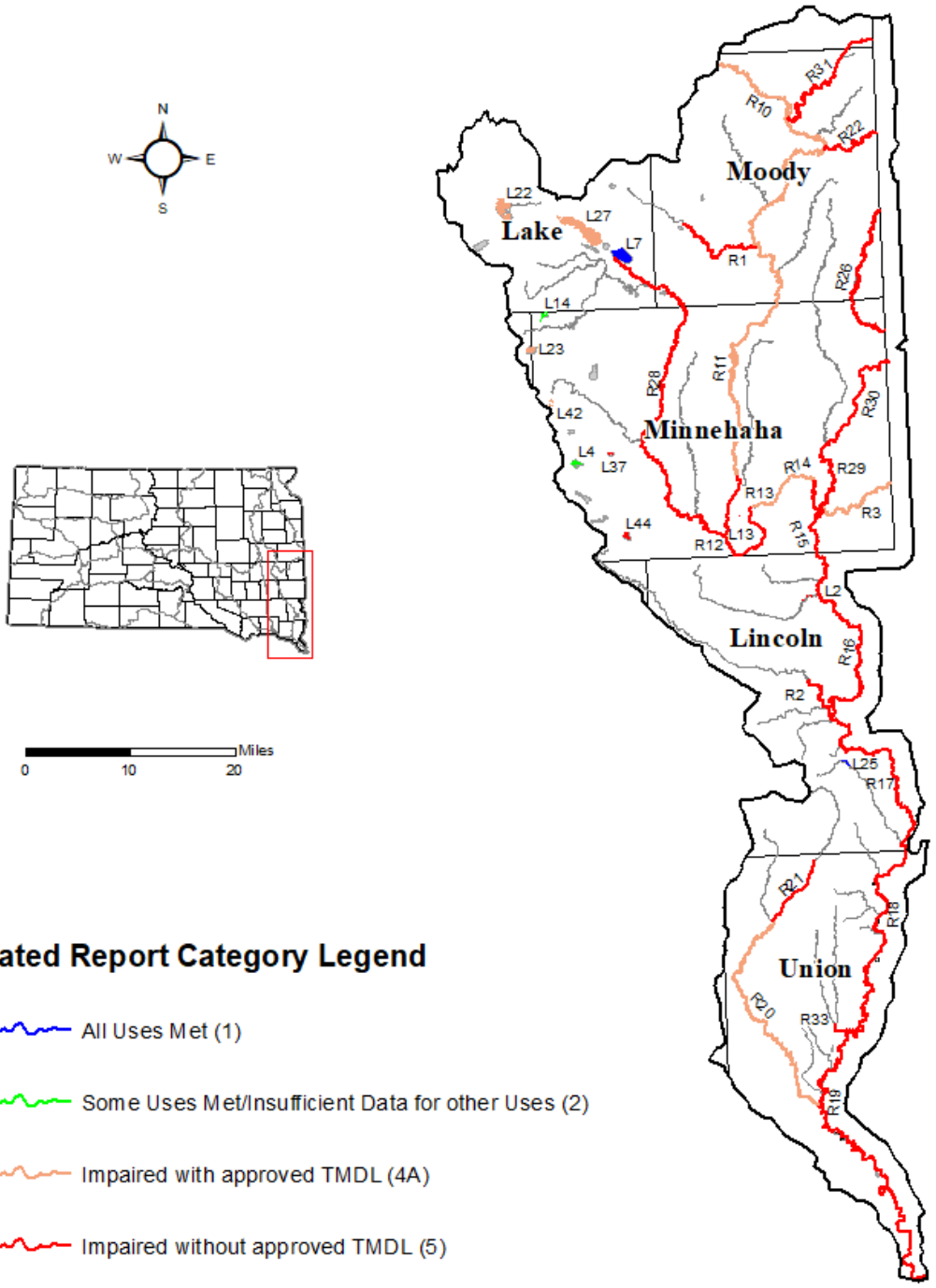
# Belle Fourche River Basin




## Integrated Report Category Legend

- All Uses Met (1)
- Some Uses Met/Insufficient Data for other Uses (2)
- Impaired with approved TMDL (4A)
- Impaired without approved TMDL (5)
- Insufficient Data (3)

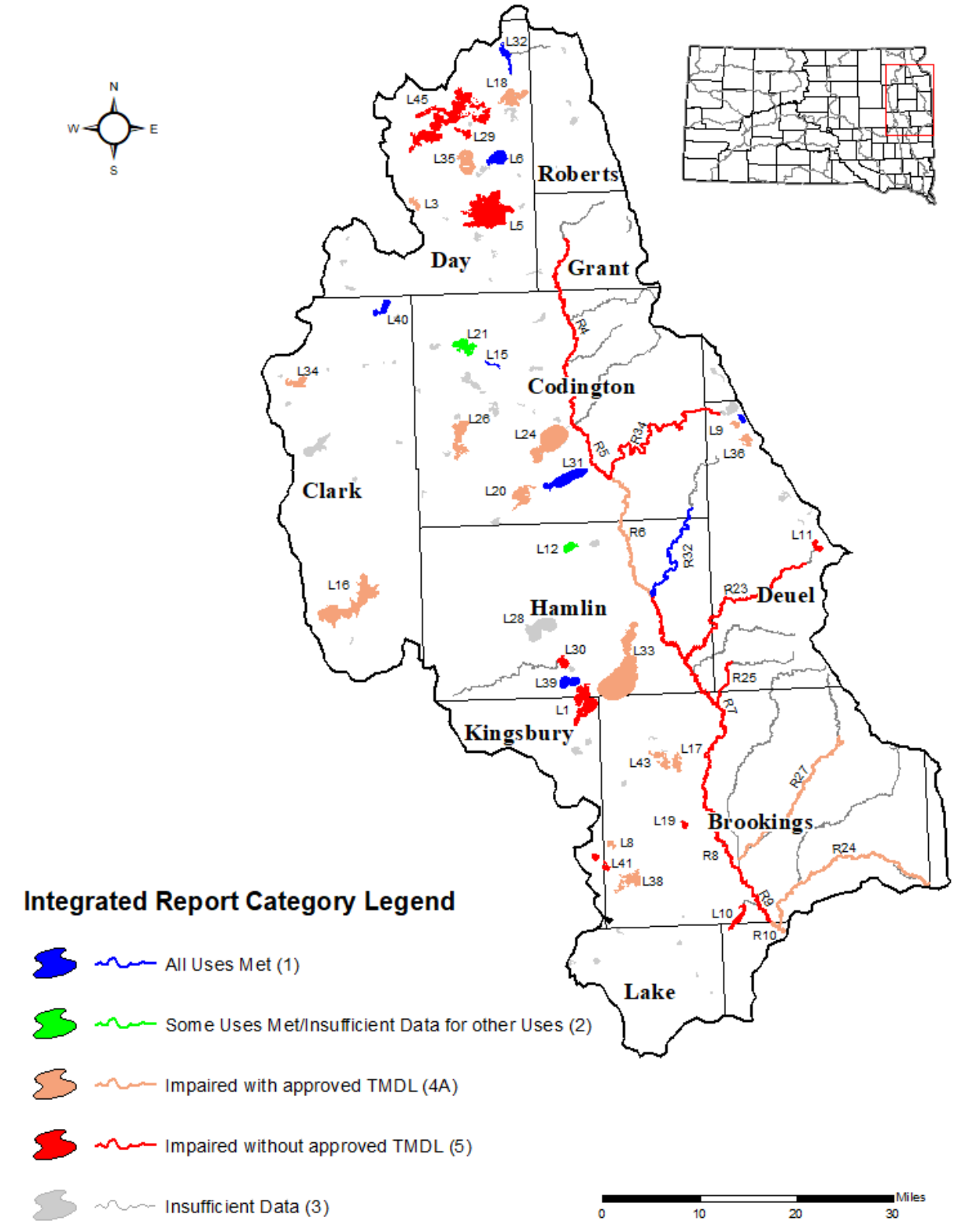
# Lower Big Sioux River Basin



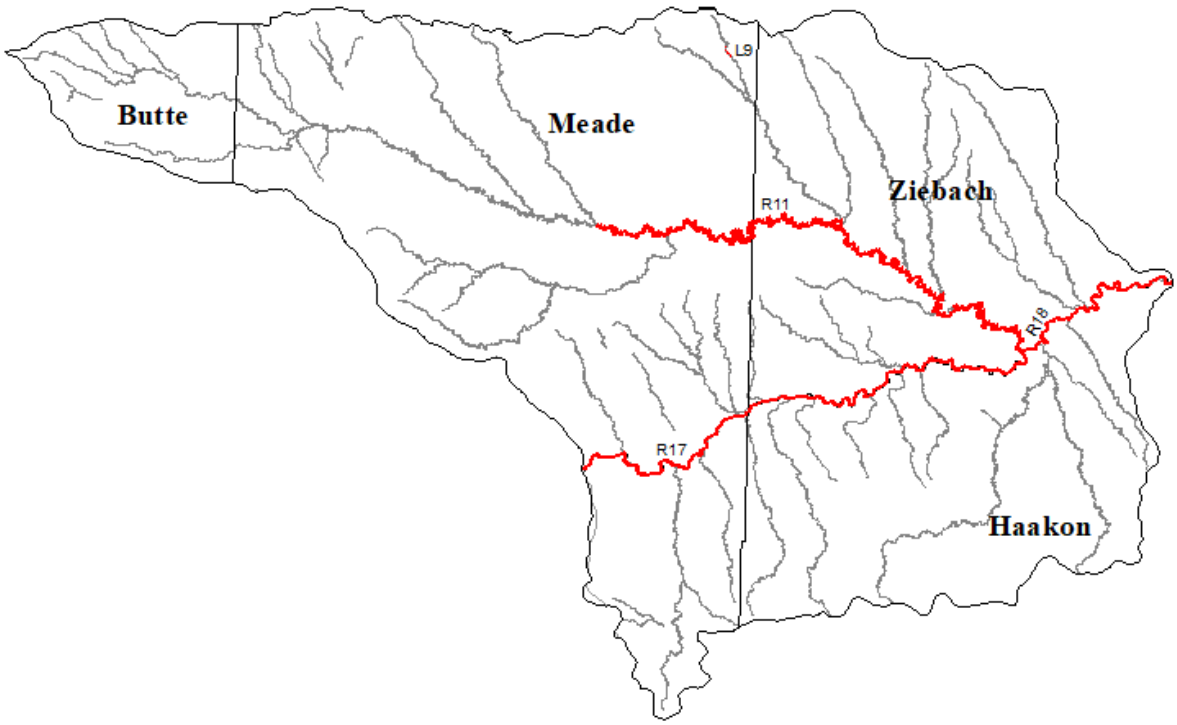

## Integrated Report Category Legend

- All Uses Met (1)
- Some Uses Met/Insufficient Data for other Uses (2)
- Impaired with approved TMDL (4A)
- Impaired without approved TMDL (5)
- Insufficient Data (3)

# Upper Big Sioux River Basin

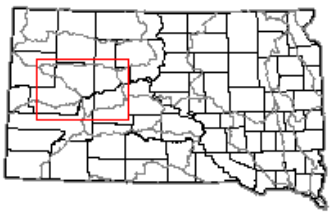


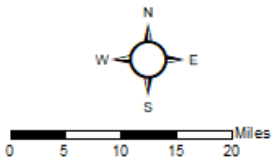
# Lower Cheyenne River Basin



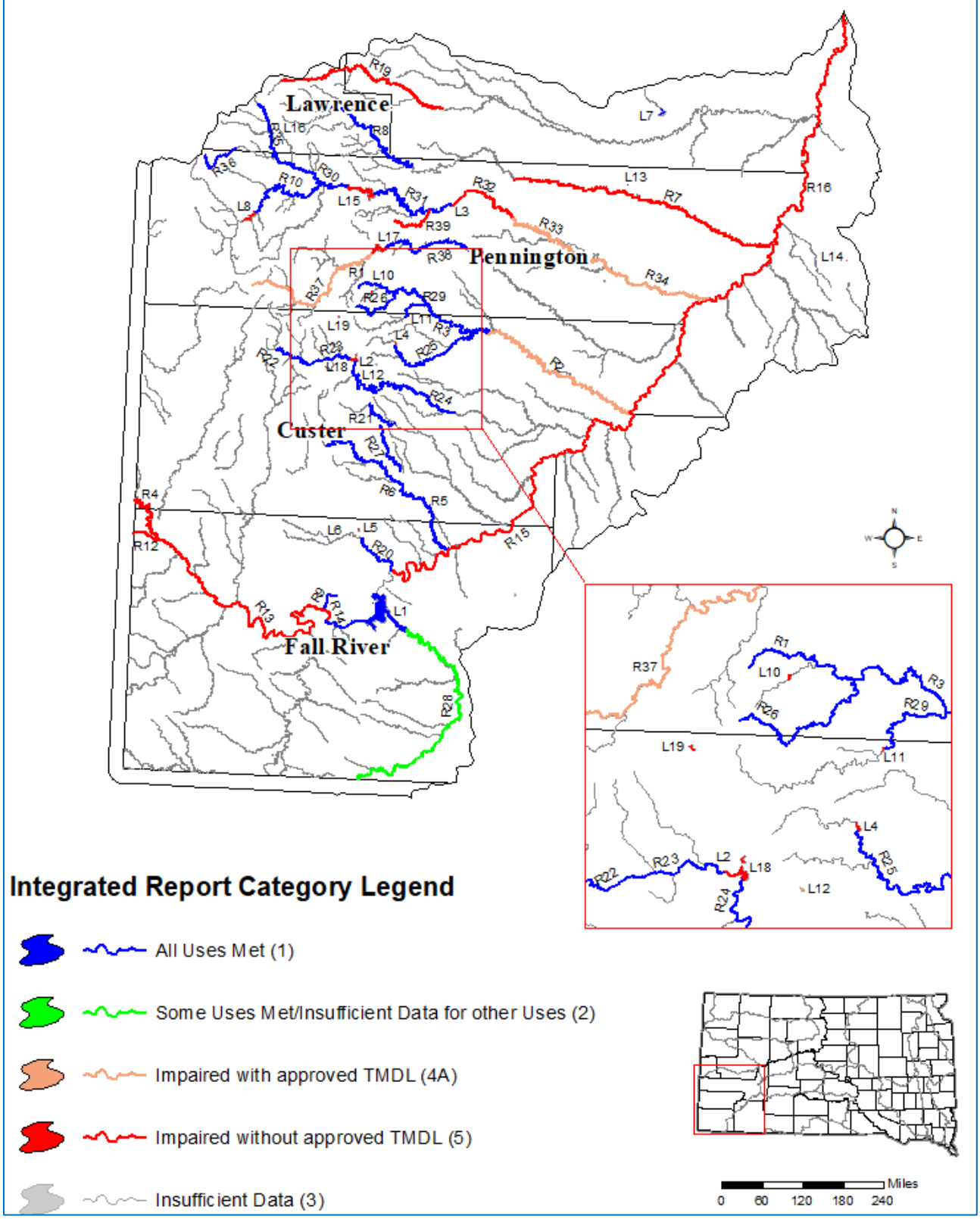

## Integrated Report Category Legend

- All Uses Met (1)
- Some Uses Met/Insufficient Data for other Uses (2)
- Impaired with approved TMDL (4A)
- Impaired without approved TMDL (5)
- Insufficient Data (3)





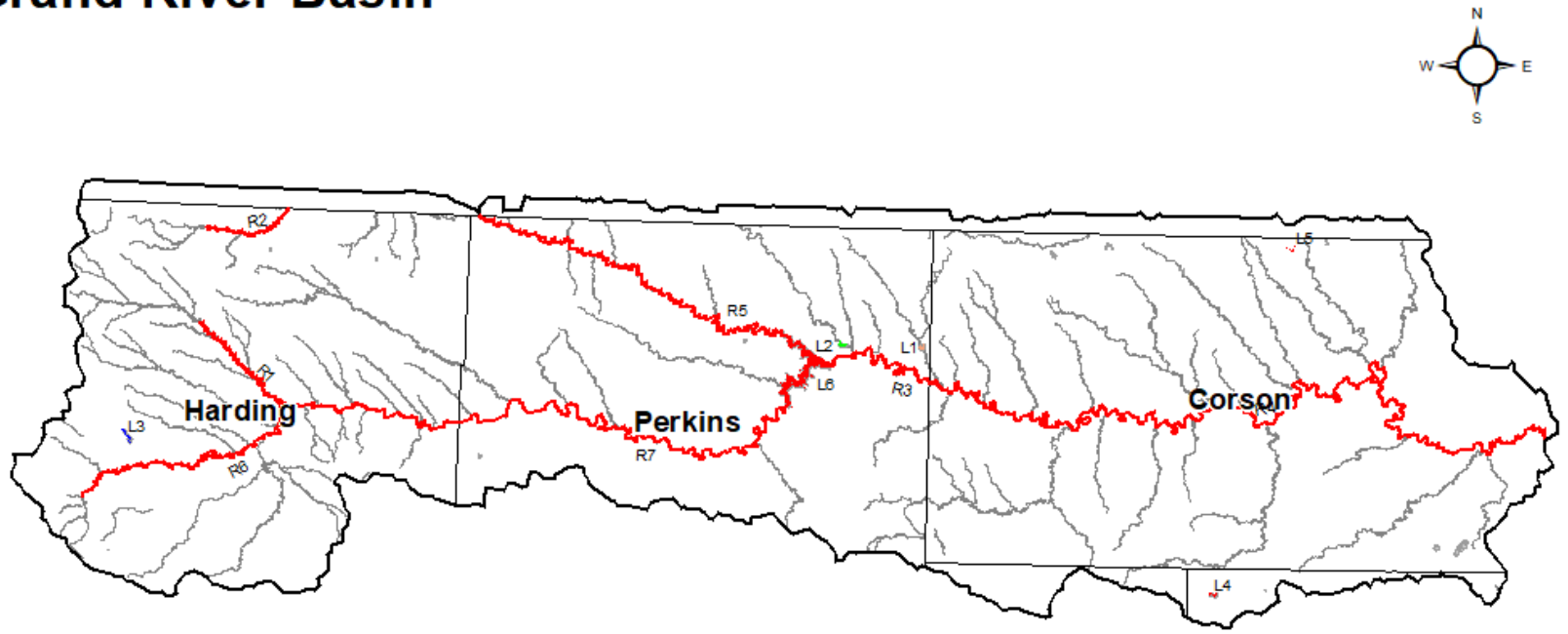
# Upper Cheyenne River Basin




## Integrated Report Category Legend

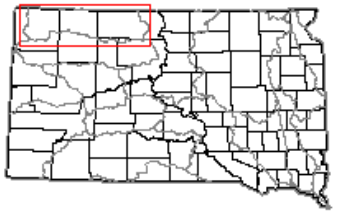
- All Uses Met (1)
- Some Uses Met/Insufficient Data for other Uses (2)
- Impaired with approved TMDL (4A)
- Impaired without approved TMDL (5)
- Insufficient Data (3)

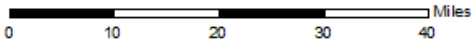
# Grand River Basin



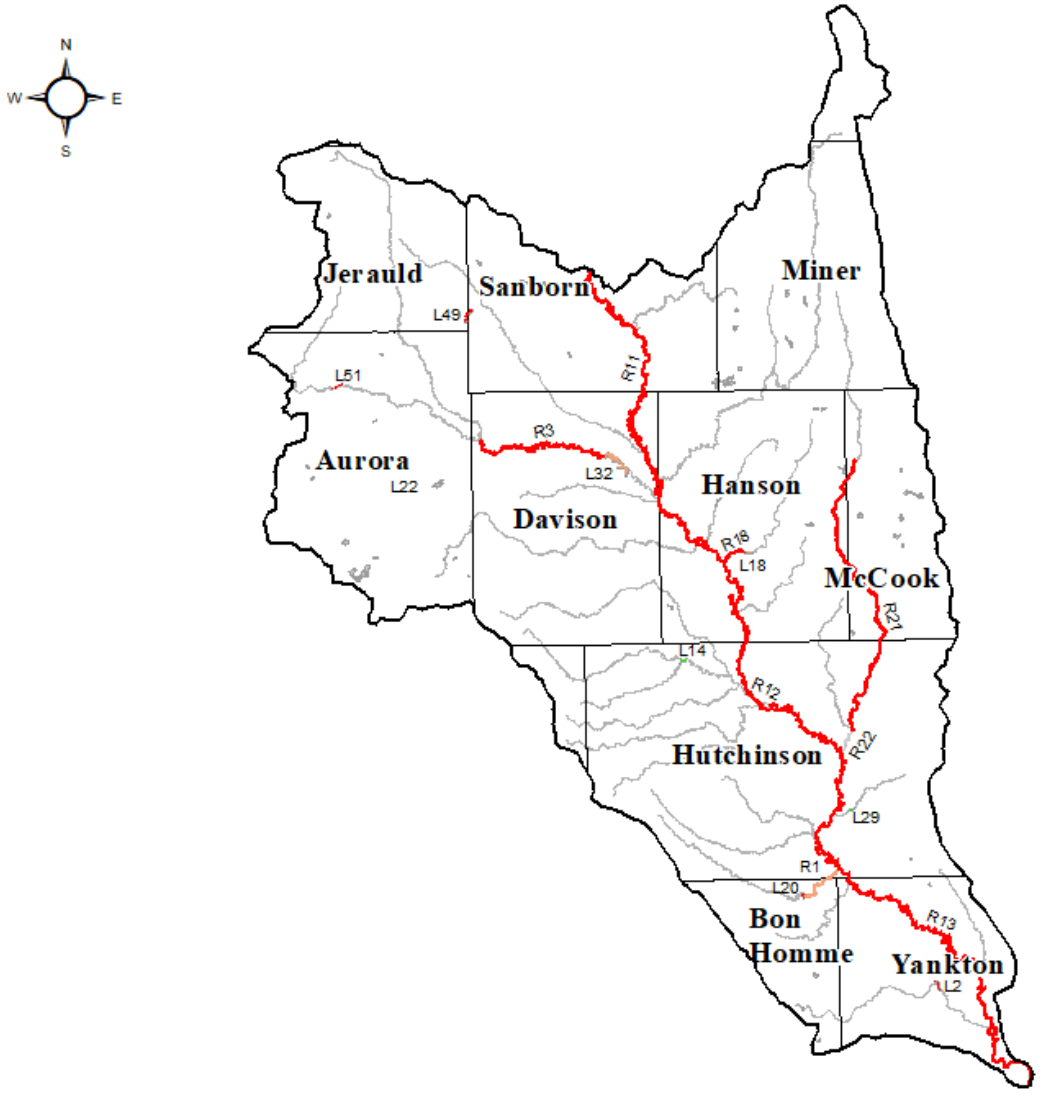

## Integrated Report Category Legend

- All Uses Met (1)
- Some Uses Met/Insufficient Data for other Uses (2)
- Impaired with approved TMDL (4A)
- Impaired without approved TMDL (5)
- Insufficient Data (3)



