Montana Department of
ENVIRONMENTAL QUALITY

# Montana 2012

# Final
# Water Quality
# Integrated Report

Prepared in accordance with the requirements of
Sections 303(d) and 305(b) of the federal Clean Water Act

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*Brian Schweitzer, Governor*
*Richard Opper, Director DEQ*

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**Prepared by:**
Water Quality Planning Bureau
Information Management and Technical Services Section
Data Management Group

**Contributors:**

Planning, Prevention & Assistance Division
Water Quality Planning Bureau
Technical and Financial Assistance Bureau
Energy and Pollution Prevention Bureau

Permitting and Compliance Division
Water Protection Bureau
Public Water Supply & Subdivisions Bureau

Montana Bureau of Mines and Geology
Montana Ground Water Assessment Program

Montana Department of Environmental Quality
Water Quality Planning Bureau
1520 E. Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901

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# ACRONYMS

| Acronym | Definition |
|---|---|
| ADB | Assessment database |
| AFO | Animal Feeding Operation |
| ARM | Administrative Rules of Montana |
| ARRA | American Reinvestment and Recovery Act |
| AU | Assessment Unit |
| BER | Board of Environmental Review (Montana) |
| BLM | Bureau of Land Management (federal) |
| BMP | Best Management Practices |
| CAFO | Concentrated (or Confined) Animal Feed Operations |
| CCR | Consumer Confidence Report Rule |
| CECRA | [Montana] Comprehensive Environmental Cleanup and Responsibility Act |
| CFL | Cycle First Listed |
| CFR | Code of Federal Regulations |
| CWA | Clean Water Act |
| CWAIC | Clean Water Act Information Center (DEQ) |
| CWS | Community Water System |
| CWSRF | Clean Water State Revolving Fund |
| DBP | Disinfection Byproduct Rule |
| DEQ | Department of Environmental Quality (Montana) |
| DNRC | Department of Natural Resources & Conservation |
| DO | Dissolved Oxygen |
| DQA | Data Quality Assessment |
| DWSRF | Drinking Water State Revolving Fund |
| EPA | Environmental Protection Agency (US) |
| FFY | Federal Fiscal Year |
| FTE | Full-Time Employee |
| FWP | Fish, Wildlife, and Parks |
| FWPCA | Federal Water Pollution Control Act |
| GIS | Geographic Information System |
| GMP | Generic Management Plan |
| GWCP | Groundwater Characterization Program |
| GWIC | Groundwater Information Center |
| GWPCS | Montana Groundwater Pollution Control System |
| GWPP | Groundwater Protection Program |
| HUC | Hydrologic Unit Code |
| ILF | In-Lieu-Fee |
| IMTS | Information Management & Technical Services (DEQ) |
| IOC | Inorganic Chemicals |
| IUP | Intended Use Plan |
| JFA | Joint Funding Agreements |
| LDCI | Lake Diatom Condition Index |
| LWQD | Local Water Quality District |
| MAR | Montana Administrative Register |
| MBMG | Montana Bureau of Mines and Geology |

| Acronym | Definition |
|---|---|
| MCA | Montana Codes Annotated |
| MCL | Maximum Contaminant Level |
| MCWA | Montana's Clean Water Act |
| MDA | Montana Department of Agriculture |
| MGWPCS | Montana Ground Water Pollution Control System |
| MPDES | Montana Pollutant Discharge Elimination System |
| MS4 | Municipal Separate Storm Sewer Systems |
| MTNHP | Montana Natural Heritage Program's |
| MWCB | Mine Waste Cleanup Bureau (DEQ) |
| MWPCS | Montana Groundwater Pollution Control System |
| MWQA | Montana Water Quality Act |
| NES | National Eutrophication Survey |
| NHD | National Hydrography Dataset |
| NLA | National Lakes Assessment |
| NPDES | National Pollutant Discharge Elimination System |
| NPL | National Priorities List |
| NPS | Nonpoint Source |
| NTNC | Non-transient non-community systems |
| NWCA | National Wetland Condition Assessment |
| PCB | PolyChlorinated Biphenyls |
| PFC | Proper Functioning Condition |
| PWS | Public Water System (or Supply) |
| QC | Quality Control |
| QMP | Quality Management Plan |
| SCD | Sufficient Credible Data |
| SDWA | Safe Drinking Water Act |
| SDWIS | Safe Drinking Water Information System |
| SMCL | Secondary Maximum Contamination Level |
| SRF | State Revolving Fund |
| STAG | Statewide TMDL Advisory Group |
| SWP | Solid Waste Program (DEQ) |
| SWPP | Source Water Protection Plans |
| SWTR | Surface Water Treatment Rule |
| TCR | Total Coliform Rule |
| TKN | Total Kjeldahl Nitrogen |
| TMDL | Total Maximum Daily Load |
| TN | Total Nitrogen |
| TNC | Transient non-community systems |
| TP | Total Phosphorus |
| TPA | Trading Partner Agreement |
| TSI | Trophic State Index |
| USACE | U.S. Army Corp of Engineers |
| USDA | United States Department of Agriculture |
| USFS | United States Forest Service |
| USGS | United States Geological Survey |
| VOC | Volatile Organic Chemicals |
| WARD | Water quality Assessment, Reporting, and Documentation system |

| **Acronym** | **Definition** |
|---|---|
| WET | Whole Effluent Toxicity |
| WLA | Wasteload Allocation |
| WPCAC | Water Pollution Control Advisory Council |
| WPCSRF | Water Pollution Control State Revolving Fund |
| WPDG | Wetland Program Development Grants |
| WPP | Wetland Program Plans |
| WQBEL | Water quality-based effluent limitations |
| WQPB | Water Quality Planning Bureau (DEQ) |
| WQS | Water Quality Standards |

# 1.0 INTRODUCTION

The Montana Department of Environmental Quality (DEQ) is the state agency responsible for implementing delegated components of the Federal Water Pollution Control Act (commonly referred to as the Clean Water Act [CWA]) for waters under state jurisdiction. As required under sections 303(d) and 305(b) of CWA, DEQ conducts and/or coordinates ongoing water quality assessments and compiles reports on the status and trends of water quality. To satisfy the requirements of sections 303(d) and 305(b), this report includes the following:

- description of Montana's water resources
- description of Montana's water quality standards
- report on water pollution control programs
- watershed planning priority for waters not meeting water quality standards
- cost/benefit analysis
- description of water quality monitoring programs
- water quality standards attainment (i.e., use-support) decisions for assessed waters
- list of waters with completed and approved Total Maximum Daily Loads allowable to meet water quality standards and support beneficial uses
- general assessment of water quality for Montana's waters
- discussion of public health concerns
- description of groundwater and drinking water programs
- description of updates to Montana's assessment database during this reporting cycle

The Appendices contain the following:

**Appendix A:** list of the assessed surface waters that have one or more impaired beneficial uses
**Appendix B**: list of all waters in need of Total Maximum Daily Load (TMDL) development [303(d) list] and TMDL Priority Schedule
**Appendix C:** waterbodies assessed during the 2012 reporting cycle
**Appendix D:** pollutant causes removed from the 2010 303(d) List
**Appendix E:** changes to beneficial-use support
**Appendix F:** EPA-approved TMDLs
**Appendix G:** DEQ's monitoring and assessment schedule for 2011-2014

Also included is the assessment method used to determine attainment of water quality standards (**Attachment 1**). For a list of terms used throughout this report, refer to the **Glossary**.

# 2.0 BACKGROUND INFORMATION

The Montana Department of Environmental Quality (DEQ) reports on the state's surface waters by hydrologic basins and uses current geographic information systems (GIS) to facilitate spatial analysis, mapping, and reporting on water quality assessments. This section discusses how surface waters are organized for administrative purposes, the types and amount (size) of surface waters, and the size of waters over which Montana has jurisdiction or management authority.

## 2.1 STATE OVERVIEW

Montana's headwater streams fall within three major river basins: the Clark Fork, Flathead, and Kootenai rivers in the Columbia basin, the Missouri and Yellowstone rivers in the Mississippi basin, and the St. Mary River in the Saskatchewan-Nelson basin, Canada. For administrative purposes, DEQ groups the state's 16 sub-major basins into four administrative basins (**Figure 2-1**):

- **Columbia** – all Montana's waters west of the Continental Divide, including the Clark Fork, Flathead, and Kootenai rivers
- **Upper Missouri** – the Missouri River basin from its headwaters downstream to the confluence with the Marias River
- **Lower Missouri** – the Missouri River basin from the Marias River confluence to the North Dakota border, including the Marias, Musselshell, and Milk rivers; the Montana headwaters of the St. Mary River in the Saskatchewan-Nelson basin
- **Yellowstone** – all waters of the Yellowstone River within Montana; the Little Missouri watershed in southeast Montana

## 2.2 DESCRIPTION OF SURFACE WATERS

The stream and lake size estimates used in this report come from the National Hydrography Dataset (NHD). Total length of streams, ditches, and canals are calculated from all linear waters in NHD. Due to the substantial variation in lake number and size estimates between various NHD dataset editions, the total lake area for the state is based on named waters of at least 5 acres (**Table 2-1**).

Because NHD was developed primarily using U.S. Geological Survey (USGS) topographical maps produced over many decades, the detail and accuracy varies across the state. The consistency and accuracy of most perennial streams and lakes is considered good. However, there are some inherent difficulties in designating intermittent and perennial streams in a changing environment. In addition, the constant change of the channel in some intermittent and perennial streams cannot be captured in NHD in a timely manner. Because of these possible sources of error, the summary of state waters reported in Montana's 2012 Integrated Report are given in the nearest 100 miles for streams. This is done in an effort to report these numbers as accurately as possible with the data available.


**Figure 2-1. Montana's Sub-Major Basins and Montana DEQ Administrative Basins**

In 2010, Montana's Assessment Units (AUs) were transitioned to the High Resolution NHD, which is based on a more sophisticated data model than previous years. Flow lines in the new High Resolution NHD show greater detail in waterbody channels, capturing more twists, turns, and meanders of the streams and canals, thus making the High Resolution NHD more suitable for viewing at a scale of 1:24,000. **Table 2.1** lists the area of surface waters based on the High Resolution NHD.

**Table 2-1. Montana Surface Waters Based on High Resolution (1:24,000) NHD**

| RIVER BASINS | Perennial Streams (Miles) | Intermittent & Ephemeral Streams (Miles) | Ditches & Canals (Miles) | Lakes & Reservoirs* (Acres) |
|---|---|---|---|---|
| Columbia | 20,300 | 29,900 | 1,800 | 271,500 |
| Upper Missouri | 17,600 | 38,300 | 3,900 | 110,000 |
| Lower Missouri | 17,800 | 142,300 | 3,800 | 417,300 |
| Yellowstone | 13,500 | 97,300 | 3,400 | 47,200 |
| **Montana Total** | **69,200** | **307,800** | **12,900** | **846,000** |

*Named waters ≥ 5 acres. Size estimates of all waters derived by DEQ from 1:24,000-scale NHD.

## 2.2.1 Streams

Streams belong to one of three general categories based on their flow characteristics and relative position of their streambed to the local shallow groundwater table.

- Ephemeral streams are always above the local shallow groundwater and flow only in response to snowmelt or rainfall. They are dry most of the year and are typically found in the semi-arid and mountain headwater regions of Montana.
- Intermittent streams are below the local shallow groundwater table during part of the year and flow in response to groundwater recharge and precipitation. Most of the stream miles in Montana are small ephemeral or intermittent streams.
- Perennial streams are always below the local shallow groundwater table and typically flow on the surface throughout the year.

A stream-ordering technique, like that described by Strahler (1957), categorizes stream reaches by the relative drainage density of the contributing watershed. First-order streams do not have tributaries and are commonly ephemeral or intermittent. Stream orders change at the confluence of two like-order streams (e.g., a second-order stream begins at the confluence of two first-order streams; a third-order stream begins at the confluence of two second-order streams, and so on).

## 2.2.2 Lakes

All lakes and reservoirs are part of the state's water resources, but most of the assessment emphasis has been focused on significant publicly-owned lakes, which have public access and recreation potential. Unfortunately, NHD does not identify lake ownership. Therefore, in this report, only named perennial lakes ≥ 5 acres are considered significant publicly-owned lakes.

This subset of the total lake acreage may contain private reservoirs or may exclude some small alpine or pothole lakes on public lands. Until resources are available to undertake a statewide lakes ownership survey, DEQ will identify significant, publicly-owned lakes for section 305(b) reporting as described above.

### 2.2.3 Waters Under State Jurisdiction and Management

Montana's water quality management program does not have authority over all of the waters described in **Table 2-1**. The U.S. Environmental Protection Agency (EPA) or tribal governments with "treatment as a state" designation for their water quality program are responsible for assessing the condition of all waters located entirely within officially recognized tribal reservations. The exception is Flathead Lake, which is managed jointly by the state and the Confederated Salish and Kootenai Tribes and is, therefore, included in the state waters tables. In addition, Montana's water quality management program has not defined assessment units for, nor actively assesses the conditions of, waters within national parks and wilderness areas. Thus, **Table 2-2** presents a clearer picture of the waters that are the primary focus of the Montana water quality management program. Even though it does not manage tribal land waters, DEQ has a direct and vested interest in the quality of all waters in the state.

**Table 2-2. State Waters Exclusive of Tribal Lands, National Parks, and Wilderness Areas**

| RIVER BASINS | Perennial Streams (Miles) | Intermittent & Ephemeral Streams (Miles) | Ditches & Canals (Miles) | Lakes & Reservoirs* (Acres) |
|---|---|---|---|---|
| Columbia | 15,600 | 23,800 | 900 | 241,000 |
| Upper Missouri | 17,100 | 37,900 | 3,900 | 108,600 |
| Lower Missouri | 15,100 | 126,900 | 3,200 | 385,200 |
| Yellowstone | 11,800 | 85,800 | 3,200 | 45,500 |
| **Montana Total** | **59,600** | **274,400** | **11,200** | **780,300** |

*Named waters ≥ 5 acres. Size estimates of all waters derived by DEQ from 1:24,000-scale NHD.

To calculate the total area of waters the state manages, DEQ combined the boundaries of national parks, wilderness areas, and reservations into one set of areas to be excluded. For the best quality, DEQ used 1:24,000-resolution data that represented the actual boundaries of these excluded areas.

# 3.0 WATER POLLUTION CONTROL PROGRAMS

DEQ is granted federal authority to implement several Clean Water Act (CWA) programs in Montana. Collectively, these programs facilitate achievement of the Clean Water Act's broad goal of fishable and swimmable, i.e., attaining water quality standards. Section 3 provides an overview of the status of these programs, which include water quality standards, point and nonpoint source controls, the water pollution control revolving fund, Total Maximum Daily Loads (TMDL), and a cost-benefit analysis of program implementation.

## 3.1 WATER QUALITY STANDARDS

Water quality standards define the water quality goals of a waterbody, or portion thereof, by (1) designating the use or uses that the water is expected to be able to support, (2) setting criteria that define the water quality necessary to protect the uses, and (3) preventing degradation of water quality through nondegradation provisions. States adopt water quality standards to protect public health or welfare, enhance the quality of water, and serve the purposes of the Clean Water Act.

### 3.1.1 Standards Review and Rulemaking Process

DEQ reviews Montana's water quality standards (WQS) on an ongoing basis and updates or modifies existing standards as needed. State law provides authority to DEQ and the Board of Environmental Review (BER) to adopt standards into the Administrative Rules of Montana (ARM). This rule-making process includes the Water Pollution Control Advisory Council (WPCAC), the governor's office, EPA, and the public. Listed below are the steps in the rule-making process.

1. DEQ develops and drafts a rule proposal, which is reviewed by senior management for agency priority.

2. If the rule is a priority, WPCAC reviews the proposal, which could include stakeholder discussions to resolve issues. Rule language or concept is part of WPCAC official records (minutes) posted on the Web.

3. Following completion of a satisfactory rule proposal, the governor's office reviews it.

4. The draft is modified as necessary and sent back to WPCAC to review at least 30 days before the proposal is published in the Montana Administrative Register (MAR) by the secretary of state.

5. DEQ presents proposal to BER; if approved, the proposed rule is published in MAR within 14 days. The date that it appears in MAR is the proposal's official publication date, beginning a 6-month deadline for final adoption by BER.

6. A public hearing is set for 30 days after publication in MAR. A legal ad in major newspapers runs for three consecutive weeks, informing the public of the proposed rule.

7. After the public hearing, DEQ responds to comments and makes necessary changes. DEQ submits a draft response to the comments, including any changes, to BER, who chooses to adopt, not adopt, or adopt with modifications.

8. Final notice for the rule adoption is published in MAR; DEQ notifies interested parties.

9. DEQ completes the final rule and sends it to the secretary of state; DEQ enters the final rule on the Website.

10. The new rule takes effect under state law when the secretary of state publishes it in MAR.

11. As a standards change, Montana submits the rule to EPA for approval. Following EPA approval, the new standard becomes effective under the federal CWA.

## 3.1.2 Numeric and Narrative Criteria

Montana water quality criteria include both beneficial use-specific components and general provisions. Standards are either numeric or narrative (i.e., based on measured levels of pollutants or other measurable factors compared with a reference condition[1] for that class of water). Criteria can also be specific to beneficial uses, such as human health, aquatic life, or agriculture. For the protection of aquatic life, Montana denotes numeric standards as both “acute” and “chronic.”

Montana’s numeric water quality criteria not specific to use classification are found in Circular DEQ-7. DEQ developed these criteria using guidance from EPA, which includes human health advisories, National Recommended Water Quality Criteria, and drinking water criteria referred to as Maximum Contaminant Levels.

Narrative criteria and the provisions defined by nondegradation (ARM 17.30.701–718) provide a minimum level of protection to state waters. DEQ may use these standards to limit the discharge of pollutants or the concentration of pollutants in waters not covered under numeric standards. Montana narrative criteria prohibit activities that would result in nuisance aquatic life (ARM 17.30.637). Montana defines some standards for pollutants (such as pH, temperature, and sediment) in terms of change from what would naturally exist.

### *3.1.2.1 Circular DEQ-7*

Circular DEQ-7 contains numeric nonclassification-specific WQS for Montana’s surface and groundwater. These criteria include pollutants categorized as toxic, carcinogenic, bioconcentrating or radioactive and also include some nutrients and otherwise harmful substances. The circular contains groundwater criteria for pesticides developed in compliance with the Montana Agricultural Chemical Groundwater Protection Act (80-15-201, MCA).

Circular DEQ-7 also contains the primary synonyms of each parameter; the Chemical Abstracts Service Registry Number for each chemical; the categorization of each parameter according to type of pollutant; the bioconcentration factor, if known; trigger values used to determine “significance” under Montana’s nondegradation policy; and required reporting values.

## 3.1.3 Montana Water Classification System

Montana’s water use classifications summarize beneficial uses assigned to each of the state’s waters.

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[1] See also **Section 3.1.4**

### *3.1.3.1 Beneficial Uses*

In the 1950s, Montana classified its waterbodies according to the present and future beneficial uses they should be capable of supporting (75-5-301 MCA). The State Water-Use Classification System (ARM 17.30.604-629) identifies the following beneficial uses:

- drinking, culinary, and food processing
- aquatic life support for fishes and associated aquatic life, waterfowl, and furbearers
- bathing, swimming, recreation, and aesthetics
- agricultural water supply
- industrial water supply

#### 3.1.3.1.1 Drinking Water, Culinary, and Food Processing

Human health criteria address toxins and carcinogens. Criteria for carcinogens, such as arsenic, are set to a specific level of increased cancer risk resulting from lifelong exposure through drinking contaminated water and consuming fish from the same waters. For all carcinogens except arsenic, the Montana Legislature has determined the acceptable risk level as 1 case of cancer per 100,000 persons exposed. For arsenic, the acceptable level is 1 cancer per 1,000 persons exposed (MCA 75-5-301(2)(b)).

#### 3.1.3.1.2 Aquatic Life

Aquatic life support is a broad term intended to protect fish and other aquatic animals and plants normally associated with a healthy ecosystem. Aquatic life can be impaired by chemical pollutants, sediments, temperature changes, riparian habitat degradation, stream channel modifications, excessive water withdrawal, irrigation return flows, and other actions that disrupt the naturally occurring hydrological conditions or biological integrity of the waterbody.

Fish are no longer tracked and reported independently of aquatic life and are now assessed and reported within the aquatic life beneficial use. Fish are assessed as either coldwater (salmonid) or warmwater (non-salmonid). Mountain, foothill, and intermontane streams and lakes typically support coldwater fish such as trout and associated game and nongame fish. Eastern prairie streams and lakes, and the lower Missouri and Yellowstone rivers, typically support warmwater fish. These waters are naturally warm and have higher suspended sediment and total dissolved solids. They typically support sauger, catfish, and a wide variety of nongame fish.

#### 3.1.3.1.3 Recreation

Recreation includes primary and secondary contact recreation. Swimming and wading are examples of primary contact recreation, while boating is a type of secondary contact recreation. Noxious algae growth or health concerns associated with *E. coli* bacteria can impair the use of a waterbody for swimming.

#### 3.1.3.1.4 Agriculture and Industry

Generally, if a waterbody supports drinking water, culinary and food processing, recreation, and aquatic life beneficial uses, the state assumes it will also support agricultural and industrial uses. However, additional salinity and toxicity information may be required to determine suitability for agricultural use. Specific numeric water quality criteria for electrical conductivity and sodium adsorption ratio have been set to protect irrigated agriculture in the Rosebud Creek, Tongue, Powder, and Little Powder river basins, including their tributaries (ARM 17.30.670).

### *3.1.3.2 Surface Water Classification System*

Montana's classification system for surface water use assigns a class primarily based on water temperature and the presence of certain fish species and associated aquatic life (**Table 3-1**). Each class has associated beneficial uses (**Table 3-2**). A waterbody supports its beneficial uses when it meets the WQS established to protect those uses. A waterbody is impaired when a WQS established to protect a beneficial use is not met. The decision about whether a specific use is supported is independent of all other designated uses. For example, a waterbody may partially support aquatic life because of excess nutrients, not support drinking water because of arsenic, but fully support agriculture and industrial uses.

The three most common classes are A, B, and C. Class I is a temporary category assigned to three streams that were grossly impaired when the system was established. The A-Closed and A-1 classes describe high quality waters whose principal beneficial use is for a public water supply (A-C) or are with national parks, wilderness, or primitive areas (ARM 17.30.614). The A-Closed class may invoke watershed protection and use restrictions to protect drinking water.

Classes B and C are divided according to whether they support coldwater or warmwater aquatic life. Classes B-1, B-2 and C-1, C-2 support coldwater aquatic life; classes B-3 and C-3 support warmwater aquatic life. Classes B and C have identical use classifications, except that class B waters specify drinking water as a beneficial use and class C waters do not.

Class C-3 streams are suitable for warmwater aquatic life and recreation activities. Because these streams often contain naturally high total dissolved solids (salinity), their quality is marginal for drinking water and agricultural and industrial uses.

In August 2003, Montana added four additional classes: D, E, F, and G. These classes include ephemeral streams (E-1 and E-2), ditches (D-1 and D-2), seasonal or semi-permanent lakes and ponds (E-3, E-4, E-5), and waters with low or sporadic flow (F-1). Class G-1 waters must be maintained as suitable for watering wildlife and livestock; aquatic life, not including fish; and secondary contact recreation. They need be only marginally suitable for irrigation after treatment or with mitigation measures. Class G-1 includes "holding water" from coal bed methane development.

Note: The classification system designates uses per waterbody, even though the waters may have other undesignated uses. In these cases, a waterbody may be reclassified to reflect existing uses. Conversely, existing uses cannot be removed from a waterbody. To date, Montana has not added any waters in these four new classes; they are only placeholders for future use.

**Table 3-1. Montana Surface Water Classifications**

| Classification | Description |
|---|---|
| A-CLOSED | Suitable for drinking, culinary, and food-processing purposes after simple disinfection. |
| A-1 | Suitable for drinking, culinary, and food-processing purposes after conventional treatment to remove naturally present impurities. |
| B-1 | Suitable for drinking, culinary, and food-processing purposes after conventional treatment; bathing, swimming, and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; agricultural/industrial water supply. |
| B-2 | Suitable for drinking, culinary, and food-processing purposes after conventional treatment; bathing, swimming, and recreation; growth and marginal propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; agricultural/industrial water supply. |

**Table 3-1. Montana Surface Water Classifications**

| Classification | Description |
|---|---|
| B-3 | Suitable for drinking, culinary, and food-processing purposes after conventional treatment; bathing, swimming, and recreation; growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl and furbearers; agricultural/industrial water supply. |
| C-1 | Suitable for bathing, swimming, and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; agricultural/industrial water supply. |
| C-2 | Suitable for bathing, swimming, and recreation; growth and marginal propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; agricultural/industrial water supply. |
| C-3 | Suitable for bathing, swimming, and recreation; growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl, and furbearers. Quality is naturally marginal for drinking, culinary, and food-processing purposes, agricultural/industrial water supply. Degradation that impacts existing or established uses is prohibited. |
| I | The goal is for these waters to fully support the following uses: drinking, culinary, and food-processing purposes after conventional treatment; bathing, swimming, and recreation; growth and propagation of fishes and associated aquatic life, waterfowl and furbearers; agricultural/industrial water supply. |
| D-1 | Suitable for agricultural purposes and secondary contact recreation. |
| D-2 | Suitable for agricultural purposes and secondary contact recreation. Because of conditions resulting from flow regulation, maintenance of the ditch, or geomorphologic and riparian habitat conditions, quality is marginally suitable for aquatic life. |
| E-1 | Suitable for agricultural purposes, secondary contact recreation, and wildlife. |
| E-2 | Suitable for agricultural purposes, secondary contact recreation, and wildlife. Because of habitat, low flow, hydro-geomorphic, and other physical conditions, waters are marginally suitable for aquatic life. |
| E-3 | Suitable for agricultural purposes, secondary contact recreation, and wildlife. |
| E-4 | Suitable for aquatic life, agricultural purposes, secondary contact recreation, and wildlife. |
| E-5 | Suitable for agricultural purposes, secondary contact recreation, saline-tolerant aquatic life, and wildlife. |
| F-1 | Suitable for secondary contact recreation, wildlife, and aquatic life, not including fish. |
| G-1 | To be maintained suitable for watering wildlife and livestock; aquatic life, not including fish; secondary contact recreation; marginally suitable for irrigation after treatment or with mitigation measures. |

**Table 3-2. Designated Beneficial Uses by Waterbody Class**

| Beneficial Uses | Water Use Classification | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | A-Closed | A-1 | B-1 | B-2 | B-3 | C-1 | C-2 | C-3 |
| Aquatic Life | X | X | X | X | X | X | X | X |
| Fishes (salmonid) | X | X | X | X | | X | X | |
| Fishes (non-salmonid) | | | | | X | | | X |
| Drinking Water (human health) | X | X | X | X | X | | | M |
| Recreation | X | X | X | X | X | X | X | X |
| Agriculture | X | X | X | X | X | X | X | M |
| Industry | X | X | X | X | X | X | X | M |

X = Beneficial use   M= Marginal Use (may exist)

#### 3.1.3.2.1 Waters in need of Water Use-Classification Review

DEQ believes that waterbody segments identified in **Table 3-3** are in need of review for appropriate classification. When the use-classification system was established the 1950's, these waters were affected to the point that uses typical of otherwise similar waters were not supported. The state's goal is to improve the quality of these waterbodies so that they will fully support all appropriate beneficial uses.

**Table 3-3. Montana Surface Waters with Unique Use Classifications**

| Waterbody | Classification |
|---|---|
| Rainy Creek (mainstem from the W.R. Grace Company water supply intake to the Kootenai River) | C-1 |
| Clark Fork River (from Warm Springs Creek to Cottonwood Creek) | C-2 |
| Clark Fork River (from Cottonwood Creek to the Little Blackfoot River) | C-1 |
| Ashley Creek (mainstem from bridge crossing on Airport Road to the Flathead River) | C-2 |
| Prickly Pear Creek (below East Helena – Upper Missouri Basin) | I |
| Silver Bow Creek (Upper Clark Fork Basin) | I |
| Muddy Creek (Sun River Basin) | I |

### *3.1.3.3 Groundwater Classification System*

Groundwater is classified according to its actual quality and use as of October 1982. Groundwater is broken into four classes: I, II, III, and IV (**Table 3-4**).

**Table 3-4. Montana Groundwater Classifications**

| Classification | Description |
|---|---|
| **I** | Groundwater has a specific conductance less than 1,000 µS/cm at 25ºC and is suitable for public and private water supplies, food processing, irrigation, drinking water for livestock and wildlife, and commercial and industrial purposes with little or no treatment required. |
| **II** | Groundwater has a specific conductance range of 1,000 to 2,500 µS/cm at 25ºC. Public and private water supplies may use Class II groundwater where better quality water is not available. The primary uses are irrigation, stock water, and industrial purposes. |
| **III** | Groundwater has a specific conductance range of 2,500 to 15,000 µS/cm at 25ºC. Its primary use is stock water and industrial purposes. It is marginally suitable for some salt-tolerant crops. |
| **IV** | Groundwater has a specific conductance greater than 15,000 µS/cm at 25ºC. Used primarily for industrial purposes. |

## 3.1.4 Reference Condition

The reference condition concept asserts that for any group of waterbodies there are relatively undisturbed examples that represent the natural biological, physical, and chemical integrity of a region; therefore, reference sites are those that represent the naturally occurring "baseline" condition. A number of Montana's narrative criteria require that water quality be compared to "naturally occurring," and DEQ uses reference sites to help define this.

Building from original work conducted in the early 1990s (Bahls, et al., 1992), DEQ is developing and expanding a robust dataset for reference sites. Field work was re-initiated in 2000 to locate and sample reference stream sites, and in 2003, to locate and sample reference lakes. In 2004, DEQ began to assemble an extensive list of potential stream and lake reference sites and their associated data. DEQ has also developed a process for consistency in evaluating candidate stream reference sites (Suplee, et al., 2005). Some established reference sites that had already been thoroughly reviewed using similar techniques did not go through this process. DEQ automatically classified these as final reference sites.

Using a set of criteria and best professional judgment, the evaluation process for streams consists of quantitative watershed and water quality analyses for each site, as well as qualitative assessments of stream health and condition. Each quantitative analysis, or best professional judgment criterion, evaluated some aspect of stream or watershed condition that could potentially affect water quality and aquatic life. The screening tests checked for:

- cumulative effects from multiple causes
- site-specific data sufficiency
- affects from land use based on the proportion of agriculture
- high concentrations of heavy metals (i.e., above numeric standards)
- affects from mines
- road density (coldwater streams only)
- timber harvest intensity (coldwater streams only)

To make the final list a site had to pass each applicable screen. DEQ considered sites that passed all applicable screens general purpose reference sites, since DEQ did not find the sites' conditions to be negatively affected for any categories.

The process described above was used to identify a group of Montana reference stream sites. However, DEQ still needs to ensure that the reference sites are sufficiently similar to the stream sites with which they are compared. In general, Omernik's Level III ecoregions (Omernik, 2000) are an excellent tool for the initial partitioning of Montana reference streams. However, in certain cases, more specific geospatial characteristics than Level III ecoregions alone may need to be determined for the reference site and the comparison site. What those geospatial characteristics will be varies according to the parameter of interest. For example, elevation is important when considering aquatic insect (macroinvertebrate) populations, watershed area is important when considering prairie stream fish populations, and nutrient concentrations are best explained by Level IV (fine-scale) ecoregions. It is likely that some water quality parameters and biological assessment metrics can be referenced at a coarse scale (e.g., Level III ecoregions), while others cannot.

## 3.2 Point Source Control Programs

Montana's discharge permit program for point source wastewater began in 1968. With the passage of the Federal Water Pollution Control Act (FWPCA) Amendments of 1972, the National Pollutant Discharge Elimination System (NPDES) program was created. In 1974, Montana applied for and received EPA authorization to administer the national program in Montana. Since 1972, FWPCA has been amended several times, including the 1977 Clean Water Act (CWA) and the 1987 Water Quality Act, which emphasized controlling toxic pollutants, requiring water quality-based effluent limitations in permits, and clarifying the requirements for stormwater discharges in NPDES permits. The 1972 Amendments established a series of goals and policies to protect the nation's waterways, including eliminating the discharge of pollutants, which is implemented through the technology-forcing requirements of the Clean Water Act.

Under NPDES regulations, DEQ administers the core program, including issuing individual permits, issuing permits for federal facilities and issuing general permit to categories of dischargers. EPA retains primacy over the pretreatment and municipal biosolids control programs in Montana.

Unlike the federal CWA, which focus on navigable waters, the Montana Water Quality Act (MWQA) defines "state waters" to include both surface and groundwater and directs the Board of Environmental Review (BER) to adopt rules governing the issuance of permits for the discharge of sewage, industrial waste, and other wastes into state waters (75-5-401(1), MCA). In 1982, BER adopted rules requiring that any existing source discharge pollutants into state groundwater file a Montana Groundwater Pollution Control System (MWPCS) permit application by October 29, 1983, or cease the discharge. The 1982 rules also adopt water-use classification for groundwater based on natural specific conductance, groundwater standards to protect those uses, and a nondegradation policy to protect high quality waters.

### 3.2.1 Montana Pollutant Discharge Elimination System Program

Both the federal CWA and Montana Pollutant Discharge Elimination System (MPDES) regulations prohibit the discharge of wastes or pollutants from any point source to state waters without a valid permit. The term “point source,” as defined by ARM 17.30.1304, includes any discernible, confined, and discrete conveyance from which pollutants are, or may be, discharged. Typical point sources include publicly owned treatment works, industrial facilities, runoff conveyed through a storm sewer system, and concentrated animal feeding operations. Return flows from irrigated agriculture and agricultural stormwater runoff are specifically excluded from the definition of point source.

In MPDES permits the discharge of pollutants is controlled primarily through the imposition of technology-based effluent limits, which establish a minimum level of pollutant control based on the type of pollutant (conventional, toxic, or nonconventional) and age of the facility. New sources are subject to the more stringent new source performance standards, including, when practicable, a standard permitting no discharge of pollutants. All MPDES permits must, at minimum, include technology-based effluent limits based on the federal effluent limitation published by EPA (40 CFR Chapter I, Subchapter N, pursuant to section 304(b) of the federal CWA).

In addition to technology-based effluent limits, MPDES permits must include more stringent limitations whenever DEQ determines that the discharge will cause or contribute to levels above any numeric or narrative water quality standard. Water quality-based effluent limitations (WQBEL) are based on specific standards in ARM (17.30.620 – 631), including Circular DEQ-7 and the general provisions of ARM 17.30.635 – 646, whenever streamflows equal or exceed the 7-day, 10-year flow of the receiving water. MPDES permits also implement the narrative prohibitions requiring state water to be “free from” substances that cause chronic or acute toxicity by including whole effluent toxicity (WET) testing when toxicity cannot be controlled or reduced via chemical-specific effluent limits.

Montana’s Water Quality Act (MWQA) contains a nondegradation policy (75-5-303, MCA) requiring that existing uses of state waters and the quality of water necessary to protect those uses be maintained and protected. DEQ may authorize degradation of state water only when it finds that degradation is necessary and will result in important economic or social development and all existing and anticipated (designated) uses are protected. The Nondegradation Rules adopted by the Board of Environmental Review (Title 17, Chapter 30, Subchapter 7) implements the nondegradation policy. These rules are applicable to all new or increased sources of pollution.

Permits issued to new sources, as defined in ARM 17.30.702(18), are based on the level of protection given in ARM 17.30.705, which incorporates the three tiers, or levels, of protection identified in federal guidance:

**Tier I –** Existing and anticipated uses of all state water must be protected.
**Tier II –** Existing water quality must be maintained for all water considered high quality, unless expressly authorized by DEQ under ARM 17.30.708 or determined to be non-significant under the criteria of ARM 17.30.715.

**Tier III –** No degradation is allowed in outstanding natural resource waters.

Water quality-based effluent limitations in permits issued to new sources may be based on the criteria of ARM 17.30.715. A discharger in compliance with these limits is considered to be non-significant and in compliance with the nondegradation policy and regulations.

MPDES permits also provide a regulatory process for implementing a wasteload allocation (WLA) that has been developed for a point source as part of the total maximum daily load (TMDL) for a watershed or specific waterbody. MPDES permits may be reopened to incorporate the WLA at any time, or the WLA may be incorporated in the next 5-year permit renewal process. For existing discharges into a water quality limited segment in the absence of an approved TMDL, DEQ imposes effluent limitations that prohibit a further decline in water quality for which the waterbody is impaired (75-5-703(10), MCA).

The Montana Water Quality Act authorizes the Board of Environmental Review to adopt rules implementing a fee program that is sufficient to cover DEQ's cost of administering the permit programs (MPDES and GWPCS).

In addition to permits issued to individual dischargers, state and federal regulations authorize DEQ to issue general permits to categories of discharges on either a statewide or limited geographic basis. General permits must conform to all of the criteria and standards applicable to individual discharges, including technology-based effluent limits and water quality-based effluent limits. In addition to these minimum requirements, general permits may contain additional provisions that DEQ determines are necessary to implement the goals of MWQA.

DEQ has issued general permits for 16 different categories of dischargers, including stormwater, concentrated animal feeding operations (CAFO), concentrated aquatic animal feeding operations, suction dredging, minor publicly owned treatment works, petroleum remediation projects, disinfected water, construction dewatering, produced water, and sand and gravel operations. Stormwater and CAFO discharges are discussed below.

**Stormwater –** The following are subject to regulation under the MPDES program:

- discharges composed entirely of stormwater runoff from certain industrial activities
- municipal separate storm sewer systems (MS4)
- construction activities
- activities designated by DEQ as a significant source of pollutants
- activities that contribute to a violation of water quality standards

Because of the large number of facilities that fall into this category, DEQ has developed a number of general permits that cover the above regulated activities. State and federal regulations generally authorize using best management practices to control or abate pollution in stormwater. Stormwater permits issued to MS4s must include additional measures such as management practices, control techniques, and system design and engineering methods to control the discharge of pollutants to the maximum extent practicable. Stormwater discharges that cannot comply with the requirements of the applicable general permit must obtain an individual MPDES permit.

**CAFO –** MWQA defines an animal feeding operation (AFO) as any lot or facility in which animals are stabled, confined, and fed or maintained for a total of 45 days or more during any 12-month period.

Additionally, no portion of the facility can be used to sustain crops, forage growth, or post-harvest residues during the normal growing season. The following are subject to regulation under the MPDES program:

- AFOs that meet the criteria for a large CAFO, based on the number of animals that are stabled or confined
- AFOs that meet the criteria for a medium CAFO, based on the number of animals and either a) discharge pollutants through a constructed ditch or similar devise or b) discharge pollutants directly into state water that originates outside of the facility

CAFOs are subject to the specific federal effluent limit guidelines published by EPA (40 CFR 412) and the general requirements of 40 CFR 122.23, which are incorporated into state regulations (ARM 17.30.1330).

These CAFOs are required to contain animal wastes and process wastewater on site. They are not authorized to discharge any wastewater except when precipitation falling on the facility exceeds the 24-hour, 25-year event. The general permit requires these facilities to develop and implement a nutrient management plan that describes how animal wastes will be land-applied at agronomic rates. They also have requirements for notifying, reporting, and recordkeeping, including the requirement to submit an annual report.

### 3.2.2 Montana Groundwater Pollution Control System (MGWPCS) Program

The Board of Environmental Review has adopted rules governing the discharge of wastes into groundwater and established a permit program and water quality standards (ARM 17.30.10, the Montana Groundwater Pollution Control System). The rules define a “source” as any point source or disposal system, including a waste-holding pond, which under normal operating conditions may reasonably be expected to discharge pollutants into groundwater. The water-use classifications and groundwater standards adopted in ARM 17.30.1006 provide a basis for limiting the discharge of pollutants into groundwater. Groundwater standards are based on the human health standards given in Circular DEQ-7 and include a nondegradation criteria based on DEQ’s nondegradation policy and rules.

The groundwater standards recognize the following beneficial uses of Classes I and II groundwater:

- public and private water supply
- culinary and food processing
- irrigation
- livestock and wildlife
- commercial and industrial processes

Classes III and IV waters have limited uses because of their naturally high specific conductance greater than 15,000 µS/cm. However, discharges to Class III groundwater must comply with human health standards in Circular DEQ-7, where the specific conductance is less than 7,000 µS/cm.

To avoid duplication, the rule and statute provide for numerous exemptions from the requirement to apply for and obtain a groundwater discharge permit; however, sources that are exempt from the permit requirement are required to comply with all applicable water quality standards, including the nondegradation requirements in ARM 17.30.7.

The groundwater rules do not mandate minimum treatment requirements or implement technology based effluent limitations. The level of treatment or pollutant control is based on compliance with the applicable water quality standards, including nondegradation, after dilution with a DEQ-approved mixing zone.

## 3.3 Nonpoint Source Pollution Control Program

The 2012 Integrated Report identifies state waters that need additional actions to control nonpoint source pollution (the state's list of impaired waters). Additionally, all state waters benefit from best management practices and programs to control nonpoint sources of water quality pollution.

Nonpoint source (NPS) pollution, unlike pollution from sewage treatment plants and industrial facilities, comes from many diffuse sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries natural and human-made pollutants into lakes, rivers, wetlands, and groundwater. Nonpoint sources include grazing, logging, farming, mining, land development, and many other activities. In Montana, the vast majority of water quality problems result from NPS pollution.

Montana's 2010 Integrated Report identified the top causes of water quality impairment as sedimentation, habitat alterations, nutrients (phosphorus and nitrogen), and metals (lead, copper, arsenic, and cadmium) and the top sources of impairment as resulting from agriculture, urban growth, forestry and mining operations.

The following is a description of the primary categories of nonpoint sources of pollution in Montana and the state's processes and programs for reducing the level of pollution from these sources.

### 3.3.1 Agriculture: Livestock and Crop Production

Ranches and farms cover two-thirds of the state—more than 60 million acres. Approximately 80% is rangeland and pasture and 20% is cropland (National Agriculture Statistics Survey, 2011). Agriculture is one of Montana's leading industries, generating 4% of the gross domestic product for the state in 2008 (U.S Department of Commerce, Bureau of Economic Analysis, 2011) and more than $2.8 billion in 2007—about $1.5 billion in livestock and poultry and $1.3 billion in crops (USDA, National Agricultural Statistics Service, 2009).

In 2007, harvested cropland covered 9,163,867 acres; irrigated acres comprised 22% (2,013,167 acres) of the total harvested cropland. In 2007, Montana's livestock inventory included 2,500,000 cattle and calves, 270,000 sheep and lambs, 180,000 hogs and pigs, 490,000 ducks and chickens, and 14,000 milk cows (USDA, National Agricultural Statistics Service, 2009).

Pollutants from agricultural nonpoint sources (NPS) include sediment, nutrients, salinity, temperature, bacteria, and pesticides. Pollution not requiring TMDL development but still impairing beneficial uses includes loss of habitat, flow alteration, and channelization (Montana Department of Environmental Quality, 2010).

Montana's agriculture NPS pollution control goals include:

- increasing implementation of agricultural best management practices (BMPs)

- improving irrigation water management
- increasing BMP implementation on rangeland

As a framework for controlling negative water quality effects from agricultural NPS, DEQ adopted "Agricultural BMPs for Control of Nonpoint Source Pollution" based on Montana Conservation Practice Standards from the Natural Resources Conservation Service Field Office Technical Guide (Natural Resources Conservation Service, 2007; Montana Department of Environmental Quality, 2005a). Numerous federal and state agencies and programs provide technical assistance and financial incentives to implement these BMPs. Montana has a long history of cooperative programs between various natural resource agencies and many partnerships to address and integrate agricultural NPS issues.

In addition to advocating for agriculture BMPs, DEQ's TMDL Program allocates pollutant load reductions using a watershed approach wherever NPS pollutants impair the beneficial uses of a waterbody. A watershed approach (a) targets priority water quality problems, (b) promotes stakeholder involvement, (c) integrates solutions to include the expertise and authority of multiple agencies and private experts, and (d) evaluates the implementation of load reductions through monitoring and data analysis. The Water Quality Improvement Plans developed from TMDL planning include an implementation strategy that identifies critical actions necessary to fully restore beneficial uses.

### 3.3.2 Forestry (Silviculture)

As with farms and ranches, forests cover a large portion of the state. Nearly a quarter of Montana's land area is forested (22.5 million acres) (Conner and O'Brien, 1993). Sales from Montana forest products in 2004 were $1.2 billion. Montana's 2004 timber harvest was 785 million board feet, with private lands supplying 77% of the harvest (Spoelma, et al., 2008).

Montana's forests are also the headwaters for many rivers and streams. These provide some the West's best fishing, as well as water for agriculture, recreation, drinking, and many other uses. Forestry activities, however, can impair beneficial uses such as aquatic life because of increases or changes in sediment, nutrients, temperature, or habitat conditions. Activities such as road building, soil disturbance, and harvest unit management may generate pollutants or harm water quality and aquatic or riparian habitats. The 2010 Integrated Report lists forest roads as the third largest contributing source of confirmed impairments on an assessment unit basis. Timber harvesting is also listed as a confirmed contributing source of impairment.

Montana has specific control programs for reducing NPS pollution resulting from forestry and forestry-related activities. Montana's NPS goal for forestry and forestry-related activities is to reduce the negative effects on water quality that are associated with forest practices and forest roads. Montana's water quality protection program for forestry and forestry-related activities relies on a combination of regulatory and voluntary approaches.

The 1989 Montana Legislature passed a law to provide forestry BMP information to private forest owners and operators to help protect water quality. This law requires private forest owners to provide the Forestry Division of the Department of Natural Resources and Conservation (DNRC) with their plans before they begin timber harvest operations. Since 1989, a BMP Work Group has been reviewing and revising the original BMPs and providing statewide BMP audits on federal, state, and private forestry projects. Montana also has a Streamside Management Law (MCA 77-5-30–307), established in 1991, which provides regulatory standards for forest practices in riparian areas.

When developing TMDLs and Water Quality Improvement Plans, DEQ develops allocations for all significant nonpoint, forestry-generated sources of pollution. The Water Quality Improvement Plans also provide implementation and monitoring strategies to encourage restoration of beneficial uses and to track progress toward the load reductions identified in those plans.

## 3.3.3 Diffuse Urban and Suburban Pollution

Montana's NPS Program recognizes several sub-categories of diffuse urban and suburban pollution. Under this broad category we have found the following to be useful subcategories: stormwater runoff, transportation, construction, and waste disposal.

### *3.3.3.1 Stormwater Runoff*

Stormwater runoff from urban and industrial areas is a significant source of pollutants, such as oil and grease, pesticides, fertilizers, bacteria, and metals (e.g., lead, copper, zinc). In Montana, NPS effects from stormwater runoff are relatively localized because the number of urban areas is limited. Point source discharge permits for municipal storm sewer systems are currently required for seven urbanized areas and cities in Montana: Billings, Bozeman, Butte, Great Falls, Helena, Kalispell, and Missoula. Additionally, portions of Cascade, Yellowstone and Missoula counties, the University of Montana, Montana State University, Malmstrom Air Force Base, and the Montana Department of Transportation (within the designated urban areas that require permits) hold discharge permits requiring six minimum measures. These measures address: public education and outreach, public involvement, illicit discharge detection and elimination, construction site runoff controls, post construction stormwater management, and pollution prevention.

Montana's NPS Program uses TMDL development and Water Quality Improvement Plans to address stormwater concerns. DEQ also encourages and supports local information and education campaigns to reduce the amount of pollutants that homeowners contribute to stormwater.

### *3.3.3.2 Transportation*

Montana's transportation system contributes to nonpoint source pollution through contaminated runoff from roads and bridges, atmospheric deposition of nitrogen oxides, flood plain and river channel encroachment, accidental spills, road application of winter traction materials, and construction activities. Sediment, nutrients, dissolved solids, metals, and oil and grease are all NPS pollutants of concern generated from the transportation system. Additionally, there is physical habitat loss and degradation associated with the actual location and protection (e.g., levees, riprap, etc.) of the transportation system.

Montana's NPS Program focuses on mitigating past transportation-related impairments and reducing future impairments. DEQ collaborates with the Montana Department of Transportation and other appropriate agencies and entities to mitigate and minimize water quality degradation resulting from the state's transportation system. The entities include the US Forest Service, Bureau of Land Management, counties, and railroads. DEQ also coordinates with other regulatory entities, such as the Army Corps of Engineers, Conservation Districts, the US Fish and Wild Service, and the Montana Department of Fish Wildlife and Parks.

Stormwater, section 404 (aquatic disturbance), and section 401 (standards certification) permits for transportation projects are reviewed to ensure that appropriate decisions to "avoid, minimize, mitigate" are made and that adequate attention is given to BMPs. Through the TMDL planning process DEQ also evaluates transportation system waterbody-pollutant specific concerns to address significant impairment causes.

#### *3.3.3.3 Construction*

New home and development construction activities by their very nature disturb the soil and increase the likelihood of erosion. In turn, erosion can increase sediment and nutrient loads to surface waters. Habitat alteration from construction activities (e.g., changing or removing riparian vegetation) can also have significant negative effects upon aquatic life.

MPDES general discharge permits require contractors to protect water quality from construction activities that disturb more than 5 acres. Construction activities that disturb more than 1 acre within 100 feet of a river, lake, or stream must be permitted, and the contractor must take steps to protect water quality. DEQ provides information and educational materials regarding how construction activities can harm water resources and what efforts and requirements contractors and private citizens can, or must, take to minimize the effects of construction activity.

#### *3.3.3.4 Waste Disposal*

Approximately 331,000 Montanans contribute waste to an estimated 124,000 household sewage disposal systems (i.e., on-site septic systems).[2] A well-constructed and maintained septic system in suitable soils does a good job of treating household wastes. However, poorly designed, or neglected, systems may be sources of excess nutrients and pathogens. Additionally, standard septic systems in many Montana locations do not effectively remove nitrate from wastewater and therefore contribute to high groundwater nitrate concentrations. In some areas, septic systems are a significant water quality concern. Landfills, particularly unlined facilities, also pose a threat to surface and groundwater quality. Harmful and toxic substances can leach into the aquifer or surface waters. Pollutants from land disposal include nutrients, pathogens, pharmaceutical compounds, and personal care products (National Association of Clean Water Agencies, 2005).

DEQ maintains a solid waste disposal program that has regulatory authority to protect water quality from facilities such as landfills and underground storage tanks. The NPS Program addresses the effects of land disposal on a watershed basis. DEQ’s NPS Program has funded several water quality protection districts and watershed groups to address individual sewage disposal problems in the Helena, the Bitterroot, Missoula, Flathead Lake, and the Gallatin/Big Sky areas. DEQ assists local watershed groups in identifying appropriate BMPs where individual sewage disposal systems have been identified as a water quality concern. DEQ also develops source water protection plans for communities throughout the state that have site-specific source water concerns, such as land disposal contaminant issues, and identifies BMPs that can be implemented to address those issues. In 2009 the Montana Legislature enacted a law that bans the retail sale of household cleaning products with high phosphate levels in areas of the state that exceed surface water phosphorus standards.

[2] Estimation based on a state population size of 989,415 (2010 Census) individuals, of which approximately 658,000 use community-based sewer systems. For estimation purposes, the state assumes an average of 2.5 persons per household septic system.

### 3.3.4 Mining and Contaminated Sediments

Active mines are regulated with federal and state permits, including point source discharge permits. To obtain a permit, mine operators have to post a bond covering liability for cleanup and restoration. Abandoned and inactive mines, however, are significant sources of nonpoint source pollution in many of Montana's watersheds. Elevated metals concentrations in water and sediment are the most typical cause of NPS pollution associated with mining. Metals can harm aquatic life and impair water for drinking use.

DEQ's Mine Waste Cleanup Bureau (MWCB) has designated 300 priority mine sites (Montana Department of Environmental Quality, Remediation Division, 2010). MWCB's activities focus on two primary site types: 1) inactive mine sites addressed under the Surface Mining Coal and Reclamation Act and 2) mining-related sites addressed under the federal Comprehensive Environmental Responsibility, Compensation, and Liability Act (Superfund sites).

Montana has addressed many long-abandoned mine and mill sites; to date 283 projects have been completed. As of 2011, DEQ's Abandoned Mine Program has 13 active reclamation projects located in various parts of the state.

DEQ's program for controlling NPS pollution from mining include mitigating damage from past mining activities and protecting water quality from new mining developments. DEQ's TMDL staff collaborate with MWCB to develop TMDLs and water quality restoration plans for affected watersheds. DEQ and MWCB also coordinate reviewing draft point source permits for new mines to assure that permits are consistent with the water protection goals of both programs.

### 3.3.5 Contaminated Sediments from Industrial Activities

Metals and long-lived organic pollutants from past mining-related activities, fuel spills, rail yards, wood treatment plants, and other industrial sources often accumulate in streambeds and lake sediments. These pollutants may be directly toxic to aquatic life and humans, or they may be concentrated in tissues of fish and animals that feed on fish or aquatic life. Through bioaccumulation, concentrations of these pollutants can reach levels that are harmful to wildlife and humans.

DEQ's Nonpoint Source Program addresses contaminated sediments on a watershed, or waterbody, basis. Each source of contamination presents its own set of challenges. Removing and disposing of contaminated sediments is often expensive and creates risks and potentially other water quality effects, such as dispersal downstream. As appropriate, the NPS Program uses resources from DEQ's Remediation Division, as well as other state and federal agencies, to address clean-up needs.

### 3.3.6 Hydrologic Modification

Hydrologic modification (i.e., the alteration of streamflow from human activities) is caused by channel straightening, widening, deepening, or clearing or by relocating existing stream channels. Hydrologic modification affects water temperature, sediment transport, dissolved oxygen, instream flows, and streambank stability. Temperature and flow changes may limit aquatic life and recreational uses downstream. Hydrologic flow is most often modified by the construction and operation of dams, weirs, and water diversions for irrigation and stock watering; by the installation of undersized culverts; by the building of transportation protection embankments (e.g., rip-rap); or by the construction of off-channel water features such as fishing ponds.

DEQ's program for controlling NPS pollution from hydrologic modification includes (a) reducing the effects of existing modifications that occur from changes in operations, (b) removing structures that are no longer useful, (c) improving designs for water diversion facilities, and (d) assuring that new hydrologic modifications do not impair beneficial uses. Several state and federal laws regulate or otherwise address some of these effects, such as the Montana Stream Protection Act, the Montana Floodplain and Floodway Act, the Montana Natural Streambed and Land Preservation Act, the Montana Water Use Act (defines water rights and appropriations), Section 404 of the federal Clean Water Act, and the doctrine of Federal Reserved Water Rights.

Additionally, DEQ's NPS group focuses on:

- including representatives of hydroelectric interests on local watershed advisory committees;
- working with local watershed groups to develop implementation goals and objectives, and identify appropriate BMPs for flow related impairments;
- reviewing permit applications, environmental impact statements, and other relevant documents for compliance with state water quality laws and standards;
- encouraging approaches that cause the least harm when hydrological modifications are in the public interest; and
- assessing the need for additional BMPs for hydrologic modifications.

## 3.3.7 Recreation

More than 80% of all Montana residents engage in outdoor recreational activities, 60% of which are water-based (Schweitzer and Montana Department of Fish, Wildlife and Parks, 2008). In addition, tourism brings many recreational visitors to Montana who also enjoy and use the state's aquatic resources. The major water quality nonpoint source concerns associated with recreational activities include increased sediment yield (from roads and trails, and shoreline and streambank trampling); loss of habitat (associated with streambank and bottom disturbance); inappropriate waste disposal; and spills or discharges of gasoline, oil, and other petroleum products. A growing concern is the proliferation of aquatic nuisance species, which can be unknowingly and widely distributed by recreationists (e.g., boaters and fishers).

Montana has identified educational outreach programs as an appropriate strategy for addressing the effects of nonpoint source pollution from recreational activities.

## 3.3.8 Atmospheric Deposition and Climate Change

The 2010 303(d) List identified atmospheric deposition as a probable source of impairment for three large lakes and reservoirs in Montana: Flathead Lake, Fort Peck Reservoir, and Holter Lake. These lakes total more than 376,500 surface acres. Pollutants attributed to atmospheric deposition include nitrogen, phosphorus, mercury, and chemicals (e.g., PCBs).

Atmospheric deposition and climate change are issues that do not fit within the watershed approach because the sources are generally from outside the affected watershed or waterbody. The challenges with atmospheric deposition and climate change require significant coordination and resources at the state, regional, national, and international level.

The NPS Program's goal is to develop a more complete understanding of the effects of atmospheric deposition and climate change on water quality and recommend appropriate public policies. The NPS Program's strategy is to:

- characterize and quantify contributions of atmospheric deposition to pollution loads as part of source assessments for TMDL planning;
- work with DEQ's Air Quality Monitoring Section to characterize and describe atmospheric deposition on impaired waterbodies;
- reduce other load sources of the pollutant to meet TMDL targets in watersheds where atmospheric deposition is a significant source of a pollutant and the specific sources cannot be identified or otherwise included in the plan;
- to report the water quality effects of atmospheric deposition to the Board of Environmental Review, the Environmental Quality Council, EPA, and Montana's Congressional delegation; and
- increase public awareness about the effects and potential threats of atmospheric deposition and climate change on water quality via information and educational activities.

## 3.4 Water Pollution Control Revolving Fund

The Water Pollution Control State Revolving Fund program was established in the 1987 amendments to the federal CWA, which gave EPA the authority to make capitalization grants to states. The grants, along with state matching funds, provide financial assistance for constructing water pollution control projects.

Under Title 75, Chapter 5, Part 11, Montana Code Annotated (MCA), the 1989 Montana State Legislature passed the enabling legislation titled "Wastewater Treatment Revolving Fund Act," giving authority to DEQ and DNRC to adopt administrative rules for implementing the program. Legislation also granted these departments with the ability to generate state matching funds through the sale of State General Obligation Bonds. In 1991, 1995, 1997, 1999, 2001, and 2003, the Montana Legislature passed amendments to the Wastewater Treatment Revolving Fund Act. The 1997 amendments changed the title of the act from the Wastewater Treatment Revolving Fund Act to the Water Pollution Control State Revolving Fund (WPCSRF) and added NPS projects to the eligible project definition.

The long-term goal of WPCSRF is to maintain, restore, and enhance the chemical, physical, and biological integrity of Montana's waters for the benefit of the overall environment and the protection of public health, while maintaining a long-term, self-sustaining program.

Each year, the WPCSRF program prepares an Intended Use Plan and Project Priority List. Projects are ranked by priority using several criteria:

- the effects on water quality resulting from the current project situation
- the likelihood of improving water quality (restoring designated uses) after implementing the proposed project
- the pollution prevention efforts of the project sponsor
- the sponsor's readiness to proceed

The result is a relatively realistic priority list of eligible point and nonpoint projects to fund.

WPCSRF has an estimated funding capacity of around $12 million per year for the next several years, assuming a consistent federal capitalization effort. At this time, the supply of funds exceeds demand; therefore, the program funds all potential projects. Since the program's inception in 1989, it has predominately funded municipal wastewater treatment and collection projects, although other funded projects have included agricultural BMPs, landfills, and stormwater projects, totaling about $48 million.

Using CWA funds established under Section 106, WPCSRF also provides technical assistance to municipal wastewater treatment facilities around Montana. This includes operation and maintenance inspections, as well as comprehensive performance evaluations to optimize the facilities' treatment performances. WPCSRF funds training for wastewater operators and technical assistance to engineers and the public in wastewater treatment.

# 3.5 Total Maximum Daily Load Program (TMDL)

A Total Maximum Daily Load (TMDL) is the maximum amount of a pollutant a waterbody can receive from all combined sources and still meet water quality standards. DEQ develops TMDLs for impaired or threatened waterbodies.

Montana code defines an impaired waterbody as "a waterbody or stream segment for which sufficient credible data shows that the waterbody or stream segment is failing to achieve compliance with applicable water quality standards" (MCA 75-5-103 (11)). A threatened waterbody is defined as "a waterbody or stream segment for which sufficient credible data and calculated increases in loads show that the waterbody or stream segment is fully supporting its designated uses but threatened for a particular designated use because of (a) proposed sources that are not subject to pollution prevention or control actions required by a discharge permit, the nondegradation provisions, or reasonable land, soil, and water conservation practices; or (b) documented adverse pollution trends" (MCA 75-5-103 (31)).

## 3.5.1 TMDL Regulatory Requirements

Montana law (MCA 75-5-703) directs DEQ to develop TMDLs for impaired or threatened waterbodies. The federal Clean Water Act (Section 303(d)) also requires TMDL development for these same waterbodies.

TMDLs are developed only for waterbodies impaired or threatened by a pollutant, such as sediment or copper. Because a waterbody can be impaired or threatened for multiple pollutants, an individual waterbody may require multiple TMDLs. For example, if one stream segment is impaired by sediment, copper, and iron, then that segment has three waterbody–pollutant combinations that must be addressed.

If impairment includes at least one pollutant, the impaired waterbody is reported in Category 5 of Montana's waterbody assessment reporting system and included in the Integrated Report as impaired. Specifically, the 303(d) list includes the waterbody–pollutant combinations that require TMDL development and are reported in Category 5. Waterbodies impaired only by non-pollutant causes (e.g., alterations in wetland habitats or physical substrate habitat alterations) are reported in Category 4C.

## 3.5.2 TMDL Development and Implementation

A technical and sometimes complex process, TMDL development includes the following components:

- Determining measurable target values to help evaluate the waterbody's condition in relation to the applicable water quality standards
- Quantifying the magnitude of pollutant contributions from their sources
- Determining the TMDL based on the allowable loading limit
- Allocating the total allowable load (TMDL) into individual loads for each source

In Montana, restoration strategies and monitoring recommendations are also incorporated in TMDL documents to help facilitate TMDL implementation.

Basically, developing a TMDL for an impaired waterbody is a problem-solving exercise. The problem is excess pollutant loading that impairs a designated use. The pollutants can enter a waterbody from both nonpoint sources (e.g., unchanneled sediment runoff or nutrient runoff from agriculture) or through point sources (e.g., pipes and other distinct conveyances). The solution is to identify the total acceptable pollutant load—the TMDL—identify all the significant pollutant-contributing sources, and identify where pollutant-loading reductions could be applied to achieve the acceptable load.

TMDLs are not self-executing and often function as information tools. Individual allocations for point sources (referred to as wasteload allocations) are implemented via discharge permits distributed through the Montana Pollutant Elimination System (MPDES). Allocations for nonpoint sources (referred to as load allocations) are predominately implemented via voluntary actions by landowners and interested citizens who volunteer their time and efforts.

### 3.5.3 TMDL Program Overview

DEQ believes that water quality restoration and protection are best addressed through integrated efforts within a defined geographic area. Thus, DEQ uses a watershed-based approach to develop multiple TMDLs as one project within watersheds, where the project area usually corresponds to a pre-defined TMDL Planning Area (TPA). TPAs generally follow USGS Hydrologic Unit Code 4th field (HUC4) boundaries. In a few cases TPAs are subsets within a HUC4, while in other cases TPAs include multiple HUC4 units. Additionally, the Clark Fork, Missouri, and Yellowstone rivers each form their own large river TPA.

Within a project area, TMDLs are developed for each waterbody impaired by the same pollutant category (e.g., if all the pollutants were metals) independent of when a waterbody is first put on the 303(d) list. This approach, referred to as "list neutral," allows for greater efficiency and also results in a better understanding of impairment causes across the watershed. In addition, it allows for a better understanding of the contributing sources upon which TMDL allocations will be based. Thus, TMDL development supports watershed restoration planning that will wholly and expeditiously improve water quality throughout the watershed.

TMDL documentation generally takes 2 to 5 years to complete for each watershed, depending on the complexity of the system and available data and resources. Each document usually includes multiple TMDLs that address multiple waterbodies in a project area. After TMDL documents are reviewed by stakeholders and the public, they are submitted to EPA for approval. Sometimes the TMDL document will also address non-pollutant causes of impairment via water quality restoration recommendations that include the same restoration activities needed to satisfy one or more TMDLs contained within the document. Thus, DEQ can identify and recommend improvements to address all impairment causes within a watershed.

## 3.5.4 TMDL Prioritization Process

To rank TMDL development by priority, several factors are considered, with the primary focus being completion of TMDLs in high priority watersheds or TPAs. **Appendix B** reports the TMDL development priority for all waterbody–pollutant combinations on the 303(d) list. The highest priority is assigned to waterbody–pollutant combinations in watersheds with TMDLs scheduled for completion by 2014. Medium priority is assigned to waterbody–pollutant combinations where TMDL development will begin before 2014 and be completed after 2014. All other waterbody–pollutant combinations are low priority.

The selection of high and medium priority watersheds for TMDL development is based on a combination of the following factors. The result is a significant focus on completing TMDLs within watersheds in Montana's Columbia and Upper Missouri basins.

- **Stakeholder Interest.** TMDL development has historically focused on areas of significant stakeholder interest. There is benefit to completing TMDLs in areas where stakeholders will use the TMDL and water quality restoration planning process to help guide and assist with locally-led water quality implementation activities.

- **Significant New Pollutant Sources.** Many areas have water quality problems or concerns, linked to significant population growth. Other new pollutant sources can arise from proposed industrial or energy development activities, such as coal bed methane development. Addressing these concerns through a water quality planning process, such as a TMDL, makes this an important criterion for prioritizing TMDL development.

- **Linkage to MPDES Discharge Permits.** Pollutant levels within a MPDES permit area comprise a portion of the TMDL allocation. Therefore, TMDL development at a watershed scale is a critical component in determining appropriate permit requirements. This is particularly true when new permits are proposed or permits are being renewed. This criterion is often linked to the Significant New Pollutant Sources criterion above.

- **Information and Data Availability.** Work is often focused in areas where existing knowledge can facilitate TMDL development and data can be readily obtained by access to the waterbody. Existing knowledge includes available reference data, knowledge of aquatic resource and pollutant effects, source loading data, and data about existing conditions and capabilities. Waters that support coldwater fishes typically have more information and available data.

- **Existing Resource Commitments.** Watersheds where significant efforts have already been made to protect the resource and restore water quality will tend to have a high priority. Thus, DEQ can take advantage of the existing information, knowledge, and resource commitments that apply to TMDL development. This is often the case for TMDL development in bull trout watersheds in the Columbia basin, where there are numerous multi-agency recovery efforts. The priority approach also applies to watersheds where significant efforts are underway to clean up metals problems from mine wastes (e.g., in Landusky and the Judith Mountains).

- **Recreational, Economic, and Aesthetic Considerations.** Watersheds with high recreational, economic, and/or aesthetic value tend to receive higher priority. Economic interests often include important recreational fisheries but can also include protection of water quality for irrigation.

- **Protection and Restoration of Native Fish.** Protection of native fish is an important TMDL development consideration, particularly because the support of coldwater or warmwater fish is a commonly impaired beneficial use. The high priority watersheds tend to include important native bull trout and/or native cutthroat trout habitat.

## 3.6 Cost-Benefit Assessment

Section 305(b) of the CWA requires states to "report on the economic and social benefits of actions necessary to achieve the objective of the CWA" (U.S. Environmental Protection Agency, 1997). Several state, federal, and private entities implement water quality improvements in Montana. Details regarding the expense of these efforts are complex and not readily available for preparing a comprehensive cost-benefit assessment. Furthermore, most benefits are non-monetary and are, thus, hard to calculate.

The following provides a summary of the program costs and benefits associated primarily with DEQ's point source and nonpoint source (NPS) efforts to achieve CWA objectives. Costs are estimated for state fiscal years 2009 (July 1, 2008 – June 30, 2009) and 2010 (July 1, 2009 – June 30, 2010). Because of how DEQ collects data, benefits are estimated for calendar years 2009 and 2010.

### 3.6.1 Point Source Program Costs[3]

In fiscal years 2009 and 2010, approximately $80 million was spent in Montana on municipal wastewater treatment and capital improvements of collection systems. This averages $40 million per year spent to address point source pollution in Montana in FY2009 and FY2010. The estimate includes money spent by all funding agencies in the state, and some federal programs, and includes a one-time influx of American Reinvestment and Recovery Act (ARRA) funds. To gain a rough idea of how large the influx of ARRA funds was, the average amount spent on point sources in FY2006 and FY2007 was $16.5 million per year.

The $80 million for FY2009 and FY2010 includes about $61.2 million from the Water Pollution Control State Revolving Fund (WPCSRF). Other state and federal programs fund the remainder. WPCSRF received a significant amount of ARRA funds in FY2009: about $19 million through the SRF program. Capitalization grants from EPA (CWA Title VI Federal funds) for WPCSRF, along with state matching funds and recycled loan payments, provide financial assistance for water pollution control projects that target mostly point sources. In addition, WPCSRF provides training for wastewater operators and technical assistance (using CWA Section 106 funds) to operators, engineers, and the public in wastewater treatment.

Since 1991, WPCSRF has funded predominately municipal wastewater treatment and collection projects, totaling about $276 million. This averages to about $13.8 million per year, although that figure is skewed somewhat from the recent ARRA influx. WPCSRF funding has generally made up two-thirds to three-quarters of the total public funding for addressing point source issues in Montana. If the federal

[3] Paul LaVigne, Montana DEQ, personal communication, 2011

capitalization grant funding remains consistent, WPCSRF will have an estimated funding capacity of around $12 million per year for the next several years.

### 3.6.2 Nonpoint Source Program Costs[4]

Most of DEQ's Nonpoint Source (NPS) Program budget comes from EPA under CWA Section 319 grant funds. These Section 319 funds, granted annually, pay for 60% of NPS project grants in Montana as well as for DEQ's NPS-related program costs. EPA requires a non-federal match of 40% for the grants.

During FY2009, DEQ received grant requests for about $1,117,700 to fund competitive watershed, groundwater, and information/education projects. DEQ awarded $900,000 to 18 watershed restoration, groundwater, and education projects throughout Montana. Additionally, DEQ issued $253,800 in TMDL planning grants, for a total of $1,153,800 in distributed funds.

During FY2010, DEQ received grant requests totaling $1,170,000 for competitive grants and $300,000 in Total Maximum Daily Load (TMDL) planning grants. DEQ awarded approximately $900,200 to seven competitive watershed projects, one groundwater project, and three information and education projects. Additionally, DEQ awarded about $225,200 in TMDL planning grants, for a total of $1,125,400 in grant awards to watershed groups, local governments, educational institutions, and nonprofit organizations.

Thus, the average annual amount of NPS funds that went to planning, restoration, groundwater, and education projects averaged about $1.14 million over FY2009 and FY2010. To compare, the average annual amount of Section 319 funds spent in Montana from 1995 to 2007 was about $1.5 million.

As previously stated, EPA requires a non-federal match of 40% for the Section 319 grant program. Usually grantees provide the minimum grant match requirement of 40% through in-kind services, project property owner contributions, and often other state agency grant awards (usually through Department of Natural Resources and Conservation, and Fish, Wildlife and Parks awards). For FY2009, grantees committed about $967,600 in matching funds and in-kind services. For FY2010, grantees have contractual obligations for about $791,000 in non-federal match reporting.

For FY2009 and FY2010, Nonpoint Source Program project costs, including EPA funding and committed local match, total $4.04 million, or about $2 million per year.

Historically, Section 319 grants were largely awarded to watershed restoration projects rather than TMDL planning projects (Rung, 2007). Recently, (2004 – 2009) TMDL planning funding and restoration and education project funding levels were similar. As DEQ works to complete TMDL plans, funding is expected to again shift more toward restoration projects.

In addition to the monies above, for FY2009 and FY2010, EPA has awarded DEQ about $1.35 million annually to fund internal program staff and support NPS activities in Montana. When the 40% match requirement is added to this figure (the staffing and support match is derived from the state's general fund), the average total amount spent on internal staffing and support for the Nonpoint Source Program is $2.25 million per year. Internal department activities supported by the Section 319 program include water quality monitoring and assessment, quality assurance and quality control, data and information

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[4] Robert Ray, Montana DEQ, personal communication, 2011

management, water quality planning and TMDL development, nonpoint source program development and support, and conditioning permits under the state's CWA 401 authority.

In summary, funding for DEQ's NPS Program over the past 2 years has been about $4.22 million per year. Of this, about half supports internal activities and half goes to competitively-funded activities through grant awards to address nonpoint source pollution. Over the past 5 years there has been a general decreasing trend in funding and EPA's Montana appropriation. DEQ expects funds in FY2012 to be cut by approximately 20%, based on President Obama's proposed 2012 budget, which has not yet been appropriated by Congress.

In addition to NPS monies so far discussed, since 1996 WPCSRF has also funded NPS projects, including agricultural best management practices, landfills, and stormwater projects. WPCSRF funds for NPS projects have averaged approximately $4.9 million per year during FY2009 and FY2010. This amount is above and beyond the $30.6 million annual average for WPCSRF-funded point source control projects during the same time period.

### 3.6.3 Other Costs of Protecting Water Quality in Montana[5]

Montana Wetland Program funding is based on federal grants (Wetland Program Development Grants) matched by some general fund money but mostly by Montana Clean Water State Revolving Fund monies. The federal grants are competitive within EPA Region 8 states, tribes, and local governments and becoming harder to obtain each year.

The DEQ Wetland Program, which supports two FTEs, costs about $215,000 per year; about $75,000 comes from the Montana Clean Water State Revolving Fund and $25,000 comes from Montana's general fund. The remaining costs (about $115,000) have been funded by federal Wetland Program Development grants (WPDG). Typically, WPDGs are less than $100,000 but run for more than 1 year, hence the amount over $100,000. In Montana FY2011, DEQ received $186,000 for two 2-year projects, which contractors and DEQ will use to support wetland projects.

The federal Safe Drinking Water Act requires the state to conduct source water assessments for new drinking water sources at public water systems. The assessments, conducted by DEQ's Source Water Protection Program, identify point and nonpoint sources of contamination to groundwater. DEQ decides whether to approve or not approve proposed development sites based, in part, on these assessments. While this effort helps drinking water sources avoid contaminants, it does not eliminate contaminant sources. DEQ reviews between 45 and 80 new public drinking water sources per year and requires 0.35 FTE from the Source Water Protection Program.[6] The costs are about $23,300 per year.[7]

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[5] Joe Meek, Montana DEQ, personal communication, 2011

[6] Four hours average per source results in 0.35 FTE at $32/hr (the cost for an FTE based on budget template that includes indirects, etc.), thus $23,300 per year.

[7] The Source Water Protection Program uses the assessment prepared by DEQ to document the presence or absence of sources of certain contaminants. For example, if a public water system has sources located in isolated or remote areas not likely influenced by significant human activities, a Source Water Protection Plan could be used to support a waiver from monitoring requirements for certain volatile organic compounds, which can save up to a few thousand dollars every decade.

## 3.6.4 Summary of Montana's Clean Water Costs

The average annual cost for Montana's point and nonpoint source pollution programs from all funding sources was approximately $49.2 million in FY2009 and FY2010 (**Table 3-5**). This figure, however, does not include enforcement, permitting, or public drinking water programs, which are quite small expenses compared with the $49.2 million figure. The $49.2 million cost is more than double that from FY2006 and FY2007 ($23.3 million), mostly because of the one-time injection of ARRA funds into point source efforts. DEQ spent another $220,000 per year on wetland protection and the Safe Drinking Water Act.

**Table 3-5. Summary of Average Annual Costs for CWA Programs in Montana (FY2009 and FY2010)**

| Activity | Total (millions of dollars) |
|---|---|
| **NPS Control Programs** | **$9.2** |
| NPS staffing and support | $2.3 (1.4 + 0.9 matching) |
| NPS restoration, planning, info | $2.0 |
| WPCSRF NPS funds | $4.9 |
| | |
| **Point Source Control Programs** | **$40** |
| WPCSRF funds | $30.6 |
| Other state and federal programs | $ 9.4 |
| **Other Costs** | |
| Wetlands | **$0.2** |
| Safe Water Drinking Act | **$0.02** |

## 3.6.5 Benefits of Complying with the CWA in Montana

While the benefits of clean water and a healthy environment may be challenging to quantify, in pure economic numbers, it's importance to and benefits derived by all plants and animals (including humans) cannot be understated. Indeed, several aspects of water quality management programs are simply designed to prevent the deterioration of current conditions, for example by preserving water quality standards and controlling point sources of pollutants. Without water quality management, however, the benefits of aesthetics, recreational activities (fishing/swimming), and drinking water supplies, to name a few, would be lost.

Though DEQ can quantify the many dollars that are spent to maintain the status quo (i.e., existing water quality benefits), putting a dollar amount on aesthetics, recreational opportunities, and benefits to plants and animals is more difficult. Further, many benefits of maintaining water quality indirectly benefit people in ways that are hard to see, such as promoting healthy nutrient cycles.

In general, the benefits of maintaining and improving the quality of Montana's waters (including wetlands) are:

- Preservation or improvement of the quality and monetary value of Montana's water-related recreational activities, including fishing, commercial and non-commercial boating, swimming,

whitewater rafting, river floating, and birding/wildlife viewing.[8] This applies to both in-state and out-of-state recreationists.
- Protection for industrial, commercial, and municipal uses, thereby reducing or eliminating the cost of treatment for protecting human health.
- Protection for agriculture, including keeping irrigation ditches free from nuisance algae and keeping range animals healthy.
- Maintenance of property values for homes, businesses, and land where clean water is a major attribute of that value.
- Protection of aquatic wildlife and its associated ecological value, including riparian and wetland species. Regarding state species of concern, 25% of mammals rely on riparian forests or wetlands; 41% of birds rely on wetlands, riparian forest, or streams/rivers/lakes; and 44% of reptiles and 100% of amphibians rely on streams/lakes/rivers or wetlands for essential habitat.[9] In addition, 87% of species that are federally listed as endangered or threatened, or that are candidates for listing in Montana, rely on wetlands or riparian areas for a critical aspect of their life cycle.[10] Several fish species are federally listed as endangered or threatened, or as a state species of concern.
- Protection of aquatic and terrestrial habitats (including natural functions such as nutrient cycling) that require high-quality waters. This may include riparian vegetation. Two of Montana's three federally listed threatened plants are wetland obligates, meaning they cannot exist without wetland habitats.
- Protection of water for downstream states. As a headwater state, Montana's waters play a crucial role in preserving or improving the quality of water for states downstream of Montana.
- Maintenance of jobs and incomes from water quality efforts beyond what would otherwise exist without these efforts, including consultants, contractors, field crews, and retailers of equipment and supplies.

### *3.6.5.1 Point Source Program Benefits*[11]

The long-term goal (and benefit) of the Water Pollution Control State Revolving Fund (WPCSRF) is to maintain, restore, and enhance the chemical, physical, and biological integrity of the state's waters for the benefit of the overall environment and the protection of public health, while maintaining a long-term, self-sustaining program. With CWA Section 106 funds, the WPCSRF program also provides technical assistance to municipal wastewater treatment facilities around Montana. This assistance includes training, operation, and maintenance inspections and comprehensive performance evaluations to optimize the treatment performance of these facilities.

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[8] Wildlife viewing is the number one reason people visit Montana (Institute for Tourism and Recreation Research, 2001). In 2001, 325,000 nonresidents and 362,000 residents participated in wildlife watching in Montana. Montana has the highest percentage of birding participation in the nation—44% of Montana residents watch birds—compared with a national average of 22% (USFWS, 2001); retrieved from http://www.montanabirdingtrail.org/benefits.php. In addition, fishing is one of the most popular income-generating, water-related activities in Montana. State waters include several "blue ribbon trout" rivers and streams, which benefit directly from high water quality.

[9] http://mtnhp.org/reports/MASOC_2009.pdf

[10] Of the 82 documented odonates (dragonfly and damselfly species) in Montana, 7 are species of special concern and 27 are potential species of conservation concern; 71% and 85%, respectively, are wetland obligates.

[11] Paul LaVigne, personal communication, 2011

The beneficial economic impacts of Montana's WPCSRF program on water quality and public health in calendar years 2009 and 2010 were:

- improved quality of various state waters by upgrading, expanding, or replacing 11 inadequate secondary treatment systems that empty into state waters;
- improved water quality and reduced operating expenses of 30 municipal wastewater projects by reducing infiltration and inflow in the collection systems and replacing leaky pipes to prevent stormwater runoff or groundwater from entering the system;
- improved groundwater quality and reduced potential public health hazards by replacing septic systems with community collection and treatment systems on two projects (improved groundwater quality leads to higher quality well water that can be used for various activities, such as municipal water supply and irrigation;)
- reduced nutrient and other pollutant loading to state waters by funding 13 projects involving advanced treatment processes, such as nutrient removal and disinfection; and
- protected water quality by funding approximately 30 NPS projects, helping state waters maintain or improve their capacity for designated uses.

As an example, the city of Bozeman, Montana, has benefited from the state's point source programs. Bozeman used WPCSRF money and other funds to upgrade its conventional secondary treatment facility to an enhanced biological nutrient removal facility. The new treatment plant significantly increases the removal of nitrogen and phosphorous from discharges. This project was initiated to aid the restoration of the aquatic life beneficial use of the East Gallatin River per a TMDL.

### *3.6.5.2 Nonpoint Source Program Benefits*

The goal (or benefit) of the state's NPS program is to manage and reduce nonpoint source pollutants so that waterbodies support their beneficial uses or, where impaired, improve sufficiently to allow full support of all beneficial uses. During calendar years 2009 and 2010, DEQ activities targeting NPS-related issues included: (1) development and maintenance of the state's water quality standards, (2) water quality monitoring and waterbody standards attainment assessments, (3) development and implementation of water quality plans containing TMDLs, (4) improved data management and reporting tools, and (5) management of the Section 319 grant program.

Highlights:

- completed water quality plans (including 246 TMDLs) for 10 TMDL Planning Areas:
    - Prospect Creek (sediment)
    - Upper and North Fork Big Hole
    - Shields (sediment)
    - Middle and Lower Big Hole
    - Boulder
    - Lower Blackfoot
    - Upper Jefferson (sediment)
    - Upper Clark Fork (sediment, metals, and temperature)
    - West Fork Gallatin
    - Redwater (nutrients and salinity)
- provided $479,028 in CWA Section 319 grant funds to local entities to assist in TMDL development

- provided $1,281,920 for local watershed restoration projects; $193,000 for groundwater projects; and $325,170 for education and outreach projects to 30 conservation districts, watershed groups, and other project sponsors. Benefits from restoration projects include:
    - estimated reduction of 18,308 tons of sediment per year from new projects in 2009 and 2010 in streams impaired by sediment
    - estimated reduction of 9,200 pounds of nitrogen per year from new projects in 2009 and 2010 in streams impaired by high nutrient concentrations
    - estimated reduction of 1,200 pounds of phosphorus per year from new projects initiated in 2009 and 2010 in streams impaired by high nutrient concentrations
- conducted a triennial review of Montana's Water Quality Standards
- continued developing numeric nutrient standards and implementation strategies
- continued development of Montana's Water Quality Assessment, Reporting, & Documentation system adding explicit (impairment) cause tracking from initial listing to final de-listing (i.e., restoration achieved and use(s) supported)
- implementation of a new water quality metric data and information management system complying with EPA's national Water Quality Exchange database

#### *3.6.5.3 Source Water Protection Benefits*

Source water protection can help communities avoid costs related to contamination, including the costs of:

- treatment and/or remediation
- finding and developing new water supplies and/or providing emergency replacement water
- abandoning a drinking water supply because of contamination
- paying for consulting services and staff time
- litigating against responsible parties
- conducting public information campaigns when incidents arouse public and media interest in source water pollution
- meeting the regulations of the Safe Drinking Water Act, such as the Disinfection Byproduct and monitoring requirements

Costs that are not so easily quantified include:

- health-related costs from exposure to contaminated water
- lost production of individuals and businesses, interruption of fire protection, and loss of economic development opportunities
- lack of community acceptance of treated drinking water

Communities with effective drinking water contamination prevention programs may enjoy substantial savings in the costs of complying with the Safe Drinking Water Act or similar state regulations. For example, water purveyors that minimize algae growth by preventing nutrients from entering water supply reservoirs will have lower costs for treating the water to remove total organic carbon (in compliance with the Disinfection Byproducts Rule). Fire- or beetle-killed pines in certain forested watersheds are a real concern because of a forest's potential to mobilize sediments and nutrients. Bozeman is collaborating with the U.S. Forest Service to implement a fire hazard reduction plan to address this issue.