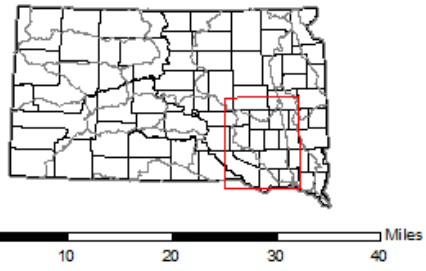


# Lower James River Basin

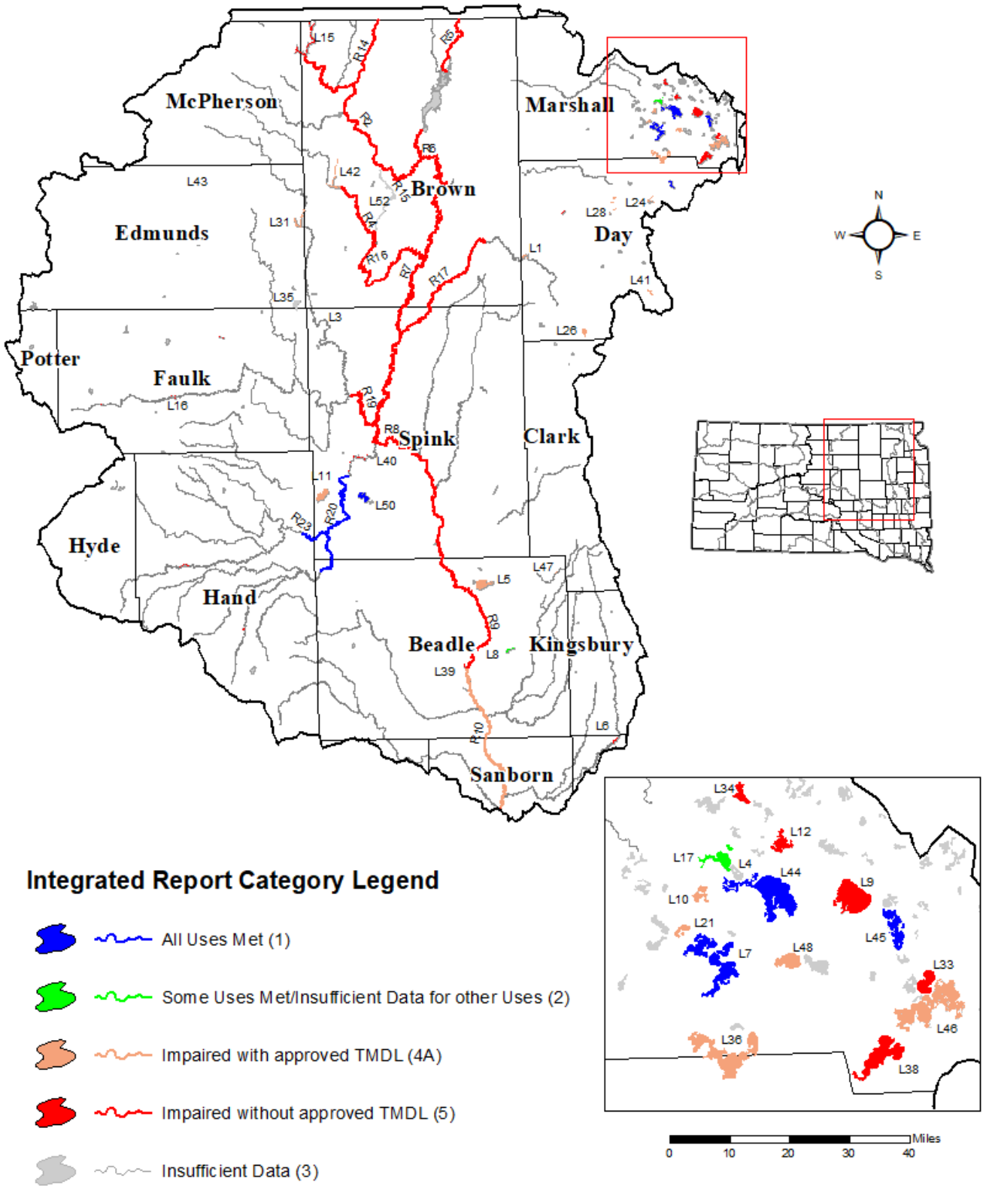



## Integrated Report Category Legend

- All Uses Met (1)
- Some Uses Met/Insufficient Data for other Uses (2)
- Impaired with approved TMDL (4A)
- Impaired without approved TMDL (5)
- Insufficient Data (3)



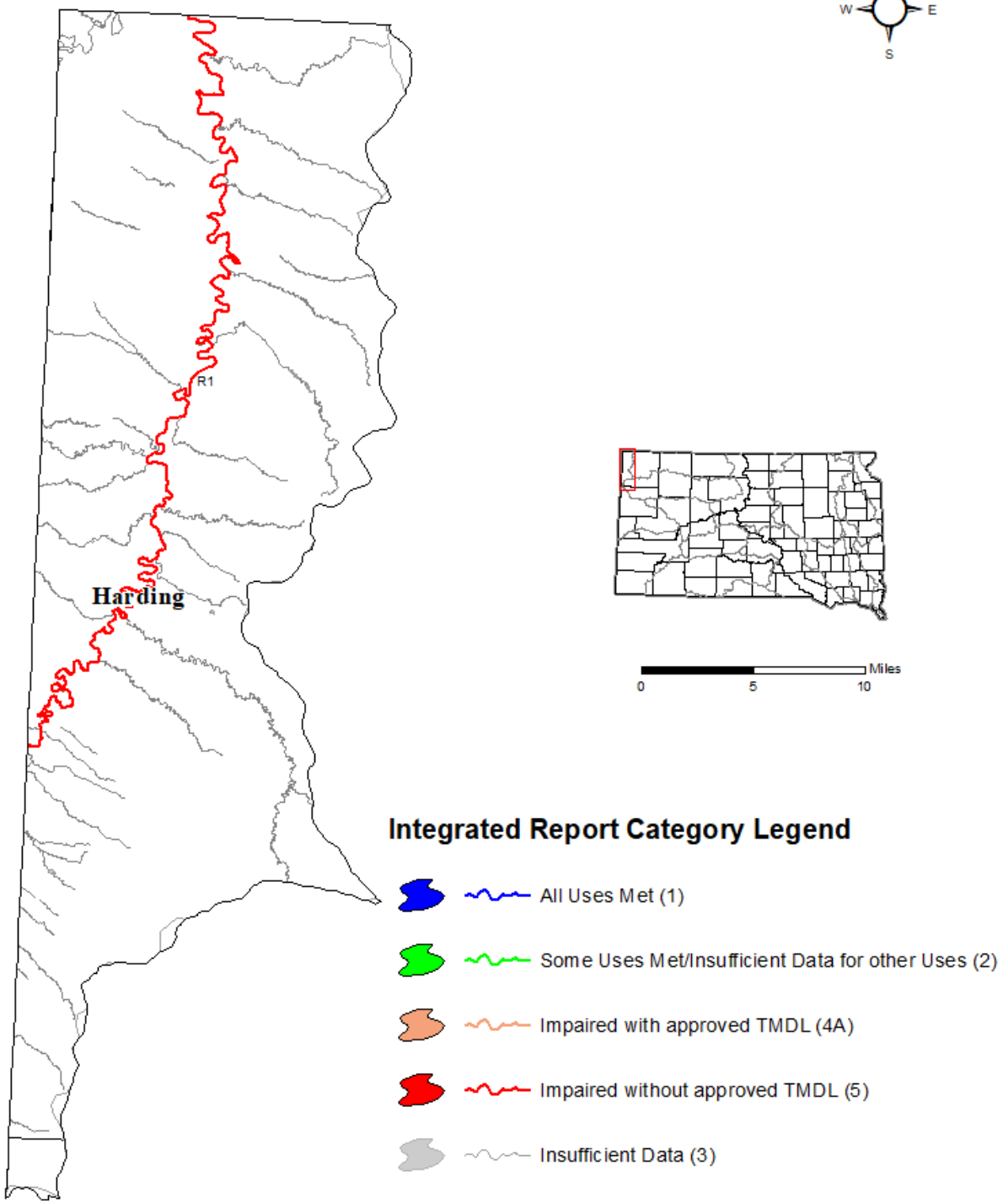
# Upper James River Basin



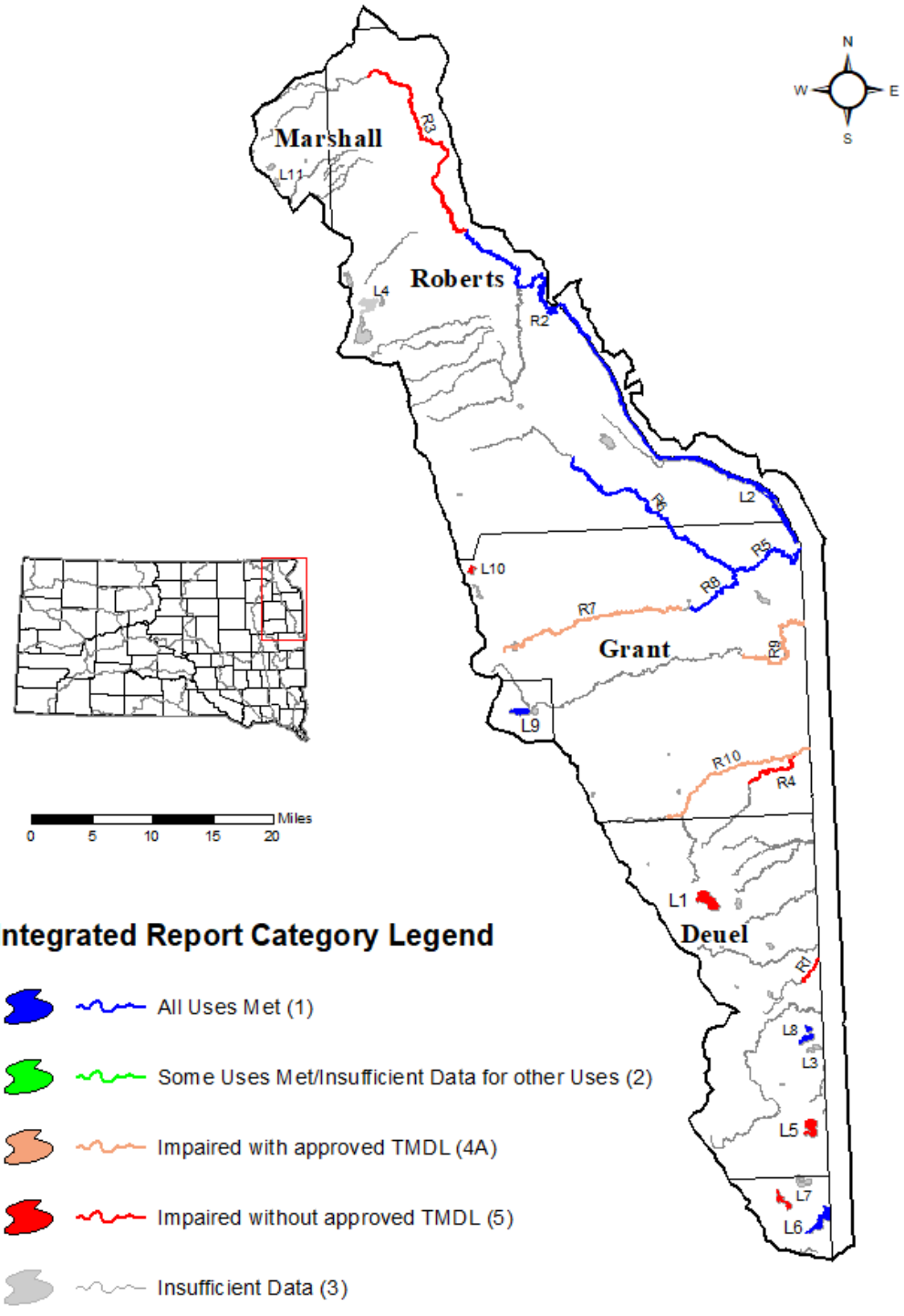

## Integrated Report Category Legend

- All Uses Met (1)
- Some Uses Met/Insufficient Data for other Uses (2)
- Impaired with approved TMDL (4A)
- Impaired without approved TMDL (5)
- Insufficient Data (3)

# Little Missouri River Basin



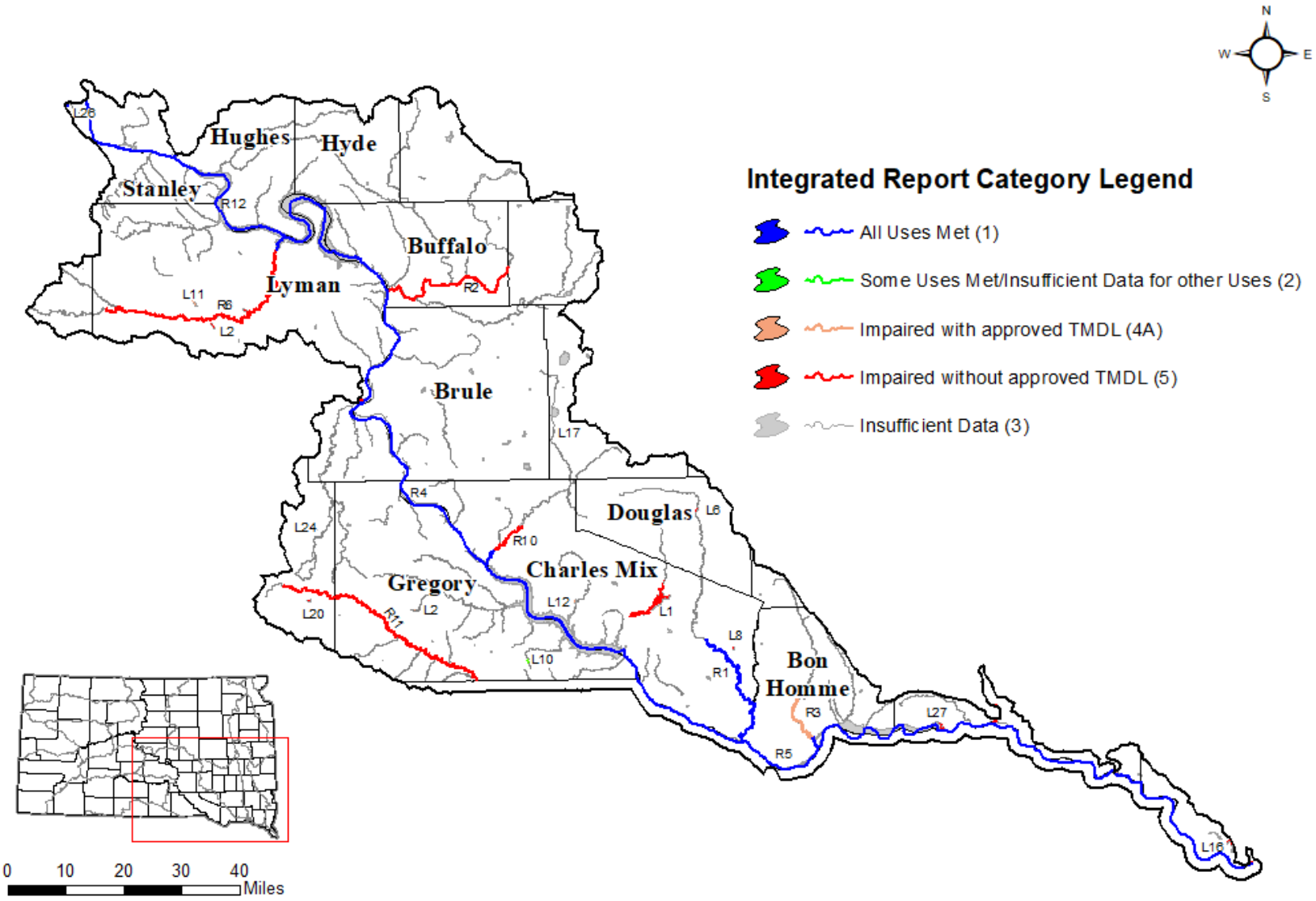
# Minnesota River Basin



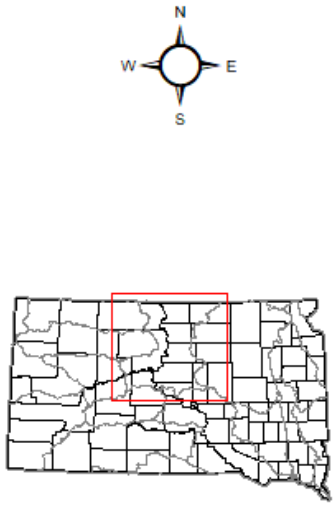

## Integrated Report Category Legend

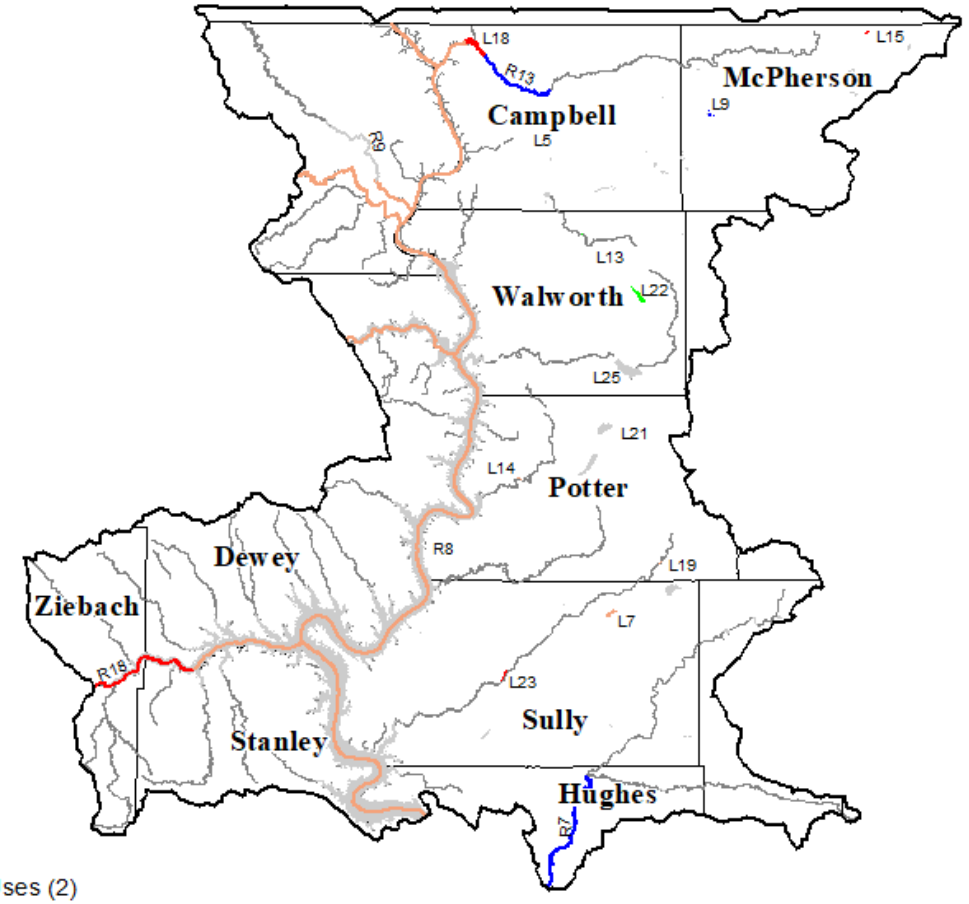
- All Uses Met (1)
- Some Uses Met/Insufficient Data for other Uses (2)
- Impaired with approved TMDL (4A)
- Impaired without approved TMDL (5)
- Insufficient Data (3)