Finally, water suppliers that have programs to prevent contamination of drinking water may also be eligible for waivers from some monitoring requirements, thereby reducing monitoring costs.

# 4.0 Surface Water Monitoring And Assessment

Under authority of Montana's Water Quality Act (MCA 75-5-702 and 75-5-703(7)), and as delegated under the federal Clean Water Act (CWA), DEQ directly monitors the surface waters of the state and works with other agencies and organizations to collect water quality data and observations. DEQ conducts assessments of the state's surface water quality and makes determinations of beneficial-use support. This section includes the status of Montana's surface waters and surface water-related monitoring programs.

## 4.1 Monitoring Program

DEQ implements a water quality monitoring and assessment program that supports several program areas. Specifically, the monitoring and assessment program conducts or assists with:

- collection and analysis of physical, chemical, and biological data to:
    - assess and document whether waters are supporting their beneficial uses and meet water quality standards (WQS);
    - support the development of water quality models, water quality standards, TMDL development; and
    - assess the effectiveness of pollution control and restoration activities
- development and application of water quality assessment methods

### 4.1.1 Purpose of the Monitoring Program

The Monitoring & Assessment Section implements monitoring strategies, as outlined in its statewide monitoring strategy (Montana Department of Environmental Quality, 2009). The document outlines short term (5-year) and long term (10-year) monitoring objectives as well as ongoing monitoring projects.

#### *4.1.1.1 Monitoring Goals*

The monitoring goals for 2009-2010 were to:

- continue and expand a baseline reference stream monitoring program in collaboration with the University of Montana;
- continue and expand biological monitoring to support bio-criteria development;
- continue and support water quality standards development; and
- continue and support a variety of special studies and assessments (e.g., addressing public requests to add or remove waters from the 303(d) list, etc.).

#### *4.1.1.2 Monitoring Objectives and Design*

DEQ designs each monitoring project to ensure that it meets its objectives. At present, the majority of the monitoring projects use a design approach that focuses on a specific objective or set of objectives. **Section 4.1.3** provides a brief summary of each project.

### 4.1.2 Coordination and Collaboration

Coordination and collaboration with other entities to implement essential and effective monitoring projects, and to maintain project continuity as long as needed, is important for the state's water quality program. Thus, DEQ has developed and maintains partnerships and cooperative agreements with the Bureau of Land Management, U.S. Forest Service, University of Montana, and U.S. Geological Survey. Additionally, DEQ has agreements with several conservation districts, watershed groups, and nonprofit organizations. **Sections 4.1.2.1** – **4.1.2.6** provide brief discussions of these agreements.

#### *4.1.2.1 Bureau of Land Management (BLM)*
The objective of the BLM's water quality monitoring program is to determine if the waters that flow through BLM-administered lands meet state water quality standards. To achieve this goal, DEQ and BLM established a Memorandum of Understanding. For the last 6 years, five to seven candidate reference sites have been sampled (three times per year) within, or adjacent to, BLM-administered lands. Funding for this program is cost-shared with the BLM.

#### *4.1.2.2 United States Forest Service (USFS)*
The U.S. Forest Service (USFS) monitors waters within national forest lands. DEQ uses USFS data in water quality assessments and in the development of watershed restoration plans and TMDLs.

#### *4.1.2.3 United States Geological Survey (USGS)*
DEQ partners with the U.S. Geological Survey (USGS) on several surface water monitoring projects through Joint Funding Agreements (JFA). The USGS provides technical staff and equipment to conduct streamflow (discharge) monitoring, water quality monitoring and analysis, data management, and hydrological research and analysis where DEQ does not have the resources to conduct them. DEQ is working with the USGS in the Flathead, Powder, Tongue, Yellowstone, Poplar, and Missouri river basins. Data collected by the USGS is available to the public online via their National Water Information System at http://waterdata.usgs.gov/nwis.

#### *4.1.2.4 University of Montana (UM)*
The Watershed Health Clinic of the Environmental Studies Program at the University of Montana, Missoula (UM), provides support, via DEQ contract, for the state's reference project **(see section 4.1.3.1)**. Under this contract, graduate students provide labor for the collection of field samples and sample analyses in UM's laboratory. DEQ provides funds, training, and most of the necessary field supplies for UM field crews.

#### *4.1.2.5 Tri-State Water Quality Council*
The nonprofit Tri-State Water Quality Council is a partnership of diverse community, business, and governmental interests working together to improve and protect water quality throughout the 26,000-square-mile Clark Fork-Pend Oreille watershed. The watershed includes the Clark Fork River in western Montana, Pend Oreille Lake in northern Idaho, and the Pend Oreille River in eastern Washington. The Council's long-term monitoring program tracks the effectiveness of the Clark Fork-Pend Oreille basin water quality management plan that is focused on various interstate water quality issues including nutrient loading and eutrophication, metals, and noxious aquatic plants. A council member, DEQ provides funding and technical support for the council's monitoring program.

#### *4.1.2.6 Conservation Districts, Watershed Groups, and Other Nonprofit Organizations*
Partnerships with conservation districts, local watershed groups, water quality districts and nonprofit organizations with an interest in water quality issues vary. Some simply ask to be informed of monitoring events in their area, while others assist with stream access through private lands. Others are fully involved in actual sampling efforts. These partnerships often continue from initial monitoring

efforts through TMDL development and implementation projects funded by contracts or grants administered by DEQ.

## 4.1.3 Monitoring Networks and Projects

DEQ undertook several monitoring projects during 2009-2010, which are presented briefly in **Sections 4.1.3.1–4.1.3.4**. The monitoring projects were:

- reference sites
- lakes and reservoirs
- Flathead Lake watershed
- Other monitoring

### *4.1.3.1 Reference Site Monitoring Project*

Montana's narrative water quality standards are written in terms of "reference conditions." Thus, an assessment of water quality relative to narrative criteria requires an evaluation of current conditions relative to the water's reference condition. To begin establishing reference conditions for Montana's waters DEQ initiated a project in the early 1990s to define the water quality and biological characteristics of minimally disturbed streams, with the focus on wadeable streams. The objectives of the project were to establish a network of reference sites and define reference conditions to guide water quality assessment decisions. A network of monitoring locations was established on sites that resource managers had deemed minimally disturbed by humans (Bahls, et al., 1992). Water column and biological samples were collected, as well as field parameters of water quality. In 2000, DEQ began a second phase of the study, using more refined and rigorous screening methods than employed earlier (Suplee, et al., 2005). In 2009, a total of 16 candidate reference sites were sampled three times per summer. Protocols used in the reference project are described in the Quality Assurance Project Plan Reference Addendum (Montana Department of Environmental Quality, 2005b). In 2010, our objective was to collect data on 35 established reference site streams using the proposed sediment assessment methodology (Kusnierz and Welch, 2011) as well as collecting nutrient data from selected sites.

### *4.1.3.2 Lakes and Reservoirs Monitoring*

DEQ received a request to sample Middle Foy Lake, near the city of Kalispell, following reports of brown water coloration and possible algal blooms on the lake in 2009. In 2010, Middle Foy Lake was sampled for nutrients, metals, and chlorophyll-*a*. A habitat assessment was also conducted in the lake.

### *4.1.3.3 Flathead Lake Watershed Monitoring*

As part of the Phase 2 nutrient TMDL development for Flathead Lake watershed, DEQ has conducted monitoring to support watershed and reservoir model development. The program is a cooperative effort among DEQ, USGS, UM, and private sector contractors. Monitoring includes streamflow and water quality on the main rivers and select tributaries above Flathead Lake and monitoring lake and reservoir profiles to characterize the fate and transport of pollutants (Flynn, et al., 2011). During 2009 and 2010, waters that were monitored, in cooperation with the USGS, included the North Fork Flathead, Flathead River (near Columbia Falls and above Flathead Lake), Stillwater River, Whitefish River, Ashley Creek, Swan River, Flathead Lake, Hungry Horse Reservoir, Whitefish Lake, and select tributaries to Hungry Horse Reservoir.

#### *4.1.3.4 Other Monitoring*

The Monitoring and Assessment Section conducted monitoring activities on a number of other projects that were either focused on limited geographic areas and/or for specific program objectives.

- **Nutrient Criteria Development Monitoring**
  The objective of this monitoring project was to fill identified data gaps in the development of numeric nutrient criteria for the state. In order to establish these criteria for Montana streams, Suplee *et al*. (Suplee, et al., 2008) recommended that unique level IV ecoregions be segregated only for rule-making if they have a per-nutrient minimum of 12 independent samples—from reference sites—during base flow. Thus this project was to fill existing data gaps for those level IV ecoregions that are likely unique but that have less than the 12 sample-per-ecoregion minimum. In 2009, 23 streams were sampled.

- **Boxelder Creek Nutrient Addition Project**
  The objective of this monitoring project is to determine the effects of varied levels of nutrient enrichment on water quality and beneficial uses for perennial and intermittent prairie streams in eastern Montana. Located in Carter and Fallon counties of SE Montana, Boxelder Creek is a (state use) class C-3 prairie stream. Draft nutrient criteria have been developed for wadeable streams on prairie streams (Suplee, et al., 2008), but DEQ believes more work is required to refine these criteria. The results of this project will advance and improve the nutrient criteria for eastern Montana prairie streams. This project will continue through 2011.

- **Little Beaver Creek Monitoring**
  The objectives for monitoring on Little Beaver Creek are: 1) collect nutrient data in response to landowner concerns about water quality, 2) to improve DEQ's dataset and understanding of prairie streams, and 3) collect data on a wadeable stream reference site. Located in Carter and Fallon counties of SE Montana, Little Beaver Creek is a (state use) class C-3 prairie stream that is intermittent from its headwaters to Sheep Camp Creek and then perennial to its mouth. The Carter County (upper) portion of Little Beaver Creek has been sampled since 2007 with the focus on getting baseline nutrient data. In addition, several long-term (YSI) data recorders have since been installed to obtain data on dissolved oxygen, pH, specific conductivity, and water temperature.

- **Macroinvertebrate–Nutrient Project**
  The objective of this project is to collect data to validate an improved Montana observed/expected (O/E) macro invertebrate indicator model. The current Montana O/E Indicator model was built with data collected from multiple sources, each employing different sampling protocols. Preliminary results from a study of the two main macro invertebrate sampling methods used by DEQ (kick net and EMAP Reach Wide (EMAP-RW)) showed that using different protocols can produce different O/E results for the same site. DEQ has adopted the EMAP-RW (Peck, et al., 2003) method. Thus, there is a need to collect more data using this method at DEQ-approved reference sites. Macro invertebrate data was collected in 50 reference sites in 2009.

- **Missouri River Nutrient Model**
  The objective of this project is to collect hydrologic and water quality data to support the development of numeric nutrient criteria for a large river segment of the upper Missouri River

using a water-quality model. Data collection was conducted by DEQ and USGS and included chemistry, biology, and field parameters. This project began in 2010 and will continue through 2011.

- **Use Attainability Project**
  The objective of the use attainability project was to evaluate seven streams that were listed for metals in the 2006 Integrated Report. The only source found on these streams was natural; hence, the streams were placed in Category 2B, which indicates that a WQS is exceeded from natural sources only. The streams were re-evaluated in 2009. Results were reported in the 2010 Integrated Report (Montana Department of Environmental Quality, 2010). In 2010, another use attainability project was initiated in the Helena Valley Irrigation Canal (Assessment Unit ID: MT41I007_030) to determine whether this canal should be classified as a B-1 water (ARM 17.30.606 and 17.30.610).

- **Milk River Project**
  The objective of this monitoring project is to collect data in known data gaps on the Milk River to support 303(d) listings and future TMDL development. In 2010, 11 sites were sampled in the Milk River mainstem for nutrients, total dissolved solids, total suspended solids, and metals. This project was a joint effort between DEQ, the Milk River Watershed Alliance, and the Phillips and Hill Conservation Districts.

- **Scotchman Gulch and Flat Gulch Projects**
  The objective of these monitoring projects is to collect sediment and nutrient data to conduct new water quality assessments in response to a request from a private landowner and BLM to de-list the waters from the state's 303(d) list. Located in Granite County in western Montana, Scotchman Gulch is a (state use) class B-1 perennial stream flowing into Upper Willow Creek and Flat Gulch is a (state use) class B-1 intermittent stream flowing into Rock Creek. Both streams are currently on the 303(d) list. The upper portions of both gulches are primarily public land managed by the BLM and USFS, whereas the lower portions are mainly private. This project will evaluate whether Scotchman Gulch and Flat Gulch support their beneficial uses. This project began in 2009 and will be completed in late 2011.

- **Swift Creek Project**
  The objective of this monitoring project is to collect water chemistry and biological data to conduct new water quality assessments in response to a request from a private landowner to de-list Swift Creek from the state's 303(d) list. Swift Creek and its east and west forks are (state use) class A-1 tributaries of Whitefish Lake in Flathead County. These streams are primarily located on Plum Creek Timber Company property, Flathead National Forest, and Stillwater State Forest. Swift Creek is currently on the 303(d) list with aquatic life and coldwater fishes impaired by nutrients; whereas both the east and west forks of Swift Creek fully support the aquatic life and coldwater fishes beneficial uses. Nutrients, metals, chlorophyll-*a*, periphyton, and macro invertebrate data were collected on the three streams such that each can be fully assessed following the state's revised assessment methods for nutrients and metals (Drygas, 2011; Suplee and Sada de Suplee, 2011). This project will be completed in 2011.

- **TMDL Planning Area Projects**
  The objectives of these monitoring projects are to collect data in support of TMDL development. In 2009, DEQ worked with UM to collect data in priority TMDL planning areas (TPAs). Two

graduate students collected nutrients and metals data from 44 sites on the Middle Clark Fork, Clark Fork-Drummond, and Rock TPAs. In 2010, DEQ continued data collection on these three TPAs and began collecting data on the Boulder-Elkhorn, Upper Clark Fork, Little Blackfoot, and Holter TPAs. Nutrient and metals data were collected at approximately 180 sites.

- **Clark Fork – Pend Oreille Basin Monitoring**
  The objectives of this monitoring project are to: 1) monitor long-term trends in water quality in the Montana portion of the Clark Fork – Pend Oreille basin; and 2) monitor nutrient loading into Lake Pend Oreille (ID) with explicit partitioning of loads to Montana and Idaho. The program is managed by the Tri-State Water Quality Council with funding from council members.

  The monitoring program consists of measuring field parameters and collecting nutrient and algae samples at monitoring locations on the Clark Fork River and selected tributaries, Lake Pend Oreille, and the Pend Oreille River within the Clark Fork-Pend Oreille watershed of western Montana, northern Idaho, and northeastern Washington. Responsibility for monitoring the 23 sites in the network is divided among multiple organizations and agencies that form the Council's Monitoring Committee. In 2010 monitoring occurred at 13 monitoring stations on the Clark Fork River and selected tributaries, at eight monitoring stations on Lake Pend Oreille, and at two monitoring stations on the Pend Oreille River.(HydroSolutions, Inc., 2011).

  - Montana and Idaho Border Nutrient Load Agreement
    The Montana and Idaho Border Nutrient Load Memorandum of Agreement (Border Agreement) (Tri-State Water Quality Council, 2002) was established in 2002, based on the Tri-State Water Quality Council's recommended nutrient targets and apportioned nutrient loads to Lake Pend Oreille (Tri-State Water Quality Council, 2001). Nutrient targets established in the Border Agreement were developed to maintain water quality in the open waters of Lake Pend Oreille from the mouth of the Clark Fork River to the Long Bridge (Highway 95). In the Border Agreement open water is defined as water where the maximum depth is greater than 2.5 times water transparency as measured by Secchi depth. Nutrient targets are outlined in section VII of the Border Agreement as follows:

    - an area-weighted euphotic-zone average concentration of 7.3 µg/L total phosphorus for Lake Pend Oreille;
    - total loading to Lake Pend Oreille of 328,651 kilograms per year (kg/year) total phosphorus;
      - 259,500 kg/year total phosphorus from Montana (as measured at Clark Fork River below Cabinet Gorge Dam)
      - 69,151 kg/year total phosphorus from Lake Pend Oreille watershed in Idaho
    - greater than 15:1 total nitrogen to total phosphorus ratio

    An exceedance of the nutrient targets occurs when either of the following conditions are documented:

    a) A short-term exceedance of the targets (three consecutive years of total phosphorus load increases at the border that are above the targets by greater than 10%); or

b) A long-term exceedance of the targets (a ten year average total phosphorus concentration in the lake greater than 7.3 µg/L).

- 2010 Clark Fork River Nutrient Load Estimate
  Nutrient loading from Montana's Clark Fork River watershed are measured monthly below Cabinet Gorge Dam situated at the state border. Additional monitoring events are conducted during spring time peak flows. Nutrient loading to Lake Pend Oreille from the Clark Fork River were calculated for 2010 by the Tri-State Water Quality Council using the FLUX model applying nutrient concentration-flow regressions to daily flow values (HydroSolutions, Inc., 2011).

  Nutrient loading estimates from the Clark Fork River to Lake Pend Oreille in 2010 are provided below:

  - Clark Fork River inflow 16,072 hm3 or 13,029,731 acre-feet
  - Total phosphorus loading 139,054 kilograms or 306,562 pounds
  - Total nitrogen loading 2,234,235 kilograms or 4,925,645 pounds

  The estimated TP load to Lake Pend Oreille from the Clark Fork River in 2010 is less than the Clark Fork River allocated target load of 259,500 kilograms per year. Three consecutive years of TP loads are needed to evaluate short-term exceedance of the target. Evaluation of the short-term target will be possible following the 2011 monitoring season. Although no targets were established for TN loading to Lake Pend Oreille, they are reported above.

  The full suite of Lake Pend Oreille nutrient targets were not evaluated due to the lack of available monitoring data in Lake Pend Oreille.

## 4.2 Assessment Methodology

The Montana Water Quality Act requires "a comprehensive program for the prevention, abatement, and control of water pollution" and directs "the department to monitor state waters to accurately assess their quality and, when required, to develop total maximum daily loads for those waterbodies identified as threatened or impaired." It further states "[t]he department shall use the monitoring results to revise the list of waterbodies that are identified as threatened or impaired and to establish a priority ranking for TMDL development for those waters" (MCA 75-5-701, MCA 75-5-702).

The Montana Water Quality Act also requires DEQ to "[d]evelop and maintain a data management system that can be used to assess the validity and reliability of the data used in the listing and priority ranking process" (MCA 75-5-702(5)). This section also satisfies the federal CWA requirements in 40 CFR Part 130.4(b) and 40 CFR Part 130.7(b)(5) that "[t]he state's water monitoring program shall include collection and analysis of physical, chemical, and biological data, and quality assurance and control programs to assure scientifically valid data." and "[e]ach state shall assemble and evaluate all existing and readily available water quality-related data and information to develop the list." DEQ's data management system permits assessors to document all the measures of data rigor. This assessment record allows users to understand the assessors' basis (i.e., level of underlying information) for their use-support decisions.

Once the state determines that sufficient credible data exists for a waterbody, beneficial-use support may be assessed using DEQ's Water Quality Assessment Method **(Attachment 1)**. The assessment method provides a structured and consistent process to assess Montana's waters.

## 4.2.1 Identification of Available Water Quality Data

DEQ is required by state law to assemble and evaluate all existing and readily available water quality-related data and information for assessing surface water quality in Montana. DEQ must ensure that the data used for assessments are valid and reliable.

To prepare Montana's Water Quality Integrated Report, DEQ solicits outside data and information from other local, state, and federal agencies; volunteer monitoring groups; private entities; nonprofit organizations; and individuals involved in water quality monitoring and management. The data and information obtained are combined with the results of DEQ's ongoing monitoring efforts to provide the basis for water quality assessments. Data submitted from outside sources must be defensible and the quality of that data known before it is considered for use in assessments. DEQ may decide not to use particular data or information that does not meet data quality requirements that are identified in the assessment methods and Montana's Call for Existing and Readily Available Data.

## 4.2.2 Data Quality Evaluation

The Montana Water Quality Act (MWQA) directs DEQ to conduct a data quality evaluation to determine where it has sufficient credible data for an assessment. MWQA defines sufficient credible data as "chemical, physical, or biological monitoring data, alone or in combination with narrative information that supports a finding as to whether a waterbody is achieving compliance with applicable water quality standards" (MCA 75-5-103). The data evaluation is simply a quality assessment that considers the technical, representativeness, quality, and currency components of data and information that is available.

Using data quality assessments (DQA), DEQ reviews chemical, biological, and physical/habitat data to determine if it has adequate rigor for use in decision-making. The technical, spatial/temporal, and quality aspects, as well as age, of the data are considered. In addition, data must represent the ambient water quality conditions in order to be useful for assessing the waterbody. If data are of sufficient quality, they are incorporated into the water quality assessments. Data quality assessments are conducted individually for each waterbody per each beneficial use and pollutant group (e.g., aquatic life–nutrients). The process allows DEQ to make decisions for individual beneficial uses when sufficient data is available for specific pollutants identified as likely to impair that use.

The pollutant-based assessment methods have minimum data requirements, including data independence, which must be met before applying the decision-making criteria.

## 4.2.3 Beneficial-Use Support

DEQ has developed assessment methods for nutrients, sediment, and metals pollutant groups, which represent the most common pollutants impairing Montana's surface waters. Each pollutant method provides the framework for conducting sound and consistent water quality assessments, which allows DEQ to make reproducible and defensible beneficial-use support decisions. Each pollutant group is evaluated independently in order to determine support of beneficial uses.

The assessment methods are designed to assess to the most sensitive beneficial use. Industrial uses are considered the least sensitive use since standards for aquatic life and drinking water uses are more protective. Therefore, if a waterbody supports aquatic life, drinking water, and recreation beneficial uses, the state assumes it will also support agricultural and industrial uses. However, additional salinity and toxicity information may be required to determine suitability for agricultural use.

Decisions are recorded in the waterbody's assessment record and into EPA's water quality assessment program (Assessment Database – ADB version 2.2), which is used to report assessment unit information and decisions, and support the various tables and appendices included in this report.

### 4.2.4 Waterbody Assessment Records in WARD Data System

Each waterbody assessment record consists of the following parts:

1. Water Quality Assessment Records for each assessment unit – DEQ documents the assessment of each waterbody in the Water Quality Assessment, Reporting and Documentation (WARD) system. A Water Quality Assessment Record is created for each unit, detailing the unit and documenting data sources used, data quality evaluation performed, use-support decisions, impairment information, cause/source information, delisting information, and how the data was used to reach an assessment decision. An electronic copy of the assessment record is available on the Clean Water Act Information Center (CWAIC) website (http://cwaic.mt.gov).

2. Hard copy data files for each assessment unit evaluated – These files may contain water quality data, maps, photographs, references to relevant documents, and references to electronic information sources. Assessment record files may be reviewed in person at DEQ in Helena.

3. Assessment Database (ADB v 2.2) – When the assessment record is completed in WARD, and passes at least two internal quality control checks, the federal reporting data is put into the state's version of EPA's Assessment Database. The ADB contains the majority of the data used to develop the tables and reports comprising the state's Integrated Report. As required by law, Montana submits a copy of this database, along with the supporting assessment records, to EPA for approval.

4. Geospatial data – All assessment units are indexed on the 1:24,000 High Resolution National Hydrography Dataset for display and mapping, using Geographic Information Systems.

Public access to all electronic data, information, and maps is available on DEQ's CWAIC website at http://cwaic.mt.gov. Visitors to the site can run interactive queries of the state's Assessment Database from the year 2000 to the current reporting cycles, view the 303(d) lists (1996 to present; 1998 excluded), and view 305(b) reports for 1996 to present (1998 included). Access to the electronic Assessment Records and online mapping for each assessment unit is also available.

### 4.2.5 Quality Assurance and Quality Control Program

Within DEQ, the Water Quality Planning Bureau operates under an EPA-approved Quality Management Plan (QMP) (Montana Department of Environmental Quality, 2008b). The QMP establishes a quality system for all Bureau activities, including, but not limited to, monitoring state surface waters and producing this report.

The QMP requires the Bureau to plan projects, document the planning, and provide for independent assessment and oversight to assure scientifically valid processes and data used for decision-making. For water quality monitoring, the Bureau plans and documents proposed activities in Quality Assurance Project Plans or equivalent planning documents.

## 4.3 Assessment Results

The Montana Water Quality Act directs the department "[to] monitor state waters to monitor and assess the quality of waters and identify surface waterbodies or segments of surface waterbodies that are threatened or impaired." (75-5-702(1) MCA). DEQ also follows federal reporting guidance provided by EPA. Assessment results, as well as an explanation of federal reporting categories, are provided in this section.

### 4.3.1 Water Quality Reporting Categories

For integrated reporting purposes, waterbodies (referred to as Assessment Units or AUs), included in the Assessment Database are assigned to categories. There are five core reporting categories, one of which has three subcategories (Category 4). Also, the state has added two custom subcategories (user defined) to Category 2. The categories are:

- Category 1: Waters for which all applicable beneficial uses have been assessed and all uses are determined to be fully supported.
- Category 2A: Available data and/or information indicate that some, but not all of the beneficial uses are supported.[12]
- Category 2B: Available data and/or information indicate that a water quality standard is exceeded due to an apparent natural source in the absence of any identified manmade sources.[13]
- Category 3: Waters for which there is insufficient data to assess the use-support of any applicable beneficial use; no use-support determinations have been made.
- Category 4A: All TMDLs needed to rectify all identified threats or impairments have been completed and approved.
- Category 4B: Waterbodies are on lands where "other pollution control requirements required by local, state, or federal authority" [see 40 CFR 130.7(b)(1)(iii)] are in place, are expected to address all waterbody-pollutant combinations, and attain all WQS in a reasonable period of time. These control requirements act "in lieu of" a TMDL, thus no actual TMDLs are required.
- Category 4C: Identified threats or impairments result from pollution categories such as dewatering or habitat modification and, thus, a TMDL is not required.
- Category 5: Waters where one or more applicable beneficial uses are impaired or threatened, and a TMDL is required to address the factors causing the impairment or threat.

The majority of the 1,152 AUs whose water quality status have been assessed are listed in Category 5, impaired and in need of a TMDL (**Table 4-1**). A list of all waters in subcategory 2B is provided in **Table 4-2**.

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[12] State of Montana user defined category that is identical to the EPA's Category 2 definition provided in the Assessment Database. Waters assigned a 2A category listing will appear as 2/2A in the Integrated Report.
[13] State of Montana user defined category. Waters assigned a 2B category listing may carry a 2, 4C, or 5 per database rules and would appear as a subcategory, e.g.: 2/2B, 4C/2B, or 5/2B, in the Integrated Report.

**Table 4-1. Size and Count of Assessment Units Assigned to Reporting Categories**

| Category | 2010 | | | | | 2012 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | River | | Lake / Reservoir | | Count | River | | Lake / Reservoir | | Total |
| | Miles | Count | Acres | Count | Total | Miles | Count | Acres | Count | Count |
| **1** | 2,277 | 119 | 58,675 | 15 | 134 | 2,303 | 121 | 58,675 | 15 | 136 |
| **2 (2A)** | 600 | 31 | 10,843 | 11 | 42 | 585 | 29 | 10,843 | 11 | 40 |
| **2 (2B)** | 130 | 3 | | | 3 | 134 | 4 | | | 4 |
| **3** | 1,837 | 87 | 29,662 | 13 | 100 | 2,088 | 100 | 30,067 | 15 | 115 |
| **4A** | 2,061 | 147 | 4,280 | 2 | 149 | 2,438 | 173 | 4,580 | 3 | 176 |
| **4C** | 1,825 | 92 | 9,005 | 4 | 96 | 1,843 | 93 | 9,902 | 3 | 96 |
| **4C (2B)** | 25 | 1 | | | 1 | 25 | 1 | | | 1 |
| **5** | 12,637 | 565 | 453,848 | 26 | 591 | 12,270 | 541 | 481,530 | 24 | 565 |
| **5 (2B)** | 687 | 19 | | | 19 | 688 | 19 | | | 19 |
| **Total** | **22,079** | **1,064** | **566,313** | **71** | **1,135** | **22,373** | **1,081** | **595,597** | **71** | **1,152** |

**Table 4-2. Category 2B Assessment Units**

| 2012 305B AU ID | LOCATION | CATEGORY | Size (mi.) |
|---|---|---|---|
| MT40A002_020 | ANTELOPE CREEK, headwaters to mouth (Musselshell River) | 2,2B | 36.8 |
| MT43F002_030 | KEYSER CREEK, headwaters to mouth (Yellowstone River) | 2,2B | 22.4 |
| MT41P001_022 | MARIAS RIVER, county road at T29N R6E S17 to mouth (Missouri River) | 2,2B | 70.5 |
| MT41M001_010 | TWO MEDICINE RIVER, Birch Creek to mouth (Marias River) | 2,2B | 4.7 |
| MT42K002_170 | EAST FORK ARMELLS CREEK, headwaters to Colstrip | 4C,2B | 24.7 |
| MT41R001_020 | ARROW CREEK, Surprise Creek to mouth (Missouri River) | 5,2B | 69.7 |
| MT43F002_022 | CANYON CREEK, headwaters to highway 532 | 5,2B | 29.7 |
| MT42M002_142 | CEDAR CREEK, 26 to 45 miles above the mouth | 5,2B | 20.1 |
| MT40J005_020 | COTTONWOOD CREEK, Black Coulee to mouth (Milk River) | 5,2B | 57.4 |
| MT43D002_140 | COTTONWOOD CREEK, headwaters to the mouth (Clarks Fork of Yellowstone), T3S R24E S24 | 5,2B | 19.6 |
| MT41M002_110 | DUPUYER CREEK, confluence of South Fork Dupuyer Creek and Middle Fork Dupuyer Creek to the mouth (Birch Creek) | 5,2B | 39.3 |
| MT40Q002_020 | EAST FORK POPLAR RIVER, Canada border to mouth (Poplar River) | 5,2B | 21.6 |
| MT43D002_010 | ELBOW CREEK, headwaters to mouth (Clarks Fork) | 5,2B | 38.6 |
| MT42B002_031 | HANGING WOMAN CREEK, Stroud Creek to mouth (Tongue River) | 5,2B | 18.3 |
| MT42B002_032 | HANGING WOMAN CREEK, Wyoming border to Stroud Creek | 5,2B | 31.4 |
| MT40M002_020 | LARB CREEK, headwaters to mouth (Beaver Creek) | 5,2B | 76.7 |
| MT41Q001_021 | MISSOURI RIVER, Little Prickly Pear Creek to Sheep Creek | 5,2B | 20.9 |
| MT41I001_011 | MISSOURI RIVER, headwaters to Toston Dam | 5,2B | 22.0 |
| MT41L001_010 | OLD MAIDS COULEE, headwaters to mouth (Cutbank Creek) | 5,2B | 17.6 |
| MT42C002_020 | OTTER CREEK, headwaters to mouth (Tongue River) | 5,2B | 108.1 |
| MT42J004_010 | STUMP CREEK, headwaters to mouth (Powder River) | 5,2B | 29.8 |
| MT39F001_010 | THOMPSON CREEK, Wyoming border to mouth (Little Missouri River) | 5,2B | 41.2 |
| MT43F002_040 | VALLEY CREEK, headwaters to mouth (Yellowstone River) | 5,2B | 14.8 |
| MT43F001_010 | YELLOWSTONE RIVER, City of Billings PWS to Huntley Diversion Dam | 5,2B | 10.7 |

## 4.3.2 Summary of Water Quality Assessments

DEQ has defined 1,152 Assessment Units in its database, which consists of 1,081 rivers and streams and 71 lakes and reservoirs. DEQ reports all waters that do not meet WQS as impaired whether the impairment includes pollutants (listed in Category 5), is impaired only from pollution (listed in Category 4C), or those with all necessary TMDLs completed (listed in Category 4A). There are a total of 3,406

AU/cause combinations identified as impairing Montana's surface waters (**Appendix A**). Montana's 2012 303(d) List (**Appendix B**) includes 1,583 specific pollutant listings on 584 assessment units.

Impaired waters are listed with identified causes and their sources (**Appendix A**). Of the 76 specific causes listed in 2012, the two most common were sediment-related (pollutant) and alterations of streamside vegetative covers (pollution). The top 10 most common causes include sediment, nutrients, and metals-related pollutants and habitat or streamflow-related pollution listings (**Table 4.3**).

**Table 4-3. Top 10 Causes of Impairment – All Assessment Units**

| Cause Name | # of AUs |
|---|---|
| Sedimentation/Siltation | 454 |
| Alteration in streamside or littoral vegetative covers[1] | 411 |
| Low flow alterations[1] | 238 |
| Phosphorus (Total) | 228 |
| Nitrogen (Total) | 202 |
| Lead | 172 |
| Physical substrate habitat alterations | 159 |
| Copper | 157 |
| Arsenic | 115 |
| Cadmium | 109 |

[1] These causes are "pollution" or non-pollutants and, thus, TMDLs cannot be developed

Grazing in riparian or shoreline zones is the most common confirmed source associated with impairments (**Table 4-4**). Other common sources that have been confirmed include irrigated crop production, road-related, water management, mines and mining-related, silviculture, channelization, and natural sources. Of the 2,764 identified AU/source combinations listed, 519 (19%) are confirmed.

**Table 4-4. Top 10 Confirmed Sources of Impairment – All Assessment Units**

| Source Name | # of AUs |
|---|---|
| Grazing in Riparian or Shoreline Zones | 117 |
| Irrigated Crop Production | 51 |
| Forest Roads (Road Construction and Use) | 37 |
| Unspecified Unpaved Road or Trail | 28 |
| Flow Alterations from Water Diversions | 27 |
| Impacts from Abandoned Mine Lands (Inactive) | 19 |
| Silviculture Harvesting | 19 |
| Channelization | 17 |
| Natural Sources | 16 |
| Mine Tailings | 16 |

### *4.3.2.1 Category 5 Pollutant Delistings*

During the 2012 reporting cycle, 225 pollutant causes were delisted from the 303(d) list (Category 5 (**Appendix D**)). Of these, 117 were for approved TMDLs (4A), 106 were changes in listing discussed in **Section 6.2.4.1**, and two were removed (delisted) as new data indicated they now meet state water quality standards. Additionally, the sediment listing on Big Creek (MT76Q002_050), tributary to the North Fork Flathead River, was removed from the listing of impairments as our assessment of the TMDL Implementation Effectiveness shows that sediment is no longer impairing beneficial uses. This cause removal changed the Big Creek listing category from 4A to 4C as a Habitat Alteration listing remains associated the aquatic life use. NOTE: an assessment unit will remain on the state 303(d) list until all necessary TMDLs are approved and thus some waters (AUs) for which causes received a "4A delisting" in 2012 may remain in category 5.

## 4.3.3 Beneficial-Use Support Summaries

All waters are assigned a use class and designates beneficial uses (refer to **Section 3.1.3.2 & Table 3-2**). When a water quality assessment is conducted, each beneficial use is evaluated to determine whether water quality standards are attained and the beneficial use is supported.

### *4.3.3.1 Assessments of Rivers and Streams*

To date, the state's water quality program has defined more than 20,000 miles of rivers and streams in its copy of the EPA Assessment Database. The majority of the rivers and streams the state has assessed are not supporting the aquatic life uses, which reflects the prominence of sediment and flow related impairment listings. Conversely, most waters assessed do support their drinking water, recreation, agriculture, and industrial uses (**Table 4-5**).

**Table 4-5. Beneficial-Use Support Summary – Rivers and Streams ONLY**

| CWA Goals | Beneficial Use | Total [a] | Fully Supporting | Fully Supporting & Threatened | Not Supporting [b] | Not Assessed | Insufficient Info |
|---|---|---|---|---|---|---|---|
| | | (Miles) | (Miles) | (Miles) | (Miles) | (Miles) | (Miles) |
| Protect & Enhance Ecosystem | Aquatic Life (includes fish) | 22,374 | 3,060 | 0 | 15,910 | 3,017 | 386 |
| Protect & Enhance Public Health | Drinking Water | 16,053 | 8,548 | 0 | 3,631 | 3,464 | 411 |
| | Primary Contact Recreation | 22,374 | 9,642 | 135 | 6,115 | 5,270 | 1,213 |
| Social & Economic | Agricultural | 16,917 | 12,213 | 0 | 2,114 | 2,347 | 242 |

[a] Total size (miles) of rivers or streams defined in the Assessment Database with this assigned beneficial use.
[b] Includes waters that are partially supporting their beneficial uses.

There are 72 identified causes of impairment to Montana's rivers and streams. The most common are sediment-related (pollutant) and alterations of streamside vegetative covers (pollution). The top 10 most common include sediment, nutrients, and metals-related pollutants and habitat or streamflow related pollution listings (**Table 4-6**).

**Table 4-6. Top 10 Causes of Impairment – Rivers and Streams ONLY**

| Cause Name | # of AUs |
|---|---|
| Sedimentation/Siltation | 448 |
| Alteration in streamside or littoral vegetative covers[1] | 410 |
| Low flow alterations[1] | 237 |
| Phosphorus (Total) | 221 |
| Nitrogen (Total) | 197 |
| Lead | 168 |
| Physical substrate habitat alterations[1] | 157 |
| Copper | 156 |
| Arsenic | 111 |
| Cadmium | 108 |

[1] These causes are pollution or non-pollutants and, thus, TMDLs cannot be developed.

There were 48 confirmed sources of impairment to Montana's rivers and streams. The most common confirmed source was riparian, or shoreline, grazing (**Table 4-7**). Other sources are related to irrigated crop production, roads, water management, mining, silviculture, channelization, and natural sources.

**Table 4-7. Top 10 Confirmed Sources of Impairment – Rivers and Streams ONLY**

| Source Name | # of AUs |
|---|---|
| Grazing in Riparian or Shoreline Zones | 117 |
| Irrigated Crop Production | 49 |
| Forest Roads (Road Construction and Use) | 37 |
| Unspecified Unpaved Road or Trail | 28 |
| Flow Alterations from Water Diversions | 27 |
| Impacts from Abandoned Mine Lands (Inactive) | 19 |
| Silviculture Harvesting | 19 |
| Channelization | 17 |
| Natural Sources | 16 |
| Mine Tailings | 16 |

### *4.3.3.2 Assessments of Lakes and Reservoirs*

To date, the state's water quality program has defined almost 600,000 acres of lakes and reservoirs in its copy of the EPA Assessment Database. The majority of the lakes and reservoirs the state has assessed are not supporting the aquatic life or drinking water, but are supporting recreation uses (**Table 4-8**).

**Table 4-8. Beneficial-Use Support Summary - Lakes and Reservoirs ONLY**

| CWA Goals | Beneficial Use | Total [a] | Fully Supporting | Fully Supporting & Threatened | Not Supporting [b] | Not Assessed | Insufficient Info |
|---|---|---|---|---|---|---|---|
| | | (Acres) | (Acres) | (Acres) | (Acres) | (Acres) | (Acres) |
| Protect & Enhance Ecosystem | Aquatic Life (includes fish) | 595,596 | 106,383 | 34,924 | 423,920 | 30,370 | 0 |
| Protect & Enhance Public Health | Drinking Water | 575,455 | 218,558 | 0 | 304,817 | 48,580 | 3,500 |
| | Primary Contact Recreation | 595,596 | 485,083 | 0 | 62,823 | 44,190 | 3,500 |
| Social & Economic | Agricultural | 573,855 | 241,545 | 0 | 51,237 | 277,572 | 3,500 |

[a] Total size (acres) of lakes or reservoirs defined in the assessment database with this assigned beneficial use.
[b] Includes waters that are partially supporting their beneficial uses.

There are 35 identified causes of impairment to Montana's lakes and reservoirs. The most common causes are phosphorus (pollutant), other flow regime alterations (pollution), and salinity (pollutant). The remaining top 10 causes include sediment, nutrients, and metals-related pollutant listings (**Table 4.9**).

**Table 4-9. Top 10 Causes of Impairment – Lakes and Reservoirs ONLY**

| Cause Name | # of AUs |
|---|---|
| Phosphorus (Total) | 7 |
| Other flow regime alterations[1] | 7 |
| Salinity | 7 |

**Table 4-9. Top 10 Causes of Impairment – Lakes and Reservoirs ONLY**

| Cause Name | # of AUs |
|---|---|
| Mercury | 6 |
| Sedimentation/Siltation | 6 |
| Selenium | 6 |
| Nitrogen (Total) | 5 |
| Lead | 4 |
| Arsenic | 4 |
| Oxygen, Dissolved | 3 |

[1] These causes are "pollution" or non-pollutants and thus TMDLs cannot be developed

Of 37 identified impairment sources identified for Montana's lakes and reservoirs, seven are confirmed (**Table 4-10**). These include agricultural, point-source/urban, and climate-related sources.

**Table 4-10. Confirmed Sources of Impairment – Lakes and Reservoirs ONLY**

| Source Name | # of AUs |
|---|---|
| Irrigated crop production | 2 |
| Agriculture | 1 |
| Municipal point source discharges | 1 |
| Unspecified urban stormwater | 1 |
| Atmospheric deposition - nitrogen | 1 |
| Drought-related Impacts | 1 |
| Sources outside state jurisdiction or boarders | 1 |

DEQ has limited data to evaluate lakes in the state. Nonetheless, some assessments of lake trophic status and water quality trends have been conducted. Of the 71 lake assessment units (595,596 acres) represented in the ADB, 60 have been assessed for trophic status (**Table 4-11**). Similarly, of these 60 lakes, only 13 have been assessed for trends (**Table 4-12**).

**Table 4-11. Trophic Status of Lakes and Reservoirs**

| Trophic Status | Number of Lakes | Total Size (Acres) |
|---|---|---|
| Dystrophic | 0 | 0 |
| Eutrophic | 11 | 40,483 |
| Hypereutrophic | 0 | 0 |
| Mesotrophic | 16 | 314,613 |
| Oligotrophic | 10 | 197,604 |
| Unknown | 23 | 39,521 |
| **Total Assessed for Trophic Status** | **60** | **589,221** |

**Table 4-12. Water Quality Trends for Lakes and Reservoirs**

| Trend | Number of Lakes | Total Size (Acres) |
|---|---|---|
| Stable | 4 | 22,410 |
| Degrading | 2 | 28,895 |
| Unknown | 7 | 264,879 |
| **Total Assessed for Trends** | **13** | **316,185** |

## 4.3.4 Montana Lake Assessment Using a Probabilistic Design

Under the Clean Water Act, the U.S Environmental Protection Agency (EPA) must periodically report on the condition of the nation's water resources. As part of the National Lakes Assessment (NLA) project, the Montana Department of Environmental Quality (DEQ) collected data in 2007 from 40 lakes, ponds, and reservoirs to assess their water quality, biological and habitat conditions, recreational suitability, and trophic index. The context of the full report (Teply, 2012) and the summary of the document presented here should be considered with caution, since the assessment was made using only the NLA indicators (biological, chemical, and physical) and their threshold values. The thresholds were derived using either long-standing values from the scientific literature or based on the range of values of a particular indicator derived from nationwide or regional reference-lakes data. For this project, Montana had only four reference lakes according to the criterion used by NLA; the state does not yet have its own lakes criteria. Therefore, these results should be viewed as representing a national context. Actual assessments the state may carry out in the future may differ.

DEQ used a probabilistic sampling design to ensure that the design yielded a set of lakes that would support statistically valid conclusions. For the purpose of this project, “lakes” refers to natural and man-made freshwater lakes, ponds, and reservoirs greater than 10 acres (4 hectares). Montana has 5,547 lakes that met this criterion; of those, 40 lakes were sampled and 5 were re-visited for verification sampling. In selecting lakes, DEQ used five size categories (4–10 ac; 10–20 ac; 20–50 ac; 50–100 ac, and > 100 ac), as well as two aggregated ecoregions: Western Mountains and Northern Plains. The Western Mountains ecoregion includes the western portion of the state, where 81% of the lakes are natural. The Northern Plains ecoregion includes the central and eastern portion of the state, where only 25% of the lakes are natural. Population estimate analysis weights each sample lake according to its probability of selection. We used an automated procedure provided by EPA (Teply, 2012) to calculate the proportion of lakes in each condition class category being analyzed. Results are as reported by the EPA procedure and, because of rounding, some may not sum to 100% when tallied across categories. In other instances, results may not sum to 100% when some lakes were not assessed for a particular condition class. The margin of error for the Montana sample is displayed as thin lines on either side of the bars in the graphs throughout this report. These represent the 95% confidence interval.

DEQ collected samples at the deepest point of each lake and at 10 stations equidistant along the entire shore. Mid-lake sampling included physical parameters (e.g., dissolved oxygen concentration) along a depth profile, single grab samples for nutrients and zooplankton, and a sediment core for diatoms. Along the shore, physical characteristics in the riparian zone and littoral zone (i.e., shallow water area near the shore) were documented using a physical-habitat assessment form. The littoral zone was also sampled for benthic macroinvertebrates and the water for pathogens.

DEQ assessed biological condition using two indices: the planktonic O/E taxa loss model, combining data from both phytoplankton and zooplankton, and the Lake Diatom Condition Index (LDCI), based on five characteristics of diatom assemblages (taxonomic richness, taxonomic composition, taxonomic diversity, morphology, and pollution tolerance). The planktonic O/E metric showed that 25% of all Montana lakes are in good condition, 2% are in fair condition, and 73% are in poor condition. LDCI showed that 24% are in good condition, 5% are in fair condition, and 52% are in poor condition; 19% were not assessed. The Western Mountains indicated overall good condition, whereas the Northern Plains indicated fair to poor conditions. Based on these metrics, the biological condition of Montana lakes is lower than that for lakes nationally (about half of the lakes in the nation-wide are rated in good condition).

Water quality condition was evaluated using four chemical indicators (total phosphorus [TP], total nitrogen [TN], turbidity, and dissolved oxygen [DO]). Slightly less than half of Montana’s lakes are in good condition with respect to TP (47%) and TN (43%) however almost all are in good condition for turbidity (96%) and DO (98%). Nutrient conditions show the greatest differences between the two ecoregions. In the Western Mountains, 99% have good TP conditions and 90% have good TN conditions. In the Northern Plains, 28% have good TP conditions and 26% have good TN conditions. There was less difference between ecoregions for turbidity and DO. Generally, Montana lakes are in slightly poorer condition for nutrients but in better condition for turbidity and DO than lakes nationally.

DEQ assessed physical habitat condition based on three indicators (lakeshore habitat, shallow water habitat, and physical habitat complexity). For lakeshore habitat, 42% are in good condition, 3% are in fair condition, and 53% are in poor condition. For shallow water habitat, 43% are in good condition, 18% are in fair condition, and 38% are in poor condition. For physical habitat complexity, 41% are in good condition, 4% are in fair condition, and 52% are in poor condition. There are also ecoregion differences, with approximately 80% in the Western Mountains having good habitat condition but only about 25% indicating good habitat condition in the Northern Plains. Overall, habitat conditions are not as good as those found nationally.

DEQ assessed recreational suitability based on three indicators (microcystin, cyanobacteria, and chlorophyll-*a*). Risk is considered here as the potential for the presence of algal toxins that will affect recreation and human health. As for other indicators, there were ecoregion differences. In the Western mountains, nearly all lakes are at low risk based on cyanobacteria and chlorophyll-*a* data. In the Northern Plains, 24% of the lakes have cyanobacteria and 48% chlorophyll-*a* levels that indicate a moderate to high risk. Microcystin levels for all lakes indicate low risk (Teply, 2011).

DEQ calculated trophic status using the NLA indicator (chlorophyll-*a*) and Carlson's Trophic State Index (TSI). The NLA indicator shows that 44% of all Montana lakes are oligotrophic, 19% are mesotrophic, 36% are eutrophic, and less than 1% are hyper-eutrophic. Almost all lakes in the Western Mountains are oligotrophic (97%). In the Northern Plains, 26% are oligotrophic. Using Carlson's TSI for Secchi depth, chlorophyll-*a*, and TP, the TSI ranges indicated that—for the entire state—2-23% of the lakes are oligotrophic, 19-40% are mesotrophic, 19-65% are eutrophic, and 0-53% are hypereutrophic. In the Western Mountains, 8-80% are oligotrophic, 17-92% are mesotrophic, 0–3% are eutrophic, and none are hyper-eutrophic. In the North Plains, 0–3% are oligotrophic, 1-48% are mesotrophic, 26-93% are eutrophic, and 1-73% are hyper-eutrophic. Compared with national findings, using only the NLA indicator, Montana lakes show relatively lower levels of eutrophication across the state.

Between 1972 and 1976, EPA conducted the National Eutrophication Survey (NES), which was designed to assess the trophic condition of lakes influenced by wastewater treatment plants. Eight of the lakes sampled in Montana in the NLA are also NES lakes. Sampling results were found for seven of these lakes. Comparing the Carlson's TSI between 1972–1976 and 2007 indicates that the seven lakes decreased their TSI values, meaning that nutrient levels and algal growth have decreased over the past 35 years and, therefore, the trophic status of these lakes has improved since the mid-1970s.

## 4.4 Wetlands Program

DEQ's Wetland Program provides state leadership to conserve wetlands for their water quality, water quantity, habitat, and flood control benefits. The Wetlands Program is guided by a state wetland plan titled "Priceless Resources – A Strategic Framework for Wetland and Riparian Area Conservation and Restoration in Montana, 2008-2012" (Montana Wetland Council, 2008). The Strategic Framework is endorsed by the governor and directors of the Department of Environmental Quality; Fish, Wildlife & Parks; and Department of Natural Resources and Conservation.

The Strategic Framework was developed by the Montana Wetlands Council, an active network of diverse interests that works to conserve and restore Montana's wetland and riparian ecosystems. Numerous entities were involved in developing the strategy, which reached out to more than 700 Montanans representing local, state, federal, and tribal agencies, as well as the agricultural community, biology and environmental conservation groups, consultants, scientists, land trusts, industry representatives (e.g., mining, wood products), real estate and land development interests, recreation and sportsmen, the educational sector, and other water- and wetland-related groups.

### 4.4.1 Montana Wetlands Program Overview

Montana's overarching wetland goal is no net loss of the state's remaining wetland resource base (as of 1989) and an overall increase in the quality and quantity of wetlands in Montana. Working groups help to implement the 5-year strategic framework. Eight strategic directions guide wetland protection for DEQ and the Montana Wetland Council:

1. public education
2. professional training
3. mapping, monitoring, and assessment
4. restoration
5. local government assistance
6. wetland vulnerability
7. public policy
8. Montana Wetland Council effectiveness

In 2009, EPA's Wetland Division encouraged states to develop Wetland Program Plans (WPPs) based on EPA's four core element framework for state wetlands program:

- monitoring and assessment
- regulatory activities, including Section 401 certification
- voluntary restoration and protection
- water quality standards for wetlands

States were advised to develop WPPs that outlined goals, actions, and implementation schedules for these elements. DEQ submitted a CWA 104(b)3 Wetland Program Development Grant (WPDG) proposal for Federal Fiscal Year 2009 funding to develop a Montana Wetland Program Plan but was not successful. Instead, DEQ used state funding to develop a draft DEQ WPP. DEQ submitted its draft WPP to EPA Region 8 on November 30, 2010. On May 5, 2011, EPA notified DEQ that the WPP met minimum qualifications but suggested several revisions. EPA gave DEQ the opportunity to revise its WPP to include the full range of planned program development actions as identified in the Strategic Framework. DEQ is nearing completion of WPP revisions and will soon submit a final WPP to EPA Region 8. DEQ will submit future proposals to EPA Region 8 for Wetland Program Development Grant (WPDG) funding based on actions identified in the final WPP, once approved.

### 4.4.2 Monitoring and Assessment

To fulfill EPA's CWA Section 106(e)(1) grant requirements, DEQ submitted a report to EPA Region 8 titled "Montana Statewide Water Quality Monitoring and Assessment Strategy, 2009-2019." Section 10 of the report included an implementation schedule with several activities identified to accomplish short-term goals. DEQ has prepared a draft document, "Recommended Strategies for Achieving Montana Water

Quality Act Objectives for Montana's Wetlands" (Apfelbeck, 2010 Draft), as an in-house working document and to address one of those short-term activities.

From 2002 to 2006, the Montana Natural Heritage Program's (MTNHP) Ecology Program contracted with DEQ to monitor and assess wetlands. In 2006, MTNHP took the lead on wetland monitoring and assessment and receives EPA Wetland Program Development Grants and other EPA funding to (a) develop GIS-based, rapid and intensive assessment methods; (b) initiate a rotating basin approach to report on wetland condition; and (c) develop reference standard wetland condition assessments and other tools for reporting on the condition of Montana's wetlands. MTNHP prepared a draft report titled "Development Plan for a Statewide Wetland and Riparian Mapping, Assessment and Monitoring Program" (Montana Natural Heritage Program, 2010). DEQ plans to submit a federal fiscal year (FFY) 2011 Wetland Program Development Grant proposal to address core element program needs for an initial monitoring and assessment effort.

DEQ has contracted with MTNHP's Ecology Program for the field portion of the 2011 National Wetland Condition Assessment (NWCA) for Montana. MTNHP will sample 13 sites and revisit 2 sites. Two additional sites and one site revisit will occur on tribal lands. DEQ Wetland Program staff will participate in the field training and field work associated with the NWCA contract.

A recently completed DEQ contract with MTNHP's Zoology Program took advantage of amphibian field work conducted for other projects. On the Natural Heritage Tracker Website http://mtnhp.org/Tracker/NHTMap.aspx, all effected wetlands were red-flagged and noted with their degree of degradation. MTNHP coded 10,185 wetland photos associated with more than 9,600 wetland surveys conducted across Montana.

Another recently completed DEQ contract with MTNHP's Aquatic Ecology Program linked wetland habitat type and potential wetland condition with Odonata (dragonfly and damselfly) and Lepidoptera (butterfly) species. This project resulted in several final products, including two reports: 1) "Wetland Macroinvertebrate Collection and Assessment Protocols for the Statewide Wetland Monitoring and Assessment Program" and 2) "Evaluation of Wetland Macroinvertebrate Collection and Assessment Methods and Rationale for Inclusion into the Statewide Wetland Monitoring and Assessment Program." Additional products included dragonfly, damselfly, and butterfly wetland association summaries and database.

### 4.4.3 Voluntary Restoration and Protection

The Montana Wetlands Legacy Partnership (Legacy), formed in 2000, is a voluntary incentive-based partnership that focuses on wetland restoration and conservation on private land. Montana Department of Fish, Wildlife & Parks (FWP), provides the Legacy coordinator and contact for landowners interested in technical and financial assistance for wetland restoration from state, federal, tribal, and local governments, as well as from private conservation organization programs.

With funding from a FFY2009 WPDG, DEQ has partnered with Legacy to begin wetland restoration that addresses water quality and quantity impairments identified through the TMDL process. This pilot project is being conducted in the Big Hole and Gallatin watersheds and involves both of the watershed committees and DEQ's Watershed Protection staff. The goal of the project is to demonstrate how wetlands can help address water quality and quantity impairments. An additional goal is to further integrate wetland with other DEQ water quality management programs.

From 2004 to 2006 Legacy also administered the In-Lieu-Fee (ILF) Aquatic Resource Mitigation Program with funds managed by FWP. However, FWP decided to end the program because not enough funds were generated to ensure long-term monitoring and protection of the sites. Further, EPA and the U.S. Army Corp of Engineers (USACE) published a draft rules proposal to discontinue ILF programs. In the 2.5 years that the ILF program operated, $500,000 was generated from wetland-related effects, and funds were used for wetland mitigation, including an ILF project on the Granger Ranches. Since then, EPA and USACE have issued the final Mitigation Rule, which guides the development of improved ILF programs. In addition, the Montana Army Corps of Engineers has begun to require mitigation for stream-related effects, which they estimate to be about 80% of the aquatic effects in Montana. DEQ was awarded a FFY2010 EPA Region 8 Wetland Program Development Grant to develop an ILF Aquatic Resource Mitigation Program for Montana to satisfy CWA 404 mitigation requirements for impacts to streams, wetlands, and other aquatic resources.

DEQ plans to submit a FFY2011 Wetland Program Development Grant proposal to address the needs for developing a voluntary restoration core element program.

### 4.4.4 Water Quality Standards and Regulation

DEQ received a FFY2009 WPDG to enhance wetland protection in Montana by strengthening Montana's Clean Water Act (MCWA) Section 401 Water Quality Certification program for Section 404 permits. A second objective is to increase coordination and integration of MCWA programs to improve the protection of wetlands and streams in Montana. The project is designed to address and enhance the effectiveness of implementing the MCWA Section 401 certification program as described in the regulatory section of the EPA document titled "Core Elements of an Effective State and Tribal Wetland Program." Two main tasks and final products are being developed:

1. Formal written guidance for Clean Water Act Section 401 Water Quality Certification conditions for 404 permits. For lack of resources, Montana does not have formal guidance or standard operating procedures for Section 401 certification and has not appreciably altered its Section 401 certification conditions since the SWANCC[14] or Rapanos[15] Supreme Court rulings.

2. Review and provide comments on the 5-year reissuance of US Army Corps of Engineers Nationwide Permit program, the regional conditions, and Section 401 certification conditions to ensure that federal permits meet state water quality standards.

## 4.5 Public Health Issues

This section provides information regarding public health issues in the state during the years 2009 – 2010. These issues include protecting public water supplies, ensuring safe drinking waters, and being aware of other issues that may be harmful to the population, i.e. fish kills.

[14] Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, 531 U.S. 159 (2001).
[15] Rapanos v. United States 547 U.S. 715 (2006).

### 4.5.1 Spill Reports

During 2009-2010, a total of 216 incidents of possible spills affecting water quality were reported to DEQ's Enforcement Division. These reports ranged from 1 cup of oil spilling into the Yellowstone River to 500,000 gallons of raw sewage dumped into Glendive Creek from a collapsed sewer pipe. All incidents were investigated, and their reports are available from the Enforcement Division.

On July 1, 2011 a pipeline under the Yellowstone River at Laurel, Mt ruptured, releasing an estimated 1,200 Barrels (nearly 50,000 gallons) of crude oil into the river. Clean-up began immediately following the discovery of the incident and continued through mid-October 2011. While long term environmental impacts have yet to be determined, soil and water sampling results will be reported in the 2014 Integrated Report.

### 4.5.2 Fish Kills

Three fish kills were reported to the Montana Department of Fish, Wildlife & Parks (FWP) from 2009 through early 2011:

- August 1, 2009 – A fish kill of unknown origins was reported at Yellow Water Reservoir.
- August 5–6, 2010 – Approximately 1,000 fish, including brown and rainbow trout and whitefish, were reported killed in Cherry Creek from the applied poison rotenone, used by the Cherry Creek Westslope Cutthroat Restoration Project to kill non-native species; the poison persisted in creek longer than expected.
- January 19, 2011 – FWP game warden reported yellow perch dying at Whitetail Reservoir; likely caused by low oxygen levels.

### 4.5.3 Fish Consumption Advisories

In 2007 the Montana Department of Public Health and Human Services issued fish consumption advisories for certain Montana waters where testing confirmed elevated levels of contaminants, specifically mercury and polychlorinated biphenyls (PCBs), which are harmful to human health.

Most waters in the state, however, have not been tested for contaminants (Montana Department of Health and Human Services, et al., 2007). **Table 4-13** lists waterbodies which contain fish species with consumption advisories. More detailed information is available on the FWP Website http://fwpiis.mt.gov/content/getItem.aspx?id=28187.

**Table 4-13. Montana Waters with Fish Consumption Advisories 2010-2011**

| | | |
|---|---|---|
| Alder Gulch | Bair Reservoir | Basin Creek |
| Big Spring Creek | Bighorn Reservoir | Bynum Reservoir |
| Cabinet Gorge Reservoir | Canyon Ferry Reservoir | Castlerock Lake |
| Clark Canyon Reservoir | Clark Fork River | Clear Lake |
| Cliff Lake | Cooney Reservoir | Culver Pond |
| Crystal Lake | East Fork Reservoir | Ennis Lake |
| Flathead Lake | Fort Peck Reservoir | Fred Burr Creek |
| Fresno Reservoir | Georgetown Lake | Hauser Reservoir |
| Hebgen Reservoir | Holter Reservoir | Island Lake |
| Lake Elwell | Lake Frances | Lake Koocanusa |
| Lake Mary Ronan | Leigh Lake | Lower Stillwater Lake |
| Madison River | Martinsdale Reservoir | Medicine Lake NWR |

**Table 4-13. Montana Waters with Fish Consumption Advisories 2010-2011**

| | | |
|---|---|---|
| Missouri River | Mystic Lake | Nelson Reservoir |
| Ninepipes NWR | Noxon Reservoir | Petrolia Reservoir |
| Prickley Pear Creek | Seeley Lake | Silver Creek |
| South Sandstone Reservoir | Swan Lake | Tenmile Creek |
| Thompson Falls Reservoir | Tiber Reservoir | Tongue River Reservoir |
| Upper Cold Lake | Upper Two Medicine | Whitefish Lake |

Additionally, as a result of the oil spill mentioned in **Section 4.5.1** Montana Fish, Wildlife and Parks issued consumption advisory for fish caught in the Yellowstone River between Buffalo Mirage fishing access site near Park City and the confluence with the Bighorn River near Custer.

## 4.5.4 Public Water Supplies

In 1974, Congress passed the Safe Drinking Water Act (SDWA), the first national legislation for drinking water. SDWA, and its revisions, required EPA to adopt regulations establishing minimum requirements for drinking water quality and treatment. Public water systems must meet these requirements before water supplies can be used for public consumption. SDWA also requires owners of public water systems to notify their customers when violations of the regulations occur.

In 1986, in response to the growing concern over contamination of drinking water, Congress amended SDWA to significantly increase monitoring and treatment requirements. Although the 1986 amendments resolved many shortcomings in the original legislation, additional revisions were required to better prioritize and address health risks associated with drinking water. In August 1996, Congress again amended SDWA to address these issues.

Included in the 1996 amendments is a requirement that states prepare an annual compliance report that describes the status of compliance of public water systems with SDWA. DEQ implements these requirements under an agreement with EPA. DEQ's Public Water Supply section regulates approximately 2,095 public water systems in Montana. DEQ has completed the compliance report for calendar year 2010, which lists and explains the number of SDWA requirement violations according to drinking water standards, water treatment requirements, or a water quality monitoring/reporting requirement. DEQ also lists violations according to the violated rule.

### *4.5.4.1 Public Water Systems in Montana*

SDWA defines a public water system as one that provides drinking water to at least 15 service connections or serves at least 25 people for at least 60 days of the calendar year. As required by SDWA, DEQ regulates three types of public water systems:

- **Community (CWS) systems**. Public water systems that serve the same resident population every day, such as cities, towns, subdivisions, and trailer courts.
- **Non-transient non-community (NTNC) systems**. Public water systems that serve the same nonresident population for at least 6 months of the calendar year, such as schools and places of business.
- **Transient non-community (TNC) systems**. Public water systems that serve a transient population, such as restaurants, taverns, and campgrounds.

As of May 2011, there were 695 active CWS, 260 NTNC, and 1,140 TNC systems in Montana. They serve drinking water to approximately 1 million people daily. Since 1967, the Montana Water and Wastewater Operator Certification Law has required that every community public water system retain at least one individual that is fully certified and in compliance with state regulations. Similar requirements apply to operators of public wastewater treatment systems. The 1997 Montana Legislature amended this law, which took effect in July 1998, requiring operators of NTNC public water systems to be certified. In order to remain fully certified, Montana's water and wastewater system operators must have appropriate experience, pass specialized examinations, and obtain continuing education credits.

### *4.5.4.2 Drinking Water Quality in Montana*
Most Montana residents have safe, potable drinking water. Many springs, wells, streams, and lakes that supply public drinking water receive flow from naturally protected mountain watersheds. Federal and state laws further protect surface water and groundwater sources against significant degradation. Some surface water sources serving the public are so pristine that disinfection is the only required treatment prior to consumption. Most groundwater sources are naturally protected against contamination and do not require treatment before use.

Because sight or smell cannot detect most contaminants in drinking water, owners of public water systems regularly submit water samples for extensive testing by certified laboratories. DEQ requires public water system owners to treat their water when they detect natural or man-made contaminants in water samples, or when natural barriers do not adequately protect sources.

Since the establishment of SDWA in 1974, Montana residents have experienced a dramatic improvement to the quality of their drinking water. Further, the 1986 and 1996 amendments required increasingly stringent monitoring and treatment, resulting in drinking water that is much safer than in 1974. The public's increased awareness of water contamination, and its associated health effects, has helped to focus attention on public water supply issues.

### *4.5.4.3 Drinking Water Contaminants*
Four general categories of contaminants are found in drinking water:

- **Microbiological**: These contaminants are primarily disease-causing microorganisms, or microorganisms that indicate that other disease-causing organisms are present. Contaminated drinking water can transmit certain disease-causing organisms, such as viruses, bacteria, and protozoa to humans. Although such problems are relatively rare, serious water-borne disease outbreaks still occur in the United States from improper disposal of human or animal wastes and from inadequate treatment of drinking water. All public water systems must sample regularly for coliform bacteria. Although coliform bacteria are not always a health risk, their presence in drinking water indicates that disease-causing microorganisms may be present. Public water systems must treat surface water sources before the water is suitable for human consumption. They may also treat groundwater sources for microbiological contaminants when lack of natural protection, or improper disposal of human or animal wastes, compromises the water sources.

- **Inorganic chemicals (IOCs):** IOCs contain no carbon. Examples of regulated IOCs are arsenic, fluoride, lead, and nitrate. Inorganic contaminants can cause a wide variety of health effects, depending upon the contaminant, the concentration, and the length of exposure. Potential health effects include toxic (poisonous) effects and cancer. High nitrate levels in drinking water can impair the transfer of oxygen to the blood in infants. High lead levels can impair intellectual development in children. Most of the inorganic Maximum Contaminant Level (MCL) violations in Montana are fluoride and nitrate violations.

- **Organic chemicals:** Organic chemicals contain carbon. They fall into two broad categories: volatile organic chemicals (VOCs) and synthetic organic chemicals (SOCs). Aerating or heating water can remove VOCs from water. Examples of VOCs are solvents such as perchloroethylene, toluene, and xylene. More complex technologies involving filtration or adsorption typically remove SOCs. Examples of SOCs are insecticides, herbicides, and polychlorinated bi-phenyls (PCBs). Organic contaminants can cause a wide variety of health effects, depending upon the contaminant, the concentration, and the length of exposure. Potential health effects include toxic (poisonous) effects and cancer. Fortunately, DEQ has found few MCL violations for VOCs and SOCs.

- **Radionuclides:** Radionuclides are radioactive contaminants found in drinking water, soils, and rocks as trace elements. These contaminants, such as radium, may occur naturally. Radionuclides in drinking water can cause cancer or toxic effects, again depending upon the concentration and time of exposure. There are 11 MCL violations for radionuclides in Montana, representing 4 public water supplies.

#### 4.5.4.3.1 Surface Water Systems

Since 1974, filtration and disinfection of surface waters are the most dramatic drinking water treatment improvements. Surface water is generally more susceptible to contamination than groundwater. Historically, public water suppliers inadequately treated many surface water sources because they lacked awareness of water-borne diseases, chemical contaminants, and contaminant health effects. The study of water-borne disease outbreaks, such as giardiasis and cryptosporidiosis, improved the collective knowledge and ultimately resulted in technological improvements for surface water treatment.

The primary objective in treating surface water is to remove or inactivate microbiological contaminants that can cause disease (e.g., viruses, bacteria, and protozoa). Water contaminated with animal or human waste can transmit diseases to humans; therefore, adequate treatment of microbiological contaminants is essential in order to avoid acute health effects. People with compromised immune systems, such as infants, the elderly, the ill, and HIV-positive individuals, may be especially vulnerable to water-borne diseases.

Montana has 224 public water systems that use surface water as a primary or secondary source (**Figure 4-1**). Groundwater under Direct Influence of Surface Water (GWUDISW) is the source for 16 of these systems. For regulatory purposes, SDWA considers GWUDISW systems as surface waters. Of the 224 systems, 152 are “purchased,” meaning they rely on other water systems for their primary, or supplemental, water supply. Although relatively few in number, the largest public water systems in Montana use surface water and serve 408,079 people daily.

#### 4.5.4.3.2 Groundwater Systems

Regular prescriptive sampling of groundwater sources serving the public in Montana has occasionally detected unacceptable levels of microbiological, inorganic, organic, and radiological contaminants. Natural flushing of contaminants through a groundwater aquifer can take many decades or hundreds of years. Microbiological contaminants can enter groundwater from leaking sewers and poorly constructed sewage lagoons or septic systems. Some inorganic and radiological contaminants (e.g., arsenic and radium) are naturally occurring. Most organic contaminants (e.g., solvents and pesticides) are manmade. Usually, organic contaminants in groundwater are the result of improper use or disposal of chemicals.

Most public water systems in Montana use groundwater as a primary or secondary source. There are 1,871 public water systems in Montana that use groundwater as their primary source **(Figure 4-1)**. These groundwater sources serve 555,594 people daily, which is about 56% of Montana's population (989,415 per the 2010 Census). For this reason it is important that this critical groundwater resource be allocated and managed properly to conserve and protect it for current and future populations.

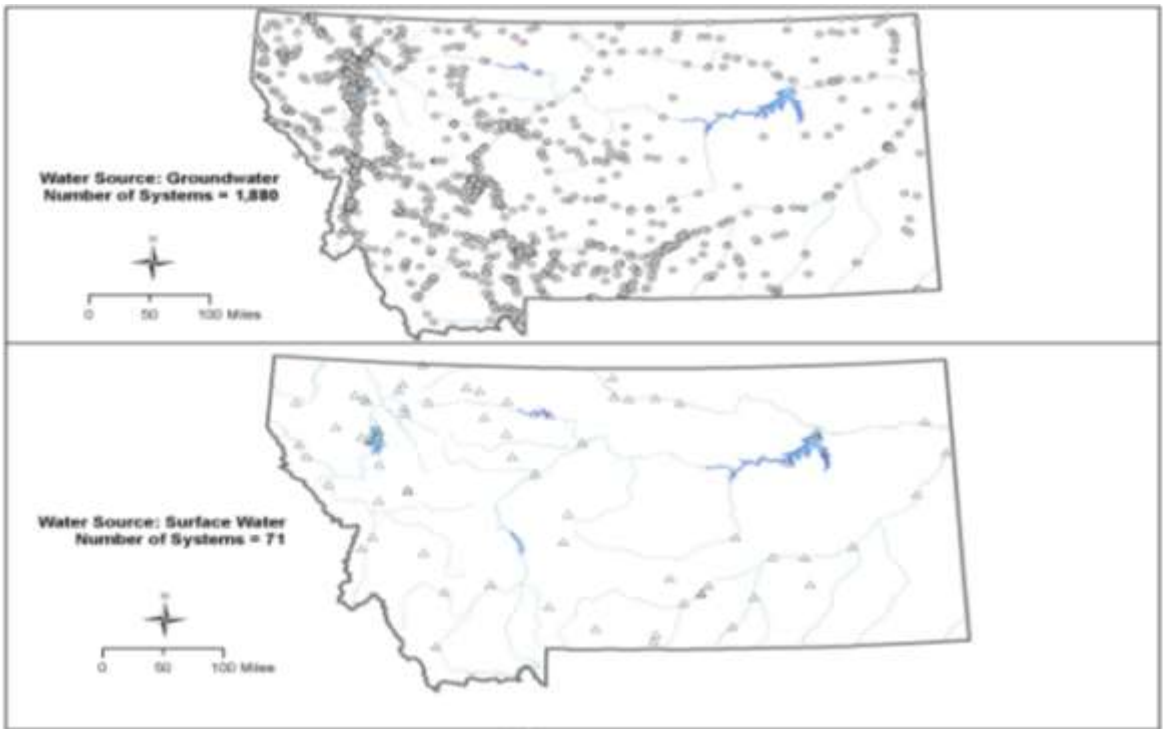


**Figure 4-1. Distribution of Public Water Supply Sources in Montana**

### 4.5.4.3.3 Regulations and Enforcement

Most water system owners are willing to comply with EPA and DEQ water quality monitoring regulations. Unfortunately, the complexity and comprehensiveness of the regulations have often confused water system owners. Since 1989, monitoring and treatment requirements have increased significantly. In 1993, several regulations imposed complex new requirements, which became effective nearly simultaneously. Many monitoring violations resulted, often simply because the regulations were difficult to understand. Since 2006, several new regulations have been implemented (e.g., Long Term Enhanced Surface Water Treatment Rule (LTESWTR), Stage 1 Disinfection Byproduct Rule (DBP Stage 1), Lead and Copper revisions, Groundwater Rule, Long Term 2 (LT2) and Stage 2 Disinfection Byproduct Rule(DBP Stage 2). LTESWTR and LT2 have positive effects on drinking water quality by strengthening the filtered water requirements and increased source water protection from cryptosporidium.

When public water system owners detect contaminants at unacceptable levels, or when they find their water treatment methods to be inadequate, they are required to notify the public. DEQ then requires appropriate corrective action to treat or abandon the affected water source(s). Owners must also notify the public when they don't take required water samples.

When possible DEQ, or its contractors, resolve violations informally, this could involve making phone calls or field visits, or offering on-site technical and compliance assistance. In these situations the Montana Rural Water Systems, or the Midwest Assistance Program, also provides technical assistance. DEQ resolves most violations informally by the willing cooperation of the water system owner. When violations are irresolvable, DEQ may initiate formal enforcement actions, such as administrative orders, to ensure public health protection.

Most water systems are in compliance with regulations, and typically, violations result from late or missed water samples. In 2009 and 2010, these accounted for the most significant public water system violations, along with coliform bacteria contamination. In addition, the complexity of the consumer notice for lead in the lead and copper rule short-term revisions was problematic for water system owners.

All community water systems are required to provide consumer confidence reports to the state and their users annually by July 1. These reports contain water system data for the previous calendar year. The information must reflect general system logistics; any MCLs, exceedances or contaminant detections; variances or exemptions; violations incurred; compliance actions taken; system updating (e.g., to treatment plants or service lines); and information on staying aware of drinking water quality.

#### *4.5.4.4 Violations in 2009 and 2010*

Section 1413 of the amended SDWA requires states to prepare annual compliance reports for public water systems. DEQ prepared its first compliance report for calendar year 1996. Subsequent compliance reports are due annually on July 1. Included in the report are the following violations types for national primary drinking water regulations:

- **MCLs.** MCLs are maximum levels of contaminants that are permitted in drinking water. According to federal and state regulations, drinking water containing contaminants at levels below the MCLs are safe for human consumption.
    - **Treatment Requirements.** DEQ imposes treatment requirements when a public water system exceeds MCLs or when natural protection against contamination is inadequate to ensure safe drinking water without treatment.
- **Variances and Exemptions.** DEQ may issue variances when a public water system owner has installed treatment but those technologies are not effective in meeting MCLs. Variances impose further requirements for meeting MCLs or for installing alternative treatment. DEQ issues exemptions to allow additional time for the system to meet an MCL or treatment requirement. Public health effects and affordability are considered with variances and exemptions. In addition to imposing deadlines for system improvements, variances and exemptions require public notification. DEQ did not record any violations of variances or exemptions in 2010 and no variances or exemptions were issued.
    - **Monitoring Requirements.** As previously discussed, regulatory requirements include extensive water sampling and testing. When public water system owners do not sample the water or do not submit test results to DEQ, a violation is issued. Most monitoring violations are resolved when sampling resumes, or when a public notice is posted, or when reports are finally submitted.

- **Reporting Requirements.** All community water system owners are required to provide a consumer confidence report to the state and its users each year. The owner remains in violation until they appropriately distribute the report.

#### 4.5.4.4.1 Phase 2/5 Rule

Monitoring frequency for VOCs, IOCs, SOCs, and nitrates/nitrites for community and non-transient non-community public water systems varies widely. Owners of all public water systems were required to sample for nitrate in 2009 and 2010. No systems reported MCL violations for VOCs or SOCs (**Tables 4-14 and 4-15**); 15 systems had MCL violations for IOCs in 2009 (**Table 4-14**), with 9 systems in 2010 (**Table 4-15**). Fifteen systems in 2009 (**Table 4-14**) and 11 in 2010 violated the MCL for nitrate/nitrite (**Table 4-15**). Some of these were associated with naturally occurring contaminants, but most of the nitrate violations are likely the result of contamination from improper sewage disposal or agricultural practices.

In 2009, 43 water systems were in violation of monitoring requirements for VOCs, 34 for SOCs, 54 for IOCs, and 92 for nitrate/nitrite (**Table 4-14**).In 2010, 34 water systems were in violation of the monitoring requirements for VOCs, 49 for SOCs, 56 for IOCs, and 46 for nitrate/nitrite (**Table 4-15**). VOC and IOC monitoring violations included monitoring requirements due by the end of calendar year but were not reported by the due date. Monitoring violations resulted from late samples, missed samples, improper sampling procedures, reporting issues by the certified laboratories, or confusion over complex monitoring requirements. The lack of a certified operator for transient systems may have also lead to the failure for systems to monitor or report properly.

**Table 4-14. Violations of Phase 2 and Phase 5 Rules 2009**

| Phase II and Phase V | MCL (mg/l) | MCLs | | Significant Monitoring/Reporting | |
|---|---|---|---|---|---|
| | | Number Of Violations | Number of Systems with Violations | Number of Violations | Number of Systems with Violations |
| VOCs | Varies | 0 | 0 | 53 | 43 |
| SOCs | Varies | 0 | 0 | 45 | 34 |
| IOCs | Varies | 38 | 15 | 94 | 54 |
| NO3/NO2 | 10 | 30 | 15 | 102 | 92 |
| **Subtotal** | | **68** | **30** | **294** | **223** |

**Table 4-15. Violations of Phase 2 and Phase 5 Rules 2010**

| Phase II and Phase V | MCL (mg/l) | MCLs | | Significant Monitoring/Reporting | |
|---|---|---|---|---|---|
| | | Number Of Violations | Number of Systems with Violations | Number of Violations | Number of Systems with Violations |
| VOCs | Varies | 0 | 0 | 40 | 34 |
| SOCs | Varies | 0 | 0 | 65 | 49 |
| IOCs | Varies | 24 | 9 | 106 | 56 |
| NO3/NO2 | 10 | 21 | 11 | 51 | 46 |
| **Subtotal** | | **45** | **20** | **262** | **185** |

#### 4.5.4.4.2 Total Coliform Rule (TCR)

In 2010, 114 public water systems exceeded the MCL violations for total coliforms (**Table 4-17**), down from 149 in 2009 (**Table 4-16**). No MCL violations resulted when a routine, or a repeat sample, showed the presence of fecal coliform bacteria in either years (**Tables 4-16 and 4-17**). Fecal coliforms are a specific subgroup of total coliforms that grow only at the body temperature of warm-blood mammals. They indicate if fecal contamination of water is more likely to have recently occurred.

There are two types of MCL violations for Total Coliform Rule:

1) A boil water order (acute) issued when coliform bacteria with fecal contamination is present
2) A health advisory (non-acute) issued when coliform bacteria is present but without fecal contamination. The system's routine and repeat samples provide the basis for the MCLs. Common MCL violations include inadequately protected water sources or bacteria growth.

In 2010, 288 water systems were in violation of the routine monitoring requirements (**Table 4-17**), down from 394 systems in 2009 (**Table 4-16**). The violations resulted when owners did not submit monthly or quarterly samples.

**Table 4-16. Violations of the Total Coliform Rule 2009**

| SDWIS Codes | Total Coliform Rule | MCL | MCLs | | Significant Monitoring/Reporting | |
|---|---|---|---|---|---|---|
| | | | Number of Violations | Number of Systems with Violations | Number of Violations | Number of Systems with Violations |
| 21 | Acute MCL Violation | Fecal Coliform Bacteria Present | 8 | 7 | | |
| 22 | Non-Acute MCL Violation | No Fecal Coliform Bacteria Present | 233 | 149 | | |
| 23, 25 | Routine Monitoring | | | | 667 | 394 |
| | **Subtotal** | | **241** | **156** | **667** | **394** |

**Table 4-17. Violations of the Total Coliform Rule 2010**

| SDWIS Codes | Total Coliform Rule | MCL | MCLs | | Significant Monitoring/Reporting | |
|---|---|---|---|---|---|---|
| | | | Number of Violations | Number of Systems with Violations | Number of Violations | Number of Systems with Violations |
| 21 | Acute MCL Violation | Fecal Coliform Bacteria Present | 11 | 10 | | |
| 22 | Non-Acute MCL Violation | No Fecal Coliform Bacteria Present | 148 | 114 | | |
| 23, 25 | Routine Monitoring | | | | 423 | 288 |
| | **Subtotal** | | **159** | **124** | **423** | **288** |

#### 4.5.4.4.3 Surface Water Treatment Rule

In 2009, seven water systems failed to meet treatment technique requirements (filtration and disinfection) and two failed to install filtration treatment as required by DEQ (**Table 4-18**). In 2010, four water systems failed to meet treatment technique requirements (filtration and disinfection) and one failed to install filtration treatment as required by DEQ (**Table 4-19)**. Treatment technique violations are typically the result of inadequate filtration or disinfection during times of high demand for water.

**Table 4-18. Violations of the Surface Water Treatment Rule 2009**

| SDWIS Codes | Surface Water Treatment Rule | Treatment Techniques | | Significant Monitoring/Reporting | |
|---|---|---|---|---|---|
| | | Number Of Violations | Number Of Systems With Violations | Number Of Violations | Number Of Systems With Violations |
| | **Filtered Systems** | | | | |
| 36,38 | Monitoring, Routine/Repeat | | | 18 | 7 |
| 41, 43, 44 | Treatment Techniques | 39 | 7 | | |
| | **Unfiltered Systems** | | | | |
| 01 | Turbidity MCL Single | | | | |
| 02 | Turbidity MCL Average | | | | |
| 03 | Turbidity Significant M/R | | | | |
| 31 | Monitoring, Routine/Repeat | | | 10 | 3 |
| 42 | Failure To Filter | 2 | 2 | | |
| | **Subtotal** | **41** | **9** | **28** | **10** |

**Table 4-19. Violations of the Surface Water Treatment Rule 2010**

| SDWIS Codes | Surface Water Treatment Rule | Treatment Techniques | | Significant Monitoring/Reporting | |
|---|---|---|---|---|---|
| | | Number Of Violations | Number Of Systems With Violations | Number Of Violations | Number Of Systems With Violations |
| | **Filtered Systems** | | | | |
| 36,38 | Monitoring, Routine/Repeat | | | 8 | 5 |
| 41, 43, 44 | Treatment Techniques | 8 | 4 | | |
| | **Unfiltered Systems** | | | | |
| 01 | Turbidity MCL Single | 3 | 1 | | |
| 02 | Turbidity MCL Average | | | | |
| 03 | Turbidity Significant M/R | | | | |
| 31 | Monitoring, Routine/Repeat | | | | |
| 42 | Failure To Filter | 1 | 1 | | |
| | **Subtotal** | **12** | **6** | **8** | **5** |

#### 4.5.4.4.4 Disinfection Byproducts Rule

The Stage 1 Disinfections Byproducts Rule went into effect on January 1, 2002, for surface water systems and groundwater systems that are under the direct influence of surface water serving populations ≥10,000. All surface and groundwater systems, including groundwater systems under the direct influence of surface water, that serve <10,000 people must comply with this rule effective January 1, 2006. Currently 416 systems are monitoring under this rule. In both 2009 and 2010, 4 water systems exceeded the MCL for disinfection byproduct formations (DBPs) (**Tables 4-20 and 4-21**). DBPs result from source water conditions, DBP precursor removal, and operational conditions of the systems' water treatment plant. In 2010, four water systems were in violation of monitoring requirements for DBPs (**Table 4-21**).

**Table 4-20. Violations of the Disinfection Byproducts Rule 2009**

| SDWIS codes | Disinfection Byproducts Rule | MCL | MCLs | | Significant Monitoring/Reporting | |
|---|---|---|---|---|---|---|
| | | | Number of Violations | Number of Systems with Violations | Number of Violations | Number of Systems with Violations |
| 27 | Monitoring, Routine/Repeat | | | | 0 | 0 |
| 11 | Chlorine (0999) or Chloramines (1006) MRDL | 4.0 mg/l | 0 | 0 | 20 | 20 |

**Table 4-20. Violations of the Disinfection Byproducts Rule 2009**

| SDWIS codes | Disinfection Byproducts Rule | MCL | MCLs | | Significant Monitoring/Reporting | |
|---|---|---|---|---|---|---|
| | | | Number of Violations | Number of Systems with Violations | Number of Violations | Number of Systems with Violations |
| 11 | Chlorine Dioxide M&R | | NA | NA | NA | NA |
| 02 | DBP MCL Average (Total TTHMs 2950) | 0.08 ug/l | 11 | 4 | | |
| 02 | DBP MCL Average (Total HAA5s, 2456) | 0.06 ug/l | 13 | 5 | | |
| | **Subtotal** | | **24** | **9** | **20** | **20** |

**Table 4-21. Violations of the Disinfection Byproducts Rule 2010**

| SDWIS codes | Disinfection Byproducts Rule | MCL | MCLs | | Significant Monitoring/Reporting | |
|---|---|---|---|---|---|---|
| | | | Number of Violations | Number of Systems with Violations | Number of Violations | Number of Systems with Violations |
| 27 | Monitoring, Routine/Repeat | | | | 4 | 4 |
| 11 | Chlorine (0999) or Chloramines (1006) MRDL | 4.0 mg/l | | | | |
| 11 | Chlorine Dioxide M&R | | NA | NA | NA | NA |
| 02 | DBP MCL Average (Total TTHMs 2950) | 0.08 ug/l | 8 | 4 | | |
| 02 | DBP MCL Average (Total HAA5s, 2456) | 0.06 ug/l | 13 | 8 | | |
| | **Subtotal** | | **21** | **12** | **4** | **4** |

#### 4.5.4.4.5 Lead and Copper Rule

In 2009, 155 water systems violated the Lead and Copper Rule monitoring requirements (**Table 4-22**), in 2010, there were 106 in violation **(Table 4-23)**. Most of the violations were the result of late or missed samples or confusion over complex monitoring requirements. In 2009, 133 systems failed to provide required educational materials to the public about lead exceedances, 2010 had 66 such violations.

**Table 4-22. Violations of the Lead and Copper Rule 2009**

| SDWIS Codes | Lead and Copper Rule | Treatment Techniques | | Significant Monitoring/Reporting | |
|---|---|---|---|---|---|
| | | Number of Violations | Number of Systems with Violations | Number of Violations | Number of Systems with Violations |
| 51 | Initial lead and copper tap M/R | 0 | 0 | 9 | 5 |
| 52 | Follow-up or routine lead and copper tap M/R | 0 | 0 | 38 | 26 |
| 53 | Follow-up or routine corrosion parameter M/R | 0 | 0 | 16 | 11 |
| 57 | Submit Treatment Plan | 7 | 7 | 0 | 0 |
| 58, 62 | Treatment Installation | 1 | 1 | 0 | 0 |
| 65 | Public Education | 6 | 6 | 0 | 0 |
| 66 | Lead Consumer Notice | 0 | 0 | 113 | 113 |
| | **Subtotal** | **14** | **10*** | **176** | **155** |

*Some systems have multiple violations

**Table 4-23. Violations of the Lead and Copper Rule 2010**

| SDWIS Codes | Lead and Copper Rule | Treatment Techniques | | Significant Monitoring/Reporting | |
|---|---|---|---|---|---|
| | | Number of Violations | Number of Systems with Violations | Number of Violations | Number of Systems with Violations |
| 51 | Initial lead and copper tap M/R | 0 | 0 | 3 | 3 |
| 52 | Follow-up or routine lead and copper tap M/R | 0 | 0 | 36 | 36 |
| 53 | Follow-up or routine corrosion parameter M/R | 0 | 0 | 16 | 9 |
| 57 | Submit Treatment Plan | 3 | 3 | 0 | 0 |
| 58, 62 | Treatment Installation | 0 | 0 | 0 | 0 |
| 65 | Public Education | 0 | 0 | 0 | 0 |
| 66 | Lead Consumer Notice | 0 | 0 | 66 | 66 |
| | **Subtotal** | **3** | **3** | **121** | **106** |

#### 4.5.4.4.6 Radionuclide Rule

Only community water systems were required to sample for radionuclides every 4 years, until changes to the rule took effect on December 7, 2003. At that time, DEQ adjusted schedules according to 3-, 6-, or 9-year compliance periods based on the historical data and/or the results received during the initial monitoring period. During 2009 and again in 2010, four water systems exceeded the MCL (**Tables 4-24 and 4-25**).

**Table 4-24. Violations of the Radionuclide Rule 2009**

| SDWIS Codes | Radionuclide MCLs | MCL (pCi/l) | MCLs | | Significant Monitoring/Reporting | |
|---|---|---|---|---|---|---|
| | | | Number Of Violations | Number Of Systems With Violations | Number Of Violations | Number Of Systems With Violations |
| 4010 | Combined Radium 226/228 | 5 pCi/l | 0 | 0 | 17 | 10 |
| 4000 | Gross Alpha | 15 pCi/l | 9 | 2 | 18 | 12 |
| 4006 | Uranium | 30 mg/l | 5 | 2 | | |
| | **Subtotal** | | **14** | **4** | **35** | **22** |

**Table 4-25. Violations of the Radionuclide Rule 2010**

| SDWIS Codes | Radionuclide MCLs | MCL (pCi/l) | MCLs | | Significant Monitoring/Reporting | |
|---|---|---|---|---|---|---|
| | | | Number Of Violations | Number Of Systems With Violations | Number Of Violations | Number Of Systems With Violations |
| 4010 | Combined Radium 226/228 | 5 pCi/l | 0 | 0 | 19 | 14 |
| 4000 | Gross Alpha | 15 pCi/l | 7 | 3 | 17 | 15 |
| 4006 | Uranium | 30 mg/l | 4 | 1 | 1 | 1 |
| | **Subtotal** | | **11** | **4** | **37** | **21** |

#### 4.5.4.4.7 Consumer Confidence Report Rule

Only community water systems must comply with the Consumer Confidence Report Rule. During 2009, 34 systems didn't meet the requirements of this rule or they had open violations from previous years (**Table 4-26**). In 2010, seven systems didn't meet the requirements (**Table 4-27**).

**Table 4-26. Violations of the Consumer Confidence Report Rule (Violations for 2008 CCR, determined in 2009)**

| SDWIS codes | Consumer Confidence Report Rule | Significant Monitoring/Reporting | |
|---|---|---|---|
| | | Number of Violations | Number of Systems with Violations |
| 71, 72 | Consumer Notification | 34 | 34 |
| | **Subtotal** | **34** | **34** |

**Table 4-27. Violations of the Consumer Confidence Report Rule (Violations of 2009 CCR, determined in 2010)**

| SDWIS codes | Consumer Confidence Report Rule | Significant Monitoring/Reporting | |
|---|---|---|---|
| | | Number of Violations | Number of Systems with Violations |
| 71, 72 | Consumer Notification | 14 | 7 |
| | **Subtotal** | **14** | **7** |

### *4.5.4.5 Summary and Conclusions*

The violations referenced in the previous sections occurred during the period between January 1, 2009, and December 31, 2010. DEQ may have followed with enforcement or assistance actions. Typical enforcement actions include follow-up phone calls, technical assistance with compliance, violation notification letters, administrative orders, and/or violation and closure/resolution actions. There are currently no variances or exemptions (as defined by SDWA) in effect in Montana.

In 2000, DEQ adopted EPA's Safe Drinking Water Information System (SDWIS) for maintaining regulatory and compliance monitoring data. Since then, SDWIS modernization has improved DEQ's ability to detect and respond to violations, a trend that has resulted in improved compliance over time.

A significant portion of violations were a result of an incomplete understanding of the requirements or were technical violations that did not result in public health risks. However, a significant drop in violations has been recorded.

DEQ's Public Water Supply Section continuously coordinates efforts with owners of public water systems to address the most significant violations. The most serious public health risks receive the highest priority. DEQ notifies owners when violations occur and informs them of corrective measures necessary for compliance. Through formal enforcement actions, the Public Water Supply Section and DEQ's Enforcement Division work together when necessary to return difficult violators to compliance.

In 1997, DEQ's Planning, Prevention, and Assistance Division implemented a program that offers low-interest loans to owners in need of water system improvements. Many systems have taken advantage of this funding program, and DEQ anticipates that these loans will assist in addressing many noncompliance issues. Interested parties may direct questions to DEQ's Technical and Financial Assistance Bureau.

## 4.5.5 Source Water Protection Program

Under the 1996 Federal Safe Drinking Water Act, Montana is required to carry out a Source Water Assessment Program. With public participation and input from public water suppliers and other stakeholders, DEQ developed a Source Water Assessment Program, which is implemented by DEQ's Source Water Protection Section. DEQ's Source Water Assessment Program is intended to be a practical and cost-effective approach to protect public drinking water supplies from contamination. The major components are delineation and assessment.

Delineation is the process of identifying areas that contribute water to aquifers or to surface waters used for drinking water by evaluating their geologic and hydrologic conditions. These are called Source Water Protection areas.

Assessment is the process of identifying businesses, activities, or land uses that generate, use, store, transport, or dispose of certain contaminants in Source Water Protection areas. The potential for contamination from these sources is then estimated.

Delineation and assessment identify significant threats to drinking water supplies and provide public water supplies with the information they need to protect their water sources.

### *4.5.5.1 Authority*

The federal Safe Drinking Water Act requires the state to conduct source water assessments for all public water systems. Additionally, the Montana Source Water Protection Program adopted the goals stated in the Montana Constitution and Montana's Water Quality Act (MWQA). The Constitution states: "The state and each person shall maintain and improve a clean and healthful environment in Montana for present and future generations... [including] the protection of the environmental life support system from degradation..." (Article IX, Section 1). Further, MWQA states: "It is the policy of this state to conserve water by protecting, maintaining, and improving the quality and potability of water for public water supplies..." (MCA 75-5-101).

### *4.5.5. 2 Funding*

The Drinking Water State Revolving Fund set-asides earmarked specifically for wellhead and source water protection funds the program.

### *4.5.5.3 Program Requirements*

Section 1453 of the Safe Drinking Water Act (42 U.S.C. Section 300j-13) requires the state program to:

- **Identify the source(s) of water used by public water suppliers**
  This process delineates capture zones for wells or stream buffer areas for surface water sources (i.e., the source water protection areas).

- **Identify and inventory potential contaminant sources**
  DEQ identifies potential significant contaminant sources within the source water protection area. Contaminants of concern generally include nitrate, microbes, solvents, pesticides, and metals—contaminants for which EPA has established MCLs. Potential sources of these contaminants include septic systems, animal feeding operations, underground storage tanks, floor drains, sumps, and certain land-use activities.

- **Assess the susceptibility of public water supplies to those identified potential contaminant sources**
  A susceptibility assessment considers the hazard rating of a potential contaminant source against potential barriers between the contaminant source and the well or intake. The susceptibility assessment provides a rating of the likelihood for contamination of the drinking

water source. DEQ estimates susceptibility for each identified potential contaminant source within a source water protection area.

- **Make the results of the delineation and assessment available to the public**
  DEQ maintains a source water delineation and assessment report for each public water supply, the availability of which should be described in the public water suppliers' consumer confidence reports. Also, the delineation and assessment reports are posted on DEQ's website and are available through individual public water suppliers. Source water delineation and assessment reports can form the basis for developing local source water protection plans.

#### *4.5.5.4 Source Water Assessment Implementation*

Source water assessment reports were completed by DEQ staff, contractors, and volunteers from 1999 to 2006. Student interns were used to complete non-community system assessment reports under the direction of a hydrogeologist from DEQ's Source Water Protection Section.

In addition to supporting other DEQ programs with their projects that protect drinking water sources, the Source Water Protection Section continues to assess new systems and implement source water protection. Implementing source water protection can range from recognizing public water suppliers' protection strategies to formally certifying source water protection plans (SWPPs). When a public water supplier concurs with its source water delineation and assessment report, DEQ recognizes the established protection strategy. In such cases, a public water supplier acknowledges the assessed level of susceptibility of its water source and accepts the management actions needed to reduce susceptibility. If a water supplier must act to reduce susceptibility, that supplier acknowledges its susceptibility, as well as the existence of, or need for, barriers that reduce contamination. Where susceptibility to contamination is low, water suppliers may not need to take protective action, yet DEQ considers them to have a protection strategy in place. When susceptibility to all significant potential contaminant sources identified in the source water assessment is moderate or lower, DEQ considers that public water supplier to be "substantially" implementing a strategy.

DEQ's Source Water Protection Section developed these implementation definitions since they relate directly to susceptibility assessments (i.e., hazard ratings of potential contaminant sources tempered by barriers to an actual contamination event). Implementation is measurable and reportable through a database query. Using these definitions, DEQ may consider a public water supplier to be implementing a protection strategy without taking additional action. This is acceptable in some settings, for example, where well field location or aquifer conditions are such that the PWS achieves protection when the well is constructed. The Source Water Protection Program requests a 5-year inventory update from public water suppliers to address changing conditions affecting susceptibility.

Additionally, public water suppliers may elect to complete a source water protection plan (SWPP) and ask DEQ to certify it. This increases the scope of the source water delineation and assessment report and incorporates elements such as emergency and contingency planning. Because the program is voluntary and considerable time and expense is required to complete a plan, DEQ has certified relatively few SWPPs. In response to real and perceived threats to their water sources, several communities have become interested in SWPPs. Thus, a SWPP can be a planning step for communities in helping to protect their water sources.

### 4.5.6 Drinking Water State Revolving Fund

In 1995, the Montana Legislature created the Drinking Water State Revolving Fund (SRF). In 1997, the Legislature amended the program to make Montana law consistent with the reauthorization of the Safe Drinking Water Act passed in 1996. This legislation, now codified as MCA 75-6-201, et seq., authorizes DEQ and the Department of Natural Resources and Conservation (DNRC) to develop and implement the program. It also established the Drinking Water State Revolving Fund Advisory Committee.

The advisory committee comprises one state representative, one state senator, one member representing the Montana League of Cities and Towns, one county commissioner representing the Montana Association of Counties, one representative from DNRC, and one representative from DEQ. The committee advises DEQ and DNRC on policy decisions that arise in developing and implementing the Drinking Water SRF and it reviews the program's Intended Use Plan (IUP). The Drinking Water SRF is administered by DEQ and DNRC and is similar to the Water Pollution Control SRF.

The State Revolving Fund Program received EPA approval and was awarded its first capitalization grant on June 30, 1998 (FFY1997). Capitalization grants from FFY1998 through the 2010 have subsequently been awarded. DEQ will likely apply for at least portions of the FFY2011 grant later in Montana FY2011.

The State Revolving Fund Program offers below-market loans to construct public health-related infrastructure improvements and provides funding for other activities related to public health and compliance with the Safe Drinking Water Act (SDWA). These other activities, or set-asides, include administration of the State Revolving Fund program; technical, financial, and managerial assistance to small communities; source water protection activities, operator certification; and assistance with administering activities in the Public Water Supply Program.

As the primacy agency responsible for implementing SDWA, DEQ is also responsible for overseeing the State Revolving Fund Program. This role primarily involves providing technical expertise, while DNRC provides financial administration of project loans and oversees the sale of state general obligation bonds. The majority of the funds for this program are in the form of capitalization grants from EPA. Montana provides the required 20% matching funds by issuing state general obligation bonds. Interest on the project loans pays the general obligation bonds, thus no state general funds are used to operate the program. The repaid principal on the project loans is used to rebuild the State Revolving Fund Program and to pay for future projects. The federal capitalization grants were authorized only through FFY2003; however, Congress continues to fund the program. Federal and state law requires the State Revolving Fund to be operated in perpetuity.

The 1996 Amendments to SDWA include a requirement that each state prepare an annual Intended Use Plan (IUP) for each capitalization grant application. This is the central component of the capitalization grant application and describes how the state will use the State Revolving Fund to meet SDWA objectives and further protect public health. The IUP contains the following elements:

- short- and long-term goals of the program
- priority list of projects, including description and size of community
- criteria and method used for distribution of funds
- description of the financial status of the State Revolving Fund Program
- amount of funds transferred between the Drinking Water SRF and the Wastewater SRF

- description of the set-aside activities and percentage of funds that will be used from the capitalization grant, including administrative expenses, Public Water Supply Program support, technical assistance, etc.
- description of how the program defines a disadvantaged system and the amount of funds that will be used for this type of loan assistance

### *4.5.6.1 Anticipated Funding List*

DEQ became eligible to apply for the FFY2010 federal capitalization grant on October 1, 2009, and this grant has subsequently been awarded. DEQ anticipates applying for the FFY2011 grant later in Montana FY2011.

**Table 4-28** lists the Drinking Water State Revolving Fund projects that DEQ anticipates will be funded with FFY2010 and earlier capitalization grants, in conjunction with the 20% state match. The list represents those projects most likely to proceed, starting from the highest ranked projects on the comprehensive priority list (Montana Department of Environmental Quality, Planning, Prevention and Assistance Division, Drinking Water State Revolving Fund, 2011). If other projects are ready to proceed before those on the list below, it is possible that the actual projects that are ultimately funded may vary from those indicated in **Table 4-28**. This scenario occurred during calendar years 1998 through 2008. DEQ expects it to happen again because of the high variability in project schedules and needs, as well as the availability of other funding sources, among other circumstances.

**Table 4-28. Drinking Water State Revolving Fund Projects Identified for Funding**

| Priority Rank | Project Name | Population | Project Cost | Description of Project |
|---|---|---|---|---|
| 8 | Gore Hill WD | 500 | $546,000 (G)* | Install arsenic treatment and construct distribution system improvements. Portions of project are expected to meet the green project criteria. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 9 | Helena/ Warren School | 340 | $1,100,000 | Construct distribution main to connect school to city of Helena water system. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 12 | Dry Prairie Regional Water System | 35,551 | $500,000 | Total project cost is approx. $230 million; expected total SRF portion is approx. $10 million. Continue construction of extensive distribution system. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 14 | North Central Regional Water System | 16,652 | $500,000 | Total project cost is approx. $218 million; expected total SRF portion is approx. $7,720,000. Begin construction of extensive distribution system. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 16 | Lockwood Co. W&SD | 4,300 | $900,000 | Construction of treatment plant, clearwell improvements. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |

**Table 4-28. Drinking Water State Revolving Fund Projects Identified for Funding**

| Priority Rank | Project Name | Population | Project Cost | Description of Project |
|---|---|---|---|---|
| 26 | Fort Smith W&SD | 350 | $560,000 (G) | Construct new well, storage, and distribution system improvements. Portions of the project are expected to meet the green project criteria. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 29 | City of Bozeman | 35,061 | $25,000,000 | Construction of a new water treatment plant. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 32 | City of Shelby | 3216 | $1,765,000 | Construct well improvements, a clear well, and install additional UV disinfection treatment. Expected loan terms are 2.75% interest for the first $500,000 and 3.75% interest for the balance, over 20 years. Funding for this project is expected to include federal monies. |
| 41 | Emkayan Village WD | 150 | $200,000 (G) | Construct distribution system, telemetry control improvements. This project is expected to meet the green project criteria. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 42 | Town of Eureka | 1,287 | $532,000 | Consolidation of Midvale W&SD system, connect to city system, payoff outstanding debt. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 75 | City of Cut Bank | 3,105 | $240,000 (G) | Construct distribution system improvements. This project is expected to meet the green project criteria. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 82 | Town of Valier | 469 | $900,000 (G) | Construct water system improvements, primarily distribution work. Portions of this project are expected to meet the green project criteria. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 93 | Town of St. Ignatius | 825 | $103,000 (G) | Drill new well and construct pump house, install standby generator, and replace some distribution mains. Portions of this project are expected to meet the green project criteria. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 97 | Town of Ennis | 1,005 | $200,000 | Drill new well and construct pump house. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |

**Table 4-28. Drinking Water State Revolving Fund Projects Identified for Funding**

| Priority Rank | Project Name | Population | Project Cost | Description of Project |
|---|---|---|---|---|
| 102 | Town of Nashua | 296 | $150,000 (G) | Construct distribution system improvements. This project is expected to meet the green project criteria. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 107 | Billings Heights WD | 11,375 | $1,038,000 (G) | Construct storage reservoir booster pump station and make distribution system improvements. Portions of this project are expected to meet the green project criteria. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 111 | Green Acres W&SD | 465 | $400,000 (G) | Install storage, telemetry, and distribution system improvements, including residential meters. Portions of this project are expected to meet the green project criteria. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 113 | City of Harlowton | 899 | $350,000 | Construct water system improvements. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 116 | RAE W&SD | 819 | $150,000 (G) | Construct distribution system improvements. This project is expected to meet the green project criteria. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 121 | City of Billings | 100,148 | $3,500,000 (G) | Construct distribution system improvements. This project is expected to meet the green project criteria. Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 128 | Town of Broadview | 150 | $175,000 | Construct water system improvements Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to include federal monies. |
| 131 | Town of Bainville | 153 | $326,000 | Refinance existing debt, in conjunction with joining Dry Prairie Regional Water System (priority 12 above). Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to consist of state funds. |
| 135 | Town of Froid | 195 | $250,000 | Refinance existing debt, in conjunction with joining Dry Prairie Regional Water System (priority 12 above). Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to consist of state funds. |

**Table 4-28. Drinking Water State Revolving Fund Projects Identified for Funding**

| Priority Rank | Project Name | Population | Project Cost | Description of Project |
|---|---|---|---|---|
| 139 | Town of Medicine Lake | 269 | $250,000 | Refinance existing debt, in conjunction with joining Dry Prairie Regional Water System (priority 12 above). Expected loan terms are 3.75% interest over 20 years. Funding for this project is expected to consist of state funds. |

*(G) identifies the project as a "Green Project"

### *4.5.6.2 Criteria and Method Used for Distribution of Funds*

The Safe Drinking Water Act amendments of 1986 and 1996 imposed many new regulatory requirements upon public water suppliers. Public health and compliance problems related to these requirements, affordability, consolidation of two or more systems, and readiness to proceed all were considered in developing Montana's project ranking criteria.

DEQ initially proposed balancing these factors, with slightly more emphasis placed on health and compliance and less on affordability and readiness to proceed. In discussions with EPA and Montana's Drinking Water State Revolving Fund Advisory Committee, it became clear that health risks and compliance issues needed more emphasis and that readiness to proceed could be eliminated and handled through by-pass procedures (Montana Department of Environmental Quality, 2007).

Projects that address acute risks (i.e., an immediate threat to public health), such as inadequately treated surface water, are given high scores. Proposals that address lower-risk public health threats, such as chemical contaminants present at low levels, are ranked slightly lower. Proposals that address existing or future regulatory requirements before noncompliance occurs were also given credit and are ranked lower than projects with significant health risks.

The financial effect of the proposed project on system users is one of the ranking criteria. The communities most in need of low-interest loans to fund the project are awarded points under the affordability criterion (Montana Department of Environmental Quality, 2007).

In addition to the limitations on financing for individual projects discussed earlier in this plan, DEQ is required to use at least 15% annually of all funds credited to the Drinking Water State Revolving Fund to provide loan assistance to systems serving fewer than 10,000 people, to the extent that there are a sufficient number of eligible projects to fund.

### *4.5.6.3 Financial Status*

The discussion and **Table 4-30** on the following pages summarize State Revolving Fund Program expenditures to date and outline financial projections and assumptions for the future. The narrative addresses the project loan fund and **Table 4-31** summarizes the set-aside, or non-project, activities. The individual capitalization grants and corresponding state match for each fiscal year are listed in **Table 4-29**.

**Table 4-29. Summary of Drinking Water State Revolving Fund Grants from 1997 to 2010**

| FFY | Federal Grant | State Match |
|---|---|---|
| 1997 | $14,826,200 | $2,965,240 |
| 1998 | $7,121,300 | $1,424,260 |
| 1999 | $7,463,800 | $1,492,760 |

**Table 4-29. Summary of Drinking Water State Revolving Fund Grants from 1997 to 2010**

| FFY | Federal Grant | State Match |
|---|---|---|
| 2000 | $7,757,000 | $1,551,400 |
| 2001 | $7,789,100 | $1,557,820 |
| 2002 | $8,052,500 | $1,610,500 |
| 2003 | $8,004,100 | $1,600,820 |
| 2004 | $8,303,100 | $1,660,620 |
| 2005 | $8,285,500 | $1,657,100 |
| 2006 | $8,229,300 | $1,645,860 |
| 2007 | $8,229,000 | $1,645,800 |
| 2008 | $8,146,000 | $1,629,200 |
| 2009 | $8,146,000 | $1,629,200 |
| 2010 | $13,573,000 | $2,714,600 |
| **TOTAL** | **$123,925,900** | **$24,785,180** |

A financial overview of the State Revolving Fund Program through FY2011 shows the actual income and expenses (inflows and outflows), by broad category, to the program through FY2010 and the projected inflows and outflows through FY2011 (**Table 4-30**). The first column lists broad categories of inflows and outflows and the second column lists actual amounts for those categories through FY2010. The third column lists projected amounts for FY2011.

**Table 4-30. Drinking Water State Revolving Fund Program Status**

| | Projected through Montana FY2010 | Projected for Montana FY2011 | *Total* |
|---|---|---|---|
| **Source of Funds** | | | |
| **Federal Cap. Grants** | **$110,352,900** | **$13,573,000*** | |
| Set-Asides | ($14,855,232) | ($1,925,920) | |
| Total to Loan Fund | $95,497,668 | $11,647,080 | $107,144,748 |
| **State Match** | | | |
| Bond Proceeds | $22,070,580 | $2,714,600 | $24,785,180 |
| Loan Loss Reserve Sweeps | $4,113,286 | $790,000 | $4,903,826 |
| Loan Repayments | $37,258,428 | $5,800,000 | $43,058,428 |
| Interest on Fund Investments | | | $1,864,354 |
| Transfer to CWSRF | $11,282,486 | $0 | $11,282,486 |
| **TOTAL SOURCE OF FUNDS** | | | **$193,039,022** |
| **Use of Funds** | | | |
| Loans Executed | | | |
| Direct Loans | $145,687,480 | | $145,687,480 |
| Transfer to CWSRF | $16,130,213 | $6,000,000 | $22,130,213 |
| **TOTAL USES** | | | **$167,817,693** |
| Funds Available for Loan | | | $25,221,329 |
| **Projected IUP Loans** | | | |
| Direct Loans (SFY11) | | $38,735,000 | $39,635,000 |
| Projected Balance Remaining | | | **($14,413,671)** |

*FFY2011 capitalization grant estimated amount

**Table 4-31. Drinking Water State Revolving Fund Program Set-Aside Activity**

| Set-Aside | Thru 2009 Grant | '10 Grant Set-aside | % of '10 Grant | Total | Reserved Authority (year) | Reserved Authority Applied to Previous Grants | Total Remaining Authority Reserved |
|---|---|---|---|---|---|---|---|
| **4% Administration** | **4,414,116** | **542,920** | **4%** | **4,957,036** | | | **0** |
| **10% State Program** | | | | | | | |
| PWS Supervision | 4,485,271 | 700,000 | 5.2% | 5,185,270 | 155,000 (01)<br>92,930 (06) | 118,400 (09) | 129,530 |
| Source Water Protection | 1,154,600 | 140,000 | 1.0% | 1,294,600 | | | 0 |
| Capacity Development | 660,000 | 82,000 | 0.6% | 742,000 | 50,000 ('03) | | 50,000 |
| Operator Certification | 965,000 | 120,000 | 0.9% | 1,085,000 | 70,000 ('01) | | 70,000 |
| **Subtotal** | **7,264,870** | **1,042,000** | **7.7%** | **8,306,870** | | | |
| 2% Small System Tech. Asst. | 1,303,226 | 211,000 | 1.6% | 1,514,226 | 155,140 ('00)<br>155,782 ('01)<br>144,585 ('06) | | 455,507 |
| 15% Local Assistance | | | | | | | |
| Loan Assistance for SWP Capacity Development | | | | | | | |
| Source Water Assessment* | 1,482,620 | | -- | 1,482,620 | | | |
| Wellhead Protection | 400,400 | 130,000 | 1.0% | | | | |
| **Totals** | **$14,865,232** | **$1,925,920** | **14.3%** | **$16,791,152** | **$823,437** | **118,400** | **$705,037** |

*The SDWA only allowed funds for this activity to be set aside one time from the initial FFY97 capitalization grant. Montana elected to set aside the maximum allowable amount of $1,482,620 (10%)

# 5.0 Groundwater Monitoring And Assessment

Several state and federal agencies monitor and assess Montana's groundwater, including the Montana Bureau of Mines and Geology; Montana's departments of Environmental Quality, Agriculture, and Natural Resources and Conservation; and the United States Geological Survey. **Section 5.1** contains results from the Montana Bureau of Mines and Geology's monitoring and assessment work, **Sections 5.2** and **5.3** report on other state and locally-managed groundwater protection programs in place under state law or federally delegated authorities.

## 5.1 Groundwater Resources in Montana

The quality and availability of groundwater varies greatly across Montana. Aquifers in western Montana are typically within unconsolidated valley-fill materials coincident with stream valleys and intermontane valleys. Intermontane valley aquifers often yield relatively large quantities of high-quality water to relatively shallow wells. Because many wells are being constructed in intermontane basins, and development is encroaching on the basin margins of consolidated rock, fractured bedrock aquifers surrounding intermontane valleys have become important.

Residents in eastern Montana commonly get groundwater from aquifers within unconsolidated alluvial valley-fill materials, glacial outwash, or consolidated sedimentary rock formations. The most used consolidated sandstone aquifers in eastern Montana include the Fort Union, Hell Creek, Fox Hills, Judith River, and Eagle formations. In some areas east of the Rocky Mountains, near-surface thick shale deposits, such as the Colorado Group and Bearpaw (Pierre) Shale, severely limit the economic availability of water to wells or provide too-poor water quality for most uses. Eastern Montana aquifers typically yield less water and produce more mineralized water compared with aquifers in western Montana. The water in some eastern Montana aquifers is suitable only for livestock consumption.

### 5.1.1 Groundwater Use

Montana's population relies heavily on groundwater. The Montana Ground Water Information Center (GWIC) database contains more than 227,000 water-well records. Since 1975, Montanans have constructed more than 102,800 domestic wells, 16,225 livestock wells, and about 8,900 irrigation wells. About 61% of Montana's population uses groundwater for drinking; about 32% get their drinking water from private wells.

Groundwater sources provide 2% to 3% (about 272 million gallons per day (mgpd)) of the 10,479 mgpd of water used in Montana (Cannon and Johnson, 2004). The largest uses of groundwater are for

- drinking – 87 mgpd
- irrigation – 140 mgpd
- industrial – 32 mgpd
- livestock – 12 mgpd

Groundwater use is highest in western Montana, where the predominant uses are domestic and irrigation supported by high-yield aquifers. Use for livestock is common throughout Montana but is most prevalent in eastern counties, where ranching is an important industry.

### 5.1.2 Groundwater Characterization and Monitoring

The 1991 Montana Legislature established the Montana Ground Water Assessment Program, directing the Montana Bureau of Mines and Geology (MBMG) to characterize Montana's hydrogeology and to monitor long-term water level conditions and water chemistry. The characterization and monitoring programs allow MBMG to systematically evaluate Montana's aquifers and collect long-term water level and water quality data. The GWIC database (http://mbmggwic.mtech.edu) maintains and distributes data generated by the characterization and monitoring programs, as well as data generated by many other groundwater projects.

Ground Water Characterization Program (GWCP) specialists have visited more than 8,950 wells in 22 Montana counties. The site visits provide high-quality inventory information about the groundwater resource. MBMG has released GWCP atlases for the Lower Yellowstone River (Dawson, Fallon, Prairie, Richland, and Wibaux counties) and the Flathead Lake areas (Lake and Flathead counties). The atlases include descriptive overviews of aquifers and 21 maps describing the groundwater resources. Characterization atlases currently in preparation include the Lolo-Bitterroot (Mineral, Missoula, and Ravalli counties), for which MBMG has released 10 maps, and the Middle Yellowstone River (Treasure and Yellowstone counties outside of the Crow Reservation), for which MBMG has released six maps. MBMG has completed field work in the Upper Clark Fork River (Deer Lodge, Granite, Powell, and Silver Bow counties), the Carbon-Stillwater county area, and the Cascade-Teton county area. MBMG has released six maps in these study areas. Field work is ongoing in the Gallatin-Madison county area. The Ground Water Assessment Steering Committee has scheduled the Sweet Grass-Park county area for future work.

The monitoring program's statewide network contains 954 wells in which MBMG staff measure static water levels quarterly. Within the network there are 105 water-level recorders that provide hourly to daily water-level records. New water-level data for any network well is generally available from GWIC about 10 days after collection.

### 5.1.3 Groundwater Contaminants and Contamination Sources

There is no comprehensive statewide set of water chemistry data collected between July 1, 2007, and June 30, 2010; however, the statewide groundwater monitoring program collected data at a subset of existing groundwater monitoring well and spring locations. The groundwater characterization program and other MBMG programs also collected data within specific study areas (**Figure 5-1**). The Ground Water Assessment Program accounted for nearly half (464 of 882) of the samples evaluated for this report. The Cascade-Teton Ground Water Characterization and Gallatin-Madison studies produced 255 samples, and 3 samples came from selected wells in older study areas. The monitoring program collected 206 samples from statewide monitoring network wells. The new Ground Water Investigations Program at MBMG provided about 100 samples; MBMG projects near Anaconda, in the Gallatin valley, lower Yellowstone River, and in the Yellowstone Controlled Groundwater Area, among others, added 320 samples, bringing the total number of sampled sites to 882. Of all the monitoring data evaluated for this report, 59% came from unconsolidated aquifers (**Figure 5-2**).

To be included in the dataset, the water quality sample must

- have been collected between July 1, 2007, and June 30, 2010;
- represent "ambient" water quality (i.e., not collected as part of an effort to determine the extent of contamination by the evaluated parameter) and have an identifiable geologic source;

- have come from a well or spring.

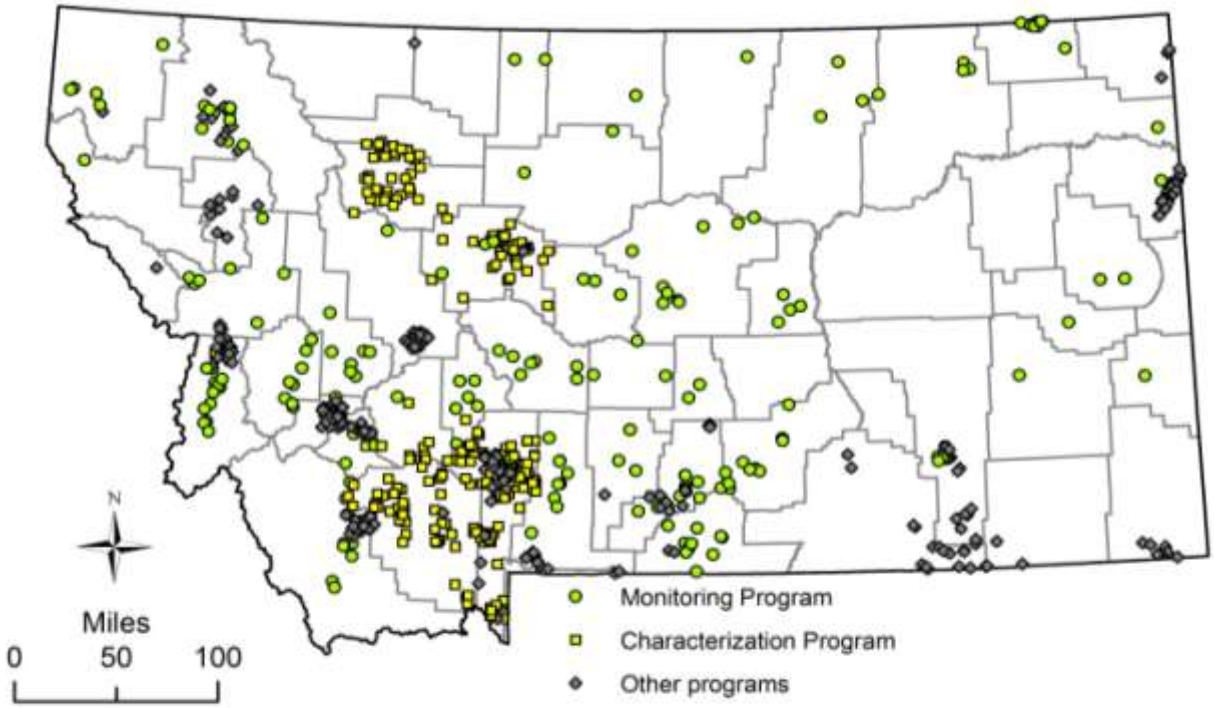


**Figure 5-1. Groundwater Monitoring Well and Spring Locations and Data Source**

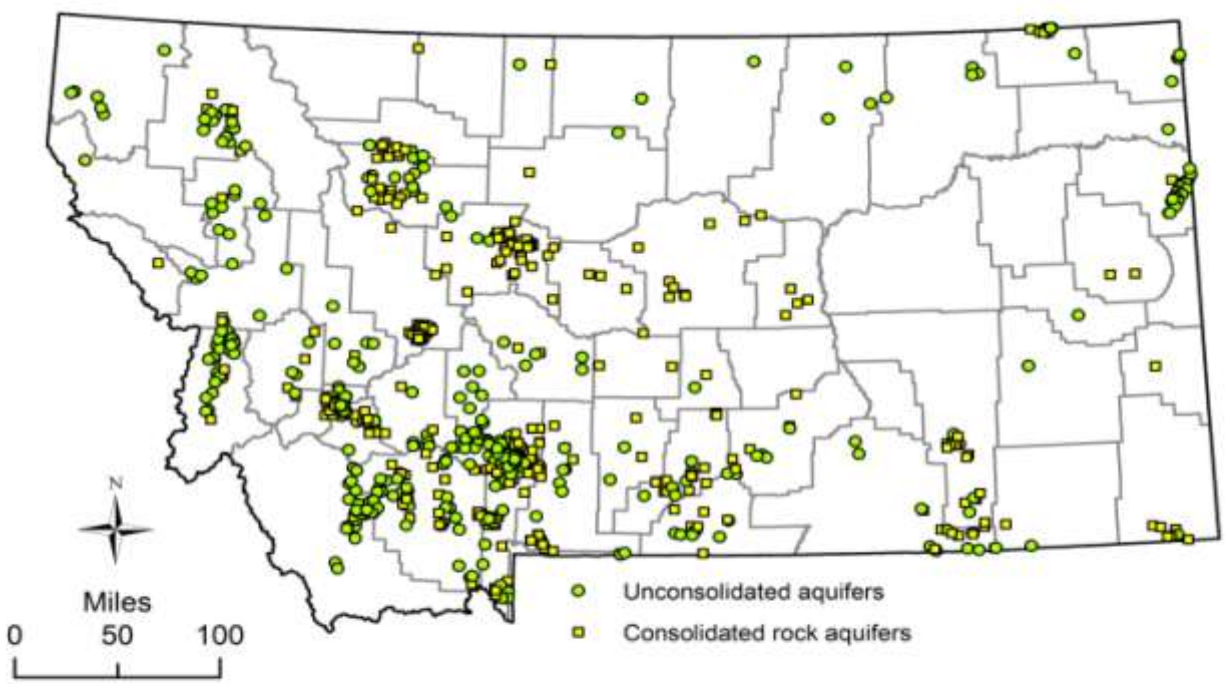


**Figure 5-2. Distribution of Samples from Wells and Springs Completed Unconsolidated and Consolidated Aquifers**

If a well or spring was sampled more than once between July 2007 and June 2010, data were included either from the most recent or the most complete analysis. For example, if a well was sampled for common ions (including nitrate) and trace metals but later sampled only for nitrate, the complete analysis was retained and the single nitrate result was not used. Numerous samples collected from closely spaced wells also received special treatment. If more than four samples in the same quarter-section from wells completed in the same aquifer were found in the database, the sample with the median total dissolved solids was selected.

The final number of analytical results available depended on the parameter. For example, there were 817 complete analyses for which total dissolved solids could be calculated and trace metal data extracted. However, 868 samples were available for nitrate and about 815 samples were available for chloride.

Maximum contaminant levels (MCLs), secondary maximum contaminant levels (SMCLs), or State of Montana standards (DEQ-7) (Montana Department of Environmental Quality, 2006) are cited for various parameters below. MCLs refer to the maximum level of a constituent allowed in public drinking water supplies as established by EPA (see http://water.epa.gov/action/advisories/drinking/upload/dwstandards2009.pdf[16]) and are set to ensure that the contaminant does not pose significant risk to public health. MCLs are legally enforceable standards that apply to public water systems. SMCLs are non-enforceable guidelines for contaminants that may cause unpleasant cosmetic effects (e.g., skin or tooth discoloration) or affect the aesthetics of drinking water (e.g., taste, odor, or color). DEQ-7 standards, adopted by the Montana Board of Environmental Review for the parameters discussed below, mostly but not always match that parameter’s MCL or SMCL. If a numeric DEQ-7 value is available, but it differs from a parameter’s MCL or SMCL, the DEQ-7 value is compared with concentrations in the sample sets.

**Total Dissolved Solids:** About one-third of the 815 samples for which total dissolved solids were reported contained concentrations greater than 500 mg/L. One hundred twenty-five of these samples were from consolidated rock aquifers located east of the Rocky Mountains and around the edges of intermontane valleys in western Montana; 128 samples were from unconsolidated aquifers in western Montana valleys and along major drainages in eastern Montana. More than 70% of samples from unconsolidated aquifers contained less than 500 mg/L but 4% contained more than 2,000 mg/L total dissolved solids. In contrast, only about 60% of the samples from consolidated rock aquifers contained less than 500 mg/L total dissolved solids. Twelve percent of samples from consolidated aquifers with total dissolved solids had concentrations greater than 2,000 mg/L.

**Nitrate**: The nitrate (as N, nitrate-nitrogen) data represents results from 868 water samples (**Table 5-1**). About 15% of all samples contained nitrate concentrations of less than 0.25 mg/L; about 80% of all samples contained concentrations of less than 2 mg/L. About 90% of all samples contained less than 5 mg/L; however, 4% of the samples contained concentrations greater than 10 mg/L. The median nitrate concentration for all samples was 0.5 mg/L. The median concentration in samples from unconsolidated aquifers was 0.6 mg/L; the median concentration for samples from consolidated aquifers was 0.5 mg/L.

[16] Website accessed November 29, 2011.

**Table 5-1. Nitrate-Nitrogen Concentrations in 868 Samples**

| Nitrate-nitrogen mg/L | Unconsolidated aquifers | Number of samples | Consolidated aquifers | Number of samples | All aquifers | Number of samples |
|---|---|---|---|---|---|---|
| <0.25 | 79 | 16% | 53 | 15% | 132 | 15% |
| ≥ 0.25 and < 2.0 | 329 | 65% | 226 | 63% | 555 | 64% |
| ≥ 2.0 and < 5.0 | 69 | 14% | 37 | 10% | 106 | 12% |
| ≥ 5.0 and < 10.0 | 21 | 4% | 23 | 6% | 44 | 5% |
| ≥ 10.0 | 10 | 2% | 21 | 6% | 31 | 4% |
| Total | 508 | 101% | 360 | 100% | 868 | 100% |

*Percentages do not sum to 100 due to rounding

There were 508 nitrate-nitrogen results available for samples from unconsolidated aquifers and 360 results from consolidated rock aquifers. There was little difference between unconsolidated and consolidated aquifers in the percentages of samples at specific nitrate concentrations.

**Fluoride:** Analytical results for fluoride in 808 samples showed that concentrations were between 0.1 and 2.0 mg/L in about 87% of the samples. However, at concentrations greater than 2 mg/L (50% of the 4 mg/L DEQ-7 and MCL standards), water from consolidated rock aquifers generally contained more fluoride than did water from unconsolidated aquifers. Ten percent of the samples from consolidated rock aquifers exceeded 2.0 mg/L; only about 5% of the water samples from unconsolidated aquifers contained similar concentrations. Exceeding the MCL were 1% of the samples from unconsolidated aquifers and 2% of the samples from consolidated rock aquifers.

**Sulfate:** Sulfate is rarely absent in groundwater, and only about 2% of the samples did not contain detectable concentrations. About 18% of the 817 samples contained sulfate concentrations greater than the secondary drinking water standard of 250 mg/L. Seventy percent of the samples contained sulfate concentrations of less than 125 mg/L (50% of the secondary standard).

Water samples from unconsolidated aquifers had slightly lower sulfate concentrations than did samples from consolidated rock aquifers. Seventy-three percent of the samples from unconsolidated aquifers contained sulfate concentrations of less than 125 mg/L; only 67% of the water samples from consolidated rock aquifers contained sulfate concentrations below that level. Fifteen percent of the samples from unconsolidated aquifers contained sulfate concentrations greater than 250 mg/L, but 21% of the samples from consolidated aquifers exceeded the secondary standard.

**Chloride**: In about 95% of the 815 samples, chloride concentrations were less than 63 mg/L (25% of the secondary standard of 250 mg/L), but only about 7% of the samples did not contain detectable chloride. Only 0.2% of the samples from unconsolidated aquifers and 0.9% of the samples from consolidated rock aquifers contained greater than 250 mg/L chloride. Chloride is commonly present at low concentrations in natural water, and the secondary standard is high compared to chloride concentrations in most of the samples.

About 55% of samples contained chloride concentrations of less than 10 mg/L. About 37% of the samples contained more than 10 mg/L but less than 63 mg/L. The median concentration of chloride for all the samples was 7.5 mg/L. The median concentration in unconsolidated aquifers was 7.4 mg/L; the median concentration in consolidated rock aquifers was 7.8 mg/L.

**Metals:** Analytical results for trace metals for between 807 and 815 samples are available for the July 2007 – June 2010 period. The distribution of trace-metal concentration relative to DEQ-7 standards and primary or secondary MCLs (Table 5-2) shows that aluminum, antimony, barium, beryllium, cadmium, lead, nickel, selenium, thallium, uranium, and zinc were present in concentrations above their standards, but in only 0.1% to 4% of samples. Arsenic was the exception, where about 7% of samples contained >10 µg/L. The percentage of samples that contained concentrations of any metal between the detection limit and 50% of its standard ranged from 85% for arsenic to 100% for chromium, copper, and silver.

**Table 5-2. Distribution of Trace-Metal Sample Concentrations Based on Montana DEQ-7 Standards and MCLs or SMCLs Established for Public Drinking Water Supplies**

| | MCL µg/L | Total Samples | Samples with either a reported value or a non-detect ≤ the MCL or SMCL | Percent samples < 50% MCL | Percent >50% MCL and <100% MCL | Percent >100% MCL |
|---|---|---|---|---|---|---|
| Aluminum* | 50 (s) | 809 | 791 | 96.3% | 1.5% | 2.2% |
| Antimony | 6 (p) | 812 | 811 | 99.8% | 0.1% | 0.1% |
| Arsenic | 10 (p) | 815 | 758 | 85.3% | 7.7% | 7.0% |
| Barium | 2,000 (p) | 813 | 812 | 99.9% | 0.0% | 0.1% |
| Beryllium | 4 (p) | 807 | 804 | 99.5% | 0.1% | 0.4% |
| Cadmium | 5 (p) | 813 | 809 | 99.4% | 0.1% | 0.5% |
| Chromium | 100 (p) | 813 | 813 | 100.0% | 0.0% | 0.0% |
| Copper | 1,000 (s) | 814 | 814 | 100.0% | 0.0% | 0.0% |
| Lead | 10 (p) | 813 | 810 | 99.4% | 0.2% | 0.4% |
| Selenium | 50 (p) | 813 | 810 | 98.9% | 0.7% | 0.4% |
| Silver | 100 (s) | 813 | 813 | 100.0% | 0.0% | 0.0% |
| Thallium | 2 (p) | 810 | 777 | 95.4% | 0.5% | 4.1% |
| Uranium | 30 (p) | 813 | 784 | 91.9% | 4.6% | 3.6% |
| Zinc | 5,000 (s) | 813 | 813 | 99.9% | 0.1% | 0.0% |

*Aluminum has been associated with discoloration of drinking water following treatment, and the SMCL is sometimes given as a range between 50 and 200 µg/L to allow states to address local conditions. The 50 µg/L minimum was used here for comparison purposes. (p) = primary drinking water standard. (s) = secondary drinking water standard. Detection limits were as follows (µg/L): Al = 0.1-79.0, Sb = 0.05-5.4, As = 0.1-6.4, Ba = 0.1-1.3, Be = 0.1-2.1, Cd = 0.1-4.5, Cr = 0.04-6.6, Cu = 0.04-16.2, Pb = 0.05-7.3, Se = 0.05-8.3, Ag = 0.04-10.0, Tl = 0.02-2.0, U = 0.01-6.9, and Zn = 0.04-36.4. For any parameter, non-detect results with detection limits above the MCL or SMCL were not included.

**Arsenic:** Based on 815 samples, almost all of Montana's groundwater contains arsenic, but 93% of the samples contained arsenic concentrations of less than 10 µg/L. The distribution of arsenic concentration does not vary widely between consolidated and unconsolidated aquifers **(Table 5-3)**. Additionally, 28% of the samples from unconsolidated aquifers and 19% of the samples from consolidated aquifers contained concentrations >3 µg/L.

**Table 5-3. Arsenic Concentrations in 815 Samples**

| Arsenic µg/L | Unconsolidated aquifers | Number of samples | Consolidated aquifers | Number of samples | All aquifers | Number of samples |
|---|---|---|---|---|---|---|
| < 1 | 215 | 46% | 188 | 55% | 403 | 49% |
| ≥ 1 and < 3 | 122 | 26% | 87 | 25% | 209 | 26% |
| ≥ 3 and < 10 | 92 | 19% | 53 | 15% | 145 | 18% |
| ≥ 10 and < 25 | 31 | 7% | 11 | 3% | 42 | 5% |
| ≥ 25 and < 50 | 5 | 1% | 1 | 0% | 6 | 1% |

**Table 5-3. Arsenic Concentrations in 815 Samples**

| Arsenic µg/L | Unconsolidated aquifers | Number of samples | Consolidated aquifers | Number of samples | All aquifers | Number of samples |
|---|---|---|---|---|---|---|
| ≥ 50 | 7 | 1% | 3 | 1% | 10 | 1% |
| **Total** | **472** | **100%** | **343** | **99%** | **815** | **100%** |

*Percentages do not sum to 100 due to rounding

**Radon:** Analytical results from samples collected between August 1992 and July 2011 provide data for radon concentrations in groundwater. Sixty-seven of the 744 samples were collected since July 1, 2007. Between 80% and 90% of samples contained radon in concentrations exceeding the 300 pCi/L DEQ-7 standard for groundwater. The frequency distribution did not vary widely between consolidated rock and unconsolidated aquifers, although the highest radon concentrations were in water from igneous intrusive rock aquifers, such as the Boulder Batholith in southwestern Montana. **Table 5-4** lists the frequency distribution of radon concentrations compared to the DEQ-7 standard of 300 pCi/L.

**Table 5-4. Radon Concentration Distribution in 744 Samples Based on the 300 pCi/L Montana DEQ-7 Standard**

| Radon pCi/L | Unconsolidated aquifers | Number of samples | Consolidated aquifers | Number of samples | All aquifers | Number of samples |
|---|---|---|---|---|---|---|
| < 50 | 5 | 1% | 5 | 2% | 10 | 1% |
| ≥ 50 and < 150 | 8 | 2% | 23 | 8% | 31 | 4% |
| ≥ 150 and < 300 | 42 | 10% | 43 | 14% | 85 | 11% |
| ≥ 300 | 388 | 88% | 230 | 76% | 618 | 83% |
| **Total** | **443** | **101%** | **301** | **100%** | **744** | **99%** |

*Percentages do not sum to 100 due to rounding

## 5.2 Groundwater Management Strategy

DEQ allocates fewer resources for groundwater protection through public awareness and education than it does for surface water and wetlands. This is a concern because groundwater supplies drinking water for most public and private users in Montana and because contaminated groundwater is difficult to clean up. The rate and scale of groundwater impacts are increasing for several reasons, including the increasing use of septic systems associated with growth and development and increased agricultural use of groundwater for irrigation and livestock watering due to basin closures for surface water rights. Increased groundwater use for irrigation and livestock can potentially reduce recharge and increase the impacts from fertilizers, pesticides, and animal wastes to groundwater as these pollutants move through the soil and ultimately end up in groundwater.

### 5.2.1 Protection Strategy

As part of their daily business, several DEQ bureaus and other state agencies address many of the protection strategies laid out in the Montana Groundwater Plan (Montana Department of Natural Resources and Conservation, 1998). As of 2010 there is no overall coordination of groundwater stewardship and protection activities within Montana. Multiple agencies are responsible for implementing various groundwater protection strategies. In 2005 DNRC began efforts to identify stakeholders, update the groundwater plan, and coordinate a strategy. The process is ongoing.

### 5.2.2 Remediation Strategy

The DEQ Remediation Division is responsible for overseeing investigation and cleanup activities at state and federal Superfund sites; reclaiming abandoned mine lands; implementing corrective actions at sites with leaking underground storage tanks; and overseeing groundwater remediation at sites where agricultural and industrial chemicals have caused groundwater contamination. These activities are intended to protect human health and the environment; to prevent exposure to hazardous or harmful substances that these sites release to soil, sediment, surface water, or groundwater; and to ensure compliance with applicable state and federal regulations.

The Groundwater Remediation Program regulates these sites under the MWQA. These sites typically require long-term soil, surface water, and/or groundwater remediation and monitoring. The program addresses sites that the Leaking Underground Storage Tank Program, Comprehensive Environmental Cleanup and Responsibility Act (CECRA) Program, Permitting and Compliance Division, or other state authorities do not address.

The program has overseen remediation at sites contaminated with petroleum, pesticides, metals, nutrients, and solvents. These sites range in scale from small (not on National Priority List (NPL)) to large (on NPL). The program ranks them as maximum, high, medium, or low priority sites, or as operation and maintenance sites (Montana Department of Environmental Quality, 1996). Currently, the Groundwater Remediation Program is actively working on 86 sites, coordinating remediation activities with the Montana Department of Agriculture when pesticides affect groundwater.

### 5.2.3 Source Water Protection

This program is discussed in detail in **Section 4.6.4** of this document.

### 5.2.4 Local Water Quality Districts

Communities establish Local Water Quality Districts (LWQD) to protect, preserve, and improve the quality of surface water and groundwater within their districts. Currently, there are four in Montana. Lewis & Clark County established the state's first LWQD in 1992 covering the Helena valley watershed. A year later, Missoula County set up an LWQD covering the Missoula Valley Sole Source Aquifer. Butte/Silver Bow established an LWQD in 1995. Gallatin County formed an LWQD covering the Gallatin Valley at Bozeman in 1997.

LWQDs are formed by county governments pursuant to 7-13-4501 et. Seq., MCA. This legislation describes district organization and specifies local-level authorities. DEQ provides support to LWQD programs but does not have an active management role in their activities. These groups serve as local government districts with a governing board of directors. They are funded by fees collected annually with county taxes, similar to funding mechanisms for other county districts.

Each district must prepare a report to summarize yearly activities. Reports provide a review of the ongoing activities and allow for an assessment of each LWQD in meeting their program objectives established during formation of the districts. A DEQ SWP section staff member coordinates LWQD activities and reviews the annual reports.

A significant component of selected district programs is the ability to participate in the enforcement of the MWQA and related rules. Districts may develop and implement local water quality protection ordinances, activities they perform in conjunction with DEQ's Enforcement Division.

DEQ works with the districts to support SWP implementation at PWS systems within district boundaries. All the districts meet annually to review programs and activities, and generally share ideas about how each district approaches and manages local water quality related issues. DEQ's LWQD coordinator participates in planning for these meetings.

## 5.2.5 Prevention of Agriculture Chemical Pollution

In 1989, the Montana Agricultural Chemical Groundwater Protection Act was passed (MCA Title 80, Chapter 15, Section 80-15-101 through 80-15-414). Section 80-15-103 states that it is the policy of the state to: protect groundwater and the environment from impairment or degradation due to the use of agricultural chemicals including all pesticides and nitrogen fertilizers, allow for the proper and correct use of agricultural chemicals, provide for the management of agricultural chemicals to prevent, minimize, and mitigate their presence in groundwater, and provide for education and training of agricultural chemical applicators and the general public on groundwater protection, agricultural chemical use, and the use of alternative agricultural chemicals. Under this Act, it is the directive of the Ground-Water Protection Program (GWPP) of the Technical Services Bureau of the Montana Department of Agriculture (MDA) to monitor the occurrence and concentration of agricultural chemicals in the waters of the State of Montana.

The MDA is also responsible for the state's Generic Management Plan (GMP). The GMP is an umbrella plan that provides guidance for the state to prevent groundwater impairment from agricultural chemicals, including pesticides and fertilizers not directly related to agriculture. PDF copies are available at http://agr.mt.gov/pestfert/smp/genericplanfull.pdf.

### *5.2.5.1 Groundwater Monitoring & Education*

The MDA conducts ambient groundwater monitoring for agricultural chemicals. The program determines whether or not residues of agricultural chemicals are present in groundwater and assesses the likelihood of an agricultural chemical entering groundwater. If MDA finds agricultural chemicals in groundwater, they will verify, investigate, and determine an appropriate response.

The program has a permanent network of 42 monitoring wells. In addition, investigative and special projects are conducted in vulnerable areas, watersheds, and urban environments. Permanent monitoring wells serve as the foundation from which MDA looks for current and new agricultural chemicals. MDA selects sites to represent agricultural crops and cropping, as well as their associated pesticide usage. Monitoring wells are located in 31 of Montana's 56 counties. The department also evaluates new chemicals when labeled for use in Montana as analytical methods are established.

The department also has an education program under which they conduct initial and re-certification training for commercial and government pesticide applicators. The department staff is available to provide or assist in training and education for the public regarding pesticides.

### *5.2.5.2 Statewide Groundwater/Pesticide Projects*

The MDA Groundwater Program has prioritized watersheds around the state in which to conduct one-year monitoring projects. Sites are selected based on agricultural setting, soil type, groundwater table, and sampling availability of the wells. These projects provide a snapshot of pesticide and nitrate levels in the groundwater, usually associated with a surface water source such as a river system. From 2008 through 2010 MDA investigated groundwater in Billings, the Flaxville Formation, Missoula Aquifer, East Shore of Flathead Lake, Judith River Basin, Bitterroot Valley, Beaverhead Valley and Ruby Valley.

#### *5.2.5.3 Groundwater Enforcement Program*

MDA is responsible for primary enforcement of the Montana Agriculture Chemical Ground Water Protection Act, while DEQ is responsible for adopting WQS for agricultural chemicals (pesticides and fertilizers). MDA ensures compliance by conducting statewide comprehensive inspections at agricultural chemical users, dealers, and manufacturers; by collecting groundwater and soil samples; and by investigating and monitoring incidents and spills that could cause impairment. Where necessary, MDA implements compliance actions and orders to prevent or remediate agricultural chemical groundwater problems.

## 5.3 Groundwater - Surface Water Interactions

The 1986 provisions of the Federal Safe Drinking Water Act introduced the Surface Water Treatment Rule (SWTR). The rule requires the application of filtration and treatment techniques for public water systems that use surface water or groundwater under the direct influence of surface water (GWUDISW). The SWTR requires each state to assess all PWS that use groundwater to determine if the sources are GWUDISW. DEQ performs these assessments under the GWUDISW program.

The SWTR defines surface water under the influence of groundwater as:

- Significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia*, or Cryptosporidium; or
- Significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH that closely correlates to climatological or surface water conditions.

The initial step in the GWUDISW program is completion of a Preliminary Assessment (PA) pursuant to DEQ Circular PWS-5 (Montana Department of Environmental Quality, 2008a). The PA evaluates and assigns a score to the source based on the location of the source relative to surface water and information on the driller's log. Consequently, sources often fail the PA (scores ≥ 40) because of substandard or unknown well construction. DEQ completes a further assessment of the source after it has failed the PA. In some cases DEQ has exercised the option of contracting MBMG to perform a detailed hydrogeologic assessment, which is often associated with spring sources or complex hydrogeologic situations.

# 6.0 Review of Montana's Assessment Process and Assessment Data

The DEQ water quality program has been working to improve it's assessment, data management, and reporting abilities and systems since after the 2004 reporting cycle. The following sections describe the current state of program improvements, and in addition, we report cases where errant data was discovered and corrected.

## 6.1 Water Quality Assessment Method - Quality Assurance Program Review

The Montana Department of Environmental Quality (DEQ) made a substantial change to Montana's Water Quality Assessment Method for the 2012 Integrated Reporting cycle **(Attachment 1)**. This method differs from the Water Quality Assessment Method that has been used in previous listing cycles. The most dramatic changes are the use of pollutant-specific methods to assess water quality and the process for how DEQ assesses the data to be used for assessments. The new method allows DEQ to have a transparent and repeatable process for making use-support decisions and, moreover, will improve the level of certainty in assessment decisions.

DEQ has developed assessment methods for nutrients, sediment, and metals pollutant groups, which represent the most common pollutants impairing Montana's surface waters. Each pollutant method provides the framework for conducting sound and consistent water quality assessments, which will allow DEQ to make reproducible and defensible beneficial-use support (i.e., 303(d) listing) decisions.

The pollutant-based assessment methods have specific objectives and decision-making criteria for assessing the validity and reliability of data. The new method uses a Data Quality Assessment (DQA) process to evaluate data for use in assessments. Previous versions of the state's assessment method for the period 2000-2008 referred to the validity and reliability assessment process as "Sufficient Credible Data" (SCD). The data evaluation considered the technical, representativeness, currency, quality, and spatial and temporal components of readily available data and information for each of the data types (biology, chemical, and physical/habitat). It established a measure of each data type's rigor, and the sum of all data types were translated to a qualitative statement of confidence for the beneficial-use assessment. The DQA process considers most of the same technical, spatial/temporal, quality, and age concepts as were reviewed under SCD, but DQA is conducted individually per beneficial use and pollutant group (e.g., Aquatic Life – Nutrients).

Before employing the revised method, DEQ solicited comments and feedback from the State TMDL Advisory Group (STAG) and solicited public comments on the revision to the assessment methodology.

## 6.2 Data Management Activities

As result of our improved data management system for Clean Water Act section 305(b) reporting, the program is better able to visualize assessment data and their relationships. The program has identified inconsistencies or data entry errors that were resolved or corrected to better represent water quality assessment decisions. The program goal is to improve reporting abilities, clarify assessment data and related information, and make transparent the assessment process for interested parties and stakeholders.

### 6.2.1 Assessment Unit (AU) Metadata and Data Entry Errors Corrected

During data management activities and 2012 report development, we discovered and corrected some basic data entry and GIS indexing errors, and in addition, made revisions to some Assessment Unit (AU) location descriptions (**Table 6-1**).

**Table 6-1. General Data QC and Corrections for 2012 Cycle**

| 305(b) ID | Waterbody Name | Data Corrected | Correction |
|---|---|---|---|
| MT39E001_032 | Boxelder Creek | County | Added Fallon County to location information |
| MT40A005_040 | Bair Reservoir | Ecoregion | Added ecoregion to AU's location metadata |
| MT40S002_030 | Sand Creek | Location Description | Revised to: SAND CREEK, confluence of East and West Forks to mouth (Missouri River) |
| MT41E002_080 | Little Boulder River | Location Description Length & End Point | Revised to: LITTLE BOULDER RIVER, headwaters to mouth (Boulder River); extend AU to headwaters. Length was changed from 3.76 miles to 16.3 miles |
| MT40E002_110 | Sullivan Creek | Lat/Long, length, & GIS | Downstream end point changed to Lat/Long 47.907925/ -108.596197. Upstream end point changed to Lat/Long 47.918801/ -108.596262. Length corrected to 0.85 miles. AU in GIS moved to correct location. |
| MT41E002_130 | Nursery Creek | Location Description & End Point | Revised to: NURSERY CREEK, headwaters (east branch) to mouth (Muskrat Creek) |
| MT41F005_020 | Quake Lake | Ecoregion | Added ecoregion to AU's location metadata |
| MT41G001_011 | Jefferson River | End Point & Location Information | Changed to: JEFFERSON RIVER, headwaters to confluence of Jefferson Slough; removed Gallatin & Broadwater Counties |
| MT41G001_012 | Jefferson River | End Point | Changed to: JEFFERSON RIVER, confluence of Jefferson Slough to mouth (Missouri River) |
| MT41H003_040 | Sourdough Creek | Location Description | Revised to: SOURDOUGH CREEK, confluence of Limestone Creek and Bozeman Creek to the mouth (East Gallatin River), T2S R6E S6 |
| MT41H005_010 | Squaw Creek | Waterbody Name | Changed to Storm Castle Creek |
| MT41I006_020 | Prickly Pear Creek | End Point, Lat/Long, length, & GIS | Moved downstream end point to align where Prickly Pear Creek enters Lake Helena |
| MT41I006_150 | Silver Creek | End Point, Lat/Long, length, & GIS | Moved downstream end point to align with quad map location of the lower Silver Creek as it enters Lake Helena |
| MT41K004_030 | Freezeout Lake | HUC & State Basin | Changed HUC from Sun to Teton and State Basin to Lower Missouri and state watershed to Marias |
| MT41S001_030 | Judith River | Ecoregion | Added ecoregion to AU's location metadata |
| MT41S004_020 | Big Spring Creek | Location Description | Revised to: BIG SPRING CREEK, confluence of Casino Creek to mouth (Judith River) |
| MT42C001_011 | Tongue River | Location Description & End Point | Revised to: TONGUE RIVER, Twelve Mile Dam to mouth (Yellowstone River). Moved downstream end point to coincide with Yellowstone River; updated steam length to 20.9 miles |
| MT42C002_010 | Cook Creek | Ecoregion | Added ecoregion to AU's location metadata |

**Table 6-1. General Data QC and Corrections for 2012 Cycle**

| 305(b) ID | Waterbody Name | Data Corrected | Correction |
|---|---|---|---|
| MT43B002_022 | Bear Creek | Location Description, End Point, & Size | Changed to: BEAR CREEK, wilderness area boundary to 1/2 mile below Jardine Mine. Moved upstream end point to wilderness area boundary. Changed water type size to 4.3 miles |
| MT43B003_010 | YellowstoneRiver | End Point, Lat/Long, length, & GIS | Downstream end point moved upstream 0.4 mi to coincide with HUC boundary - in concert with MT43F001_012. |
| MT43F001_012 | YellowstoneRiver | End Point, Lat/Long, length, & GIS | Upstream end point moved downstream 0.4 mi to coincide with HUC boundary - in concert with MT43B003_010. |
| MT43Q001_011 | Yellowstone River | Location Description | Revised to: YELLOWSTONE RIVER, Huntley Diversion Dam to mouth of Big Horn River |
| MT76D004_020 | Fortine Creek | Location Description | Revised to: FORTINE CREEK, headwaters to mouth (Grave Creek) |
| MT76D004_091 | Sinclair Creek | Ecoregion | Added ecoregion to AU's location metadata |
| MT76E002_070 | Quartz Gulch | Location Description | Revised to: QUARTZ GULCH, headwaters to mouth (Eureka Gulch) |
| MT76E002_080 | Basin Gulch | Location Description | Revised to: BASIN GULCH, headwaters to mouth (Eureka Gulch) |
| MT76E002_090 | Eureka Gulch | Location Description & End Point | Revised to: EUREKA GULCH, confluence of Quartz Gulch and Basin Gulch to mouth (Un-Named Ditch) |
| MT76E003_050 | South Fork Lower Willow Creek | Location Description | Revised to: SOUTH FORK LOWER WILLOW CREEK, headwaters to mouth (Lower Willow Creek Reservoir) |
| MT76E004_080 | Antelope Creek | Location Description, Lat/Long, length, & GIS | Downstream end point changed to Lat/Long 46.706/-113.337. Upstream end point changed to Lat/Long 46.632/-113.347. Length corrected to 8.45 miles. AU in GIS moved to correct location. |
| MT76G002_052 | Mill Creek | Location Description & End Point | Revised to: MILL CREEK, line between sections 27-28 T4N R11W to Mill-Willow Bypass diversion; Downstream end point changed to Lat/Long 46.1162/-112.8059. Steam length changed to 9.5miles |
| MT76G002_120 | Mill-Willow Bypass | Location Description & End Point | Revised to: MILL-WILLOW BYPASS, Mill Creek to Silver Bow Creek (below ponds); Upstream end point changed to Lat/Long 46.1162/-112.8059. Steam length changed to 4.2 miles |
| MT76G003_020 | Silver Bow Creek | Location Description & End Point | Changed to: SILVER BOW CREEK, headwaters to mouth (Clark Fork River). Downstream end point changed to Lat/Long 46.1869/-112.7718. |
| MT76H004_010 | Bass Creek | Location Description | Changed to: BASS CREEK, Selway-Bitterroot Wilderness boundary to mouth (un-named channel of Bitterroot River), T9N R20W S3 |
| MT76K001_020 | Swan River | Ecoregion | Added ecoregion to AU's location metadata |
| MT76P003_010 | Whitefish River | Location Description | Changed to: WHITEFISH RIVER, Whitefish Lake to mouth (Stillwater River) |

## 6.2.2 Assessment Unit Changes

During the 2012 reporting cycle we added or modified 17 waterbodies for assessment purposes. This included designating 16 new AUs and modifying one existing AU by merging into a single unit with another AU (**Table 6-2**).

**Table 6-2. Assessment Unit Changes During the 2012 Reporting Cycle**

| 2010 305(b) ID | 2012 305(b) ID | Current Waterbody Description | Type | Comments |
|---|---|---|---|---|
| MT41I006_010 | MT41I007_040 | PRICKLY PEAR CREEK, Lake Helena to Hauser Lake | Merge | Merged into Hauser Lake MT41I007_040 |
| | MT40J002_040 | CLEAR CREEK, headwaters to mouth (Milk River) | New | Added |
| | MT40Q002_030 | WEST FORK POPLAR RIVER, Canadian border to Fort Peck Reservation | New | Added |
| | MT41G002_170 | JEFFERSON SLOUGH, Jefferson River to the mouth (Jefferson River) | New | Added |
| | MT41K002_040 | HUBER COULEE, headwaters to mouth (Sun River Valley Ditch) | New | Added |
| | MT43A002_060 | PORCUPINE CREEK, headwaters to mouth (Shields River) | New | Added |
| | MT43A002_070 | FLATHEAD CREEK, headwaters to the mouth (Shields River) | New | Added |
| | MT43D002_170 | BRIDGER CREEK, headwaters to mouth (Clarks Fork Yellowstone River) | New | Added |
| | MT43D002_190 | DRY CREEK, headwaters to mouth (Clarks Fork Yellowstone River) | New | Added |
| | MT76E002_061 | ANTELOPE CREEK, headwaters to mouth (Rock Creek) | New | Added |
| | MT76E003_140 | ROYAL GOLD CREEK, headwaters to mouth (Boulder Creek) | New | Added |
| | MT76G004_130 | ONTARIO CREEK, headwaters to mouth (Little Blackfoot River) | New | Added |
| | MT76M002_200 | HALL GULCH, headwaters to mouth (Flat Creek) | New | Added |
| | MT76O003_030 | MIDDLE FOY LAKE | New | Added |
| | MT76G004_054 | O'KEEFE CREEK , headwaters to mouth (Telegraph Creek) | New | Added |
| | MT76G004_055 | SALLY ANN CREEK, headwaters to mouth (O'Keefe Creek) | New | Added |
| | MT76G004_079 | AMERICAN GULCH CREEK, headwaters to mouth (Dog Creek) | New | Added |

## 6.2.3 Changes to AU Beneficial Use and TMDL Planning Area Assignment

While managing the data and generating the 2012 Integrated Report, we discovered and corrected errors and made changes in TPA assignments **(Table 6-3)**.

**Table 6-3. TPA Assignment and Use Class Changes**

| 305(b) ID | Waterbody Name | Data Corrected | Correction |
|---|---|---|---|
| MT40O003_010 | Porcupine Creek | TMDL Planning Area | Changed the TPA from Lower Milk-Rock to Lower Milk |
| MT40O002_032 | Halfpint Reservoir | TMDL Planning Area | Changed the TPA from Lower Milk-Rock to Lower Milk |
| MT76D004_091 | Sinclair Creek | TMDL Planning Area | Changed the TPA from Kootenai to Tobacco |

**Table 6-3. TPA Assignment and Use Class Changes**

| 305(b) ID | Waterbody Name | Data Corrected | Correction |
|---|---|---|---|
| MT76O004_020 | Lake Mary Ronan | TMDL Planning Area | Changed the TPA from Flathead-Stillwater to Flathead Lake |
| MT40E004_010 | Fort Peck Reservoir | Use Class | Changed from B-2 to B-3 |
| MT41K004_030 | Freezeout Lake | Use Class | Changed from B-2 to B-1 |
| MT41S004_010 | Big Spring Creek | Use Class | Changed from B-2 to B-1 |

## 6.2.4 Changes to Causes and Sources Associated with Assessment Units

Data entry errors were identified during the data quality control process. After a review of the errors the corrections were applied to the database in preparation for the 2012 Integrated Report. These changes corrected impairment causes and sources in order to improve the accuracy of the cause and source description or to correct data entry errors. For cases where a cause name was changed, the errant cause from previous 303(d) lists were delisted due to flaws in the original listing (**Appendix D**) and the correct cause added, retaining the cycle first listed date of the delisted cause **(Table 6-4)**.

**Table 6-4. Changes to Causes and Sources Associated with Assessment Units**

| 305(b) ID | Waterbody Name | Correction |
|---|---|---|
| MT42K002_080 | North Fork Sunday Creek | Changed the Solids (Suspended Bedload) pollutant/non-pollutant designation to pollutant. This cause is now correctly on the 303(d) list. |
| MT41Q001_011 | Missouri River | Changed PCB-1254 & PCB-1260 listings, both incorrectly flagged as non-pollutants, to "Polychlorinated biphenyls" to consolidate these into one PCB listing. This cause is now correctly on the 303(d) list. |
| MT41Q001_013 | Missouri River | Changed PCB-1254 & PCB-1260 listings, both incorrectly flagged as non-pollutants, to "Polychlorinated biphenyls" to consolidate these into one PCB listing. This cause is now correctly on the 303(d) list. |
| MT41I006_010 | Prickly Pear Creek | Move Arsenic listing from Prickly Pear Creek to Lake Hauser (MT41I007_040) as part of an AU merge. |
| MT41H003_130 | Hyalite Creek | Chlorophyll-*a* was removed from the impairment cause list to restore the correct 2008 cycle impairment listings. Chlorophyll-*a* was delisted from the old Hyalite Creek assessment unit (AU) MT41H003_131 in 2008 due to "flaws in the original listing." This non-pollutant cause was inadvertently re-listed in 2010 when the old AU was split into two stream and one lake (reservoir) assessment units. |

### *6.2.4.1 Other Cause Changes*

In March 2006 the state changed its water quality criterion for coliform bacteria from fecal coliform to Escherichia coli bacteria. To align the 303(d) bacteria listings with water quality standards, and eventual TMDL development, all "Fecal Coliform" listings without an approved TMDL were changed to "Escherichia coli." Twelve fecal coliform listings were delisted **(Appendix D)** and replaced with Escherichia coli. Cycle first listed (CFL) dates for Fecal Coliform were retained with the Escherichia coli listings so that the initial reporting of the impairments were not lost.

Nutrient listings for "Total Kjehldahl Nitrogen (TKN)" were revised to "Nitrogen (Total)." In cases where a TMDL was already developed and approved explicitly for TKN or where TKN and TN were both previously listed, the TKN listing was retained. This cause change aligns with the TMDL development approach where total nitrogen is used for nitrogen-related impairments because it is a more encompassing and stable representation of nitrogen than TKN. Ninety four TKN listings were delisted

**(Appendix D)** and replaced with Nitrogen (Total). Cycle first listed (CFL) dates for TKN were retained with the Nitrogen (Total) listings so that the initial reporting of the impairments were not lost.

# 7.0 PUBLIC PARTICIPATION

State and Federal laws require managing agencies to consult with the public when developing procedures or processes for assessing water quality and setting priorities for TMDL planning. Additionally, state law requires a sixty-day public comment period for its draft 303(d) list mandated by the CWA. This section describes DEQ's communication with the public.

## 7.1 PUBLIC CONSULTATION FOR 2012 303(D) LIST DEVELOPMENT

In 2011, the state's assessment method underwent a major revision. Under this revised assessment method, determinations of beneficial-use support are specific to nutrients, sediment, and metals pollutant groups, which represent the most common pollutants impairing Montana's surface waters. This update of Montana's Water Quality Assessment Method provides a structured and consistent approach for assessing Montana's waters. DEQ solicited comments and feedback from the **S**tatewide **T**MDL **A**dvisory **G**roup (STAG) and solicited public comments before adopting the revised assessment process.

The Montana legislature and congress recognized the challenge of determining the extent of nonpoint source water quality impairments in both MCA 75-5-701(2) and 40 CFR part 130.7(5). That is, state and federal law require DEQ to assemble and evaluate all existing and readily available water quality data and information as an efficient means of augmenting the data collected under the DEQ ambient water quality monitoring program.

In compliance with this requirement, on November 1, 2010, DEQ sent an e-mail through the listserv to 52 stakeholders (local watershed groups; federal, state, and local agencies; state university programs; private groups; and individuals with water quality interests) requesting water quality information they might have that could be useful for updating water quality assessments noted in this report. The DEQ received five responses from to this "call for data" (**Table 7.1**). Data received after February 28, 2011, has been cataloged and saved for future assessments and reports.

**Table 7-1. Responses to the "Call for Data"**

| Organization | Reference |
|---|---|
| Mineral Hill Mine | Bear Creek temperature |
| Montana Dept. of Natural Resources and Conservation | Dearborn River streamflow and temperature |
| Montana Fish, Wildlife and Parks | Sullivan Creek pH |
| Custer National Forest | Riparian PFC assessments |
| Madison River Watershed Group | Volunteer monitoring data |

## 7.2 PUBLIC COMMENT FOR THE 2012 INTEGRATED REPORT

Publication of the Draft 2012 Water Quality Integrated Report initiated a sixty-day comment period beginning January 5, 2012 and ending March 3, 2012 allowing public review of DEQ's updated listing decisions and planning schedule.

Legal notices were placed in major Montana newspapers, giving formal notice of the comment period. The comment period was also made public via press releases issued to Montana's media outlets; posted to the DEQ Website; and notices e-mailed to members of the Integrated Report listserv.

DEQ submitted materials for the 2012 Integrated Report to the EPA via electronic database, document text, Geographic Information System (GIS) map files, and an electronic version of assessment files. To accommodate members of the public without sophisticated computer software, the files are available via the DEQ's Clean Water Act Information Center (CWAIC) found at http://www.cwaic.mt.gov, which can be viewed by anyone with Internet access. Through the CWAIC site, the public was able to submit comments to DEQ electronically or they could send comments through the mail.

All comment period announcements identified both the standard mailing address (below) and the CWAIC Website (http://www.cwaic.mt.gov) for submitting comments to DEQ.

Department of Environmental Quality
2012 Integrated Report Comments
WQPB, IMTS
PO Box 200901
Helena, MT 59620-0901

Comments received within the comment period were copied, filed internally, reviewed by the Integrated Report Coordinator, and distributed to appropriate staff or managers to address and respond to the commenter's questions and comments.

For the 2012 comment period there were 7 comments received via electronic submittal (CWAIC), or standard mail methods. DEQ has respectfully removed names of individuals with the intent to protect their privacy, but have included agency or organization information where feasible. **Table 7.2** lists each commenter and date received.

**Table 7-2. List of comments**

| Commenter | Date |
|---|---|
| US Army Corps of Engineers, Omaha District | January 4, 2012 |
| US Bureau of Land Management | January 6, 2012 |
| Private citizen | February 6, 2012 |
| Hydrometrics, Inc. | February 23, 2012 |
| Missoula City-County Health Department & Water Quality District | February 24, 2012 |
| Plum Creek Timber Company, Inc. | March 1, 2012 |
| US EPA | March 2, 2011 |

Comments received after the close of the comment period, 5:00 pm March 3, 2012, will be taken into consideration and addressed appropriately during the next reporting cycle.

## 7.3 DEQ Responses to Public Comments

### **Commenter:** US Army Corps of Engineers, Omaha District

**Received:** January 4, 2012

### *Comment Text:*

There are more impairment causes listed in the IR than appear in the 303(d) EXCEL list. Attached file compares the two listings. Which listing is "correct" 303(d) listing for MT?

**DEQ Response:**

Both are accurate. Appendix A lists all causes that are impairing use (pollutants and pollution) regardless of TMDL status. The 303(d) list includes only those causes (pollutants) that require a TMDL be developed.

### *Comment Text:*

See the attached email I had previously filed away. The email states that the listing of partially supporting for primary contact recreation is in error and will be corrected in the near future. Does this mean that the partially supporting assessment for recreation will be "corrected" in Appendix A of the new integrated report, or that it will be "corrected" on the new 303(d) listing and still identified as partially impaired in the integrated report (i.e., Appendix A)?

**DEQ Response**

We have reviewed the information provided and have updated the Fort Peck Reservoir (MT40E004_010) assessment by removing the "Aquatic Plants – Native" listing on the primary contact recreation beneficial use and changing its support designation from Partially to Fully Supporting. In addition, we changed the lead and mercury impairment listings to correctly reflect the uses impaired. The beneficial use impairment listing from lead and mercury was changed from primary contact recreation to aquatic life/fishes. No change was made to the drinking water beneficial use impairment listings. Both aquatic life/fishes and drinking water uses are listed as "Not Supporting."

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## **Commenter:** US Bureau of Land Management

**Received:** January 6, 2012

### *Comment Text*

DEQ collaborates with the Montana Department of Transportation and other appropriate agencies and entities to mitigate and minimize water quality degradation resulting from the state's transportation system. The entities include the US Forest Service, counties, and railroads. DEQ also coordinates with other regulatory entities, such as the Army Corps of Engineers, Conservation Districts, the US Fish and Wild Service, and the Montana Department of Fish Wildlife and Parks. Is there a reason that the Bureau of Land Management is not mentioned?