# Lower Missouri River Basin



# Upper Missouri River Basin

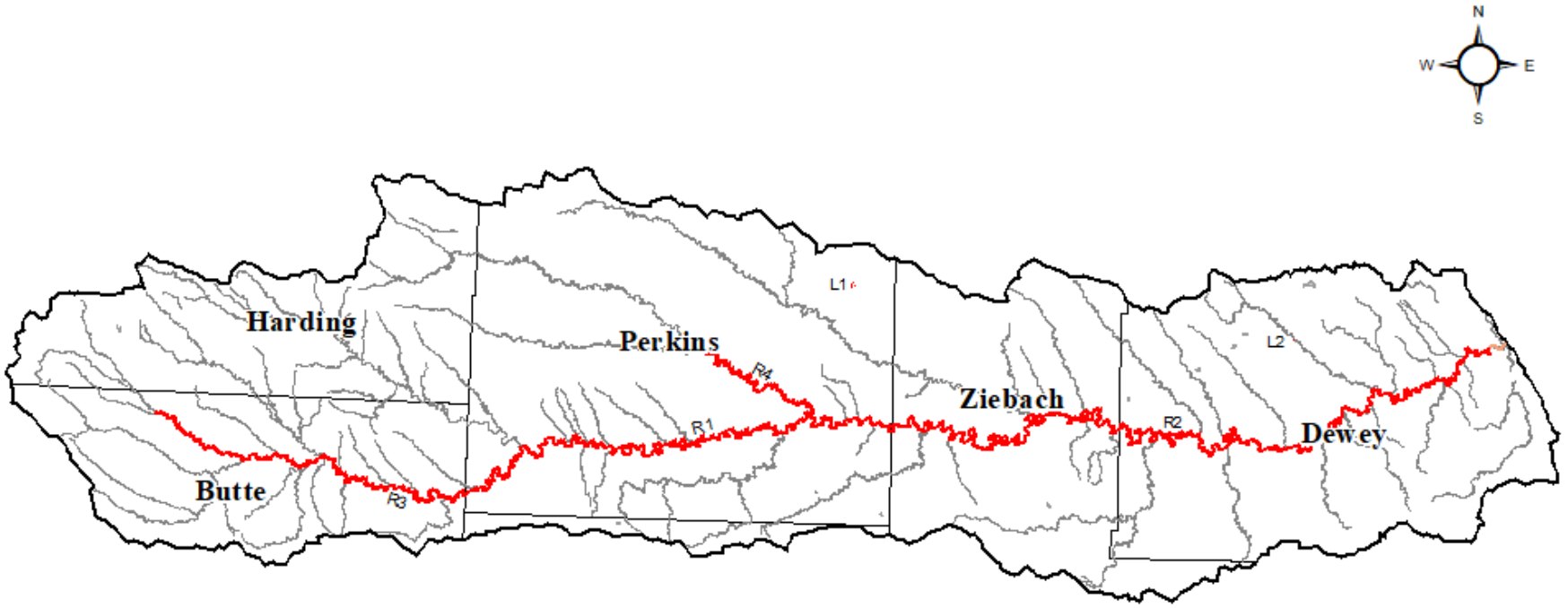



## Integrated Report Category Legend

- All Uses Met (1)
- Some Uses Met/Insufficient Data for other Uses (2)
- Impaired with approved TMDL (4A)
- Impaired without approved TMDL (5)
- Insufficient Data (3)

# Moreau River Basin




## Integrated Report Category Legend

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- Some Uses Met/Insufficient Data for other Uses (2)
- Impaired with approved TMDL (4A)
- Impaired without approved TMDL (5)
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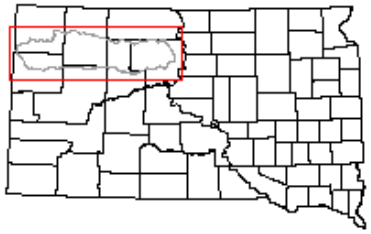
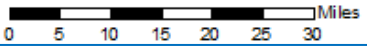
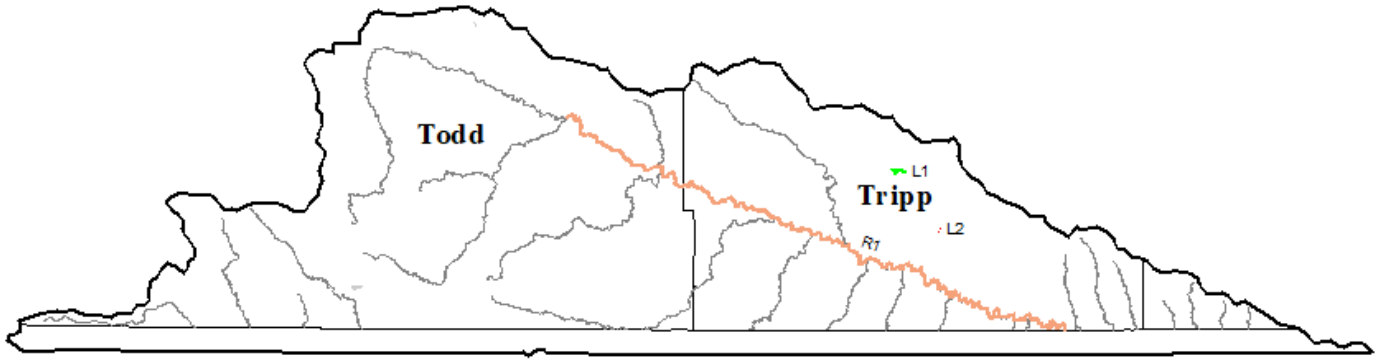


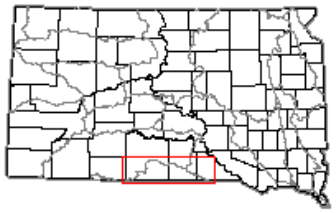


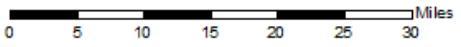
# Niobrara River Basin



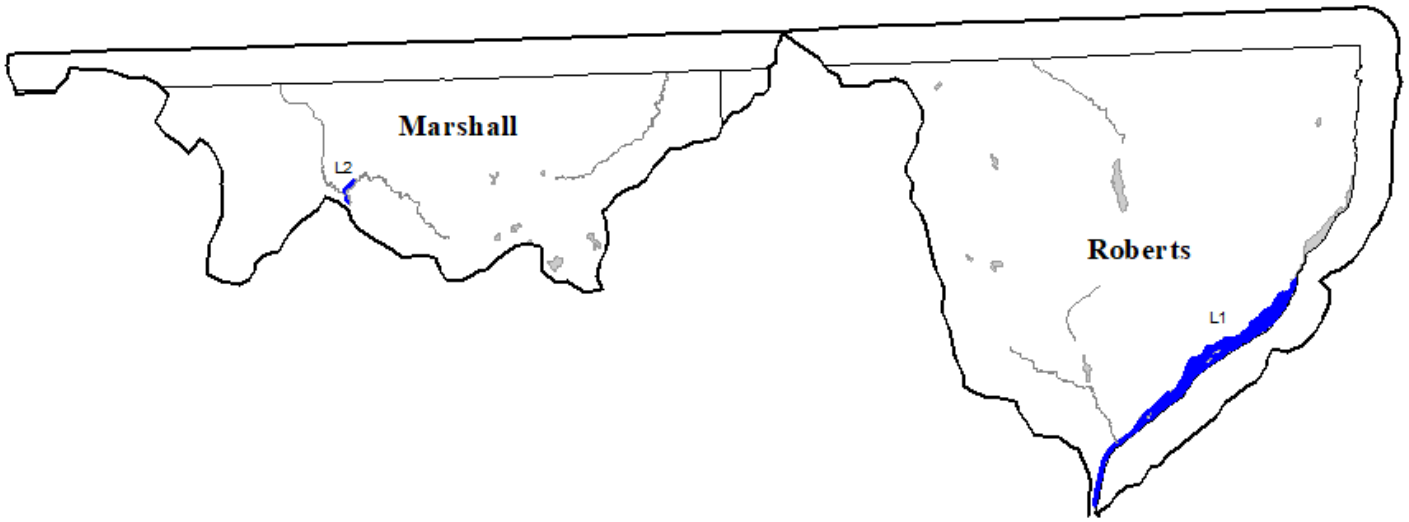

## Integrated Report Category Legend

- All Uses Met (1)
- Some Uses Met/Insufficient Data for other Uses (2)
- Impaired with approved TMDL (4A)
- Impaired without approved TMDL (5)
- Insufficient Data (3)





# Red River Basin

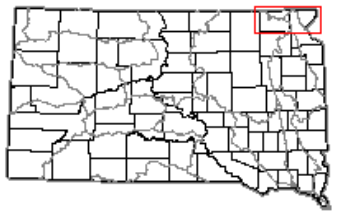


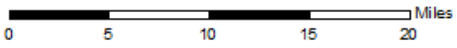




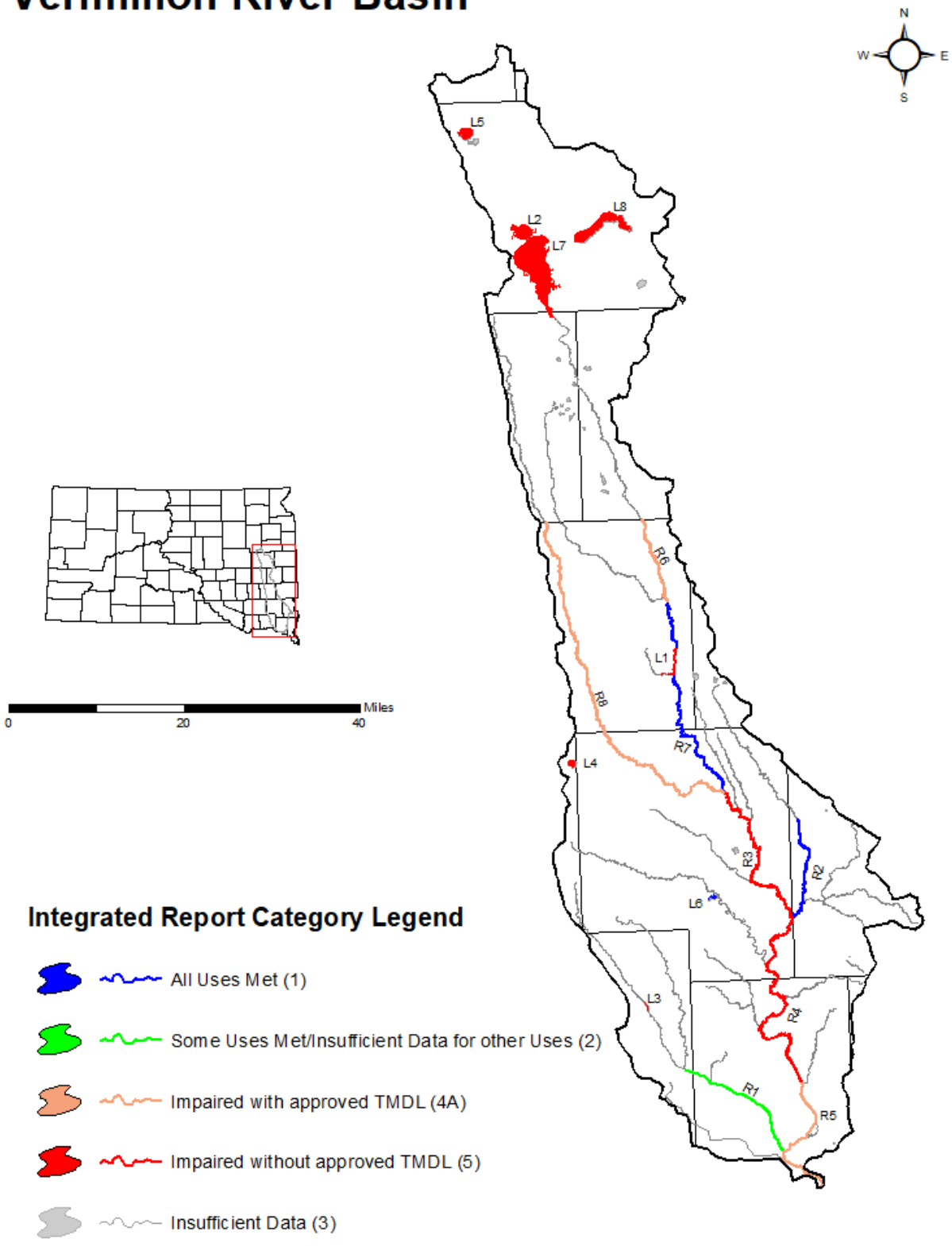
## Integrated Report Category Legend

- All Uses Met (1)
- Some Uses Met/Insufficient Data for other Uses (2)
- Impaired with approved TMDL (4A)
- Impaired without approved TMDL (5)
- Insufficient Data (3)

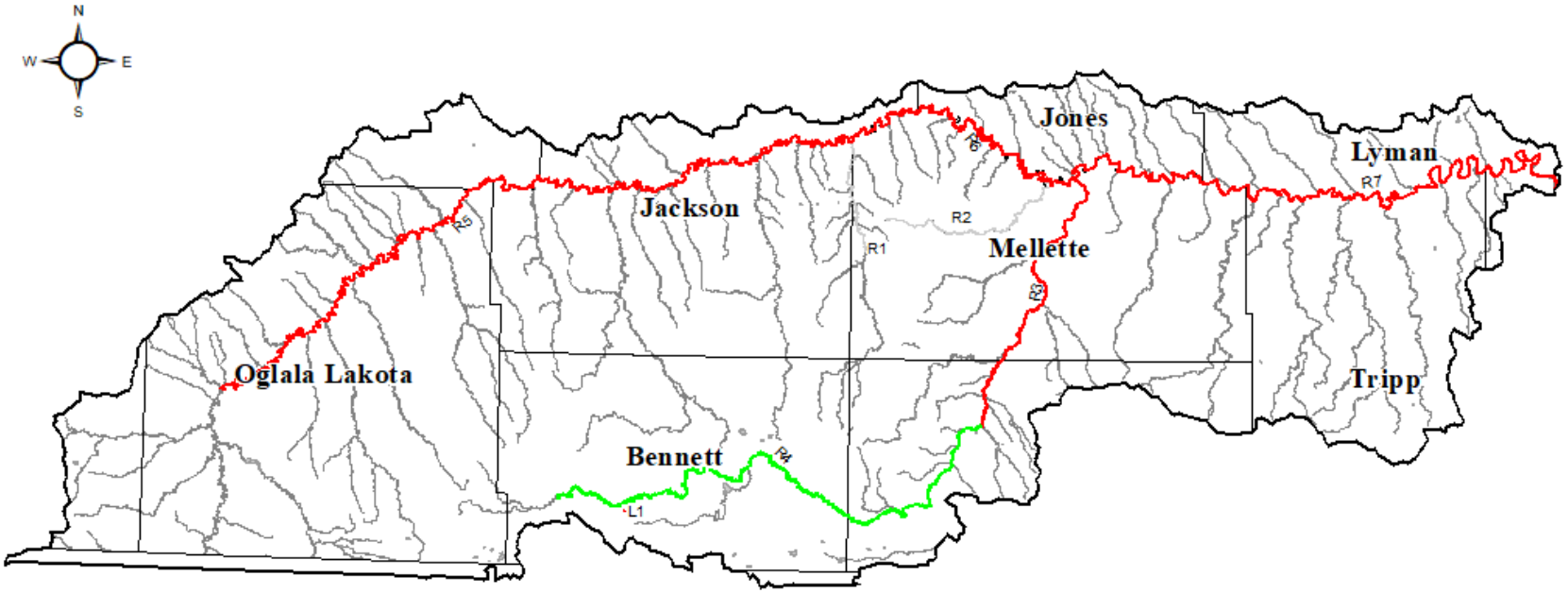




# Vermillion River Basin

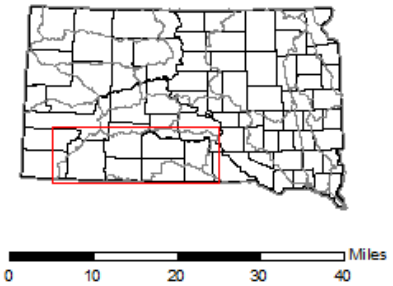


# White River Basin




## Integrated Report Category Legend

- All Uses Met (1)
- Some Uses Met/Insufficient Data for other Uses (2)
- Impaired with approved TMDL (4A)
- Impaired without approved TMDL (5)
- Insufficient Data (3)



# APPENDIX G

# MEDIAN CHLOROPHYLL-a BY WATERBODY

| AUID | classification | Acres | variable | n | min | max | median | iqr | mean | sd | se | ci |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SD-BA-L-FREEMAN_01 | Eutrophic | 50.0 | chl-a-U | 2 | 7.67 | 18.98 | 13.325 | 5.655 | 13.325 | 7.997 | 5.655 | 71.854 |
| SD-BA-L-HAYES_01 | Eutrophic | 51.06 | chl-a-U | 5 | 22.73 | 52.8 | 40.88 | 11.22 | 37.538 | 11.549 | 5.165 | 14.34 |
| SD-BA-L-MURDO_01 | Eutrophic | 48.42 | chl-a-U | 3 | 3.3 | 100.55 | 22 | 48.625 | 41.95 | 51.603 | 29.793 | 128.19 |
| SD-BS-L-ALVIN_01 | Eutrophic | 98.28 | chl-a-U | 19 | 2.094 | 144.87 | 34.765 | 41.305 | 45.592 | 35.379 | 8.117 | 17.052 |
| SD-BS-L-ANTELOPE_01 | Eutrophic | 574.36 | chl-a-U | 3 | 7.577 | 58.597 | 14.562 | 25.51 | 26.912 | 27.662 | 15.97 | 68.715 |
| SD-BS-L-BITTER_01 | Eutrophic | 7865.3 | chl-a-U | 16 | 3.3 | 160.38 | 27.885 | 31.616 | 33.915 | 39.729 | 9.932 | 21.17 |
| SD-BS-L-BLUE_DOG_01 | Eutrophic | 1495.6 | chl-a-U | 15 | 3.63 | 394.9 | 9.24 | 14.335 | 38.957 | 99.148 | 25.6 | 54.906 |
| SD-BS-L-BRANT_01 | Eutrophic | 1033.5 | chl-a-U | 31 | 0.17 | 46.53 | 9.9 | 9.375 | 12.156 | 10.253 | 1.842 | 3.761 |
| SD-BS-L-BULLHEAD_01 | Eutrophic | 346.56 | chl-a-U | 37 | 3.14 | 178.159 | 16.83 | 12.65 | 25.782 | 33.805 | 5.557 | 11.271 |
| SD-BS-L-CLEAR_D_01 | Eutrophic | 527.53 | chl-a-U | 28 | 4.45 | 124.74 | 25.16 | 29.836 | 36.219 | 32.16 | 6.078 | 12.47 |
| SD-BS-L-CLEAR_H_01 | Eutrophic | 705.6 | chl-a-U | 5 | 6.27 | 22.8 | 20.63 | 12.87 | 16.274 | 7.824 | 3.499 | 9.715 |
| SD-BS-L-COVELL_01 | Eutrophic | 11.23 | chl-a-U | 21 | 9.548 | 73.92 | 40.26 | 25.22 | 40.512 | 18.623 | 4.064 | 8.477 |
| SD-BS-L-DRY_01 | Eutrophic | 235.08 | chl-a-U | 13 | 2.71 | 150.189 | 45.7 | 43.07 | 44.217 | 39.382 | 10.923 | 23.798 |
| SD-BS-L-DRY_NO2_01 | Eutrophic | 6441.7 | chl-a-U | 3 | 8.25 | 53.95 | 13.86 | 22.85 | 25.353 | 24.924 | 14.39 | 61.914 |
| SD-BS-L-E_OAKWOOD_01 | Eutrophic | 866.35 | chl-a-U | 20 | -1.32 | 206.58 | 25.905 | 56.843 | 50.41 | 56.681 | 12.674 | 26.528 |
| SD-BS-L-GOLDSMITH_01 | Eutrophic | 289.96 | chl-a-U | 22 | -0.054 | 124.74 | 28.945 | 58.32 | 41.177 | 36.983 | 7.885 | 16.397 |
| SD-BS-L-ISLAND_N_01 | Eutrophic | 280.21 | chl-a-U | 3 | 12.87 | 31.73 | 23.43 | 9.43 | 22.677 | 9.453 | 5.457 | 23.481 |
| SD-BS-L-LAKOTA_01 | Eutrophic | 92.09 | chl-a-U | 1 | 9.24 | 9.24 | 9.24 | 0 | 9.24 | NA | NA | NA |
| SD-BS-L-MADISON_01 | Eutrophic | 2763.5 | chl-a-U | 27 | 3.7 | 252.92 | 18.805 | 29.664 | 39.363 | 51.941 | 9.996 | 20.547 |
| SD-BS-L-MINNEWASTA_01 | Eutrophic | 609.63 | chl-a-U | 2 | 2.97 | 20.13 | 11.55 | 8.58 | 11.55 | 12.134 | 8.58 | 109.019 |
| SD-BS-L-NORDEN_01 | Eutrophic | 711.57 | chl-a-U | 27 | 3.049 | 158.4 | 20.7 | 15.508 | 27.002 | 31.169 | 5.998 | 12.33 |
| SD-BS-L-PELICAN_01 | Eutrophic | 2801.3 | chl-a-U | 13 | 3.46 | 141.72 | 23.47 | 28.754 | 41.423 | 43.663 | 12.11 | 26.386 |
| SD-BS-L-PICKEREL_01 | Eutrophic | 995.19 | chl-a-U | 20 | -0.17 | 18.13 | 8.77 | 5.736 | 8.527 | 4.967 | 1.111 | 2.324 |
| SD-BS-L-POINSETT_01 | Eutrophic | 9794.6 | chl-a-U | 50 | 0 | 299.15 | 12.77 | 23.454 | 28.617 | 47.555 | 6.725 | 13.515 |
| SD-BS-L-REID_01 | Eutrophic | 1045.6 | chl-a-U | 6 | 0.955 | 28.55 | 12.706 | 19.528 | 14.475 | 11.895 | 4.856 | 12.483 |
| SD-BS-L-SCHOOL_01 | Eutrophic | 1015.4 | chl-a-U | 20 | 2.81 | 94.29 | 26.26 | 41.832 | 36.185 | 28.009 | 6.263 | 13.108 |
| SD-BS-L-SINAI_01 | Eutrophic | 1789.6 | chl-a-U | 5 | 3.503 | 20.46 | 4.78 | 11.028 | 9.37 | 7.738 | 3.46 | 9.608 |
| SD-BS-L-ST_JOHN_01 | Eutrophic | 1271.2 | chl-a-U | 13 | 3.3 | 125.91 | 49.5 | 57.52 | 45.483 | 41.639 | 11.549 | 25.162 |