**DEQ Response**

BLM was inadvertently left off the list of federal agencies that the NPS program works with to address and minimize nonpoint source impacts from the state's transportation system. DEQ notes that the list is not exhaustive, but inclusive. The BLM has been added in the final document.

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## **Commenter:** Private Citizen

**Received:** February 6, 2012

### *Comment Text*

In the 2012 review it states that MT 41K004_030, Freezout was changed from Sun to Teton. I know this is a tough one because it is par(t) of two watersheds. But should this really happen? Consider that all of the pollutants/land use changes and any water quality improvements that enter Freeezout have to be dealt with in the Sun Watershed. The Freezout drainage does effect the Teton but depends upon how cause and effects are addressed in any document. Since I work on both the Sun and Teton, this may not be a big problem but as future projects move forward needing funding from ie. 319 grants and other program dollars, it could have a major effect from that perspective.

**DEQ Response**

Your point is understood and we can appreciate the confusion that moving the basin boundary creates. The change in HUC designation was driven by a change in the HUC boundaries as defined in the national Watershed Boundary Dataset (WBD), which is maintained by the USGS. The boundaries were likely changed in 2009 after the NRCS (official stewards of basin boundaries) had the subbasins certified. The USGS incorporated boundary changes to the WBD after NRCS completed a state's basin boundary update. This included the Freezeout Lake area in the Teton Basin due to its hydrologic connection to the Teton River via Priest Butte Lake. We updated our database to be aligned with the base GIS data layers that we use for mapping purposes.

Regardless of administrative changes to the WBD definition as driven by NRCS/USGS, the basin location of Freezeout Lake will not affect our (DEQ's) support for local efforts to improve water quality by groups in either basin. This boundary change does not, or should not, dictate how the local stakeholders manage, prioritize, or conduct water quality restoration projects and activities. The existing watershed restoration plans for both the Sun and Teton basin recently approved remain fully valid and are considered by DEQ to be guiding documents for water quality restoration efforts in the area.

Additionally, due to the fact that water from Freezeout Lake flows thru Priest Butte Lake into the Teton River, Teton basin stakeholders should be interested, and have a vested interest, in the water quality-related management, activities, and projects in Freezeout Lake.

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## **Commenter:** Hydrometrics, Inc.

**Received:** February 23, 2012

### *Comment Text*

Sheep Creek (MT4IJ002_030) from its headwaters to its junction with the Smith River is on the Draft Montana 2012 303(d) list. It is listed as not supporting drinking water and primary contact recreation uses. The cause of the drinking water use impairment is listed as mercury and the source as placer mining. It was first listed on the DEQ 303(d) list as impaired during the 2000 review cycle. During the 2000 through 2004 listings Sheep Creek was listed for mercury, metals and pathogens. From 2006 through 2012 the impairments were identified as fecal coliform (now Escherichia coli) and mercury.

The "Assessment History" section of the Record states that no review assessment has taken place for Sheep Creek during the 2006 to 2012 review cycles. This letter provides documentation that the mercury drinking water listing is based on inadequate and likely incorrect data and requests that this listing for mercury be corrected.

**Available Data**

The mercury data used as a basis for the Sheep Creek listing are two total recoverable mercury samples collected by USGS on 6/4/80 and 7/10/80 with reported results of 0.0001 and 0.0002 mg/L, respectively. The attached table (Attachment A) summarizes these results and other mercury data available for Sheep Creek. Sample site/monitoring locations are shown on the attached figure, Figure 1. The 1980 data was retrieved from the USGS Water Data for the Nation website (http://waterdata.usgs.gov/nwis) during a search of the two USGS Sheep Creek sampling locations from 1980 to current. Two total recoverable mercury samples collected by USGS at site 6077000 on 6/4/80 and 7/10/80 resulted in 0.0001 and 0.0002 mg/L, respectively.

A search of the STORET database (http://www.epa.gov/storet/dwhome.html), DEQ's main repository for water quality monitoring data, was conducted in November of 2011. Data was retrieved from 1973 to current for all stations along Sheep Creek. The search located three stations with mercury analyses. Results for all three stations sampled by DEQ on 9/13/05 were below detection «0.00005, <0.00005, <0.00001 mg/L). This more recent mercury data has apparently not been included in the 303(d) assessment for Sheep Creek.

**Tintina Samples -** Hydrometrics conducted surface water monitoring within the Sheep Creek Drainage during the second, third and fourth quarter of 2011 on behalf of Tintina Resources. Surface water monitoring was conducted in accordance with Hydrometrics' SOPs (Attachment B). Water quality samples were submitted to Energy Laboratories in Helena, MT for analyses of physical parameters, common constituents, nutrients, and a comprehensive suite of trace constituents, including total recoverable mercury.

Two surface water monitoring sites were located on' Sheep Creek: SW-1 (at bridge on county road 119) and SW-2 (Highway 89 right-of-way approximately 0.6 miles east of county road intersection); the attached Figure 1 shows the locations of these sites. Monitoring was initiated at these sites in May of 2011 with subsequent sampling rounds in August and November of 2011.

Water quality grab samples were collected from each surface water-monitoring site by passing an uncapped sample container across the area of flow. Sample containers were rinsed three times with sample water prior to sample collection. Water quality samples for mercury were collected in containers and preserved as summarized in Table 1.

**TABLE 1. SAMPLE CONTAINER AND PRESERVATION REQUIREMENTS**

| Parameters | Sample Containers | Preservative |
|---|---|---|
| Trace Constituents (total recoverable) | 250 mL HDPE | HN03 to pH <2<br>Cool to 4°C |

Following preservation, samples were stored on Ice In coolers at approximately 4±2°C for transport to the laboratory.

All water quality sampling information, including sample sites, sample numbers, date and time of sample collection, field parameter measurements, flow measurements, and other notes and observations, were documented in a dedicated project field notebook, and on standard field forms. Photos were taken at each site to document conditions at the time of sampling and to provide reference for future monitoring events.

One field duplicate was collected to evaluate the reproducibility of the field sampling protocols. Field duplicate samples are replicate samples from a single sampling location submitted to a laboratory for the same set of analyses. For the purposes of this project, field duplicates were collected by filling two samples containers consecutively from the sampling location. Duplicates were sent to the same laboratory, but were identified with different sample numbers.

Sampling conducted by Hydrometrics in 2011 for Tintina Resources using established SOPs and appropriate QA/QC included total recoverable mercury along Sheep Creek. Results of this sampling are shown in Table 2.

**Table 2. Tintina Resources Mercury Data for Sheep Creek**

| Site Code | SW-l | SW-l Dup | SW-2 | SW-2 Dup |
|---|---|---|---|---|
| **Total Recoverable Mercury**(mg/L) | | | | |
| August, 2011 | 0.00002 | | 0.00001 | 0.00002 |
| May, 2011 | 0.00002 | 0.00002 | 0.00001 | |
| November, 2011 | <0.00001 | | <0.00001 | |

Analysis conducted by Energy Labs Helena using methods 245.2/245 .1/200.8/SM 3112B

**Discussion**

**Probable Cause -** The 1980 USGS mercury values are close to the method detection limit at the time. The ability of analytical methods for mercury to accurately determine a positive result at the method detection limit was limited in 1980. Therefore, the use of this data for the current listing is not defensible as best available science.

According to MT DEQ protocol per the final draft Metals Assessment Method (June 2011), "Data that is older than 10 years should only be used as a historical reference and may be looked at for TMDL development". The Assessment Methods document also indicates that a minimum sample size of eight samples within the same reach is ideal for making listing determinations.

All of the 2005 and 2011 (11 total) Sheep Creek samples were below the DEQ-7 Human Health criteria for total recoverable mercury. This data indicates that Sheep Creek should be removed from the list for mercury/drinking water impairment.

**Probable Source -** The assessment report for the Sheep Creek listing indicates that the probable source of the reported mercury results is placer mining. This "probable source" cannot be correct as there is no evidence of placer mining on Sheep Creek. There are no known placer tailing deposits in the Sheep Creek drainage and no known history indicating that any placer mining occurred. Review of the Montana DEQ Abandoned Mine Historical Narratives http://www.deq.mt.gov/abandonedmines/linkdocsI134Atech.mcpx BLM mining claim records http://www.blm.gov/lr20000, Montana Bureau of Mines and Geology abandoned and inactive mines database as listed on the NRIS geographical information website http://maps2.nris.mt.gov/mapper/StreamSearch.asp, and other historical mining references (Lyden, 1948; Roby, 1950) indicate that the nearest placer mining occurred in the Tenderfoot and Deer Creek drainages to the north of Sheep Creek. In addition, an authority on historical placer mining in Montana with the Montana Bureau of Mines and Geology stated that he knows of no placer mining in Sheep Creek (McCulloch, 2012). Although there is mineralization and a few small historical hard rock mines in the Sheep Creek drainage, there is no indication that they could be a source of mercury.

**REFERENCES**

Lyden, Charles J. 1948. The Gold Placers of Montana. Memoir No. 26. Montana School of Mines, Butte.

McCulloch, Robin B. 2012. Montana Bureau of Mines and Geology Associate Research Mining Engineer, personal communication.

Roby, Robert N. 1950. Mines and Mineral Deposits (Except Fuels), Meagher County, Mont. Information Circular 7540. United States Department of the Interior, Bureau of Mines.

**DEQ Response**

The Sheep Creek assessment unit had its assessment updated for metals based on the monitoring data provided in the comment submittal and supplemental data and information provided at the request of DEQ to fully evaluate its data quality per our secondary data standards. The findings of the new metals assessment was that mercury is not exceeding the state's human health standard published in DEQ-7 and was thus delisted as a cause of impairment for the drinking water beneficial use. An evaluation of the other metals data collected showed exceedances of the state's chronic aquatic life standards for both iron and dissolved aluminum. These metals were thus added to the list of causes impairing the aquatic life/fishes beneficial use on Sheep Creek.

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## **Commenter:** Missoula City-County Health Department & Water Quality District

**Received:** February 24, 2012

### *Comment Text*

The Missoula Valley Water Quality District has reviewed the 2012 Draft Integrated Water Quality Report and would like to submit the following comments.

Page 3-5. We support the reclassification of the Upper Clark Fork and Silver Bow Creek segments identified.

Page 3-12. Storm water runoff contains other potential contaminants in addition to those listed, including sediment, trash, hydrocarbons, phosphorus and nitrogen.

**DEQ Response**

The list of pollutants included in the stormwater runoff (section 3.3.3.1) was not an exhaustive list of all possible pollutants but was provided as a context noting the significant potential loading of contamination to surface waters from stormwater runoff.

### *Comment Text*

Page 4-2. Add Water Quality Districts to list of those that monitor surface water quality.

**DEQ Response**

Change made to text adding Water Quality Districts to the list.

### *Comment Text*

Page 4-21. Fish consumption advisories have been issued due to elevated levels of mercury and/or PCBs for a significant number of water bodies, as listed in Table 4.13; yet as stated in 4.5.3, most state water bodies have not been tested. Mercury and PCBs in fish represent significant risks to public health, and this report should include monitoring recommendations to assess mercury and PCBs in fish in more water bodies across the state. The Missoula Water Quality District offers to assist in this work in the Missoula Valley.

**DEQ Response**

DEQ does not presently monitor fish tissue nor is fish consumption an explicit designated beneficial use in Montana's water quality standards. This monitoring is conducted by Montana Fish, Wildlife, and Parks. Fish consumption advisories are posted by both MFWP and the Department of Public Health and Human Services. We include the fish consumption advisories within the state's water quality Integrated Report as a means to further assist in making this information available to the public.

### *Comment Text*

Tables 5-1 and 5-2 indicate that approximately 5% of nitrate groundwater analyses and 7% of arsenic groundwater analyses exceed DEQ-7 MCLs, yet there are no monitoring or mitigation measures recommended in the report to protect public health from these unsafe levels of contaminants. Drinking water with arsenic levels above the MCL throughout a lifetime results in a substantially increased cancer risk. Nitrate analyses are required statewide during the subdivision process, but arsenic analyses are not required. Private well owners are not required to test their drinking water, so the subdivision process represents a unique window of opportunity to identify some of the arsenic-impaired wells, before they are turned over to private property owners who might not sample. Missoula County began requires arsenic analyses for all subdivision submittals due to the known occurrence of arsenic in groundwater in Missoula County. State subdivision regulations call for such monitoring if potential for contamination is known. ; MWQD recommends that DEQ require arsenic analyses for all subdivision submittals statewide to better protect public health. Data in the report also suggest that nitrate and arsenic contamination is more likely in unconsolidated aquifers, which is consistent with our observations in Missoula County. DEQ should require particular emphasis to nitrate and arsenic monitoring in these settings. The report should identify monitoring recommendations to increase the level on monitoring of nitrates and arsenic in groundwater in Montana.

**DEQ Response**

Currently, we require background monitoring for nitrate and bacteria on wells because they represent the acute contaminants that can cause immediate health concerns. Additionally, monitoring specific conductance is also required because higher levels may limit its palatability do to esthetics and/or the applicability of nondegradation in certain settings (75-5-103 MCA).

In the past we have searched the Montana Bureau of Mines and Geology's (MBMG) Ground-Water Information Center (http://mbmggwic.mtech.edu/) to determine if there are any other constituents of concern in an area and, if so, asked for those constituents to be sampled for. However, due to current staff resource limitations that is no longer being done. We could add any sampling requirements to the state's subdivision rules for any constituents, but they would have to apply to the entire state as opposed to getting into site- or aquifer-specific locations due to the cumbersome nature of the rule writing for that. Directives for site- or aquifer-specific sampling should come from local governments that have the understanding of those conditions in their county.

Regarding monitoring recommendations, we believe that by reporting what is known about the state's aquifers and groundwater resources that local governments and/or water quality districts can make properly informed decisions regarding the management and protection of that resource. Additional information on Montana's aquifers and groundwater resources is available from the USGS at http://water.usgs.gov/ogw/, but is not reported in this document.

### *Comment Text*

Appendix A should include a more complete listing of sources of impairment. For example the Middle Clark Fork River Rattlesnake to Blackfoot, and the Middle Clark Fork River Fish Creek to Rattlesnake Creek reaches should included urban and construction stormwater runoff as sources, since these are significant sources of the identified contaminants listed as causes of impairment. Also, for Lolo Creek, the list of sources should include highway runoff, road construction and associated sources for all reaches, not just those in the upper drainage.

#### DEQ Response

Your comment and observations are appreciated and noted. The last full and complete assessments conducted for the referenced waters were 1999 and 2003 for the Clark Fork River segments and 2001 and 2002 for the three Lolo Creek segments. At that time, and with the data/information available for the assessor, these were the probable sources identified. At their next full assessment, the waterbody's potential to support its beneficial uses will be fully evaluated and the list of causes of impairment and associated sources will be revised as appropriate.

### *Comment Text*

Appendix G is not included. Public comment will be important for this section of the report, so an additional public comment opportunity should be provided when a draft Appendix G is released.

Thank you for the opportunity to comment on this draft. We look forward to the opportunity to review and comment on a Draft of Appendix G when it becomes available.

#### DEQ Response

Comments to the monitoring schedule may be sent to the Water Quality Planning Bureau for consideration, however due to obligations dictated by the current law suit and recent (2011) amended judgment; a significant portion of DEQ's monitoring is well defined through 2014. This is in order to support TMDL development scheduled for completion through 2014. Additional monitoring will be pursued over the next 2 years to support TMDL development work beyond 2014. This monitoring is prioritized in a manner consistent with the TMDL development priorities defined in Section 3.5.4.

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## **Commenter:** Plum Creek Timber Company, Inc.

**Received:** March 1, 2012

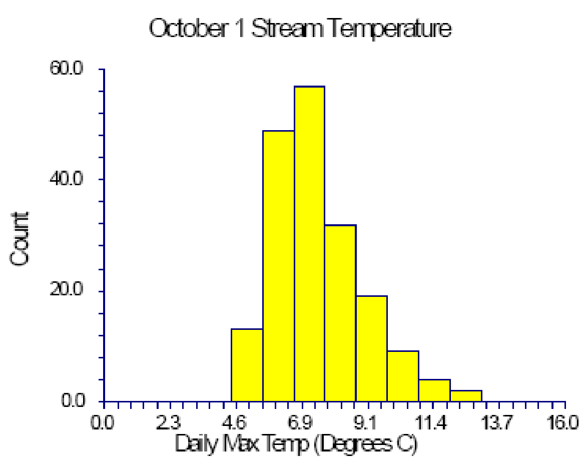
### *Comment Text*

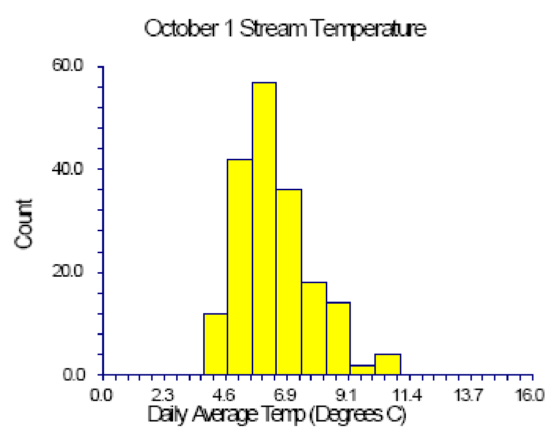
Please accept these comments on the 2012 Draft Integrated Report for Montana on behalf of Plum Creek Timber Company:

1. We support DEQs decision to delist Swift Creek in the 2012 IR, and thank DEQ for taking the time to collect the necessary data to confirm the beneficial use support status.

2. DEQ should be commended for developing repeatable and transparent procedures for evaluating beneficial use support.

3. We continue to have concerns about the technical justification for a benthic algae criterion of 120 mg/Chl*a*/m2 (or 35 g AFDW/m2) in the Water Quality Assessment Method Template for nutrients in mountainous and transitional streams. We commented on this issue when the assessment methods were distributed as a draft last year, but the response given was to read the technical justification in the methodology (Section B.1.2). We have re-reviewed this justification and still do not feel it is technically supportable. The basis for the algae criterion rests primarily on a whole-stream nutrient addition study in a single C-3 warm-water prairie stream in Box Elder Creek of extreme southeastern Montana (400 miles from the mountainous nutrient ecoregions). In this study, DEQ found that DO levels exceeded standards in the fall when benthic algae levels exceeded 127 mg/Chl*a*/m2. While DEQ does not propose applying this algae criterion to nutrient determinations in the prairie streams of eastern Montana where the study was done, they do for mountain streams of western Montana. The justification for this in the assessment method documentation is that "…*we would not expect western Montana streams manifesting similar algal densities to be able to compensate due to their having cooler water temperatures, as their temperatures are often about the same at this time of year*." The assessment method documentation notes stream temperatures in Box Elder Creek when low DO was observed on about October 1st "…*ranged from about 12-16oC*." Plum Creek has collected extensive temperature data in wadeable streams in western Montana since 1994. We queried our database and found 185 records of continuous stream temperature in 65 different streams during this time. The distribution of October 1st stream temperatures (both daily maximum and daily average temperatures) are shown in the histograms below. For daily maximum temperature, only two records had daily maximum temperatures above 12oC. And in all sites, daily average temperatures were cooler than 12oC. The mean daily maximum was 7.4oC and the mean daily average was 6.4oC. These temperatures are substantially cooler than what was noted during this study in Box Elder Creek, and would likely pose a significant mediating factor on DO depletion. Additionally, there are other factors in the mountain ecoregions that would likely result in less significant DO risk, including steeper stream gradients leading to higher rates of re-aeration. For all these reasons, we do not believe that a proposed algae criterion of 120 mg/Chl*a*/m2 (or 35 g AFDW/m2) is supportable. If DEQ would like further documentation of the temperature data summarized in this letter, we would be happy to provide it.




We agree with DEQ that an algae criterion should be included as part of the nutrient impairment evaluations, especially given the weak correlations between nutrient concentrations and instream response variables. We recommend that DEQ revert back to the recreation standard level of protection from nuisance conditions, which according to the assessment method documentation (Section B.1.1) is 165 mg/Chl*a*/m2. While DEQ notes in this section that chl*a* data are variable, and sampling currently requires only 11 samples, we don't think the criterion should be arbitrarily adjusted to account for sampling error.

The criterion should be set at the use impairment threshold, and monitoring methods should be revised to determine when this level is exceeded.

Thank you for this opportunity to comment.

**DEQ Response**

We appreciate the comment made, and information provided, with respect to the state's proposed benthic algae criterion (comment #3). While this comment is referencing a topic not explicitly addressed in this Integrated Report, we have taken the information provided seriously and have re-evaluated the criterion as it applies to mountainous and transitional streams in western Montana. Our findings suggest that a change in the criterion, as it applies to those waters, is warranted. DEQ will incorporate that analysis, and modified criterion, in its rule-making package presented to the state's Board of Environmental Review, and may also discuss the topic at a future Nutrient Work Group meeting.

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**Commenter:** US Environmental Protection Agency

Received March 2, 2012

### *Comment Text*

We have reviewed Montana's draft 2012 Water Quality Integrated Report (IR) and appreciate the opportunity to provide feedback. Montana's draft IR is well organized, clear and concise. The information presented in the Report, the Assessment Database (ADB), and GIS files are consistent. We have reviewed the assessments completed for the 2012 Integrated Report and did not identify any concerns.

In our review of the Montana National Lakes Assessment Summary (Section 4.3.4), we suggested some minor revisions to ensure the data are reported properly. For example, the population estimates should be calculated based on the weights assigned to each sampling location. We have provided the necessary data to Department staff to correct this issue in the final report. Please let us know if you need any additional assistance making this revision.

**DEQ Response**

We have updated Section 4.3.4 of the 2012 Water Quality Integrated Report based on the data and procedure provided by EPA (Condition class estimates for an individual state). This procedure uses two types of population estimates, of which, to be consistent with the National Lake Assessment report, we only used the estimation of proportion and size for the number of lakes in each condition class category. The technical document referred in Section 4.3.4 can be found at: http://deq.mt.gov/wqinfo/publications/deq_publications.mcpx

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## 7.4 Report Changes Made Prior to Final Report

Changes made to the Draft Integrated Report were the result of public comments and internal quality control activities. These changes are discussed below.

## 7.4.1 Data Edits in Response to Public Comments

**Section 3.3.3.2 Transportation,** was edited to include the Bureau of Land Management as a collaborator with the Watershed Protection Program in efforts to minimize nonpoint source pollution impacts resulting from the state's transportation system.

**Section 4.1.2.6 Conservation Districts, Watershed Groups, and Other Nonprofit Organizations,** was edited to include water quality districts in list of groups who monitor surface water.

**Section 4.3.4 Montana Lake Assessment Using a Probabilistic Design** was edited per recommendations by EPA.

Sheep Creek MT4IJ002_030 and Fort Peck Reservoir MT40E004_010 assessments were amended based on data submitted. These changes affect **Table 4-5, Table 4-8, Appendix A, Appendix B, Appendix C** and **Appendix D.**

## 7.4.2 Data Edits Made in Response to DEQ QC Activities

1) Changed Cycle First Listed to 1994 for Sedimentation/Siltation, Specific Conductance, Solids (Suspended/Bedload), Sodium, and Dissolved Solids on North Fork Sunday Creek MT42K002_080. This change affected **Appendix B.**
2) Changed Cycle First Listed date to 2000 for "other" on Rosebud Creek MT42A001_012 in **Appendix B**.
3) Changed TMDL priority for Turbidity on Silvertip Creek MT43D002_100 to Unassigned in **Appendix B**
4) Changed text of **Section 3.3** to increase clarity
5) Corrected **Appendix A** to include turbidity as a cause for aquatic life use impairment on Uncle Sam Gulch MT41E002_010
6) Corrected **Appendix F** to include cycle first listed for West Fork Bitterroot River MT76H003_010
7) Corrected **Appendix C** to provide accurate reporting of AUs assessed during reporting period
8) Corrected **Appendix E** to provide 305(b) IDs
9) Corrected **Appendix B** to provide more complete 305(b) IDs and to include Lamesteer National Wildlife Refuge MT39G002_010 and Rosebud Creek MT42A001_012.
10) Changed **table 6.1** to correct Little Boulder River 305(b) ID to MT41E002_080
11) Added the delisting Phosphorus (Total) and Nitrogen (Total) on Nelson Creek MT40E003_020 to **Appendix D** and **Appendix F**
12) Corrected **table 6.1** to add Assessment Units per **table 7-3**.

**Table 7-3. General Data QC and Corrections for 2012 Cycle**

| 305(b) ID | Waterbody Name | Data Corrected | Correction |
|---|---|---|---|
| MT41I006_150 | Silver Creek | Endpoint, Lat/Long, length, location description | Moved downstream end point to align with quad map location of the lower Silver Creek as it enters Lake Helena. Revised description to: SILVER CREEK, headwaters to T11N R4W S30 / S31 to Lake Helena. New length 22.1 Miles. |
| MT43B003_010 | Yellowstone River | End Point, Lat/Long, length, & GIS | Downstream end point moved upstream 0.4 mi to coincide with HUC boundary - in concert with MT43F001_012. |

**Table 7-3. General Data QC and Corrections for 2012 Cycle**

| 305(b) ID | Waterbody Name | Data Corrected | Correction |
|---|---|---|---|
| MT43F001_012 | Yellowstone River | End Point, Lat/Long, length, & GIS | Upstream end point moved downstream 0.4 mi to coincide with HUC boundary - in concert with MT43B003_010. |
| MT41I006_020 | Prickly Pear Creek | End Point, Lat/Long, length, & GIS | Moved downstream end point to align where Prickly Pear Creek enters Lake Helena. |
| MT41E002_080 | Little Boulder River | Length | Changed from 3.76 miles to 16.3 miles |

# 8.0 REFERENCES

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# 9.0 Glossary

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|---|---|
| 303(d) list | A compilation of impaired and threatened waterbodies in need of water quality restoration, which is prepared by DEQ and submitted to EPA for approval. This list is commonly referred to as the "303(d) List" because it is prepared in accordance with the requirements of section 303(d) of the federal Clean Water Act of 1972. In the integrated reporting format Category 5 is considered the "303(d) list" by EPA. DEQ develops Water Quality Restoration Plans for all category 4C waters in addition to the TMDLs required for category 5 waters. |
| 305(b) report | A general overview report of state water quality conditions, which DEQ prepares and submits to EPA in accordance with the requirements of section 305(b) of the federal Clean Water Act of 1972. The integrated reporting format of this document encourages the combination of 305(b) requirements with 303(d) requirements in a single document. |
| Assessment | A complete review of waterbody conditions using chemical, physical, or biological monitoring data alone or in combination with narrative information, that supports a finding as to whether a waterbody is achieving compliance with applicable WQS. |
| Basins | For water quality planning purposes, Montana is divided into four hydrologic basins or regions: the Columbia Basin (west slope waters draining to the Columbia River), the Upper Missouri Basin (all Missouri River drainages above the Marias River confluence), the Lower Missouri Basin (Missouri River drainages including and downstream of the Marias River, and a segment of the Saskatchewan drainage in Glacier National Park), and the Yellowstone Basin (waters draining into the Yellowstone and the Little Missouri rivers). |
| Beneficial uses | The uses that a waterbody is capable of supporting when all applicable WQS are met. What standards apply to a particular waterbody depend on its classification under the Montana Water-Use Classification System. |
| Best Management Practices (BMPs) | Those activities, prohibitions, maintenance procedures, or other management practices used to protect and improve water quality. BMPs may or may not be sufficient to achieve WQS and protect beneficial uses. |
| Biological data | Chlorophyll-*a* data, aquatic biology community information (including fish, macroinvertebrates, and algae), and wildlife community characteristics. |
| Degradation | A change in water quality that lowers the quality of high quality waters for a parameter. The term does not include those changes in water quality determined to be non-significant pursuant to 75-5-301(5)(c). [75-5-103(5) MCA] |
| Full support | A beneficial use determination based on sufficient credible data, that a waterbody is achieving all the WQS for the use in question. |
| Hydrologic Unit Code (HUC) | A standardized mapping system devised by the US Geologic Survey for the hydrology of the United States. The system employs four basic levels of designation or mapping: regions, sub-regions, accounting units, and cataloging units. Each level is assigned a two-digit code so that a cataloging unit has an eight-digit unique identifier, or code. In Montana, there are 100 "8-digit" or "4th code" HUCs. |

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| Impaired waterbody | A waterbody or stream segment for which sufficient credible data shows that the waterbody or stream segment is failing to achieve compliance with applicable WQS (nonsupport or partial support of beneficial uses). [75-5-103(11) MCA] |
| Macroinvertebrates | Animals without backbones and are visible to the human eye (insects, worms, clams, and snails). |
| Montana Water-Use Classification System | Montana State regulations [ARM 17.30.606 - 658] assigning state surface waters to one of nine use classes. The class to which a waterbody is assigned defines the beneficial uses that it should support. |
| Naturally occurring | Water conditions or material present from runoff or percolation over which humans have no control or from developed land where all reasonable land, soil, and water conservation practices have been applied. [75-5-306(2) MCA] |
| Nonpoint source | Source of pollution, which originates from diffuse runoff, seepage, drainage, or infiltration. [ARM 17.30.602(18)] NPS pollution is generally managed through BMPs or a water quality restoration plan. |
| Parameter | A physical, biological, or chemical property of state water when a value of that property affects the quality of the state water. [75-5-103(22) MCA] |
| Partial support | A beneficial use determination, based on sufficient credible data, that a waterbody is not achieving all the WQS for the use in question, but the degree of impairment is not severe. |
| Pathogens | Bacteria or other disease causing agents that may be contained in water. |
| Point source | A discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, or vessel or other floating craft, from which pollutants are or may be discharged. [75-5-103(24) MCA] |
| Pollutant | As defined in the federal Clean Water Act, pollutant means dredged spoil; solid waste; incinerator residue; sewage; garbage; sewage sludge; munitions; chemical wastes; biological materials; radioactive materials; heat; wrecked or discarded equipment; rock; sand; cellar dirt; and industrial, municipal, and agricultural waste discharged into water (CWA Section 502(6)) |
| Pollution | Defined by Montana law [75-5-103(25) MCA] as:<br>1. Contamination or other alteration of the physical, chemical, or biological properties of state waters that exceed that permitted by Montana WQS, including but not limited to standards relating to changes in temperature, taste, color, turbidity or odor; or,<br>2. The discharge, seepage, drainage, infiltration, or flow of liquid, gaseous, solid, radioactive, or other substance into state water that will or is likely to create a nuisance or render the waters harmful, detrimental, or injurious to public health, recreation, safety, or welfare, to livestock, or to wild animals, bird, fish or other wildlife, or<br>3. Discharge, seepage, drainage, infiltration, or flow that is authorized under the pollution discharge permit rules of the board is not pollution under this chapter. Activities conducted under the conditions imposed by the department in short term authorizations pursuant to 75 5 308 MCA are not considered pollution under this chapter. |

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| Prioritization | A ranking of impaired waterbodies conducted by DEQ in consultation with the statewide advisory group using established criteria to rank waterbodies as high, moderate, or low priority for preparing Water Quality Restoration Plans (specifically TMDL plans). |
| Reference condition | The condition of a waterbody capable of supporting its present and future beneficial uses when all reasonable land, soil, and water conservation practices have been applied. Reference conditions include natural variations in biological communities, water chemistry, soils, hydrology, and other natural physiochemical variations. |
| Riparian area | Plant communities contiguous to and affected by surface and subsurface hydrologic features of natural waterbodies. Riparian areas are usually transitional between streams and upland. |
| Segment | A defined portion of a waterbody. |
| State water | A body of water, irrigation system, or drainage system, either surface or underground (excludes water treatment lagoons or irrigation waters, which do not return to state waters). |
| Sub-major basin | The aggregation of several watersheds or HUCs into a larger drainage system. The US Geological Survey has defined 16 sub-major basins (sub-region) in Montana with at least two in each of the Montana basins (regions). |
| Sufficient credible data | Chemical, physical, or biological monitoring data, alone or in combination with narrative information that supports a finding as to whether a waterbody is achieving compliance with applicable WQS. [75-5-103(30) MCA] |
| Suspended solids | Materials such as silt that may be contained in water and do not dissolve. |
| Threatened waterbody | A waterbody for which sufficient credible data and calculated increases in loads show that the waterbody or stream segment is fully supporting its designated uses but threatened for a particular designated use because of:<br><br>(a) proposed sources that are not subject to pollution prevention or control actions required by a discharge permit, the nondegradation provisions, or reasonable land, soil, and water conservation practices; or<br><br>(b) documented adverse pollution trends. [75-5-103(31) MCA] |
| Total Maximum Daily Load (TMDL) | The sum of the individual wasteload 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 WQS. [75-5-103(32) MCA] In practice, TMDLs are water quality restoration targets for both point and nonpoint sources that are contained in a water quality restoration plan or in a permit. |
| Toxicant | A toxic agent |
| Waterbody | A lake, reservoir, river, stream, creek, pond, marsh, wetland, or other body of water above the ground surface. |
| Water Quality Integrated Report (or Integrated Report) | A report providing an overview of the status of state water quality monitoring and planning programs. It combines in one document the information previously submitted to the EPA in separate 303(d) List and 305(b) Report documents. |

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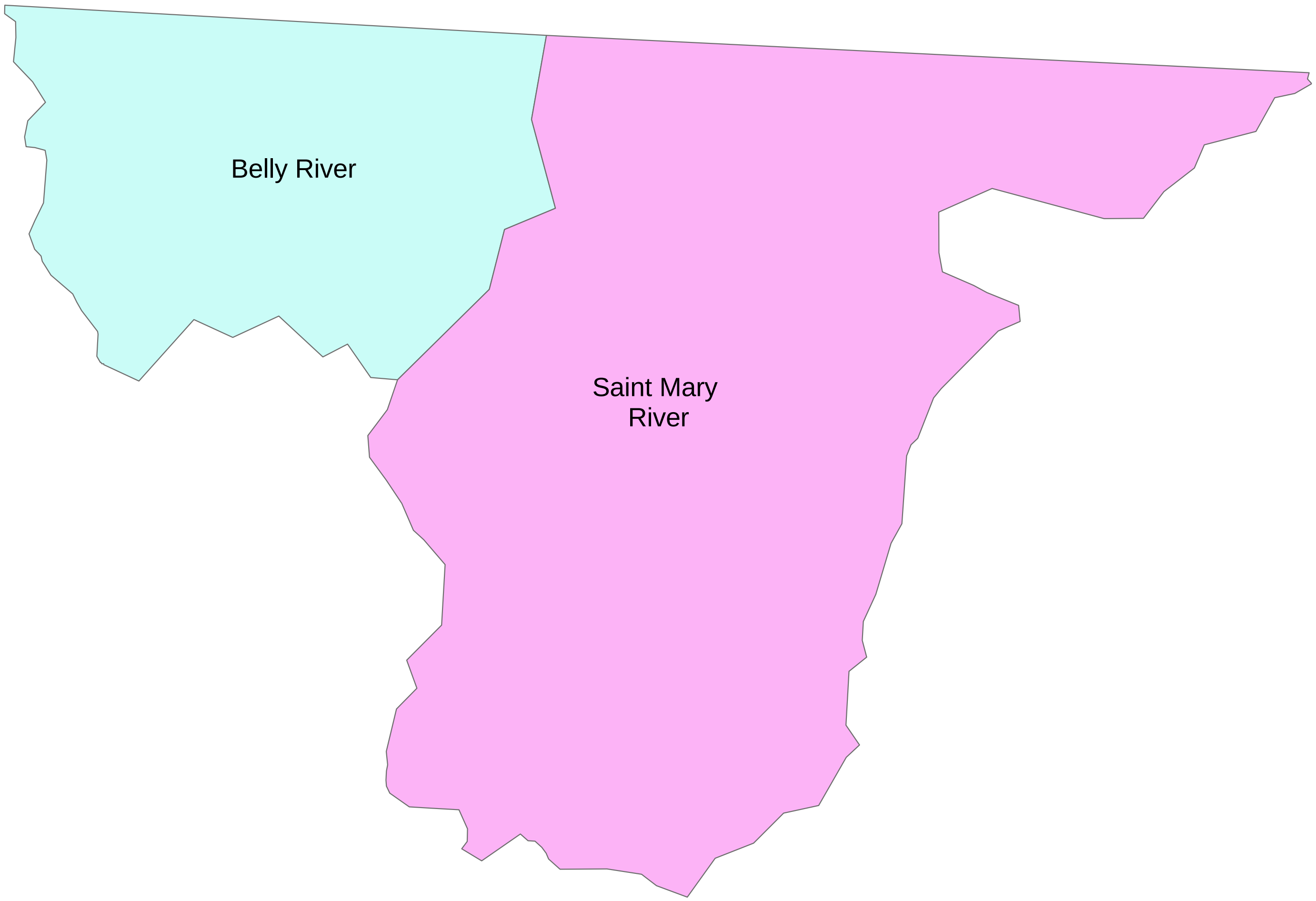
| Water quality limited segment (WQLS) | A body of water that is not fully supporting its beneficial uses (an impaired waterbody). If there is no water quality restoration plan with an approved TMDL for a waterbody, it is listed on the 303(d) List of impaired waters. |
| Water quality restoration plan | A plan to improve water quality to achieve state WQS. Such a plan may also be referred to as a "TMDL plan" if it addresses the eight criteria used by the EPA to approve TMDL plans. |
| Water quality standards | the standards adopted in ARM 17.30.601 et seq. and WQB-7 to conserve water by protecting, maintaining, and improving suitability and usability of water for public water supplies, wildlife, fish and aquatic life, agriculture, industry, contact recreation, and other beneficial uses. |

# Appendix A: Index for Impaired Waters Sub-Basin Reports

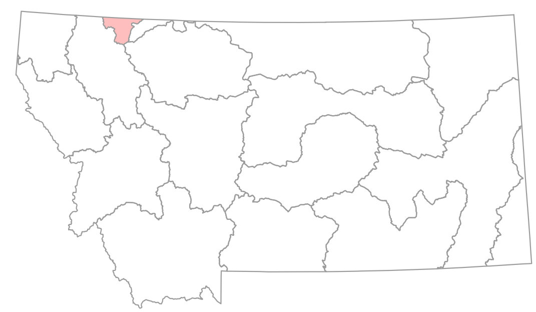
| | | |
|---|---|---|
| St. Mary | 10010001 | Belly |
| | 10010002 | St. Mary |
| Upper Missouri | 10020001 | Red Rock |
| | 10020002 | Beaverhead |
| | 10020003 | Ruby |
| | 10020004 | Big Hole |
| | 10020005 | Jefferson |
| | 10020006 | Boulder |
| | 10020007 | Madison |
| | 10020008 | Gallatin |
| Missouri-Sun-Smith | 10030101 | Upper Missouri |
| | 10030102 | Upper Missouri-Dearborn |
| | 10030103 | Smith |
| | 10030104 | Sun |
| | 10030105 | Belt |
| Marias | 10030201 | Two Medicine |
| | 10030202 | Cut Bank |
| | 10030203 | Marias |
| | 10030204 | Willow |
| | 10030205 | Teton |
| Middle Missouri | 10040101 | Bullwhacker-Dog |
| | 10040102 | Arrow |
| | 10040103 | Judith |
| | 10040104 | Fort Peck Reservoir |
| | 10040105 | Big Dry |
| | 10040106 | Little Dry |
| Musselshell | 10040201 | Upper Musselshell |
| | 10040202 | Middle Musselshell |
| | 10040203 | Flatwillow |
| | 10040204 | Box Elder |
| | 10040205 | Lower Musselshell |
| Milk | 10050001 | Milk Headwaters |
| | 10050002 | Upper Milk |
| | 10050003 | Wild Horse Lake |
| | 10050004 | Middle Milk |
| | 10050005 | Big Sandy |
| | 10050006 | Sage |
| | 10050007 | Lodge |
| | 10050008 | Battle |
| | 10050009 | Peoples |
| | 10050010 | Cottonwood |
| | 10050011 | Whitewater |
| | 10050012 | Lower Milk |
| | 10050013 | Frenchman |
| | 10050014 | Beaver |
| | 10050015 | Rock |
| | 10050016 | Porcupine |
| Lower Missouri | 10060001 | Prairie Elk-Wolf |
| | 10060002 | Redwater |
| | 10060003 | Poplar |
| Lower Missouri | 10060004 | West Fork Poplar |
| | 10060005 | Charlie-Little Muddy |
| | 10060006 | Big Muddy |
| | 10060007 | Brush Lake |
| Upper Yellowstone | 10070001 | Yellowstone Headwaters |
| | 10070002 | Upper Yellowstone |
| | 10070003 | Shields |
| | 10070004 | Upper Yellowstone-Lake |
| | 10070005 | Stillwater |
| | 10070006 | Clarks Fork Yellowstone |
| Middle Yellowstone | 10070007 | Upper Yellowstone-Pomeys Pillar |
| | 10070008 | Pryor |
| | 10080010 | Bighorn Lake |
| | 10080014 | Shoshone |
| | 10080015 | Lower Bighorn |
| | 10080016 | Little Bighorn |
| | 10090101 | Upper Tongue |
| | 10090102 | Lower Tongue |
| | 10100003 | Rosebud |
| Lower Yellowstone | 10090207 | Middle Powder |
| | 10090208 | Little Powder |
| | 10090209 | Lower Powder |
| | 10090210 | Mizpah |
| | 10100001 | Lower Yellowstone-Sunday |
| | 10100002 | Big Porcupine |
| | 10100004 | Lower Yellowstone |
| | 10100005 | O'Fallon |
| Little Missouri | 10110201 | Upper Little Missouri |
| | 10110202 | Boxelder |
| | 10110203 | Middle Little Missouri |
| | 10110204 | Beaver |
| | 10120202 | Lower Belle Fourche |
| Kootenai | 17010101 | Upper Kootenai |
| | 17010102 | Fisher |
| | 17010103 | Yaak |
| | 17010104 | Lower Kootenai |
| | 17010105 | Moyie |
| Upper Clark Fork | 17010201 | Upper Clark Fork |
| | 17010202 | Flint-Rock |
| | 17010203 | Blackfoot |
| | 17010205 | Bitterroot |
| Flathead | 17010206 | North Fork Flathead |
| | 17010207 | Middle Fork Flathead |
| | 17010208 | Flathead Lake |
| | 17010209 | South Fork Flathead |
| | 17010210 | Stillwater |
| | 17010211 | Swan |
| Lower Clark Fork | 17010204 | Middle Clark Fork |
| | 17010212 | Lower Flathead |
| | 17010213 | Lower Clark Fork |




# Saint Mary Sub-Major Basin

## Missouri River Basin

| USGS HUC | HUC NAME |
|---|---|
| 10010001 | Belly River |
| 10010002 | St. Mary River |



Montana Department of Environmental Quality

**HUC** 10010002 St. Mary **Watershed** Saint Mary

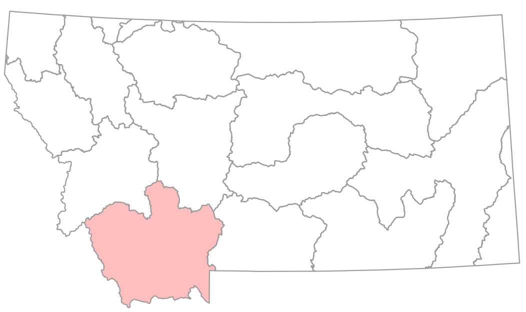
| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cut Bank - Two Medicine | MT40T002_010 | DIVIDE CREEK, headwaters to mouth (Saint Mary River) | 4C | 10.55 | MILES | A-1 | P | F | X | X | Alterations in wetland habitats | Channelization |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | | Site Clearance (Land Development or Redevelopment) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed


# Upper Missouri Sub-Major Basin

## Missouri River Basin

| USGS HUC | HUC NAME |
|---|---|
| 10020001 | Red Rock River |
| 10020002 | Beaverhead River |
| 10020003 | Ruby River |
| 10020004 | Big Hole River |
| 10020005 | Jefferson River |
| 10020006 | Boulder River |
| 10020007 | Madison River |
| 10020008 | Gallatin River |



Montana Department of Environmental Quality

**HUC** 10020001 Red Rock **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Red Rock | MT41A001_010 | RED ROCK RIVER, Lima Dam to Clark Canyon Reservoir | 5 | 51.81 | MILES | B-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Lead | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Physical substrate habitat alterations | Irrigated Crop Production |
| | | | | | | | | | | | Sedimentation/Siltation | Loss of Riparian Habitat |
| | | | | | | | | | | | Temperature, water | |
| | | | | | | | | | | | Zinc | |
| Red Rock | MT41A001_020 | RED ROCK RIVER, Lower Red Rock Lake to Lima Dam | 5 | 43.82 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |
| Red Rock | MT41A002_010 | CLARK CANYON RESERVOIR | 4C | 4888 | ACRES | B-1 | P | F | F | P | Other flow regime alterations | Drought-related Impacts |
| | | | | | | | | | | | | Irrigated Crop Production |
| Red Rock | MT41A003_010 | MEDICINE LODGE CREEK, headwaters to mouth (Horse Prairie Creek) | 5 | 34.64 | MILES | B-1 | N | F | F | N | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |
| Red Rock | MT41A003_020 | MUDDY CREEK, confluence of Sourdough and Wilson Creek to mouth (Big Sheep Creek), T14S R10W S10 | 5 | 11.08 | MILES | B-1 | P | F | F | P | Turbidity | Agriculture |
| | | | | | | | | | | | | Streambank Modifications/destablization |
| Red Rock | MT41A003_090 | HORSE PRAIRIE CREEK, headwaters to mouth (Clark Canyon Res) | 5 | 46.67 | MILES | B-1 | N | F | N | P | Arsenic | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Cadmium | Irrigated Crop Production |
| | | | | | | | | | | | Copper | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Low flow alterations | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020001 Red Rock **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Red Rock | MT41A003_090 | HORSE PRAIRIE CREEK, headwaters to mouth (Clark Canyon Res) | 5 | 46.67 | MILES | B-1 | N | F | N | P | Mercury<br>Zinc | |
| Red Rock | MT41A003_100 | BLOODY DICK CREEK, headwaters to mouth (Horse Prairie Creek) | 5 | 30.32 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Phosphorus (Total) | Grazing in Riparian or Shoreline Zones |
| Red Rock | MT41A003_150 | SHEEP CREEK, Muddy Creek to mouth (Red Rock River) | 5 | 10.98 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Excess Algal Growth<br>Low flow alterations<br>Nonnative Fish, Shellfish, or Zooplankton<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Other Recreational Pollution Sources |
| Red Rock | MT41A004_010 | PRICE CREEK, headwaters to mouth (Red Rock River) | 5 | 10.52 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Other flow regime alterations<br>Sedimentation/Siltation | Flow Alterations from Water Diversions<br>Grazing in Riparian or Shoreline Zones |
| Red Rock | MT41A004_030 | FISH CREEK, headwaters to mouth (Metzel Creek) | 5 | 7.88 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Chlorophyll-a<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Unspecified Unpaved Road or Trail |
| Red Rock | MT41A004_040 | CORRAL CREEK, headwaters to mouth (Red Rock Creek) | 5 | 4.29 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Phosphorus (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Unspecified Unpaved Road or Trail |
| Red Rock | MT41A004_050 | EAST FORK CLOVER CREEK, headwaters to mouth (Clover Creek) | 5 | 5.78 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Phosphorus (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| Red Rock | MT41A004_060 | HELL ROARING CREEK, headwaters to mouth (Red Rock River) | 4C | 10.17 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| Red Rock | MT41A004_070 | LONG CREEK, headwaters to mouth (Red Rock River) | 5 | 23.94 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Other flow regime alterations | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020001 Red Rock **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Red Rock | MT41A004_070 | LONG CREEK, headwaters to mouth (Red Rock River) | 5 | 23.94 | MILES | B-1 | N | F | F | P | Sedimentation/Siltation | Unspecified Unpaved Road or Trail |
| Red Rock | MT41A004_080 | O'DELL CREEK, headwaters to mouth (Lower Red Rock Lake) | 5 | 16.09 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Turbidity | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Loss of Riparian Habitat |
| Red Rock | MT41A004_090 | PEET CREEK, headwaters to mouth (Red Rock River) | 5 | 10.13 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Other flow regime alterations<br>Phosphorus (Total)<br>Sedimentation/Siltation | Animal Feeding Operations (NPS)<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production |
| Red Rock | MT41A004_100 | TOM CREEK, headwaters to mouth (Upper Red Rock Lake) | 5 | 6.6 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production |
| Red Rock | MT41A004_110 | RED ROCK CREEK, headwaters to mouth (Upper Red Rock Lake) | 5 | 18.38 | MILES | B-1 | P | X | X | X | Alteration in stream-side or littoral vegetative covers<br>Turbidity | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Loss of Riparian Habitat |
| Red Rock | MT41A004_130 | JONES CREEK, headwaters to mouth (Winslow Creek) | 5 | 8.33 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Excess Algal Growth<br>Other flow regime alterations<br>Phosphorus (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production |
| Red Rock | MT41A004_140 | BEAN CREEK, headwaters to Mouth (Red Rock River), T14S R3E S7 | 5 | 6.62 | MILES | B-1 | N | F | F | N | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Sedimentation/Siltation | Channelization<br>Flow Alterations from Water Diversions<br>Grazing in Riparian or Shoreline Zones |
| Red Rock | MT41A005_020 | LOWER RED ROCK LAKE | 5 | 1126 | ACRES | B-1 | N | X | X | N | Other flow regime alterations<br>Sedimentation/Siltation | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Low Water Crossing |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020001 Red Rock **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Red Rock | MT41A005_020 | LOWER RED ROCK LAKE | 5 | 1126 | ACRES | B-1 | N | X | X | N | | Rangeland Grazing |
| | | | | | | | | | | | | Upstream Source |
| Red Rock | MT41A005_030 | UPPER RED ROCK LAKE | 5 | 2206.1 | ACRES | B-1 | N | X | X | N | Other flow regime alterations | Agriculture |
| | | | | | | | | | | | Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Rangeland Grazing |
| | | | | | | | | | | | | Upstream Source |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 10020002 Beaverhead **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Beaverhead | MT41B001_010 | BEAVERHEAD RIVER, Clark Canyon Dam to Grasshopper Creek | 5 | 12.32 | MILES | B-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers<br>Lead<br>Low flow alterations | Agriculture<br>Dam or Impoundment<br>Impacts from Abandoned Mine Lands (Inactive)<br>Irrigated Crop Production |
| Beaverhead | MT41B001_020 | BEAVERHEAD RIVER, Grasshopper Creek to mouth (Jefferson River) | 5 | 66.04 | MILES | B-1 | N | F | F | N | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Physical substrate habitat alterations<br>Sedimentation/Siltation<br>Temperature, water | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Loss of Riparian Habitat<br>Site Clearance (Land Development or Redevelopment) |
| Beaverhead | MT41B002_010 | GRASSHOPPER CREEK, headwaters to mouth (Beaverhead River) | 5 | 60.18 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Cadmium<br>Copper<br>Low flow alterations<br>Zinc | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Mine Tailings<br>Streambank Modifications/destablization |
| Beaverhead | MT41B002_020 | FARLIN CREEK, headwaters to mouth (Grasshopper Creek), T6S R12W S7 | 5 | 6.1 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| Beaverhead | MT41B002_030 | BLACKTAIL DEER CREEK, headwaters to mouth (Beaverhead River) | 5 | 42.88 | MILES | B-1 | N | F | F | N | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Sedimentation/Siltation<br>Temperature, water | Channelization<br>Flow Alterations from Water Diversions<br>Grazing in Riparian or Shoreline Zones<br>Highway/Road/Bridge Runoff (Non-construction Related)<br>Irrigated Crop Production<br>Livestock (Grazing or Feeding Operations) |
| Beaverhead | MT41B002_040 | EAST FORK BLACKTAIL DEER CREEK, headwaters to mouth (Blacktail Deer Creek) | 4C | 21.24 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| Beaverhead | MT41B002_060 | WEST FORK BLACKTAIL DEER CREEK, headwaters to mouth (Blacktail Deer Creek) | 5 | 19.07 | MILES | B-1 | P | N | N | P | Alteration in stream-side or littoral vegetative covers<br>Arsenic | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020002 Beaverhead **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Beaverhead | MT41B002_060 | WEST FORK BLACKTAIL DEER CREEK, headwaters to mouth (Blacktail Deer Creek) | 5 | 19.07 | MILES | B-1 | P | N | N | P | Chlorophyll-a | Mine Tailings |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Beaverhead | MT41B002_070 | WEST FORK DYCE CREEK, headwaters to mouth (Dyce Creek) | 5 | 3.95 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Manganese | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrogen (Total) | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Sedimentation/Siltation | Placer Mining |
| | | | | | | | | | | | | Silviculture Harvesting |
| Beaverhead | MT41B002_080 | SPRING CREEK, headwaters to mouth (Beaverhead River) | 5 | 15.67 | MILES | B-1 | P | P | N | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Arsenic | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Chlorophyll-a | Irrigated Crop Production |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Beaverhead | MT41B002_090 | RATTLESNAKE CREEK, from the Dillon PWS off-channel well T7S R10W S11 to the mouth (Van Camp Slough) | 5 | 9.52 | MILES | B-1 | P | F | N | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Cadmium | Irrigated Crop Production |
| | | | | | | | | | | | Copper | Subsurface (Hardrock) Minining |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |
| Beaverhead | MT41B002_091 | RATTLESNAKE CREEK, headwaters to Dillon PWS off-channel well, T7S R10W S11 | 5 | 17.95 | MILES | A-1 | P | F | N | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Cadmium | Irrigated Crop Production |
| | | | | | | | | | | | Copper | Subsurface (Hardrock) Minining |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Nitrogen (Total) | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 10020002 Beaverhead **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Beaverhead | MT41B002_091 | RATTLESNAKE CREEK, headwaters to Dillon PWS off-channel well, T7S R10W S11 | 5 | 17.95 | MILES | A-1 | P | F | N | F | Phosphorus (Total)<br>Sedimentation/Siltation | |
| Beaverhead | MT41B002_100 | FRENCH CREEK, headwaters to mouth (Rattlesnake Creek) | 5 | 6.55 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones |
| Beaverhead | MT41B002_110 | CLARK CANYON CREEK, headwaters to mouth (Beaverhead River), T9S R10W S28 | 5 | 8.07 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Phosphorus (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| Beaverhead | MT41B002_120 | RESERVOIR CREEK, headwaters to mouth (Grasshopper Creek) | 5 | 12.76 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| Beaverhead | MT41B002_131 | STONE CREEK, confluence with unnamed creek in T6S R7W S34 near Beaverhead/Madison county border | 5 | 6.53 | MILES | B-1 | P | P | N | P | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Chlorophyll-a<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Agriculture<br>Crop Production (Crop Land or Dry Land)<br>Surface Mining<br>Unspecified Unpaved Road or Trail |
| Beaverhead | MT41B002_132 | STONE CREEK, Left Fork and Middle Fork to confluence of un-named tributary, T6S R7W S34 | 5 | 7.07 | MILES | B-1 | P | F | F | N | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Nitrates<br>Sedimentation/Siltation<br>Turbidity | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Highway/Road/Bridge Runoff (Non-construction Related)<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Irrigated Crop Production |
| Beaverhead | MT41B002_140 | DYCE CREEK, confluence of East and West Forks to Grasshopper Creek | 5 | 4.13 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Nitrogen (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020002 Beaverhead **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Beaverhead | MT41B002_160 | STEEL CREEK, headwaters to mouth (Driscol Creek), T6S R12W S18 | 5 | 3.66 | MILES | B-1 | N | P | N | N | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Solids (Suspended/Bedload) | Grazing in Riparian or Shoreline Zones<br>Subsurface (Hardrock) Minining |
| Beaverhead | MT41B002_170 | TAYLOR CREEK, headwaters to mouth (Grasshopper Creek) | 5 | 11.73 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| Beaverhead | MT41B002_180 | SCUDDER CREEK, headwaters to mouth (Grasshopper Creek), T6S R12W S19 | 5 | 5.62 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020003 Ruby **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ruby | MT41C001_010 | RUBY RIVER, Ruby Dam to mouth (Beaverhead River) | 5 | 48.03 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Temperature, water | Flow Alterations from Water Diversions<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production |
| Ruby | MT41C001_020 | RUBY RIVER, confluence of East, West, and Middle Forks to Ruby Reservoir | 5 | 41.79 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Phosphorus (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Unspecified Unpaved Road or Trail |
| Ruby | MT41C002_010 | WISCONSIN CREEK, headwaters to mouth (Ruby River) | 5 | 13.14 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Copper<br>Lead<br>Low flow alterations<br>Mercury<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Mine Tailings<br>Unspecified Unpaved Road or Trail |
| Ruby | MT41C002_020 | MILL CREEK, headwaters to mouth (Ruby River) | 5 | 21.68 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Temperature, water | Grazing in Riparian or Shoreline Zones<br>Impacts from Abandoned Mine Lands (Inactive)<br>Irrigated Crop Production<br>Unspecified Unpaved Road or Trail |
| Ruby | MT41C002_030 | INDIAN CREEK, headwaters to mouth (Leonard Slough) | 4A | 12.44 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Sedimentation/Siltation | Channelization<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Unspecified Unpaved Road or Trail |
| Ruby | MT41C002_040 | ALDER GULCH, headwaters to mouth (Ruby River) | 5 | 20.65 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers | Dredge Mining |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020003 Ruby **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ruby | MT41C002_040 | ALDER GULCH, headwaters to mouth (Ruby River) | 5 | 20.65 | MILES | B-1 | N | F | F | P | Chlorophyll-a | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Lead | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Manganese | Mill Tailings |
| | | | | | | | | | | | Mercury | Mine Tailings |
| | | | | | | | | | | | Nitrogen (Total) | Placer Mining |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Ruby | MT41C002_050 | RAMSHORN CREEK, headwaters to mouth (Ruby River) | 5 | 15.2 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Lead | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Phosphorus (Total) | Mine Tailings |
| | | | | | | | | | | | Sedimentation/Siltation | Placer Mining |
| | | | | | | | | | | | | Unspecified Unpaved Road or Trail |
| Ruby | MT41C002_060 | CURRANT CREEK, headwaters to mouth (Ramshorn Creek), T4S R4W S35 | 5 | 3.72 | MILES | B-1 | N | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Copper | Mine Tailings |
| | | | | | | | | | | | Lead | Unspecified Unpaved Road or Trail |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Ruby | MT41C002_090 | CALIFORNIA CREEK, headwaters to mouth (Ruby River), T5S R4W S30 | 5 | 10.94 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Phosphorus (Total) | Placer Mining |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Ruby | MT41C002_100 | GARDEN CREEK, headwaters to mouth (Ruby Reservoir) | 5 | 7.72 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrogen (Total) | Unspecified Unpaved Road or Trail |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020003 Ruby **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ruby | MT41C002_110 | MORMON CREEK, headwaters to mouth (Upper end of Ruby River Reservoir ) | 5 | 7.86 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Ruby | MT41C003_020 | COAL CREEK, headwaters to mouth (Middle Fork Ruby River) | 4A | 9.35 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Ruby | MT41C003_030 | COTTONWOOD CREEK, headwaters to mouth (Ruby River) | 5 | 11.15 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Nitrogen (Total) | Rangeland Grazing |
| | | | | | | | | | | | Sedimentation/Siltation | Unspecified Unpaved Road or Trail |
| Ruby | MT41C003_040 | EAST FORK RUBY RIVER, headwaters to mouth (Ruby River) | 5 | 10.3 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Ruby | MT41C003_050 | WARM SPRINGS CREEK, headwaters to mouth (Ruby River) | 4A | 8.48 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Unspecified Unpaved Road or Trail |
| Ruby | MT41C003_060 | SWEETWATER CREEK, headwaters to mouth (Ruby River) | 5 | 24.72 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers | Irrigated Crop Production |
| | | | | | | | | | | | Chlorophyll-a | Rangeland Grazing |
| | | | | | | | | | | | Low flow alterations | Unspecified Unpaved Road or Trail |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |
| Ruby | MT41C003_080 | WEST FORK RUBY RIVER, headwaters to mouth (Ruby River) | 4A | 7.92 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Rangeland Grazing |
| Ruby | MT41C003_090 | MIDDLE FORK RUBY RIVER, Divide Creek to mouth (Ruby River) | 5 | 11.82 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |

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**HUC** 10020003 Ruby **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ruby | MT41C003_090 | MIDDLE FORK RUBY RIVER, Divide Creek to mouth (Ruby River) | 5 | 11.82 | MILES | B-1 | P | F | F | F | Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Unspecified Unpaved Road or Trail |
| Ruby | MT41C003_110 | POISON CREEK, headwaters to mouth (Ruby River), T11S R3W S18 | 5 | 6.2 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Cadmium<br>Lead<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Natural Sources<br>Placer Mining<br>Rangeland Grazing |
| Ruby | MT41C003_120 | BASIN CREEK, headwaters to mouth (Ruby River), T11S R3W S20 | 5 | 5.4 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| Ruby | MT41C003_130 | BURNT CREEK, headwaters to mouth (Ruby River), T10S R3W S21 | 5 | 5.62 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| Ruby | MT41C003_140 | HAWKEYE CREEK, headwaters to mouth (Middle Fork Ruby River) | 5 | 4.23 | MILES | B-1 | P | F | F | F | Phosphorus (Total) | Grazing in Riparian or Shoreline Zones<br>Source Unknown |
| Ruby | MT41C003_150 | SHOVEL CREEK, headwaters to mouth (Cabin Creek) | 4A | 5.61 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Rangeland Grazing |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 10020004 Big Hole **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Big Hole | MT41D001_010 | BIG HOLE RIVER, Divide Creek to mouth (Jefferson River) | 5 | 49.27 | MILES | B-1 | N | F | N | P | Cadmium<br>Copper<br>Lead<br>Low flow alterations<br>Physical substrate habitat alterations<br>Temperature, water<br>Zinc | Acid Mine Drainage<br>Dam Construction (Other than Upstream Flood Control Projects)<br>Grazing in Riparian or Shoreline Zones<br>Habitat Modification - other than Hydromodification<br>Highway/Road/Bridge Runoff (Non-construction Related)<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Impacts from Abandoned Mine Lands (Inactive)<br>Irrigated Crop Production<br>Streambank Modifications/destablization |
| Middle Big Hole | MT41D001_020 | BIG HOLE RIVER, Divide Creek to Pintlar Creek | 4A | 44.39 | MILES | A-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers<br>Copper<br>Lead<br>Low flow alterations<br>Physical substrate habitat alterations<br>Sedimentation/Siltation<br>Temperature, water | Acid Mine Drainage<br>Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Impacts from Abandoned Mine Lands (Inactive)<br>Irrigated Crop Production<br>Rangeland Grazing |
| Upper Big Hole | MT41D001_030 | BIG HOLE RIVER, headwaters to Pintlar Creek | 4A | 65.16 | MILES | A-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Sedimentation/Siltation<br>Temperature, water | Agriculture<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Irrigated Crop Production<br>Loss of Riparian Habitat<br>Rangeland Grazing |
| Lower Big Hole | MT41D002_010 | TRAPPER CREEK, headwaters to mouth (Big Hole River) | 4A | 18.98 | MILES | B-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Cadmium<br>Copper<br>Lead<br>Low flow alterations | Acid Mine Drainage<br>Channelization<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Impacts from Abandoned Mine Lands (Inactive)<br>Impacts from Hydrostructure Flow Regulation/modification<br>Irrigated Crop Production |

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**HUC** 10020004 Big Hole **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Big Hole | MT41D002_010 | TRAPPER CREEK, headwaters to mouth (Big Hole River) | 4A | 18.98 | MILES | B-1 | N | F | N | P | Physical substrate habitat alterations | Mine Tailings |
| | | | | | | | | | | | Sedimentation/Siltation | Unspecified Unpaved Road or Trail |
| | | | | | | | | | | | Zinc | |
| Lower Big Hole | MT41D002_020 | CAMP CREEK, headwaters to mouth (Big Hole River) | 5 | 15.6 | MILES | B-1 | P | P | N | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Arsenic | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Nitrogen (Total) | Unspecified Unpaved Road or Trail |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Lower Big Hole | MT41D002_030 | CANYON CREEK, headwaters to mouth (Big Hole River) | 4C | 18.41 | MILES | B-1 | X | X | X | P | Low flow alterations | Agriculture |
| | | | | | | | | | | | | Irrigated Crop Production |
| Lower Big Hole | MT41D002_040 | DIVIDE CREEK, headwaters to mouth (Big Hole River) | 4A | 13.99 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Low flow alterations | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |
| | | | | | | | | | | | Total Kjehldahl Nitrogen (TKN) | |
| Lower Big Hole | MT41D002_050 | MOOSE CREEK, headwaters to mouth (Big Hole River at Maiden Rock) | 4A | 16.99 | MILES | B-1 | N | X | X | P | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Lower Big Hole | MT41D002_060 | GROSE CREEK, headwaters to mouth (Big Hole River) | 4A | 4.93 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Nitrogen (Total) | Crop Production (Crop Land or Dry Land) |
| | | | | | | | | | | | Other flow regime alterations | Unspecified Unpaved Road or Trail |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Lower Big Hole | MT41D002_070 | SASSMAN GULCH, headwaters to the end of the stream reach in T4S R9W S9 | 5 | 3.89 | MILES | B-1 | N | F | F | F | Arsenic | Impacts from Abandoned Mine Lands (Inactive) |

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# Appendix A: Impaired Waters

**HUC** 10020004 Big Hole **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Big Hole | MT41D002_090 | BIRCH CREEK, headwaters to National Forest Boundary | 4A | 13.91 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Impacts from Hydrostructure Flow Regulation/modification<br>Irrigated Crop Production<br>Streambank Modifications/destablization |
| Lower Big Hole | MT41D002_100 | BIRCH CREEK, National Forest Boundary to mouth (Big Hole River) | 4A | 10.67 | MILES | B-1 | N | F | F | N | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Other anthropogenic substrate alterations<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Channelization<br>Dam or Impoundment<br>Impacts from Hydrostructure Flow Regulation/modification<br>Irrigated Crop Production |
| Lower Big Hole | MT41D002_110 | WILLOW CREEK, headwaters to mouth (Big Hole River), T4S R8W S1 | 4C | 23.39 | MILES | B-1 | X | X | X | P | Low flow alterations | Agriculture<br>Irrigated Crop Production |
| Lower Big Hole | MT41D002_120 | WICKIUP CREEK, headwaters to mouth (Camp Creek), T2S R8W S1 | 5 | 4.09 | MILES | B-1 | N | F | N | F | Alteration in stream-side or littoral vegetative covers<br>Bottom Deposits<br>Copper<br>Lead<br>Mercury<br>Phosphorus (Total) | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones<br>Subsurface (Hardrock) Minining |
| Lower Big Hole | MT41D002_140 | SOAP CREEK, headwaters to mouth (Big Hole River), T2S R9W S10 | 4A | 8.24 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Unspecified Unpaved Road or Trail |
| Middle Big Hole | MT41D002_150 | CHARCOAL CREEK, headwaters to mouth (Big Hole River) | 5 | 4.06 | MILES | A-1 | P | F | F | F | Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Unspecified Unpaved Road or Trail |
| Lower Big Hole | MT41D002_160 | ROCHESTER CREEK, headwaters to mouth (Big Hole River), T3S R6W S29 | 4A | 14.92 | MILES | B-1 | P | F | N | F | Arsenic | Grazing in Riparian or Shoreline Zones |

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**HUC** 10020004 Big Hole **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Big Hole | MT41D002_160 | ROCHESTER CREEK, headwaters to mouth (Big Hole River), T3S R6W S29 | 4A | 14.92 | MILES | B-1 | P | F | N | F | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Lead | Subsurface (Hardrock) Minining |
| | | | | | | | | | | | Mercury | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Lower Big Hole | MT41D002_180 | LOST CREEK, headwaters to mouth (Lost Creek Canal/Ditch), T4S R9W S15 | 4A | 7.84 | MILES | B-1 | P | P | N | F | Alteration in stream-side or littoral vegetative covers | Mine Tailings |
| | | | | | | | | | | | Arsenic | Rangeland Grazing |
| | | | | | | | | | | | Nitrogen (Total) | Unspecified Unpaved Road or Trail |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Middle Big Hole | MT41D003_020 | JERRY CREEK, headwaters to mouth (Big Hole River) | 5 | 12.69 | MILES | A-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Copper | Agriculture |
| | | | | | | | | | | | Excess Algal Growth | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Lead | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Physical substrate habitat alterations | Irrigated Crop Production |
| | | | | | | | | | | | Sedimentation/Siltation | On-site Treatment Systems (Septic Systems and Similar Decencentralized Systems) |
| | | | | | | | | | | | | Rangeland Grazing |
| | | | | | | | | | | | | Silviculture Activities |
| | | | | | | | | | | | | Site Clearance (Land Development or Redevelopment) |
| Middle Big Hole | MT41D003_030 | DELANO CREEK, headwaters to mouth (Jerry Creek) | 4A | 2.32 | MILES | A-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Middle Big Hole | MT41D003_040 | DEEP CREEK, headwaters to mouth (Big Hole River) | 4A | 9.21 | MILES | A-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Irrigated Crop Production |
| | | | | | | | | | | | Low flow alterations | Rangeland Grazing |
| | | | | | | | | | | | Sedimentation/Siltation | Streambank Modifications/destablization |
| Middle Big Hole | MT41D003_050 | FRENCH CREEK, headwaters to mouth (Deep Creek) | 4A | 10.08 | MILES | A-1 | N | X | N | X | Arsenic | Acid Mine Drainage |

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**HUC** 10020004 Big Hole **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Middle Big Hole | MT41D003_050 | FRENCH CREEK, headwaters to mouth (Deep Creek) | 4A | 10.08 | MILES | A-1 | N | X | N | X | Copper | Atmospheric Depositon - Toxics |
| | | | | | | | | | | | Sedimentation/Siltation | Contaminated Sediments |
| | | | | | | | | | | | | Impacts from Abandoned Mine Lands (Inactive) |
| Middle Big Hole | MT41D003_070 | CALIFORNIA CREEK, headwaters to mouth (French Creek-Deep Creek) | 5 | 8.28 | MILES | B-1 | N | N | N | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Arsenic | Atmospheric Depositon - Toxics |
| | | | | | | | | | | | Copper | Contaminated Sediments |
| | | | | | | | | | | | Iron | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Physical substrate habitat alterations | Irrigated Crop Production |
| | | | | | | | | | | | Sedimentation/Siltation | Natural Sources |
| | | | | | | | | | | | Turbidity | Placer Mining |
| | | | | | | | | | | | | Rangeland Grazing |
| | | | | | | | | | | | | Silviculture Activities |
| | | | | | | | | | | | | Unspecified Unpaved Road or Trail |
| Middle Big Hole | MT41D003_080 | OREGON CREEK, headwaters to mouth (California Creek-French Creek-Deep Creek) | 5 | 3.09 | MILES | A-1 | N | N | N | F | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Arsenic | Agriculture |
| | | | | | | | | | | | Copper | Atmospheric Depositon - Toxics |
| | | | | | | | | | | | Lead | Channelization |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Dredge Mining |
| | | | | | | | | | | | Physical substrate habitat alterations | Erosion from Derelict Land (Barren Land) |
| | | | | | | | | | | | Sedimentation/Siltation | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | | Irrigated Crop Production |
| | | | | | | | | | | | | Mine Tailings |
| | | | | | | | | | | | | Natural Sources |

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**HUC** 10020004 Big Hole **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Middle Big Hole | MT41D003_080 | OREGON CREEK, headwaters to mouth (California Creek-French Creek-Deep Creek) | 5 | 3.09 | MILES | A-1 | N | N | N | F | | Silviculture Activities<br>Streambank Modifications/destablization<br>Unspecified Unpaved Road or Trail |
| Middle Big Hole | MT41D003_090 | SIXMILE CREEK, headwaters to mouth (California Creek) | 4A | 4.4 | MILES | A-1 | P | F | F | F | Physical substrate habitat alterations<br>Sedimentation/Siltation | Rangeland Grazing<br>Silviculture Activities<br>Streambank Modifications/destablization<br>Unspecified Unpaved Road or Trail |
| Middle Big Hole | MT41D003_110 | SEVENMILE CREEK, headwaters to mouth (Deep Creek) | 4A | 6.43 | MILES | A-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Natural Sources<br>Rangeland Grazing<br>Streambank Modifications/destablization |
| Middle Big Hole | MT41D003_120 | TWELVEMILE CREEK, headwaters to mouth (Deep Creek) | 5 | 9.09 | MILES | A-1 | P | F | F | F | Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Silviculture Harvesting |
| Middle Big Hole | MT41D003_130 | CORRAL CREEK, headwaters to mouth (Deep Creek) | 4A | 5.2 | MILES | A-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Natural Sources<br>Rangeland Grazing<br>Silviculture Activities |
| Middle Big Hole | MT41D003_160 | FISHTRAP CREEK, confluence of West & Middle Forks to mouth (Big Hole River) | 5 | 5.85 | MILES | A-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Phosphorus (Total)<br>Sedimentation/Siltation | Flow Alterations from Water Diversions<br>Grazing in Riparian or Shoreline Zones |
| Middle Big Hole | MT41D003_170 | PINTLAR CREEK, headwaters to mouth (Big Hole River) | 5 | 21.25 | MILES | A-1 | P | F | F | P | Low flow alterations<br>Other flow regime alterations<br>Physical substrate habitat alterations<br>Temperature, water | Grazing in Riparian or Shoreline Zones<br>Impacts from Abandoned Mine Lands (Inactive)<br>Impacts from Hydrostructure Flow Regulation/modification<br>Irrigated Crop Production<br>Loss of Riparian Habitat<br>Natural Sources |
| Middle Big Hole | MT41D003_200 | WISE RIVER, headwaters to mouth (Big Hole River) | 4A | 26.67 | MILES | A-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Agriculture |

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**HUC** 10020004 Big Hole **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Middle Big Hole | MT41D003_200 | WISE RIVER, headwaters to mouth (Big Hole River) | 4A | 26.67 | MILES | A-1 | P | F | F | P | Cadmium<br>Copper<br>Lead<br>Low flow alterations<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Channelization<br>Grazing in Riparian or Shoreline Zones<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Impacts from Hydrostructure Flow Regulation/modification<br>Irrigated Crop Production<br>Loss of Riparian Habitat<br>Rangeland Grazing |
| Middle Big Hole | MT41D003_210 | PATTENGAIL CREEK, headwaters to mouth (Wise River) | 4A | 20.04 | MILES | A-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Dam Construction (Other than Upstream Flood Control Projects)<br>Highways, Roads, Bridges, Infrasturcture (New Construction) |
| Middle Big Hole | MT41D003_220 | ELKHORN CREEK, headwaters to mouth (Jacobson Creek) | 4A | 7.52 | MILES | A-1 | N | F | F | F | Arsenic<br>Cadmium<br>Copper<br>Lead<br>Sedimentation/Siltation<br>Zinc | Impacts from Abandoned Mine Lands (Inactive)<br>Mill Tailings<br>Mine Tailings |
| Middle Big Hole | MT41D003_230 | GOLD CREEK, headwaters to mouth (Wise River) | 5 | 4.92 | MILES | A-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Phosphorus (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| North Fork Big Hole | MT41D004_010 | NORTH FORK BIG HOLE RIVER, headwaters to mouth (Big Hole River) | 4A | 25.92 | MILES | A-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Highway/Road/Bridge Runoff (Non-construction Related)<br>Irrigated Crop Production<br>Loss of Riparian Habitat<br>Silviculture Activities |
| North Fork Big Hole | MT41D004_020 | MUSSIGBROD CREEK, headwaters to mouth (North Fork Big Hole River) | 5 | 14.62 | MILES | A-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers<br>Lead | Acid Mine Drainage<br>Agriculture |

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**HUC** 10020004 Big Hole **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| North Fork Big Hole | MT41D004_020 | MUSSIGBROD CREEK, headwaters to mouth (North Fork Big Hole River) | 5 | 14.62 | MILES | A-1 | N | F | N | P | Low flow alterations<br>Other anthropogenic substrate alterations<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Impacts from Abandoned Mine Lands (Inactive)<br>Impacts from Hydrostructure Flow Regulation/modification<br>Irrigated Crop Production<br>Loss of Riparian Habitat<br>Natural Sources<br>Rangeland Grazing |
| North Fork Big Hole | MT41D004_030 | JOHNSON CREEK, headwaters to mouth (North Fork Big Hole River) | 5 | 15.7 | MILES | A-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Nitrogen (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Silviculture Harvesting |
| North Fork Big Hole | MT41D004_040 | SCHULTZ CREEK, headwaters to mouth (Johnson Creek) | 5 | 3.28 | MILES | A-1 | P | F | F | F | Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones<br>Silviculture Harvesting |
| North Fork Big Hole | MT41D004_060 | TIE CREEK, headwaters to mouth (North Fork Big Hole River) | 5 | 16.49 | MILES | A-1 | P | F | F | F | Nitrogen (Total)<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Rangeland Grazing<br>Silviculture Activities<br>Unspecified Unpaved Road or Trail |
| North Fork Big Hole | MT41D004_070 | TRAIL CREEK, headwaters to Joseph Creek | 4A | 13.07 | MILES | A-1 | N | F | F | F | Physical substrate habitat alterations<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Impacts from Abandoned Mine Lands (Inactive)<br>Silviculture Activities<br>Streambank Modifications/destablization<br>Unspecified Unpaved Road or Trail |
| North Fork Big Hole | MT41D004_080 | TRAIL CREEK, Joseph Creek to mouth (North Fork Big Hole River) | 4A | 10.88 | MILES | A-1 | P | F | F | F | Physical substrate habitat alterations<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Impacts from Abandoned Mine Lands (Inactive)<br>Silviculture Activities<br>Streambank Modifications/destablization<br>Unspecified Unpaved Road or Trail |

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**HUC** 10020004 Big Hole **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| North Fork Big Hole | MT41D004_090 | JOSEPH CREEK, headwaters to mouth (Trail Creek) | 5 | 7.29 | MILES | A-1 | P | F | N | F | Copper | Channelization |
| | | | | | | | | | | | Lead | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Physical substrate habitat alterations | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Sedimentation/Siltation | Silviculture Harvesting |
| North Fork Big Hole | MT41D004_100 | RUBY CREEK, headwaters to mouth (North Fork Big Hole River) | 4A | 18.8 | MILES | A-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Dredge Mining |
| | | | | | | | | | | | Low flow alterations | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Physical substrate habitat alterations | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Sedimentation/Siltation | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | | Irrigated Crop Production |
| | | | | | | | | | | | | Loss of Riparian Habitat |
| | | | | | | | | | | | | Rangeland Grazing |
| | | | | | | | | | | | | Silviculture Activities |
| | | | | | | | | | | | | Unspecified Unpaved Road or Trail |
| Upper Big Hole | MT41D004_110 | SWAMP CREEK, headwaters to mouth (Big Hole River) | 5 | 24.51 | MILES | A-1 | P | F | F | N | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Nitrogen (Total) | Loss of Riparian Habitat |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Upper Big Hole | MT41D004_120 | ROCK CREEK, headwaters to mouth (Big Hole River) | 5 | 25.62 | MILES | A-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Low flow alterations | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrogen (Total) | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Phosphorus (Total) | Irrigated Crop Production |
| | | | | | | | | | | | Physical substrate habitat alterations | Loss of Riparian Habitat |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Upper Big Hole | MT41D004_140 | MINER CREEK, headwaters to mouth (Big Hole River) | 4A | 21.88 | MILES | A-1 | P | I | I | F | Sedimentation/Siltation | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | | Grazing in Riparian or Shoreline Zones |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020004 Big Hole **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Big Hole | MT41D004_150 | GOVERNOR CREEK, headwaters to mouth (Warm Springs Creek) | 5 | 18.91 | MILES | A-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Copper | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Physical substrate habitat alterations | Irrigated Crop Production |
| | | | | | | | | | | | Sedimentation/Siltation | Loss of Riparian Habitat |
| Upper Big Hole | MT41D004_160 | PINE CREEK, headwaters to mouth (Andrus Creek) | 5 | 5.37 | MILES | A-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Rangeland Grazing |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Upper Big Hole | MT41D004_170 | FOX CREEK, headwaters to mouth (Governor Creek) | 5 | 6.85 | MILES | A-1 | P | F | F | F | Phosphorus (Total) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Upper Big Hole | MT41D004_180 | WARM SPRINGS CREEK, headwaters to mouth (Big Hole River) | 5 | 20 | MILES | A-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Nitrogen (Total) | Loss of Riparian Habitat |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Upper Big Hole | MT41D004_190 | STEEL CREEK, headwaters to mouth (Big Hole River) | 5 | 16.69 | MILES | A-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Cadmium | Agriculture |
| | | | | | | | | | | | Copper | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Nitrogen (Total) | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Phosphorus (Total) | Irrigated Crop Production |
| | | | | | | | | | | | Physical substrate habitat alterations | Loss of Riparian Habitat |
| | | | | | | | | | | | Sedimentation/Siltation | Rangeland Grazing |
| Upper Big Hole | MT41D004_200 | FRANCIS CREEK, headwaters to mouth (Steel Creek) | 4A | 8.81 | MILES | A-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 10020004 Big Hole **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Big Hole | MT41D004_200 | FRANCIS CREEK, headwaters to mouth (Steel Creek) | 4A | 8.81 | MILES | A-1 | P | F | F | F | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Upper Big Hole | MT41D004_210 | McVEY CREEK, headwaters to mouth (Big Hole River) | 5 | 9.48 | MILES | A-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Upper Big Hole | MT41D004_220 | DOOLITTLE CREEK, headwaters to mouth (Big Hole River) | 4A | 5.59 | MILES | A-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Low flow alterations | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Sedimentation/Siltation | Irrigated Crop Production |
| Middle Big Hole | MT41D004_230 | SAWLOG CREEK, headwaters to mouth (Big Hole River) | 5 | 4.79 | MILES | A-1 | N | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Phosphorus (Total) | Unspecified Unpaved Road or Trail |
| | | | | | | | | | | | Sedimentation/Siltation | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020005 Jefferson **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Jefferson | MT41G001_011 | JEFFERSON RIVER, headwaters to confluence of Jefferson Slough | 5 | 66.3 | MILES | B-1 | N | F | N | P | Copper | Dam or Impoundment |
| | | | | | | | | | | | Lead | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Physical substrate habitat alterations | Irrigated Crop Production |
| | | | | | | | | | | | Sedimentation/Siltation | Loss of Riparian Habitat |
| | | | | | | | | | | | Solids (Suspended/Bedload) | Natural Sources |
| | | | | | | | | | | | Temperature, water | Streambank Modifications/destablization |
| Lower Jefferson | MT41G001_012 | JEFFERSON RIVER, confluence of Jefferson Slough to mouth (Missouri River) | 5 | 53.6 | MILES | B-1 | N | F | N | P | Copper | Dam or Impoundment |
| | | | | | | | | | | | Lead | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Physical substrate habitat alterations | Irrigated Crop Production |
| | | | | | | | | | | | Sedimentation/Siltation | Loss of Riparian Habitat |
| | | | | | | | | | | | Solids (Suspended/Bedload) | Natural Sources |
| | | | | | | | | | | | Temperature, water | Streambank Modifications/destablization |
| Upper Jefferson | MT41G002_010 | BIG PIPESTONE CREEK, headwaters to mouth (Jefferson Slough), T1N R4W S11 | 5 | 22.46 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Cause Unknown | Channelization |
| | | | | | | | | | | | Nitrogen (Total) | Dam or Impoundment |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Phosphorus (Total) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Physical substrate habitat alterations | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Sedimentation/Siltation | Highway/Road/Bridge Runoff (Non-construction Related) |
| | | | | | | | | | | | Temperature, water | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Total Suspended Solids (TSS) | Irrigated Crop Production |
| | | | | | | | | | | | | Loss of Riparian Habitat |
| | | | | | | | | | | | | Municipal Point Source Discharges |
| | | | | | | | | | | | | Sediment Resuspension (Clean Sediment) |
| | | | | | | | | | | | | Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020005 Jefferson **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Jefferson | MT41G002_010 | BIG PIPESTONE CREEK, headwaters to mouth (Jefferson Slough), T1N R4W S11 | 5 | 22.46 | MILES | B-1 | P | F | F | P | | Streambank Modifications/destablization<br>Unspecified Unpaved Road or Trail |
| Upper Jefferson | MT41G002_020 | HALFWAY CREEK, headwaters to mouth (Big Pipestone Creek-Jefferson River) | 5 | 7.9 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Loss of Riparian Habitat<br>Unspecified Unpaved Road or Trail |
| Upper Jefferson | MT41G002_030 | HELLS CANYON CREEK, headwaters to mouth (Jefferson River) | 4A | 13.28 | MILES | B-1 | P | F | F | P | Low flow alterations<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Flow Alterations from Water Diversions<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Natural Sources<br>Silviculture Activities<br>Unspecified Unpaved Road or Trail |
| Upper Jefferson | MT41G002_040 | LITTLE PIPESTONE CREEK, headwaters to mouth (Big Pipestone Creek) | 5 | 16.86 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Channelization<br>Grazing in Riparian or Shoreline Zones<br>Highway/Road/Bridge Runoff (Non-construction Related) |
| Lower Jefferson | MT41G002_050 | NORTH WILLOW CREEK, headwaters to mouth (Willow Creek) | 5 | 17.62 | MILES | B-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers<br>Lead<br>Low flow alterations<br>Mercury<br>Physical substrate habitat alterations | Agriculture<br>Channelization<br>Grazing in Riparian or Shoreline Zones<br>Impacts from Abandoned Mine Lands (Inactive)<br>Irrigated Crop Production<br>Natural Sources<br>Subsurface (Hardrock) Minining |
| Lower Jefferson | MT41G002_060 | SOUTH BOULDER RIVER, headwaters to mouth (Jefferson River) | 5 | 23.32 | MILES | B-1 | P | F | F | P | Arsenic<br>Copper<br>Lead<br>Low flow alterations<br>Mercury | Acid Mine Drainage<br>Contaminated Sediments<br>Impacts from Abandoned Mine Lands (Inactive)<br>Impacts from Hydrostructure Flow Regulation/modification<br>Mine Tailings |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020005 Jefferson **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Jefferson | MT41G002_060 | SOUTH BOULDER RIVER, headwaters to mouth (Jefferson River) | 5 | 23.32 | MILES | B-1 | P | F | F | P | Phosphorus (Total) | |
| Lower Jefferson | MT41G002_080 | WILLOW CREEK, North and South Fork confluence to mouth (Jefferson River) | 5 | 15.28 | MILES | B-1 | N | F | F | P | Low flow alterations | Acid Mine Drainage |
| | | | | | | | | | | | Temperature, water | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Zinc | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | | Irrigated Crop Production |
| Lower Jefferson | MT41G002_090 | NORWEGIAN CREEK, headwaters to mouth (Willow Creek Reservoir) | 5 | 10.82 | MILES | B-1 | N | F | N | F | Alteration in stream-side or littoral vegetative covers | Animal Feeding Operations (NPS) |
| | | | | | | | | | | | Arsenic | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrogen (Total) | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Phosphorus (Total) | Irrigated Crop Production |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |
| Upper Jefferson | MT41G002_100 | FISH CREEK, headwaters to mouth (Jefferson Canal), T1S R5W S12 | 4A | 19.87 | MILES | B-1 | N | F | F | N | Alteration in stream-side or littoral vegetative covers | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Low flow alterations | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Irrigated Crop Production |
| Upper Jefferson | MT41G002_110 | CHERRY CREEK, headwaters to mouth (Jefferson River) | 5 | 6.88 | MILES | B-1 | N | F | F | N | Alteration in stream-side or littoral vegetative covers | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Low flow alterations | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Sedimentation/Siltation | Irrigated Crop Production |
| | | | | | | | | | | | Zinc | Loss of Riparian Habitat |
| | | | | | | | | | | | | Source Unknown |
| Lower Jefferson | MT41G002_130 | SOUTH WILLOW CREEK, headwaters to mouth (Willow Creek) | 5 | 16.2 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Excess Algal Growth | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Highway/Road/Bridge Runoff (Non-construction Related) |
| | | | | | | | | | | | Physical substrate habitat alterations | Irrigated Crop Production |
| | | | | | | | | | | | Sedimentation/Siltation | Natural Sources |
| | | | | | | | | | | | Zinc | |