| AUID | classification | Acres | variable | n | min | max | median | iqr | mean | sd | se | ci |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SD-BS-L-TWIN_01 | Eutrophic | 642.18 | chl-a-U | 20 | -0.17 | 21.12 | 7.755 | 11.82 | 9.515 | 6.319 | 1.413 | 2.957 |
| SD-CH-L-BISMARK_01 | Eutrophic | 22.4 | chl-a-U | 11 | 4.78 | 93.5 | 16.099 | 8.039 | 21.608 | 24.427 | 7.365 | 16.41 |
| SD-CH-L-CENTER_01 | Eutrophic | 24.01 | chl-a-U | 11 | 0.499 | 43.644 | 7.02 | 6.13 | 13.289 | 14.249 | 4.296 | 9.573 |
| SD-CH-L-CURLEW_01 | Eutrophic | 152.64 | chl-a-U | 11 | 5.833 | 29.2 | 11.71 | 14.917 | 15.62 | 8.906 | 2.685 | 5.983 |
| SD-CH-L-DURKEE_01 | Eutrophic | 96.45 | chl-a-U | 5 | 5.45 | 38.61 | 37.12 | 8.58 | 29.568 | 14.014 | 6.267 | 17.401 |
| SD-CH-L-HORSETHIEF_01 | Eutrophic | 17.2 | chl-a-U | 16 | 1.81 | 38.346 | 7.88 | 9.05 | 11.624 | 9.511 | 2.378 | 5.068 |
| SD-CH-L-LAKOTA_01 | Eutrophic | 8.13 | chl-a-U | 13 | -1.271 | 47.02 | 8.99 | 9.09 | 13.117 | 12.582 | 3.49 | 7.603 |
| SD-CH-L-LEGION_01 | Eutrophic | 7.69 | chl-a-U | 11 | 1.247 | 28.55 | 5.06 | 5.739 | 7.414 | 7.583 | 2.286 | 5.094 |
| SD-CH-L-NEW_UNDERWOOD_01 | Eutrophic | 19.92 | chl-a-U | 10 | -45.94 | 75.24 | 28.162 | 32.525 | 27.505 | 33.993 | 10.75 | 24.317 |
| SD-CH-L-NEW_WALL_01 | Eutrophic | 33.82 | chl-a-U | 8 | 1.124 | 70.4 | 14.375 | 13.004 | 20.064 | 21.712 | 7.676 | 18.151 |
| SD-CH-L-ROUBAIX_01 | Eutrophic | 6.75 | chl-a-U | 18 | 0 | 29.221 | 6.705 | 10 | 9.531 | 9.313 | 2.195 | 4.631 |
| SD-CH-L-STOCKADE_01 | Eutrophic | 125.35 | chl-a-U | 16 | 2.5 | 65.789 | 11.18 | 13.16 | 15.03 | 15.147 | 3.787 | 8.071 |
| SD-GR-L-GARDNER_01 | Eutrophic | 191.08 | chl-a-U | 7 | 7.76 | 53.9 | 9.32 | 9.735 | 17.636 | 16.974 | 6.415 | 15.698 |
| SD-GR-L-ISABEL_01 | Eutrophic | 107.87 | chl-a-U | 3 | 10.278 | 27.466 | 17.902 | 8.594 | 18.549 | 8.612 | 4.972 | 21.394 |
| SD-GR-L-SHADEHILL_01 | Eutrophic | 5160.1 | chl-a-U | 8 | 5.28 | 36.3 | 9.822 | 20.903 | 16.251 | 13.176 | 4.658 | 11.015 |
| SD-JA-L-AMSDEN_01 | Eutrophic | 208.28 | chl-a-U | 6 | 2.31 | 89.86 | 22.6 | 22.717 | 30.497 | 31.631 | 12.913 | 33.194 |
| SD-JA-L-BIERMAN_01 | Eutrophic | 1.47 | chl-a-U | 6 | 15 | 89.1 | 27.525 | 3.988 | 35.492 | 26.767 | 10.928 | 28.09 |
| SD-JA-L-BYRON_01 | Eutrophic | 1798.3 | chl-a-U | 11 | 5.94 | 118.14 | 20.79 | 62.165 | 46.634 | 38.816 | 11.704 | 26.077 |
| SD-JA-L-CARTHAGE_01 | Eutrophic | 199.04 | chl-a-U | 23 | 5.94 | 118.47 | 43.787 | 27.083 | 43.409 | 26.489 | 5.523 | 11.455 |
| SD-JA-L-CATTAIL_01 | Eutrophic | 1582.8 | chl-a-U | 9 | 5.11 | 165.21 | 13.04 | 12.327 | 29.669 | 51.167 | 17.056 | 39.33 |
| SD-JA-L-CLEAR_M_01 | Eutrophic | 1198.8 | chl-a-U | 21 | 3.65 | 27.797 | 17 | 11.22 | 15.964 | 6.843 | 1.493 | 3.115 |
| SD-JA-L-COTTONWOOD_01 | Eutrophic | 1433.2 | chl-a-U | 9 | 3.82 | 25.38 | 8.91 | 4.46 | 9.991 | 6.453 | 2.151 | 4.96 |
| SD-JA-L-COTTONWOOD_M_01 | Eutrophic | 346.8 | chl-a-U | 5 | 2.97 | 48 | 5.68 | 5.45 | 14.268 | 19.039 | 8.515 | 23.64 |
| SD-JA-L-ELM_01 | Eutrophic | 1185.3 | chl-a-U | 12 | 0.17 | 28.88 | 6.175 | 11.037 | 10.802 | 9.392 | 2.711 | 5.967 |
| SD-JA-L-HANSON_01 | Eutrophic | 59.46 | chl-a-U | 4 | 7.75 | 70.29 | 36.795 | 29.743 | 37.908 | 26.693 | 13.346 | 42.474 |
| SD-JA-L-HENRY_01 | Eutrophic | 43.34 | chl-a-U | 6 | 7.59 | 96.36 | 12.76 | 26.088 | 30.417 | 34.953 | 14.269 | 36.681 |
| SD-JA-L-JONES_01 | Eutrophic | 98.75 | chl-a-U | 6 | 20.305 | 44.583 | 24.923 | 10.039 | 28.493 | 9.363 | 3.822 | 9.826 |
| SD-JA-L-LOUISE_01 | Eutrophic | 165.35 | chl-a-U | 13 | 3.46 | 46.58 | 33.32 | 4.523 | 33.027 | 9.963 | 2.763 | 6.021 |

| AUID | classification | Acres | variable | n | min | max | median | iqr | mean | sd | se | ci |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SD-JA-L-MENNO_01 | Eutrophic | 37.84 | chl-a-U | 4 | 8.75 | 60.39 | 31.43 | 25.405 | 33 | 22.226 | 11.113 | 35.366 |
| SD-JA-L-MINA_01 | Eutrophic | 696.72 | chl-a-U | 10 | 0 | 25.58 | 7.92 | 9.052 | 9.639 | 7.941 | 2.511 | 5.681 |
| SD-JA-L-N_Buffalo_01 | Eutrophic | 409 | chl-a-U | 3 | 6.93 | 23.29 | 7.41 | 8.18 | 12.543 | 9.31 | 5.375 | 23.127 |
| SD-JA-L-NINE_MILE_01 | Eutrophic | 245.07 | chl-a-U | 8 | 1.116 | 49.83 | 4.865 | 8.999 | 11.417 | 16.17 | 5.717 | 13.518 |
| SD-JA-L-NORTH_SCATTERWOOD_01 | Eutrophic | 931.87 | chl-a-U | 5 | 2.64 | 89.43 | 43.18 | 41.28 | 39.474 | 34.856 | 15.588 | 43.279 |
| SD-JA-L-PIERPONT_01 | Eutrophic | 76.2 | chl-a-U | 3 | 15.84 | 35.97 | 23.1 | 10.065 | 24.97 | 10.194 | 5.886 | 25.324 |
| SD-JA-L-RAVINE_01 | Eutrophic | 71.06 | chl-a-U | 6 | 17.91 | 66.66 | 38.335 | 29.395 | 39.292 | 19.534 | 7.975 | 20.499 |
| SD-JA-L-REDFIELD_01 | Eutrophic | 242.32 | chl-a-U | 7 | 13.57 | 74.25 | 55.55 | 34.65 | 46.096 | 23.292 | 8.804 | 21.542 |
| SD-JA-L-RICHMOND_01 | Eutrophic | 809.89 | chl-a-U | 9 | 0 | 17.6 | 7.1 | 8.91 | 8.042 | 6.233 | 2.078 | 4.791 |
| SD-JA-L-ROY_01 | Eutrophic | 1926.1 | chl-a-U | 7 | 8.88 | 18.48 | 14.85 | 5.49 | 13.773 | 3.686 | 1.393 | 3.409 |
| SD-JA-L-S_RED_IRON_01 | Eutrophic | 623.83 | chl-a-U | 12 | 2.841 | 34.65 | 14.07 | 11.585 | 15.747 | 10.18 | 2.939 | 6.468 |
| SD-JA-L-SOUTH_BUFFALO_01 | Eutrophic | 1986.4 | chl-a-U | 8 | 7.12 | 42.17 | 19.505 | 3.552 | 21.209 | 9.859 | 3.486 | 8.242 |
| SD-JA-L-TWIN_01 | Eutrophic | 204.65 | chl-a-U | 21 | 2.97 | 101.83 | 20.46 | 36.43 | 34.892 | 29.926 | 6.53 | 13.622 |
| SD-JA-L-TWIN_02 | Eutrophic | 998.95 | chl-a-U | 7 | 2.64 | 143.22 | 21.02 | 15.69 | 33.077 | 49.337 | 18.647 | 45.629 |
| SD-JA-L-WILMARTH_01 | Eutrophic | 106.24 | chl-a-U | 5 | 2.97 | 33.24 | 14.07 | 9.87 | 15.33 | 11.544 | 5.163 | 14.334 |
| SD-MI-L-BRAKKE_01 | Eutrophic | 86.37 | chl-a-U | 3 | 12.54 | 60.72 | 54.58 | 24.09 | 42.613 | 26.225 | 15.141 | 65.145 |
| SD-MI-L-BURKE_01 | Eutrophic | 30.69 | chl-a-U | 9 | 15.67 | 129.94 | 26.65 | 31.77 | 49.672 | 43.191 | 14.397 | 33.199 |
| SD-MI-L-BYRE_01 | Eutrophic | 84.49 | chl-a-U | 4 | 8.74 | 70.03 | 21.175 | 20.115 | 30.28 | 27.266 | 13.633 | 43.386 |
| SD-MI-L-Campbell_01 | Eutrophic | 47.42 | chl-a-U | 3 | 4.62 | 53.46 | 27.06 | 24.42 | 28.38 | 24.447 | 14.114 | 60.729 |
| SD-MI-L-COTTONWOOD_01 | Eutrophic | 461.67 | chl-a-U | 2 | 17.49 | 28.05 | 22.77 | 5.28 | 22.77 | 7.467 | 5.28 | 67.089 |
| SD-MI-L-DANTE_01 | Eutrophic | 16.92 | chl-a-U | 3 | 12.05 | 39.1 | 35.78 | 13.525 | 28.977 | 14.753 | 8.517 | 36.648 |
| SD-MI-L-EUREKA_01 | Eutrophic | 188.43 | chl-a-U | 6 | 6.6 | 49.67 | 10.9 | 4.435 | 17.275 | 16.135 | 6.587 | 16.933 |
| SD-MI-L-FATE_01 | Eutrophic | 107.63 | chl-a-U | 1 | 52.24 | 52.24 | 52.24 | 0 | 52.24 | NA | NA | NA |
| SD-MI-L-MCCOOK_01 | Eutrophic | 190.71 | chl-a-U | 22 | 8.92 | 23.1 | 13.2 | 3.93 | 14.232 | 3.405 | 0.726 | 1.51 |
| SD-MI-L-POCASSE_01 | Eutrophic | 1370.8 | chl-a-U | 7 | 5.28 | 82.06 | 31.02 | 30.435 | 33.481 | 27.307 | 10.321 | 25.255 |
| SD-MI-L-ROOSEVELT_01 | Eutrophic | 86.49 | chl-a-U | 5 | 4.29 | 88.22 | 50.32 | 32.96 | 42.302 | 32.74 | 14.642 | 40.652 |
| SD-MI-L-YANKTON_01 | Eutrophic | 322.23 | chl-a-U | 9 | 4.78 | 15.21 | 9.07 | 4.13 | 9.122 | 3.182 | 1.061 | 2.446 |
| SD-MN-L-ALICE_01 | Eutrophic | 1058.1 | chl-a-U | 19 | 1.309 | 54.12 | 10.23 | 16.853 | 15.948 | 15.995 | 3.67 | 7.709 |

| AUID | classification | Acres | variable | n | min | max | median | iqr | mean | sd | se | ci |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SD-MN-L-BIG_STONE_01 | Eutrophic | 5800.3 | chl-a-U | 20 | 2.14 | 60.67 | 23.595 | 34.532 | 26.093 | 20.504 | 4.585 | 9.596 |
| SD-MN-L-COCHRANE_01 | Eutrophic | 362.96 | chl-a-U | 55 | -11.88 | 20.13 | 11.22 | 8.55 | 9.685 | 6.122 | 0.825 | 1.655 |
| SD-MN-L-DRYWOOD_NORTH_01 | Eutrophic | 911.62 | chl-a-U | 2 | 42.49 | 61.6 | 52.045 | 9.555 | 52.045 | 13.513 | 9.555 | 121.408 |
| SD-MN-L-FISH_01 | Eutrophic | 737 | chl-a-U | 16 | 7.76 | 128.04 | 31.545 | 56.252 | 47.803 | 37.193 | 9.298 | 19.819 |
| SD-MN-L-HENDRICKS_01 | Eutrophic | 1528.6 | chl-a-U | 23 | 1.98 | 132 | 12.246 | 22.784 | 21.588 | 28.33 | 5.907 | 12.251 |
| SD-MN-L-OAK_01 | Eutrophic | 400.73 | chl-a-U | 17 | 3.904 | 93.22 | 42.55 | 29.671 | 45.248 | 24.839 | 6.024 | 12.771 |
| SD-MN-L-OLIVER_01 | Eutrophic | 150.79 | chl-a-U | 26 | 1.671 | 22.73 | 8.33 | 4.005 | 9.722 | 5.583 | 1.095 | 2.255 |
| SD-MN-L-PUNISHED_WOMAN_01 | Eutrophic | 485.63 | chl-a-U | 24 | -0.16 | 24.04 | 13.775 | 6.765 | 12.656 | 6.645 | 1.356 | 2.806 |
| SD-MN-L-SUMMIT_01 | Eutrophic | 170.37 | chl-a-U | 14 | 0 | 146.19 | 28.615 | 105.752 | 54.129 | 54.384 | 14.535 | 31.4 |
| SD-MU-L-COAL_SPRINGS_01 | Eutrophic | 90.42 | chl-a-U | 3 | 10.56 | 17 | 16.67 | 3.22 | 14.743 | 3.627 | 2.094 | 9.009 |
| SD-MU-L-LITTLE_MOREAU_NO1_01 | Eutrophic | 33.85 | chl-a-U | 9 | 6.8 | 59.81 | 15.462 | 17.487 | 19.706 | 17.006 | 5.669 | 13.072 |
| SD-NI-L-RAHN_01 | Eutrophic | 16.47 | chl-a-U | 6 | 9.68 | 41.83 | 24.845 | 24.363 | 25.517 | 14.298 | 5.837 | 15.005 |
| SD-RD-L-TRAVERSE_01 | Eutrophic | 5082 | chl-a-U | 18 | 1.65 | 71.61 | 7.505 | 9.913 | 15.624 | 18.087 | 4.263 | 8.995 |
| SD-RD-L-WHITE_01 | Eutrophic | 169.11 | chl-a-U | 13 | 3.604 | 97.636 | 18.76 | 11.21 | 23.108 | 24.286 | 6.736 | 14.676 |
| SD-VM-L-E_VERMILLION_01 | Eutrophic | 569.26 | chl-a-U | 6 | 4.52 | 30.52 | 18.25 | 17.375 | 17.203 | 10.826 | 4.42 | 11.361 |
| SD-VM-L-HENRY_01 | Eutrophic | 2226.8 | chl-a-U | 16 | 3.96 | 121.88 | 38.83 | 48.153 | 46.576 | 37.091 | 9.273 | 19.764 |
| SD-VM-L-MARINDAHL_01 | Eutrophic | 106.4 | chl-a-U | 18 | -0.062 | 108.871 | 41.98 | 31.783 | 38.797 | 27.3 | 6.435 | 13.576 |
| SD-VM-L-SPIRIT_01 | Eutrophic | 1066.2 | chl-a-U | 6 | -9.9 | 34.32 | 11.139 | 12.093 | 12.247 | 14.85 | 6.062 | 15.584 |
| SD-VM-L-THOMPSON_01 | Eutrophic | 13888 | chl-a-U | 29 | -0.17 | 151.02 | 11.55 | 43.2 | 26.332 | 33.263 | 6.177 | 12.652 |
| SD-BA-L-WAGGONER_01 | Hypereutrophic | 81.55 | chl-a-U | 7 | 15.18 | 243.21 | 42.4 | 30.365 | 72.057 | 78.335 | 29.608 | 72.448 |
| SD-BF-L-BEAR_BUTTE_01 | Hypereutrophic | 199.41 | chl-a-U | 5 | 9.17 | 172.572 | 53.31 | 78.291 | 70.325 | 66.781 | 29.865 | 82.919 |
| SD-BS-L-ALBERT_01 | Hypereutrophic | 3655.4 | chl-a-U | 42 | -3.973 | 1772.76 | 31.089 | 106.552 | 106.953 | 279.177 | 43.078 | 86.998 |
| SD-BS-L-BEAVER_01 | Hypereutrophic | 240.5 | chl-a-U | 17 | -1.65 | 219.27 | 35.54 | 57.88 | 63.229 | 64.532 | 15.651 | 33.179 |
| SD-BS-L-Campbell_01 | Hypereutrophic | 954.04 | chl-a-U | 26 | 0 | 172.916 | 66.825 | 90.656 | 66.39 | 50.736 | 9.95 | 20.493 |
| SD-BS-L-HERMAN_01 | Hypereutrophic | 1283.2 | chl-a-U | 34 | 0 | 9619.5 | 13.115 | 16.942 | 303.321 | 1646.336 | 282.344 | 574.434 |
| SD-BS-L-W_OAKWOOD_01 | Hypereutrophic | 1126.6 | chl-a-U | 34 | -339.9 | 406.56 | 81.81 | 157.04 | 86.871 | 119.541 | 20.501 | 41.71 |
| SD-BS-L-WALL_01 | Hypereutrophic | 215 | chl-a-U | 23 | 1.32 | 13919.4 | 21.12 | 42.26 | 641.498 | 2894.85 | 603.618 | 1251.827 |
| SD-BS-L-WAUBAY_01 | Hypereutrophic | 9531.1 | chl-a-U | 14 | 1.347 | 1270.5 | 23.915 | 19.452 | 112.071 | 333.792 | 89.21 | 192.726 |

| AUID | classification | Acres | variable | n | min | max | median | iqr | mean | sd | se | ci |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SD-JA-L-CAVOUR_01 | Hypereutrophic | 233.22 | chl-a-U | 3 | 13.48 | 148.09 | 80.85 | 67.305 | 80.807 | 67.305 | 38.859 | 167.195 |
| SD-JA-L-CRESBARD_01 | Hypereutrophic | 66.9 | chl-a-U | 5 | 14.85 | 136.95 | 61.71 | 72.31 | 66.404 | 50.924 | 22.774 | 63.231 |
| SD-JA-L-FAULKTON_01 | Hypereutrophic | 103.72 | chl-a-U | 8 | 22.2 | 163.63 | 63.95 | 29.483 | 67.918 | 44.208 | 15.63 | 36.959 |
| SD-JA-L-MITCHELL_01 | Hypereutrophic | 669.24 | chl-a-U | 25 | 0.17 | 979 | 29.7 | 36.18 | 83.536 | 193.386 | 38.677 | 79.826 |
| SD-JA-L-ROSETTE_01 | Hypereutrophic | 14.57 | chl-a-U | 3 | 36.3 | 189 | 105.05 | 76.35 | 110.117 | 76.476 | 44.153 | 189.977 |
| SD-MI-L-ANDES_01 | Hypereutrophic | 4755.6 | chl-a-U | 4 | 117.48 | 459.25 | 316.44 | 287.852 | 302.402 | 178.521 | 89.26 | 284.067 |
| SD-MI-L-CORSICA_01 | Hypereutrophic | 97.08 | chl-a-U | 5 | 30.07 | 425.04 | 134.15 | 114.77 | 166.014 | 155.994 | 69.763 | 193.693 |
| SD-MI-L-GEDDES_01 | Hypereutrophic | 79.1 | chl-a-U | 8 | 30.57 | 361.35 | 86.125 | 138 | 134.074 | 113.007 | 39.954 | 94.476 |
| SD-MI-L-SULLY_01 | Hypereutrophic | 212.32 | chl-a-U | 6 | 107.25 | 204.6 | 145.035 | 41.002 | 150.81 | 35.301 | 14.412 | 37.046 |
| SD-VM-L-SILVER_01 | Hypereutrophic | 395.64 | chl-a-U | 2 | 396.66 | 525.53 | 461.095 | 64.435 | 461.095 | 91.125 | 64.435 | 818.724 |
| SD-VM-L-SWAN_01 | Hypereutrophic | 181.77 | chl-a-U | 6 | 37.62 | 276.1 | 60.825 | 57.335 | 99.017 | 91.349 | 37.293 | 95.865 |
| SD-VM-L-WHITEWOOD_01 | Hypereutrophic | 4465.3 | chl-a-U | 11 | 0 | 185.74 | 34.98 | 73.455 | 57.26 | 59.467 | 17.93 | 39.95 |
| SD-WH-L-ALLAN_DAM_01 | Hypereutrophic | 2.12 | chl-a-U | 5 | 95.33 | 263.45 | 227.7 | 130.13 | 195.33 | 77.71 | 34.753 | 96.489 |
| SD-BF-L-IRON_CREEK_01 | Mesotrophic | 23.01 | chl-a-U | 19 | 0 | 9.57 | 3.46 | 2.26 | 3.505 | 2.116 | 0.486 | 1.02 |
| SD-BF-L-MIRROR_EAST_01 | Mesotrophic | 3.79 | chl-a-U | 14 | -0.58 | 5.36 | 2.255 | 2.026 | 2.824 | 1.692 | 0.452 | 0.977 |
| SD-BF-L-NEWELL_01 | Mesotrophic | 153.39 | chl-a-U | 4 | 4.13 | 8.07 | 6.905 | 2.508 | 6.502 | 1.868 | 0.934 | 2.973 |
| SD-BF-L-NEWELL_CITY_01 | Mesotrophic | 23.04 | chl-a-U | 10 | 0.17 | 16.75 | 5.409 | 6.211 | 6.507 | 4.843 | 1.532 | 3.465 |
| SD-BF-L-ORMAN_01 | Mesotrophic | 6106.2 | chl-a-U | 12 | -1.34 | 10.07 | 2.35 | 2.582 | 3.332 | 3.27 | 0.944 | 2.077 |
| SD-BS-L-ENEMY_SWIM_01 | Mesotrophic | 2170 | chl-a-U | 16 | -2.06 | 15.67 | 7.035 | 4.558 | 6.977 | 4.121 | 1.03 | 2.196 |
| SD-BS-L-GOOSE_01 | Mesotrophic | 1947.8 | chl-a-U | 6 | 0.708 | 13.59 | 3.257 | 3.683 | 4.809 | 4.709 | 1.922 | 4.942 |
| SD-BS-L-KAMPESKA_01 | Mesotrophic | 5066.6 | chl-a-U | 19 | -15.84 | 18.15 | 4.29 | 4.159 | 2.97 | 6.926 | 1.589 | 3.338 |
| SD-BS-L-RUSH_01 | Mesotrophic | 2152.21 | chl-a-U | 2 | 2.48 | 6.6 | 4.54 | 2.06 | 4.54 | 2.913 | 2.06 | 26.175 |
| SD-CH-L-ANGOSTURA_01 | Mesotrophic | 4752.7 | chl-a-U | 10 | 0.25 | 9.86 | 3.875 | 4.858 | 4.052 | 3.144 | 0.994 | 2.249 |
| SD-CH-L-CANYON_01 | Mesotrophic | 38.44 | chl-a-U | 9 | 0.751 | 6.84 | 2.97 | 3.05 | 3.257 | 2.012 | 0.671 | 1.547 |
| SD-CH-L-COLD_BROOK_01 | Mesotrophic | 32.57 | chl-a-U | 14 | 1.297 | 5.46 | 2.585 | 1.325 | 2.717 | 1.198 | 0.32 | 0.692 |
| SD-CH-L-DEERFIELD_01 | Mesotrophic | 327.86 | chl-a-U | 23 | 0 | 20.3 | 2.31 | 1.386 | 3.269 | 3.941 | 0.822 | 1.704 |
| SD-CH-L-SHERIDAN_01 | Mesotrophic | 382.87 | chl-a-U | 18 | 0.44 | 13.987 | 5.23 | 4.4 | 6.334 | 3.858 | 0.909 | 1.918 |
| SD-CH-L-SYLVAN_01 | Mesotrophic | 18.11 | chl-a-U | 14 | -18.32 | 18.31 | 4.865 | 7.083 | 5.547 | 8.807 | 2.354 | 5.085 |
| SD-JA-L-BULLHEAD_02 | Mesotrophic | 157.43 | chl-a-U | 3 | 3.46 | 3.96 | 3.85 | 0.25 | 3.757 | 0.263 | 0.152 | 0.653 |

| AUID | classification | Acres | variable | n | min | max | median | iqr | mean | sd | se | ci |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SD-JA-L-FOUR_MILE_01 | Mesotrophic | 412.71 | chl-a-U | 3 | 5.04 | 6.43 | 5.28 | 0.695 | 5.583 | 0.743 | 0.429 | 1.846 |
| SD-JA-L-WYLIE_01 | Mesotrophic | 9.59 | chl-a-U | 3 | 0 | 6.85 | 2.75 | 3.425 | 3.2 | 3.447 | 1.99 | 8.563 |
| SD-BF-L-COX_01 | Oligotrophic | 5.09 | chl-a-U | 11 | 0 | 3.15 | 1.4 | 1.153 | 1.529 | 0.954 | 0.288 | 0.641 |
| SD-BF-L-MIRROR_WEST_01 | Oligotrophic | 4.3 | chl-a-U | 10 | 0.481 | 7.08 | 2.1 | 0.903 | 2.562 | 1.804 | 0.57 | 1.29 |
| SD-CH-L-COTTONWOOD_SPRINGS_01 | Oligotrophic | 29.88 | chl-a-U | 14 | 0.597 | 6.02 | 2.475 | 1.289 | 2.561 | 1.368 | 0.366 | 0.79 |
| SD-CH-L-PACTOLA_01 | Oligotrophic | 840.65 | chl-a-U | 18 | 0.458 | 4.95 | 1.57 | 1.28 | 1.909 | 1.063 | 0.251 | 0.529 |

*chl-a-U = Chlorophyll-a - uncorrected

# APPENDIX H

# STATE STATISTICAL SURVEY

## 2017 Lakes State-Scale Statistical Survey Summary Table

| State | Indicator/Stressor | Label | Estimated Population Size (Lakes) | Sites Sampled | Sites Assessed |
|---|---|---|---|---|---|
| SD | Trophic State | TROPHIC_STATE | 5339 | 43 | 43 |
| SD | Chlorophyll-a Condition | CHLA_COND | 5339 | 43 | 43 |
| SD | Benthic Macroinvertebrate Condition | BENT_MMI_COND_2017 | 5339 | 43 | 37 |
| SD | Zooplankton Condition | ZOOP_MMI_COND_2017 | 5339 | 43 | 43 |
| SD | Acidity Condition | ACID_COND | 5339 | 43 | 43 |
| SD | Atrazine Detection at 0.3 ppb | ATZ_DETECT | 5339 | 43 | 43 |
| SD | Atrazine Condition at 3.4 ppb Benchmark | ATZ_EPA_COND_3.4 | 5339 | 43 | 43 |
| SD | Microcystin Detection | MICX_DETECT | 5339 | 43 | 43 |
| SD | Microcystin Condition at 8 ppb Benchmark | MICX_EPA_COND | 5339 | 43 | 43 |
| SD | Dissolved Oxygen Condition | DIS_O2_CLS | 5339 | 43 | 43 |
| SD | Total Nitrogen Condition | NTL_COND | 5339 | 43 | 43 |
| SD | Total Phosphorus Condition | PTL_COND | 5339 | 43 | 43 |
| SD | Lake Drawdown Condition | DRAWDOWN_COND_2CAT_2017 | 5339 | 43 | 40 |
| SD | Lake Habitat Complexity Condition | LITRIPCVR_COND | 5339 | 43 | 40 |
| SD | Shallow Water Habitat Condition | LITCVR_COND | 5339 | 43 | 40 |
| SD | Lakeshore Disturbance Condition | RDIS_COND | 5339 | 43 | 40 |
| SD | Riparian Vegetation Condition | RVEG_COND | 5339 | 43 | 40 |

## 2017 Lakes State-Scale Statistical Survey Indicator Condition Estimates

| State | Indicator/Stressor | Category | Statistic | Metric Value (%) | Margin of Error (%) | Confidence Level |
|---|---|---|---|---|---|---|
| SD | Trophic State | Oligotrophic | Condition Estimate | 4 | 4 | 90% |
| SD | Trophic State | Mesotrophic | Condition Estimate | 18 | 14 | 90% |
| SD | Trophic State | Eutrophic | Condition Estimate | 53 | 23 | 90% |
| SD | Trophic State | Hypereutrophic | Condition Estimate | 24 | 16 | 90% |
| SD | Chlorophyll-a Condition | Good | Condition Estimate | 24 | 15 | 90% |
| SD | Chlorophyll-a Condition | Fair | Condition Estimate | 14 | 13 | 90% |
| SD | Chlorophyll-a Condition | Poor | Condition Estimate | 61 | 20 | 90% |
| SD | Benthic Macroinvertebrate Condition | Good | Condition Estimate | 43 | 24 | 90% |
| SD | Benthic Macroinvertebrate Condition | Fair | Condition Estimate | 27 | 16 | 90% |
| SD | Benthic Macroinvertebrate Condition | Poor | Condition Estimate | 18 | 14 | 90% |
| SD | Benthic Macroinvertebrate Condition | Not Assessed | Condition Estimate | 12 | 12 | 90% |
| SD | Zooplankton Condition | Good | Condition Estimate | 60 | 20 | 90% |
| SD | Zooplankton Condition | Fair | Condition Estimate | 14 | 11 | 90% |
| SD | Zooplankton Condition | Poor | Condition Estimate | 26 | 16 | 90% |
| SD | Acidity Condition | Good | Condition Estimate | 100 | 0 | 90% |
| SD | Atrazine Detection at 0.3 ppb | Not Detected | Condition Estimate | 17 | 13 | 90% |
| SD | Atrazine Detection at 0.3 ppb | Detected | Condition Estimate | 83 | 13 | 90% |
| SD | Atrazine Condition at 3.4 ppb Benchmark | At or Below Benchmark | Condition Estimate | 99 | 2 | 90% |
| SD | Atrazine Condition at 3.4 ppb Benchmark | Above Benchmark | Condition Estimate | 1 | 2 | 90% |
| SD | Microcystin Detection | Not Detected | Condition Estimate | 77 | 14 | 90% |
| SD | Microcystin Detection | Detected | Condition Estimate | 23 | 14 | 90% |
| SD | Microcystin Condition at 8 ppb Benchmark | At or Below Benchmark | Condition Estimate | 91 | 8 | 90% |
| SD | Microcystin Condition at 8 ppb Benchmark | Above Benchmark | Condition Estimate | 9 | 8 | 90% |
| SD | Dissolved Oxygen Condition | High (>=5 ppm) | Condition Estimate | 85 | 13 | 90% |
| SD | Dissolved Oxygen Condition | Moderate (>3 - <5 ppm) | Condition Estimate | 10 | 12 | 90% |
| SD | Dissolved Oxygen Condition | Low (<=3 ppm) | Condition Estimate | 6 | 6 | 90% |
| SD | Total Nitrogen Condition | Good | Condition Estimate | 9 | 8 | 90% |
| SD | Total Nitrogen Condition | Fair | Condition Estimate | 17 | 15 | 90% |
| SD | Total Nitrogen Condition | Poor | Condition Estimate | 73 | 17 | 90% |
| SD | Total Phosphorus Condition | Good | Condition Estimate | 6 | 5 | 90% |
| SD | Total Phosphorus Condition | Fair | Condition Estimate | 34 | 27 | 90% |
| SD | Total Phosphorus Condition | Poor | Condition Estimate | 60 | 25 | 90% |
| SD | Lake Drawdown Condition | Not Large | Condition Estimate | 97 | 3 | 90% |
| SD | Lake Drawdown Condition | Large | Condition Estimate | 2 | 2 | 90% |
| SD | Lake Drawdown Condition | Not Assessed | Condition Estimate | 1 | 1 | 90% |
| SD | Lake Habitat Complexity Condition | Good | Condition Estimate | 30 | 27 | 90% |
| SD | Lake Habitat Complexity Condition | Fair | Condition Estimate | 14 | 11 | 90% |
| SD | Lake Habitat Complexity Condition | Poor | Condition Estimate | 55 | 24 | 90% |
| SD | Lake Habitat Complexity Condition | Not Assessed | Condition Estimate | 1 | 1 | 90% |

| | | | | | | |
|---|---|---|---|---|---|---|
| SD | Shallow Water Habitat Condition | Good | Condition Estimate | 50 | 22 | 90% |
| SD | Shallow Water Habitat Condition | Fair | Condition Estimate | 8 | 6 | 90% |
| SD | Shallow Water Habitat Condition | Poor | Condition Estimate | 41 | 20 | 90% |
| SD | Shallow Water Habitat Condition | Not Assessed | Condition Estimate | 1 | 1 | 90% |
| SD | Lakeshore Disturbance Condition | Fair | Condition Estimate | 54 | 21 | 90% |
| SD | Lakeshore Disturbance Condition | Poor | Condition Estimate | 46 | 21 | 90% |
| SD | Lakeshore Disturbance Condition | Not Assessed | Condition Estimate | 1 | 1 | 90% |
| SD | Riparian Vegetation Condition | Good | Condition Estimate | 31 | 27 | 90% |
| SD | Riparian Vegetation Condition | Fair | Condition Estimate | 7 | 5 | 90% |
| SD | Riparian Vegetation Condition | Poor | Condition Estimate | 61 | 25 | 90% |
| SD | Riparian Vegetation Condition | Not Assessed | Condition Estimate | 1 | 1 | 90% |

## 2018-2019 Rivers and Streams State-Scale Statistical Survey Summary Table

| State | Indicator/Stressor | Label | Estimated Population Size (River/Stream Miles) | Sites Sampled | Sites Assessed |
|---|---|---|---|---|---|
| SD | Fish Multimetric Index Condition | FISH_MMI_COND | 10614 | 58 | 44 |
| SD | Benthic Multimetric Index Condition | BENT_MMI_COND | 10614 | 58 | 58 |
| SD | Acidity Condition | ACID_COND | 10614 | 58 | 58 |
| SD | Total Nitrogen Condition | NTL_COND | 10614 | 58 | 58 |
| SD | Total Phosphorus Condition | PTL_COND | 10614 | 58 | 58 |
| SD | Salinity Condition | SAL_COND | 10614 | 58 | 58 |
| SD | Instream Cover Condition | INSTRMCVR_COND | 10614 | 58 | 58 |
| SD | Riparian Disturbance Condition | RIPDIST_COND | 10614 | 58 | 58 |
| SD | Riparian Vegetation Condition | RIPVEG_COND | 10614 | 58 | 58 |
| SD | Streambed Sediment Condition | BEDSED_COND | 10614 | 58 | 58 |
| SD | Cylindrospermopsin Condition | CYLSPER_EPA_COND | 10614 | 58 | 58 |
| SD | Cylindrospermopsin Detection | CYLSPER_DETECT | 10614 | 58 | 58 |
| SD | Microcystin Detection | MICX_DETECT | 10614 | 58 | 58 |
| SD | Microcystin Condition at 8 ppb Benchmark | MICX_EPA_COND | 10614 | 58 | 58 |
| SD | Enterococci Condition at 1,289 calibrator cell equivalents/100 ml Benchmark | ENT_1X_STV_COND | 10614 | 58 | 49 |
| SD | Mercury in Fish Tissue Condition at 300 ppb Benchmark | HG_COND | 10614 | 58 | 24 |

## 2018-2019 Rivers and Streams State-Scale Statistical Survey Indicator Condition Estimates

| State | Indicator/Stressor | Category | Statistic | Metric Value (%) | Margin of Error (%) | Confidence Level |
|---|---|---|---|---|---|---|
| SD | Fish Multimetric Index Condition | Good | Condition Estimate | 5 | 4 | 90% |
| SD | Fish Multimetric Index Condition | Fair | Condition Estimate | 14 | 8 | 90% |
| SD | Fish Multimetric Index Condition | Poor | Condition Estimate | 58 | 10 | 90% |
| SD | Fish Multimetric Index Condition | Not Assessed | Condition Estimate | 23 | 9 | 90% |
| SD | Benthic Multimetric Index Condition | Good | Condition Estimate | 23 | 9 | 90% |
| SD | Benthic Multimetric Index Condition | Fair | Condition Estimate | 26 | 10 | 90% |
| SD | Benthic Multimetric Index Condition | Poor | Condition Estimate | 52 | 11 | 90% |
| SD | Acidity Condition | Good | Condition Estimate | 95 | 7 | 90% |
| SD | Acidity Condition | Fair | Condition Estimate | 5 | 7 | 90% |
| SD | Total Nitrogen Condition | Good | Condition Estimate | 10 | 6 | 90% |
| SD | Total Nitrogen Condition | Fair | Condition Estimate | 11 | 5 | 90% |
| SD | Total Nitrogen Condition | Poor | Condition Estimate | 79 | 7 | 90% |
| SD | Total Phosphorus Condition | Good | Condition Estimate | 24 | 9 | 90% |
| SD | Total Phosphorus Condition | Fair | Condition Estimate | 14 | 8 | 90% |
| SD | Total Phosphorus Condition | Poor | Condition Estimate | 62 | 10 | 90% |
| SD | Salinity Condition | Good | Condition Estimate | 30 | 9 | 90% |
| SD | Salinity Condition | Fair | Condition Estimate | 32 | 11 | 90% |
| SD | Salinity Condition | Poor | Condition Estimate | 37 | 12 | 90% |
| SD | Instream Cover Condition | Good | Condition Estimate | 62 | 10 | 90% |
| SD | Instream Cover Condition | Fair | Condition Estimate | 22 | 9 | 90% |
| SD | Instream Cover Condition | Poor | Condition Estimate | 16 | 7 | 90% |
| SD | Riparian Disturbance Condition | Low | Condition Estimate | 5 | 3 | 90% |
| SD | Riparian Disturbance Condition | Moderate | Condition Estimate | 49 | 10 | 90% |
| SD | Riparian Disturbance Condition | High | Condition Estimate | 46 | 10 | 90% |
| SD | Riparian Vegetation Condition | Good | Condition Estimate | 43 | 11 | 90% |
| SD | Riparian Vegetation Condition | Fair | Condition Estimate | 17 | 8 | 90% |
| SD | Riparian Vegetation Condition | Poor | Condition Estimate | 40 | 9 | 90% |
| SD | Streambed Sediment Condition | Good | Condition Estimate | 36 | 10 | 90% |
| SD | Streambed Sediment Condition | Fair | Condition Estimate | 54 | 11 | 90% |
| SD | Streambed Sediment Condition | Poor | Condition Estimate | 10 | 4 | 90% |
| SD | Cylindrospermopsin Condition | At or Below Benchmark | Condition Estimate | 100 | 0 | 90% |
| SD | Cylindrospermopsin Detection | Not Detected | Condition Estimate | 99 | 2 | 90% |
| SD | Cylindrospermopsin Detection | Detected | Condition Estimate | 1 | 2 | 90% |
| SD | Microcystin Detection | Not Detected | Condition Estimate | 76 | 10 | 90% |
| SD | Microcystin Detection | Detected | Condition Estimate | 24 | 10 | 90% |
| SD | Microcystin Condition at 8 ppb Benchmark | At or Below Benchmark | Condition Estimate | 100 | 0 | 90% |
| SD | Enterococci Condition at 1,289 calibrator cell equivalents/100 ml Benchmark | At or Below Benchmark | Condition Estimate | 79 | 8 | 90% |
| SD | Enterococci Condition at 1,289 calibrator cell equivalents/100 ml Benchmark | Above Benchmark | Condition Estimate | 7 | 6 | 90% |

| | | | | | | |
|---|---|---|---|---|---|---|
| SD | Enterococci Condition at 1,289 calibrator cell equivalents/100 ml Benchmark | Not Assessed | Condition Estimate | 14 | 7 | 90% |
| SD | Mercury in Fish Tissue Condition at 300 ppb Benchmark | At or Below Benchmark | Condition Estimate | 31 | 10 | 90% |
| SD | Mercury in Fish Tissue Condition at 300 ppb Benchmark | Above Benchmark | Condition Estimate | 3 | 3 | 90% |
| SD | Mercury in Fish Tissue Condition at 300 ppb Benchmark | Not Assessed | Condition Estimate | 66 | 10 | 90% |