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**HUC** 10020005 Jefferson **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Jefferson | MT41G002_140 | WHITETAIL CREEK, Whitetail Reservoir to mouth (Jeferson Slough) | 5 | 23.4 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Aluminum | Irrigated Crop Production |
| | | | | | | | | | | | Ammonia (Un-ionized) | Rangeland Grazing |
| | | | | | | | | | | | Chlorophyll-a | Subsurface (Hardrock) Minining |
| | | | | | | | | | | | Copper | Upstream Source |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Silver | |
| Lower Jefferson | MT41G002_150 | CHARCOAL CREEK, headwaters to mouth (Pony Creek) | 5 | 2.72 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Sedimentation/Siltation | Unspecified Unpaved Road or Trail |
| Upper Jefferson | MT41G002_160 | FITZ CREEK, headwaters to mouth (Little Whitetail Creek) | 5 | 4.71 | MILES | B-1 | N | F | F | N | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020006 Boulder **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boulder - Elkhorn | MT41E001_010 | BOULDER RIVER, headwaters to Basin Creek | 5 | 24.38 | MILES | B-1 | P | F | N | F | Cadmium | Acid Mine Drainage |
| | | | | | | | | | | | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Zinc | |
| Boulder - Elkhorn | MT41E001_021 | BOULDER RIVER, Basin Creek to Town of Boulder | 5 | 9.28 | MILES | B-1 | N | F | N | F | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Cadmium | Channelization |
| | | | | | | | | | | | Copper | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Iron | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Lead | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Silver | Mill Tailings |
| | | | | | | | | | | | Zinc | Mine Tailings |
| Boulder - Elkhorn | MT41E001_022 | BOULDER RIVER, Town of Boulder to Cottonwood Creek | 5 | 35.85 | MILES | B-1 | N | P | N | P | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Copper | Contaminated Sediments |
| | | | | | | | | | | | Iron | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Lead | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Low flow alterations | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Sedimentation/Siltation | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Silver | Irrigated Crop Production |
| | | | | | | | | | | | Temperature, water | Loss of Riparian Habitat |
| | | | | | | | | | | | Zinc | |
| Boulder - Elkhorn | MT41E001_030 | BOULDER RIVER, Cottonwood Creek to the mouth (Jefferson Slough), T1N R3W S2 | 5 | 14.12 | MILES | B-1 | N | P | N | P | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Arsenic | Contaminated Sediments |
| | | | | | | | | | | | Cadmium | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Copper | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Lead | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Low flow alterations | Impacts from Abandoned Mine Lands (Inactive) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020006 Boulder **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boulder - Elkhorn | MT41E001_030 | BOULDER RIVER, Cottonwood Creek to the mouth (Jefferson Slough), T1N R3W S2 | 5 | 14.12 | MILES | B-1 | N | P | N | P | Sedimentation/Siltation | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Temperature, water | Irrigated Crop Production |
| | | | | | | | | | | | Zinc | Mill Tailings |
| Boulder - Elkhorn | MT41E002_010 | UNCLE SAM GULCH, headwaters to mouth (Cataract Creek) | 5 | 2.89 | MILES | B-1 | N | P | N | F | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Arsenic | Agriculture |
| | | | | | | | | | | | Cadmium | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Copper | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Lead | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Nitrogen, Nitrate | Silviculture Activities |
| | | | | | | | | | | | Other flow regime alterations | Subsurface (Hardrock) Minining |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Turbidity | |
| | | | | | | | | | | | Zinc | |
| Boulder - Elkhorn | MT41E002_020 | CATARACT CREEK, headwaters to mouth (Boulder River) | 5 | 11.72 | MILES | B-1 | N | P | N | F | Arsenic | Acid Mine Drainage |
| | | | | | | | | | | | Cadmium | Contaminated Sediments |
| | | | | | | | | | | | Copper | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Lead | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Mercury | Loss of Riparian Habitat |
| | | | | | | | | | | | Nitrogen, Nitrate | Mine Tailings |
| | | | | | | | | | | | Sedimentation/Siltation | Rangeland Grazing |
| | | | | | | | | | | | Zinc | Silviculture Activities |
| | | | | | | | | | | | | Silviculture Harvesting |
| Boulder - Elkhorn | MT41E002_030 | BASIN CREEK, headwaters to mouth (Boulder River) | 5 | 16.7 | MILES | B-1 | N | P | N | F | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Arsenic | Contaminated Sediments |
| | | | | | | | | | | | Copper | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Lead | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Mercury | Loss of Riparian Habitat |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020006 Boulder **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boulder - Elkhorn | MT41E002_030 | BASIN CREEK, headwaters to mouth (Boulder River) | 5 | 16.7 | MILES | B-1 | N | P | N | F | Sedimentation/Siltation | Mine Tailings |
| | | | | | | | | | | | Zinc | Rangeland Grazing |
| | | | | | | | | | | | | Silviculture Activities |
| | | | | | | | | | | | | Silviculture Harvesting |
| Boulder - Elkhorn | MT41E002_040 | HIGH ORE CREEK, headwaters to mouth (Boulder River) | 5 | 6.65 | MILES | B-1 | N | P | N | F | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Arsenic | Channelization |
| | | | | | | | | | | | Cadmium | Contaminated Sediments |
| | | | | | | | | | | | Copper | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Lead | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Mercury | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Sedimentation/Siltation | Loss of Riparian Habitat |
| | | | | | | | | | | | Temperature, water | Mine Tailings |
| | | | | | | | | | | | Total Suspended Solids (TSS) | Rangeland Grazing |
| | | | | | | | | | | | Zinc | Silviculture Activities |
| Boulder - Elkhorn | MT41E002_050 | LOWLAND CREEK, headwaters to mouth (Boulder River) | 5 | 14.25 | MILES | B-1 | N | F | F | F | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Aluminum | Dredge Mining |
| | | | | | | | | | | | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Physical substrate habitat alterations | Streambank Modifications/destablization |
| | | | | | | | | | | | Silver | |
| Boulder - Elkhorn | MT41E002_061 | ELKHORN CREEK, headwaters to Wood Gulch | 5 | 8.16 | MILES | B-1 | N | P | N | P | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Arsenic | Channelization |
| | | | | | | | | | | | Cadmium | Dredge Mining |
| | | | | | | | | | | | Copper | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Lead | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Low flow alterations | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Sedimentation/Siltation | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Zinc | |

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**HUC** 10020006 Boulder **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boulder - Elkhorn | MT41E002_062 | ELKHORN CREEK, Wood Gulch to the mouth (Unnamed Canal/Ditch), T5N R3W S21 | 5 | 3.56 | MILES | B-1 | N | P | N | N | Cadmium<br>Copper<br>Lead<br>Low flow alterations<br>Sedimentation/Siltation<br>Zinc | Acid Mine Drainage<br>Grazing in Riparian or Shoreline Zones<br>Impacts from Abandoned Mine Lands (Inactive)<br>Impacts from Hydrostructure Flow Regulation/modification<br>Irrigated Crop Production |
| Boulder - Elkhorn | MT41E002_070 | BISON CREEK, headwaters to mouth (Boulder River) | 5 | 25.36 | MILES | B-1 | N | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Copper<br>Iron<br>Nitrates | Agriculture<br>Channelization<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Impacts from Abandoned Mine Lands (Inactive) |
| Boulder - Elkhorn | MT41E002_080 | LITTLE BOULDER RIVER, headwaters to mouth (Boulder River) | 5 | 16.3 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Cause Unknown<br>Copper<br>Physical substrate habitat alterations<br>Zinc | Agriculture<br>Dredge Mining<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Impacts from Abandoned Mine Lands (Inactive)<br>Source Unknown |
| Boulder - Elkhorn | MT41E002_090 | NORTH FORK LITTLE BOULDER RIVER, headwaters to mouth (Little Boulder) | 5 | 12.09 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones |
| Boulder - Elkhorn | MT41E002_100 | MUSKRAT CREEK, headwaters to mouth (Boulder River) | 5 | 12.83 | MILES | B-1 | N | F | N | F | Alteration in stream-side or littoral vegetative covers<br>Copper<br>Lead | Impacts from Abandoned Mine Lands (Inactive)<br>Rangeland Grazing |
| Boulder - Elkhorn | MT41E002_110 | McCARTHY CREEK, headwaters to mouth (Boulder River) | 5 | 6.44 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Fish-Passage Barrier<br>Low flow alterations<br>Phosphorus (Total)<br>Sedimentation/Siltation | Dam or Impoundment<br>Flow Alterations from Water Diversions<br>Grazing in Riparian or Shoreline Zones<br>Sediment Resuspension (Clean Sediment)<br>Source Unknown |

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**HUC** 10020006 Boulder **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boulder - Elkhorn | MT41E002_130 | NURSERY CREEK, headwaters (east branch) to mouth (Muskrat Creek) | 5 | 1.4 | MILES | B-1 | P | F | F | F | Nitrate/Nitrite (Nitrite + Nitrate as N) | Agriculture |
| | | | | | | | | | | | Nitrogen (Total) | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Sedimentation/Siltation | Natural Sources |
| | | | | | | | | | | | | Watershed Runoff following Forest Fire |
| Boulder - Elkhorn | MT41E002_140 | BIG LIMBER GULCH, headwaters to mouth (Cataract Creek-Boulder River) | 5 | 2.62 | MILES | B-1 | X | F | N | X | Lead | Acid Mine Drainage |
| | | | | | | | | | | | Mercury | Impacts from Abandoned Mine Lands (Inactive) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020007 Madison **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madison | MT41F001_010 | MADISON RIVER, Ennis Dam to mouth (Missouri River) | 5 | 41.31 | MILES | B-1 | P | F | N | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Copper | Dam Construction (Other than Upstream Flood Control Projects) |
| | | | | | | | | | | | Lead | Dam or Impoundment |
| | | | | | | | | | | | Sedimentation/Siltation | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Temperature, water | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | | Natural Sources |
| Madison | MT41F002_020 | ELK CREEK, headwaters to mouth (Madison River) | 5 | 18.33 | MILES | B-1 | N | F | F | N | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Nitrates | Animal Feeding Operations (NPS) |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Phosphorus (Total) | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Physical substrate habitat alterations | Irrigated Crop Production |
| | | | | | | | | | | | Sedimentation/Siltation | Loss of Riparian Habitat |
| | | | | | | | | | | | Temperature, water | Natural Sources |
| | | | | | | | | | | | Turbidity | Non-irrigated Crop Production |
| | | | | | | | | | | | | Streambank Modifications/destablization |
| Madison | MT41F002_030 | HOT SPRINGS CREEK, headwaters to mouth (Madison River) | 5 | 17.44 | MILES | B-1 | X | X | N | N | Arsenic | Acid Mine Drainage |
| | | | | | | | | | | | Low flow alterations | Flow Alterations from Water Diversions |
| | | | | | | | | | | | | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | | Irrigated Crop Production |
| Madison | MT41F004_010 | BLAINE SPRING CREEK, headwaters to mouth (Madison River) | 5 | 8.86 | MILES | B-1 | P | F | F | P | Excess Algal Growth | Aquaculture (Permitted) |
| | | | | | | | | | | | Low flow alterations | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Nitrogen (Total) | Streambank Modifications/destablization |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Madison | MT41F004_020 | O'DELL SPRING CREEK, headwaters to mouth (Madison River) | 5 | 13.03 | MILES | B-1 | P | F | N | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Arsenic | Channelization |

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**HUC** 10020007 Madison **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madison | MT41F004_020 | O'DELL SPRING CREEK, headwaters to mouth (Madison River) | 5 | 13.03 | MILES | B-1 | P | F | N | F | High Flow Regime | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Physical substrate habitat alterations | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | | Irrigated Crop Production |
| | | | | | | | | | | | | Source Unknown |
| Madison | MT41F004_040 | INDIAN CREEK, Lee Metcalf Wilderness boundary to mouth (Madison River) | 4C | 6.34 | MILES | B-1 | P | F | F | P | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | | Irrigated Crop Production |
| Madison | MT41F004_050 | JACK CREEK, headwaters to mouth (Madison River) | 5 | 15.18 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Physical substrate habitat alterations | Natural Sources |
| | | | | | | | | | | | Sedimentation/Siltation | Streambank Modifications/destablization |
| Madison | MT41F004_060 | NORTH MEADOW CREEK, headwaters to mouth (Enis Lake) | 5 | 18.53 | MILES | B-1 | F | F | F | P | Low flow alterations | Channelization |
| | | | | | | | | | | | Phosphorus (Total) | Irrigated Crop Production |
| | | | | | | | | | | | Physical substrate habitat alterations | Natural Sources |
| | | | | | | | | | | | Sedimentation/Siltation | Streambank Modifications/destablization |
| Madison | MT41F004_070 | SOUTH MEADOW CREEK, headwaters to mouth (Enis Lake) | 5 | 12.98 | MILES | B-1 | N | F | F | P | Aquatic Plants - Native | Agriculture |
| | | | | | | | | | | | Chlorophyll-a | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Lead | Irrigated Crop Production |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| Madison | MT41F004_080 | RUBY CREEK, headwaters to mouth (Madison River) | 4C | 15.91 | MILES | B-1 | N | F | F | P | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | | Irrigated Crop Production |
| Madison | MT41F004_100 | WEST FORK MADISON RIVER, headwaters to mouth (Madison River) | 5 | 39.41 | MILES | B-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Arsenic | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Cadmium | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Lead | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |

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**HUC** 10020007 Madison **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madison | MT41F004_100 | WEST FORK MADISON RIVER, headwaters to mouth (Madison River) | 5 | 39.41 | MILES | B-1 | N | F | N | P | Other anthropogenic substrate alterations | Natural Sources |
| | | | | | | | | | | | Physical substrate habitat alterations | Rangeland Grazing |
| | | | | | | | | | | | Temperature, water | Source Unknown |
| | | | | | | | | | | | | Streambank Modifications/destablization |
| | | | | | | | | | | | | Unspecified Unpaved Road or Trail |
| Madison | MT41F004_110 | ELK RIVER, headwaters to mouth (West Fork Madison River) | 5 | 15.59 | MILES | B-1 | P | F | F | F | Bottom Deposits | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Unspecified Unpaved Road or Trail |
| Madison | MT41F004_120 | GAZELLE CREEK, headwaters to mouth (West Fork Madison River) | 4C | 9.65 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Silviculture Harvesting |
| Madison | MT41F004_130 | MOORE CREEK, springs to mouth (Fletcher Channel), T5S R1W S15 | 5 | 15.83 | MILES | B-1 | X | F | N | N | Arsenic | Acid Mine Drainage |
| | | | | | | | | | | | Escherichia coli | Agriculture |
| | | | | | | | | | | | | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | | Natural Sources |
| Madison | MT41F004_140 | ANTELOPE CREEK, headwaters to mouth (Cliff Lake) | 5 | 9.48 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Low flow alterations | Channelization |
| | | | | | | | | | | | Sedimentation/Siltation | Flow Alterations from Water Diversions |
| | | | | | | | | | | | | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Loss of Riparian Habitat |
| | | | | | | | | | | | | Unspecified Unpaved Road or Trail |
| Madison | MT41F004_150 | BUFORD CREEK, headwaters to confluence with West Fork Madison River | 5 | 4.36 | MILES | B-1 | P | F | N | F | Arsenic | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Sedimentation/Siltation | Natural Sources |
| Madison | MT41F005_030 | ENNIS LAKE, to the Ennis Lake Dam, T4S R1E S20 | 5 | 3780.8 | ACRES | B-1 | P | F | N | P | Cause Unknown | Acid Mine Drainage |
| | | | | | | | | | | | Chromium (total) | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Low flow alterations | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Impacts from Hydrostructure Flow Regulation/modification |

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**HUC** 10020007 Madison **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madison | MT41F005_030 | ENNIS LAKE, to the Ennis Lake Dam, T4S R1E S20 | 5 | 3780.8 | ACRES | B-1 | P | F | N | P | Physical substrate habitat alterations | Natural Sources |
| | | | | | | | | | | | | Source Unknown |
| Madison | MT41F006_010 | SOUTH FORK MADISON RIVER, headwaters to Hebgen Lake | 5 | 23.3 | MILES | B-1 | F | F | N | F | Arsenic | Natural Sources |
| Madison | MT41F006_020 | RED CANYON CREEK, headwaters to mouth (Hebgen Lake) | 5 | 6.27 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Natural Sources |
| | | | | | | | | | | | Physical substrate habitat alterations | Silviculture Activities |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Madison | MT41F006_030 | WATKINS CREEK, headwaters to mouth (Hebgen Lake) | 4C | 7.08 | MILES | B-1 | N | F | F | N | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Low flow alterations | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Loss of Riparian Habitat |
| | | | | | | | | | | | Physical substrate habitat alterations | Streambank Modifications/destablization |

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**HUC** 10020008 Gallatin **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Gallatin | MT41H001_010 | GALLATIN RIVER, Spanish Creek to mouth (Missouri River) | 4C | 48.12 | MILES | B-1 | P | F | F | N | Low flow alterations | Irrigated Crop Production |
| Lower Gallatin | MT41H002_010 | CAMP CREEK, headwaters to mouth (Gallatin River) | 5 | 29.55 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Escherichia coli | Animal Feeding Operations (NPS) |
| | | | | | | | | | | | Low flow alterations | Channelization |
| | | | | | | | | | | | Nitrogen (Total) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Irrigated Crop Production |
| | | | | | | | | | | | Physical substrate habitat alterations | Natural Sources |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Lower Gallatin | MT41H002_020 | GODFREY CREEK, headwaters to mouth (Moreland Ditch), T1S R3E S12 | 5 | 9 | MILES | B-1 | P | P | F | N | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Escherichia coli | Animal Feeding Operations (NPS) |
| | | | | | | | | | | | Excess Algal Growth | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Lower Gallatin | MT41H002_031 | SOUTH COTTONWOOD CREEK, Middle Creek Assoc Ditch diversion to mouth (Gallatin River) | 4C | 6.26 | MILES | B-1 | P | F | F | P | Low flow alterations | Irrigated Crop Production |
| Lower Gallatin | MT41H003_010 | EAST GALLATIN RIVER, confluence of Rocky and Bear Creeks to Bridger Creek | 5 | 7.3 | MILES | B-1 | P | F | F | F | Nitrogen (Total) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Phosphorus (Total) | Municipal (Urbanized High Density Area) |
| | | | | | | | | | | | | Residential Districts |
| | | | | | | | | | | | | Yard Maintenance |
| Lower Gallatin | MT41H003_020 | EAST GALLATIN RIVER, Bridger Creek to Smith Creek | 5 | 25.52 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Excess Algal Growth | Irrigated Crop Production |
| | | | | | | | | | | | Low flow alterations | Municipal Point Source Discharges |
| | | | | | | | | | | | Nitrogen (Total) | Yard Maintenance |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | pH | |

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**HUC** 10020008 Gallatin **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Gallatin | MT41H003_030 | EAST GALLATIN RIVER, Smith Creek to mouth (Gallatin River) | 5 | 13.54 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>pH | Grazing in Riparian or Shoreline Zones<br>Municipal Point Source Discharges |
| Lower Gallatin | MT41H003_040 | SOURDOUGH CREEK, confluence of Limestone Creek and Bozeman Creek to the mouth (East Gallatin River), T2S R6E S6 | 5 | 4.88 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Chlorophyll-a<br>Escherichia coli<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Channelization<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Loss of Riparian Habitat<br>Septage Disposal<br>Yard Maintenance |
| Lower Gallatin | MT41H003_050 | JACKSON CREEK, headwaters to mouth (Rocky Creek) | 5 | 8.55 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Chlorophyll-a<br>Phosphorus (Total)<br>Sedimentation/Siltation | Crop Production (Crop Land or Dry Land)<br>Grazing in Riparian or Shoreline Zones |
| Lower Gallatin | MT41H003_060 | SMITH CREEK, confluence of Ross and Reese Creeks to mouth (East Gallatin River) | 5 | 6.76 | MILES | B-1 | P | F | X | N | Alteration in stream-side or littoral vegetative covers<br>Escherichia coli<br>Nitrates<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Agriculture |
| Lower Gallatin | MT41H003_070 | REESE CREEK, headwaters to mouth (Smith Creek) | 5 | 8.28 | MILES | B-1 | P | F | F | N | Escherichia coli<br>Nitrates<br>Solids (Suspended/Bedload) | Agriculture |
| Lower Gallatin | MT41H003_080 | ROCKY CREEK, confluence of Jackson and Timberline Creeks to mouth (East Gallatin River) | 5 | 7.94 | MILES | B-1 | P | F | X | F | Alteration in stream-side or littoral vegetative covers<br>Other anthropogenic substrate alterations<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Agriculture<br>Channelization<br>Highways, Roads, Bridges, Infrasturcture (New Construction) |
| Lower Gallatin | MT41H003_081 | BEAR CREEK, headwaters to mouth (Rocky Creek) | 5 | 10.15 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |

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**HUC** 10020008 Gallatin **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Gallatin | MT41H003_081 | BEAR CREEK, headwaters to mouth (Rocky Creek) | 5 | 10.15 | MILES | B-1 | P | F | F | P | Excess Algal Growth<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Solids (Suspended/Bedload) | Unspecified Unpaved Road or Trail |
| Lower Gallatin | MT41H003_090 | THOMPSON CREEK (Thompson Spring), headwaters to mouth (East Gallatin River) | 5 | 7.42 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Chlorophyll-a<br>Nitrogen (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| Lower Gallatin | MT41H003_100 | DRY CREEK, headwaters to mouth (East Gallatin River) | 5 | 20.09 | MILES | B-1 | P | F | F | N | Alteration in stream-side or littoral vegetative covers<br>Cause Unknown<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Agriculture<br>Channelization<br>Source Unknown |
| Lower Gallatin | MT41H003_110 | BRIDGER CREEK, headwaters to mouth (East Gallatin River) | 5 | 21.46 | MILES | B-1 | P | F | F | P | Chlorophyll-a<br>Nitrogen (Total)<br>Phosphorus (Total) | Grazing in Riparian or Shoreline Zones<br>Impacts from Resort Areas (Winter and Non-winter Resorts)<br>Unspecified Unpaved Road or Trail |
| Lower Gallatin | MT41H003_120 | STONE CREEK, headwaters to mouth (Bridger Creek) | 5 | 6.06 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Silviculture Harvesting |
| Lower Gallatin | MT41H003_129 | HYALITE CREEK, headwaters to the top of Hyalite Reservoir, T4S R6E S23 | 5 | 7.04 | MILES | A-1 | P | F | F | P | Nitrogen (Total)<br>Phosphorus (Total) | Rangeland Grazing<br>Silviculture Harvesting<br>Unspecified Unpaved Road or Trail |
| Lower Gallatin | MT41H003_130 | HYALITE CREEK, Hyalite Reservoir to the Bozeman water supply diversion ditch, T3S R5E S23 | 5 | 8.76 | MILES | A-1 | P | F | F | P | Nitrogen (Total)<br>Phosphorus (Total) | Rangeland Grazing<br>Silviculture Harvesting<br>Unspecified Unpaved Road or Trail |
| Lower Gallatin | MT41H003_132 | HYALITE CREEK, Bozeman water supply intake to the mouth (East Gallatin | 4C | 20.99 | MILES | B-1 | X | X | X | P | Low flow alterations | Irrigated Crop Production |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020008 Gallatin **Watershed** Upper Missouri Tribs.

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Gallatin | MT41H005_010 | STORM CASTLE CREEK, headwaters to the mouth (Gallatin River), T4S R4E S33 | 5 | 14.19 | MILES | B-1 | P | F | X | F | Phosphorus (Total)<br>Physical substrate habitat alterations | Forest Roads (Road Construction and Use)<br>Natural Sources<br>Silviculture Activities |
| Upper Gallatin | MT41H005_020 | TAYLOR FORK, Lee Metcalf Wilderness boundary to mouth (Gallatin River) | 5 | 13.98 | MILES | B-1 | P | X | X | F | Physical substrate habitat alterations<br>Sedimentation/Siltation<br>Solids (Suspended/Bedload) | Silviculture Activities<br>Site Clearance (Land Development or Redevelopment) |
| Upper Gallatin | MT41H005_030 | CACHE CREEK, headwaters to mouth (Taylor Fork) | 5 | 4.66 | MILES | B-1 | P | F | X | F | Alteration in stream-side or littoral vegetative covers<br>Physical substrate habitat alterations<br>Sedimentation/Siltation<br>Solids (Suspended/Bedload) | Agriculture<br>Forest Roads (Road Construction and Use)<br>Silviculture Activities |
| Upper Gallatin | MT41H005_040 | WEST FORK GALLATIN RIVER, confluence Middle and North Forks to mouth (Gallatin River) | 5 | 3.87 | MILES | B-1 | P | F | F | N | Chlorophyll-a<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | On-site Treatment Systems (Septic Systems and Similar Decencentralized Systems)<br>Silviculture Activities<br>Site Clearance (Land Development or Redevelopment) |
| Upper Gallatin | MT41H005_050 | MIDDLE FORK WEST FORK GALLATIN RIVER, headwaters to mouth (West Fork Gallatin River) | 4A | 6.23 | MILES | B-1 | P | F | F | N | Alteration in stream-side or littoral vegetative covers<br>Escherichia coli<br>Fecal Coliform<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Solids (Suspended/Bedload) | Animal Feeding Operations (NPS)<br>Highway/Road/Bridge Runoff (Non-construction Related)<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>On-site Treatment Systems (Septic Systems and Similar Decencentralized Systems)<br>Unspecified Urban Stormwater<br>Wastes from Pets<br>Waterfowl |
| Upper Gallatin | MT41H005_060 | SOUTH FORK WEST FORK GALLATIN RIVER, headwaters to mouth (West Fork Gallatin River) | 5 | 14.57 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Chlorophyll-a<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Phosphorus (Total) | Forest Roads (Road Construction and Use)<br>On-site Treatment Systems (Septic Systems and Similar Decencentralized Systems)<br>Silviculture Activities<br>Site Clearance (Land Development or Redevelopment) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10020008 Gallatin **Watershed** Upper Missouri Tribs.

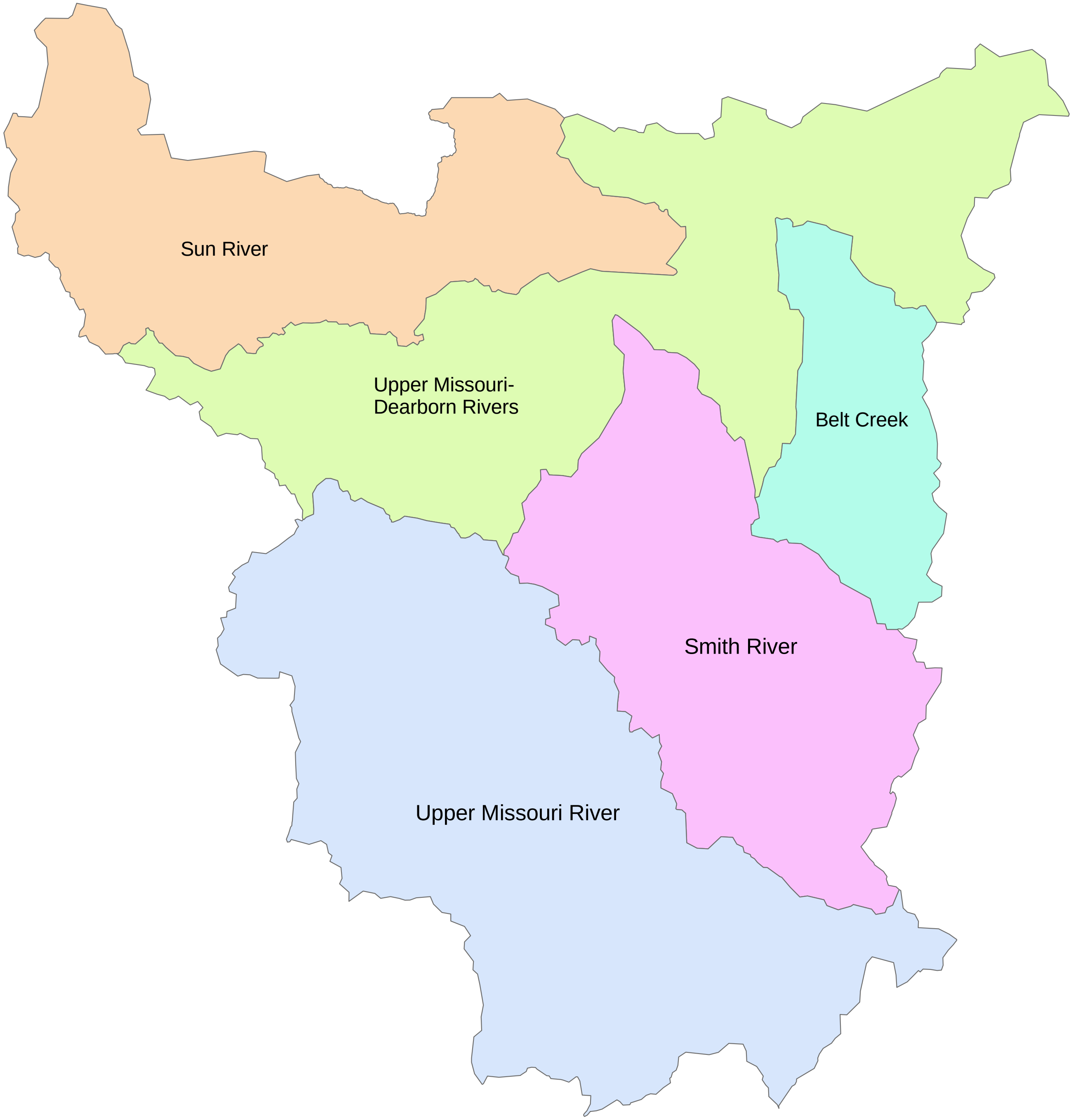
| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Gallatin | MT41H005_060 | SOUTH FORK WEST FORK GALLATIN RIVER, headwaters to mouth (West Fork Gallatin River) | 5 | 14.57 | MILES | B-1 | P | F | F | P | Physical substrate habitat alterations<br>Sedimentation/Siltation | |

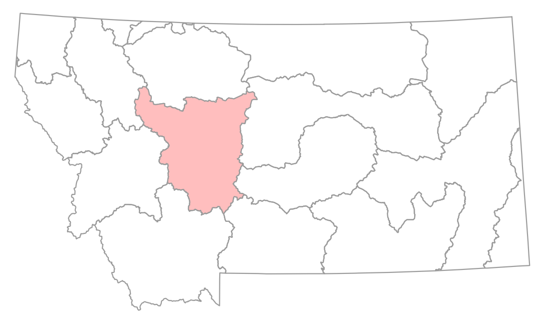
F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Missouri-Sun-Smith Sub-Major Basin

## Missouri River Basin

| USGS HUC | HUC NAME |
|---|---|
| 10030101 | Upper Missouri River |
| 10030102 | Upper Missouri-Dearborn Rivers |
| 10030103 | Smith River |
| 10030104 | Sun River |
| 10030105 | Belt Creek |



Montana Department of
Environmental Quality

# Appendix A: Impaired Waters

**HUC** 10030101 Upper Missouri **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Missouri River | MT41I001_011 | MISSOURI RIVER, headwaters to Toston Dam | 5 | 21.95 | MILES | B-1 | P | F | N | F | Arsenic | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Nitrogen (Total) | Municipal Point Source Discharges |
| | | | | | | | | | | | Sedimentation/Siltation | Natural Sources |
| | | | | | | | | | | | | Non-irrigated Crop Production |
| Missouri River | MT41I001_012 | MISSOURI RIVER, Toston Dam to Canyon Ferry Reservoir | 5 | 22.6 | MILES | B-1 | P | F | N | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Cadmium | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Copper | Irrigated Crop Production |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Canyon Ferry | MT41I002_010 | AVALANCHE CREEK, headwaters to mouth (Canyon Ferry Reservoir) | 4C | 16.71 | MILES | B-1 | X | X | X | P | Low flow alterations | Agriculture |
| | | | | | | | | | | | | Irrigated Crop Production |
| Canyon Ferry | MT41I002_020 | BATTLE CREEK, headwaters to mouth (Sixteenmile Creek) | 5 | 22.76 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |
| Canyon Ferry | MT41I002_030 | BEAVER CREEK, headwaters to mouth (Canyon Ferry Reservoir) | 5 | 14.74 | MILES | B-1 | N | F | N | P | Cadmium | Agriculture |
| | | | | | | | | | | | Chromium (total) | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Lead | Irrigated Crop Production |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Silver | |
| | | | | | | | | | | | Zinc | |
| Canyon Ferry | MT41I002_041 | CONFEDERATE GULCH, headwaters to | 5 | 10.04 | MILES | B-1 | N | F | X | P | Alteration in stream-side or littoral | Agriculture |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030101 Upper Missouri **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Missouri River | MT41I001_011 | MISSOURI RIVER, headwaters to Toston Dam | 5 | 21.95 | MILES | B-1 | P | F | N | F | Arsenic | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Nitrogen (Total) | Municipal Point Source Discharges |
| | | | | | | | | | | | Sedimentation/Siltation | Natural Sources |
| | | | | | | | | | | | | Non-irrigated Crop Production |
| Missouri River | MT41I001_012 | MISSOURI RIVER, Toston Dam to Canyon Ferry Reservoir | 5 | 22.6 | MILES | B-1 | P | F | N | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Cadmium | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Copper | Irrigated Crop Production |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Canyon Ferry | MT41I002_010 | AVALANCHE CREEK, headwaters to mouth (Canyon Ferry Reservoir) | 4C | 16.71 | MILES | B-1 | X | X | X | P | Low flow alterations | Agriculture |
| | | | | | | | | | | | | Irrigated Crop Production |
| Canyon Ferry | MT41I002_020 | BATTLE CREEK, headwaters to mouth (Sixteenmile Creek) | 5 | 22.76 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |
| Canyon Ferry | MT41I002_030 | BEAVER CREEK, headwaters to mouth (Canyon Ferry Reservoir) | 5 | 14.74 | MILES | B-1 | N | F | N | P | Cadmium | Agriculture |
| | | | | | | | | | | | Chromium (total) | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Lead | Irrigated Crop Production |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Silver | |
| | | | | | | | | | | | Zinc | |
| Canyon Ferry | MT41I002_041 | CONFEDERATE GULCH, headwaters to | 5 | 10.04 | MILES | B-1 | N | F | X | P | Alteration in stream-side or littoral | Agriculture |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 10030101 Upper Missouri **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canyon Ferry | MT41I002_041 | CONFEDERATE GULCH, headwaters to Hunter Gulch | 5 | 10.04 | MILES | B-1 | N | F | X | P | vegetative covers | Channelization |
| | | | | | | | | | | | Cadmium | Dredge Mining |
| | | | | | | | | | | | Nitrates | Highway/Road/Bridge Runoff (Non-construction Related) |
| | | | | | | | | | | | Other flow regime alterations | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Physical substrate habitat alterations | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | | Placer Mining |
| Canyon Ferry | MT41I002_042 | CONFEDERATE GULCH, Hunter Gulch to mouth (Canyon Ferry Reservoir) | 5 | 5.21 | MILES | B-1 | N | X | X | N | Low flow alterations | Agriculture |
| | | | | | | | | | | | Nitrates | Dredge Mining |
| | | | | | | | | | | | Phosphorus (Total) | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Physical substrate habitat alterations | Irrigated Crop Production |
| Canyon Ferry | MT41I002_050 | CROW CREEK, National Forest boundary to mouth (Missouri River) | 5 | 15.89 | MILES | B-1 | N | N | F | N | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Low flow alterations | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrogen (Total) | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Phosphorus (Total) | Irrigated Crop Production |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Canyon Ferry | MT41I002_060 | CROW CREEK, Crow Creek Falls to National Forest boundary | 5 | 10.15 | MILES | B-1 | P | F | F | F | Copper | Channelization |
| | | | | | | | | | | | Lead | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Physical substrate habitat alterations | Placer Mining |
| Deep Creek | MT41I002_070 | DEEP CREEK, National Forest Boundary to mouth (Missouri River) | 4A | 20.35 | MILES | B-1 | P | F | F | F | Low flow alterations | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Sedimentation/Siltation | Loss of Riparian Habitat |
| | | | | | | | | | | | | Streambank Modifications/destablization |
| Canyon Ferry | MT41I002_080 | DRY CREEK, headwaters to mouth (Missouri River) | 5 | 21.56 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Low flow alterations | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Phosphorus (Total) | Irrigated Crop Production |
| | | | | | | | | | | | Sedimentation/Siltation | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030101 Upper Missouri **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canyon Ferry | MT41I002_080 | DRY CREEK, headwaters to mouth (Missouri River) | 5 | 21.56 | MILES | B-1 | P | F | F | P | Temperature, water | |
| Canyon Ferry | MT41I002_090 | HELLGATE GULCH, headwaters to mouth (Canyon Ferry Reservoir) | 5 | 11.6 | MILES | B-1 | N | F | N | X | Alteration in stream-side or littoral vegetative covers<br>Mercury<br>Other anthropogenic substrate alterations<br>Physical substrate habitat alterations | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Highway/Road/Bridge Runoff (Non-construction Related)<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Impacts from Abandoned Mine Lands (Inactive)<br>Mine Tailings<br>Natural Sources<br>Other Recreational Pollution Sources<br>Silviculture Activities |
| Canyon Ferry | MT41I002_100 | INDIAN CREEK, headwaters to mouty (Missouri River) | 5 | 8.01 | MILES | B-1 | X | N | N | X | Arsenic<br>Cadmium<br>Lead<br>Mercury | Acid Mine Drainage<br>Dredge Mining<br>Impacts from Abandoned Mine Lands (Inactive)<br>Mine Tailings |
| Canyon Ferry | MT41I002_110 | MAGPIE CREEK, headwaters to mouth (Canyon Ferry Reservoir) | 5 | 12.76 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones |
| Canyon Ferry | MT41I002_120 | SIXTEENMILE CREEK, Lost Creek to mouth (Missouri River) | 5 | 49.61 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Channelization<br>Grazing in Riparian or Shoreline Zones |
| Canyon Ferry | MT41I002_130 | WHITE GULCH, headwaters to mouth (Canyon Ferry Reservoir) | 5 | 13.26 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Placer Mining |
| Canyon Ferry | MT41I002_140 | WILSON CREEK, 3.3 miles upstream to mouth (Crow Creek) | 5 | 3.3 | MILES | B-1 | X | X | N | X | Mercury | Impacts from Abandoned Mine Lands (Inactive) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030101 Upper Missouri **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canyon Ferry | MT41I002_150 | CAVE GULCH, headwaters to mouth (Canyon Ferry Reservoir) | 5 | 6.42 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Nitrogen (Total) | Placer Mining |
| | | | | | | | | | | | Phosphorus (Total) | Source Unknown |
| | | | | | | | | | | | Sedimentation/Siltation | Unspecified Unpaved Road or Trail |
| Canyon Ferry | MT41I002_170 | EAST FORK INDIAN CREEK, headwaters to mouth (Indian Creek) | 5 | 5.87 | MILES | B-1 | X | X | N | X | Arsenic | Acid Mine Drainage |
| | | | | | | | | | | | Cadmium | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Mercury | |
| Missouri River | MT41I003_010 | CANYON FERRY RESERVOIR | 5 | 32810 | ACRES | B-1 | F | P | N | N | Ammonia (Un-ionized) | Acid Mine Drainage |
| | | | | | | | | | | | Arsenic | Agriculture |
| | | | | | | | | | | | Excess Algal Growth | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Thallium | Internal Nutrient Recycling |
| | | | | | | | | | | | | Municipal Point Source Discharges |
| | | | | | | | | | | | | Natural Sources |
| | | | | | | | | | | | | On-site Treatment Systems (Septic Systems and Similar Decencentralized Systems) |
| | | | | | | | | | | | | Site Clearance (Land Development or Redevelopment) |
| Missouri River | MT41I004_030 | MISSOURI RIVER, Holter Dam to Little Prickly Pear Creek | 5 | 2.84 | MILES | B-1 | P | F | F | F | Nitrogen (Total) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Other flow regime alterations | Municipal Point Source Discharges |
| | | | | | | | | | | | Phosphorus (Total) | Natural Sources |
| | | | | | | | | | | | Sedimentation/Siltation | On-site Treatment Systems (Septic Systems and Similar Decencentralized Systems) |
| | | | | | | | | | | | | Upstream Impoundments (e.g., PI-566 NRCS Structures) |
| Holter | MT41I005_011 | BEAVER CREEK, headwaters to confluence of Bridge Creek | 5 | 13.8 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Chlorophyll-a | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Holter | MT41I005_012 | BEAVER CREEK, Nelson to mouth (Missouri River below Hauser Dam) | 5 | 5.51 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030101 Upper Missouri **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Holter | MT41I005_012 | BEAVER CREEK, Nelson to mouth (Missouri River below Hauser Dam) | 5 | 5.51 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Irrigated Crop Production |
| Canyon Ferry | MT41I005_020 | TROUT CREEK, headwaters to mouth (Hauser Lake) | 5 | 20.52 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Loss of Riparian Habitat<br>Unspecified Unpaved Road or Trail |
| Holter | MT41I005_030 | FALLS GULCH, headwaters to mouth (Holter Lake), T14N R3W S16 | 5 | 3.18 | MILES | B-1 | N | F | N | X | Mercury | Impacts from Abandoned Mine Lands (Inactive) |
| Holter | MT41I005_040 | VIRGINIA CREEK, headwaters to mouth (Canyon Creek) | 5 | 8.25 | MILES | B-1 | P | F | N | F | Copper<br>Lead<br>Zinc | Impacts from Abandoned Mine Lands (Inactive) |
| Holter | MT41I005_051 | LITTLE PRICKLY PEAR CREEK, North and South Forks to Clark Creek | 5 | 23.9 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Other flow regime alterations<br>Physical substrate habitat alterations<br>Sedimentation/Siltation<br>Temperature, water | Agriculture<br>Flow Alterations from Water Diversions<br>Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones<br>Loss of Riparian Habitat<br>Silviculture Activities |
| Holter | MT41I005_052 | LITTLE PRICKLY PEAR CREEK, Clark Creek to mouth (Missouri River) | 5 | 10.23 | MILES | B-1 | N | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Other flow regime alterations<br>Physical substrate habitat alterations<br>Temperature, water | Channelization<br>Flow Alterations from Water Diversions<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Loss of Riparian Habitat |
| Holter | MT41I005_060 | FOOL HEN CREEK, headwaters to mouth (Virgina Creek-Canyon Creek-Little Prickly Pear Creek) | 5 | 1.78 | MILES | B-1 | N | N | N | X | Cadmium<br>Copper<br>Lead<br>Mercury<br>Silver<br>Zinc | Impacts from Abandoned Mine Lands (Inactive)<br>Mill Tailings<br>Subsurface (Hardrock) Minining |
| Holter | MT41I005_080 | WOODSIDING GULCH, headwaters to mouth (Little Prickly Pear Creek), T13N R4W S33 | 5 | 2.19 | MILES | B-1 | P | F | F | F | Phosphorus (Total) | Forest Roads (Road Construction and Use) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030101 Upper Missouri **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lake Helena | MT41I006_020 | PRICKLY PEAR CREEK, Helena WWTP Discharge Ditch to Lake Helena | 5 | 4.15 | MILES | I | N | F | N | P | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Ammonia (Un-ionized) | Agriculture |
| | | | | | | | | | | | Arsenic | Contaminated Sediments |
| | | | | | | | | | | | Cadmium | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Copper | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Lead | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Low flow alterations | Industrial Point Source Discharge |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Municipal Point Source Discharges |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |
| | | | | | | | | | | | Zinc | |
| Lake Helena | MT41I006_030 | PRICKLY PEAR CREEK, Highway 433 (Wylie Dr.) Crossing to Helena WWTP Discharge | 5 | 6.54 | MILES | I | N | P | N | P | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Ammonia (Un-ionized) | Contaminated Sediments |
| | | | | | | | | | | | Arsenic | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Cadmium | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Lead | Industrial Point Source Discharge |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Nitrogen (Total) | On-site Treatment Systems (Septic Systems and Similar Decencentralized Systems) |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |
| | | | | | | | | | | | Zinc | |
| Lake Helena | MT41I006_040 | PRICKLY PEAR CREEK, Lump Gulch to County Road Wylie Drive | 5 | 10.84 | MILES | B-1 | N | P | N | F | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 10030101 Upper Missouri **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lake Helena | MT41I006_040 | PRICKLY PEAR CREEK, Lump Gulch to County Road Wylie Drive | 5 | 10.84 | MILES | B-1 | N | P | N | F | Aluminum | Channelization |
| | | | | | | | | | | | Antimony | Contaminated Sediments |
| | | | | | | | | | | | Arsenic | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Cadmium | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Copper | Industrial Point Source Discharge |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |
| | | | | | | | | | | | Zinc | |
| Lake Helena | MT41I006_050 | PRICKLY PEAR CREEK, Spring Creek to Lump Gulch | 5 | 7.05 | MILES | B-1 | N | P | N | F | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Arsenic | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Cadmium | Mine Tailings |
| | | | | | | | | | | | Copper | Placer Mining |
| | | | | | | | | | | | Lead | Streambank Modifications/destablization |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Lake Helena | MT41I006_060 | PRICKLY PEAR CREEK, headwaters to Spring Creek | 5 | 8.84 | MILES | B-1 | N | P | N | F | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Cadmium | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Lead | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Physical substrate habitat alterations | Placer Mining |
| | | | | | | | | | | | Total Suspended Solids (TSS) | Streambank Modifications/destablization |
| Lake Helena | MT41I006_070 | GOLCONDA CREEK, headwaters to mouth (Prickly Pear Creek), T7N R3W S8 | 5 | 2.92 | MILES | B-1 | N | F | N | X | Cadmium | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Copper | Mine Tailings |
| | | | | | | | | | | | Lead | Subsurface (Hardrock) Minining |
| | | | | | | | | | | | Zinc | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030101 Upper Missouri **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lake Helena | MT41I006_080 | SPRING CREEK, Corbin Creek to mouth (Prickly Pear Creek) | 5 | 1.74 | MILES | B-1 | N | N | N | P | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Aluminum | Channelization |
| | | | | | | | | | | | Arsenic | Contaminated Sediments |
| | | | | | | | | | | | Cadmium | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Lead | Mine Tailings |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Mercury | |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Silver | |
| | | | | | | | | | | | Total Suspended Solids (TSS) | |
| | | | | | | | | | | | Zinc | |
| Lake Helena | MT41I006_090 | CORBIN CREEK, headwaters to mouth (Spring Creek) | 5 | 2.82 | MILES | B-1 | N | P | N | N | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Arsenic | Dam or Impoundment |
| | | | | | | | | | | | Cadmium | Mill Tailings |
| | | | | | | | | | | | Copper | Mine Tailings |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Silver | |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |
| | | | | | | | | | | | Temperature, water | |
| | | | | | | | | | | | Zinc | |
| | | | | | | | | | | | pH | |
| Lake Helena | MT41I006_100 | MIDDLE FORK WARM SPRINGS CREEK, headwaters to mouth (Warm Springs Creek-Prickly Pear Creek) | 5 | 2.82 | MILES | B-1 | N | F | N | F | Alteration in stream-side or littoral vegetative covers | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Arsenic | Mine Tailings |
| | | | | | | | | | | | Cadmium | Unspecified Unpaved Road or Trail |
| | | | | | | | | | | | Copper | |

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**HUC** 10030101 Upper Missouri **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lake Helena | MT41I006_100 | MIDDLE FORK WARM SPRINGS CREEK, headwaters to mouth (Warm Springs Creek-Prickly Pear Creek) | 5 | 2.82 | MILES | B-1 | N | F | N | F | Lead | |
| | | | | | | | | | | | Mercury | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Lake Helena | MT41I006_110 | WARM SPRINGS CREEK, the Middle Fork to mouth (Prickly Pear Creek) | 4A | 4.17 | MILES | B-1 | P | F | N | F | Arsenic | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Cadmium | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Lead | Mine Tailings |
| | | | | | | | | | | | Sedimentation/Siltation | Unspecified Unpaved Road or Trail |
| | | | | | | | | | | | Zinc | |
| Lake Helena | MT41I006_120 | CLANCY CREEK, headwaters to mouth (Prickly Pear Creek) | 5 | 12.82 | MILES | B-1 | N | F | N | F | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Arsenic | Animal Feeding Operations (NPS) |
| | | | | | | | | | | | Cadmium | Contaminated Sediments |
| | | | | | | | | | | | Copper | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Lead | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Mercury | Unspecified Unpaved Road or Trail |
| | | | | | | | | | | | Other anthropogenic substrate alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Lake Helena | MT41I006_130 | LUMP GULCH, headwaters to mouth (Prickly Pear Creek) | 5 | 14.68 | MILES | B-1 | N | F | N | X | Cadmium | Acid Mine Drainage |
| | | | | | | | | | | | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Mercury | |
| | | | | | | | | | | | Total Suspended Solids (TSS) | |
| | | | | | | | | | | | Zinc | |
| Lake Helena | MT41I006_141 | TENMILE CREEK, headwaters to confluence of Spring Creek | 5 | 6.72 | MILES | A-1 | P | F | N | F | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Arsenic | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Cadmium | Highway/Road/Bridge Runoff (Non-construction Related) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030101 Upper Missouri **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lake Helena | MT41I006_141 | TENMILE CREEK, headwaters to confluence of Spring Creek | 5 | 6.72 | MILES | A-1 | P | F | N | F | Copper<br>Lead<br>Mercury<br>Sedimentation/Siltation<br>Zinc | Impacts from Abandoned Mine Lands (Inactive)<br>Mine Tailings |
| Lake Helena | MT41I006_142 | TENMILE CREEK, Spring Creek to Helena Water Treatment Plant, Lat 46.573 Long -112.214 | 4A | 7.32 | MILES | B-1 | N | N | N | N | Arsenic<br>Cadmium<br>Copper<br>Lead<br>Low flow alterations<br>Sedimentation/Siltation<br>Zinc | Acid Mine Drainage<br>Highway/Road/Bridge Runoff (Non-construction Related)<br>Impacts from Abandoned Mine Lands (Inactive)<br>Impacts from Hydrostructure Flow Regulation/modification |
| Lake Helena | MT41I006_143 | TENMILE CREEK, Helena Water Treatment Plant to mouth (Prickly Pear Creek) | 5 | 16.38 | MILES | B-1 | P | F | N | P | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Cadmium<br>Copper<br>Lead<br>Low flow alterations<br>Mercury<br>Nitrogen (Total)<br>Nutrient/Eutrophication Biological Indicators<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Zinc | Acid Mine Drainage<br>Channelization<br>Habitat Modification - other than Hydromodification<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Impacts from Abandoned Mine Lands (Inactive)<br>Impacts from Hydrostructure Flow Regulation/modification<br>Irrigated Crop Production<br>Site Clearance (Land Development or Redevelopment) |
| Lake Helena | MT41I006_150 | SILVER CREEK, headwaters to T11N R4W S30 / S31 to Lake Helena | 5 | 22.1 | MILES | B-1 | N | F | N | P | Arsenic<br>DDE<br>Low flow alterations | Agriculture<br>Dredge Mining<br>Irrigated Crop Production |

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**HUC** 10030101 Upper Missouri **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lake Helena | MT41I006_150 | SILVER CREEK, headwaters to T11N R4W S30 / S31 to Lake Helena | 5 | 22.1 | MILES | B-1 | N | F | N | P | Mercury | Mill Tailings |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Subsurface (Hardrock) Minining |
| Lake Helena | MT41I006_160 | SEVENMILE CREEK, headwaters to mouth (Tenmile Creek) | 5 | 8.45 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Arsenic | Channelization |
| | | | | | | | | | | | Copper | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Lead | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Low flow alterations | Streambank Modifications/destablization |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Lake Helena | MT41I006_180 | NORTH FORK WARM SPRINGS CREEK, headwaters to mouth (Warmsprings Creek) | 5 | 2.7 | MILES | B-1 | P | F | N | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Arsenic | Natural Sources |
| | | | | | | | | | | | Cadmium | |
| | | | | | | | | | | | Organic Enrichment (Sewage) Biological Indicators | |
| | | | | | | | | | | | Other anthropogenic substrate alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Lake Helena | MT41I006_190 | JACKSON CREEK, headwaters to mouth (McClellan Creek-Prickly Pear Creek) | 5 | 2.32 | MILES | B-1 | P | F | F | F | Zinc | Impacts from Abandoned Mine Lands (Inactive) |
| Lake Helena | MT41I006_210 | JENNIES FORK, headwaters to mouth (Silver Creek) | 5 | 1.36 | MILES | B-1 | P | F | N | F | Lead | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Phosphorus (Total) | Natural Sources |
| | | | | | | | | | | | Sedimentation/Siltation | Source Unknown |
| | | | | | | | | | | | | Subsurface (Hardrock) Minining |
| Lake Helena | MT41I006_220 | SKELLY GULCH, headwaters to mouth (Greenhorn Creek/Sevenmile Creek), T10N R5W S2 | 5 | 7.81 | MILES | B-1 | P | F | F | F | Arsenic | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Sedimentation/Siltation | Unspecified Unpaved Road or Trail |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030101 Upper Missouri **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lake Helena | MT41I006_230 | GRANITE CREEK, headwaters to mouth (Sevenmile Creek) | 5 | 2.49 | MILES | B-1 | X | X | N | X | Arsenic | Acid Mine Drainage |
| | | | | | | | | | | | Cadmium | Impacts from Abandoned Mine Lands (Inactive) |
| Lake Helena | MT41I007_010 | LAKE HELENA | 4A | 1600 | ACRES | B-1 | P | F | N | X | Arsenic | Acid Mine Drainage |
| | | | | | | | | | | | Lead | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Nitrogen (Total) | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Phosphorus (Total) | Irrigated Crop Production |
| | | | | | | | | | | | | Municipal Point Source Discharges |
| | | | | | | | | | | | | Natural Sources |
| | | | | | | | | | | | | Rangeland Grazing |
| Missouri River | MT41I007_020 | HOLTER LAKE Hauser Dam to Holter Lake Spillway | 5 | 4358 | ACRES | B-1 | F | X | X | P | Mercury | Atmospheric Depositon - Toxics |
| | | | | | | | | | | | | Historic Bottom Deposits (Not Sediment) |
| | | | | | | | | | | | | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | | Inappropriate Waste Disposal |
| | | | | | | | | | | | | Placer Mining |
| | | | | | | | | | | | | Source Unknown |
| Missouri River | MT41I007_040 | HAUSER LAKE | 5 | 3190 | ACRES | B-1 | P | X | N | F | Arsenic | Acid Mine Drainage |
| | | | | | | | | | | | DDT | Agriculture |
| | | | | | | | | | | | Endosulfan sulfate | Atmospheric Depositon - Toxics |
| | | | | | | | | | | | Endrin aldehyde | Contaminated Sediments |
| | | | | | | | | | | | Mercury | Dam Construction (Other than Upstream Flood Control Projects) |
| | | | | | | | | | | | Nitrogen, Nitrate | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Oxygen, Dissolved | Highway/Road/Bridge Runoff (Non-construction Related) |
| | | | | | | | | | | | Phosphorus (Total) | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | | Mine Tailings |
| | | | | | | | | | | | | Municipal Point Source Discharges |
| | | | | | | | | | | | | Natural Sources |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030101 Upper Missouri **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Missouri River | MT41I007_040 | HAUSER LAKE | 5 | 3190 | ACRES | B-1 | P | X | N | F | | On-site Treatment Systems (Septic Systems and Similar Decencentralized Systems) |
| | | | | | | | | | | | | Silviculture Activities |
| | | | | | | | | | | | | Source Unknown |

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**HUC** 10030102 Upper Missouri-Dearborn **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Missouri River | MT41Q001_011 | MISSOURI RIVER, Sun River to Rainbow Dam | 5 | 6.99 | MILES | B-2 | N | F | N | F | Chromium (total) | Contaminated Sediments |
| | | | | | | | | | | | Mercury | Dam Construction (Other than Upstream Flood Control Projects) |
| | | | | | | | | | | | Physical substrate habitat alterations | Industrial Point Source Discharge |
| | | | | | | | | | | | Polychlorinated biphenyls | Industrial/Commercial Site Stormwater Discharge (Permittted) |
| | | | | | | | | | | | Sedimentation/Siltation | Irrigated Crop Production |
| | | | | | | | | | | | Selenium | |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |
| | | | | | | | | | | | Turbidity | |
| Missouri River | MT41Q001_013 | MISSOURI RIVER, Rainbow Dam to Morony Dam | 5 | 9.12 | MILES | B-3 | N | F | N | F | Arsenic | Contaminated Sediments |
| | | | | | | | | | | | Copper | Dam or Impoundment |
| | | | | | | | | | | | Polychlorinated biphenyls | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Sedimentation/Siltation | Industrial Point Source Discharge |
| | | | | | | | | | | | Temperature, water | Natural Sources |
| | | | | | | | | | | | Turbidity | Post-development Erosion and Sedimentation |
| Missouri River | MT41Q001_014 | MISSOURI RIVER, Morony Dam to Marias River | 5 | 54.62 | MILES | B-3 | N | F | N | N | Aluminum | Agriculture |
| | | | | | | | | | | | Arsenic | Dam or Impoundment |
| | | | | | | | | | | | Cadmium | Industrial Point Source Discharge |
| | | | | | | | | | | | Chlorophyll-a | Streambank Modifications/destablization |
| | | | | | | | | | | | Copper | |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Missouri River | MT41Q001_021 | MISSOURI RIVER, Little Prickly Pear Creek to Sheep Creek | 5 | 20.93 | MILES | B-1 | P | F | N | F | Arsenic | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrogen (Total) | Impacts from Hydrostructure Flow Regulation/modification |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 10030102 Upper Missouri-Dearborn **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Missouri River | MT41Q001_021 | MISSOURI RIVER, Little Prickly Pear Creek to Sheep Creek | 5 | 20.93 | MILES | B-1 | P | F | N | F | Other flow regime alterations<br>Sedimentation/Siltation | Irrigated Crop Production<br>Natural Sources |
| Missouri River | MT41Q001_022 | MISSOURI RIVER, Sheep Creek to Sun River | 5 | 65.3 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Agriculture<br>Dam Construction (Other than Upstream Flood Control Projects)<br>Highway/Road/Bridge Runoff (Non-construction Related)<br>Impacts from Hydrostructure Flow Regulation/modification<br>Natural Sources<br>Streambank Modifications/destablization |
| Benton Lake | MT41Q002_010 | LAKE CREEK, headwaters to mouth (Benton Lake) | 5 | 19.03 | MILES | B-3 | N | N | N | P | Cadmium<br>Other flow regime alterations<br>Salinity<br>Sedimentation/Siltation<br>Selenium<br>Zinc | Agriculture<br>Impacts from Hydrostructure Flow Regulation/modification<br>Irrigated Crop Production |
| Missouri Cascade | MT41Q002_020 | COTTONWOOD CREEK, 1 mile above Stockett to mouth (Sand Coulee Creek-Missouri River) | 4A | 4.32 | MILES | B-1 | N | F | N | X | Aluminum<br>Cadmium<br>Iron<br>Nickel<br>Zinc | Acid Mine Drainage<br>Subsurface (Hardrock) Minining |
| Missouri Cascade | MT41Q002_030 | NUMBER FIVE COULEE, headwaters to mouth (Cottonwood Creek) | 5 | 13.68 | MILES | B-1 | N | F | N | X | Aluminum<br>Cadmium<br>Iron<br>Lead<br>Nickel<br>Zinc | Acid Mine Drainage<br>Impacts from Abandoned Mine Lands (Inactive)<br>Subsurface (Hardrock) Minining |
| Missouri Cascade | MT41Q002_040 | SAND COULEE CREEK, confluence with Cottonwood Creek to the mouth (Missouri River) | 5 | 18.63 | MILES | B-1 | N | P | N | X | Lead | Agriculture |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030102 Upper Missouri-Dearborn **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Missouri Cascade | MT41Q002_040 | SAND COULEE CREEK, confluence with Cottonwood Creek to the mouth (Missouri River) | 5 | 18.63 | MILES | B-1 | N | P | N | X | Salinity | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Zinc | Subsurface (Hardrock) Minining |
| Missouri Choteau | MT41Q002_050 | BOX ELDER CREEK, Spring Creek to mouth (Missouri River) | 5 | 17.47 | MILES | B-3 | P | F | F | F | Nitrate/Nitrite (Nitrite + Nitrate as N) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Missouri Cascade | MT41Q002_060 | SAND COULEE, headwaters to mouth (Sand Coulee Creek) | 4A | 5.94 | MILES | B-1 | N | P | N | X | Aluminum | Acid Mine Drainage |
| | | | | | | | | | | | Cadmium | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Copper | Subsurface (Hardrock) Minining |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Nickel | |
| | | | | | | | | | | | Salinity | |
| | | | | | | | | | | | Zinc | |
| Dearborn | MT41Q003_010 | DEARBORN RIVER, Falls Creek to mouth (Missouri River) | 5 | 48.26 | MILES | B-1 | N | F | F | P | Temperature, water | Impacts from Hydrostructure Flow Regulation/modification |
| Dearborn | MT41Q003_020 | MIDDLE FORK DEARBORN RIVER, headwaters to mouth (Dearborn River) | 4A | 14.51 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Habitat Modification - other than Hydromodification |
| Dearborn | MT41Q003_030 | SOUTH FORK DEARBORN RIVER, headwaters to mouth (Dearborn River) | 4A | 16.14 | MILES | B-1 | P | F | X | F | Low flow alterations | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Habitat Modification - other than Hydromodification |
| Dearborn | MT41Q003_040 | FLAT CREEK, Henry Creek to mouth (Dearborn River) | 4A | 15.92 | MILES | B-1 | P | F | X | F | High Flow Regime | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Habitat Modification - other than Hydromodification |
| Benton Lake | MT41Q005_020 | BENTON LAKE | 5 | 5600 | ACRES | B-3 | N | P | N | P | Excess Algal Growth | Agriculture |
| | | | | | | | | | | | Nitrogen (Total) | Irrigated Crop Production |
| | | | | | | | | | | | Salinity | |
| | | | | | | | | | | | Selenium | |
| | | | | | | | | | | | Sulfates | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030103 Smith **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Smith | MT41J001_010 | SMITH RIVER, North and South Forks to Hound Creek | 5 | 98.1 | MILES | B-1 | P | F | F | P | Escherichia coli | Agriculture |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Phosphorus (Total) | Rangeland Grazing |
| Smith | MT41J001_020 | SMITH RIVER, Hound Creek to mouth (Missouri River) | 5 | 24.14 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Low flow alterations | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Irrigated Crop Production |
| | | | | | | | | | | | Phosphorus (Total) | Rangeland Grazing |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Temperature, water | |
| Smith | MT41J002_011 | NORTH FORK SMITH RIVER, Lake Sutherlin to mouth (Smith River), T9N R6E S21 | 5 | 23 | MILES | B-1 | F | X | F | N | Chlorophyll-a | Source Unknown |
| | | | | | | | | | | | Escherichia coli | |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| Smith | MT41J002_020 | HOUND CREEK, Spring Creek to mouth (Smith River) | 5 | 6.71 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Chlorophyll-a | |
| | | | | | | | | | | | Nitrogen (Total) | |
| Smith | MT41J002_030 | SHEEP CREEK, headwaters to mouth (Smith River) | 5 | 41.31 | MILES | B-1 | N | F | F | N | Aluminum | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Escherichia coli | Natural Sources |
| | | | | | | | | | | | Iron | Sand/gravel/rock Mining or Quarries |
| | | | | | | | | | | | | Source Unknown |
| Smith | MT41J002_040 | BEAVER CREEK, headwaters to mouth (Smith River) | 5 | 20.58 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Chlorophyll-a | |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Smith | MT41J002_050 | BENTON GULCH, headwaters to mouth (Smith River) | 5 | 13.41 | MILES | B-1 | X | X | X | N | Escherichia coli | Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 10030103 Smith **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Smith | MT41J002_060 | ELK CREEK, headwaters to mouth (Camas Creek) | 5 | 10.41 | MILES | B-1 | P | F | F | F | Low flow alterations<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Temperature, water | Irrigated Crop Production<br>Livestock (Grazing or Feeding Operations) |
| Smith | MT41J002_070 | THOMPSON GULCH, headwaters to mouth (Smith River) | 5 | 10.81 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| Smith | MT41J002_081 | NEWLAN CREEK, Newlan Reservoir to mouth (Smith River) | 5 | 9.01 | MILES | B-1 | P | F | F | N | Alteration in stream-side or littoral vegetative covers<br>Escherichia coli<br>Low flow alterations<br>Sedimentation/Siltation<br>Temperature, water | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production |
| Smith | MT41J002_082 | NEWLAN CREEK, headwaters to Newlan Reservoir | 5 | 13.3 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Cadmium<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Solids (Suspended/Bedload) | Grazing in Riparian or Shoreline Zones<br>Impacts from Abandoned Mine Lands (Inactive)<br>Transfer of Water from an Outside Watershed |
| Smith | MT41J002_100 | LITTLE CAMAS CREEK, headwaters to mouth (Camas Creek) | 5 | 3.82 | MILES | B-1 | P | F | F | P | Chlorophyll-a<br>Nitrogen (Total)<br>Temperature, water | Rangeland Grazing |
| Smith | MT41J002_110 | CAMAS CREEK, junction of Big and Little Camas Creeks to mouth (Smith River) | 5 | 14.28 | MILES | B-1 | X | X | X | N | Escherichia coli | Source Unknown |
| Smith | MT41J002_120 | MOOSE CREEK, headwaters to mouth (Sheep Creek) | 5 | 11.63 | MILES | B-1 | P | F | F | F | Nitrogen (Total) | Grazing in Riparian or Shoreline Zones |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 10030104 Sun **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sun | MT41K001_010 | SUN RIVER, Gibson Dam to Muddy Creek | 4A | 83.01 | MILES | B-1 | N | F | F | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Other flow regime alterations | Channelization |
| | | | | | | | | | | | Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Temperature, water | Impacts from Hydrostructure Flow Regulation/modification |
| Sun | MT41K001_020 | SUN RIVER, Muddy Creek to mouth (Missouri River) | 4A | 17.3 | MILES | B-3 | N | P | F | P | Nitrogen (Total) | Agriculture |
| | | | | | | | | | | | Other flow regime alterations | Channelization |
| | | | | | | | | | | | Phosphorus (Total) | Irrigated Crop Production |
| | | | | | | | | | | | Sedimentation/Siltation | Rangeland Grazing |
| | | | | | | | | | | | Total Suspended Solids (TSS) | |
| Sun | MT41K002_010 | MUDDY CREEK, headwaters to mouth (Sun River) | 4A | 35.84 | MILES | I | N | P | P | N | Nitrogen (Total) | Agriculture |
| | | | | | | | | | | | Phosphorus (Total) | Channel Erosion/Incision from Upstream Hydromodifications |
| | | | | | | | | | | | Salinity | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Sedimentation/Siltation | Streambank Modifications/destablization |
| | | | | | | | | | | | Selenium | |
| | | | | | | | | | | | Sulfates | |
| | | | | | | | | | | | Temperature, water | |
| | | | | | | | | | | | Total Dissolved Solids | |
| Sun | MT41K002_020 | FORD CREEK, from mouth 2 miles upstream (Smith Creek-Elk Creek-Sun River) | 4A | 2.48 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Channel Erosion/Incision from Upstream Hydromodifications |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Sedimentation/Siltation | Streambank Modifications/destablization |
| Sun | MT41K002_040 | HUBER COULEE, headwaters to mouth (Sun River Valley Ditch) | 5 | 3.6 | MILES | B-1 | X | X | X | N | Escherichia coli | Leaking Underground Storage Tanks |
| | | | | | | | | | | | | Manure Runoff |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030105 Belt **Watershed** Missouri-Sun-Smith

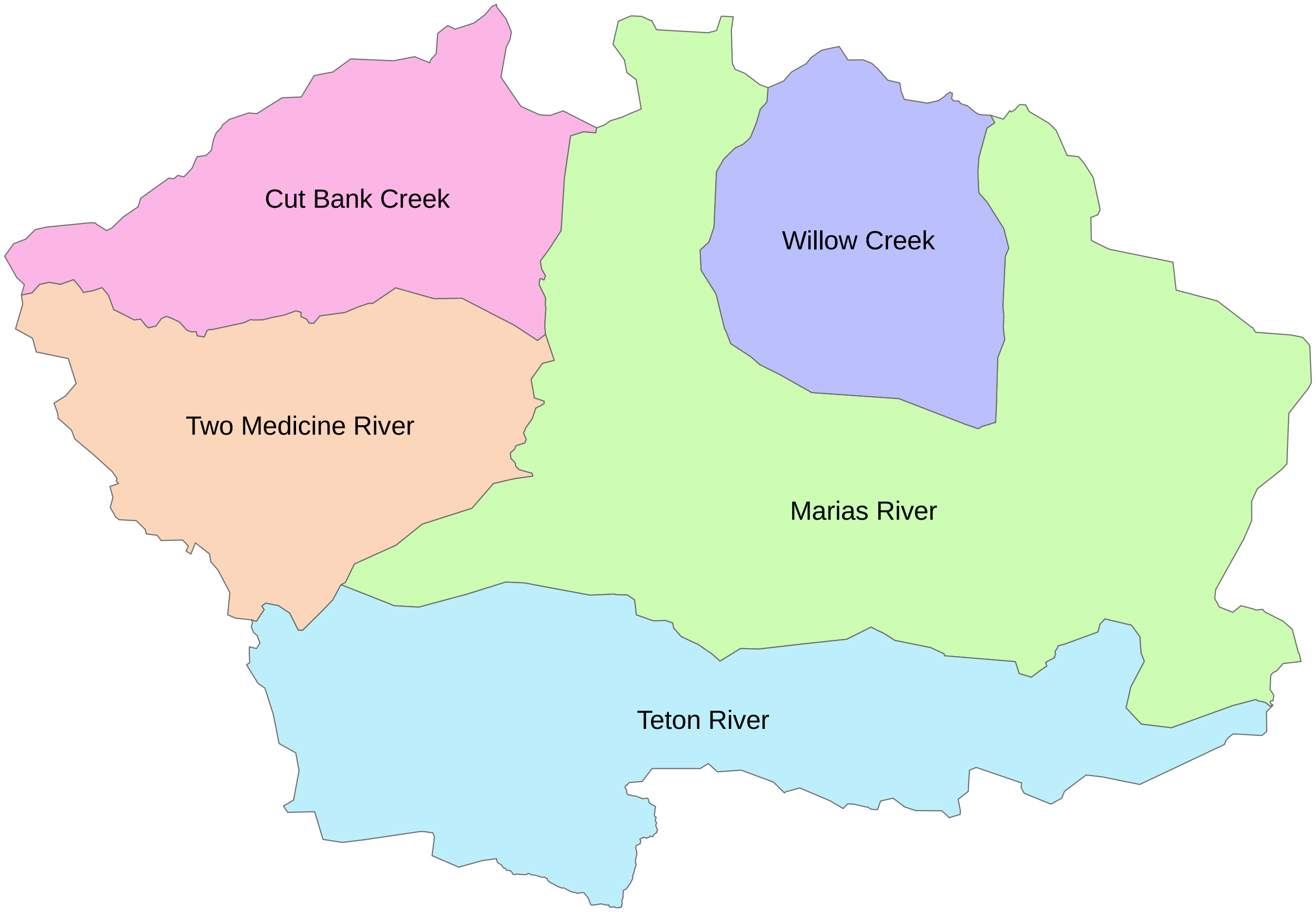
| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Belt | MT41U001_011 | BELT CREEK, headwaters to Big Otter Creek | 5 | 50.77 | MILES | B-1 | N | P | N | F | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Arsenic | Channelization |
| | | | | | | | | | | | Cadmium | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Chromium (total) | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Salinity | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Belt | MT41U001_012 | BELT CREEK, Big Otter Creek to mouth (Missouri River) | 5 | 39.44 | MILES | B-2 | N | P | N | P | Alteration in stream-side or littoral vegetative covers | Acid Mine Drainage |
| | | | | | | | | | | | Arsenic | Channelization |
| | | | | | | | | | | | Cadmium | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Chromium (total) | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Other anthropogenic substrate alterations | |
| | | | | | | | | | | | Salinity | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Belt | MT41U002_010 | CARPENTER CREEK, headwaters to mouth (Belt Creek) | 5 | 6.05 | MILES | B-1 | N | X | N | X | Arsenic | Acid Mine Drainage |
| | | | | | | | | | | | Cadmium | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Copper | Mine Tailings |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Mercury | |
| | | | | | | | | | | | Silver | |
| | | | | | | | | | | | Zinc | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030105 Belt **Watershed** Missouri-Sun-Smith

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Belt | MT41U002_020 | GALENA CREEK, headwaters to mouth (Dry Fork Belt Creek) | 5 | 3.47 | MILES | B-1 | N | N | N | N | Antimony | Acid Mine Drainage |
| | | | | | | | | | | | Arsenic | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Cadmium | Mine Tailings |
| | | | | | | | | | | | Copper | |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Zinc | |
| Belt | MT41U002_030 | DRY FORK BELT CREEK, headwaters to mouth (Belt Creek) | 5 | 18.88 | MILES | B-1 | N | N | N | P | Arsenic | Acid Mine Drainage |
| | | | | | | | | | | | Cadmium | Contaminated Sediments |
| | | | | | | | | | | | Copper | Highway/Road/Bridge Runoff (Non-construction Related) |
| | | | | | | | | | | | Iron | Mine Tailings |
| | | | | | | | | | | | Lead | Post-development Erosion and Sedimentation |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Belt | MT41U002_040 | LITTLE BELT CREEK, three miles upstream to mouth (Belt Creek) | 5 | 3.24 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Chlorophyll-a | Irrigated Crop Production |
| | | | | | | | | | | | Low flow alterations | Loss of Riparian Habitat |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Belt | MT41U002_050 | BIG OTTER CREEK, headwaters to mouth (Belt Creek) | 5 | 33.49 | MILES | B-1 | P | X | X | F | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Nitrates | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Physical substrate habitat alterations | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Sedimentation/Siltation | |

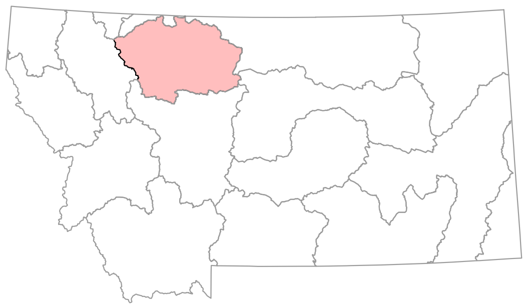
F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed




# Marias Sub-Major Basin

## Missouri River Basin

| USGS HUC | HUC NAME |
|---|---|
| 10030201 | Two Medicine River |
| 10030202 | Cut Bank Creek |
| 10030203 | Marias River |
| 10030204 | Willow Creek |
| 10030205 | Teton River |



Montana Department of Environmental Quality

**HUC** 10030201 Two Medicine **Watershed** Marias

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cut Bank - Two Medicine | MT41M002_080 | BIRCH CREEK, Blacktail Creek to mouth (Two Medicine River) | 5 | 37.2 | MILES | B-1 | P | F | F | P | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | |
| Cut Bank - Two Medicine | MT41M002_100 | SOUTH FORK DUPUYER CREEK, Bob Marshall Wilderness boundary to mouth (Dupuyer Creek) | 4C | 7.36 | MILES | B-1 | N | F | F | F | Cause Unknown | Source Unknown |
| Cut Bank - Two Medicine | MT41M002_110 | DUPUYER CREEK, confluence of South Fork Dupuyer Creek and Middle Fork Dupuyer Creek to the mouth (Birch Creek) | 5 | 39.28 | MILES | B-1 | N | F | F | P | Low flow alterations | Agriculture |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Crop Production (Crop Land or Dry Land) |
| | | | | | | | | | | | Sedimentation/Siltation | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Temperature, water | Irrigated Crop Production |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030202 Cut Bank **Watershed** Marias

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cut Bank - Two Medicine | MT41L001_010 | OLD MAIDS COULEE, headwaters to mouth (Cutbank Creek) | 5 | 17.6 | MILES | B-1 | N | N | F | N | Ammonia (Total) | Crop Production (Crop Land or Dry Land) |
| | | | | | | | | | | | Chloride | Municipal Point Source Discharges |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Specific Conductance | |
| | | | | | | | | | | | Total Dissolved Solids | |
| Cut Bank - Two Medicine | MT41L001_040 | CUT BANK CREEK, Blackfeet Reservation boundary to mouth (Marias River) | 5 | 21.07 | MILES | B-2 | N | F | F | N | Low flow alterations | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Irrigated Crop Production |
| | | | | | | | | | | | Temperature, water | Municipal Point Source Discharges |
| | | | | | | | | | | | | Non-irrigated Crop Production |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 10030203 Marias **Watershed** Marias

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Marias - Willow | MT41P002_030 | PONDERA COULEE, headwaters to mouth (Marias River) | 5 | 135.95 | MILES | B-2 | P | X | X | X | Alteration in stream-side or littoral vegetative covers<br>Physical substrate habitat alterations<br>Salinity | Agriculture |
| Marias - Willow | MT41P002_050 | CORRAL CREEK, headwaters to mouth (Cottonwood Creek) | 5 | 22.98 | MILES | B-2 | P | X | X | X | Phosphorus (Total) | Agriculture |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030204 Willow **Watershed** Marias

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Marias - Willow | MT41P004_020 | EAGLE CREEK, headwaters to mouth (Tiber Reservoir) | 5 | 52.65 | MILES | B-2 | P | X | X | X | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Physical substrate habitat alterations | Agriculture<br>Grazing in Riparian or Shoreline Zones |
| Marias - Willow | MT41P005_010 | OILMONT WETLAND, T35N R1W S31 | 5 | 9 | ACRES | B-2 | P | X | N | X | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Other flow regime alterations | Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Petroleum/natural Gas Activities |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030205 Teton **Watershed** Marias