# APPENDIX I

# SD WATERS FFY2024 BRIDGE GAP METRIC

## South Dakota Bridge Gap Metric FFY2024

| AUID | Cause | Priority Status |
|---|---|---|
| SD-BS-R-SKUNK_01 | ESCHERICHIA COLI (E. COLI) | Complete |
| SD-BS-R-BIG_SIOUX_04 | TOTAL SUSPENDED SOLIDS (TSS) | Complete |
| SD-BS-R-BIG_SIOUX_05 | TOTAL SUSPENDED SOLIDS (TSS) | Complete |
| SD-BS-R-BIG_SIOUX_06 | TOTAL SUSPENDED SOLIDS (TSS) | Complete |
| SD-BS-L-SCOTT_01 | MERCURY IN FISH TISSUE | In Progress |
| SD-CH-L-NEW_WALL_01 | MERCURY IN FISH TISSUE | In Progress |
| SD-VM-L-THOMPSON_01 | CHLOROPHYLL-A | In Progress |
| SD-BS-R-MEDARY_01 | ESCHERICHIA COLI (E. COLI) | Complete |
| SD-JA-R-FIRESTEEL_01 | ESCHERICHIA COLI (E. COLI) | In Progress |
| SD-VM-R-VERMILLION_01 | ESCHERICHIA COLI (E. COLI) | In Progress |
| SD-VM-R-VERMILLION_02 | ESCHERICHIA COLI (E. COLI) | In Progress |
| SD-BS-R-BEAVER_01 | ESCHERICHIA COLI (E. COLI) | In Progress |
| SD-BS-R-BIG_SIOUX_13 | ESCHERICHIA COLI (E. COLI) | Complete |
| SD-BS-R-BIG_SIOUX_14 | ESCHERICHIA COLI (E. COLI) | Complete |
| SD-BS-R-BIG_SIOUX_15 | ESCHERICHIA COLI (E. COLI) | Complete |
| SD-BS-R-BIG_SIOUX_16 | ESCHERICHIA COLI (E. COLI) | Complete |
| SD-BS-R-BIG_SIOUX_17 | ESCHERICHIA COLI (E. COLI) | Complete |
| SD-BS-R-FLANDREAU_01 | ESCHERICHIA COLI (E. COLI) | Complete |
| SD-BS-R-HIDEWOOD_01 | ESCHERICHIA COLI (E. COLI) | Complete |
| SD-BS-R-PEG_MUNKY_RUN_01 | ESCHERICHIA COLI (E. COLI) | Complete |
| SD-BS-R-SPLIT_ROCK_01_USGS | ESCHERICHIA COLI (E. COLI) | Complete |
| SD-BS-R-SPRING_01 | ESCHERICHIA COLI (E. COLI) | Complete |
| SD-BS-R-WILLOW_01 | ESCHERICHIA COLI (E. COLI) | Complete |
| SD-BS-R-UNION_01 | ESCHERICHIA COLI (E. COLI) | Complete |
| SD-CH-R-RAPID_03 | ESCHERICHIA COLI (E. COLI) | In Progress |

# APPENDIX J

# REFERENCES TO URLs

(Current as of 01/23/2024)

| # | URL |
|---|---|
| 1 | https://www.epa.gov/waterdata/assessment-and-total-maximum-daily-load-tracking-and-implementation-system-attains |
| 2 | https://sdgis.sd.gov/portal/apps/experiencebuilder/experience/?id=60c4f285d6c1458db0f6eac2b4f26c04 |
| 3 | https://apps.sd.gov/NR92WQMAP |
| 4 | https://sdlegislature.gov/Rules/Administrative/74:51 |
| 5 | https://sdlegislature.gov/Rules/Administrative/74:51:01:55 |
| 6 | https://sdlegislature.gov/Rules/Administrative/74:51:01 |
| 7 | https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/waterqualitystandards/swqmonitoring.aspx |
| 8 | https://www.ecfr.gov/cgi-bin/text-idx?SID=84083f4206da829ac7b485da614bdae3&mc=true&node=ap40.24.122_164.d&rgn=div9 |
| 9 | https://danr.sd.gov/Conservation/WatershedProtection/ReportsPublications/DANR_QAPP_2022.pdf |
| 10 | https://danr.sd.gov/Conservation/WatershedProtection/ReportsPublications.aspx |
| 11 | https://danr.sd.gov/Conservation/WatershedProtection/Projects/StatewideLakeAssessment.aspx |
| 12 | https://danr.sd.gov/Conservation/WatershedProtection/default.aspx |
| 13 | https://danr.sd.gov/Conservation/WatershedProtection/VolunteerActivities.aspx |
| 14 | https://danr.sd.gov/Conservation/WatershedProtection/ReportsPublications/ExternalPartyQAPP.pdf |
| 15 | https://danr.sd.gov/Conservation/WatershedProtection/HAB.aspx |
| 16 | https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_2020_IR_final.pdf |
| 17 | https://www.pca.state.mn.us/sites/default/files/wq-lar3-01.pdf |
| 18 | https://danr.sd.gov/Conservation/WatershedProtection/docs/HABsResponse.pdf |
| 19 | https://sdbit.maps.arcgis.com/apps/webappviewer/index.html?id=ec7a545532a24a3599a46cee428def48 |
| 20 | https://www.epa.gov/sites/default/files/2019-05/documents/hh-rec-criteria-habs-document-2019.pdf |
| 21 | https://sdlegislature.gov/Rules/Administrative/28278 |
| 22 | https://sdlegislature.gov/Rules/Administrative/28279 |
| 23 | https://www.epa.gov/system/files/documents/2021-08/final-tsd-implement-2019-rwqc.pdf.pdf |
| 24 | https://www.epa.gov/national-aquatic-resource-surveys |
| 25 | https://danr.sd.gov/Conservation/WatershedProtection/TMDL/default.aspx |
| 26 | https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/waterqualitystandards/fishflesh.aspx |
| 27 | https://doh.sd.gov/topics/food-lodging-safety/preventing-foodborne-illness/fish-consumption-advisories/ |
| 28 | https://danr.sd.gov/Funding/EnviromentalFunding/docs/2024%20CW%20IUP%20Final.pdf |
| 29 | https://danr.sd.gov/Funding/EnviromentalFunding/default.aspx |
| 30 | https://www.epa.gov/nps/basic-information-about-nonpoint-source-nps-pollution |

| | |
|---|---|
| 31 | https://danr.sd.gov/Conservation/WatershedProtection/docs/NPSMgmtPlan19.pdf |
| 32 | https://danr.sd.gov/Conservation/WatershedProtection/Section319/Projects.aspx |
| 33 | https://danr.sd.gov/public/default.aspx |
| 34 | https://danr.sd.gov/Conservation/WatershedProtection/RiparianBuffer.aspx |

# APPENDIX K

# PUBLIC COMMENTS

REGION 8
DENVER, CO 80202

Ref: 8WD-CWQ

**SENT VIA EMAIL**

Shannon Minerich
South Dakota Department of Agriculture and Natural Resources
Water Quality Department
shannon.minerich@state.sd.us

Re: EPA Comments on the South Dakota 2024 Integrated Report for Surface Water Quality Assessment and Section 303(d) List of Waters Needing Total Maximum Daily Loads

Dear Ms. Minerich:

Thank you for notifying the U.S. Environmental Protection Agency (EPA) Region 8 of the public comment period on the *South Dakota 2024 Integrated Report for Surface Water Quality Assessment and Section 303(d) List of Waters Needing Total Maximum Daily Loads (IR).*[1] We appreciate the opportunity to review the draft IR and commend the South Dakota Department of Agriculture and Natural Resources (SDDANR) for its work to assess and document water quality conditions in the state.

We look forward to receiving your final 2024 IR and continuing our cooperative efforts. If you have any questions regarding these comments, please contact Liz Rogers at (303) 312-6974 or rogers.liz@epa.gov.

[1] See announcement: Public Notice Requesting Public Comment on the State of South Dakota's Draft 2024 Integrated Report for Surface Water Quality Assessment and Section 303(d) List of Waters needing Total Maximum Daily Loads. https://danr.sd.gov/public/

EPA's detailed comments can be found in the enclosure.

Sincerely,

ANDREW TODD

Digitally signed by ANDREW TODD
Date: 2024.02.29 07:40:07 -07'00'

Andrew Todd, PhD.
Supervisor, Water Quality Section

Enclosure: EPA Comments on South Dakota's Draft 2024 Integrated Report

EPA Comments on South Dakota's Draft 2024 Integrated Report

The EPA commends South Dakota (SD) for entering the results of the statistical survey work that the state has accomplished into ATTAINS. The EPA appreciates the state's commitment to this long-term national level work that is a high priority for the EPA.

ATTAINS Related Comments

The EPA's Assessment and Total Maximum Daily Load Tracking and Implementation System (ATTAINS) database includes state-reported information on support of designated uses in assessed waters, causes and sources of impairment, identifies impaired waters, and tracks TMDL status. Since 2008, the EPA has expected states to use ATTAINS for electronic submission of the IR. The EPA uses the information stored in ATTAINS to develop and publish the National Water Quality Inventory Report to Congress (CWA Section 305(b)); determine states' variable portion of the Section 106 grant allocation formula; inform water quality decisions; and conduct national analyses. For states interested in publishing a hard copy IR, it is important to ensure consistency between the hard copy reports and the electronic data submitted to the EPA for review and approval in ATTAINS.

- The one minor discrepancy the EPA noted between the state's hard copy IR (IR Report) compared to electronic results generated from ATTAINs was that the Executive Summary states that 6,147 stream miles have been assessed while the ATTAINs report shows 6,332 miles (the difference of 185.47 miles is accounted for adding in Category 3).

- The EPA also suggests that the state consider adding in stream miles and lake acres to Summary Tables 10 and 13, to better align with information available to the public in How's My Waterway regarding support and non-support status.

- The current list in ATTAINS may benefit from some clean-up of the parameter list. For example, waters are listed separately for both selenium and selenium total; for nitrate, nitrate/nitrite and nitrogen, nitrate; and for ammonia, ammonia-nitrogen, and nitrogen, ammonia. We recommend identifying a single cause that be consistently applied.

Criteria Information

- Editorial Change: Table 2, Footnote 2 suggests the DO criteria are daily maximum criteria. Should this be corrected to say daily minimum?
- From ATTAINS, there are several waters where the coldwater or warm water permanent fish life or immersion recreation is listed as "meeting" the criteria for nitrate or nitrate-nitrogen. Please clarify the applicable nitrate criterion that applies to these use classes. We did not see one listed in Table 2 (page 12).

Assessment Methodology

The EPA regulations at 40 CFR 130.7(b)(6) require states to document decisions to list or not list waters, including a description of the methodology used to develop the 303(d) list. These methodologies should be based on sound science and include technical procedures that are clear, complete and well-documented. While the EPA considers state methodologies as part of its review of Section 303(d) lists and acts on those lists, the EPA neither approves nor disapproves state methodologies.

The EPA has reviewed SD's assessment methods and have identified the following items for SD's consideration when the state reviews and updates the methodology for future assessments and IRs:

- Stream Assessment Methodology for Nutrient-Related Narrative Standards: The EPA recommends utilizing Category 3 for Assessment Units that do not have sufficient data to make an attainment determination, instead of the user-defined Category 2N. This would better align with the EPA's recommended use of the current assessment categories. Category 3 is defined as: Insufficient data to determine whether any designated uses are met.
    - The EPA also recommends SD add clarifying language that describes the different data and information considered to reach the attainment decisions summarized in Tables 6 and 7.
    - Please indicate whether there have been any changes to the status of 2N assessments from the previous cycle.
    - Table 5 titled Nutrient Targets for Streams in Ecoregions 43 and 46, the total phosphorus and total nitrogen targets for Grass Plains and Temperate Plains appear to have been switched since the 2022 IR, please correct.

    - Microcystin and Cylindrospermopsin Recreation Assessment: When evaluating whether a waterbody is impaired for cyanotoxins, the state's assessment method states: "Not more than 3 excursions in a recreation season in more than 3 years within a 10-year assessment period."[underline added] This approach would allow for cyanotoxin concentrations to exceed the applicable water quality criterion for up to 30 days per summer recreation season for more than 3 years before a lake is listed as impaired. While the EPA understands that toxin concentrations may vary year to year for a given lake/reservoir, we are concerned about the potential impacts to human health and recreational use of these waters.

- Does SD have a process to review the magnitude of the toxin exceedance without requiring 4 years of data to evaluate whether the waterbody should be considered impaired based on overwhelming evidence?
- Please clarify how the exceedance frequency included in the state's current water quality criteria aligns with the current assessment approach for recreational use assessments.

- Continuous Data: Please describe how the state analyzes and interprets continuous data against the applicable criteria.

Delisting Rationales

- For any waterbodies that SD is proposing to delist that are not linked to a TMDL (Category 4a waters), please provide a short summary describing the data used to delist the waterbody as impaired.

TMDL Comments

The table below identifies several comments or suggested corrections associated with TMDLs, including completed TMDLs (category 4a), impaired waters, and the bridge priorities. The checkmarks in the last four columns identify the report sections that may require updating or verification once the change in the "Comment" column has been evaluated and addressed.

| AUID | | Parameter | Comment | App A | App B | App C | App D |
|---|---|---|---|---|---|---|---|
| 1 | SD-BS-R-BIG_SIOUX_14 | *E. coli* | This AUID-parameter combination has not been addressed by a TMDL and remains category 5. Specifically, TMDL 34094 is written for fecal coliform and not *E. coli*. Recommend removing from appendix A (as this is not 4a), add to appendix D (cat 5), and check appendix C and ATTAINS entry. This is also a 2022 Bridge Metric priority (Appendix I). | ✓ | | ✓ | ✓ |
| 2 | SD-BS-R-BIG_SIOUX_15 | *E. coli* | This AUID-parameter combination has not been addressed by a TMDL and remains category 5. Specifically, TMDL 34095 is written for fecal coliform and not *E. coli*. Recommend removing from appendix A (as this is not 4a), add to appendix D (cat 5), and check appendix C and ATTAINS entry. This is also a 2022 Bridge Metric priority (Appendix I). | ✓ | | ✓ | ✓ |
| 3 | SD-BS-R-BIG_SIOUX_16 | *E. coli* | This AUID-parameter combination has not been addressed by a TMDL and remains | ✓ | | ✓ | ✓ |

| AUID | | Parameter | Comment | App A | App B | App C | App D |
|---|---|---|---|---|---|---|---|
| | | | category 5. Specifically, TMDL 34096 is written for fecal coliform and not *E. coli*. Recommend removing from appendix A (as this is not 4a), add to appendix D (cat 5), and check appendix C and ATTAINS entry. This is also a 2022 Bridge Metric priority (Appendix I). | | | | |
| 4 | SD-BS-R-BIG_SIOUX_17 | *E. coli* | This AUID-parameter combination has not been addressed by a TMDL and remains category 5. Specifically, TMDL 34098 is written for fecal coliform and not *E. coli*. Recommend removing from appendix A (as this is not 4a), add to appendix D (cat 5), and check appendix C and ATTAINS entry. This is also a 2022 Bridge Metric priority (Appendix I). | ✓· | | ✓· | ✓· |
| 5 | SD-BS-R-MEDARY_01 | *E. coli* | Please correct the TMDL ID in Appendix A. This should read R8-SD-**2023-01** (dash rather than an underscore at the end). | ✓· | | | |
| 6 | SD-CH-L-DURKEE_01<br>SD-GR-L-EAST_LEMMON_01<br>SD-JA-L-STINK_01<br>SD-MI-L-POTTS_01 | Hg in fish | TMDLs were completed for these four lakes: R8-SD-2022-07 (approved 9/13/22). Recommend adding to appendix B (2024 delisting; already in appendix A), removing from appendix D, and check appendix C and ATTAINS entry. | | ✓· | ✓· | ✓· |
| 7 | SD-MN-L-SUMMIT_01<br>SD-MN-L-ALICE_01 | pH | These AUID-parameter combinations are identified in appendix C as 4a overall; however, pH is listed as cat 5 in ATTAINS. Please review overall cat 4a listings and update. | | | ✓· | ✓· |
| 9 | SD-BF-R-HORSE_01_USGS<br>SD-BS-L-CLEAR_D_01<br>SD-BS-L-TWIN_01<br>SD-BS-R-BIG_SIOUX_02<br>SD-MN-L-FISH_01<br>SD-MN-L-OAK_01 | *E. coli* | TMDL priority listed as low in appendix D; however, the parameter is identified for high priority on page 17. Recommend updating priority to high in appendix D. | | | | ✓· |
| 10 | SD-MU-R-MOREAU_01 | TSS | TMDL priority listed as low in appendix D; however, the parameter is identified for high priority on page 17. Recommend updating priority to high in appendix D. | | | | ✓· |
| 11 | SD-CH-L-HORSETHIEF_01 | Chl-*a* | ATTAINS does not include a priority ranking for chl-*a*, but appendix D lists as low. Please review and update ATTAINS entry. | | | | ✓· |
| 12 | SD-MN-R-LAC_QUI_PARLE_W_BR_01 | *E. coli* | AUID-parameter combination is <u>not</u> in ATTAINS as a 2022 bridge metric priority. Recommend removing from Appendix I. | | | | · |

**Pending GIS review/corrections:**

1. SD-BF-R-SPEARFISH no segment 03; segments 04 and 05 do not connect (in description or on map); please also check spelling of Higgins/Higgens in segments 05/06).

2. SD-BS-R-SIXMILE_01 (North Deer Creek to S30, T112N, R48W)
   GIS does not match segment description (it currently does not end at North Deer Creek)

3. Lakes GIS layer: The Columbia Road Reservoir entry has an AUID with an "-R-": SD-JA-R-JAMES_01. In addition, river segment of _01 uses Mud Lake Reservoir in the Location field rather than Columbia Road Reservoir; please check.

4. SD-MI-L-PLATTE_01 (Platte Lake, Charles Mix County) GIS includes two lakes, please remove extraneous lake in GIS.

5. SD-MI-R-CROW_01 (Bedashosha Lake to Jerauld County line) GIS segment goes through Bedashosha Lake (recommend updating segment description or GIS layer for downstream extent)

6. SD-MU-R-RABBIT_01 (Antelope Creek to Moreau River) GIS segment does not match description. GIS ends at South Reinoehl Creek (yellow line), not Antelope Creek (circled in pink).

7. SD-VM-R-VERMILLION_E_FORK_01 and _02: _ SD-VM-R-VERMILLION_E_FORK_01 Little Vermillion River to mouth GIS begins downstream of Little Vermillion River. SD-VM-R-VERMILLION_E_FORK_02 GIS extends beyond Little Vermillion. The segment breaks around Reservoir; please consider listing as two different segments.

8. SD-MN-R-WHETSTONE_S_FORK_01 and _02. GIS for segment 02 (Lake Farley to mouth; yellow line) begins upstream of Lake Farley, which does not have an AUID. Recommend beginning segment 02 at the outlet of Lake Farley and assigning Lake Farley an AUID.

**DANR Responses to EPA Comments:**

**EPA Comments on South Dakota's Draft 2024 Integrated Report**

The EPA commends South Dakota (SD) for entering the results of the statistical survey work that the state has accomplished into ATTAINS. The EPA appreciates the state's commitment to this long-term national level work that is a high priority for the EPA.

**ATTAINS Related Comments**

The EPA's Assessment and Total Maximum Daily Load Tracking and Implementation System (ATTAINS) database includes state-reported information on support of designated uses in assessed waters, causes and sources of impairment, identifies impaired waters, and tracks TMDL status. Since 2008, the EPA has expected states to use ATTAINS for electronic submission of the IR. The EPA uses the information stored in ATTAINS to develop and publish the National Water Quality Inventory Report to Congress (CWA Section 305(b)); determine states' variable portion of the Section 106 grant allocation formula; inform water quality decisions; and conduct national analyses. For states interested in publishing a hard copy IR, it is important to ensure consistency between the hard copy reports and the electronic data submitted to the EPA for review and approval in ATTAINS.

• The one minor discrepancy the EPA noted between the state's hard copy IR (IR Report) compared to electronic results generated from ATTAINs was that the Executive Summary states that 6,147 stream miles have been assessed while the ATTAINs report shows 6,332 miles (the difference of 185.47 miles is accounted for adding in Category 3).

• The EPA also suggests that the state consider adding in stream miles and lake acres to Summary Tables 10 and 13, to better align with information available to the public in How's My Waterway regarding support and non-support status.
**DANR Response: By definition of Category 3, these waters are either not assessed or have insufficient information to make a support determination. DANR understands EPA's point that the miles/acres in Category 3 are part of the waters included in the Attains universe; however, these waters are not assessed. It has been a long-standing practice that DANR only include Categories 1, 2, 4, and 5 in assessed waters mileage and acreage. Clarifying language has been added to page 33.**

• The current list in ATTAINS may benefit from some clean-up of the parameter list. For example, waters are listed separately for both selenium and selenium total; for nitrate, nitrate/nitrite and nitrogen, nitrate; and for ammonia, ammonia-nitrogen, and nitrogen, ammonia. We recommend identifying a single cause that be consistently applied.
**DANR Response: Most of the parameters listed above have been reconciled with a single parameter name.**

**Criteria Information**

• Editorial Change: Table 2, Footnote 2 suggests the DO criteria are daily maximum criteria. Should this be corrected to say daily minimum?
• From ATTAINS, there are several waters where the coldwater or warm water permanent fish life or immersion recreation is listed as "meeting" the criteria for nitrate or nitrate-nitrogen. Please

clarify the applicable nitrate criterion that applies to these use classes. We did not see one listed in Table 2 (page 12).
**DANR Response: Table 2 has been updated to reflect DO criteria are a daily minimum. Parameters have been reviewed and updated in Attains to ensure the parameter is associated with the applicable beneficial use.**

**Assessment Methodology**

The EPA regulations at 40 CFR 130.7(b)(6) require states to document decisions to list or not list waters, including a description of the methodology used to develop the 303(d) list. These methodologies should be based on sound science and include technical procedures that are clear, complete and well-documented. While the EPA considers state methodologies as part of its review of Section 303(d) lists and acts on those lists, the EPA neither approves nor disapproves state methodologies.

The EPA has reviewed SD's assessment methods and have identified the following items for SD's consideration when the state reviews and updates the methodology for future assessments and IRs:

• **Stream Assessment Methodology for Nutrient-Related Narrative Standards:**
The EPA recommends utilizing Category 3 for Assessment Units that do not have sufficient data to make an attainment determination, instead of the user-defined Category 2N. This would better align with the EPA's recommended use of the current assessment categories. Category 3 is defined as: Insufficient data to determine whether any designated uses are met.
**DANR Response: DANRs use of user-defined Category 2N to describe support status of nutrient-related narrative standards and associated designated uses dates back to the 2014 IR cycle. During the development of this listing method the decision was made to label a stream segment as Category 2N mainly because other core water quality parameters are also being used in the overall aquatic life support determinations. DANR did not want the reader to think that just because information required to address nutrient-related narrative standards was insufficient that the overall segment assessment was insufficient (i.e., category 3). This decision was primarily based on the restriction posed by single category reporting. Category 2N allowed DANR and the reader to recognize that more information is necessary to assess nutrients but uses could be met based on other water quality criteria.**

**DANR understands EPA's recommendation to use Category 3 in instances when there is insufficient data to assess for nutrients. While Category 3 could still be confused with the overall support status of the stream segment it would align with single parameter status (i.e., meeting criteria or insufficient data) in Attains. DANR has not included nutrients, biotic integrity, or habitat condition as parameters in Attains but will consider doing so for the 2026 reporting cycle. DANR would also like to visit with EPA about the idea of not using a category to describe the assessment status, rather provide a simple "insufficient data" label in Tables 6 and 7 to avoid confusion with single category reporting. DANR would like to work with EPA in the interim of the 2026 reporting cycle to resolve this issue and ensure information is accurately portrayed to minimize potential confusion.**

- The EPA also recommends SD add clarifying language that describes the different data and information considered to reach the attainment decisions summarized in Tables 6 and 7.
**DANR Response: A decision tree was developed (Table 4) to guide the support determination process using available IBI and HCI information. While the stepwise process was designed to be**

**straightforward, the results of available data can be complex, often warranting further data collection to make an attainment decision. For instance, several stream segments have multiple years of data and assessment results often differ from year to year. In these cases, it is necessary to revisit sites and gain IBI and HCI information to determine support status. An attempt was made to explain certain reasons for leaving a stream segment in Category 2N at the bottom right corner of Table 4. In addition, further explanation for Category 2N decisions is provided in the paragraph immediately under Table 5. DANR also incorporates best professional judgement in the assessment process when necessary.**

**DANR interprets EPA's question with regards to data and information clarification for attainment decisions in Tables 6 and 7 as specific to the column entitled "IBI/HCI Available." The intention of this column is to inform the reader if any IBI and or HCI information is available to begin the assessment process. In the case where the answer is YES and the support status is anything other than Category 2N (i.e., Full or Nonsupport) it means there was adequate IBI and HCI information to make a support determination in accordance with the listing methodology. Inversely, if the answer is YES but the assessment status is Category 2N, it signifies that more IBI and HCI information is necessary to make a support determination. As aforementioned, the need for more IBI and HCI information is likely due to conflicting results from multiple site visits, but it can be due to the lack of a single parameter such as HCI. During the development of the methodology this column was inserted into the table(s) to help DANR track streams that need to be visited to acquire information required to generate IBI and HCI values to make support determinations.**

**In conclusion, certain aspects of the nutrient assessment can be difficult to clarify in the methodology as individual stream IBI and HCI information has specific challenges. DANR would like to consult with EPA in the interim of the 2026 reporting cycle to determine the best path forward for adding clarification or evolving the stream nutrient assessment methodology. One of the learning lessons to this point is that IBI information and to some degree HCI can change annually depending on several environmental factors. Requiring multiple stream visits in certain cases provides a means to establish a pattern and enhance the support decision process. This direction can take considerable time to gain the necessary information to make support determinations. DANR believes it is worth having ample data and information no matter the timeframe rather than risking an inaccurate support determination.**

- Please indicate whether there have been any changes to the status of 2N assessments from the previous cycle.

**DANR Response: The first sentence of the last paragraph on page 25 or the paragraph above Table 6 states: "There has been no change in the status of 2N assessments from 2020-2023. Therefore, the 2N assessment information below is the same as what was supplied in the 2022 IR". DANR is working to increase 2N assessment capacity for the 2026 reporting cycle.**

- Table 5 titled Nutrient Targets for Streams in Ecoregions 43 and 46, the total phosphorus and total nitrogen targets for Grass Plains and Temperate Plains appear to have been switched since the 2022 IR, please correct.

**DANR Response: The nutrient targets were incorrect (swapped) in the 2022 IR. DANR corrected them for the 2024 IR.**

**Microcystin and Cylindrospermopsin Recreation Assessment:**

When evaluating whether a waterbody is impaired for cyanotoxins, the state's assessment method states: "Not more than 3 excursions in a recreation season in more than 3 years within a 10-year assessment period."[underline added] This approach would allow for cyanotoxin concentrations to exceed the applicable water quality criterion for up to 30 days per summer recreation season for more than 3 years before a lake is listed as impaired. While the EPA understands that toxin concentrations may vary year to year for a given lake/reservoir, we are concerned about the potential impacts to human health and recreational use of these waters.

**DANR Response: DANR developed a comprehensive Harmful Algal Blooms (HABs) program in 2020. The program includes cyanotoxin monitoring, a response plan, and web-based information and tools (interactive map) to increase public awareness. Direction to this information is provided in the Microcystin and Cylindrospermopsin-Recreation Assessment methodology. This information was placed in this section because it was designed specifically to address annual HABs to minimize potential recreational impacts to human health. The cyanotoxin based listing method provides a longer-term assessment of a given waterbody to determine overall recreational use support consistent with water quality standards and EPA guidance.**

- Does SD have a process to review the magnitude of the toxin exceedance without requiring 4 years of data to evaluate whether the waterbody should be considered impaired based on overwhelming evidence?

**DANR Response: DANRs Microcystin and Cylindrospermopsin-Recreation Assessment method was developed based on South Dakota's EPA approved standards and criteria for recreation uses (Administrative Rules of South Dakota 74:51:01:50-51). The frequency component in the listing method (I.e., > 3 years) was intended to be conservative because South Dakota had very little knowledge of cyanotoxin prevalence in waterbodies across the state at the time the method was developed. The EPA 303(d) listing guidance specifically left the frequency component open to states to decide due to the variable nature of cyanotoxin production. Because the assessment timeframe for lakes covers a ten-year period, four years of consistent or spread out exceedance of the standard and criteria did not seem unreasonable to define clear impairment. DANR will consider adjusting this timeframe in the future if and when cyanotoxin results direct such an action.**

**DANR reviews cyanotoxin data annually mainly to get an understanding of the overall incidence of occurrence and range of results. A few lakes have emerged as repeat offenders and one has shown extremely high values though the results have been inconsistent with regard to frequency and magnitude. Cyanotoxin results (microcystin) have been below the criteria for many of the monitored lakes. DANRs cyanotoxin monitoring is becoming more focused on waterbodies expected to have frequent and intense blue-green blooms. DANR will continue to review cyanotoxin data on an annual basis to evaluate whether an adjustment is warranted to the current methodology. At this point, the data has not shown a clear overwhelming evidence signature. DANR will communicate with EPA as datasets evolve.**

- Please clarify how the exceedance frequency included in the state's current water quality criteria aligns with the current assessment approach for recreational use assessments.

**DANR Response: The recreational use assessment aligns exactly with South Dakota's water quality criteria in that the numeric criteria are not to be exceeded in more than three 10-day assessment periods over the course of recreation season. This would be considered an exceedance of the standard for a single recreational season. The recreational use assessment further incorporates an additional frequency component to account for a 10-year assessment**

**period, which is consistent with the assessment timeframe for lakes. Therefore, if South Dakota's water quality criteria are exceeded more than three times in a 10-year period, the waterbody would be considered nonsupporting the designated recreational uses. The recreational use assessment was developed from South Dakota's water quality criteria and EPA guidance for making 303(d) listing decisions.**

• **Continuous Data:**

Please describe how the state analyzes and interprets continuous data against the applicable criteria.

**DANR Response: DANR does not currently collect, analyze, or interpret any continuous data.**

**Delisting Rationales**

• For any waterbodies that SD is proposing to delist that are not linked to a TMDL (Category 4a waters), please provide a short summary describing the data used to delist the waterbody as impaired.

**DANR Response: DANR has entered additional information in the "Delisting Comment" box for the delisted parameter in Attains.**

**TMDL Comments**

The table below identifies several comments or suggested corrections associated with TMDLs, including completed TMDLs (category 4a), impaired waters, and the bridge priorities. The checkmarks in the last four columns identify the report sections that may require updating or verification once the change in the "Comment" column has been evaluated and addressed.

| AUID | Parameter | Comment | App A | App B | App C | App D |
|---|---|---|---|---|---|---|
| SD-BS-R-BIG_SIOUX_14 | E. *coli* | This AUID-parameter combination has not been addressed by a TMDL and remains category 5. Specifically, TMDL 34094 is written for fecal coliform and not E. *coli.* Recommend removing from appendix A (as this is not a 4a), add to appendix D (cat 5) and check appendix C and ATTAINS entry. This is also a 2022 Bridge Metric priority (Appendix I). | ✓ | | ✓ | ✓ |
| SD-BS-R-BIG_SIOUX_15 | E. *coli* | This AUID-parameter combination has not been addressed by a TMDL and remains category 5. Specifically, TMDL 34095 is written for fecal coliform and not E. *coli.* Recommend removing from appendix A (as this is not a 4a), add to appendix D (cat 5) and check appendix C and ATTAINS entry. This is also a 2022 Bridge Metric priority (Appendix I). | ✓ | | ✓ | ✓ |
| SD-BS-R-BIG_SIOUX_16 | E. *coli* | This AUID-parameter combination has not been addressed by a TMDL and remains category 5. Specifically, TMDL 34096 is written for fecal coliform and not E. *coli.* Recommend removing from appendix A (as this is not a 4a), add to appendix D (cat 5) and check appendix C and ATTAINS entry. This is also a 2022 Bridge Metric priority (Appendix I). | ✓ | | ✓ | ✓ |
| SD-BS-R-BIG_SIOUX_17 | E. *coli* | This AUID-parameter combination has not been addressed by a TMDL and remains category 5. Specifically, TMDL 34098 is written for fecal coliform | ✓ | | ✓ | ✓ |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | and not E. *coli*. Recommend removing from appendix A (as this is not a 4a), add to appendix D (cat 5) and check appendix C and ATTAINS entry. This is also a 2022 Bridge Metric priority (Appendix I). | | | | |
| SD-BS-R-MEDARY_01 | E. *coli* | Please correct the TMDl ID in Appendix A. This should read R8-SD-2023-01 (dash rather than an underscore at the end). | ✓ | | | |
| SD-CH-L-DURKEE_01<br>SD-GR-L-EAST_LEMMON_01<br>SD-JA-L-STINK_01<br>SD-MI-L-POTTS_01 | Hg in fish | TMDLs were completed for these four lakes: R8-SD-2022-07 (approved 9/13/22). Recommend adding to appendix B (2024 delisting; already in appendix A), removing from appendix D, and check appendix C and ATTAINS entry. | | ✓ | ✓ | ✓ |
| SD-MN-L-SUMMIT_01<br>SD-MN-L-ALICE_01 | pH | These AUID-parameter combinations are identified in appendix C as 4a overall; however, pH is listed as cat 5 in ATTAINS. Please review overall cat 4a listings and update. | | | ✓ | ✓ |
| SD-BF-R-HORSE_01_USGS<br>SD-BS-L-CLEAR_D_01<br>SD-BS-L-TWIN_01<br>SD-BS-R-BIG_SIOUX_02<br>SD-MN-L-FISH_01<br>SD-MN-L-OAK_01 | E. *coli* | TMDL priority listed as low in appendix D; however, the parameter is identified for high priority on page 17. Recommend updating priority to high in appendix D. | | | | ✓ |
| SD-MU-MOREAU_01 | TSS | TMDL priority listed as low in appendix D; however, the parameter is identified for high priority on page 17. Recommend updating priority to high in appendix D | | | | ✓ |
| SD-CH-L-HORSETHIEF_01 | Chl-*a* | ATTAINS does not include a priority ranking for chl-*a*, but appendix D lists as low. Please review and update ATTAINS entry. | | | | ✓ |
| SD-MN-R-LAC_QUI_PARLE_W-BR_01 | E. *coli* | AUID-parameter combination is <u>not</u> in ATTAINS as a 2022 Bridge Metric priority. Recommend removing from Appendix I. | | | | |

**DANR Response: DANR has made the corrections/updates itemized in the above chart. DANR also realized when making these changes, that segment 02 of the Grand River, which is listed for E. coli and TSS, were high priority and have now been changed to low priority due to unique jurisdictional issues described in the Grand River Basin description on page 53. In addition, DANR**

**recognized that the Moreau River segment 2 and 3 should also be low priority due to unique jurisdictional issues as described in the Moreau River Basin description on page 57. These changes were also made to maintain consistency with long-term TMDL Vision priorities.**

**Pending GIS review/corrections:**

1. SD-BF-R-SPEARFISH no segment 03; segments 04 and 05 do not connect (in description or on map); please also check spelling of Higgins/Higgens in segments 05/06).
**DANR Response: Correct, there is not a segment 3 on Spearfish Creek and segments 4 and 5 do not connect. Spearfish Creek has different beneficial use designations and DANR does not have monitoring sites to characterize all of those reaches. The spelling for Higgens has been updated in this document and in Attains.**

2. SD-BS-R-SIXMILE_01 (North Deer Creek to S30, T112N, R48W)
GIS does not match segment description (it currently does not end at North Deer Creek)
**DANR Response: GIS updated.**

3. Lakes GIS layer: The Columbia Road Reservoir entry has an AUID with an "-R-": SD-JA-R-JAMES_01. In addition, river segment of _01 uses Mud Lake Reservoir in the Location field rather than Columbia Road Reservoir; please check.
**DANR Response: This has been corrected.**

4. SD-MI-L-PLATTE_01 (Platte Lake, Charles Mix County) GIS includes two lakes, please remove extraneous lake in GIS.
**DANR Response: This has been corrected.**

5. SD-MI-R-CROW_01 (Bedashosha Lake to Jerauld County line) GIS segment goes through Bedashosha Lake (recommend updating segment description or GIS layer for downstream extent).
**DANR Response: The Bedashosha dam spillway and abutment walls were removed in 1995. The lake was removed from ARSD 74:51:02 and approved by EPA in the 2009 Triennial review. Crow Creek flows freely and is not impounded. Therefore, no changes will be made to SD-MI-R-CROW_01.**

6. SD-MU-R-RABBIT_01 (Antelope Creek to Moreau River) GIS segment does not match description. GIS ends at South Reinoehl Creek (yellow line), not Antelope Creek (circled in pink).
**DANR Response: This has been corrected.**

7. SD-VM-R-VERMILLION_E_FORK_01 and _02: _ SD-VM-R-VERMILLION_E_FORK_01
Little Vermillion River to mouth GIS begins downstream of Little Vermillion River. SD-VM-R-VERMILLION_E_FORK_02 GIS extends beyond Little Vermillion. The segment breaks around Reservoir; please consider listing as two different segments.
**DANR Response: DANR will consider updating these segments in a future IR cycle.**

8. SD-MN-R-WHETSTONE_S_FORK_01 and _02. GIS for segment 02 (Lake Farley to mouth; yellow line) begins upstream of Lake Farley, which does not have an AUID. Recommend beginning segment 02 at the outlet of Lake Farley and assigning Lake Farley an AUID.
**DANR Response: SD-MN-R-WHETSTONE_S_FORK_02 has been trimmed to the outlet.**

EAST DAKOTA
WATER
DEVELOPMENT
DISTRICT

March 1, 2024

Joshua Strobel
SD DANR - Watershed Protection Program
523 East Capitol Avenue
Pierre, South Dakota 57501-3181

Dear Mr. Strobel:

I am writing to offer comments on behalf of the East Dakota Water Development District on the DRAFT 2024 South Dakota Integrated Report for Surface Water Quality Assessment (DRAFT IR). For each I have included a page reference from the DRAFT document.

1. Page 4. The last sentence of the second paragraph of the Executive Summary states, "Due to these factors, it is not possible to determine trends between reporting cycles, as the appearance of a trend may have nothing to do with changes in actual water quality." Similar language is found elsewhere in the body of the document. At the same time, the first paragraph on page 8 (GIS Data Geometry) begins with the statement, "To maintain consistency and to make trend analysis more meaningful, .." Also, the heading for the first paragraph on page 42 also explicitly references trend analysis.

   This is an internal conflict that must be resolved. Either the various IRs, and the data contained herein, can be used to determine trends, or they can not. The report needs to pick one position, and then stick to it.

2. Page 6. In the first paragraph of the section entitled Water Quality Data, reference is made to the Moody County Conservation District as a contributor of data. In that several of the entities listed before MCCD are watershed project sponsors, I would guess that they are listed here because they were (past tense) the sponsor of the Big Sioux River Watershed Project. The current sponsor of this project is the Minnehaha Conservation District.

3. Pages 6 & 7. The second paragraph of the section entitled Water Quality Data closes with the statement, "One hundred percent of the stream miles assessed for .. , met water quality standards." Although the point is made later in the document that not every water sample was analyzed for every parameter (third paragraph on page 48, for example), a casual reader might assume that every water body referenced in this report is included.

4. Page 8. The first paragraph under the heading Nonpoint Source Pollution Control includes the statement that, "South Dakota **primarily** uses voluntary measures for the implementation of Best Management Practices (BMPs) to control NPS pollution." This implies that non-

voluntary (regulatory) means are and have been used as well. I am unaware of any instances when the South Dakota Department of Agriculture & Natural Resources (DANR) has mandated adoption of BMPs over landowner objections to deal with NPS pollution sources. As such, I would recommend either striking "primarily" entirely, or replacing it with "exclusively," to reflect what actually happens.

5. Page 9. The final paragraph references the Water Quality Monitoring Access Portal (WQMAP) as a repository of, "water quality data collected by DANR and local partners." Does this include all of the water quality data used to make the support/non-support found in Appendix C?

6. Page 11. At the end of the first paragraph under the heading Fixed Station Ambient Monitoring, reference is made as to how the data collected from the DANR WQM network is, "..invaluable for evaluating historical water quality, establishing natural background conditions, monitoring possible runoff events, and acute and **chronic** water quality concerns." As is noted elsewhere in the section, WQM stations are sampled no more than once per month. On page 22, second paragraph, it is noted that chronic standards are only applied to support/non-support determinations if there are at least three (3) samples collected from a given water body within a calendar month. As such, WQM data alone cannot, by the stated criteria, be used to determine 'chronic' water quality concerns.

7. Page 14. The final paragraph under the heading Fish Contaminants Sampling is the first of several instances where it is noted that DANR and the South Dakota Department of Health (DOH) use different action threshold values for the amount of mercury in a sample. I continue to believe that it would appropriate, at some point in this document, to explain the significance of these differences. To the casual reader, it has to seem problematic that DANR will list a water body impaired when mercury is above 0.3 mg/kg, but DOH doesn't get excited until mercury is at or above 1.0 mg/kg.

8. Page 22. Table 3 is first referenced in the text of the document at the top of this page. However, the actual Table 3 is found on page 21, before the reference. Standard report formatting would have the table presented after it is referenced in the text.

9. Page 22. The second paragraph discusses the data requirements necessary for the use of the chronic (30-day average/geometric mean) water quality criteria in determining support status, versus use of the acute standards. Are any of the support status determinations presented or discussed in the report based on chronic standards? I do not find any distinction in any of the text, tables or appendixes.

10. Page 29. At the top of the page, the criteria for determining support status of a water body when there are fewer than 10 samples available is presented. It states that at least 5 samples must be available for a determination, and that if no more than one analysis exceeds the criteria, the water body is considered supporting. However, it also states that if 3 or more samples exceed the standard, the water body does not support the intended use. **What is the call if two (2) samples exceed the standard?** [This same problem is found in the 2022 IR.]

10a. Page 29. In most instances, established water quality criteria are presented as maximum allowable limits. As such, a sample that exceeds a limit is considered bad. However, this is not a universal situation (consider dissolved oxygen), and therefore might it be better to speak in terms of violations of the standard?

11. Page 51. In the first paragraph under the heading Bad River Basin, reference is made to how, "The upper portion of the Bad River receives water from the Badlands and artesian wells in the Philip area." However, the following sentence indicates that the wells don't really contribute a significant amount of water. Then why bring it up?