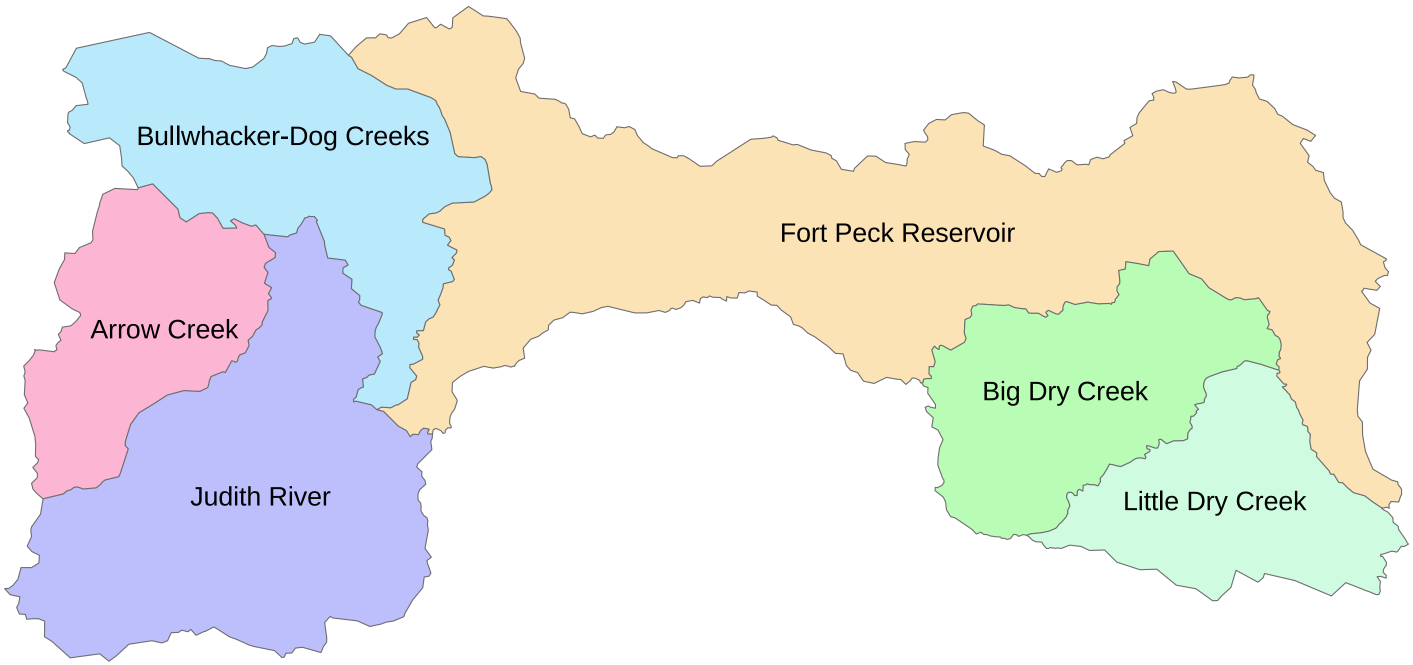
| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sun | MT41K004_030 | FREEZEOUT LAKE | 5 | 3500 | ACRES | B-1 | P | P | N | P | Aquatic Plants - Native | Agriculture |
| | | | | | | | | | | | Phosphorus (Total) | Irrigated Crop Production |
| | | | | | | | | | | | Selenium | Source Unknown |
| | | | | | | | | | | | Sulfates | |
| | | | | | | | | | | | Total Dissolved Solids | |
| Teton | MT41O001_010 | TETON RIVER, Muddy Creek to mouth (Marias River) | 4A | 121.42 | MILES | B-3 | P | F | F | F | Low flow alterations | Agriculture |
| | | | | | | | | | | | Salinity | Channelization |
| | | | | | | | | | | | Sedimentation/Siltation | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Sulfates | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Total Dissolved Solids | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | | Irrigated Crop Production |
| | | | | | | | | | | | | Streambank Modifications/destablization |
| Teton | MT41O001_020 | TETON RIVER, Deep Creek to Muddy Creek | 4A | 43.92 | MILES | B-2 | P | P | F | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Low flow alterations | Channelization |
| | | | | | | | | | | | Salinity | Crop Production (Crop Land or Dry Land) |
| | | | | | | | | | | | Sulfates | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Temperature, water | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Total Dissolved Solids | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Total Suspended Solids (TSS) | Municipal Point Source Discharges |
| | | | | | | | | | | | | Streambank Modifications/destablization |
| Teton | MT41O001_030 | TETON RIVER, North and South Forks to Deep Creek | 4C | 31.56 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Low flow alterations | Flow Alterations from Water Diversions |
| | | | | | | | | | | | | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | | Streambank Modifications/destablization |
| Teton | MT41O002_010 | WILLOW CREEK, headwaters to mouth (Deep Creek) | 4A | 21.81 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Alterations in wetland habitats | Streambank Modifications/destablization |
| | | | | | | | | | | | Sedimentation/Siltation | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10030205 Teton **Watershed** Marias

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Teton | MT41O002_020 | DEEP CREEK, Willow Creek to mouth (Teton River) | 4A | 9.57 | MILES | B-1 | P | F | P | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Alterations in wetland habitats | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Nitrogen (Total) | Loss of Riparian Habitat |
| | | | | | | | | | | | Phosphorus (Total) | Streambank Modifications/destablization |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Teton | MT41O002_042 | BLACKLEAF CREEK, Cow Creek to mouth (Muddy Creek) | 4C | 24.27 | MILES | B-2 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Other flow regime alterations | Loss of Riparian Habitat |
| Teton | MT41O002_060 | TETON SPRING CREEK, the city of Choteau to mouth (Teton River) | 4A | 4.92 | MILES | B-1 | P | F | P | P | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Alterations in wetland habitats | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Nitrogen (Total) | Loss of Riparian Habitat |
| | | | | | | | | | | | Sedimentation/Siltation | Septage Disposal |
| | | | | | | | | | | | | Source Unknown |
| | | | | | | | | | | | | Streambank Modifications/destablization |
| Teton | MT41O002_070 | TETON SPRING CREEK, headwaters to city of Choteau | 4A | 9.67 | MILES | B-1 | P | F | P | P | Alteration in stream-side or littoral vegetative covers | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Sedimentation/Siltation | Loss of Riparian Habitat |
| | | | | | | | | | | | Temperature, water | |
| Teton | MT41O004_020 | PRIEST BUTTE LAKE | 4A | 300 | ACRES | B-2 | N | N | N | P | Salinity | Agriculture |
| | | | | | | | | | | | Selenium | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Sulfates | Irrigated Crop Production |
| | | | | | | | | | | | Total Dissolved Solids | |

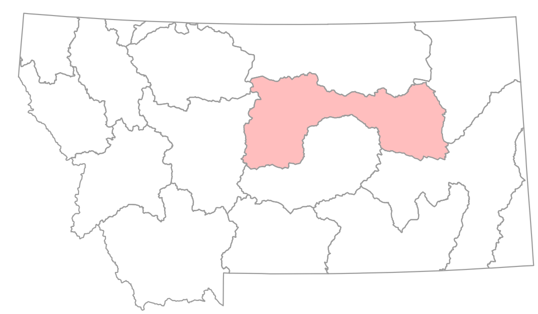
F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed




# Middle Missouri Sub-Major Basin

## Missouri River Basin

| USGS HUC | HUC NAME |
|---|---|
| 10040101 | Bullwhacker-Dog Creeks |
| 10040102 | Arrow Creek |
| 10040103 | Judith River |
| 10040104 | Fort Peck Reservoir |
| 10040105 | Big Dry Creek |
| 10040106 | Little Dry Creek |



Montana Department of Environmental Quality

# Appendix A: Impaired Waters

**HUC** 10040101 Bullwhacker-Dog **Watershed** Middle Missouri

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Missouri River | MT41T001_010 | MISSOURI RIVER, the Marias River to Bullwhacker Creek | 5 | 102.05 | MILES | B-3 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Copper<br>Lead<br>Physical substrate habitat alterations | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Source Unknown |
| Bullwhacker - Dog | MT41T002_020 | DOG CREEK, Cutbank Creek to mouth (Missouri River) | 5 | 26.03 | MILES | C-3 | N | | | F | Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 10040102 Arrow **Watershed** Middle Missouri

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Judith - Arrow | MT41R001_010 | COFFEE CREEK, headwaters to mouth (Arrow Creek) | 5 | 40.98 | MILES | C-3 | N | | | F | Nitrate/Nitrite (Nitrite + Nitrate as N) | Animal Feeding Operations (NPS) |
| | | | | | | | | | | | Selenium | Crop Production (Crop Land or Dry Land) |
| | | | | | | | | | | | Total Dissolved Solids | Natural Sources |
| Judith - Arrow | MT41R001_020 | ARROW CREEK, Surprise Creek to mouth (Missouri River) | 5 | 69.7 | MILES | C-3 | P | | | F | Iron | Natural Sources |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10040103 Judith **Watershed** Middle Missouri

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Judith - Arrow | MT41S001_010 | JUDITH RIVER, Big Spring Creek to mouth (Missouri River) | 4C | 72.02 | MILES | B-2 | P | F | F | X | Alteration in stream-side or littoral vegetative covers<br>Physical substrate habitat alterations | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Loss of Riparian Habitat<br>Rangeland Grazing |
| Judith - Arrow | MT41S001_020 | JUDITH RIVER, Ross Fork to Big Spring Creek | 5 | 16.15 | MILES | B-1 | P | F | X | P | Alteration in stream-side or littoral vegetative covers<br>Cause Unknown<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Animal Feeding Operations (NPS)<br>Grazing in Riparian or Shoreline Zones<br>Loss of Riparian Habitat<br>Natural Sources<br>Source Unknown |
| Judith - Arrow | MT41S002_010 | DRY WOLF CREEK, headwaters to mouth (Wolf Creek) | 5 | 34.55 | MILES | C-3 | P | | | X | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Nitrogen, Nitrate<br>Phosphorus (Total)<br>Salinity | Grazing in Riparian or Shoreline Zones<br>Non-irrigated Crop Production |
| Judith - Arrow | MT41S002_020 | WOLF CREEK, Dry Wolf Creek to mouth (Judith River) | 5 | 45.29 | MILES | C-3 | N | | | F | Iron<br>Selenium<br>Total Dissolved Solids | Crop Production (Crop Land or Dry Land)<br>Crop Production with Subsurface Drainage<br>Natural Sources<br>Source Unknown |
| Judith - Arrow | MT41S002_030 | WARM SPRING CREEK, 5 miles upstream to mouth (Judith River) | 5 | 10.74 | MILES | C-3 | P | X | X | X | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Nitrogen, Nitrate<br>Other anthropogenic substrate alterations<br>Phosphorus (Total)<br>Sedimentation/Siltation | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Streambank Modifications/destablization |
| Judith - Arrow | MT41S002_050 | SAGE CREEK, headwaters to mouth (Judith River) | 5 | 70.08 | MILES | C-3 | P | | | F | Iron<br>Nitrate/Nitrite (Nitrite + Nitrate as N) | Animal Feeding Operations (NPS)<br>Natural Sources |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10040103 Judith **Watershed** Middle Missouri

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Judith - Arrow | MT41S002_050 | SAGE CREEK, headwaters to mouth (Judith River) | 5 | 70.08 | MILES | C-3 | P | | | F | Nitrogen (Total) | Source Unknown |
| Judith - Arrow | MT41S002_070 | ROSS FORK JUDITH RIVER, headwaters to mouth (Judith River) | 5 | 64.23 | MILES | B-1 | N | F | P | F | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | BOD, Biochemical oxygen demand | Loss of Riparian Habitat |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Permitted Runoff from Confined Animal Feeding Operations (CAFOs) |
| | | | | | | | | | | | Sedimentation/Siltation | Source Unknown |
| Judith - Arrow | MT41S002_080 | SOUTH FORK JUDITH RIVER, headwaters to mouth | 5 | 21.16 | MILES | B-1 | P | F | X | X | Physical substrate habitat alterations | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Site Clearance (Land Development or Redevelopment) |
| Judith - Arrow | MT41S002_100 | LAST CHANCE CREEK, headwaters to mouth (Moccasin Creek) | 5 | 6.17 | MILES | C-3 | N | | | X | Cyanide | Acid Mine Drainage |
| | | | | | | | | | | | Iron | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Selenium | Mine Tailings |
| | | | | | | | | | | | Thallium | |
| Big Springs | MT41S004_010 | BIG SPRING CREEK, East Fork Big Spring Creek to Casino Creek | 4A | 6.24 | MILES | B-1 | P | F | F | P | Polychlorinated biphenyls | Aquaculture (Permitted) |
| | | | | | | | | | | | | Contaminated Sediments |
| Big Springs | MT41S004_020 | BIG SPRING CREEK, confluence of Casino Creek to mouth (Judith River) | 4A | 24.9 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Nitrogen (Total) | Aquaculture (Permitted) |
| | | | | | | | | | | | Phosphorus (Total) | Channelization |
| | | | | | | | | | | | Polychlorinated biphenyls | Contaminated Sediments |
| | | | | | | | | | | | Sedimentation/Siltation | Dam or Impoundment |
| | | | | | | | | | | | | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Loss of Riparian Habitat |
| | | | | | | | | | | | | Streambank Modifications/destablization |
| | | | | | | | | | | | | Unspecified Urban Stormwater |
| Big Springs | MT41S004_040 | CASINO CREEK, headwaters to mouth (Big Spring Creek) | 5 | 13.56 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Animal Feeding Operations (NPS) |
| | | | | | | | | | | | Chlorophyll-a | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrogen (Total) | Loss of Riparian Habitat |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 10040103 Judith **Watershed** Middle Missouri

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Big Springs | MT41S004_040 | CASINO CREEK, headwaters to mouth (Big Spring Creek) | 5 | 13.56 | MILES | B-1 | P | F | F | P | Phosphorus (Total) | Site Clearance (Land Development or Redevelopment) |
| Big Springs | MT41S004_052 | COTTONWOOD CREEK, county road at T14N R18E S18 to mouth (Big Spring Creek) | 5 | 19.97 | MILES | B-1 | P | P | P | P | Alteration in stream-side or littoral vegetative covers | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Excess Algal Growth | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Loss of Riparian Habitat |
| | | | | | | | | | | | Nitrogen (Total) | Source Unknown |
| | | | | | | | | | | | Other flow regime alterations | |
| | | | | | | | | | | | Oxygen, Dissolved | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Total Kjehldahl Nitrogen (TKN) | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10040104 Fort Peck Reservoir **Watershed** Middle Missouri

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Missouri River | MT40E001_010 | MISSOURI RIVER, Bullwhacker Creek to Fort Peck Reservoir | 5 | 49.02 | MILES | B-3 | P | F | N | X | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Copper | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Impacts from Abandoned Mine Lands (Inactive) |
| Landusky | MT40E002_010 | MONTANA GULCH, headwaters to mouth (Rock Creek) | 5 | 2.04 | MILES | C-3 | N | | | X | Arsenic<br>Cadmium<br>Copper<br>pH | Acid Mine Drainage<br>Impacts from Abandoned Mine Lands (Inactive) |
| Fort Peck Area Tributaries | MT40E002_022 | ARMELLS CREEK, headwaters to Deer Creek | 5 | 19.34 | MILES | C-3 | N | | | X | Cadmium<br>Copper<br>Mercury<br>Zinc<br>pH | Impacts from Abandoned Mine Lands (Inactive) |
| Fort Peck Area Tributaries | MT40E002_040 | COW CREEK, Als Creek to mouth (Missouri River) | 5 | 34.16 | MILES | C-3 | N | | | F | Aluminum<br>Copper<br>Iron<br>Lead | Coal Mining<br>Natural Sources |
| Landusky | MT40E002_050 | ALDER GULCH, headwaters to mouth (Ruby Creek), T26N R25E S16 | 5 | 4.04 | MILES | C-3 | N | | | X | Alteration in stream-side or littoral vegetative covers<br>Cadmium<br>Copper<br>Lead<br>Mercury<br>Selenium<br>Zinc<br>pH | Acid Mine Drainage<br>Impacts from Abandoned Mine Lands (Inactive)<br>Mine Tailings |
| Landusky | MT40E002_060 | RUBY CREEK, Un-Named tributary T25N R25E S21 to mouth (CK Creek) | 5 | 4.61 | MILES | C-3 | N | | | X | Aluminum<br>Cadmium<br>Copper | Impacts from Abandoned Mine Lands (Inactive) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10040104 Fort Peck Reservoir **Watershed** Middle Missouri

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landusky | MT40E002_060 | RUBY CREEK, Un-Named tributary T25N R25E S21 to mouth (CK Creek) | 5 | 4.61 | MILES | C-3 | N | | | X | Lead | |
| | | | | | | | | | | | Mercury | |
| | | | | | | | | | | | Selenium | |
| | | | | | | | | | | | Zinc | |
| | | | | | | | | | | | pH | |
| Landusky | MT40E002_070 | RUBY GULCH, headwaters to confluence of Alder Gulch, T25N R25E S21 | 5 | 2.91 | MILES | C-3 | N | | | X | Cadmium | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Chromium (total) | Mine Tailings |
| | | | | | | | | | | | Copper | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Mercury | |
| | | | | | | | | | | | Selenium | |
| | | | | | | | | | | | Zinc | |
| | | | | | | | | | | | pH | |
| Landusky | MT40E002_090 | ROCK CREEK, headwaters to mouth (Missouri River) | 5 | 39.19 | MILES | C-3 | P | | | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Cadmium | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Escherichia coli | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Mercury | |
| | | | | | | | | | | | Selenium | |
| | | | | | | | | | | | Zinc | |
| | | | | | | | | | | | pH | |
| Landusky | MT40E002_100 | MILL GULCH, headwaters to mouth (Rock Creek) | 5 | 1.74 | MILES | C-3 | P | P | N | P | Alteration in stream-side or littoral vegetative covers | Rangeland Grazing |
| | | | | | | | | | | | Copper | Surface Mining |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Mercury | |
| | | | | | | | | | | | Nitrates | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 10040104 Fort Peck Reservoir **Watershed** Middle Missouri

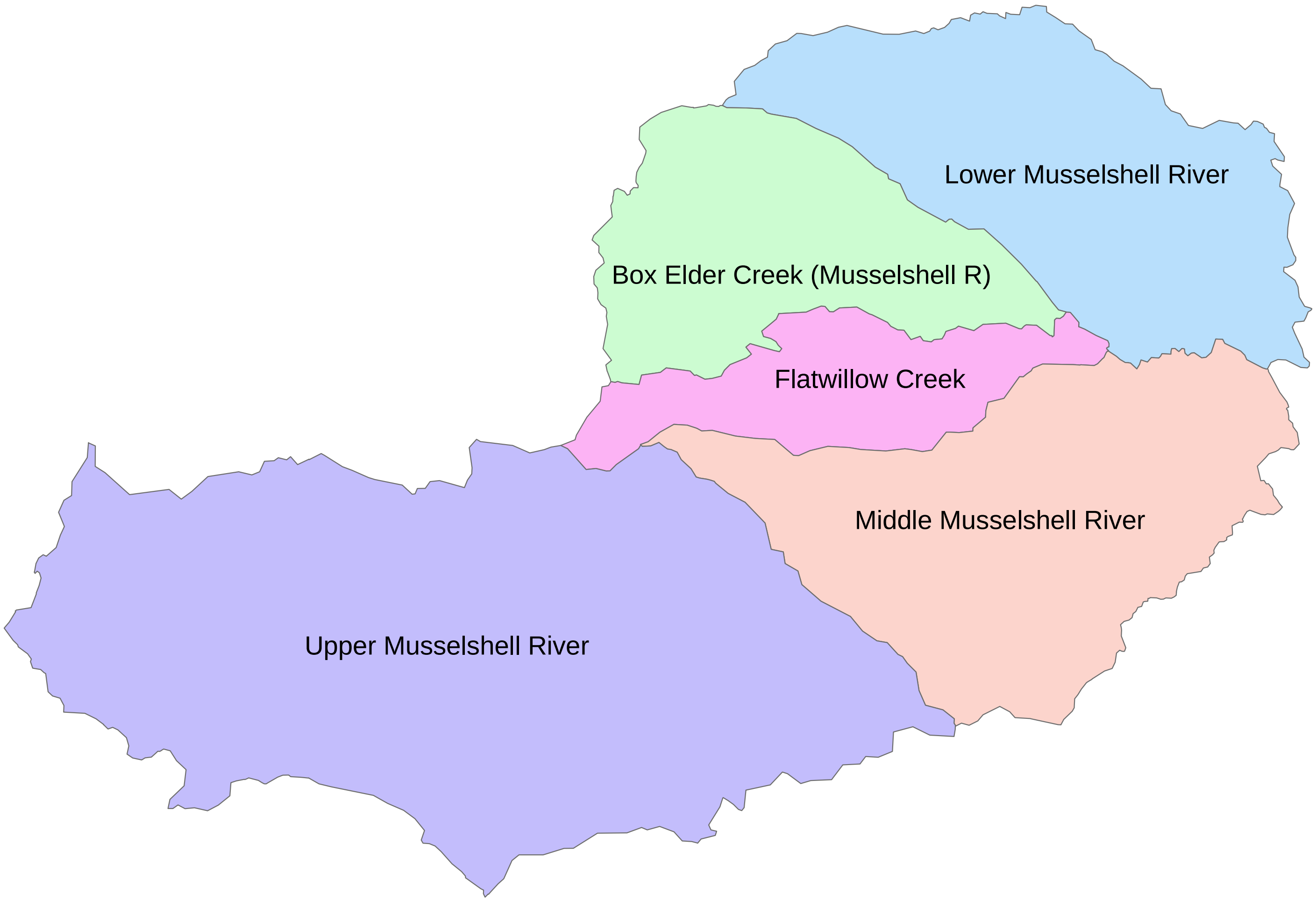
| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landusky | MT40E002_100 | MILL GULCH, headwaters to mouth (Rock Creek) | 5 | 1.74 | MILES | C-3 | P | P | N | P | Selenium<br>pH | |
| Landusky | MT40E002_110 | SULLIVAN CREEK, headwaters to mouth (Rock Creek) | 4C | .85 | MILES | C-3 | N | | | N | Alteration in stream-side or littoral vegetative covers<br>Fish-Passage Barrier<br>Other flow regime alterations<br>Physical substrate habitat alterations | Open Pit Mining<br>Subsurface (Hardrock) Minining<br>Surface Mining |
| Fort Peck Area Tributaries | MT40E002_130 | FARGO COULEE, headwaters to mouth (Armells Creek) | 5 | 21.11 | MILES | C-3 | N | | | F | Alteration in stream-side or littoral vegetative covers<br>Aluminum<br>Iron<br>Lead<br>Nitrogen (Total)<br>Phosphorus (Total) | Natural Sources<br>Source Unknown |
| Redwater | MT40E003_010 | TIMBER CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | 4A | 89.42 | MILES | C-3 | P | | | F | Nitrogen (Total)<br>Phosphorus (Total)<br>Total Kjehldahl Nitrogen (TKN) | Agriculture<br>Natural Sources<br>Source Unknown |
| Redwater | MT40E003_020 | NELSON CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | 5 | 36.37 | MILES | C-3 | P | | | X | Alteration in stream-side or littoral vegetative covers<br>Cadmium<br>Copper<br>Nitrates<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sulfates<br>Total Dissolved Solids | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Source Unknown |
| Missouri River | MT40E004_010 | FORT PECK RESERVOIR | 5 | 245000 | ACRES | B-3 | N | X | N | F | Lead<br>Mercury | Atmospheric Depositon - Toxics<br>Historic Bottom Deposits (Not Sediment)<br>Impacts from Abandoned Mine Lands (Inactive) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10040105 Big Dry **Watershed** Middle Missouri

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Big and Little Dry | MT40D001_010 | BIG DRY CREEK, Steves Fork to mouth (Fort Peck Reservoir) | 5 | 98.62 | MILES | C-3 | P | | | P | Alteration in stream-side or littoral vegetative covers<br>Ammonia (Un-ionized)<br>Nitrogen (Total)<br>Nitrogen, Nitrate<br>Phosphorus (Total) | Agriculture<br>Municipal Point Source Discharges |

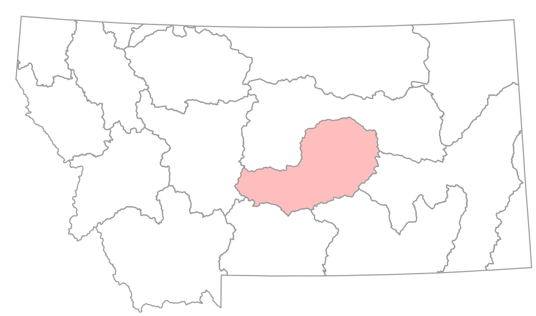
F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed




# Musselshell Sub-Major Basin

## Missouri River Basin

| USGS HUC | HUC NAME |
|---|---|
| 10040201 | Upper Musselshell River |
| 10040202 | Middle Musselshell River |
| 10040203 | Flatwillow Creek |
| 10040204 | Box Elder Creek (Musselshell R) |
| 10040205 | Lower Musselshell River |



Montana Department of Environmental Quality

**HUC** 10040201 Upper Musselshell **Watershed** Musselshell

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper/Middle Musselshell | MT40A001_010 | MUSSELSHELL RIVER, North & South Fork confluence to Deadmans Basin Diversion Canal | 5 | 55.3 | MILES | B-2 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Agriculture<br>Channelization<br>Irrigated Crop Production |
| Upper/Middle Musselshell | MT40A001_020 | MUSSELSHELL RIVER, Deadmans Basin Supply Canal to HUC boundary near Roundup | 5 | 94.49 | MILES | C-3 | P | | | X | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Non-irrigated Crop Production |
| Upper/Middle Musselshell | MT40A002_010 | NORTH FORK MUSSELSHELL RIVER, headwaters to confluence with the South Fork Musselshell River | 4C | 38.19 | MILES | B-1 | P | F | F | P | Chlorophyll-a | Grazing in Riparian or Shoreline Zones<br>Natural Sources |
| Upper/Middle Musselshell | MT40A002_030 | TRAIL CREEK, headwaters to mouth (North Fork Musselshell River) | 5 | 10.1 | MILES | B-1 | N | F | F | P | Chlorophyll-a<br>Sedimentation/Siltation | Rangeland Grazing<br>Silviculture Harvesting<br>Source Unknown |
| Upper/Middle Musselshell | MT40A002_040 | MILL CREEK, headwaters to mouth (North Fork Musselshell River) | 5 | 4.81 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Chlorophyll-a<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Silviculture Harvesting<br>Source Unknown |
| Careless Creek | MT40A002_050 | CARELESS CREEK, confluence with Deadmans Basin Canal to mouth (Musselshell River) | 4A | 17 | MILES | C-3 | P | | | F | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Channel Erosion/Incision from Upstream Hydromodifications<br>Impacts from Hydrostructure Flow Regulation/modification<br>Streambank Modifications/destablization |
| Upper/Middle Musselshell | MT40A002_070 | FISH CREEK, headwaters to mouth (Musselshell River) | 5 | 98.64 | MILES | C-3 | P | | | F | Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Nitrogen (Total)<br>Other flow regime alterations | Flow Alterations from Water Diversions<br>Rangeland Grazing<br>Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10040201 Upper Musselshell **Watershed** Musselshell

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper/Middle Musselshell | MT40A002_070 | FISH CREEK, headwaters to mouth (Musselshell River) | 5 | 98.64 | MILES | C-3 | P | | | F | Phosphorus (Total) | |
| Upper/Middle Musselshell | MT40A002_080 | PAINTED ROBE CREEK, headwaters to mouth (Musselshell River) | 5 | 40.92 | MILES | C-3 | P | | | X | Alteration in stream-side or littoral vegetative covers | Non-irrigated Crop Production |
| | | | | | | | | | | | Nitrogen (Total) | Rangeland Grazing |
| | | | | | | | | | | | Salinity | |
| Upper/Middle Musselshell | MT40A002_090 | HALF BREED CREEK, headwaters to mouth (Musselshell River) | 5 | 18.19 | MILES | C-3 | P | | | F | Nitrate/Nitrite (Nitrite + Nitrate as N) | Highway/Road/Bridge Runoff (Non-construction Related) |
| | | | | | | | | | | | Nitrogen (Total) | Livestock (Grazing or Feeding Operations) |
| | | | | | | | | | | | Other flow regime alterations | On-site Treatment Systems (Septic Systems and Similar Decencentralized Systems) |
| | | | | | | | | | | | Total Kjehldahl Nitrogen (TKN) | |
| Upper/Middle Musselshell | MT40A005_010 | DEADMANS BASIN RESERVOIR | 5 | 1903 | ACRES | B-1 | N | N | N | F | Copper | Natural Sources |
| | | | | | | | | | | | Iron | Source Unknown |
| | | | | | | | | | | | Lead | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10040202 Middle Musselshell **Watershed** Musselshell

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper/Middle Musselshell | MT40C001_010 | MUSSELSHELL RIVER, HUC boundary near Roundup to Flatwillow Creek | 4C | 119.77 | MILES | C-3 | P | | | F | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Physical substrate habitat alterations | Agriculture<br>Channelization<br>Impacts from Hydrostructure Flow Regulation/modification<br>Streambank Modifications/destablization |
| Upper/Middle Musselshell | MT40C002_010 | NORTH WILLOW CREEK, headwaters to mouth (Musselshell River) | 5 | 117.27 | MILES | C-3 | N | | | F | Iron<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Solids (Suspended/Bedload)<br>Specific Conductance<br>Sulfates | Above Ground Storage Tank Leaks (Tank Farms)<br>Natural Sources<br>Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10040203 Flatwillow **Watershed** Musselshell

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flatwillow - Box Elder | MT40B001_021 | FLATWILLOW CREEK, headwaters to Highway 87 bridge | 5 | 40.11 | MILES | B-2 | P | F | X | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Sedimentation/Siltation | Irrigated Crop Production |
| | | | | | | | | | | | | Loss of Riparian Habitat |
| | | | | | | | | | | | | Rangeland Grazing |
| Flatwillow - Box Elder | MT40B001_022 | FLATWILLOW CREEK, Highway 87 bridge to mouth (Musselshell River) | 5 | 99.88 | MILES | C-3 | P | | | P | Alteration in stream-side or littoral vegetative covers | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Mercury | Loss of Riparian Habitat |
| | | | | | | | | | | | Nitrogen, Nitrate | Rangeland Grazing |
| | | | | | | | | | | | Physical substrate habitat alterations | Source Unknown |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Flatwillow - Box Elder | MT40B001_040 | NORTH FORK FLATWILLOW CREEK, headwaters to confluence with South Fork | 5 | 27.56 | MILES | B-2 | P | F | F | F | Sedimentation/Siltation | Agriculture |
| | | | | | | | | | | | | Loss of Riparian Habitat |
| | | | | | | | | | | | | Rangeland Grazing |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10040204 Box Elder **Watershed** Musselshell

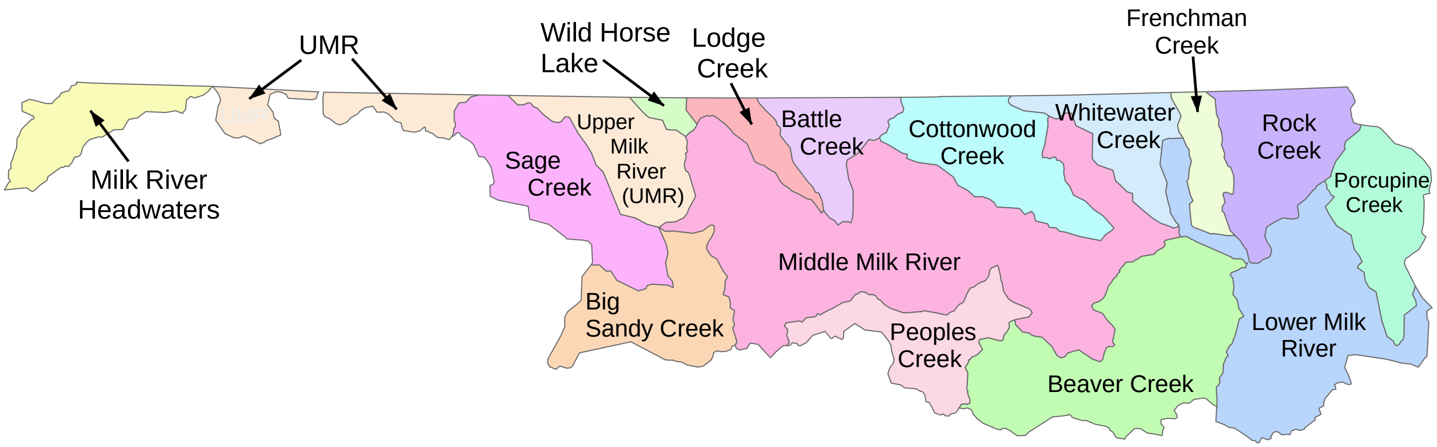
| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flatwillow - Box Elder | MT40B002_010 | McDONALD CREEK, North and South Forks to mouth (Box Elder Creek) | 5 | 89.18 | MILES | C-3 | P | | | F | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation<br>Specific Conductance<br>Total Dissolved Solids | Agriculture<br>Managed Pasture Grazing<br>Source Unknown |
| Flatwillow - Box Elder | MT40B002_020 | CHICAGO GULCH, headwaters to mouth (Fords Creek) | 5 | 2.98 | MILES | C-3 | P | | | X | Lead<br>Zinc<br>pH | Acid Mine Drainage<br>Impacts from Abandoned Mine Lands (Inactive) |
| Flatwillow - Box Elder | MT40B002_030 | COLLAR GULCH, headwaters to mouth (Fords Creek) | 5 | 6.38 | MILES | C-3 | P | | | X | Lead<br>Zinc<br>pH | Acid Mine Drainage<br>Impacts from Abandoned Mine Lands (Inactive) |
| Flatwillow - Box Elder | MT40B002_040 | CHIPPEWA CREEK, headwaters to confluence with Manitoba Gulch | 5 | 3.75 | MILES | C-3 | N | | | N | Alteration in stream-side or littoral vegetative covers<br>Antimony<br>Arsenic<br>Cyanide<br>Iron<br>Mercury<br>Sedimentation/Siltation<br>Zinc | Grazing in Riparian or Shoreline Zones<br>Heap-leach Extraction Mining<br>Mine Tailings |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10040205 Lower Musselshell **Watershed** Musselshell

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Musselshell | MT40C003_010 | MUSSELSHELL RIVER, Flatwillow Creek to Fort Peck Reservoir | 4C | 75.94 | MILES | C-3 | P | | | F | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations | Agriculture<br>Flow Alterations from Water Diversions<br>Grazing in Riparian or Shoreline Zones<br>Impacts from Hydrostructure Flow Regulation/modification<br>Impacts from Resort Areas (Winter and Non-winter Resorts)<br>Streambank Modifications/destablization |
| Lower Musselshell | MT40C004_030 | BLOOD CREEK, Dovetail County Road to mouth (Musselshell River) | 4C | 57.36 | MILES | C-3 | P | | | X | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones<br>Natural Sources |

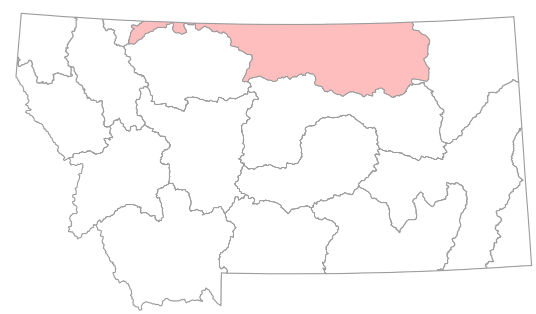
F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed




# Milk Sub-Major Basin

## Missouri River Basin

| USGS HUC | HUC NAME |
|---|---|
| 10050001 | Milk River Headwaters |
| 10050002 | Upper Milk River |
| 10050003 | Wild Horse Lake |
| 10050004 | Middle Milk River |
| 10050005 | Big Sandy Creek |
| 10050006 | Sage Creek |
| 10050007 | Lodge Creek |
| 10050008 | Battle Creek |
| 10050009 | Peoples Creek |
| 10050010 | Cottonwood Creek |
| 10050011 | Whitewater Creek |
| 10050012 | Lower Milk River |
| 10050013 | Frenchman Creek |
| 10050014 | Beaver Creek (Milk R) |
| 10050015 | Rock Creek |
| 10050016 | Porcupine Creek |



Montana Department of Environmental Quality

**HUC** 10050002 Upper Milk **Watershed** Milk

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Milk | MT40F003_010 | MILK RIVER, Eastern, Canada border to Fresno Reservoir | 5 | 39.66 | MILES | B-3 | N | F | N | F | Copper<br>High Flow Regime<br>Iron<br>Lead | Flow Alterations from Water Diversions<br>Natural Sources<br>Source Unknown |
| Upper Milk | MT40F005_010 | FRESNO RESERVOIR (Milk River) | 4C | 5007 | ACRES | B-3 | P | F | X | X | Other flow regime alterations<br>Physical substrate habitat alterations | Impacts from Hydrostructure Flow Regulation/modification |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10050004 Middle Milk **Watershed** Milk

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Middle Milk and Tributaries | MT40J001_011 | MILK RIVER, Fresno Dam to Thirtymile Creek | 5 | 113.28 | MILES | B-3 | X | F | N | X | Mercury | Agriculture<br>Dam or Impoundment<br>Natural Sources |
| Middle Milk and Tributaries | MT40J001_012 | MILK RIVER, Thirtymile Creek to Dobson Creek | 5 | 58.19 | MILES | B-3 | X | F | N | X | Mercury | Agriculture<br>Dam or Impoundment<br>Natural Sources |
| Middle Milk and Tributaries | MT40J001_013 | MILK RIVER, Dobson Creek to Whitewater Creek | 5 | 102.75 | MILES | B-3 | X | F | N | X | Mercury | Agriculture<br>Dam or Impoundment<br>Natural Sources |
| Middle Milk and Tributaries | MT40J001_020 | MILK RIVER, Whitewater Creek to Beaver Creek | 5 | 38.24 | MILES | B-3 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Iron<br>Nitrates<br>Other flow regime alterations | Crop Production (Crop Land or Dry Land)<br>Flow Alterations from Water Diversions<br>Irrigated Crop Production<br>Natural Sources<br>Rangeland Grazing |
| Middle Milk and Tributaries | MT40J002_010 | BEAVER CREEK, Beaver Creek Reservoir to mouth (Milk River) | 5 | 24.92 | MILES | B-1 | N | F | N | F | Iron<br>Lead<br>Mercury<br>Other flow regime alterations<br>Sedimentation/Siltation<br>Temperature, water | Channelization<br>Natural Sources<br>Source Unknown |
| Middle Milk and Tributaries | MT40J002_020 | BULLHOOK CREEK, headwaters to the Bullhook Dam, T32N R16E S16 | 5 | 24.9 | MILES | B-3 | N | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Other flow regime alterations<br>Sedimentation/Siltation<br>Temperature, water | Habitat Modification - other than Hydromodification<br>Natural Sources<br>Residential Districts<br>Source Unknown<br>Streambank Modifications/destablization |
| Middle Milk and Tributaries | MT40J002_030 | LITTLE BOXELDER CREEK, headwaters to mouth (Milk River) | 5 | 50.17 | MILES | B-1 | N | F | F | F | Nitrate/Nitrite (Nitrite + Nitrate as N) | Natural Sources |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10050004 Middle Milk **Watershed** Milk

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Middle Milk and Tributaries | MT40J002_030 | LITTLE BOXELDER CREEK, headwaters to mouth (Milk River) | 5 | 50.17 | MILES | B-1 | N | F | F | F | Nitrogen (Total) | Rangeland Grazing |
| | | | | | | | | | | | Phosphorus (Total) | Source Unknown |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 10050005 Big Sandy **Watershed** Milk

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Big Sandy - Sage | MT40H001_010 | BIG SANDY CREEK, Lonesome Lake Coulee to mouth (Milk River) | 5 | 62.93 | MILES | B-3 | P | F | N | X | Mercury | Agriculture |
| | | | | | | | | | | | Salinity | Atmospheric Depositon - Nitrogen |
| | | | | | | | | | | | Sulfates | Crop Production (Crop Land or Dry Land) |
| | | | | | | | | | | | Total Dissolved Solids | Natural Sources |
| | | | | | | | | | | | | Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 10050006 Sage **Watershed** Milk

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Big Sandy - Sage | MT40G001_011 | SAGE CREEK, Laird Creek to the confluence of Russell Creek, T36N R9E S32 | 4A | 9.94 | MILES | B-1 | P | P | P | F | Alteration in stream-side or littoral vegetative covers<br>Salinity<br>Sulfates<br>Total Dissolved Solids | Agriculture<br>Crop Production (Crop Land or Dry Land)<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Natural Sources<br>Non-irrigated Crop Production |
| Big Sandy - Sage | MT40G001_012 | SAGE CREEK, the section line between 1 & 12 T36N R6E to the mouth | 4A | 111.75 | MILES | B-3 | P | P | P | F | Alteration in stream-side or littoral vegetative covers<br>Salinity<br>Sulfates<br>Total Dissolved Solids | Crop Production (Crop Land or Dry Land)<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Natural Sources<br>Non-irrigated Crop Production |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 10050007 Lodge **Watershed** Milk

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Middle Milk and Tributaries | MT40J003_010 | LODGE CREEK, Canadian border to mouth (Milk River) | 5 | 83.08 | MILES | B-3 | P | P | N | F | Low flow alterations | Agriculture |
| | | | | | | | | | | | Mercury | Dam or Impoundment |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Golf Courses |
| | | | | | | | | | | | Nitrogen (Total) | Residential Districts |
| | | | | | | | | | | | Oxygen, Dissolved | Source Unknown |
| | | | | | | | | | | | Phosphorus (Total) | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10050008 Battle **Watershed** Milk

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Middle Milk and Tributaries | MT40J004_010 | BATTLE CREEK, Canadian border to mouth (Milk River) | 5 | 74.33 | MILES | B-3 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Cause Unknown<br>Chlorophyll-a<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Agriculture<br>Rangeland Grazing |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10050009 Peoples **Watershed** Milk

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Middle Milk and Tributaries | MT40I001_020 | PEOPLES CREEK, headwaters to Fort Belknap Reservation boundary | 5 | 57.19 | MILES | B-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers<br>Chlorophyll-a<br>Mercury<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Phosphorus (Total)<br>Temperature, water | Grazing in Riparian or Shoreline Zones<br>Source Unknown |
| Landusky | MT40I001_030 | BIG HORN CREEK, Zortman Mine to Fort Belknap Reservation boundary | 5 | 1.36 | MILES | B-1 | N | F | N | X | Aluminum<br>Arsenic<br>Cadmium<br>Nickel<br>Zinc | Acid Mine Drainage<br>Impacts from Abandoned Mine Lands (Inactive)<br>Mine Tailings<br>Surface Mining |
| Landusky | MT40I001_040 | KING CREEK, headwaters to Fort Belknap Reservation boundary | 5 | .9 | MILES | B-1 | N | F | F | X | Alteration in stream-side or littoral vegetative covers<br>Physical substrate habitat alterations<br>Selenium | Impacts from Abandoned Mine Lands (Inactive)<br>Mine Tailings |
| Landusky | MT40I001_050 | LODGE POLE CREEK, headwaters to Fort Belknap Reservation boundary | 5 | 4.34 | MILES | B-1 | N | F | N | X | Alteration in stream-side or littoral vegetative covers<br>Cadmium<br>Cause Unknown<br>Mercury | Source Unknown<br>Subsurface (Hardrock) Minining<br>Surface Mining |
| Landusky | MT40I002_010 | SWIFT GULCH CREEK, Headwaters to mouth (South Big Horn Creek), T25N R24E S10 | 5 | 1.73 | MILES | B-1 | N | F | N | F | Aluminum<br>Arsenic<br>Cadmium<br>Copper<br>Cyanide<br>Iron<br>Lead<br>Nickel<br>Selenium | Impacts from Abandoned Mine Lands (Inactive)<br>Natural Sources<br>Open Pit Mining |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10050009 Peoples **Watershed** Milk

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landusky | MT40I002_010 | SWIFT GULCH CREEK, Headwaters to mouth (South Big Horn Creek), T25N R24E S10 | 5 | 1.73 | MILES | B-1 | N | F | N | F | Thallium<br>Zinc<br>pH | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10050010 Cottonwood **Watershed** Milk

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Middle Milk and Tributaries | MT40J005_020 | COTTONWOOD CREEK, Black Coulee to mouth (Milk River) | 5 | 57.36 | MILES | B-3 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Iron<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Natural Sources<br>Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10050011 Whitewater **Watershed** Milk

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Middle Milk and Tributaries | MT40K001_010 | WHITEWATER CREEK, Canadian border to mouth (Milk River) | 5 | 67.63 | MILES | B-3 | F | F | N | F | Mercury | Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10050012 Lower Milk **Watershed** Milk

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Milk | MT40O001_010 | MILK RIVER, Beaver Creek to mouth (Missouri River) | 5 | 134.52 | MILES | B-3 | X | F | N | N | Escherichia coli<br>Lead<br>Mercury | Agriculture<br>Dam or Impoundment<br>Source Unknown |
| Lower Milk | MT40O002_020 | BUGGY CREEK, headwaters to mouth (Milk River) | 5 | 46.53 | MILES | B-3 | P | F | F | F | Iron | Natural Sources |
| Lower Milk | MT40O002_031 | WILLOW CREEK, headwaters to Halfpint Reservoir, T25N R35E S26 | 5 | 10.38 | MILES | B-3 | P | F | X | X | Alteration in stream-side or littoral vegetative covers<br>Other flow regime alterations<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Impacts from Hydrostructure Flow Regulation/modification<br>Streambank Modifications/destablization<br>Upstream Impoundments (e.g., Pl-566 NRCS Structures) |
| Lower Milk | MT40O002_033 | WILLOW CREEK, Halfpint Reservoir to mouth (Milk River), T28N R40E S29 | 5 | 76.13 | MILES | B-3 | N | F | X | X | Alteration in stream-side or littoral vegetative covers<br>Other flow regime alterations<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Agriculture<br>Grazing in Riparian or Shoreline Zones |
| Lower Milk | MT40O002_040 | BEAVER CREEK, confluence of Little Beaver Creek and South Fork Beaver Creek to mouth (Willow Creek) | 5 | 16.53 | MILES | B-3 | N | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Solids (Suspended/Bedload) | Dam or Impoundment<br>Natural Sources<br>Rangeland Grazing |
| Lone Tree Creek | MT40O002_050 | LONE TREE CREEK, headwaters to mouth at Willow Creek | 4A | 22.22 | MILES | B-3 | P | X | X | X | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total) | Grazing in Riparian or Shoreline Zones<br>Impacts from Hydrostructure Flow Regulation/modification<br>Streambank Modifications/destablization |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10050013 Frenchman **Watershed** Milk

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Middle Milk and Tributaries | MT40L001_010 | FRENCHMAN CREEK, Canadian border to mouth (Milk River) | 4C | 82.5 | MILES | B-3 | P | P | F | P | Alteration in stream-side or littoral vegetative covers<br>Chlorophyll-a<br>Low flow alterations | Agriculture<br>Dam or Impoundment<br>Grazing in Riparian or Shoreline Zones<br>Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10050014 Beaver **Watershed** Milk

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landusky | MT40M001_011 | BEAVER CREEK, headwaters to Fort Belknap Reservation boundary | 5 | 5.4 | MILES | B-3 | N | F | F | F | Cadmium<br>Iron<br>Lead | Impacts from Abandoned Mine Lands (Inactive)<br>Source Unknown |
| Beaver | MT40M001_013 | BEAVER CREEK, Fort Belknap Reservation boundary to Big Warm Creek | 5 | 55.12 | MILES | B-3 | P | F | N | F | Mercury<br>Phosphorus (Total) | Source Unknown |
| Beaver | MT40M001_014 | BEAVER CREEK, Big Warm Creek to Un-Named tributary, T30N R32E S32 | 5 | 97.99 | MILES | B-3 | P | F | N | F | Mercury<br>Phosphorus (Total) | Source Unknown |
| Beaver | MT40M001_020 | BEAVER CREEK, Bowdoin Canal to mouth (Milk River) | 5 | 86.86 | MILES | B-3 | P | F | X | X | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Physical substrate habitat alterations<br>Uranium | Agriculture<br>Source Unknown |
| Beaver | MT40M002_010 | FLAT CREEK, headwaters to mouth (Beaver Creek), T27N R32E S35 | 5 | 36.88 | MILES | B-3 | N | N | N | F | Arsenic<br>Cadmium<br>Copper<br>Iron<br>Lead<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Nitrogen (Total)<br>Oxygen, Dissolved<br>Phosphorus (Total)<br>Solids (Suspended/Bedload)<br>Zinc | Natural Sources<br>Source Unknown |
| Beaver | MT40M002_020 | LARB CREEK, headwaters to mouth (Beaver Creek) | 5 | 76.67 | MILES | B-3 | N | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Copper<br>Lead<br>Nitrogen (Total) | Agriculture<br>Animal Feeding Operations (NPS)<br>Natural Sources<br>Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10050014 Beaver **Watershed** Milk

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Beaver | MT40M002_020 | LARB CREEK, headwaters to mouth (Beaver Creek) | 5 | 76.67 | MILES | B-3 | N | F | F | F | Oxygen, Dissolved | |
| | | | | | | | | | | | Phosphorus (Total) | |
| Beaver | MT40M002_030 | BIG WARM CREEK, Fort Belknap Reservation boundary to mouth (Beaver Creek) | 5 | 57.08 | MILES | B-3 | P | P | F | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Other flow regime alterations | Dam or Impoundment |
| | | | | | | | | | | | Phosphorus (Total) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Physical substrate habitat alterations | Streambank Modifications/destablization |
| | | | | | | | | | | | Salinity | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Beaver | MT40M003_010 | LAKE BOWDOIN | 5 | 3500 | ACRES | B-3 | P | P | N | X | Salinity | Agriculture |
| | | | | | | | | | | | Selenium | Dam or Impoundment |
| | | | | | | | | | | | | Irrigated Crop Production |
| Beaver | MT40M003_020 | NELSON RESERVOIR | 5 | 3901.7 | ACRES | B-3 | P | F | X | P | Other flow regime alterations | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Phosphorus (Total) | Irrigated Crop Production |

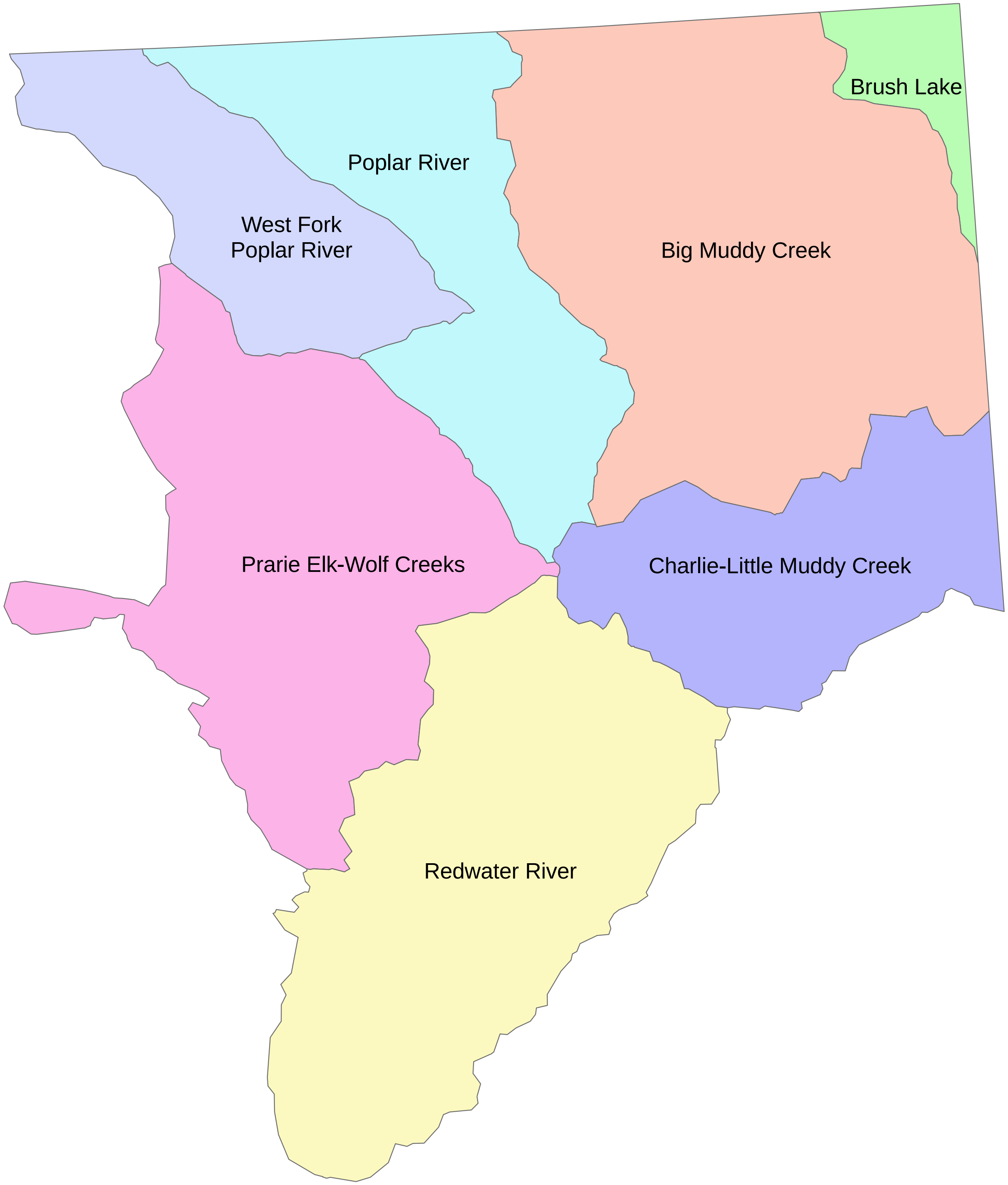
F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 10050016 Porcupine **Watershed** Milk

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Milk | MT40O003_010 | PORCUPINE CREEK, confluence of West and Middle Forks to mouth (Milk River) | 5 | 49.29 | MILES | B-3 | P | P | F | X | Nitrogen (Total) | Non-irrigated Crop Production |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Salinity | |

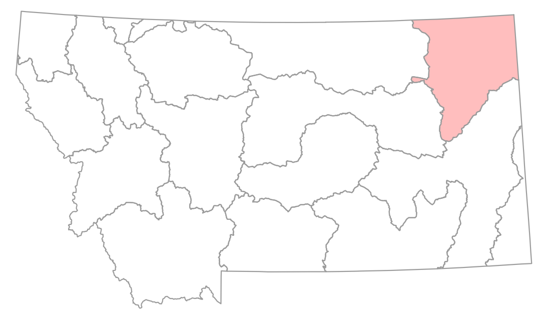
F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed




# Lower Missouri Sub-Major Basin

## Missouri River Basin

| USGS HUC | HUC NAME |
|---|---|
| 10060001 | Prairie Elk-Wolf Creeks |
| 10060002 | Red Water River |
| 10060003 | Poplar River |
| 10060004 | West Fork Poplar River |
| 10060005 | Charlie-Little Muddy Creeks |
| 10060006 | Big Muddy Creel |
| 10060007 | Brush Lake |



Montana Department of Environmental Quality

**HUC** 10060001 Prairie Elk-Wolf **Watershed** Lower Missouri

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Missouri | MT40S001_011 | MISSOURI RIVER, Fort Peck Dam to Milk River | 5 | 9.79 | MILES | B-2 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Other flow regime alterations<br>Temperature, water | Impacts from Hydrostructure Flow Regulation/modification |
| Lower Missouri | MT40S001_012 | MISSOURI RIVER, Milk River to Poplar River | 5 | 81.86 | MILES | B-3 | P | F | F | X | Alteration in stream-side or littoral vegetative covers<br>Other flow regime alterations<br>Temperature, water | Impacts from Hydrostructure Flow Regulation/modification<br>Loss of Riparian Habitat |
| Redwater | MT40S002_010 | PRAIRIE ELK CREEK, East and Middle Forks to mouth (Missouri River) | 4A | 38.87 | MILES | C-3 | P | | | X | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Physical substrate habitat alterations<br>Total Kjehldahl Nitrogen (TKN) | Agriculture<br>Grazing in Riparian or Shoreline Zones |
| Redwater | MT40S002_030 | SAND CREEK, confluence of East and West Forks to mouth (Missouri River) | 5 | 19.82 | MILES | C-3 | P | | | X | Nitrogen (Total)<br>Phosphorus (Total)<br>Physical substrate habitat alterations<br>Sedimentation/Siltation<br>Total Kjehldahl Nitrogen (TKN) | Agriculture<br>Non-irrigated Crop Production<br>Rangeland Grazing |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10060002 Redwater **Watershed** Lower Missouri

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Redwater | MT40P001_012 | REDWATER RIVER, Hell Creek to Buffalo Springs Creek | 4A | 7.67 | MILES | C-3 | P | | | F | Cause Unknown | Municipal Point Source Discharges |
| | | | | | | | | | | | Nitrogen (Total) | Natural Sources |
| | | | | | | | | | | | Phosphorus (Total) | On-site Treatment Systems (Septic Systems and Similar Decencentralized Systems) |
| Redwater | MT40P001_014 | REDWATER RIVER, Pasture Creek to mouth (Missouri River) | 4C | 60.45 | MILES | C-3 | P | | | F | Alteration in stream-side or littoral vegetative covers | Natural Sources |
| | | | | | | | | | | | Physical substrate habitat alterations | Rangeland Grazing |
| Redwater | MT40P002_010 | EAST REDWATER CREEK, headwaters to mouth (Redwater River) | 5 | 50.61 | MILES | C-3 | P | | | P | Chlorophyll-a | Agriculture |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Source Unknown |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Specific Conductance | |
| | | | | | | | | | | | Sulfates | |
| | | | | | | | | | | | Total Dissolved Solids | |
| | | | | | | | | | | | Total Kjehldahl Nitrogen (TKN) | |
| Redwater | MT40P002_020 | HORSE CREEK, headwaters to mouth at Redwater River near town of Circle | 4A | 32.43 | MILES | C-3 | P | | | X | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Nitrogen (Total) | Non-irrigated Crop Production |
| | | | | | | | | | | | Phosphorus (Total) | Rangeland Grazing |
| | | | | | | | | | | | Physical substrate habitat alterations | Source Unknown |
| | | | | | | | | | | | Salinity | |
| Redwater | MT40P002_030 | PASTURE CREEK, headwaters to mouth at Redwater River | 4A | 39.72 | MILES | C-3 | P | | | F | Nitrogen (Total) | Agriculture |
| | | | | | | | | | | | Total Kjehldahl Nitrogen (TKN) | Animal Feeding Operations (NPS) |
| | | | | | | | | | | | | Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10060003 Poplar **Watershed** Lower Missouri

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Missouri | MT40Q001_011 | POPLAR RIVER, T35N R48E S17 to Fort Peck Reservation, T33N R48E S12 | 5 | 29.94 | MILES | B-2 | P | F | F | N | Escherichia coli | Natural Sources |
| | | | | | | | | | | | Sedimentation/Siltation | Rangeland Grazing |
| | | | | | | | | | | | Temperature, water | Source Unknown |
| Lower Missouri | MT40Q001_012 | MIDDLE FORK POPLAR RIVER, T37N R45E S6 to the mouth (Poplar River), T36N R48E S33 | 5 | 36.46 | MILES | B-2 | P | F | F | N | Escherichia coli | Natural Sources |
| | | | | | | | | | | | Sedimentation/Siltation | Rangeland Grazing |
| | | | | | | | | | | | Temperature, water | Source Unknown |
| Lower Missouri | MT40Q002_010 | BUTTE CREEK, headwaters to mouth (Poplar River) | 5 | 41.95 | MILES | B-2 | P | P | F | F | Iron | Crop Production (Crop Land or Dry Land) |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Natural Sources |
| | | | | | | | | | | | Nitrogen (Total) | Source Unknown |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sodium | |
| | | | | | | | | | | | Specific Conductance | |
| Lower Missouri | MT40Q002_020 | EAST FORK POPLAR RIVER, Canada border to mouth (Poplar River) | 5 | 21.58 | MILES | B-2 | P | P | F | P | Chlorophyll-a | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Iron | Natural Sources |
| | | | | | | | | | | | Other flow regime alterations | Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10060005 Charlie-Little Muddy **Watershed** Lower Missouri

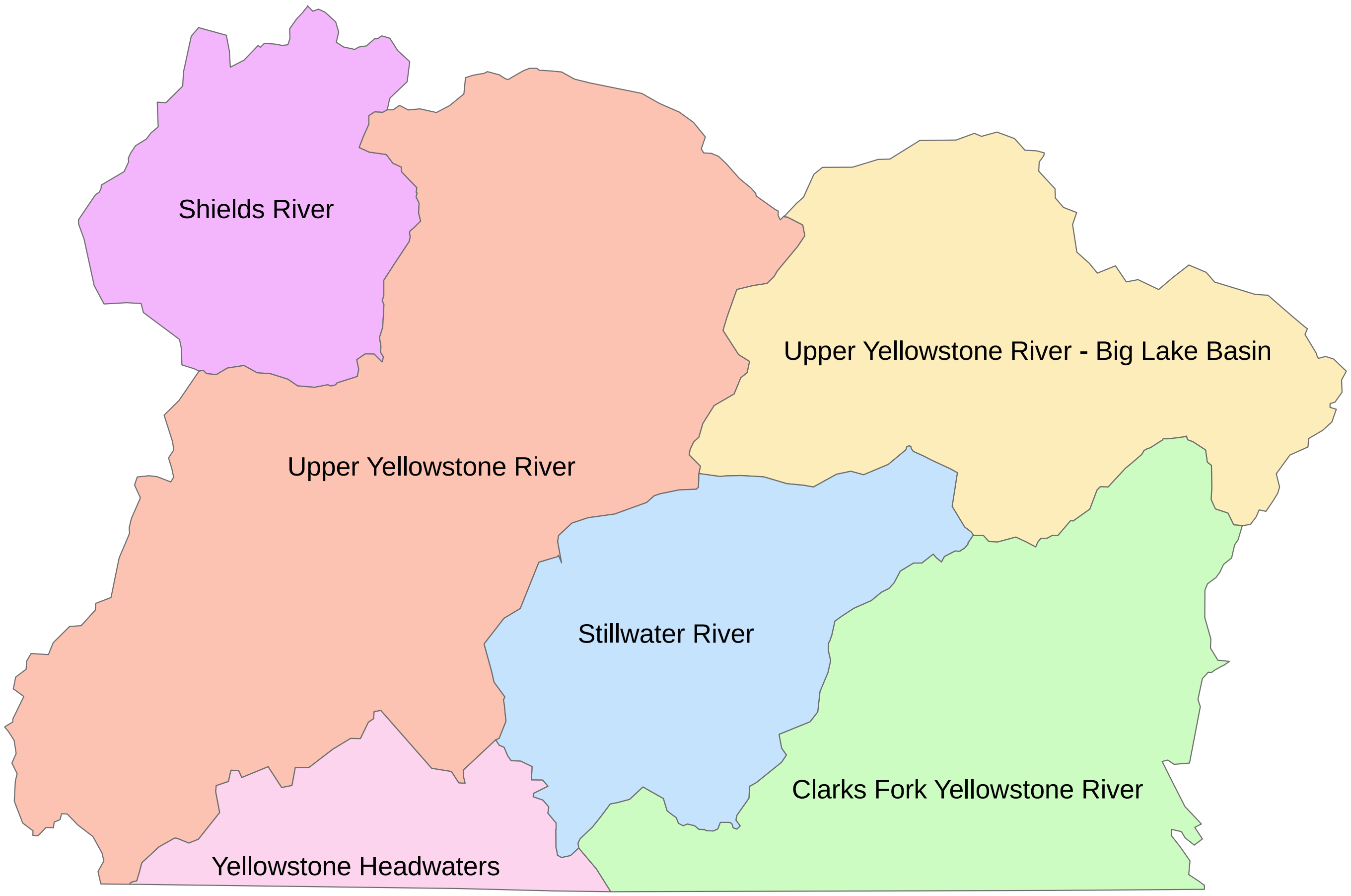
| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Missouri | MT40S003_010 | MISSOURI RIVER, Poplar River to North Dakota border | 5 | 91.97 | MILES | B-3 | P | F | F | X | Other flow regime alterations | Dam or Impoundment |
| | | | | | | | | | | | Temperature, water | Impacts from Hydrostructure Flow Regulation/modification |
| Lower Missouri | MT40S004_010 | CHARLIE CREEK, East and Middle Charlie Creek to mouth (Missouri River) | 5 | 32.86 | MILES | C-3 | N | | | F | Fish-Passage Barrier | Crop Production (Crop Land or Dry Land) |
| | | | | | | | | | | | Iron | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Nitrogen (Total) | Natural Sources |
| | | | | | | | | | | | Specific Conductance | |
| Lower Missouri | MT40S004_020 | HARDSCRABBLE CREEK, headwaters to mouth (Missouri River) | 5 | 35.91 | MILES | C-3 | N | | | F | Nitrogen (Total) | Agriculture |
| | | | | | | | | | | | Specific Conductance | Natural Sources |
| | | | | | | | | | | | Total Dissolved Solids | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10060006 Big Muddy **Watershed** Lower Missouri

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Missouri | MT40R001_010 | BIG MUDDY CREEK, north corner of Fort Peck Reservation boundary to mouth (Missouri River) | 5 | 82.08 | MILES | C-3 | P | | | X | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Impacts from Hydrostructure Flow Regulation/modification |
| Lower Missouri | MT40R001_020 | BIG MUDDY CREEK, Canadian border to northern boundary of Fort Peck Reservation | 5 | 119.54 | MILES | C-3 | P | | | F | Alteration in stream-side or littoral vegetative covers<br>Copper<br>Lead<br>Mercury<br>Nitrogen (Total)<br>Organic Enrichment (Sewage) Biological Indicators<br>Phosphorus (Total)<br>Zinc | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Non-irrigated Crop Production<br>Source Unknown |
| Lower Missouri | MT40R003_010 | MEDICINE LAKE | 5 | 8599 | ACRES | C-3 | P | | | F | Cadmium<br>Lead<br>Mercury | Atmospheric Depositon - Toxics<br>Source Unknown |

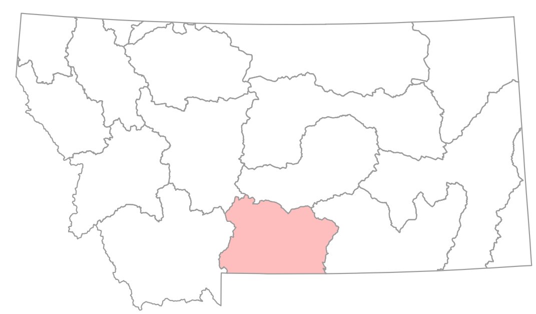
F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed




# Upper Yellowstone Sub-Major Basin

## Yellowstone River Basin

| USGS HUC | HUC NAME |
|---|---|
| 10070001 | Yellowstone Headwaters |
| 10070002 | Upper Yellowstone River |
| 10070003 | Shields River |
| 10070004 | Upper Yellowstone River - Big Lake Basin |
| 10070005 | Stillwater River (Yellowstone R) |
| 10070006 | Clarks Fork Yellowstone River |



Montana Department of Environmental Quality

**HUC** 10070001 Yellowstone Headwaters **Watershed** Upper Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yellowstone River | MT43B001_010 | YELLOWSTONE RIVER, Yellowstone Park Boundary to Reese Creek | 5 | 4.79 | MILES | B-1 | P | F | N | F | Ammonia (Total)<br>Arsenic<br>Copper<br>Lead<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Sedimentation/Siltation | Highway/Road/Bridge Runoff (Non-construction Related)<br>Impacts from Abandoned Mine Lands (Inactive)<br>Natural Sources<br>Source Unknown<br>Subsurface (Hardrock) Minining<br>Surface Mining |
| Yellowstone River | MT43B001_011 | YELLOWSTONE RIVER, Montana State border to Yellowstone Park Boundary | 5 | 8.68 | MILES | A-1 | P | X | N | X | Ammonia (Un-ionized)<br>Arsenic<br>Copper<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Sedimentation/Siltation | Highway/Road/Bridge Runoff (Non-construction Related)<br>Impacts from Abandoned Mine Lands (Inactive)<br>Natural Sources<br>Source Unknown<br>Subsurface (Hardrock) Minining<br>Surface Mining |
| Paradise | MT43B002_010 | REESE CREEK, border to mouth (Yellowstone River) | 4C | 5.23 | MILES | A-1 | P | F | F | F | Fish-Passage Barrier | Source Unknown |
| Paradise | MT43B002_021 | BEAR CREEK, 1/2 mile below Jardine Mine to mouth (Yellowstone River) | 5 | 3.03 | MILES | B-1 | P | F | F | P | Low flow alterations<br>Temperature, water | Flow Alterations from Water Diversions |
| Cooke City | MT43B002_031 | SODA BUTTE CREEK, McLaren Tailings to Montana Border | 4A | 4.86 | MILES | B-1 | P | X | X | F | Copper<br>Iron<br>Lead<br>Manganese | Acid Mine Drainage<br>Mine Tailings |
| Cooke City | MT43B002_040 | MILLER CREEK, headwaters to mouth (Soda Butte Creek) | 4A | 2.56 | MILES | B-1 | N | X | N | X | Aluminum<br>Cadmium<br>Copper<br>Iron<br>Lead<br>Manganese<br>Zinc | Acid Mine Drainage<br>Mine Tailings<br>Natural Sources |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10070002 Upper Yellowstone **Watershed** Upper Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yellowstone River | MT43B003_010 | YELLOWSTONE RIVER, Reese Creek to Bridger Creek | 4C | 119 | MILES | B-1 | P | X | X | X | Alteration in stream-side or littoral vegetative covers<br>Physical substrate habitat alterations | Loss of Riparian Habitat<br>Site Clearance (Land Development or Redevelopment)<br>Streambank Modifications/destablization |
| Yellowstone - Sweet Grass | MT43B004_011 | OTTER CREEK, 2 mi downstream of Highway 191 bridge to mouth (Yellowstone River) | 4C | 29.57 | MILES | B-1 | P | X | X | X | Other flow regime alterations<br>Physical substrate habitat alterations | Impacts from Hydrostructure Flow Regulation/modification |
| Yellowstone - Sweet Grass | MT43B004_012 | OTTER CREEK, headwaters to 2 mi downstream of Highway 191 bridge | 5 | 24.5 | MILES | B-1 | P | F | F | I | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Agriculture |
| Yellowstone - Sweet Grass | MT43B004_021 | BIG TIMBER CREEK, Swamp Creek to mouth (Yellowstone River) | 4C | 5.37 | MILES | B-1 | P | X | X | P | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification |
| Yellowstone - Sweet Grass | MT43B004_022 | BIG TIMBER CREEK, headwaters downstream to Swamp Creek | 5 | 26.75 | MILES | B-1 | P | F | P | I | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Cadmium<br>Copper<br>Iron<br>Lead<br>Manganese<br>Nickel<br>Sedimentation/Siltation<br>Selenium<br>Solids (Suspended/Bedload) | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Source Unknown |
| Yellowstone - Sweet Grass | MT43B004_031 | LOWER DEER CREEK, 4 mile upstream to mouth (Yellowstone River) | 4C | 4.43 | MILES | B-1 | P | X | X | P | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification |
| Yellowstone - Sweet Grass | MT43B004_041 | UPPER DEER CREEK, Cartwright Gulch to mouth (Yellowstone River) | 4C | 6.95 | MILES | B-1 | P | X | X | P | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification |
| Yellowstone - Sweet Grass | MT43B004_042 | UPPER DEER CREEK, headwaters to Cartwright Gulch | 5 | 16.63 | MILES | B-1 | P | F | F | I | Alteration in stream-side or littoral vegetative covers<br>Solids (Suspended/Bedload) | Grazing in Riparian or Shoreline Zones<br>Silviculture Activities |
| Paradise | MT43B004_051 | BILLMAN CREEK, 1.3 miles upstream to mouth (Yellowstone River) | 5 | 1.37 | MILES | B-1 | P | F | F | P | Excess Algal Growth<br>Fish-Passage Barrier | Agriculture<br>Channelization |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10070002 Upper Yellowstone **Watershed** Upper Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Paradise | MT43B004_051 | BILLMAN CREEK, 1.3 miles upstream to mouth (Yellowstone River) | 5 | 1.37 | MILES | B-1 | P | F | F | P | Nitrate/Nitrite (Nitrite + Nitrate as N) | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Sedimentation/Siltation | Source Unknown |
| Paradise | MT43B004_052 | BILLMAN CREEK, headwaters to 1.3 miles above mouth (Yellowstone River) | 5 | 13.44 | MILES | B-1 | P | F | F | F | Combined Biota/Habitat Bioassessments | Agriculture |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Channelization |
| | | | | | | | | | | | Sedimentation/Siltation | Source Unknown |
| Paradise | MT43B004_061 | TOM MINER CREEK, Tepee Creek to mouth (Yellowstone River) | 5 | .73 | MILES | B-1 | P | F | F | P | Low flow alterations | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Temperature, water | |
| Paradise | MT43B004_071 | MILL CREEK, National Forest boundary to mouth (Yellowstone River) | 4C | 7.4 | MILES | B-1 | P | X | X | P | Low flow alterations | Agriculture |
| | | | | | | | | | | | | Impacts from Hydrostructure Flow Regulation/modification |
| Paradise | MT43B004_081 | PINE CREEK, 2.5 miles upstream to mouth (Yellowstone River) | 4C | 2.42 | MILES | B-1 | P | X | X | P | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | | Irrigated Crop Production |
| Paradise | MT43B004_090 | SUCE CREEK, Absaroka-Beartooth Wilderness boundary to mouth (Yellowstone River) | 4C | 3.85 | MILES | B-1 | P | X | X | P | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification |
| Paradise | MT43B004_101 | SIX MILE CREEK, National Forest boundary to mouth (Yellowstone River) | 4C | 6.19 | MILES | B-1 | P | X | X | P | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification |
| Paradise | MT43B004_102 | SIX MILE CREEK, Absaroka-Beartooth Wilderness boundary to National Forest boundary | 5 | 2.54 | MILES | B-1 | P | X | X | X | Other anthropogenic substrate alterations | Loss of Riparian Habitat |
| | | | | | | | | | | | Sedimentation/Siltation | Placer Mining |
| Big Creek (Yellowstone) | MT43B004_111 | BIG CREEK, National Forest boundary to mouth (Yellowstone River) | 4C | 4.25 | MILES | B-1 | P | X | X | P | Low flow alterations | Flow Alterations from Water Diversions |
| Paradise | MT43B004_120 | MOL HERON CREEK, Yellowstone National Park boundary to mouth (Yellowstone River) | 4C | 9.03 | MILES | B-1 | P | F | F | F | Low flow alterations | Agriculture |
| Boulder - Big Timber | MT43B004_131 | BOULDER RIVER, five miles upstream of mouth (Yellowstone River) | 5 | 5.51 | MILES | B-1 | P | F | F | P | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Iron | Irrigated Crop Production |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Silver | |
| Boulder - Big Timber | MT43B004_132 | BOULDER RIVER, Natural Bridge and Falls in T3S R12E S26 to 5 miles above | 5 | 27.84 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Agriculture |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10070002 Upper Yellowstone **Watershed** Upper Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boulder - Big Timber | MT43B004_132 | BOULDER RIVER, Natural Bridge and Falls in T3S R12E S26 to 5 miles above the mouth, T1N R14E S34 | 5 | 27.84 | MILES | B-1 | P | F | F | F | Chromium (total) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Copper | Source Unknown |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Nickel | |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | |
| | | | | | | | | | | | Nitrogen (Total) | |
| Boulder - Big Timber | MT43B004_133 | BOULDER RIVER, confluence of the East Fork boulder River to Natural bridge and Falls | 5 | 24.08 | MILES | B-1 | P | F | F | P | Copper | Coal Mining Discharges (Permitted) |
| | | | | | | | | | | | Excess Algal Growth | Hardrock Mining Discharges (Permitted) |
| | | | | | | | | | | | Iron | Source Unknown |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| Boulder - Big Timber | MT43B004_134 | BOULDER RIVER, headwaters to confluence of East Fork Boulder River | 4A | 9.02 | MILES | B-1 | P | F | N | F | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| Boulder - Big Timber | MT43B004_141 | EAST BOULDER RIVER, Elk Creek to mouth (Boulder River) | 5 | 3.14 | MILES | B-1 | P | F | F | P | Chlorophyll-a | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Low flow alterations | Source Unknown |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Streambank Modifications/destablization |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Boulder - Big Timber | MT43B004_142 | EAST BOULDER RIVER, NF boundary to Elk Creek | 4C | 3.07 | MILES | B-1 | P | F | I | P | Chlorophyll-a | Agriculture |
| | | | | | | | | | | | Low flow alterations | Source Unknown |
| Yellowstone - Sweet Grass | MT43B004_150 | SWEET GRASS CREEK, headwaters to mouth (Yellowstone River) | 4C | 79.33 | MILES | B-1 | P | F | F | I | Alteration in stream-side or littoral vegetative covers | Agriculture |
| Boulder - Big Timber | MT43B005_010 | BASIN CREEK, headwater to mouth (Boulder River) | 4A | 1.55 | MILES | B-1 | N | X | X | X | Copper | |
| | | | | | | | | | | | Iron | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 10070002 Upper Yellowstone **Watershed** Upper Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boulder - Big Timber | MT43B005_010 | BASIN CREEK, headwater to mouth (Boulder River) | 4A | 1.55 | MILES | B-1 | N | X | X | X | Lead | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 10070003 Shields **Watershed** Upper Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shields | MT43A001_011 | SHIELDS RIVER, Cottonwood Creek to mouth (Yellowstone River) | 4A | 18.99 | MILES | B-1 | P | X | X | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Agriculture<br>Impacts from Hydrostructure Flow Regulation/modification<br>Streambank Modifications/destablization |
| Shields | MT43A001_012 | SHIELDS RIVER, headwaters to Cottonwood Creek | 4A | 44.99 | MILES | B-1 | P | X | X | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Impacts from Hydrostructure Flow Regulation/modification<br>Silviculture Activities<br>Streambank Modifications/destablization |
| Shields | MT43A002_010 | POTTER CREEK, headwaters to the mouth (Flathead Creek), T3N R9E S18 | 4A | 27.76 | MILES | B-1 | P | F | F | F | Low flow alterations<br>Sedimentation/Siltation<br>Solids (Suspended/Bedload) | Impacts from Hydrostructure Flow Regulation/modification |
| Shields | MT43A002_020 | ANTELOPE CREEK, headwaters to mouth (Shields River) | 5 | 10.37 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Excess Algal Growth<br>Solids (Suspended/Bedload) | Agriculture<br>Livestock (Grazing or Feeding Operations)<br>Source Unknown |
| Shields | MT43A002_031 | COTTONWOOD CREEK, confluence of Trespass Creek to mouth (Shields River) | 4C | 18.32 | MILES | B-1 | P | F | F | P | Low flow alterations | Irrigated Crop Production |
| Shields | MT43A002_040 | ELK CREEK, headwaters to mouth (Shields River) | 4C | 3.83 | MILES | B-1 | P | X | X | X | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| Shields | MT43A002_051 | ROCK CREEK, National Forest boundary to mouth (Shields River) | 4C | 14.34 | MILES | B-1 | P | F | F | P | Low flow alterations | Flow Alterations from Water Diversions |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10070004 Upper Yellowstone-Lake Basin **Watershed** Upper Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yellowstone River | MT43F001_011 | YELLOWSTONE RIVER, City of Laurel PWS to City of Billings PWS | 5 | 19.7 | MILES | B-2 | N | F | I | N | Cause Unknown | Channelization |
| | | | | | | | | | | | Chlorophyll-a | Crop Production (Crop Land or Dry Land) |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Municipal Point Source Discharges |
| | | | | | | | | | | | Oil and Grease | Pipeline Breaks |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Streambank Modifications/destablization |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| Yellowstone - Sweet Grass | MT43F002_010 | DUCK CREEK, headwaters to mouth (Yellowstone River) | 5 | 14.13 | MILES | B-2 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Low flow alterations | Drought-related Impacts |
| | | | | | | | | | | | Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| Yellowstone - Sweet Grass | MT43F002_021 | CANYON CREEK, highway 532 to mouth (Yellowstone River) | 4C | 19.6 | MILES | B-1 | P | X | X | X | Other flow regime alterations | Flow Alterations from Water Diversions |
| Yellowstone - Sweet Grass | MT43F002_022 | CANYON CREEK, headwaters to highway 532 | 5 | 29.7 | MILES | B-2 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Low flow alterations | Channelization |
| | | | | | | | | | | | Oxygen, Dissolved | Drought-related Impacts |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Yellowstone - Sweet Grass | MT43F002_040 | VALLEY CREEK, headwaters to mouth (Yellowstone River) | 5 | 14.75 | MILES | B-2 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Benthic-Macroinvertebrate Bioassessments | Channelization |
| | | | | | | | | | | | Other flow regime alterations | Drought-related Impacts |
| | | | | | | | | | | | Oxygen, Dissolved | Irrigated Crop Production |
| | | | | | | | | | | | Sedimentation/Siltation | Loss of Riparian Habitat |
| Lake Basin - Spidel | MT43F003_010 | BIG LAKE | 5 | 2806 | ACRES | B-2 | N | N | N | X | Salinity | Agriculture |
| Lake Basin - Spidel | MT43F003_020 | HAILSTONE LAKE, T3N R20E S13 | 5 | 538 | ACRES | B-2 | P | N | N | X | Salinity | Agriculture |
| Lake Basin - Spidel | MT43F003_030 | HALFBREED LAKE, T3N R21E S33 | 5 | 278 | ACRES | B-2 | P | P | P | X | Salinity | Agriculture |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10070005 Stillwater **Watershed** Upper Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cooke City | MT43C001_010 | STILLWATER RIVER, headwaters to Flood Creek | 4A | 21.69 | MILES | B-1 | P | F | N | X | Copper | Acid Mine Drainage |
| | | | | | | | | | | | Iron | Highway/Road/Bridge Runoff (Non-construction Related) |
| | | | | | | | | | | | Manganese | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Sedimentation/Siltation | Mine Tailings |
| | | | | | | | | | | | pH | Natural Sources |
| Stillwater - Columbus | MT43C001_020 | STILLWATER RIVER, Forest Service Boundary to the mouth (Yellowstone River), T2S R20E S20 | 5 | 45.59 | MILES | B-1 | P | F | N | F | Cadmium | Hardrock Mining Discharges (Permitted) |
| | | | | | | | | | | | Chromium (total) | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Copper | Natural Sources |
| | | | | | | | | | | | Cyanide | Source Unknown |
| | | | | | | | | | | | Mercury | Watershed Runoff following Forest Fire |
| | | | | | | | | | | | Nickel | |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | |
| Stillwater - Columbus | MT43C002_010 | LODGEPOLE CREEK, headwaters to mouth (Castle Creek) | 5 | 5.91 | MILES | B-1 | P | F | F | N | Chlorophyll-a | Irrigated Crop Production |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Rangeland Grazing |
| | | | | | | | | | | | | Source Unknown |
| Stillwater - Columbus | MT43C002_020 | BAD CANYON CREEK, headwaters to mouth (Stillwater River) | 4C | 11.34 | MILES | B-1 | F | F | F | P | Chlorophyll-a | Rangeland Grazing |
| Stillwater - Columbus | MT43C002_030 | CASTLE CREEK, headwaters to the mouth (Limestone Creek), T4S R15E S29 | 5 | 8.29 | MILES | B-1 | P | F | F | N | Chlorophyll-a | Livestock (Grazing or Feeding Operations) |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Source Unknown |
| | | | | | | | | | | | | Upstream Source |
| Stillwater - Columbus | MT43C002_041 | GROVE CREEK, confluence of South Fork Grove Creek, T4S R18E S13 to the mouth (Stillwater River), T3S R18E S34 | 5 | 5.23 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Chlorophyll-a | Irrigated Crop Production |
| | | | | | | | | | | | Phosphorus (Total) | Loss of Riparian Habitat |
| | | | | | | | | | | | Sedimentation/Siltation | Natural Sources |
| Stillwater - Columbus | MT43C002_050 | FISHTAIL CREEK, headwaters to mouth (West Rosebud Creek) | 5 | 14.8 | MILES | B-1 | P | F | F | F | Iron | Source Unknown |
| | | | | | | | | | | | Lead | |
| Stillwater - Columbus | MT43C002_070 | JOE HILL CREEK, headwaters to mouth (Stillwater River) | 5 | 13.16 | MILES | B-1 | P | F | F | N | Chlorophyll-a | Flow Alterations from Water Diversions |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10070005 Stillwater **Watershed** Upper Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stillwater - Columbus | MT43C002_070 | JOE HILL CREEK, headwaters to mouth (Stillwater River) | 5 | 13.16 | MILES | B-1 | P | F | F | N | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Stillwater - Columbus | MT43C002_081 | BUTCHER CREEK, highway 78 to mouth (Rosebud Creek) | 5 | 22.02 | MILES | B-1 | P | F | F | X | High Flow Regime | Streambank Modifications/destablization |
| | | | | | | | | | | | Physical substrate habitat alterations | Transfer of Water from an Outside Watershed |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |
| Stillwater - Columbus | MT43C002_082 | BUTCHER CREEK, headwaters to highway 78 | 5 | 4.98 | MILES | B-1 | P | F | F | P | Chlorophyll-a | Hydrostructure Impacts on Fish Passage |
| | | | | | | | | | | | Fish-Passage Barrier | Natural Sources |
| | | | | | | | | | | | Phosphorus (Total) | Source Unknown |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |
| Stillwater - Columbus | MT43C002_090 | WEST ROSEBUD CREEK, headwaters to mouth (Rosebud Creek) | 5 | 40.45 | MILES | B-1 | P | F | F | F | Benthic-Macroinvertebrate Bioassessments | Source Unknown |
| Stillwater - Columbus | MT43C002_100 | ROSEBUD CREEK, East and West Branches to mouth (Stillwater River) | 5 | 3.93 | MILES | B-1 | P | F | F | F | Benthic-Macroinvertebrate Bioassessments | Source Unknown |
| Cooke City | MT43C002_140 | DAISY CREEK, headwaters to mouth (Stillwater River) | 4A | 1.94 | MILES | B-1 | N | N | N | N | Aluminum | Acid Mine Drainage |
| | | | | | | | | | | | Cadmium | Highway/Road/Bridge Runoff (Non-construction Related) |
| | | | | | | | | | | | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Iron | Mine Tailings |
| | | | | | | | | | | | Lead | Natural Sources |
| | | | | | | | | | | | Manganese | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| | | | | | | | | | | | pH | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 10070006 Clarks Fork Yellowstone **Watershed** Upper Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clarks Fork Yellowstone | MT43D001_011 | CLARKS FORK YELLOWSTONE RIVER, Bridger Creek to mouth (Yellowstone River) | 5 | 46.22 | MILES | B-2 | P | P | I | P | Ammonia (Total) | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Chlorophyll-a | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Copper | Irrigated Crop Production |
| | | | | | | | | | | | Iron | Source Unknown |
| | | | | | | | | | | | Lead | Streambank Modifications/destablization |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Mercury | |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |
| | | | | | | | | | | | Temperature, water | |
| Cooke City | MT43D001_020 | CLARKS FORK YELLOWSTONE RIVER, headwaters to Montana Border | 4A | 5.06 | MILES | B-1 | P | F | F | X | Cadmium | Acid Mine Drainage |
| | | | | | | | | | | | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Lead | Mine Tailings |
| | | | | | | | | | | | Silver | |
| | | | | | | | | | | | Zinc | |
| | | | | | | | | | | | pH | |
| Clarks Fork Yellowstone | MT43D002_010 | ELBOW CREEK, headwaters to mouth (Clarks Fork) | 5 | 38.57 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Animal Feeding Operations (NPS) |
| | | | | | | | | | | | Chlorophyll-a | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Irrigated Crop Production |
| | | | | | | | | | | | Nitrogen (Total) | Rangeland Grazing |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |
| Clarks Fork Yellowstone | MT43D002_020 | BEAR CREEK, headwaters to mouth (Clarks Fork) | 5 | 21.14 | MILES | B-1 | N | F | F | N | Alteration in stream-side or littoral vegetative covers | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Chlorophyll-a | Irrigated Crop Production |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10070006 Clarks Fork Yellowstone **Watershed** Upper Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clarks Fork Yellowstone | MT43D002_020 | BEAR CREEK, headwaters to mouth (Clarks Fork) | 5 | 21.14 | MILES | B-1 | N | F | F | N | High Flow Regime<br>Iron<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Loss of Riparian Habitat<br>Rangeland Grazing<br>Transfer of Water from an Outside Watershed |
| Clarks Fork Yellowstone | MT43D002_031 | BLUEWATER CREEK, mouth to 9 miles upstream (Clarks Fork Yellowstone River) | 5 | 11.41 | MILES | B-1 | P | F | F | P | Chlorophyll-a<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Solids (Suspended/Bedload) | Agriculture<br>Animal Feeding Operations (NPS)<br>Aquaculture (Permitted)<br>Irrigated Crop Production |
| Clarks Fork Yellowstone | MT43D002_050 | RED LODGE CREEK, headwaters to Cooney Reservoir | 4C | 17.93 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Crop Production (Crop Land or Dry Land)<br>Grazing in Riparian or Shoreline Zones |
| Clarks Fork Yellowstone | MT43D002_060 | RED LODGE CREEK, Cooney Reservoir to mouth (Rock Creek) | 5 | 12.07 | MILES | B-1 | P | X | X | X | Organic Enrichment (Sewage) Biological Indicators<br>Other flow regime alterations<br>Physical substrate habitat alterations | Impacts from Hydrostructure Flow Regulation/modification<br>Streambank Modifications/destablization |
| Clarks Fork Yellowstone | MT43D002_070 | WILLOW CREEK, headwaters to mouth (Cooney Reservoir) | 5 | 36.46 | MILES | B-1 | P | X | X | X | Low flow alterations<br>Sedimentation/Siltation | Irrigated Crop Production |
| Clarks Fork Yellowstone | MT43D002_080 | WEST RED LODGE CREEK, Absaroka-Beartooth Wilderness boundary to mouth (Red Lodge Creek) | 5 | 14.39 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Natural Sources<br>Source Unknown |
| Clarks Fork Yellowstone | MT43D002_100 | SILVERTIP CREEK, state line to mouth (Clarks Fork) | 5 | 21.77 | MILES | B-1 | N | P | N | F | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Other flow regime alterations<br>Oxygen, Dissolved<br>Phosphorus (Total)<br>Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems)<br>Solids (Suspended/Bedload) | Channelization<br>Dam or Impoundment<br>Grazing in Riparian or Shoreline Zones<br>Loss of Riparian Habitat<br>Natural Sources<br>Petroleum/natural Gas Production Activities (Permitted)<br>Pipeline Breaks |

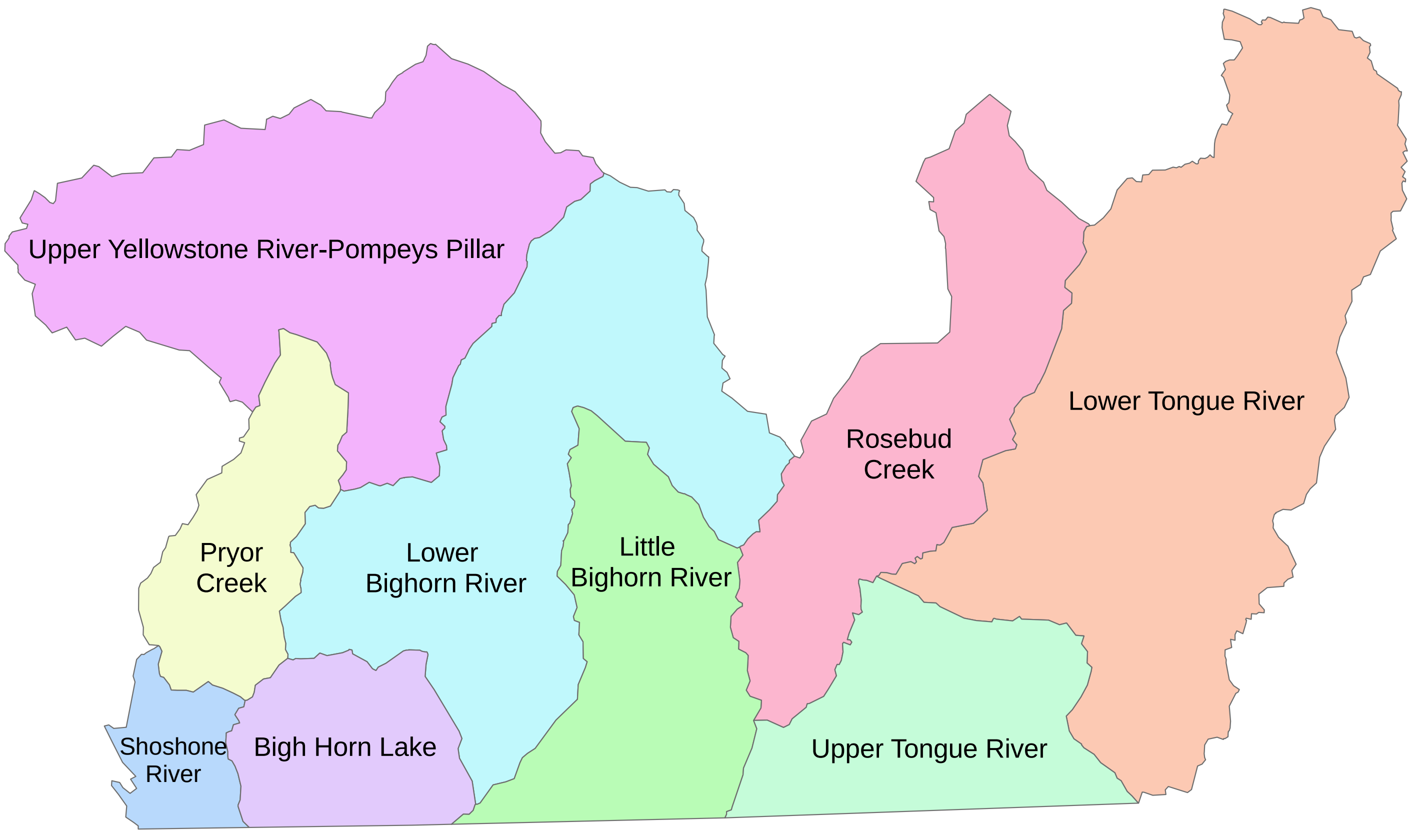
F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 10070006 Clarks Fork Yellowstone **Watershed** Upper Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clarks Fork Yellowstone | MT43D002_100 | SILVERTIP CREEK, state line to mouth (Clarks Fork) | 5 | 21.77 | MILES | B-1 | N | P | N | F | Specific Conductance | Rangeland Grazing |
| | | | | | | | | | | | Temperature, water | Upstream Source |
| | | | | | | | | | | | Total Dissolved Solids | |
| | | | | | | | | | | | Turbidity | |
| Cooke City | MT43D002_110 | FISHER CREEK, headwaters to mouth (Clarks Fork Yellowstone River) | 4A | 3.34 | MILES | B-1 | N | P | N | P | Aluminum | Acid Mine Drainage |
| | | | | | | | | | | | Cadmium | Highway/Road/Bridge Runoff (Non-construction Related) |
| | | | | | | | | | | | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Iron | Mine Tailings |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Manganese | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Silver | |
| | | | | | | | | | | | Zinc | |
| | | | | | | | | | | | pH | |
| Clarks Fork Yellowstone | MT43D002_120 | ROCK CREEK, Red Lodge Creek to mouth (Clarks Fork) | 4C | 16.02 | MILES | B-1 | P | X | X | P | Low flow alterations | Flow Alterations from Water Diversions |
| | | | | | | | | | | | | Irrigated Crop Production |
| Clarks Fork Yellowstone | MT43D002_131 | ROCK CREEK, West Fork Rock Creek to Red Lodge Creek | 4C | 27.47 | MILES | B-1 | P | X | X | P | Low flow alterations | Flow Alterations from Water Diversions |
| | | | | | | | | | | | | Irrigated Crop Production |
| Clarks Fork Yellowstone | MT43D002_140 | COTTONWOOD CREEK, headwaters to the mouth (Clarks Fork of Yellowstone), T3S R24E S24 | 5 | 19.57 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Oxygen, Dissolved | Drought-related Impacts |
| | | | | | | | | | | | Solids (Suspended/Bedload) | Grazing in Riparian or Shoreline Zones |
| Clarks Fork Yellowstone | MT43D002_180 | SOUTH FORK BRIDGER CREEK, tributary to Bridger Creek | 5 | 9.39 | MILES | B-1 | N | F | N | F | Arsenic | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Iron | Natural Sources |
| | | | | | | | | | | | Sedimentation/Siltation | Source Unknown |

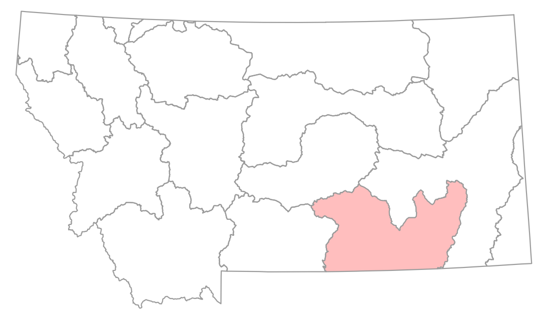
F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed




# Middle Yellowstone Sub-Major Basin

## Yellowstone River Basin

| USGS HUC | HUC NAME |
|---|---|
| 10070007 | Upper Yellowstone River-Pompeys Pillar |
| 10070008 | Pryor Creek |
| 10080010 | Big Horn Lake |
| 10080014 | Shoshone River |
| 10080015 | Lower Bighorn River |
| 10080016 | Little Bighorn River |
| 10090101 | Upper Tongue River |
| 10090102 | Lower Tongue River |
| 10100003 | Rosebud Creek |



Montana Department of Environmental Quality

# Appendix A: Impaired Waters

**HUC** 10070007 Upper Yellowstone-Pompeys Pillar **Watershed** Middle Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yellowstone River | MT43F001_010 | YELLOWSTONE RIVER, City of Billings PWS to Huntley Diversion Dam | 5 | 10.7 | MILES | B-3 | N | F | N | N | Arsenic | Agriculture |
| | | | | | | | | | | | Benthic-Macroinvertebrate Bioassessments | Municipal Point Source Discharges |
| | | | | | | | | | | | Dissolved oxygen saturation | Natural Sources |
| | | | | | | | | | | | Excess Algal Growth | Pipeline Breaks |
| | | | | | | | | | | | Nutrient/Eutrophication Biological Indicators | |
| | | | | | | | | | | | Oil and Grease | |
| | | | | | | | | | | | Periphyton (Aufwuchs) Indicator Bioassessments | |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |
| Yellowstone River | MT43Q001_011 | YELLOWSTONE RIVER, Huntley Diversion Dam to mouth of Big Horn River | 5 | 58.82 | MILES | B-3 | P | I | I | N | Ammonia (Un-ionized) | Agriculture |
| | | | | | | | | | | | Oil and Grease | Industrial Point Source Discharge |
| | | | | | | | | | | | Sedimentation/Siltation | Irrigated Crop Production |
| | | | | | | | | | | | Total Dissolved Solids | Municipal Point Source Discharges |
| | | | | | | | | | | | | Natural Sources |
| | | | | | | | | | | | | Pipeline Breaks |
| Yellowstone - Lower Bighorn | MT43Q002_010 | FLY CREEK, Crow Indian Reservation boundary to mouth (Yellowstone River) | 5 | 55.68 | MILES | C-3 | N | | | N | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Chlorophyll-a | Dam or Impoundment |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Drought-related Impacts |
| | | | | | | | | | | | Nitrogen (Total) | Loss of Riparian Habitat |
| | | | | | | | | | | | Oxygen, Dissolved | |
| Lake Basin - Spidel | MT43Q003_010 | SPIDEL WATERFOWL PRODUCTION AREA, T5N R23E S33 | 5 | 2.3 | ACRES | B-1 | P | P | P | X | Other anthropogenic substrate alterations | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Salinity | Non-irrigated Crop Production |
| | | | | | | | | | | | Selenium | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 10070008 Pryor **Watershed** Middle Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yellowstone - Lower Bighorn | MT43E001_010 | PRYOR CREEK, Interstate 90 bridge to mouth (Yellowstone River) | 5 | 14.98 | MILES | C-3 | P | | | P | Benthic-Macroinvertebrate Bioassessments<br>Low flow alterations | Flow Alterations from Water Diversions<br>Irrigated Crop Production<br>Source Unknown |
| Yellowstone - Lower Bighorn | MT43E001_011 | PRYOR CREEK, Crow Reservation Boundary to Interstate 90 bridge | 5 | 2.88 | MILES | B-1 | P | F | F | P | Excess Algal Growth<br>Low flow alterations<br>Sedimentation/Siltation | Agriculture<br>Flow Alterations from Water Diversions<br>Natural Sources<br>Sources Outside State Jurisdiction or Borders<br>Upstream Source |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 10080010 Bighorn Lake **Watershed** Middle Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bighorn Lake - Shoshone | MT43P002_010 | CROOKED CREEK, headwaters to Wyoming Border | 4C | 15.07 | MILES | B-1 | P | X | X | X | Physical substrate habitat alterations | Agriculture |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10080015 Lower Bighorn **Watershed** Middle Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yellowstone - Lower Bighorn | MT43R001_010 | BIGHORN RIVER, Crow Indian Res. Boundary to mouth (Yellowstone River) | 5 | 35.27 | MILES | B-2 | X | F | N | X | Lead | Source Unknown |
| | | | | | | | | | | | Mercury | |
| Bighorn Lake - Shoshone | MT43R001_020 | BIGHORN RIVER, Yellowtail Dam to Crow Indian Reservation boundary | 5 | 44.03 | MILES | B-1 | P | F | X | X | Nitrogen (Total) | Source Unknown |
| Yellowstone - Lower Bighorn | MT43R002_010 | TULLOCK CREEK, Crow Indian Reservation Boundary to mouth (Bighorn River) | 5 | 58.83 | MILES | C-3 | P | | | F | Alteration in stream-side or littoral vegetative covers | Dam or Impoundment |
| | | | | | | | | | | | Iron | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Nitrogen (Total) | Loss of Riparian Habitat |
| | | | | | | | | | | | Phosphorus (Total) | Natural Sources |
| | | | | | | | | | | | Sedimentation/Siltation | Rangeland Grazing |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10090101 Upper Tongue **Watershed** Middle Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tongue | MT42B001_010 | TONGUE RIVER, Wyoming border to Tongue River Reservoir | 5 | 5.9 | MILES | B-2 | N | F | F | F | Iron<br>Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification<br>Irrigated Crop Production<br>Natural Sources<br>Streambank Modifications/destablization |
| Tongue | MT42B001_020 | TONGUE RIVER, Tongue River Dam to Prairie Dog Creek | 4C | 22.05 | MILES | B-2 | N | F | F | I | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification<br>Irrigated Crop Production<br>Streambank Modifications/destablization |
| Tongue | MT42B001_021 | TONGUE RIVER, Prairie Dog Creek to Hanging Woman Creek | 4C | 12.27 | MILES | B-3 | N | I | I | I | Low flow alterations | Impacts from Hydrostructure Flow Regulation/modification<br>Irrigated Crop Production<br>Streambank Modifications/destablization |
| Tongue | MT42B002_031 | HANGING WOMAN CREEK, Stroud Creek to mouth (Tongue River) | 5 | 18.27 | MILES | C-3 | N | N | | I | Iron<br>Low flow alterations<br>Salinity<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Natural Sources<br>Rangeland Grazing<br>Streambank Modifications/destablization |
| Tongue | MT42B002_032 | HANGING WOMAN CREEK, Wyoming border to Stroud Creek | 5 | 31.37 | MILES | C-3 | N | N | | I | Low flow alterations<br>Salinity | Irrigated Crop Production<br>Natural Sources |
| Tongue | MT42B003_010 | TONGUE RIVER RESERVOIR | 5 | 3500 | ACRES | B-2 | N | I | I | I | Chlorophyll-a<br>Oxygen, Dissolved<br>Solids (Suspended/Bedload) | Irrigated Crop Production<br>Municipal Point Source Discharges |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10090102 Lower Tongue **Watershed** Middle Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tongue | MT42C001_011 | TONGUE RIVER, Twelve Mile Dam to mouth (Yellowstone River) | 5 | 20.9 | MILES | B-3 | N | P | N | I | Cadmium<br>Copper<br>Iron<br>Lead<br>Low flow alterations<br>Nickel<br>Salinity<br>Solids (Suspended/Bedload)<br>Sulfates<br>Zinc | Dam Construction (Other than Upstream Flood Control Projects)<br>Impacts from Hydrostructure Flow Regulation/modification<br>Irrigated Crop Production<br>Natural Sources<br>Streambank Modifications/destablization |
| Tongue | MT42C001_013 | TONGUE RIVER, Hanging Woman Creek to Beaver Creek | 5 | 74.97 | MILES | B-3 | P | F | F | I | Iron<br>Low flow alterations<br>Solids (Suspended/Bedload) | Impacts from Hydrostructure Flow Regulation/modification<br>Irrigated Crop Production<br>Natural Sources<br>Streambank Modifications/destablization |
| Tongue | MT42C001_014 | TONGUE RIVER, Beaver Creek to Twelve Mile Dam, T6N R48E S29 | 5 | 71.97 | MILES | B-3 | P | F | F | I | Iron<br>Low flow alterations<br>Solids (Suspended/Bedload) | Impacts from Hydrostructure Flow Regulation/modification<br>Irrigated Crop Production<br>Natural Sources<br>Streambank Modifications/destablization |
| Tongue | MT42C002_020 | OTTER CREEK, headwaters to mouth (Tongue River) | 5 | 108.1 | MILES | C-3 | N | N | | I | Alteration in stream-side or littoral vegetative covers<br>Iron<br>Salinity<br>Solids (Suspended/Bedload) | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Natural Sources<br>Site Clearance (Land Development or Redevelopment) |
| Tongue | MT42C002_061 | PUMPKIN CREEK, headwaters to Little Pumpkin Creek | 5 | 87.68 | MILES | C-3 | N | N | | I | Low flow alterations<br>Salinity<br>Temperature, water | Irrigated Crop Production<br>Natural Sources |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10090102 Lower Tongue **Watershed** Middle Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tongue | MT42C002_062 | PUMPKIN CREEK, Little Pumpkin Creek to the mouth (Tongue River) | 5 | 92.19 | MILES | C-3 | N | N | | I | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Salinity | Natural Sources |
| | | | | | | | | | | | Temperature, water | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 10100003 Rosebud **Watershed** Middle Yellowstone

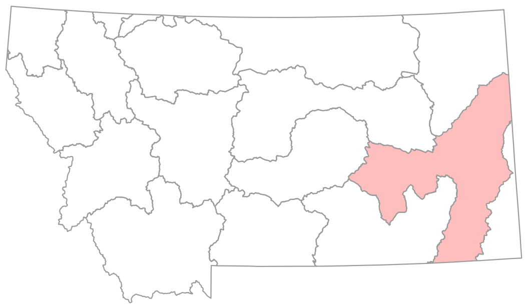
| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rosebud | MT42A001_011 | ROSEBUD CREEK, From the mouth 3.8 mi upstream to an irrigation dam | 4C | 4.46 | MILES | C-3 | P | | | X | Physical substrate habitat alterations | Loss of Riparian Habitat |
| Rosebud | MT42A001_012 | ROSEBUD CREEK, Northern Cheyenne Reservation boundary to an irrigation dam 3.8 mi above the mouth | 5 | 111.56 | MILES | C-3 | P | | | X | Other | Dam Construction (Other than Upstream Flood Control Projects) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Lower Yellowstone Sub-Major Basin

## Yellowstone River Basin

| USGS HUC | HUC NAME |
|---|---|
| 10090207 | Middle Powder River |
| 10090208 | Little Powder River |
| 10090209 | Lower Powder River |
| 10090210 | Mizpah Creek |
| 10100001 | Lower Yellowstone River-Sunday River |
| 10100002 | Big Porcupine Creek |
| 10100004 | Lower Yellowstone River |
| 10100005 | O'Fallon Creek |

Montana Department of Environmental Quality

**HUC** 10090207 Middle Powder **Watershed** Lower Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Powder | MT42J001_010 | POWDER RIVER, Wyoming border to Little Powder River | 5 | 78.21 | MILES | C-3 | X | N | | X | Salinity | Natural Sources<br>Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10090208 Little Powder **Watershed** Lower Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Powder | MT42I001_010 | LITTLE POWDER RIVER, the border to mouth (Powder River) | 5 | 63.31 | MILES | C-3 | X | N | | X | Salinity | Natural Sources<br>Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10090209 Lower Powder **Watershed** Lower Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Powder | MT42J003_011 | POWDER RIVER, Little Powder River to Mizpah Creek | 5 | 99 | MILES | C-3 | X | N | | X | Salinity | Natural Sources<br>Source Unknown |
| Powder | MT42J003_012 | POWDER RIVER, Mizpah Creek to mouth (Yellowstone River) | 5 | 45.33 | MILES | C-3 | X | N | | X | Salinity | Natural Sources<br>Source Unknown |
| Powder | MT42J004_010 | STUMP CREEK, headwaters to mouth (Powder River) | 5 | 29.77 | MILES | C-3 | X | N | | X | Salinity | Natural Sources |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 10090210 Mizpah **Watershed** Lower Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Powder | MT42J005_011 | MIZPAH CREEK, headwaters to Corral Creek | 5 | 131.98 | MILES | C-3 | X | N | | X | Salinity | Natural Sources |
| Powder | MT42J005_012 | MIZPAH CREEK, Corral Creek to the mouth (Powder River) | 5 | 22.98 | MILES | C-3 | X | N | | X | Salinity | Natural Sources |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 10100001 Lower Yellowstone-Sunday **Watershed** Lower Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yellowstone River | MT42K001_010 | YELLOWSTONE RIVER, the Cartersville Diversion Dam to Powder River | 5 | 88.73 | MILES | B-3 | P | I | I | I | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Copper | Irrigated Crop Production |
| | | | | | | | | | | | Lead | Municipal Point Source Discharges |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Natural Sources |
| | | | | | | | | | | | Solids (Suspended/Bedload) | Post-development Erosion and Sedimentation |
| | | | | | | | | | | | Total Dissolved Solids | Rangeland Grazing |
| | | | | | | | | | | | Zinc | Source Unknown |
| | | | | | | | | | | | pH | Streambank Modifications/destablization |
| Yellowstone River | MT42K001_020 | YELLOWSTONE RIVER, the Big Horn to Cartersville Diversion Dam | 4C | 59.51 | MILES | B-3 | P | F | X | X | Fish-Passage Barrier | Dam Construction (Other than Upstream Flood Control Projects) |
| Middle Yellowstone Tributaries | MT42K002_020 | HARRIS CREEK, headwaters to mouth (Yellowstone River) | 5 | 27.39 | MILES | C-3 | P | | | P | Chlorophyll-a | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Other flow regime alterations | Livestock (Grazing or Feeding Operations) |
| | | | | | | | | | | | Phosphorus (Total) | Natural Sources |
| | | | | | | | | | | | Solids (Suspended/Bedload) | Transfer of Water from an Outside Watershed |
| Middle Yellowstone Tributaries | MT42K002_030 | SUNDAY CREEK, the North and South Forks to mouth (Yellowstone River) | 5 | 15.28 | MILES | C-3 | P | | | P | Chlorophyll-a | Irrigated Crop Production |
| | | | | | | | | | | | Copper | Natural Sources |
| | | | | | | | | | | | Iron | Non-irrigated Crop Production |
| | | | | | | | | | | | Lead | Rangeland Grazing |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Source Unknown |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Total Kjehldahl Nitrogen (TKN) | |
| Middle Yellowstone Tributaries | MT42K002_040 | MUSTER CREEK, headwaters to mouth (Yellowstone River) | 5 | 31.39 | MILES | C-3 | P | | | N | Chlorophyll-a | Irrigated Crop Production |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Transfer of Water from an Outside Watershed |
| | | | | | | | | | | | Other flow regime alterations | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10100001 Lower Yellowstone-Sunday **Watershed** Lower Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Middle Yellowstone Tributaries | MT42K002_060 | DEADMAN CREEK, headwaters to mouth (North Fork Sunday Creek) | 5 | 17.28 | MILES | C-3 | P | | | F | Nitrogen (Total) | Source Unknown |
| | | | | | | | | | | | Phosphorus (Total) | |
| Middle Yellowstone Tributaries | MT42K002_070 | STELLAR CREEK, headwaters to mouth (Little Porcupine Creek) | 5 | 42.96 | MILES | C-3 | N | | | N | Cadmium | Rangeland Grazing |
| | | | | | | | | | | | Chlorophyll-a | Source Unknown |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | pH | |
| Middle Yellowstone Tributaries | MT42K002_080 | NORTH FORK SUNDAY CREEK, Custer/Rosebud County border to mouth (Sunday Creek) | 5 | 33.76 | MILES | C-3 | P | | | F | Sedimentation/Siltation | Channelization |
| | | | | | | | | | | | Sodium | Crop Production (Crop Land or Dry Land) |
| | | | | | | | | | | | Solids (Suspended/Bedload) | Natural Sources |
| | | | | | | | | | | | Specific Conductance | |
| | | | | | | | | | | | Total Dissolved Solids | |
| Middle Yellowstone Tributaries | MT42K002_090 | SARPY CREEK, Crow Indian Reservation Boundary to mouth (Yellowstone River) | 5 | 89.35 | MILES | C-3 | P | | | F | Nitrate/Nitrite (Nitrite + Nitrate as N) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrogen (Total) | Non-irrigated Crop Production |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Total Kjehldahl Nitrogen (TKN) | |
| Middle Yellowstone Tributaries | MT42K002_110 | EAST FORK ARMELLS CREEK, Colstrip to mouth (Armells Creek) | 5 | 32.36 | MILES | C-3 | P | | | F | Nitrate/Nitrite (Nitrite + Nitrate as N) | Agriculture |
| | | | | | | | | | | | Nitrogen (Total) | Coal Mining |
| | | | | | | | | | | | Specific Conductance | Transfer of Water from an Outside Watershed |
| | | | | | | | | | | | Total Dissolved Solids | |
| Middle Yellowstone Tributaries | MT42K002_160 | LITTLE PORCUPINE CREEK, headwaters to mouth (Yellowstone River) | 5 | 118.8 | MILES | C-3 | P | | | P | Chlorophyll-a | Rangeland Grazing |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Source Unknown |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Total Dissolved Solids | |
| Middle Yellowstone Tributaries | MT42K002_170 | EAST FORK ARMELLS CREEK, headwaters to Colstrip | 4C | 24.67 | MILES | C-3 | P | | | F | Alteration in stream-side or littoral vegetative covers | Surface Mining |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10100004 Lower Yellowstone **Watershed** Lower Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yellowstone River | MT42M001_011 | YELLOWSTONE RIVER, Lower Yellowstone Diversion Dam to North Dakota border | 5 | 53.67 | MILES | B-3 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Chromium (total) | Irrigated Crop Production |
| | | | | | | | | | | | Copper | Natural Sources |
| | | | | | | | | | | | Fish-Passage Barrier | Rangeland Grazing |
| | | | | | | | | | | | Lead | Source Unknown |
| | | | | | | | | | | | Nitrogen (Total) | Streambank Modifications/destablization |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Total Dissolved Solids | |
| | | | | | | | | | | | pH | |
| Yellowstone River | MT42M001_012 | YELLOWSTONE RIVER, Powder River to Lower Yellowstone Diversion Dam | 4C | 76.73 | MILES | B-3 | P | F | X | X | Fish-Passage Barrier | Dam Construction (Other than Upstream Flood Control Projects) |
| Lower Yellowstone | MT42M002_010 | BENNIE PEER CREEK, North Dakota border to mouth (Yellowstone River) | 4C | 10.17 | MILES | C-3 | P | | | P | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Low flow alterations | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Physical substrate habitat alterations | Irrigated Crop Production |
| Lower Yellowstone | MT42M002_020 | FOURMILE CREEK, headwaters to North Dakota border | 5 | 29.74 | MILES | C-3 | P | | | N | Chlorophyll-a | Dam or Impoundment |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Source Unknown |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Other flow regime alterations | |
| | | | | | | | | | | | Total Dissolved Solids | |
| Lower Yellowstone | MT42M002_030 | FIRST HAY CREEK, headwaters to mouth (Yellowstone River) | 5 | 33.37 | MILES | C-3 | P | | | P | Copper | Hydrostructure Impacts on Fish Passage |
| | | | | | | | | | | | Fish-Passage Barrier | Irrigated Crop Production |
| | | | | | | | | | | | Iron | Source Unknown |
| | | | | | | | | | | | Lead | Transfer of Water from an Outside Watershed |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Other flow regime alterations | |
| | | | | | | | | | | | Phosphorus (Total) | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 10100004 Lower Yellowstone **Watershed** Lower Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Yellowstone | MT42M002_030 | FIRST HAY CREEK, headwaters to mouth (Yellowstone River) | 5 | 33.37 | MILES | C-3 | P | | | P | Solids (Suspended/Bedload) | |
| | | | | | | | | | | | Total Dissolved Solids | |
| Lower Yellowstone | MT42M002_040 | LONE TREE CREEK, confluence of North Fork to mouth (Yellowstone River) | 5 | 17.27 | MILES | C-3 | P | | | P | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Chlorophyll-a | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Iron | Irrigated Crop Production |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | |
| | | | | | | | | | | | Other flow regime alterations | |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |
| Lower Yellowstone | MT42M002_051 | FOX CREEK, headwaters to mouth (Yellowstone River), T22N R59E S19 | 5 | 49.85 | MILES | B-2 | P | P | N | P | Arsenic | Channelization |
| | | | | | | | | | | | Excess Algal Growth | Irrigated Crop Production |
| | | | | | | | | | | | Iron | Natural Sources |
| | | | | | | | | | | | Lead | Source Unknown |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Mercury | |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |
| | | | | | | | | | | | Sulfates | |
| | | | | | | | | | | | Total Dissolved Solids | |
| Lower Yellowstone | MT42M002_052 | NORTH FORK FOX CREEK, headwaters to mouth (Fox Creek), T22N R58E S21 | 5 | 20.32 | MILES | B-2 | P | P | N | P | Arsenic | Channelization |
| | | | | | | | | | | | Excess Algal Growth | Irrigated Crop Production |
| | | | | | | | | | | | Iron | Natural Sources |
| | | | | | | | | | | | Lead | Source Unknown |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Mercury | |
| | | | | | | | | | | | Nitrogen (Total) | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10100004 Lower Yellowstone **Watershed** Lower Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Yellowstone | MT42M002_052 | NORTH FORK FOX CREEK, headwaters to mouth (Fox Creek), T22N R58E S21 | 5 | 20.32 | MILES | B-2 | P | P | N | P | Phosphorus (Total) | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |
| | | | | | | | | | | | Sulfates | |
| | | | | | | | | | | | Total Dissolved Solids | |
| Lower Yellowstone | MT42M002_060 | O'BRIEN CREEK, state line to mouth (Yellowstone River) | 5 | 15.53 | MILES | C-3 | N | | | P | Excess Algal Growth | Animal Feeding Operations (NPS) |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Irrigated Crop Production |
| | | | | | | | | | | | Selenium | |
| Lower Yellowstone | MT42M002_070 | CRANE CREEK, headwaters to mouth (Yellowstone River) | 5 | 24.25 | MILES | C-3 | P | | | F | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Other flow regime alterations | Irrigated Crop Production |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Lower Yellowstone | MT42M002_080 | SMITH CREEK, headwaters to mouth (Yellowstone River) | 4C | 45.57 | MILES | C-3 | P | | | F | Fish-Passage Barrier | Low Water Crossing |
| Lower Yellowstone | MT42M002_100 | COTTONWOOD CREEK, headwaters to mouth (Yellowstone River) | 5 | 21.99 | MILES | C-3 | N | | | F | Cadmium | Channelization |
| | | | | | | | | | | | Fish-Passage Barrier | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Iron | Hydrostructure Impacts on Fish Passage |
| | | | | | | | | | | | Physical substrate habitat alterations | Natural Sources |
| | | | | | | | | | | | | Source Unknown |
| Lower Yellowstone | MT42M002_110 | BURNS CREEK, headwaters to mouth (Yellowstone River) | 5 | 53.66 | MILES | C-3 | P | | | P | Chlorophyll-a | Crop Production (Crop Land or Dry Land) |
| | | | | | | | | | | | Fish-Passage Barrier | Hydrostructure Impacts on Fish Passage |
| | | | | | | | | | | | Iron | Irrigated Crop Production |
| | | | | | | | | | | | Nitrogen (Total) | Natural Sources |
| | | | | | | | | | | | Other flow regime alterations | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |
| Lower Yellowstone | MT42M002_120 | MORGAN CREEK, headwaters to mouth (Yellowstone River) | 4C | 19.8 | MILES | C-3 | P | | | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| Lower Yellowstone | MT42M002_130 | GLENDIVE CREEK, headwaters to mouth (Yellowstone River) | 5 | 55.89 | MILES | C-3 | N | | | F | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10100004 Lower Yellowstone **Watershed** Lower Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Yellowstone | MT42M002_130 | GLENDIVE CREEK, headwaters to mouth (Yellowstone River) | 5 | 55.89 | MILES | C-3 | N | | | F | Cadmium | Natural Sources |
| | | | | | | | | | | | Chromium (total) | Source Unknown |
| | | | | | | | | | | | Copper | |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Nickel | |
| | | | | | | | | | | | Selenium | |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |
| | | | | | | | | | | | Zinc | |
| Lower Yellowstone | MT42M002_141 | CEDAR CREEK, 26 miles upstream to mouth (Yellowstone River) | 5 | 27.49 | MILES | C-3 | P | | | X | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Arsenic | Natural Sources |
| | | | | | | | | | | | Copper | Spills from Trucks or Trains |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| Lower Yellowstone | MT42M002_142 | CEDAR CREEK, 26 to 45 miles above the mouth | 5 | 20.13 | MILES | C-3 | P | | | F | Copper | Natural Sources |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Selenium | |
| Lower Yellowstone | MT42M002_150 | CABIN CREEK, headwaters to mouth (Yellowstone River) | 5 | 102.54 | MILES | C-3 | N | | | F | Nitrogen (Total) | Dam or Impoundment |
| | | | | | | | | | | | Oxygen, Dissolved | Natural Sources |
| | | | | | | | | | | | Sedimentation/Siltation | Rangeland Grazing |
| Lower Yellowstone | MT42M002_180 | SEARS CREEK, headwaters to mouth (Yellowstone River) | 5 | 15.15 | MILES | C-3 | N | | | N | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Copper | Hydrostructure Impacts on Fish Passage |
| | | | | | | | | | | | Excess Algal Growth | Irrigated Crop Production |
| | | | | | | | | | | | Fish-Passage Barrier | Rangeland Grazing |
| | | | | | | | | | | | High Flow Regime | Source Unknown |
| | | | | | | | | | | | Iron | Transfer of Water from an Outside Watershed |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10100004 Lower Yellowstone **Watershed** Lower Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Yellowstone | MT42M002_180 | SEARS CREEK, headwaters to mouth (Yellowstone River) | 5 | 15.15 | MILES | C-3 | N | | | N | Lead | |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |

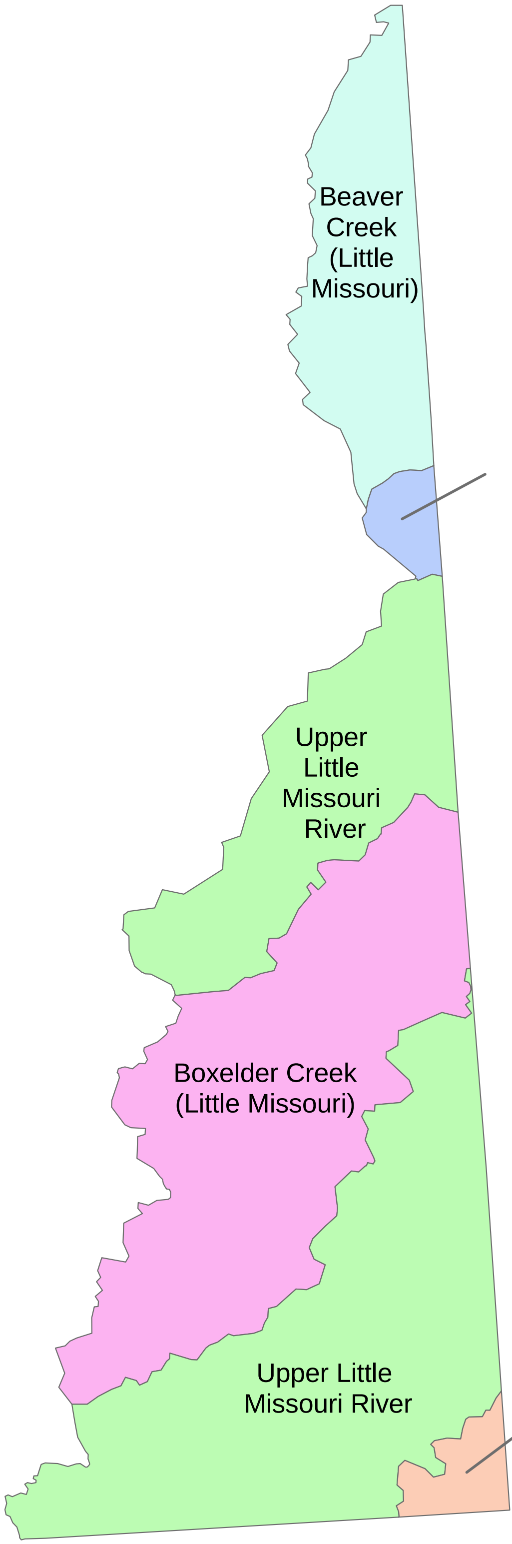
F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 10100005 O` Fallon **Watershed** Lower Yellowstone

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| O` Fallon | MT42L001_010 | PENNEL CREEK, headwaters to mouth (O'Fallon Creek) | 5 | 65.97 | MILES | C-3 | P | | | F | Total Dissolved Solids | Source Unknown |
| O` Fallon | MT42L001_020 | SANDSTONE CREEK, headwaters to mouth (O'Fallon Creek) | 5 | 72.78 | MILES | C-3 | P | | | F | Nitrate/Nitrite (Nitrite + Nitrate as N) | Agriculture |
| | | | | | | | | | | | Nitrogen (Total) | Municipal Point Source Discharges |

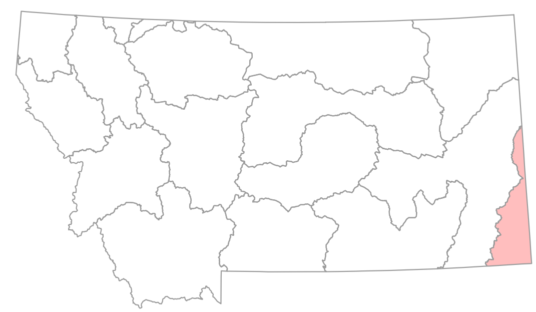
F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed




# Little Missouri Sub-Major Basin

## Yellowstone River Basin

| USGS HUC | HUC NAME |
|---|---|
| 10110201 | Upper Little Missouri River |
| 10110202 | Boxelder Creek (Little Missouri R) |
| 10110203 | Middle Little Missouri River |
| 10110204 | Beaver Creek (Little Missouri R) |
| 10120202 | Lower Belle Fourche River |



Montana Department of Environmental Quality

**HUC** 10110201 Upper Little Missouri **Watershed** Little Missouri

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Little Missouri | MT39F001_010 | THOMPSON CREEK, Wyoming border to mouth (Little Missouri River) | 5 | 41.22 | MILES | C-3 | P | | | X | Cadmium | Natural Sources |
| | | | | | | | | | | | Copper | |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Zinc | |
| Little Missouri | MT39F001_021 | LITTLE MISSOURI RIVER, Highway 323 bridge to South Dakota border | 5 | 61.39 | MILES | C-3 | P | | | F | Cadmium | Natural Sources |
| | | | | | | | | | | | Copper | Source Unknown |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Zinc | |
| Little Missouri | MT39F001_022 | LITTLE MISSOURI RIVER, Wyoming border to the Highway 323 bridge | 5 | 44.75 | MILES | C-3 | P | | | F | Cadmium | Agriculture |
| | | | | | | | | | | | Copper | Natural Sources |
| | | | | | | | | | | | Lead | Source Unknown |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Zinc | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 10110204 Beaver **Watershed** Little Missouri

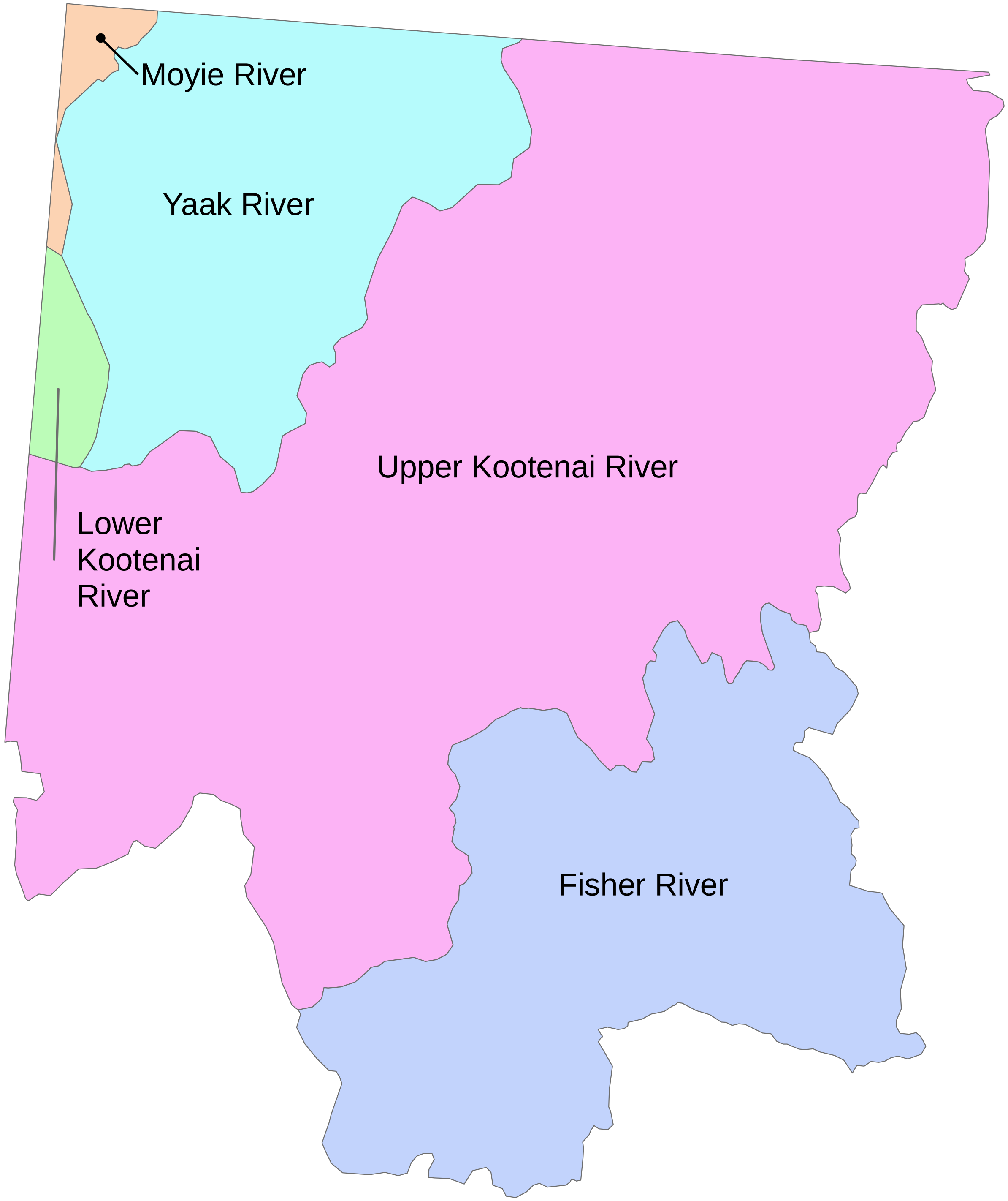
| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Little Missouri | MT39G002_010 | LAMESTEER NATIONAL WILDLIFE REFUGE, T12N R60E S15 | 5 | 80 | ACRES | C-3 | P | | | X | Other | Agriculture |

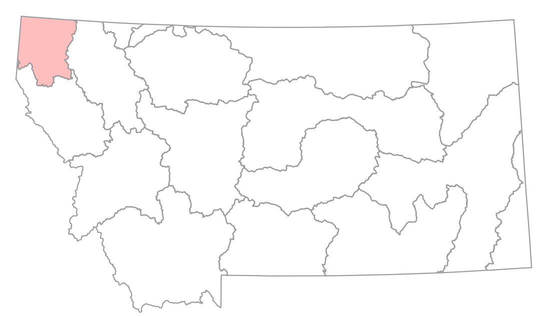
F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Kootenai Sub-Major Basin

## Columbia River Basin

| USGS HUC | HUC NAME |
|---|---|
| 17010101 | Upper Kootenai River |
| 17010102 | Fisher River |
| 17010103 | Yaak River |
| 17010104 | Lower Kootenai River |
| 17010105 | Moyie River |



Montana Department of Environmental Quality

**HUC** 17010101 Upper Kootenai **Watershed** Kootenai

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kootenai | MT76A001_010 | KOOTENAI RIVER, confluence with Yaak River to Idaho border | 5 | 6.09 | MILES | B-1 | P | F | F | F | Other flow regime alterations<br>Temperature, water | Impacts from Hydrostructure Flow Regulation/modification<br>Upstream Impoundments (e.g., PI-566 NRCS Structures) |
| Kootenai | MT76D001_010 | KOOTENAI RIVER, Libby Dam to Yaak River | 5 | 44.64 | MILES | B-1 | P | F | F | F | Other flow regime alterations<br>Temperature, water | Impacts from Hydrostructure Flow Regulation/modification<br>Upstream Impoundments (e.g., PI-566 NRCS Structures) |
| Kootenai | MT76D002_010 | STANLEY CREEK, headwater to confluence with Fairway Creek | 5 | 3.95 | MILES | B-1 | P | F | F | X | Cause Unknown<br>Copper<br>Nutrient/Eutrophication Biological Indicators | Mine Tailings<br>Streambank Modifications/destablization |
| Kootenai | MT76D002_020 | DRY CREEK, 1 mile upstream from State Highway 56 to mouth (Lake Creek) | 4C | 2.1 | MILES | B-1 | P | X | X | P | Other flow regime alterations<br>Physical substrate habitat alterations | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| Kootenai | MT76D002_030 | KEELER CREEK, headwaters to Lake Creek | 4C | 9.15 | MILES | B-1 | P | F | X | F | Low flow alterations<br>Physical substrate habitat alterations | Forest Roads (Road Construction and Use)<br>Silviculture Activities |
| Kootenai | MT76D002_040 | SNOWSHOE CREEK, Cabinet Wilderness boundary to mouth (Big Cherry Creek) | 5 | 3.62 | MILES | B-1 | P | N | N | X | Alteration in stream-side or littoral vegetative covers<br>Cadmium<br>Zinc | Impacts from Abandoned Mine Lands (Inactive) |
| Kootenai | MT76D002_050 | BIG CHERRY CREEK, Snowshoe Creek to Mouth (Libby Creek) | 5 | 13.07 | MILES | B-1 | P | F | X | F | Alteration in stream-side or littoral vegetative covers<br>Physical substrate habitat alterations<br>Zinc | Forest Roads (Road Construction and Use)<br>Habitat Modification - other than Hydromodification<br>Impacts from Abandoned Mine Lands (Inactive)<br>Mine Tailings |
| Kootenai | MT76D002_061 | LIBBY CREEK, from 1 mi above Howard Creek to highway 2 bridge | 5 | 11.24 | MILES | B-1 | P | F | N | X | Alteration in stream-side or littoral vegetative covers<br>Mercury<br>Physical substrate habitat alterations | Impacts from Abandoned Mine Lands (Inactive)<br>Placer Mining |
| Kootenai | MT76D002_062 | LIBBY CREEK, from the highway 2 bridge to mouth (Kootenai River) | 5 | 14.8 | MILES | B-1 | P | F | X | X | Physical substrate habitat alterations<br>Sedimentation/Siltation | Site Clearance (Land Development or Redevelopment)<br>Source Unknown<br>Streambank Modifications/destablization |
| Kootenai | MT76D002_070 | LAKE CREEK, Bull Lake outlet to mouth | 5 | 17.57 | MILES | B-1 | P | F | N | X | Cadmium | Forest Roads (Road Construction and Use) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 17010101 Upper Kootenai **Watershed** Kootenai

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kootenai | MT76D002_070 | LAKE CREEK, Bull Lake outlet to mouth (Kootenai River) | 5 | 17.57 | MILES | B-1 | P | F | N | X | Copper | Mine Tailings |
| | | | | | | | | | | | Lead | Natural Sources |
| | | | | | | | | | | | Mercury in Water Column | |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Bobtail Creek | MT76D002_080 | BOBTAIL CREEK, headwaters to mouth (Kootenai River) | 4A | 11.53 | MILES | B-1 | P | F | X | F | Other flow regime alterations | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Sedimentation/Siltation | Source Unknown |
| | | | | | | | | | | | Turbidity | |
| Kootenai | MT76D002_090 | QUARTZ CREEK, headwaters to confluence with the Kootenai River | 5 | 11.25 | MILES | B-1 | P | F | I | I | Physical substrate habitat alterations | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Sedimentation/Siltation | Highway/Road/Bridge Runoff (Non-construction Related) |
| | | | | | | | | | | | | Silviculture Activities |
| Kootenai | MT76D002_100 | CRIPPLE HORSE CREEK, headwaters to mouth (Lake Koocanusa) | 4C | 12.62 | MILES | B-1 | P | X | X | X | Low flow alterations | Silviculture Activities |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| Kootenai | MT76D002_110 | BRISTOW CREEK, the headwaters to mouth at Lake Koocanusa | 5 | 6.4 | MILES | B-1 | P | F | X | F | Nitrogen (Total) | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Sedimentation/Siltation | Silviculture Activities |
| | | | | | | | | | | | | Source Unknown |
| Kootenai | MT76D003_010 | LAKE KOOCANUSA | 5 | 28888 | ACRES | B-1 | P | F | F | F | Other flow regime alterations | Dam or Impoundment |
| | | | | | | | | | | | Selenium | Sources Outside State Jurisdiction or Borders |
| Tobacco | MT76D004_010 | TOBACCO RIVER, confluence of Grave Creek & Fortine Creek to mouth (Lake Koocanusa) | 4A | 14.21 | MILES | B-1 | P | F | F | F | Physical substrate habitat alterations | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Sedimentation/Siltation | Streambank Modifications/destablization |
| Tobacco | MT76D004_020 | FORTINE CREEK, headwaters to mouth (Grave Creek) | 5 | 33.46 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Excess Algal Growth | Channelization |
| | | | | | | | | | | | Low flow alterations | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Sedimentation/Siltation | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Temperature, water | Grazing in Riparian or Shoreline Zones |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 17010101 Upper Kootenai **Watershed** Kootenai

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tobacco | MT76D004_020 | FORTINE CREEK, headwaters to mouth (Grave Creek) | 5 | 33.46 | MILES | B-1 | P | F | F | P | | Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Silviculture Activities<br>Source Unknown |
| Tobacco | MT76D004_030 | EDNA CREEK, headwaters to mouth (Fortine Creek) | 4A | 10.55 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Silviculture Harvesting |
| Tobacco | MT76D004_040 | SWAMP CREEK, headwaters to mouth (Fortine Creek) | 4A | 11.94 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Silviculture Harvesting |
| Tobacco | MT76D004_050 | LIME CREEK, headwaters to mouth (Fortine Creek) | 5 | 4.92 | MILES | B-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Chlorophyll-a<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones<br>Silviculture Harvesting<br>Source Unknown |
| Grave Creek | MT76D004_060 | GRAVE CREEK, Foundation Creek to mouth (Fortine Creek) | 4A | 17.43 | MILES | B-1 | P | F | X | P | Alteration in stream-side or littoral vegetative covers<br>Other flow regime alterations<br>Sedimentation/Siltation | Flow Alterations from Water Diversions<br>Forest Roads (Road Construction and Use)<br>Silviculture Harvesting |
| Tobacco | MT76D004_070 | THERRIAULT CREEK, headwaters to mouth (Tobacco River) | 4A | 9.71 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production |
| Tobacco | MT76D004_080 | DEEP CREEK, headwaters to mouth (Fortine Creek) | 4A | 11.02 | MILES | A-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Excess Algal Growth<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| Tobacco | MT76D004_091 | SINCLAIR CREEK, confluence of un-named tributary, Lat -114.945 Long 48.908 to mouth (Tobacco River) | 4A | 7.9 | MILES | B-1 | N | X | X | X | Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Highway/Road/Bridge Runoff (Non-construction Related) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 17010102 Fisher **Watershed** Kootenai

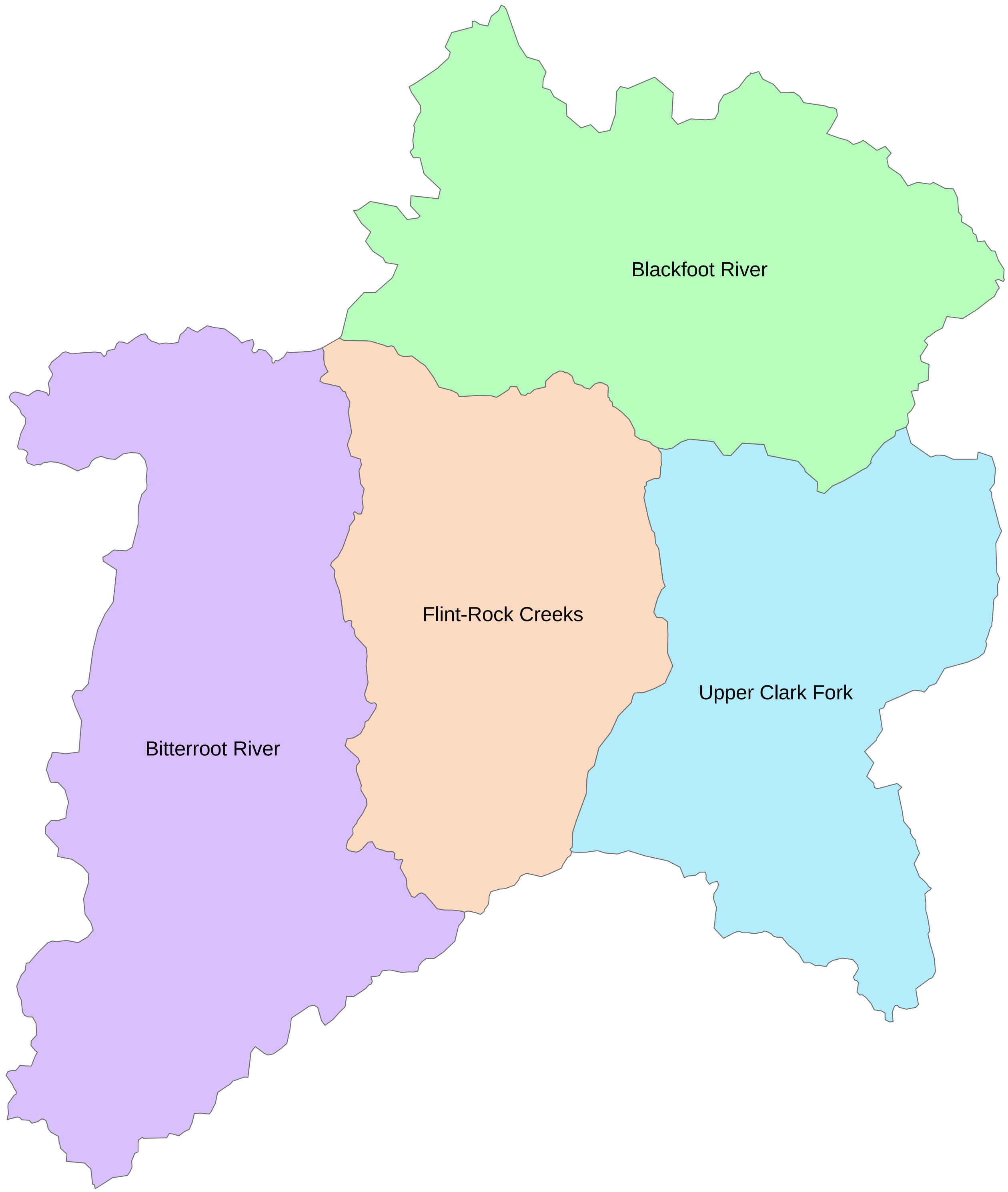
| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fisher | MT76C001_010 | FISHER RIVER, the Silver Butte/Pleasant Valley junction to mouth (Kootenai River) | 5 | 33.78 | MILES | B-1 | P | F | F | F | High Flow Regime | Channelization |
| | | | | | | | | | | | Lead | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Highway/Road/Bridge Runoff (Non-construction Related) |
| | | | | | | | | | | | | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | | Silviculture Activities |
| | | | | | | | | | | | | Source Unknown |
| | | | | | | | | | | | | Streambank Modifications/destablization |
| Fisher | MT76C001_020 | WOLF CREEK, headwaters to mouth (Fisher River) | 5 | 39.26 | MILES | B-1 | P | F | X | F | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Sedimentation/Siltation | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Temperature, water | Streambank Modifications/destablization |
| Fisher | MT76C001_030 | RAVEN CREEK, headwaters to mouth (Pleasant Vally Fisher River) | 5 | 3.05 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Chlorophyll-a | Loss of Riparian Habitat |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Silviculture Activities |
| | | | | | | | | | | | Nitrogen (Total) | Source Unknown |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010103 Yaak **Watershed** Kootenai

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yaak | MT76B002_010 | SEVENTEEN MILE CREEK, headwaters to mouth (Yaak River) | 5 | 16.41 | MILES | B-1 | P | F | F | F | Nitrate/Nitrite (Nitrite + Nitrate as N) | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Sedimentation/Siltation | Silviculture Harvesting |
| | | | | | | | | | | | | Source Unknown |
| Yaak | MT76B002_020 | LAP CREEK, headwaters to mouth (Yaak River) | 5 | 4.77 | MILES | B-1 | N | F | F | F | Nitrate/Nitrite (Nitrite + Nitrate as N) | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Sedimentation/Siltation | Silviculture Harvesting |
| | | | | | | | | | | | | Source Unknown |
| Yaak | MT76B002_060 | SPREAD CREEK, headwaters to mouth (Yaak River) | 5 | 12.64 | MILES | B-1 | P | F | F | F | Nitrate/Nitrite (Nitrite + Nitrate as N) | Silviculture Harvesting |
| | | | | | | | | | | | | Source Unknown |
| Yaak | MT76B002_070 | PETE CREEK, headwaters to mouth (Yaak River) | 5 | 10.94 | MILES | B-1 | P | F | F | F | Nitrate/Nitrite (Nitrite + Nitrate as N) | Silviculture Harvesting |
| | | | | | | | | | | | | Source Unknown |
| Yaak | MT76B002_080 | SOUTH FORK YAAK RIVER, headwaters to mouth (Yaak River) | 4A | 12.81 | MILES | B-1 | N | F | F | F | Sedimentation/Siltation | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | | Silviculture Harvesting |
| Yaak | MT76B002_090 | WEST FORK YAAK RIVER, headwaters to mouth (Yaak River) | 5 | 20.29 | MILES | B-1 | P | F | F | F | Nitrate/Nitrite (Nitrite + Nitrate as N) | Silviculture Harvesting |
| | | | | | | | | | | | | Source Unknown |
| Yaak | MT76B002_100 | EAST FORK YAAK RIVER, headwaters to mouth (Yaak River) | 5 | 14.6 | MILES | B-1 | P | F | F | F | Nitrate/Nitrite (Nitrite + Nitrate as N) | Silviculture Harvesting |
| | | | | | | | | | | | | Source Unknown |

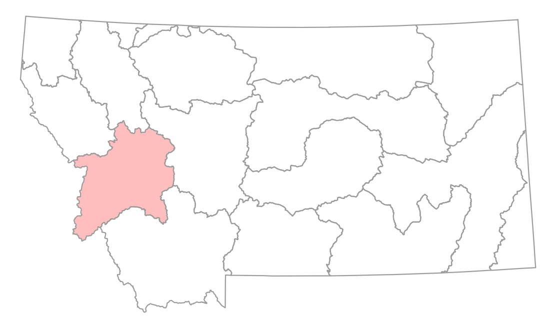
F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed




# Upper Clark Fork Sub-Major Basin

## Columbia River Basin

| USGS HUC | HUC NAME |
|---|---|
| 17010201 | Upper Clark Fork River |
| 17010202 | Flint-Rock Creeks |
| 17010203 | Blackfoot River |
| 17010205 | Bitterroot River |