12. Page 53. The final paragraph under the heading Big Sioux River Basin is out of date. As of this writing, the entirety of the contributing Big Sioux River watershed is contained within either the Big Sioux River Watershed Project or the Prairie Coteau Watershed Improvement & Protection Project. Portions of the non-contributing parts of the watershed are also covered by the Prairie Coteau Project.

13. Page 54. The final paragraph under the heading Cheyenne River Basin states that, "This basin will be part of the upcoming Rotating Basins Project (Rotation 3) that takes place in the West River of South Dakota from 2024-2025." In fact, the majority of this watershed (everything upstream of the confluence with the Belle Fourche River, was included in the recently completed Rotating Basins Project (Rotation 2), conducted in 2022 and 2023. Only the lower part of the Cheyenne River Basin will be part of Rotation 3.

14. Page 55. The final paragraph under the heading Grand River Basin makes reference to , "..unique jurisdictional issues." The same reference is found at the end of the section dealing with the Moreau River Basin on page 61. What are the issues, and how do they impact what is found in this document?

15. Page 57. In the final paragraph under the heading Minnesota River Basin, reference is made to the Northeast Glacial Lakes Project. This project is no longer operational, having been replaced by the Prairie Coteau Watershed Improvement & Protection Project.

16. Pages 57 & 58. Under the heading Missouri River Basin, there is no mention of the ongoing watershed implementation effort, the South-Central Watershed Improvement Project. All other such efforts are referenced, and therefore this too should be mentioned here.

17. Pages 61-63. The entire section under the heading of Wetlands ought to be revised. The DRAFT language is taken pretty much *verbatim* from the 2022 IR, which was written before the Supreme Court decision in Sackett versus EPA last year. This decision has greatly altered the impact of the federal Clean Water Act, and particularly the application of Section 404, on wetlands in South Dakota.

17a. Page 62. In the third paragraph, reference is made to Administrative Rule of South Dakota 74:51:01:11, which specifically protects wetlands as waters of the state. At the same time, reference is made throughout the Wetlands section (pages 61-63) of the text to the ongoing

loss of wetlands due to drainage of agricultural lands, seemingly in contradiction to what the paragraph explicitly states should not be happening.

18. Page 64. Under the paragraph labeled Unsafe Beaches, the final sentence states that, "For the 2024 reporting period, no data was received from GFP or any entity that controls/monitors beaches in the state." I find this troubling, particularly as SD GF&P is apparently willing to share information on Aquatic Life Fish Kills, as described in the subsequent section. That a state agency would not respond to a reasonable data request from another state agency is cause for concern from a public safety standpoint.

19. Page 67. The second sentence in the third paragraph under the heading Fish Flesh Contaminants states that, "There are many factors that affect a waterbody support determination for mercury in fish tissue, such as..." This is incorrect. As with all other support determinations, the analytical data alone drives the determination of support. The pathways for the mercury to get into the fish may be varied, but they have no bearing on support determination.

19a. Page 67. The third sentence in the third paragraph under the heading Fish Flesh Contaminants states that, "Due to these factors, some waterbodies may have a fish consumption advisory while others do not." Again, **NO!** A fish consumption advisory is issued if the data warrants it, based on established criteria. Waterbody geomorphology **is not** a factor in the determination.

20. Pages 67 & 68. Under the section with the heading Domestic Water Supply Restrictions, and associated tables, it is noted that several water bodies are considered impaired with regard to their use as a Domestic Water Supply, including segment 10 of the Big Sioux River (SD-BS-R-BIG_SIOUX_10). There is considerable text devoted to explaining why certain of the listed waters should not be listed (the waters are no longer used for this purpose), but no mention is made as to why the other waters are impaired. What is the cause of the impairments noted for the waters currently being used as drinking water supplies, and what is to be done about addressing the problem(s)? As the intake currently being used by the City of Sioux Falls lies within this segment, further information is clearly warranted.

21. Page 69. The first sentence of the third paragraph under the heading Point Source Pollution Control Program references "whole effluent toxicity." In the subsequent sentence, and acronym, WET, is presumably used to represent this. Insert "(WET)" in between toxicity ad testing in the first sentence.

22. Pages 95 & 96. The waterbodies listed in Appendix B should be rearranged alphabetically, according to AUID, as in all of the other appendices.

23. Appendix C. As is noted numerous times in the text, excess amounts of bacteria, as measured by *E. coli* counts, is a major cause of impairment to the recreational use (limited-contact and immersion) of rivers and streams in South Dakota. While not the only criteria used to determine support of recreational use, it is the most problematic. However, there are

instances in this appendix where support status is given for one or both of these beneficial uses without any bacteria data. Examples include Antelope Lake in Day County (SD-BS-L-ANTELOPE_01), part of the South Fork of the Whetsone River in Grant County (SD-MN-R-WHETSTONE_S_FORK_02) and part of the East Fork of the Vermillion River in McCook and Turner Counties (SD-VM-R-VERMILLION_E_FORK_02). Might a notation be made in those cases where bacteria data are not available, so that the general public would be tempted to make presumptions about the quality of water in these water bodies?

Finally, I will raise a recurring issue regarding information about mercury in fish flesh, and the support status of the various listed water bodies. As the report notes, mercury in fish tissue data is available for only a limited number of water bodies. My continuing concern is that anyone looking over Appendix C with regard to the Big Sioux River (for example)would conclude that if a segment is listed as problematic, all remaining sections are ok. In reality, what is in fact the case is that segment SD-BS-R-BIG_SIOUX_07 is considered impaired, segments SD-BS-R-BIG_SIOUX_08 and SD-BS-R-BIG_SIOUX_14 are not impaired, and we **don't know** the status of the rest of the river. The presentation of this critical information needs to be amended in such a way as to reflect what is actually known.

Thank you for your consideration of these comments. If you have any questions about the points that I have raised, please do not hesitate to contact me.

Sincerely,

Jay P. Gilbertson
Manager/Treasurer

**DANR Response to EDWDD Comments:**

1. Page 4. The last sentence of the second paragraph of the Executive Summary states, "Due to these factors, it is not possible to determine trends between reporting cycles, as the appearance of a trend may have nothing to do with changes in actual water quality." Similar language is found elsewhere in the body of the document. At the same time, the first paragraph on page 8 (GIS Data Geometry) begins with the statement, "To maintain consistency and to make trend analysis more meaningful, .." Also, the heading for the first paragraph on page 42 also explicitly references trend analysis. This is an internal conflict that must be resolved. Either the various IRs, and the data contained herein, can be used to determine trends, or they can not. The report needs to pick one position, and then stick to it.

**DANR Response: The sentence on page 4 has been updated to inform the user that they should consider the listed variables, as the appearance of a trend may not reflect changes in actual water quality.**

2. Page 6. In the first paragraph of the section entitled Water Quality Data, reference is made to the Moody County Conservation District as a contributor of data. In that several of the entities listed before MCCD are watershed project sponsors, I would guess that they are listed here because they were (past tense) the sponsor of the Big Sioux River Watershed Project. The current sponsor of this project is the Minnehaha Conservation District.

**DANR Response: Minnehaha Conservation District has been added to the list of data contributors on page 6.**

3. Pages 6 & 7. The second paragraph of the section entitled Water Quality Data closes with the statement, "One hundred percent of the stream miles assessed for .. , met water quality standards." Although the point is made later in the document that not every water sample was analyzed for every parameter (third paragraph on page 48, for example), a casual reader might assume that every water body referenced in this report is included.

**DANR Response: Clarifying language has been added to page 7 and 97. Additionally, a paragraph was added to page 7 and 97 to clarify that the parameters that were assessed for each waterbody are identified in Appendix C.**

4. Page 8. The first paragraph under the heading Nonpoint Source Pollution Control includes the statement that,"South Dakota **primarily** uses voluntary measures for the implementation of Best Management Practices (BMPs) to control NPS pollution." This implies that non-voluntary (regulatory) means are and have been used as well. I am unaware of any instances when the South Dakota Department of Agriculture & Natural Resources (DANR) has mandated adoption of BMPs over landowner objections to deal with NPS pollution sources. As such, I would recommend either striking "primarily" entirely, or replacing it with "exclusively," to reflect what actually happens.

**DANR Response: The sentence has been amended.**

5. Page 9. The final paragraph references the Water Quality Monitoring Access Portal (WQMAP) as a repository of, "water quality data collected by DANR and local

partners." Does this include all of the water quality data used to make the support/non-support found in Appendix C?

**DANR Response: No, not all data submitted by other organizations for IR consideration is uploaded into WQMap or the WQX.**

6. Page 11. At the end of the first paragraph under the heading Fixed Station Ambient Monitoring, reference is made as to how the data collected from the DANR WQM network is, "..invaluable for evaluating historical water quality, establishing natural background conditions, monitoring possible runoff events, and acute and **chronic** water quality concerns." As is noted elsewhere in the section, WQM stations are sampled no more than once per month. On page 22, second paragraph, it is noted that chronic standards are only applied to support/non-support determinations if there are at least three (3) samples collected from a given water body within a calendar month. As such, WQM data alone cannot, by the stated criteria, be used to determine 'chronic' water quality concerns.

**DANR Response: Correct, if a WQM site is only sampled monthly, that information alone would not be sufficient to assess chronic water quality standards. However, WQM data is used in conjunction with other monitoring data collected within in the same reach to assess support of chronic water quality criteria. All data within the assessment unit ID (AUID) are pooled and used to determine if water quality standards are met, not just data from a specific station.**

7. Page 14. The final paragraph under the heading Fish Contaminants Sampling is the first of several instances where it is noted that DANR and the South Dakota Department of Health (DOH) use different action threshold values for the amount of mercury in a sample. I continue to believe that it would appropriate, at some point in this document, to explain the significance of these differences. To the casual reader, it has to seem problematic that DANR will list a water body impaired when mercury is above 0.3 mg/kg, but DOH doesn't get excited until mercury is at or above 1.0 mg/kg.

**DANR Response: The paragraph has been updated to clarify the difference between consumption advice and waterbody support based on a water quality criterion.**

8. Page 22. Table 3 is first referenced in the text of the document at the top of this page. However, the actual Table 3 is found on page 21, before the reference. Standard report formatting would have the table presented after it is referenced in the text.

**DANR Response: The table has been placed on page 22, after the referenced text.**

9. Page 22. The second paragraph discusses the data requirements necessary for the use of the chronic (30-day average/geometric mean) water quality criteria in determining support status, versus use of the acute standards. Are any of the support status determinations presented or discussed in the report based on chronic standards? I do not find any distinction in any of the text, tables or appendixes.

**DANR Response: Yes, when the appropriate amount of data is available, data are used to determine compliance with chronic criteria. Both acute and chronic water quality criteria are applicable when determining waterbody support. For 303(d) listing purposes and input into EPA's Attains system, DANR does not distinguish if the attainment or nonattainment was based on the acute or chronic criteria.**

10. Page 29. At the top of the page, the criteria for determining support status of a water

body when there are fewer than 10 samples available is presented. It states that at least 5 samples must be available for a determination, and that if no more than one analysis exceeds the criteria, the water body is considered supporting. However, it also states that if 3 or more samples exceed the standard, the water body does not support the intended use. **What is the call if two (2) samples exceed the standard?** [This same problem is found in the 2022 IR.]

**DANR Response: The language in the criteria for determining support status on page 28 has been edited to show that a waterbody would be insufficient (INS) when 5-9 samples are available but only 2 samples exceed the standard.**

10a. Page 29. In most instances, established water quality criteria are presented as maximum allowable limits. As such, a sample that exceeds a limit is considered bad. However, this is not a universal situation (consider dissolved oxygen), and therefore might it be better to speak in terms of violations of the standard?

**DANR Response: A reference has been added on page 27 to refer to table 2, which in the footnotes describes the criteria.**

11. Page 51. In the first paragraph under the heading Bad River Basin, reference is made to how, "The upper portion of the Bad River receives water from the Badlands and artesian wells in the Philip area." However, the following sentence indicates that the wells don't really contribute a significant amount of water. Then why bring it up?

**DANR Response: The statement on page 50 reads "These wells contribute minimal flow to the upper portion of the Bad River" and is intended to provide basic information about the watershed.**

12. Page 53. The final paragraph under the heading Big Sioux River Basin is out of date. As of this writing, the entirety of the contributing Big Sioux River watershed is contained within either the Big Sioux River Watershed Project or the Prairie Coteau Watershed Improvement & Protection Project. Portions of the non-contributing parts of the watershed are also covered by the Prairie Coteau Project.

**DANR Response: The final paragraph under the Big Sioux River Basin on page 52 has been edited to reflect the projects stated above, and the northeast glacial lakes project was removed.**

13. Page 54. The final paragraph under the heading Cheyenne River Basin states that, "This basin will be part of the upcoming Rotating Basins Project (Rotation 3) that takes place in the West River of South Dakota from 2024-2025." In fact, the majority of this watershed (everything upstream of the confluence with the Belle Fourche River, was included in the recently completed Rotating Basins Project (Rotation 2), conducted in 2022 and 2023. Only the lower part of the Cheyenne River Basin will be part of Rotation 3.

**DANR Response: The paragraph on page 53 has been edited to state that the lower Cheyenne is the part of the basin that will be sampled during the third rotation of the Rotating Basins Project.**

14. Page 55. The final paragraph on page 54 under the heading Grand River Basin makes reference to , "..unique jurisdictional issues." The same reference is found at the end of the section dealing with the Moreau River Basin on page 61. What are the issues, and how do they impact what is found in this document?

**DANR Response: Unique jurisdictional issues refer to TMDL development and prioritization for waterbodies within Indian Country. DANR considers impaired waters within Indian Country in the respective basin's low priority for TMDL development.**

15. Page 57. In the final paragraph under the heading Minnesota River Basin, reference is made to the Northeast Glacial Lakes Project. This project is no longer operational, having been replaced by the Prairie Coteau Watershed Improvement & Protection Project.

**DANR Response: The paragraph on page 56 has been to remove the Northeast Glacial Lakes Project and replace it with the Prairie Coteau Watershed Improvement and Protection Project.**

16. Pages 57 & 58. Under the heading Missouri River Basin, there is no mention of the ongoing watershed implementation effort, the South-Central Watershed Improvement Project. All other such efforts are referenced, and therefore this too should be mentioned here.

**DANR Response: The South-Central Watershed Improvement Project has been added to the basin paragraph as an implementation project on page 57.**

17. Pages 61-63. The entire section under the heading of Wetlands ought to be revised. The DRAFT language is taken pretty much *verbatim* from the 2022 IR, which was written before the Supreme Court decision in Sackett versus EPA last year. This decision has greatly altered the impact of the federal Clean Water Act, and particularly the application of Section 404, on wetlands in South Dakota.

**DANR Response: The US Supreme Court decision in Sackett relates to the applicability of WOTUS and federal jurisdiction for 402, 404, Rivers and Harbors Act, and FERC project permits. Wetlands in South Dakota are all considered waters of the state, regardless of if they are WOTUS or not. A sentence has been added to clarify that per ARSD 74:51:01:11, fill cannot be discharged into a wetland without a federal 402 or 404 permit, even if the wetland is determined not to be under federal jurisdiction.**

17a. Page 62. In the third paragraph, reference is made to Administrative Rule of South Dakota 74:51:01:11, which specifically protects wetlands as waters of the state. At the same time, reference is made throughout the Wetlands section (pages 61-63) of the text to the ongoing

loss of wetlands due to drainage of agricultural lands, seemingly in contradiction to what the paragraph explicitly states should not be happening.

**DANR Response: ARSD 74:51:01:11 states that wetlands are waters of the state and are allowed protection under the provisions of this chapter (74:51:01). It also states the discharge of pollutants may not cause destruction or impairment of a wetland except where authorized under a federal 402 or 404 permit. All waters of the state, at a minimum, are assigned the 9) Fish and wildlife propagation, recreation, and stock watering waters beneficial use, and are protected with the applicable water quality criteria and narrative standards in ARSD Chapter 74:51:01. Drainage is not expressly prohibited or discussed in Chapter 74:51:01 nor in Section 74:51:01:11.**

18. Page 64. Under the paragraph labeled Unsafe Beaches, the final sentence states that, "For the 2024 reporting period, no data was received from GFP or any entity that controls/monitors beaches in the state." I find this troubling, particularly as SD GF&P is apparently willing to share information on Aquatic Life Fish Kills, as described in the subsequent section. That a state agency would not respond to a reasonable data request from another state agency is cause for concern from a public safety standpoint.

**DANR Response: Noted.**

19. Page 67. The second sentence in the third paragraph under the heading Fish Flesh Contaminants states that, "There are many factors that affect a waterbody support determination for mercury in fish tissue, such as..." This is incorrect. As with all other support determinations, the analytical data alone drives the determination of support. The pathways for the mercury to get into the fish may be varied, but they have no bearing on support determination.

**DANR Response: The sentence has been updated.**

19a. Page 67. The third sentence in the third paragraph under the heading Fish Flesh Contaminants states that, "Due to these factors, some waterbodies may have a fish consumption advisory while others do not." Again, **NO!** A fish consumption advisory is issued if the data warrants it, based on established criteria. Waterbody geomorphology **is not** a factor in the determination.

**DANR Response: The sentence from the previous comment was updated to clarify that the listed factors affect mercury concentration in fish tissue, which in turn, affects if a fish consumption advisory is issued.**

20. Pages 67 & 68. Under the section with the heading Domestic Water Supply Restrictions, and associated tables, it is noted that several water bodies are considered impaired with regard to their use as a Domestic Water Supply, including segment 10 of the Big Sioux River (SD- BS-R-BIG_SIOUX_10). There is considerable text devoted to explaining why certain of the listed waters should not be listed (the waters are no longer used for this purpose), but no mention is made as to why the other waters are impaired. What is the cause of the impairments noted for the waters currently being used as drinking water supplies, and what is to be done about addressing the problem(s)? As the intake currently being used by the City of Sioux Falls lies within this segment, further information is clearly warranted.

**DANR Response: As with all 303(d) listings, the cause of nonsupport is placed on the state's 303(d) list for TMDL development. Water quality improvements are addressed through TMDL implementation. DANR and the public water systems have not placed any use restrictions or offered any public health warnings related to the surface water impairments. The public water systems are all aware of the surface water exceedances and continue to effectively treat water to meet drinking water standards.**

21. Page 69. The first sentence of the third paragraph under the heading Point Source Pollution Control Program references "whole effluent toxicity." In the subsequent sentence, and acronym, WET, is presumably used to represent this. Insert "(WET)" in between toxicity ad testing in the first sentence.

**DANR Response: The acronym "WET" (Whole Effluent Toxicity) is first presented on page 15. The text has been updated to only include the acronym.**

22. Pages 95 & 96. The waterbodies listed in Appendix B should be rearranged alphabetically, according to AUID, as in all of the other appendices.

**DANR Response: The table has been revised alphabetically by AUID.**

23. Appendix C. As is noted numerous times in the text, excess amounts of bacteria, as measured by *E.coli* counts, is a major cause of impairment to the recreational use (limited- contact and immersion) of rivers and streams in South Dakota. While not the only criteria used to determine support of recreational use, it is the most problematic. However, there are instances in this appendix where support status is given for

one or both of these beneficial uses without any bacteria data. Examples include Antelope Lake in Day County (SD-BS-L- ANTELOPE_0 l ), part of the South Fork of the Whetsone River in Grant County (SD-MN- R-WHETSTONE_S_FORK_02) and part of the East Fork of the Vermillion River in McCook and Turner Counties (SD-VM-R-VERMILLION_E_FORK_02). Might a notation be made in those cases where bacteria data are not available, so that the general public would be tempted to make presumptions about the quality of water in these water bodies?

**DANR Response: In Appendix C, causes of nonsupport are listed in the "Nonsupporting Parameters" column and parameters that are meeting the criteria are listed in the "Supporting Parameters" column. If a parameter is not listed in either column, then that parameter was not assessed against the criteria or there may have been data collected, but it was insufficient to make a support determination. Water quality standards do not assign a hierarchy to which parameters are required to make a support determination. Please note that DANR's monitoring strategy to determine recreation use support, includes collecting bacteria information, but in some cases, as mentioned above, there are a few occasions where there is not a sufficient amount of data collected to make a support determination. For the South Fork Whetstone River reach, there was 1 violation out of 9 *E. coli* samples, so the use support was entered as "Insufficient Information" in the Attains system. Appendix C in the hardcopy document does not identify when parameters were sampled but there was not enough information to make a support determination, but this information is available in the Attains system which is broadcast to EPA's How's My Waterway.**

Finally, I will raise a recurring issue regarding information about mercury in fish flesh, and the support status of the various listed water bodies. As the report notes, mercury in fish tissue data is available for only a limited number of water bodies. My continuing concern is that anyone looking over Appendix C with regard to the Big Sioux River (for example) would conclude that if a segment is listed as problematic, all remaining sections are ok. In reality, what is in fact the case is that segment SD-BS-R-BIG_SIOUX_07 is considered impaired, segments SD-BS-R-BIG_SIOUX_08 and SD-BS-R-BIG_SIOUX_l4 are not impaired, and we **don't know** the status of the rest of the river. The presentation of this critical information needs to be amended in such a way as to reflect what is actually known.

**DANR Response: To continue discussion from the previous comment, if assessed, mercury in fish tissue is listed in either the "Nonsupporting Parameters" column or the "Supporting Parameters" column. As stated in the document, if "mercury in fish tissue" is not listed in either column, then the waterbody was not assessed for that parameter. As with all parameters in Appendix C, the reader can easily identify which parameters were assessed for each waterbody, including mercury in fish tissue.**