Montana Department of Environmental Quality

**HUC** 17010201 Upper Clark Fork **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clark Fork River | MT76G001_010 | CLARK FORK RIVER, Flint Creek to Little Blackfoot River | 5 | 27.78 | MILES | B-1 | P | F | N | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Arsenic | Mill Tailings |
| | | | | | | | | | | | Copper | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Clark Fork River | MT76G001_030 | CLARK FORK RIVER, the Little Blackfoot River to Cottonwood Creek | 5 | 14.94 | MILES | C-1 | N | F | | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Copper | Channelization |
| | | | | | | | | | | | Lead | Mill Tailings |
| | | | | | | | | | | | Low flow alterations | Municipal Point Source Discharges |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Clark Fork River | MT76G001_040 | CLARK FORK RIVER, Cottonwood Creek to Warm Springs Creek | 5 | 27.83 | MILES | C-2 | P | F | | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Arsenic | Mill Tailings |
| | | | | | | | | | | | Cadmium | Municipal Point Source Discharges |
| | | | | | | | | | | | Copper | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010201 Upper Clark Fork **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Clark Fork | MT76G002_011 | WARM SPRINGS CREEK, headwaters to Meyers Dam, T5N R12W S25 | 4C | 14.74 | MILES | A-1 | P | F | I | F | Physical substrate habitat alterations | Channelization |
| | | | | | | | | | | | | Highway/Road/Bridge Runoff (Non-construction Related) |
| Upper Clark Fork | MT76G002_012 | WARM SPRINGS CREEK, Meyers Dam T5N R12W S25 to mouth (Clark Fork), T6N R9W S6 | 4A | 17.22 | MILES | B-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Arsenic | Irrigated Crop Production |
| | | | | | | | | | | | Cadmium | Mill Tailings |
| | | | | | | | | | | | Copper | |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Zinc | |
| Upper Clark Fork | MT76G002_030 | CABLE CREEK, headwaters to mouth (Warm Springs Creek) | 4A | 6.36 | MILES | B-1 | P | F | F | P | Chlorophyll-a | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Other anthropogenic substrate alterations | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Upper Clark Fork | MT76G002_040 | STORM LAKE CREEK, headwaters to mouth (Un-Named canal/Ditch) | 4A | 9.73 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Chlorophyll-a | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Low flow alterations | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Sedimentation/Siltation | Silviculture Harvesting |
| | | | | | | | | | | | | Source Unknown |
| Upper Clark Fork | MT76G002_051 | MILL CREEK, headwaters to section line between Sec 27 and 28, T4N, R11W | 5 | 11.01 | MILES | B-1 | P | F | F | F | Arsenic | Contaminated Sediments |
| | | | | | | | | | | | Cadmium | Mill Tailings |
| | | | | | | | | | | | Chromium (total) | Mine Tailings |
| | | | | | | | | | | | Copper | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Zinc | |
| Upper Clark Fork | MT76G002_052 | MILL CREEK, line between sections 27- | 5 | 9.5 | MILES | B-1 | N | P | N | P | Alteration in stream-side or littoral | Contaminated Sediments |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010201 Upper Clark Fork **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Clark Fork | MT76G002_052 | MILL CREEK, line between sections 27-28 T4N R11W to Mill-Willow Bypass diversion | 5 | 9.5 | MILES | B-1 | N | P | N | P | vegetative covers | Irrigated Crop Production |
| | | | | | | | | | | | Aluminum | Mill Tailings |
| | | | | | | | | | | | Arsenic | |
| | | | | | | | | | | | Cadmium | |
| | | | | | | | | | | | Copper | |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Zinc | |
| Upper Clark Fork | MT76G002_061 | WILLOW CREEK, headwaters to T4N R10W S30 | 5 | 6.13 | MILES | B-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Arsenic | Mill Tailings |
| | | | | | | | | | | | Cadmium | Natural Sources |
| | | | | | | | | | | | Copper | |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Upper Clark Fork | MT76G002_062 | WILLOW CREEK, T4N R10W S30 to mouth (Mill Creek), T4N R10W S11 | 4A | 7.12 | MILES | B-1 | N | F | N | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Arsenic | Atmospheric Depositon - Toxics |
| | | | | | | | | | | | Cadmium | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Copper | Mill Tailings |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010201 Upper Clark Fork **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Clark Fork | MT76G002_072 | LOST CREEK, the south State Park boundary to mouth (Clark Fork River) | 5 | 19.07 | MILES | B-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Copper<br>Iron<br>Lead<br>Low flow alterations<br>Manganese<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Physical substrate habitat alterations<br>Sulfates | Agriculture<br>Contaminated Sediments<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production |
| Upper Clark Fork | MT76G002_080 | MODESTY CREEK, headwaters to mouth (Clark Fork River) | 4A | 14.72 | MILES | B-1 | N | F | N | P | Arsenic<br>Cadmium<br>Copper<br>Lead<br>Low flow alterations | Agriculture |
| Upper Clark Fork | MT76G002_090 | RACETRACK CREEK, the national forest boundary to mouth (Clark Fork River) | 4C | 11.07 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations | Agriculture<br>Irrigated Crop Production |
| Upper Clark Fork | MT76G002_100 | DEMPSEY CREEK, the national forest boundary to mouth (Clark Fork River) | 5 | 13.44 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Sedimentation/Siltation | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production |
| Upper Clark Fork | MT76G002_110 | TIN CUP JOE CREEK, Tin Cup Lake to mouth (Clark Fork River) | 4A | 6.77 | MILES | B-1 | N | F | F | N | Low flow alterations<br>Sedimentation/Siltation | Agriculture |
| Upper Clark Fork | MT76G002_120 | MILL-WILLOW BYPASS, Mill and Willow Creek diversion to Silver Bow Creek (below ponds) | 4A | 4.2 | MILES | B-1 | P | F | N | F | Arsenic<br>Cadmium<br>Copper | Mill Tailings |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010201 Upper Clark Fork **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Clark Fork | MT76G002_120 | MILL-WILLOW BYPASS, Mill and Willow Creek diversion to Silver Bow Creek (below ponds) | 4A | 4.2 | MILES | B-1 | P | F | N | F | Lead | |
| | | | | | | | | | | | Zinc | |
| Upper Clark Fork | MT76G002_131 | PETERSON CREEK, headwaters to Jack Creek | 5 | 6.27 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Copper | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Iron | Irrigated Crop Production |
| | | | | | | | | | | | Lead | Silviculture Activities |
| | | | | | | | | | | | Low flow alterations | Source Unknown |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Total Kjehldahl Nitrogen (TKN) | |
| Upper Clark Fork | MT76G002_132 | PETERSON CREEK, Jack Creek to mouth (Clark Fork River) | 4A | 7.1 | MILES | B-1 | N | X | X | N | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Iron | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |
| Upper Clark Fork | MT76G002_140 | ANTELOPE CREEK, headwaters to mouth (Gardner Ditch) | 4A | 6.08 | MILES | B-1 | N | F | F | P | Low flow alterations | Agriculture |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Upper Clark Fork | MT76G003_020 | SILVER BOW CREEK, headwaters to mouth (Clark Fork River) | 5 | 29.18 | MILES | I | N | N | N | N | Aluminum | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Arsenic | Loss of Riparian Habitat |
| | | | | | | | | | | | Copper | Site Clearance (Land Development or Redevelopment) |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Manganese | |
| | | | | | | | | | | | Nitrates | |
| | | | | | | | | | | | Physical substrate habitat alterations | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 17010201 Upper Clark Fork **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Clark Fork | MT76G003_020 | SILVER BOW CREEK, headwaters to mouth (Clark Fork River) | 5 | 29.18 | MILES | I | N | N | N | N | Sedimentation/Siltation<br>Silver<br>Zinc | |
| Upper Clark Fork | MT76G003_030 | GERMAN GULCH, headwaters to mouth (Silver Bow Creek) | 4A | 8.24 | MILES | B-1 | N | F | P | F | Arsenic<br>Cyanide<br>Selenium | Impacts from Abandoned Mine Lands (Inactive)<br>Placer Mining |
| Upper Clark Fork | MT76G003_031 | BEEFSTRAIGHT CREEK, Minnesota Gulch to mouth (German Gulch) | 4A | 3.5 | MILES | B-1 | N | X | X | X | Cyanide | Mine Tailings |
| Little Blackfoot | MT76G004_010 | LITTLE BLACKFOOT RIVER, Dog Creek to mouth (Clark Fork River) | 5 | 26.5 | MILES | B-1 | P | F | P | P | Alteration in stream-side or littoral vegetative covers<br>Copper<br>Lead<br>Low flow alterations<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Sedimentation/Siltation | Agriculture<br>Channelization<br>Grazing in Riparian or Shoreline Zones<br>Impacts from Abandoned Mine Lands (Inactive)<br>Rangeland Grazing |
| Little Blackfoot | MT76G004_020 | LITTLE BLACKFOOT RIVER, the headwaters to Dog Creek | 5 | 22.54 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Cyanide<br>Sedimentation/Siltation | Highway/Road/Bridge Runoff (Non-construction Related)<br>Impacts from Abandoned Mine Lands (Inactive) |
| Little Blackfoot | MT76G004_032 | SPOTTED DOG CREEK, forest boundary to mouth (Little Blackfoot River) | 5 | 10.67 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Phosphorus (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| Little Blackfoot | MT76G004_040 | ELLISTON CREEK, headwaters to mouth (Little Blackfoot River) | 4C | 4.95 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Channelization<br>Site Clearance (Land Development or Redevelopment) |
| Little Blackfoot | MT76G004_051 | TELEGRAPH CREEK, headwaters to Hahn Creek | 5 | 5.35 | MILES | B-1 | N | F | N | F | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Beryllium | Forest Roads (Road Construction and Use)<br>Impacts from Abandoned Mine Lands (Inactive) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 17010201 Upper Clark Fork **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Little Blackfoot | MT76G004_051 | TELEGRAPH CREEK, headwaters to Hahn Creek | 5 | 5.35 | MILES | B-1 | N | F | N | F | Cadmium | |
| | | | | | | | | | | | Copper | |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Little Blackfoot | MT76G004_052 | TELEGRAPH CREEK, Hahn Creek to mouth (Little Blackfoot River) | 5 | 2.51 | MILES | B-1 | F | F | N | F | Lead | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Mercury | |
| Little Blackfoot | MT76G004_060 | MONARCH CREEK, headwaters to mouth (Ontario Creek) | 5 | 4.68 | MILES | B-1 | P | F | F | P | Arsenic | Mill Tailings |
| | | | | | | | | | | | Copper | Mine Tailings |
| | | | | | | | | | | | Lead | Source Unknown |
| | | | | | | | | | | | Mercury | Subsurface (Hardrock) Minining |
| | | | | | | | | | | | Selenium | |
| | | | | | | | | | | | pH | |
| Little Blackfoot | MT76G004_071 | DOG CREEK, headwaters to Meadow Creek | 5 | 4.33 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Arsenic | Rangeland Grazing |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Little Blackfoot | MT76G004_072 | DOG CREEK, Meadow Creek to mouth (Little Blackfoot River) | 5 | 13.63 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Channelization |
| | | | | | | | | | | | Sedimentation/Siltation | Rangeland Grazing |
| Little Blackfoot | MT76G004_080 | SNOWSHOE CREEK, headwaters to mouth (Little Blackfoot River) | 5 | 11.45 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Dredge Mining |
| | | | | | | | | | | | Low flow alterations | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | | Irrigated Crop Production |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010201 Upper Clark Fork **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Little Blackfoot | MT76G004_080 | SNOWSHOE CREEK, headwaters to mouth (Little Blackfoot River) | 5 | 11.45 | MILES | B-1 | P | F | F | P | | Source Unknown |
| Little Blackfoot | MT76G004_091 | CARPENTER CREEK, headwaters to Basin Creek | 4C | 3.67 | MILES | B-1 | N | X | X | P | Alteration in stream-side or littoral vegetative covers<br>Other anthropogenic substrate alterations<br>Physical substrate habitat alterations | Impacts from Abandoned Mine Lands (Inactive) |
| Little Blackfoot | MT76G004_092 | CARPENTER CREEK, Basin Creek to mouth (Little Blackfoot River) | 4C | 4.87 | MILES | B-1 | N | X | X | F | Alteration in stream-side or littoral vegetative covers<br>Other anthropogenic substrate alterations<br>Physical substrate habitat alterations | Impacts from Abandoned Mine Lands (Inactive) |
| Little Blackfoot | MT76G004_100 | WOODSON GULCH, headwaters to mouth (Carpenter Creek), T11N R7W S29 | 4C | .84 | MILES | B-1 | P | F | F | P | Physical substrate habitat alterations | Impacts from Abandoned Mine Lands (Inactive)<br>Placer Mining |
| Little Blackfoot | MT76G004_112 | THREEMILE CREEK, Quigley Ranch Reservoir to mouth (Little Blackfoot River) | 4C | 7.46 | MILES | B-1 | N | X | X | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Impacts from Abandoned Mine Lands (Inactive) |
| Upper Clark Fork | MT76G005_071 | DUNKLEBERG CREEK, headwaters to T9N R12W S2 SW | 4A | 3.91 | MILES | B-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Cadmium<br>Copper<br>Iron<br>Lead<br>Zinc | Grazing in Riparian or Shoreline Zones<br>Mine Tailings |
| Upper Clark Fork | MT76G005_072 | DUNKLEBERG CREEK, T9N R12W S2 to mouth (Un-named Canal), T10N R11W S30 | 5 | 4.05 | MILES | B-1 | P | F | P | F | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Cadmium<br>Copper<br>Iron<br>Lead<br>Nitrogen (Total) | Impacts from Abandoned Mine Lands (Inactive)<br>Rangeland Grazing |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010201 Upper Clark Fork **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Clark Fork | MT76G005_072 | DUNKLEBERG CREEK, T9N R12W S2 to mouth (Un-named Canal), T10N R11W S30 | 5 | 4.05 | MILES | B-1 | P | F | P | F | Zinc | |
| Upper Clark Fork | MT76G005_081 | HOOVER CREEK, headwaters to Miller Lake | 4A | 5.17 | MILES | B-1 | X | X | X | P | Sedimentation/Siltation<br>Turbidity | Highway/Road/Bridge Runoff (Non-construction Related)<br>Rangeland Grazing |
| Upper Clark Fork | MT76G005_082 | HOOVER CREEK, Miller Lake to mouth (Clark Fork River) | 5 | 7.05 | MILES | B-1 | N | X | X | N | Low flow alterations<br>Nitrogen (Total)<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Agriculture<br>Dam Construction (Other than Upstream Flood Control Projects)<br>Streambank Modifications/destablization |
| Upper Clark Fork | MT76G005_091 | GOLD CREEK, headwaters to National Forest boundary | 4A | 8.1 | MILES | B-1 | N | F | N | F | Alteration in stream-side or littoral vegetative covers<br>Lead | Impacts from Abandoned Mine Lands (Inactive)<br>Mine Tailings |
| Upper Clark Fork | MT76G005_092 | GOLD CREEK, the forest boundary to mouth (Clark Fork River) | 5 | 7.77 | MILES | B-1 | P | F | F | P | Iron<br>Lead<br>Low flow alterations<br>Nitrogen (Total) | Agriculture<br>Irrigated Crop Production |
| Upper Clark Fork | MT76G005_100 | BROCK CREEK, headwaters to mouth (Clark Fork River) | 4A | 12.5 | MILES | B-1 | X | F | F | P | Sedimentation/Siltation | Streambank Modifications/destablization |
| Upper Clark Fork | MT76G005_111 | WARM SPRINGS CREEK, headwaters to line between R9W and R10W | 5 | 9.54 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Highway/Road/Bridge Runoff (Non-construction Related)<br>Silviculture Activities |
| Upper Clark Fork | MT76G005_112 | WARM SPRINGS CREEK, from line between R9W and R10W to mouth (Clark Fork River) | 4A | 6.28 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Agriculture<br>Grazing in Riparian or Shoreline Zones |
| Little Blackfoot | MT76G006_010 | UN-NAMED CREEK, headwaters to mouth (Ontario Creek), T8N R6W S27 | 5 | .8 | MILES | B-1 | N | P | N | P | Arsenic<br>Cadmium<br>Copper<br>Lead<br>Mercury | Impacts from Abandoned Mine Lands (Inactive) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010201 Upper Clark Fork **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Little Blackfoot | MT76G006_010 | UN-NAMED CREEK, headwaters to mouth (Ontario Creek), T8N R6W S27 | 5 | .8 | MILES | B-1 | N | P | N | P | Zinc<br>pH | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010202 Flint-Rock **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clark Fork River | MT76E001_010 | CLARK FORK RIVER, Flint Creek to Blackfoot River | 5 | 50.93 | MILES | B-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Cadmium<br>Chlorophyll-a<br>Copper<br>Iron<br>Lead<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Zinc | Agriculture<br>Channelization<br>Mill Tailings<br>Mine Tailings<br>Municipal Point Source Discharges |
| Rock | MT76E002_020 | EAST FORK ROCK CREEK, East Fork Reservoir to mouth (Middle Fork Rock Creek) | 5 | 9.74 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Chlorophyll-a<br>Low flow alterations<br>Nitrogen, Nitrate<br>Sedimentation/Siltation<br>Temperature, water | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones<br>Impacts from Hydrostructure Flow Regulation/modification<br>Irrigated Crop Production<br>Source Unknown |
| Rock | MT76E002_030 | WEST FORK ROCK CREEK, headwaters to mouth (Rock Creek) | 5 | 25.15 | MILES | B-1 | X | F | N | F | Mercury | Source Unknown |
| Rock | MT76E002_040 | UPPER WILLOW CREEK, headwaters to mouth (Rock Creek) | 4C | 21.7 | MILES | B-1 | P | F | X | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Physical substrate habitat alterations | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production |
| Rock | MT76E002_050 | BREWSTER CREEK, East Fork to mouth (Rock Creek) | 5 | 4.57 | MILES | B-1 | P | F | F | F | Fish-Passage Barrier<br>Low flow alterations<br>Phosphorus (Total)<br>Sedimentation/Siltation | Irrigated Crop Production<br>Source Unknown |
| Rock | MT76E002_060 | SOUTH FORK ANTELOPE CREEK, headwaters to mouth (Antelope Creek), T6N R15W S22 | 5 | 2.93 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Nitrate/Nitrite (Nitrite + Nitrate as N) | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010202 Flint-Rock **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rock | MT76E002_060 | SOUTH FORK ANTELOPE CREEK, headwaters to mouth (Antelope Creek), T6N R15W S22 | 5 | 2.93 | MILES | B-1 | N | F | F | P | Phosphorus (Total)<br>Sedimentation/Siltation<br>Temperature, water | Silviculture Activities<br>Source Unknown |
| Rock | MT76E002_070 | QUARTZ GULCH, headwaters to mouth (Eureka Gulch) | 5 | 3.43 | MILES | B-1 | N | F | N | F | Alteration in stream-side or littoral vegetative covers<br>Mercury<br>Sedimentation/Siltation | Natural Sources<br>Placer Mining |
| Rock | MT76E002_080 | BASIN GULCH, headwaters to mouth (Eureka Gulch) | 4C | 1.45 | MILES | B-1 | N | X | X | X | Alteration in stream-side or littoral vegetative covers | Impacts from Abandoned Mine Lands (Inactive)<br>Placer Mining |
| Rock | MT76E002_090 | EUREKA GULCH, confluence of Quartz Gulch and Basin Gulch to mouth (Un-Named Ditch) | 5 | 1.93 | MILES | B-1 | N | F | N | N | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Mercury<br>Sedimentation/Siltation<br>Solids (Suspended/Bedload) | Natural Sources<br>Open Pit Mining<br>Placer Mining |
| Rock | MT76E002_100 | SCOTCHMAN GULCH, headwaters to mouth (Upper Willow Creek) | 5 | 6.88 | MILES | B-1 | P | F | F | F | Phosphorus (Total)<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Placer Mining<br>Rangeland Grazing<br>Silviculture Harvesting<br>Source Unknown |
| Rock | MT76E002_110 | SLUICE GULCH, headwaters to mouth (Rock Creek) | 5 | 6.33 | MILES | B-1 | N | F | N | N | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Impacts from Abandoned Mine Lands (Inactive) |
| Rock | MT76E002_120 | FLAT GULCH, headwaters to mouth (Rock Creek) | 5 | 2.99 | MILES | B-1 | P | F | F | F | Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Rangeland Grazing<br>Silviculture Activities<br>Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010202 Flint-Rock **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rock | MT76E002_160 | MINERS GULCH, headwaters to mouth (Upper Willow Creek), T8N R15W S23 | 5 | 5.42 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Impacts from Abandoned Mine Lands (Inactive)<br>Silviculture Activities<br>Source Unknown |
| Flint | MT76E003_011 | FLINT CREEK, Georgetown Lake to confluence with Boulder Creek | 5 | 28.09 | MILES | B-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers<br>Antimony<br>Arsenic<br>Cadmium<br>Copper<br>Lead<br>Low flow alterations<br>Mercury<br>Sedimentation/Siltation | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Impacts from Abandoned Mine Lands (Inactive) |
| Flint | MT76E003_012 | FLINT CREEK, Boulder Creek to mouth (Clark Fork River) | 5 | 16.92 | MILES | B-1 | N | F | N | P | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Cadmium<br>Copper<br>Iron<br>Lead<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Turbidity | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Impacts from Abandoned Mine Lands (Inactive)<br>Streambank Modifications/destablization |
| Flint | MT76E003_020 | DOUGLAS CREEK, confluence of Middle and South Forks to mouth (Flint Creek), T9N R13W S10 | 5 | 7.07 | MILES | B-1 | P | F | X | F | Nitrogen, Nitrate<br>Physical substrate habitat alterations | Channelization<br>Impacts from Abandoned Mine Lands (Inactive)<br>Silviculture Activities |
| Flint | MT76E003_030 | NORTH FORK DOUGLAS CREEK, headwaters to mouth (Middle Fork Douglas Creek) | 5 | 3.13 | MILES | B-1 | N | P | N | X | Alteration in stream-side or littoral vegetative covers<br>Arsenic | Grazing in Riparian or Shoreline Zones<br>Impacts from Abandoned Mine Lands (Inactive) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 17010202 Flint-Rock **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flint | MT76E003_030 | NORTH FORK DOUGLAS CREEK, headwaters to mouth (Middle Fork Douglas Creek) | 5 | 3.13 | MILES | B-1 | N | P | N | X | Cadmium<br>Copper<br>Sulfates<br>Zinc | |
| Flint | MT76E003_040 | FRED BURR CREEK, Fred Burr Lake to mouth (Flint Creek) | 5 | 11.21 | MILES | B-1 | N | F | N | F | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Lead<br>Mercury | Agriculture<br>Grazing in Riparian or Shoreline Zones<br>Mill Tailings |
| Flint | MT76E003_050 | SOUTH FORK LOWER WILLOW CREEK, headwaters to mouth (Lower Willow Creek Reservoir) | 5 | 13.34 | MILES | B-1 | N | F | N | X | Copper<br>Lead<br>Mercury | Mill Tailings |
| Flint | MT76E003_060 | BOULDER CREEK, headwaters to mouth (Flint Creek) | 5 | 14.23 | MILES | B-1 | P | F | N | X | Arsenic<br>Lead<br>Mercury<br>Physical substrate habitat alterations<br>Zinc | Impacts from Abandoned Mine Lands (Inactive)<br>Silviculture Harvesting |
| Flint | MT76E003_070 | BARNES CREEK, headwaters to mouth (Flint Creek) | 5 | 8.87 | MILES | B-1 | P | P | P | P | Chlorophyll-a<br>Iron<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Irrigated Crop Production<br>Managed Pasture Grazing<br>Source Unknown |
| Flint | MT76E003_090 | PRINCETON GULCH, headwaters to mouth (Boulder Creek) | 5 | 3.89 | MILES | B-1 | P | F | X | X | Nitrates<br>Physical substrate habitat alterations | Placer Mining |
| Flint | MT76E003_100 | DOUGLAS CREEK, headwaters to where stream ends, T7N R14W S25 | 5 | 3.76 | MILES | B-1 | N | P | N | P | Arsenic<br>Cadmium | Impacts from Abandoned Mine Lands (Inactive)<br>Silviculture Activities |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010202 Flint-Rock **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flint | MT76E003_100 | DOUGLAS CREEK, headwaters to where stream ends, T7N R14W S25 | 5 | 3.76 | MILES | B-1 | N | P | N | P | Cause Unknown | Source Unknown |
| | | | | | | | | | | | Copper | Streambank Modifications/destablization |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Mercury | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Flint | MT76E003_110 | SMART CREEK, headwaters to mouth (Flint Creek), T9N R13W S21 | 5 | 11.6 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Freshettes or Major Flooding |
| | | | | | | | | | | | Phosphorus (Total) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Sedimentation/Siltation | Silviculture Harvesting |
| | | | | | | | | | | | | Watershed Runoff following Forest Fire |
| Flint | MT76E003_130 | CAMP CREEK, headwaters to terminus, T7N R14W S25 | 5 | 1.8 | MILES | B-1 | N | F | F | N | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Arsenic | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Fish-Passage Barrier | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Zinc | |
| Clark Fork - Drummond | MT76E004_010 | WALLACE CREEK, headwaters to mouth (Clark Fork River) | 5 | 4.32 | MILES | B-1 | P | F | F | X | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Zinc | |
| Clark Fork - Drummond | MT76E004_020 | CRAMER CREEK, headwaters to mouth (Clark Fork River) | 5 | 11.98 | MILES | B-1 | P | F | F | P | Arsenic | Highway/Road/Bridge Runoff (Non-construction Related) |
| | | | | | | | | | | | Barium | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Cause Unknown | Source Unknown |
| | | | | | | | | | | | Cobalt | |
| | | | | | | | | | | | Copper | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Mercury | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010202 Flint-Rock **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clark Fork - Drummond | MT76E004_020 | CRAMER CREEK, headwaters to mouth (Clark Fork River) | 5 | 11.98 | MILES | B-1 | P | F | F | P | Physical substrate habitat alterations<br>Sedimentation/Siltation | |
| Clark Fork - Drummond | MT76E004_030 | TENMILE CREEK, headwaters to mouth (Bear Creek-Clark Fork River) | 5 | 4.92 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Phosphorus (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Silviculture Activities |
| Clark Fork - Drummond | MT76E004_041 | HARVEY CREEK, headwaters to Grouse Gulch | 4C | 11.96 | MILES | B-1 | P | F | F | F | Physical substrate habitat alterations | Streambank Modifications/destablization |
| Clark Fork - Drummond | MT76E004_042 | HARVEY CREEK, Grouse Gulch to mouth (Clark Fork River) | 4C | 4.01 | MILES | B-1 | P | F | F | P | Low flow alterations<br>Physical substrate habitat alterations | Agriculture<br>Streambank Modifications/destablization |
| Clark Fork - Drummond | MT76E004_050 | MULKEY CREEK, headwaters to mouth (Clark Fork River) | 5 | 5.99 | MILES | B-1 | N | X | X | P | Sedimentation/Siltation | Low Water Crossing |
| Clark Fork - Drummond | MT76E004_060 | RATTLER GULCH, headwaters to mouth (Clark Fork River), T11N R13W S22 | 5 | 8.08 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Chlorophyll-a<br>Low flow alterations<br>Phosphorus (Total)<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones<br>Natural Sources<br>Silviculture Harvesting<br>Source Unknown |
| Clark Fork - Drummond | MT76E004_070 | DEEP CREEK, headwaters to mouth (Bear Creek, which is a tributary to Clark Fork River near Bearmouth) | 5 | 5.12 | MILES | B-1 | P | F | F | P | Chlorophyll-a<br>Low flow alterations<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Nitrogen (Total)<br>Sedimentation/Siltation | Placer Mining<br>Silviculture Harvesting<br>Subsurface (Hardrock) Minining |
| Clark Fork - Drummond | MT76E004_080 | ANTELOPE CREEK, headwaters to mouth (Clark Fork River) | 4C | 8.45 | MILES | B-1 | P | X | X | X | Alteration in stream-side or littoral vegetative covers<br>Physical substrate habitat alterations | Grazing in Riparian or Shoreline Zones<br>Loss of Riparian Habitat<br>Streambank Modifications/destablization |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010203 Blackfoot **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blackfoot Headwaters | MT76F001_010 | BLACKFOOT RIVER, headwaters to Landers Fork | 4A | 16.11 | MILES | B-1 | N | P | N | F | Cadmium | Subsurface (Hardrock) Minining |
| | | | | | | | | | | | Copper | Surface Mining |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Manganese | |
| | | | | | | | | | | | Zinc | |
| Blackfoot Headwaters | MT76F001_020 | BLACKFOOT RIVER, Landers Fork to Nevada Creek | 4A | 39.15 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Aluminum | Silviculture Harvesting |
| | | | | | | | | | | | Cadmium | Subsurface (Hardrock) Minining |
| | | | | | | | | | | | Iron | Surface Mining |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Middle Blackfoot | MT76F001_031 | BLACKFOOT RIVER, Nevada Creek to Monture Creek | 5 | 21.44 | MILES | B-1 | P | F | F | F | Nitrogen (Total) | Irrigated Crop Production |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |
| Middle Blackfoot | MT76F001_032 | BLACKFOOT RIVER, Monture Creek to Belmont Creek | 5 | 23.53 | MILES | B-1 | P | F | F | F | Nitrogen (Total) | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Phosphorus (Total) | Streambank Modifications/destablization |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |
| Lower Blackfoot | MT76F001_033 | BLACKFOOT RIVER, Belmont Creek to mouth (Clark Fork) | 5 | 21.4 | MILES | B-1 | P | F | F | F | Ammonia (Un-ionized) | Contaminated Sediments |
| | | | | | | | | | | | | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Silviculture Activities |
| Blackfoot Headwaters | MT76F002_020 | WILLOW CREEK, Sandbar Creek to mouth (Blackfoot River), T15N R7W S34 | 4A | 2.94 | MILES | B-1 | P | F | P | F | Other flow regime alterations | Highway/Road/Bridge Runoff (Non-construction Related) |
| | | | | | | | | | | | Sedimentation/Siltation | Streambank Modifications/destablization |
| Blackfoot Headwaters | MT76F002_030 | POORMAN CREEK, headwaters to mouth (Blackfoot River) | 4A | 14.31 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Construction Stormwater Discharge (Permitted) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010203 Blackfoot **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blackfoot Headwaters | MT76F002_030 | POORMAN CREEK, headwaters to mouth (Blackfoot River) | 4A | 14.31 | MILES | B-1 | P | F | F | P | Cadmium | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Copper | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Lead | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Low flow alterations | Silviculture Activities |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Blackfoot Headwaters | MT76F002_040 | BEARTRAP CREEK, Mike Horse Creek to mouth (Blackfoot River) | 4A | .52 | MILES | B-1 | N | F | N | F | Cadmium | Acid Mine Drainage |
| | | | | | | | | | | | Copper | Mine Tailings |
| | | | | | | | | | | | Iron | Subsurface (Hardrock) Minining |
| | | | | | | | | | | | Lead | Surface Mining |
| | | | | | | | | | | | Manganese | |
| | | | | | | | | | | | Zinc | |
| Blackfoot Headwaters | MT76F002_060 | SANDBAR CREEK, forks to mouth (Willow Creek) | 5 | 1.67 | MILES | B-1 | P | F | P | F | Aluminum | Acid Mine Drainage |
| | | | | | | | | | | | Copper | Highway/Road/Bridge Runoff (Non-construction Related) |
| | | | | | | | | | | | Iron | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Manganese | Mine Tailings |
| | | | | | | | | | | | Sedimentation/Siltation | Subsurface (Hardrock) Minining |
| | | | | | | | | | | | | Surface Mining |
| Blackfoot Headwaters | MT76F002_070 | ARRASTRA CREEK, headwaters to mouth (Blackfoot River) | 4A | 12.86 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Agriculture |
| | | | | | | | | | | | | Highway/Road/Bridge Runoff (Non-construction Related) |
| | | | | | | | | | | | | Streambank Modifications/destablization |
| Blackfoot Headwaters | MT76F003_010 | MIKE HORSE CREEK, headwaters to mouth (Beartrap Creek) | 4A | .69 | MILES | B-1 | N | X | N | X | Aluminum | Acid Mine Drainage |
| | | | | | | | | | | | Cadmium | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Copper | Mine Tailings |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Manganese | |
| | | | | | | | | | | | Zinc | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010203 Blackfoot **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nevada Creek | MT76F003_011 | NEVADA CREEK, headwaters to Nevada Lake | 5 | 19.84 | MILES | B-1 | P | F | N | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Cadmium | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Copper | Placer Mining |
| | | | | | | | | | | | Iron | |
| | | | | | | | | | | | Lead | |
| | | | | | | | | | | | Mercury | |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |
| | | | | | | | | | | | Temperature, water | |
| | | | | | | | | | | | Total Kjehldahl Nitrogen (TKN) | |
| Nevada Creek | MT76F003_012 | NEVADA CREEK, Nevada Lake to mouth (Blackfoot River) | 4A | 27.95 | MILES | B-1 | N | F | F | P | Low flow alterations | Agriculture |
| | | | | | | | | | | | Nitrogen (Total) | Streambank Modifications/destablization |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |
| | | | | | | | | | | | Total Kjehldahl Nitrogen (TKN) | |
| Nevada Creek | MT76F003_021 | JEFFERSON CREEK, headwaters to 1 mile above confluence with Madison Gulch | 4A | 3.72 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Sedimentation/Siltation | Placer Mining |
| | | | | | | | | | | | | Rangeland Grazing |
| | | | | | | | | | | | | Streambank Modifications/destablization |
| Nevada Creek | MT76F003_022 | JEFFERSON CREEK, 1 mile above Madison Gulch to mouth (Nevada Creek) | 4A | 3.39 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Aluminum | Dredge Mining |
| | | | | | | | | | | | Iron | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Low flow alterations | Irrigated Crop Production |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010203 Blackfoot **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nevada Creek | MT76F003_022 | JEFFERSON CREEK, 1 mile above Madison Gulch to mouth (Nevada Creek) | 4A | 3.39 | MILES | B-1 | P | F | F | P | Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Solids (Suspended/Bedload) | Source Unknown<br>Streambank Modifications/destablization |
| Nevada Creek | MT76F003_030 | GALLAGHER CREEK, headwaters to mouth (Nevada Creek) | 4A | 7.34 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Total Kjehldahl Nitrogen (TKN) | Agriculture<br>Rangeland Grazing |
| Nevada Creek | MT76F003_040 | BRAZIEL CREEK, 2.8 miles upstream from mouth (Nevada Creek), T12N R10W S22 | 4A | 2.82 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Highway/Road/Bridge Runoff (Non-construction Related)<br>Rangeland Grazing<br>Silviculture Activities |
| Nevada Creek | MT76F003_050 | MCELWAIN CREEK, diversion of Company Ditch to mouth (Nevada Creek), T13N R11W S18 | 4A | 2.1 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Flow Alterations from Water Diversions<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production |
| Nevada Creek | MT76F003_060 | BLACK BEAR CREEK, headwaters to mouth (Bear Creek), T12N R12W S22 | 4A | 7.67 | MILES | B-1 | N | F | F | N | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Solids (Suspended/Bedload)<br>Total Kjehldahl Nitrogen (TKN) | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones<br>Managed Pasture Grazing<br>Silviculture Harvesting |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010203 Blackfoot **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nevada Creek | MT76F003_071 | WASHINGTON CREEK, headwaters to Cow Gulch | 4A | 5.84 | MILES | B-1 | N | F | X | P | Low flow alterations<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Dredge Mining<br>Impacts from Abandoned Mine Lands (Inactive) |
| Nevada Creek | MT76F003_072 | WASHINGTON CREEK, Cow Gulch to mouth (Nevada Creek) | 4A | 4.44 | MILES | B-1 | P | F | X | P | Iron<br>Low flow alterations<br>Sedimentation/Siltation | Agriculture<br>Highway/Road/Bridge Runoff (Non-construction Related)<br>Impacts from Abandoned Mine Lands (Inactive)<br>Streambank Modifications/destablization |
| Nevada Creek | MT76F003_081 | DOUGLAS CREEK, headwaters to Murray Creek | 5 | 13.02 | MILES | B-1 | P | F | N | N | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Chlorophyll-a<br>Low flow alterations<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Temperature, water<br>Total Kjehldahl Nitrogen (TKN) | Flow Alterations from Water Diversions<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Rangeland Grazing<br>Source Unknown |
| Nevada Creek | MT76F003_082 | DOUGLAS CREEK, Murray Creek to mouth (Nevada-Cottonwood Creeks) | 5 | 10.91 | MILES | B-1 | N | F | N | N | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Low flow alterations<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Temperature, water<br>Total Kjehldahl Nitrogen (TKN) | Flow Alterations from Water Diversions<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Loss of Riparian Habitat<br>Rangeland Grazing<br>Source Unknown |
| Nevada Creek | MT76F003_090 | COTTONWOOD CREEK, South Fork Cottonwood Creek to mouth (Douglas Creek) | 4A | 6.77 | MILES | B-1 | N | F | X | N | Low flow alterations<br>Sedimentation/Siltation | Agriculture |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010203 Blackfoot **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nevada Creek | MT76F003_090 | COTTONWOOD CREEK, South Fork Cottonwood Creek to mouth (Douglas Creek) | 4A | 6.77 | MILES | B-1 | N | F | X | N | Temperature, water | |
| Nevada Creek | MT76F003_100 | NEVADA SPRING CREEK, headwaters to mouth (Nevada Creek) | 4A | 5.78 | MILES | B-1 | N | F | X | P | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Impacts from Hydrostructure Flow Regulation/modification |
| Nevada Creek | MT76F003_120 | MURRAY CREEK, headwaters to mouth (Douglas Creek), T12N R12W S6 | 5 | 8.83 | MILES | B-1 | P | F | N | N | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Chlorophyll-a<br>Low flow alterations<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Temperature, water<br>Total Kjehldahl Nitrogen (TKN) | Flow Alterations from Water Diversions<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Rangeland Grazing<br>Silviculture Activities<br>Source Unknown<br>Streambank Modifications/destablization |
| Nevada Creek | MT76F003_130 | BUFFALO GULCH, headwaters to mouth (Nevada Creek) | 4A | 6.36 | MILES | B-1 | P | X | X | X | Physical substrate habitat alterations<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Livestock (Grazing or Feeding Operations)<br>Silviculture Activities |
| Middle Blackfoot | MT76F004_010 | FRAZIER CREEK, headwaters to mouth (Blackfoot River), T14N R12W S28 | 4A | 4.44 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Total Kjehldahl Nitrogen (TKN) | Flow Alterations from Water Diversions<br>Grazing in Riparian or Shoreline Zones<br>Hydrostructure Impacts on Fish Passage<br>Irrigated Crop Production |
| Middle Blackfoot | MT76F004_040 | COTTONWOOD CREEK, 10 miles upstream to mouth (Blackfoot River) | 4A | 12.05 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | |
| Middle Blackfoot | MT76F004_050 | WALES CREEK, reservoir outlet to mouth (Blackfoot River) | 4A | 1.94 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Chlorophyll-a | Agriculture<br>Irrigated Crop Production |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 17010203 Blackfoot **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Middle Blackfoot | MT76F004_050 | WALES CREEK, reservoir outlet to mouth (Blackfoot River) | 4A | 1.94 | MILES | B-1 | P | F | F | P | Low flow alterations<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Rangeland Grazing<br>Upstream Impoundments (e.g., Pl-566 NRCS Structures) |
| Middle Blackfoot | MT76F004_060 | WARD CREEK, headwaters to Browns Lake | 4A | 10.38 | MILES | B-1 | P | F | F | F | Physical substrate habitat alterations<br>Sedimentation/Siltation | Agriculture<br>Silviculture Activities<br>Unspecified Unpaved Road or Trail |
| Middle Blackfoot | MT76F004_070 | WARREN CREEK, headwaters to mouth (Blackfoot River) | 4A | 14.7 | MILES | B-1 | P | F | F | P | Fish-Passage Barrier<br>Low flow alterations<br>Sedimentation/Siltation | Agriculture<br>Channelization<br>Irrigated Crop Production |
| Middle Blackfoot | MT76F004_080 | YOURNAME CREEK, headwaters to mouth (Blackfoot River) | 4A | 9.72 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Fish-Passage Barrier<br>Low flow alterations<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Rangeland Grazing |
| Middle Blackfoot | MT76F004_090 | ROCK CREEK, headwaters to mouth (North Fork Blackfoot River) | 4A | 11.52 | MILES | B-1 | P | F | X | F | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Rangeland Grazing<br>Silviculture Harvesting |
| Middle Blackfoot | MT76F004_100 | MONTURE CREEK, headwaters to mouth (Blackfoot River) | 4A | 30.27 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| Middle Blackfoot | MT76F004_110 | KLEINSCHMIDT CREEK, 1.5 miles upstream to mouth (North Fork Blackfoot River) | 5 | 1.56 | MILES | B-1 | P | F | N | F | Alteration in stream-side or littoral vegetative covers<br>Arsenic<br>Copper | Grazing in Riparian or Shoreline Zones<br>Impacts from Hydrostructure Flow Regulation/modification<br>Managed Pasture Grazing |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010203 Blackfoot **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Middle Blackfoot | MT76F004_110 | KLEINSCHMIDT CREEK, 1.5 miles upstream to mouth (North Fork Blackfoot River) | 5 | 1.56 | MILES | B-1 | P | F | N | F | Sedimentation/Siltation | Source Unknown |
| | | | | | | | | | | | Temperature, water | |
| Middle Blackfoot | MT76F005_020 | RICHMOND CREEK, headwaters to mouth (Lake Alva) | 4A | 4.02 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Forest Roads (Road Construction and Use) |
| Middle Blackfoot | MT76F005_030 | DEER CREEK, headwaters to mouth (Seeley Lake) | 4A | 10.86 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | | Silviculture Harvesting |
| Middle Blackfoot | MT76F005_040 | WEST FORK CLEARWATER RIVER, headwaters to mouth (Clearwater River) | 4A | 15.14 | MILES | B-1 | P | F | F | P | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Middle Blackfoot | MT76F005_060 | BLANCHARD CREEK, North Fork to mouth (Clearwater River) | 4A | 2.36 | MILES | B-1 | P | F | F | N | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Low flow alterations | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Highway/Road/Bridge Runoff (Non-construction Related) |
| Lower Blackfoot | MT76F006_010 | UNION CREEK, headwaters to mouth (Blackfoot River) | 5 | 21.57 | MILES | B-1 | N | F | F | P | Arsenic | Animal Feeding Operations (NPS) |
| | | | | | | | | | | | Cause Unknown | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Copper | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Iron | Rangeland Grazing |
| | | | | | | | | | | | Phosphorus (Total) | Source Unknown |
| | | | | | | | | | | | Physical substrate habitat alterations | Streambank Modifications/destablization |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |
| | | | | | | | | | | | Temperature, water | |
| Lower Blackfoot | MT76F006_020 | WEST FORK ASHBY CREEK, headwaters to mouth (East Fork Ashby Creek) | 5 | 3.1 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Phosphorus (Total) | Silviculture Activities |
| | | | | | | | | | | | Sedimentation/Siltation | Source Unknown |
| Lower Blackfoot | MT76F006_031 | ELK CREEK, headwaters to Stinkwater Creek | 5 | 8.5 | MILES | B-1 | P | F | F | F | Cadmium | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Nitrogen, Nitrate | Placer Mining |
| | | | | | | | | | | | Physical substrate habitat alterations | Streambank Modifications/destablization |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010203 Blackfoot **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Blackfoot | MT76F006_031 | ELK CREEK, headwaters to Stinkwater Creek | 5 | 8.5 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | |
| Lower Blackfoot | MT76F006_032 | ELK CREEK, Stinkwater Creek to mouth (Blackfoot River) | 4A | 5.59 | MILES | B-1 | P | F | X | F | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation<br>Temperature, water | Grazing in Riparian or Shoreline Zones<br>Streambank Modifications/destablization |
| Lower Blackfoot | MT76F006_040 | KENO CREEK, headwaters to mouth (Elk Creek) | 4A | 2.87 | MILES | B-1 | N | F | X | F | Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Silviculture Harvesting |
| Lower Blackfoot | MT76F006_050 | EAST FORK ASHBY CREEK | 5 | 3.9 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones<br>Silviculture Activities<br>Source Unknown |
| Lower Blackfoot | MT76F006_060 | CAMAS CREEK, 1 mile above mouth to mouth (Union Creek) | 5 | 1.63 | MILES | B-1 | P | F | F | F | Low flow alterations<br>Phosphorus (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production<br>Upstream Source |
| Lower Blackfoot | MT76F006_070 | BELMONT CREEK, headwaters to mouth (Blackfoot River) | 4A | 10.6 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones |
| Lower Blackfoot | MT76F006_090 | WASHOE CREEK, Headwater to mouth (Union Creek) | 5 | 6.12 | MILES | B-1 | P | F | F | P | Chlorophyll-a<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Open Pit Mining<br>Silviculture Harvesting<br>Source Unknown |
| Nevada Creek | MT76F007_020 | NEVADA LAKE, reservoir of Nevada Creek | 5 | 352.6 | ACRES | B-1 | P | F | F | P | Nitrogen (Total)<br>Oxygen, Dissolved<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Total Kjehldahl Nitrogen (TKN) | Source Unknown<br>Upstream/Dowstream Source |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010205 Bitterroot **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bitterroot | MT76H001_010 | BITTERROOT RIVER, East and West forks to Skalkaho Creek | 5 | 27.21 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Copper | Grazing in Riparian or Shoreline Zones<br>Rangeland Grazing<br>Source Unknown<br>Streambank Modifications/destablization |
| Bitterroot | MT76H001_020 | BITTERROOT RIVER, Skalkaho Creek to Eightmile Creek | 5 | 34.34 | MILES | B-1 | N | F | X | N | Low flow alterations<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Temperature, water | Agriculture<br>Habitat Modification - other than Hydromodification<br>Irrigated Crop Production<br>Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO) |
| Bitterroot | MT76H001_030 | BITTERROOT RIVER, Eightmile Creek to mouth (Clark Fork River) | 5 | 23.6 | MILES | B-1 | N | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Copper<br>Lead<br>Nitrogen, Nitrate<br>Sedimentation/Siltation<br>Temperature, water | Agriculture<br>On-site Treatment Systems (Septic Systems and Similar Decencentralized Systems)<br>Rangeland Grazing<br>Sediment Resuspension (Contaminated Sediment)<br>Streambank Modifications/destablization<br>Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO) |
| Bitterroot Headwaters | MT76H002_010 | EAST FORK BITTERROOT RIVER, Anaconda-Pintlar Wilderness boundary to mouth (Bitterroot River) | 5 | 30.77 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Copper<br>Lead<br>Sedimentation/Siltation<br>Temperature, water | Channelization<br>Grazing in Riparian or Shoreline Zones<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Source Unknown<br>Streambank Modifications/destablization<br>Watershed Runoff following Forest Fire |
| Bitterroot Headwaters | MT76H002_020 | REIMEL CREEK, headwaters to mouth (East Fork Bitterroot River) | 4A | 7.71 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Agriculture<br>Natural Sources |
| Bitterroot Headwaters | MT76H002_030 | MEADOW CREEK, headwaters to mouth (East Fork Bitteroot River) | 5 | 9.77 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones |
| Bitterroot Headwaters | MT76H002_070 | LAIRD CREEK, headwaters to mouth (East Fork Bitterroot River), T2N R20 | 4A | 5.74 | MILES | B-1 | P | X | X | X | Alteration in stream-side or littoral vegetative covers | Forest Roads (Road Construction and Use) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010205 Bitterroot **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bitterroot Headwaters | MT76H002_070 | LAIRD CREEK, headwaters to mouth (East Fork Bitterroot River), T2N R20 S35 | 4A | 5.74 | MILES | B-1 | P | X | X | X | Sedimentation/Siltation | Silviculture Activities |
| Bitterroot Headwaters | MT76H002_080 | GILBERT CREEK, headwaters to mouth (Laird Creek), T1N R20W S10 | 4A | 2.29 | MILES | B-1 | P | X | X | X | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Silviculture Activities |
| Bitterroot Headwaters | MT76H003_010 | WEST FORK BITTERROOT RIVER, headwaters to mouth | 4A | 39.4 | MILES | B-1 | P | F | X | F | Physical substrate habitat alterations<br>Sedimentation/Siltation<br>Temperature, water | Highway/Road/Bridge Runoff (Non-construction Related)<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Streambank Modifications/destablization |
| Bitterroot Headwaters | MT76H003_020 | NEZ PERCE FORK BITTERROOT RIVER, headwaters to mouth (West Fork Bitterroot River) | 4A | 15.23 | MILES | B-1 | P | F | F | F | Temperature, water | Forest Roads (Road Construction and Use)<br>Loss of Riparian Habitat |
| Bitterroot Headwaters | MT76H003_040 | HUGHES CREEK, headwaters to the mouth (West Fork Bitterroot River) | 4A | 18.33 | MILES | B-1 | N | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Physical substrate habitat alterations<br>Sedimentation/Siltation<br>Temperature, water | Channelization<br>Impacts from Abandoned Mine Lands (Inactive)<br>Placer Mining<br>Source Unknown |
| Bitterroot Headwaters | MT76H003_050 | OVERWHICH CREEK, headwaters to mouth (West Fork Bitterroot River) | 5 | 17.59 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation<br>Temperature, water | Highway/Road/Bridge Runoff (Non-construction Related)<br>Natural Sources<br>Site Clearance (Land Development or Redevelopment) |
| Bitterroot Headwaters | MT76H003_060 | DITCH CREEK, headwaters to mouth (West Fork Bitterroot River) | 4A | 2.78 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Silviculture Harvesting |
| Bitterroot Headwaters | MT76H003_070 | BUCK CREEK, headwaters to mouth (West Fork Bitterroot), T1N R22W S36 | 4A | 2.51 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | |
| Bitterroot | MT76H004_010 | BASS CREEK, Selway-Bitterroot Wilderness boundary to mouth (un-named channel of Bitterroot River), T9N R20W S3 | 5 | 5.07 | MILES | B-1 | P | F | F | F | Low flow alterations<br>Nitrogen (Total)<br>Sedimentation/Siltation | Agriculture<br>Dam or Impoundment<br>Flow Alterations from Water Diversions<br>Irrigated Crop Production<br>Loss of Riparian Habitat<br>Natural Sources |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010205 Bitterroot **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bitterroot | MT76H004_010 | BASS CREEK, Selway-Bitterroot Wilderness boundary to mouth (un-named channel of Bitterroot River), T9N R20W S3 | 5 | 5.07 | MILES | B-1 | P | F | F | F | | Source Unknown |
| Bitterroot | MT76H004_020 | KOOTENAI CREEK, Selway-Bitterroot Wilderness boundary to mouth (Bitterroot River) | 4C | 5.63 | MILES | B-1 | P | F | X | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations | Agriculture |
| Bitterroot | MT76H004_031 | BEAR CREEK, Selway-Bitterroot Wilderness boundary to mouth (Fred Burr Creek), T7N R20W S7 | 4C | 8.3 | MILES | B-1 | X | F | X | P | Low flow alterations | Agriculture |
| Bitterroot | MT76H004_032 | NORTH CHANNEL BEAR CREEK, headwater to the mouth (Fred Burr Creek), T8N R20W S32 | 4C | 4.38 | MILES | B-1 | X | F | X | P | Low flow alterations | Agriculture |
| Bitterroot | MT76H004_040 | MILL CREEK, Selway-Bitterroot Wilderness boundary to the mouth (Fred Burr Creek), T7N R20W S19 | 5 | 8.72 | MILES | B-1 | P | X | X | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Temperature, water | Grazing in Riparian or Shoreline Zones<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Impacts from Hydrostructure Flow Regulation/modification<br>Loss of Riparian Habitat<br>Site Clearance (Land Development or Redevelopment) |
| Bitterroot | MT76H004_050 | BLODGETT CREEK, Selway-Bitterroot Wilderness boundary to mouth (Bitterroot River) | 4C | 13.63 | MILES | B-1 | P | F | X | P | Low flow alterations | Agriculture |
| Bitterroot | MT76H004_070 | LOST HORSE CREEK, headwaters to mouth (Bitterroot River) | 4C | 20.61 | MILES | B-1 | F | F | X | P | Low flow alterations | Agriculture |
| Bitterroot | MT76H004_080 | TIN CUP CREEK, Selway-Bitterroot Wilderness boundary to mouth (Bitteroot River) | 5 | 7.95 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total) | Irrigated Crop Production<br>Loss of Riparian Habitat<br>Natural Sources<br>Silviculture Activities<br>Source Unknown |
| Bitterroot | MT76H004_090 | SLEEPING CHILD CREEK, headwaters to mouth (Bitterroot River) | 5 | 24.93 | MILES | B-1 | P | F | X | P | Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Temperature, water | Agriculture<br>Highway/Road/Bridge Runoff (Non-construction Related)<br>Silviculture Activities |
| Bitterroot | MT76H004_100 | SKALKAHO CREEK, headwaters to mouth (Bitterroot River) | 5 | 27.8 | MILES | B-1 | F | F | N | P | Low flow alterations | Agriculture |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010205 Bitterroot **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bitterroot | MT76H004_100 | SKALKAHO CREEK, headwaters to mouth (Bitterroot River) | 5 | 27.8 | MILES | B-1 | F | F | N | P | Mercury | Irrigated Crop Production |
| | | | | | | | | | | | | Source Unknown |
| Bitterroot | MT76H004_110 | WILLOW CREEK, headwaters to mouth (Bitterroot River) | 5 | 17.16 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Chlorophyll-a | Irrigated Crop Production |
| | | | | | | | | | | | Nitrogen (Total) | Loss of Riparian Habitat |
| | | | | | | | | | | | Sedimentation/Siltation | Natural Sources |
| | | | | | | | | | | | Temperature, water | Silviculture Activities |
| | | | | | | | | | | | | Source Unknown |
| Bitterroot | MT76H004_120 | AMBROSE CREEK, headwaters to mouth (Threemile Creek) | 5 | 11.7 | MILES | B-1 | N | F | X | P | Nitrogen (Total) | Agriculture |
| | | | | | | | | | | | Phosphorus (Total) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Physical substrate habitat alterations | Loss of Riparian Habitat |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Bitterroot | MT76H004_130 | MILLER CREEK, headwaters to mouth (Bitterroot River) | 5 | 18.34 | MILES | B-1 | N | F | F | N | Alteration in stream-side or littoral vegetative covers | Crop Production (Crop Land or Dry Land) |
| | | | | | | | | | | | Chlorophyll-a | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Loss of Riparian Habitat |
| | | | | | | | | | | | Phosphorus (Total) | Silviculture Activities |
| | | | | | | | | | | | Sedimentation/Siltation | Silviculture Harvesting |
| | | | | | | | | | | | Temperature, water | Source Unknown |
| Bitterroot | MT76H004_140 | THREEMILE CREEK, headwaters to mouth (Bitterroot River) | 5 | 17.96 | MILES | B-1 | N | F | X | X | Low flow alterations | Agriculture |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Irrigated Crop Production |
| | | | | | | | | | | | Phosphorus (Total) | Rangeland Grazing |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Bitterroot | MT76H004_150 | McCLAIN CREEK, headwaters to mouth (Sin-tin-tin-em-ska Creek), T11N R20W S23 | 4A | 7.12 | MILES | B-1 | P | F | X | X | Sedimentation/Siltation | Forest Roads (Road Construction and Use) |
| Bitterroot | MT76H004_160 | NORTH FORK RYE CREEK, headwaters to mouth (Rye Creek-Bitterroot River, South of Darby) | 5 | 7.08 | MILES | B-1 | P | F | X | F | Alteration in stream-side or littoral vegetative covers | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Nitrogen (Total) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Phosphorus (Total) | Streambank Modifications/destablization |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010205 Bitterroot **Watershed** Upper Clark Fork

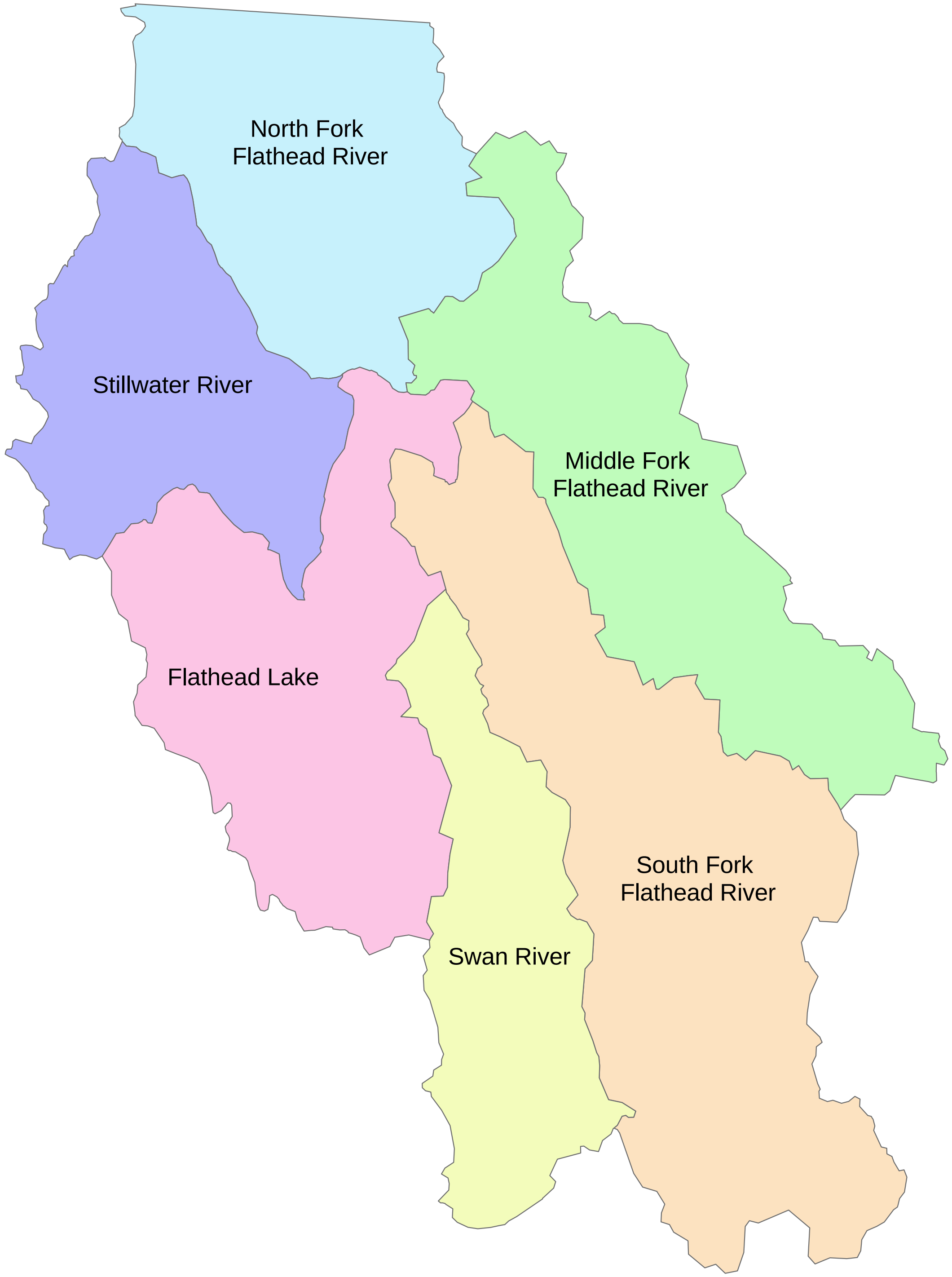
| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bitterroot | MT76H004_170 | LICK CREEK, headwaters to mouth (Bitterroot River) | 5 | 6.39 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Chlorophyll-a<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Livestock (Grazing or Feeding Operations)<br>Natural Sources<br>Silviculture Activities<br>Source Unknown |
| Bitterroot | MT76H004_180 | MUDDY SPRING CREEK, headwaters to mouth (Gold Creek) T7N R19W S2 | 5 | 2.04 | MILES | B-1 | P | F | F | F | Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Sedimentation/Siltation | Rangeland Grazing<br>Source Unknown |
| Bitterroot | MT76H004_190 | RYE CREEK, North Fork to mouth (Bitterroot River) | 5 | 5.98 | MILES | B-1 | P | F | X | X | Alteration in stream-side or littoral vegetative covers<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Animal Feeding Operations (NPS)<br>Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones<br>Silviculture Activities |
| Bitterroot | MT76H004_200 | NORTH BURNT FORK CREEK, confluence with South Burnt Fork Creek to Mouth (Bitterroot River) | 5 | 10.94 | MILES | B-1 | P | F | F | F | Bottom Deposits<br>Nitrogen (Total)<br>Phosphorus (Total) | Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production |
| Bitterroot | MT76H004_210 | SWEATHOUSE CREEK, headwaters to mouth (Bitterroot River) | 5 | 11.62 | MILES | B-1 | P | X | X | N | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Phosphorus (Total)<br>Sedimentation/Siltation | Agriculture<br>Loss of Riparian Habitat<br>Site Clearance (Land Development or Redevelopment) |
| Bitterroot | MT76H005_011 | LOLO CREEK, Mormon Creek to mouth (Bitterroot River) | 4A | 3.12 | MILES | B-1 | P | F | X | P | Low flow alterations<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Agriculture<br>Habitat Modification - other than Hydromodification<br>Site Clearance (Land Development or Redevelopment) |
| Bitterroot | MT76H005_012 | LOLO CREEK, Sheldon Creek to Mormon Creek | 4A | 14.14 | MILES | B-1 | P | F | X | F | Physical substrate habitat alterations<br>Sedimentation/Siltation | Agriculture<br>Silviculture Activities<br>Streambank Modifications/destablization |
| Bitterroot | MT76H005_013 | LOLO CREEK, headwaters to Sheldon Creek | 4A | 14.24 | MILES | B-1 | P | F | X | F | Physical substrate habitat alterations<br>Sedimentation/Siltation | Habitat Modification - other than Hydromodification<br>Highways, Roads, Bridges, Infrasturcture (New Construction) |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010205 Bitterroot **Watershed** Upper Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bitterroot | MT76H005_013 | LOLO CREEK, headwaters to Sheldon Creek | 4A | 14.24 | MILES | B-1 | P | F | X | F | | Silviculture Activities |
| Bitterroot | MT76H005_020 | SOUTH FORK LOLO CREEK, Selway-Bitterroot Wilderness boundary to mouth (Lolo Creek) | 4C | 6.87 | MILES | B-1 | P | F | F | P | Low flow alterations<br>Physical substrate habitat alterations | Forest Roads (Road Construction and Use)<br>Impacts from Hydrostructure Flow Regulation/modification<br>Silviculture Activities |
| Upper Lolo | MT76H005_030 | GRANITE CREEK, headwaters to mouth (Lolo Creek) | 4A | 9.39 | MILES | B-1 | P | F | X | X | Alteration in stream-side or littoral vegetative covers<br>Fish-Passage Barrier<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Silviculture Activities |
| Upper Lolo | MT76H005_040 | EAST FORK LOLO CREEK, headwaters to mouth (Confluence with Lolo Creek) | 4A | 9.12 | MILES | B-1 | P | X | X | X | Alteration in stream-side or littoral vegetative covers<br>Fish-Passage Barrier<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Highway/Road/Bridge Runoff (Non-construction Related)<br>Silviculture Activities |
| Upper Lolo | MT76H005_050 | WEST FORK LOLO CREEK, headwaters to mouth (Lolo Creek) | 4A | 7.37 | MILES | B-1 | P | F | X | X | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Highway/Road/Bridge Runoff (Non-construction Related)<br>Streambank Modifications/destablization |
| Upper Lolo | MT76H005_060 | LOST PARK CREEK, headwaters to mouth (Confluence with East Fork Lolo Creek) | 4A | 5.08 | MILES | B-1 | P | X | X | X | Alteration in stream-side or littoral vegetative covers<br>Fish-Passage Barrier<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Silviculture Harvesting |
| Upper Lolo | MT76H005_070 | LEE CREEK, headwaters to mouth (West Fork Lolo Creek) | 4A | 3.8 | MILES | B-1 | P | F | X | F | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Silviculture Activities<br>Streambank Modifications/destablization |

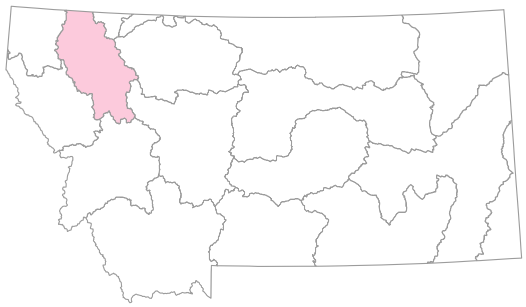
F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed




# Flathead Sub-Major Basin

## Columbia River Basin

| USGS HUC | HUC NAME |
|---|---|
| 17010206 | North Fork Flathead River |
| 17010207 | Middle Fork Flathead River |
| 17010208 | Flathead Lake |
| 17010209 | South Fork Flathead River |
| 17010210 | Stillwater River (Flathead R) |
| 17010211 | Swan River |



Montana Department of Environmental Quality

**HUC** 17010206 North Fork Flathead **Watershed** Flathead

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Big Creek (Columbia) | MT76Q002_050 | BIG CREEK, tributary to North Fork of the Flathead River | 4C | 16.68 | MILES | B-1 | P | F | X | F | Alteration in stream-side or littoral vegetative covers | Forest Roads (Road Construction and Use)<br>Streambank Modifications/destablization |
| Flathead Headwaters | MT76Q002_070 | COAL CREEK, headwaters to South Fork | 4C | 10.4 | MILES | B-1 | P | X | X | X | Alteration in stream-side or littoral vegetative covers | |
| Flathead Headwaters | MT76Q002_080 | COAL CREEK, South Fork to mouth (North Fork Flathead) | 4A | 9.57 | MILES | B-1 | P | F | X | F | Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Silviculture Harvesting |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 17010207 Middle Fork Flathead **Watershed** Flathead

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flathead Headwaters | MT76I002_040 | CHALLENGE CREEK, headwaters to mouth (Granite Creek) | 5 | 4.77 | MILES | B-1 | P | F | F | F | Phosphorus (Total) | Silviculture Activities |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 17010208 Flathead Lake **Watershed** Flathead

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flathead - Stillwater | MT76O002_010 | ASHLEY CREEK, Ashley Lake to Smith Lake | 5 | 15.64 | MILES | B-1 | P | F | X | P | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Chlorophyll-a | Crop Production (Crop Land or Dry Land) |
| | | | | | | | | | | | Nitrogen (Total) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Oxygen, Dissolved | Loss of Riparian Habitat |
| | | | | | | | | | | | Phosphorus (Total) | Source Unknown |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |
| Flathead - Stillwater | MT76O002_020 | ASHLEY CREEK, Smith Lake to Kalispell Airport Road | 4C | 14.17 | MILES | B-2 | X | F | X | P | Low flow alterations | Agriculture |
| Flathead - Stillwater | MT76O002_030 | ASHLEY CREEK, Kalispell airport road to mouth (Flathead River) | 5 | 13.17 | MILES | C-2 | P | F | | P | Alteration in stream-side or littoral vegetative covers | Discharges from Municipal Separate Storm Sewer Systems (MS4) |
| | | | | | | | | | | | Chlorophyll-a | Irrigated Crop Production |
| | | | | | | | | | | | Excess Algal Growth | Municipal Point Source Discharges |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Upstream Source |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Oxygen, Dissolved | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Temperature, water | |
| Flathead - Stillwater | MT76O002_040 | SPRING CREEK, headwaters to mouth (Ashley Creek) | 5 | 4.8 | MILES | B-1 | N | F | N | N | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Arsenic | Baseflow Depletion from Groundwater Withdrawals |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Channelization |
| | | | | | | | | | | | Nitrogen (Total) | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Other flow regime alterations | Loss of Riparian Habitat |
| | | | | | | | | | | | Oxygen, Dissolved | Source Unknown |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| Flathead - Stillwater | MT76O002_050 | FISH CREEK, headwaters to mouth (Ashley Lake) | 5 | 2.39 | MILES | B-1 | P | F | I | X | Phosphorus (Total) | Silviculture Activities |
| | | | | | | | | | | | Sedimentation/Siltation | Source Unknown |
| | | | | | | | | | | | Solids (Suspended/Bedload) | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010208 Flathead Lake **Watershed** Flathead

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flathead Lake | MT76O003_010 | FLATHEAD LAKE | 5 | 122252 | ACRES | A-1 | P | F | F | F | Mercury | Atmospheric Depositon - Nitrogen |
| | | | | | | | | | | | Nitrogen (Total) | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Phosphorus (Total) | Municipal Point Source Discharges |
| | | | | | | | | | | | Polychlorinated biphenyls | Silviculture Harvesting |
| | | | | | | | | | | | Sedimentation/Siltation | Source Unknown |
| | | | | | | | | | | | | Unspecified Urban Stormwater |
| | | | | | | | | | | | | Upstream Impoundments (e.g., Pl-566 NRCS Structures) |
| Flathead Lake | MT76O004_020 | LAKE MARY RONAN | 4C | 6.8 | ACRES | A-1 | T | F | X | F | Chlorophyll-a | Agriculture |
| | | | | | | | | | | | | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | | Silviculture Activities |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010209 South Fork Flathead **Watershed** Flathead

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flathead Headwaters | MT76J001_010 | SOUTH FORK FLATHEAD RIVER, Hungry Horse Dam to mouth | 4C | 5.31 | MILES | B-1 | X | F | X | P | Other flow regime alterations | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010210 Stillwater **Watershed** Flathead

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flathead - Stillwater | MT76P001_010 | STILLWATER RIVER, Logan Creek to mouth | 5 | 45.61 | MILES | B-2 | P | F | N | F | Alteration in stream-side or littoral vegetative covers | Loss of Riparian Habitat |
| | | | | | | | | | | | Lead | Site Clearance (Land Development or Redevelopment) |
| | | | | | | | | | | | Nitrates | Source Unknown |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Flathead - Stillwater | MT76P001_030 | LOGAN CREEK, headwaters to mouth (Tally Lake) | 5 | 21.16 | MILES | B-1 | P | F | X | F | Other flow regime alterations | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Physical substrate habitat alterations | Silviculture Activities |
| | | | | | | | | | | | Sedimentation/Siltation | Streambank Modifications/destablization |
| Flathead - Stillwater | MT76P001_040 | SINCLAIR CREEK, headwaters to mouth (Sheppard Creek) | 4C | 2.32 | MILES | B-1 | X | X | X | P | Low flow alterations | Agriculture |
| | | | | | | | | | | | | Streambank Modifications/destablization |
| Flathead - Stillwater | MT76P001_050 | SHEPPARD CREEK, headwaters to mouth (Griffin Creek-Logan Creek-Talley Lake) | 5 | 15.92 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers | Crop Production (Crop Land or Dry Land) |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Phosphorus (Total) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Sedimentation/Siltation | Silviculture Harvesting |
| Flathead - Stillwater | MT76P003_010 | WHITEFISH RIVER, Whitefish Lake to mouth (Stillwater River) | 5 | 24.8 | MILES | B-2 | P | F | F | X | Copper | Industrial Point Source Discharge |
| | | | | | | | | | | | Lead | Silviculture Activities |
| | | | | | | | | | | | Nitrogen (Total) | Site Clearance (Land Development or Redevelopment) |
| | | | | | | | | | | | Oil and Grease | Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO) |
| | | | | | | | | | | | PCB in Water Column | |
| | | | | | | | | | | | Temperature, water | |
| Flathead - Stillwater | MT76P004_010 | WHITEFISH LAKE | 5 | 3349 | ACRES | A-1 | T | F | X | F | Mercury | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Polychlorinated biphenyls | Silviculture Activities |
| | | | | | | | | | | | Sedimentation/Siltation | Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010211 Swan **Watershed** Flathead

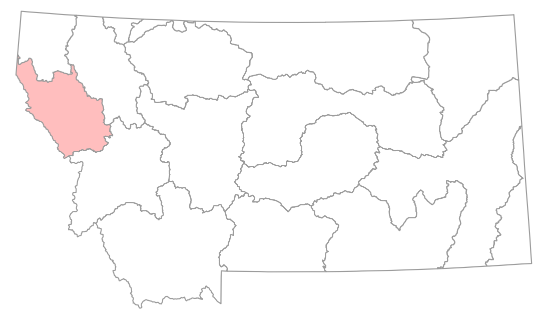
| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Swan | MT76K002_010 | SWAN LAKE | 4A | 2680 | ACRES | A-1 | T | F | F | F | BOD, sediment load (Sediment Oxygen Demand)<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Highways, Roads, Bridges, Infrasturcture (New Construction) |
| Swan | MT76K003_010 | JIM CREEK, headwaters to mouth (Swan River), T21 R18W S8 | 4A | 12.11 | MILES | B-1 | P | F | X | F | Sedimentation/Siltation | Silviculture Harvesting |
| Swan | MT76K003_031 | GOAT CREEK, headwaters to Squeezer Creek | 4A | 9.71 | MILES | B-1 | P | F | X | F | Total Suspended Solids (TSS) | Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Silviculture Harvesting |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Lower Clark Fork Sub-Major Basin


## Columbia River Basin

| USGS HUC | HUC NAME |
|---|---|
| 17010204 | Middle Clark Fork |
| 17010212 | Lower Flathead River |
| 17010213 | Lower Clark Fork |



Montana Department of Environmental Quality

**HUC** 17010213 Lower Clark Fork **Watershed** Lower Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clark Fork River | MT76N001_010 | CLARK FORK RIVER, the Flathead River to Noxon Reservoir | 5 | 38.05 | MILES | B-1 | P | F | N | F | Cadmium<br>Fish-Passage Barrier | Dam Construction (Other than Upstream Flood Control Projects)<br>Impacts from Abandoned Mine Lands (Inactive) |
| Clark Fork River | MT76N001_020 | CLARK FORK RIVER, aka Cabinet Gorge Reservoir, Noxon Dam to Idaho Border | 5 | 18.87 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Dissolved Gas Supersaturation<br>Other flow regime alterations<br>Temperature, water | Dam Construction (Other than Upstream Flood Control Projects)<br>Dam or Impoundment |
| Middle Clark Fork Tributaries | MT76N003_010 | LYNCH CREEK, headwaters to mouth (Clark Fork River) | 5 | 13.33 | MILES | B-1 | N | F | F | N | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation<br>Temperature, water | Channelization<br>Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones<br>Irrigated Crop Production |
| Prospect Creek | MT76N003_020 | PROSPECT CREEK, headwaters to mouth (Clark Fork River) | 4A | 19.07 | MILES | B-1 | N | F | N | F | Alteration in stream-side or littoral vegetative covers<br>Antimony<br>Lead<br>Sedimentation/Siltation<br>Zinc | Grazing in Riparian or Shoreline Zones<br>Mine Tailings<br>Silviculture Activities |
| Prospect Creek | MT76N003_021 | ANTIMONY CREEK, headwaters to mouth (Prospect Creek) | 4A | 1.25 | MILES | B-1 | N | X | N | X | Antimony<br>Arsenic<br>Lead | Mill Tailings<br>Natural Sources |
| Prospect Creek | MT76N003_022 | COX GULCH headwaters to mouth (Prospect Creek) | 5 | 3.61 | MILES | B-1 | N | N | N | X | Antimony<br>Lead<br>Zinc | Mill Tailings |
| Lower Clark Fork Tributaries | MT76N003_030 | BEAVER CREEK, headwaters to mouth (Confluence with Clark Fork River) | 4C | 25.41 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones<br>Natural Sources |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010213 Lower Clark Fork **Watershed** Lower Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Clark Fork Tributaries | MT76N003_040 | BULL RIVER, the North Fork to mouth (Cabinet Gorge Reservoir) | 4A | 25.18 | MILES | B-1 | P | F | X | F | Physical substrate habitat alterations<br>Sedimentation/Siltation | Silviculture Activities<br>Streambank Modifications/destablization |
| Prospect Creek | MT76N003_050 | CLEAR CREEK, headwaters to mouth (Prospect Creek) | 4A | 12.09 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Streambank Modifications/destablization |
| Elk Creek | MT76N003_060 | ELK CREEK, headwaters to mouth (Cabinet Gorge Reservoir) | 4A | 8.04 | MILES | B-1 | N | F | F | F | Sedimentation/Siltation | Grazing in Riparian or Shoreline Zones<br>Habitat Modification - other than Hydromodification<br>Hardrock Mining Discharges (Permitted) |
| Prospect Creek | MT76N003_070 | DRY CREEK, headwaters (confluence of East andWest Forks) to mouth (Prospect Creek) | 4A | 4.23 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Chlorophyll-a<br>Sedimentation/Siltation | Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Rangeland Grazing |
| Lower Clark Fork Tributaries | MT76N003_080 | GRAVES CREEK, headwaters to mouth (Clark Fork River) | 4C | 10.52 | MILES | B-1 | P | F | X | X | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones<br>Highway/Road/Bridge Runoff (Non-construction Related) |
| Lower Clark Fork Tributaries | MT76N003_090 | MARTEN CREEK, headwaters to mouth (Noxon Reservoir) | 4A | 6.78 | MILES | B-1 | P | F | X | X | Physical substrate habitat alterations<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Silviculture Activities<br>Streambank Modifications/destablization |
| Lower Clark Fork Tributaries | MT76N003_100 | PILGRIM CREEK, headwaters to mouth (Cabinet Gorge Reservoir) | 4C | 6.91 | MILES | A-1 | P | F | X | F | Physical substrate habitat alterations | Channelization<br>Grazing in Riparian or Shoreline Zones<br>Streambank Modifications/destablization |
| Lower Clark Fork Tributaries | MT76N003_120 | WHITE PINE CREEK, headwaters to mouth (Beaver Creek) | 5 | 12.37 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Sedimentation/Siltation<br>Temperature, water | Forest Roads (Road Construction and Use)<br>Grazing in Riparian or Shoreline Zones<br>Natural Sources<br>Silviculture Harvesting<br>Streambank Modifications/destablization<br>Watershed Runoff following Forest Fire |
| Lower Clark Fork Tributaries | MT76N003_130 | VERMILION RIVER, headwaters to mouth (Noxon Reservoir) | 4C | 22.84 | MILES | B-1 | P | F | X | X | Alteration in stream-side or littoral vegetative covers | Silviculture Activities |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix A: Impaired Waters

**HUC** 17010213 Lower Clark Fork **Watershed** Lower Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Clark Fork Tributaries | MT76N003_130 | VERMILION RIVER, headwaters to mouth (Noxon Reservoir) | 4C | 22.84 | MILES | B-1 | P | F | X | X | | Streambank Modifications/destablization |
| Lower Clark Fork Tributaries | MT76N003_140 | SWAMP CREEK, Cabinet Mountains Wilderness boundary to mouth (Noxon Reservoir) | 4A | 9.75 | MILES | A-1 | N | X | X | X | Sedimentation/Siltation | Loss of Riparian Habitat |
| Middle Clark Fork Tributaries | MT76N003_160 | SWAMP CREEK, West Fork Swamp Creek to mouth (Clark Fork River), T20N R27W S3 | 5 | 4.76 | MILES | B-1 | N | F | F | P | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Nitrogen (Total) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Phosphorus (Total) | Silviculture Harvesting |
| | | | | | | | | | | | Sedimentation/Siltation | Source Unknown |
| Middle Clark Fork Tributaries | MT76N003_170 | HENRY CREEK, headwaters to mouth (Clark Fork River), T19N R26W S1 | 5 | 7.1 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Channelization |
| | | | | | | | | | | | Low flow alterations | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Nitrogen (Total) | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Phosphorus (Total) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Sedimentation/Siltation | Source Unknown |
| Lower Clark Fork Tributaries | MT76N003_180 | DRY CREEK, headwaters to mouth (Bull River), T28N R33W S32 | 4A | 4.1 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Forest Roads (Road Construction and Use) |
| Lower Clark Fork Tributaries | MT76N003_190 | ROCK CREEK, headwaters to mouth below the Noxon Dam | 4C | 11.1 | MILES | B-1 | P | F | F | F | Other anthropogenic substrate alterations | Silviculture Activities |
| Thompson | MT76N005_030 | McGREGOR CREEK, McGregor Lale to mouth (Thompson River) | 5 | 6.82 | MILES | B-1 | N | F | F | P | Other flow regime alterations | Channelization |
| | | | | | | | | | | | Phosphorus (Total) | Highway/Road/Bridge Runoff (Non-construction Related) |
| | | | | | | | | | | | Sedimentation/Siltation | Hydrostructure Impacts on Fish Passage |
| | | | | | | | | | | | Temperature, water | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | | Irrigated Crop Production |
| Thompson | MT76N005_040 | LITTLE THOMPSON RIVER, headwaters to mouth (Thompson River), T22N R25W S8 | 5 | 19.92 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Phosphorus (Total) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Sedimentation/Siltation | Silviculture Harvesting |
| Thompson | MT76N005_060 | LAZIER CREEK, headwaters to mouth (Thompson River) | 5 | 7.79 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Silviculture Activities |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010213 Lower Clark Fork **Watershed** Lower Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thompson | MT76N005_060 | LAZIER CREEK, headwaters to mouth (Thompson River) | 5 | 7.79 | MILES | B-1 | P | F | F | P | Nitrogen (Total) | Source Unknown |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Thompson | MT76N005_070 | MCGINNIS CREEK, headwaters to mouth (Little Thompson River) | 5 | 5.12 | MILES | B-1 | P | F | F | F | Fish-Passage Barrier | Forest Roads (Road Construction and Use) |
| | | | | | | | | | | | Phosphorus (Total) | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Sedimentation/Siltation | Habitat Modification - other than Hydromodification |
| | | | | | | | | | | | | Silviculture Harvesting |
| | | | | | | | | | | | | Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010212 Lower Flathead **Watershed** Lower Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower Flathead | MT76L001_010 | FLATHEAD RIVER, Flathead Reservation boundary to mouth (Clark Fork River) | 5 | 4.24 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Dam or Impoundment |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Impacts from Hydrostructure Flow Regulation/modification |
| | | | | | | | | | | | Nitrogen (Total) | Irrigated Crop Production |
| | | | | | | | | | | | Other flow regime alterations | Natural Sources |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Temperature, water | |
| Lower Flathead | MT76L002_060 | LITTLE BITTERROOT RIVER, Hubbart Reservoir to Flathead Reservation Boundary | 5 | 5.2 | MILES | B-2 | P | F | F | P | Chlorophyll-a | Upstream Impoundments (e.g., Pl-566 NRCS Structures) |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Upstream Source |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Other flow regime alterations | |
| | | | | | | | | | | | Phosphorus (Total) | |
| | | | | | | | | | | | Sedimentation/Siltation | |
| Lower Flathead | MT76L002_070 | SULLIVAN CREEK, headwaters to Flathead Indian Reservation | 5 | 3.9 | MILES | B-1 | N | P | N | N | Alteration in stream-side or littoral vegetative covers | Grazing in Riparian or Shoreline Zones |
| | | | | | | | | | | | Aluminum | Impacts from Abandoned Mine Lands (Inactive) |
| | | | | | | | | | | | Cadmium | Mine Tailings |
| | | | | | | | | | | | Escherichia coli | Subsurface (Hardrock) Minining |
| | | | | | | | | | | | Phosphorus (Total) | Surface Mining |
| | | | | | | | | | | | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| | | | | | | | | | | | pH | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010204 Middle Clark Fork **Watershed** Lower Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clark Fork River | MT76M001_010 | CLARK FORK RIVER, the Flathead River to Fish Creek | 5 | 60.36 | MILES | B-1 | P | F | F | X | Copper | Mill Tailings |
| | | | | | | | | | | | Lead | Municipal Point Source Discharges |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Phosphorus (Total) | |
| Clark Fork River | MT76M001_020 | CLARK FORK RIVER, Fish Creek to Rattlesnake Creek | 5 | 52.6 | MILES | B-1 | P | F | N | P | Arsenic | Industrial Point Source Discharge |
| | | | | | | | | | | | Cadmium | Mill Tailings |
| | | | | | | | | | | | Chlorophyll-a | Municipal Point Source Discharges |
| | | | | | | | | | | | Copper | |
| | | | | | | | | | | | Nitrogen (Total) | |
| | | | | | | | | | | | Organic Enrichment (Sewage) Biological Indicators | |
| | | | | | | | | | | | Phosphorus (Total) | |
| Clark Fork River | MT76M001_030 | CLARK FORK RIVER, Rattlesnake Creek to Blackfoot River | 5 | 6.2 | MILES | B-1 | N | F | F | X | Copper | Industrial Point Source Discharge |
| | | | | | | | | | | | Lead | Mill Tailings |
| | | | | | | | | | | | Nutrient/Eutrophication Biological Indicators | Upstream Impoundments (e.g., Pl-566 NRCS Structures) |
| Middle Clark Fork Tributaries | MT76M002_010 | TAMARACK CREEK, headwaters to mouth (Clark Fork River) | 4C | 9.47 | MILES | B-1 | P | X | X | X | Fish-Passage Barrier | Dam or Impoundment |
| Middle Clark Fork Tributaries | MT76M002_020 | CEDAR CREEK, headwaters to mouth (Clark Fork River) | 5 | 17.28 | MILES | B-1 | P | F | F | P | Low flow alterations | Flow Alterations from Water Diversions |
| | | | | | | | | | | | Nitrate/Nitrite (Nitrite + Nitrate as N) | Source Unknown |
| | | | | | | | | | | | Nitrogen (Total) | |
| Middle Clark Fork Tributaries | MT76M002_050 | TROUT CREEK, headwaters to mouth (Clark Fork River) | 5 | 14.99 | MILES | B-1 | P | F | X | X | Alteration in stream-side or littoral vegetative covers | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Physical substrate habitat alterations | Silviculture Activities |
| | | | | | | | | | | | Turbidity | Wet Weather Discharges (Non-Point Source) |
| Middle Clark Fork Tributaries | MT76M002_060 | FISH CREEK, West and South Forks to mouth (Clark Fork River) | 4C | 9.19 | MILES | B-1 | P | F | X | F | Physical substrate habitat alterations | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| Middle Clark Fork Tributaries | MT76M002_090 | PETTY CREEK, headwaters to mouth (Clark Fork River) | 5 | 12.2 | MILES | B-1 | P | X | X | P | Alteration in stream-side or littoral vegetative covers | Agriculture |
| | | | | | | | | | | | Excess Algal Growth | Highways, Roads, Bridges, Infrasturcture (New Construction) |
| | | | | | | | | | | | Low flow alterations | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

# Appendix A: Impaired Waters

**HUC** 17010204 Middle Clark Fork **Watershed** Lower Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Middle Clark Fork Tributaries | MT76M002_090 | PETTY CREEK, headwaters to mouth (Clark Fork River) | 5 | 12.2 | MILES | B-1 | P | X | X | P | Sedimentation/Siltation<br>Temperature, water | |
| Middle Clark Fork Tributaries | MT76M002_100 | WEST FORK PETTY CREEK, headwaters to mouth (Petty Creek) | 5 | 7.64 | MILES | B-1 | P | F | F | P | Chlorophyll-a<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Silviculture Harvesting |
| Middle Clark Fork Tributaries | MT76M002_120 | RATTLESNAKE CREEK, headwaters to mouth (Clark Fork River) | 4C | 23.56 | MILES | A-CLOSED | P | F | F | X | Other flow regime alterations | Dam Construction (Other than Upstream Flood Control Projects)<br>Flow Alterations from Water Diversions |
| Middle Clark Fork Tributaries | MT76M002_130 | GRANT CREEK, headwaters to mouth (Clark Fork River) | 5 | 18.78 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Excess Algal Growth<br>Low flow alterations<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Sedimentation/Siltation<br>Temperature, water | Flow Alterations from Water Diversions<br>Irrigated Crop Production<br>Loss of Riparian Habitat<br>Site Clearance (Land Development or Redevelopment)<br>Streambank Modifications/destablization |
| Middle Clark Fork Tributaries | MT76M002_140 | MILL CREEK, headwaters to mouth (Clark Fork River near Frenchtown) | 4C | 13.67 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Agriculture<br>Golf Courses<br>Grazing in Riparian or Shoreline Zones |
| Middle Clark Fork Tributaries | MT76M002_150 | SIXMILE CREEK, headwaters to mouth (Clark Fork River) | 4C | 10.36 | MILES | B-1 | P | X | X | X | Alteration in stream-side or littoral vegetative covers | Rangeland Grazing<br>Silviculture Activities |
| Middle Clark Fork Tributaries | MT76M002_160 | NEMOTE CREEK, headwaters to mouth (confluence Clark Fork River) | 5 | 10.38 | MILES | B-1 | P | F | F | P | Chlorophyll-a<br>Low flow alterations<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Nitrogen (Total)<br>Phosphorus (Total)<br>Temperature, water | Dredge Mining<br>Flow Alterations from Water Diversions<br>Source Unknown |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010204 Middle Clark Fork **Watershed** Lower Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Middle Clark Fork Tributaries | MT76M002_170 | DRY CREEK, headwaters to mouth (Clark Fork River) | 5 | 15.86 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Nitrate/Nitrite (Nitrite + Nitrate as N)<br>Nitrogen (Total) | Flow Alterations from Water Diversions<br>Grazing in Riparian or Shoreline Zones<br>Natural Sources<br>Source Unknown |
| Middle Clark Fork Tributaries | MT76M002_180 | FLAT CREEK, headwaters to mouth (Clark Fork) | 5 | 8.02 | MILES | B-1 | N | N | N | N | Antimony<br>Arsenic<br>Cadmium<br>Copper<br>Lead<br>Mercury<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Impacts from Abandoned Mine Lands (Inactive)<br>Unspecified Unpaved Road or Trail |
| St. Regis | MT76M003_010 | ST. REGIS RIVER, headwaters to mouth (Clark Fork River) | 4A | 40.3 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Other flow regime alterations<br>Sedimentation/Siltation<br>Temperature, water | Channelization<br>Highway/Road/Bridge Runoff (Non-construction Related)<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Loss of Riparian Habitat<br>Streambank Modifications/destablization |
| St. Regis | MT76M003_020 | TWELVE MILE CREEK, headwaters to mouth (St. Regis River) | 4A | 13.98 | MILES | B-1 | P | F | F | F | Physical substrate habitat alterations<br>Sedimentation/Siltation<br>Temperature, water | Channelization<br>Forest Roads (Road Construction and Use)<br>Highway/Road/Bridge Runoff (Non-construction Related)<br>Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Loss of Riparian Habitat<br>Silviculture Activities |
| St. Regis | MT76M003_030 | SILVER CREEK, headwaters to mouth (St. Regis River) | 4C | 4.96 | MILES | A-1 | P | F | F | F | Other flow regime alterations | Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Impacts from Hydrostructure Flow Regulation/modification |
| St. Regis | MT76M003_040 | BIG CREEK, the East and Middle Forks to mouth (St. Regis River) | 4A | 2.77 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Channelization |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010204 Middle Clark Fork **Watershed** Lower Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Regis | MT76M003_040 | BIG CREEK, the East and Middle Forks to mouth (St. Regis River) | 4A | 2.77 | MILES | B-1 | P | F | F | F | Temperature, water | Loss of Riparian Habitat<br>Streambank Modifications/destablization |
| St. Regis | MT76M003_070 | LITTLE JOE CREEK, North Fork to mouth (St. Regis River) | 4A | 2.6 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Physical substrate habitat alterations<br>Sedimentation/Siltation | Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Natural Sources<br>Streambank Modifications/destablization |
| St. Regis | MT76M003_080 | NORTH FORK LITTLE JOE CREEK, headwaters to mouth (Little Joe Creek) | 4A | 10.82 | MILES | B-1 | P | F | F | F | Sedimentation/Siltation | Highways, Roads, Bridges, Infrasturcture (New Construction)<br>Streambank Modifications/destablization |
| Ninemile | MT76M004_010 | NINEMILE CREEK, headwaters to mouth (Clark Fork River) | 4A | 26.85 | MILES | B-1 | P | F | X | F | Low flow alterations<br>Sedimentation/Siltation | Flow Alterations from Water Diversions<br>Impacts from Abandoned Mine Lands (Inactive)<br>Streambank Modifications/destablization |
| Ninemile | MT76M004_020 | STONY CREEK, headwaters to mouth (Ninemile Creek) | 5 | 7.07 | MILES | B-1 | P | F | F | F | Phosphorus (Total)<br>Sedimentation/Siltation | Agriculture<br>Irrigated Crop Production |
| Ninemile | MT76M004_031 | McCORMICK CREEK, Little McCormick Creek to mouth (Ninemile Creek) | 4C | 2.01 | MILES | B-1 | P | F | F | F | Alteration in stream-side or littoral vegetative covers | Placer Mining |
| Ninemile | MT76M004_040 | JOSEPHINE CREEK, headwaters to mouth (Ninemile Creek) | 4A | 5.99 | MILES | B-1 | N | F | F | F | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Sedimentation/Siltation | Forest Roads (Road Construction and Use)<br>Impacts from Hydrostructure Flow Regulation/modification<br>Placer Mining |
| Ninemile | MT76M004_060 | CEDAR CREEK, headwaters to mouth (Ninemile Creek) | 4A | 4.52 | MILES | B-1 | P | F | F | P | Alteration in stream-side or littoral vegetative covers<br>Low flow alterations<br>Sedimentation/Siltation | Agriculture<br>Flow Alterations from Water Diversions<br>Forest Roads (Road Construction and Use)<br>Natural Sources |
| Ninemile | MT76M004_070 | KENNEDY CREEK, headwaters to mouth (Ninemile Creek) | 4A | 5.64 | MILES | B-1 | P | P | P | P | Alteration in stream-side or littoral vegetative covers<br>Copper<br>Lead<br>Low flow alterations<br>Mercury | Irrigated Crop Production<br>Mine Tailings<br>Placer Mining<br>Subsurface (Hardrock) Minining<br>Surface Mining |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

**HUC** 17010204 Middle Clark Fork **Watershed** Lower Clark Fork

| TMDL Planning Area | ID305B | Waterbody Name/Location | Category | Size | Units | Use Class | AqL | AG | DW | Rec | Cause Name | Source Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ninemile | MT76M004_070 | KENNEDY CREEK, headwaters to mouth (Ninemile Creek) | 4A | 5.64 | MILES | B-1 | P | P | P | P | Sedimentation/Siltation | |
| | | | | | | | | | | | Zinc | |
| Ninemile | MT76M004_080 | LITTLE MCCORMICK CREEK, headwaters to mouth (McCormick Creek) | 4A | 3.54 | MILES | B-1 | N | I | F | I | Fish-Passage Barrier | Placer Mining |
| | | | | | | | | | | | Low flow alterations | |
| | | | | | | | | | | | Physical substrate habitat alterations | |
| | | | | | | | | | | | Sedimentation/Siltation | |

F=Full Support P=Partial Support T=Threatened N=Not Supporting I=Insufficient Information X=Not Assessed

## Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Beaver | Milk | 10050014 | MT40M001_013 | BEAVER CREEK, Fort Belknap Reservation boundary to Big Warm Creek | Mercury | 2006 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M001_013 | BEAVER CREEK, Fort Belknap Reservation boundary to Big Warm Creek | Phosphorus (Total) | 2006 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M001_014 | BEAVER CREEK, Big Warm Creek to Un-Named tributary, T30N R32E S32 | Mercury | 2006 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M001_014 | BEAVER CREEK, Big Warm Creek to Un-Named tributary, T30N R32E S32 | Phosphorus (Total) | 2006 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M001_020 | BEAVER CREEK, Bowdoin Canal to mouth (Milk River) | Nitrogen (Total) | 1990 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M001_020 | BEAVER CREEK, Bowdoin Canal to mouth (Milk River) | Phosphorus (Total) | 1990 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M001_020 | BEAVER CREEK, Bowdoin Canal to mouth (Milk River) | Uranium | 2000 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_010 | FLAT CREEK, headwaters to mouth (Beaver Creek), T27N R32E S35 | Arsenic | 2006 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_010 | FLAT CREEK, headwaters to mouth (Beaver Creek), T27N R32E S35 | Cadmium | 2006 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_010 | FLAT CREEK, headwaters to mouth (Beaver Creek), T27N R32E S35 | Copper | 2006 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_010 | FLAT CREEK, headwaters to mouth (Beaver Creek), T27N R32E S35 | Iron | 2006 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_010 | FLAT CREEK, headwaters to mouth (Beaver Creek), T27N R32E S35 | Lead | 2006 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_010 | FLAT CREEK, headwaters to mouth (Beaver Creek), T27N R32E S35 | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1996 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_010 | FLAT CREEK, headwaters to mouth (Beaver Creek), T27N R32E S35 | Nitrogen (Total) | 1996 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_010 | FLAT CREEK, headwaters to mouth (Beaver Creek), T27N R32E S35 | Oxygen, Dissolved | 2006 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_010 | FLAT CREEK, headwaters to mouth (Beaver Creek), T27N R32E S35 | Phosphorus (Total) | 1996 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_010 | FLAT CREEK, headwaters to mouth (Beaver Creek), T27N R32E S35 | Solids (Suspended/Bedload) | 1996 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_010 | FLAT CREEK, headwaters to mouth (Beaver Creek), T27N R32E S35 | Zinc | 2006 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_020 | LARB CREEK, headwaters to mouth (Beaver Creek) | Copper | 2006 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_020 | LARB CREEK, headwaters to mouth (Beaver Creek) | Lead | 2006 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_020 | LARB CREEK, headwaters to mouth (Beaver Creek) | Nitrogen (Total) | 2006 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_020 | LARB CREEK, headwaters to mouth (Beaver Creek) | Oxygen, Dissolved | 2006 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_020 | LARB CREEK, headwaters to mouth (Beaver Creek) | Phosphorus (Total) | 2006 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_030 | BIG WARM CREEK, Fort Belknap Reservation boundary to mouth (Beaver Creek) | Phosphorus (Total) | 1996 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M002_030 | BIG WARM CREEK, Fort Belknap Reservation boundary to mouth (Beaver Creek) | Salinity | 2000 | Unassigned | L |

L = Low M = Medium H = High

# Appendix B:  Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Beaver | Milk | 10050014 | MT40M002_030 | BIG WARM CREEK, Fort Belknap Reservation boundary to mouth (Beaver Creek) | Sedimentation/Siltation | 2000 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M003_010 | LAKE BOWDOIN | Salinity | 1990 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M003_010 | LAKE BOWDOIN | Selenium | 2000 | Unassigned | L |
| Beaver | Milk | 10050014 | MT40M003_020 | NELSON RESERVOIR | Phosphorus (Total) | 1990 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B001_010 | BEAVERHEAD RIVER, Clark Canyon Dam to Grasshopper Creek | Lead | 2000 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B001_020 | BEAVERHEAD RIVER, Grasshopper Creek to mouth (Jefferson River) | Sedimentation/Siltation | 1988 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B001_020 | BEAVERHEAD RIVER, Grasshopper Creek to mouth (Jefferson River) | Temperature, water | 1988 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_010 | GRASSHOPPER CREEK, headwaters to mouth (Beaverhead River) | Cadmium | 1988 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_010 | GRASSHOPPER CREEK, headwaters to mouth (Beaverhead River) | Copper | 1988 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_010 | GRASSHOPPER CREEK, headwaters to mouth (Beaverhead River) | Zinc | 1988 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_020 | FARLIN CREEK, headwaters to mouth (Grasshopper Creek), T6S R12W S7 | Sedimentation/Siltation | 1988 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_030 | BLACKTAIL DEER CREEK, headwaters to mouth (Beaverhead River) | Sedimentation/Siltation | 1988 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_030 | BLACKTAIL DEER CREEK, headwaters to mouth (Beaverhead River) | Temperature, water | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_060 | WEST FORK BLACKTAIL DEER CREEK, headwaters to mouth (Blacktail Deer Creek) | Arsenic | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_060 | WEST FORK BLACKTAIL DEER CREEK, headwaters to mouth (Blacktail Deer Creek) | Sedimentation/Siltation | 1992 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_070 | WEST FORK DYCE CREEK, headwaters to mouth (Dyce Creek) | Manganese | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_070 | WEST FORK DYCE CREEK, headwaters to mouth (Dyce Creek) | Nitrogen (Total) | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_070 | WEST FORK DYCE CREEK, headwaters to mouth (Dyce Creek) | Sedimentation/Siltation | 1990 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_080 | SPRING CREEK, headwaters to mouth (Beaverhead River) | Arsenic | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_080 | SPRING CREEK, headwaters to mouth (Beaverhead River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_080 | SPRING CREEK, headwaters to mouth (Beaverhead River) | Sedimentation/Siltation | 2006 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_090 | RATTLESNAKE CREEK, from the Dillon PWS off-channel well T7S R10W S11 to the mouth (Van Camp Slough) | Cadmium | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_090 | RATTLESNAKE CREEK, from the Dillon PWS off-channel well T7S R10W S11 to the mouth (Van Camp Slough) | Copper | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_090 | RATTLESNAKE CREEK, from the Dillon PWS off-channel well T7S R10W S11 to the mouth (Van Camp Slough) | Lead | 2006 | Unassigned | L |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_090 | RATTLESNAKE CREEK, from the Dillon PWS off-channel well T7S R10W S11 to the mouth (Van Camp Slough) | Nitrogen (Total) | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_090 | RATTLESNAKE CREEK, from the Dillon PWS off-channel well T7S R10W S11 to the mouth (Van Camp Slough) | Phosphorus (Total) | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_090 | RATTLESNAKE CREEK, from the Dillon PWS off-channel well T7S R10W S11 to the mouth (Van Camp Slough) | Sedimentation/Siltation | 1994 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_090 | RATTLESNAKE CREEK, from the Dillon PWS off-channel well T7S R10W S11 to the mouth (Van Camp Slough) | Solids (Suspended/Bedload) | 2010 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_091 | RATTLESNAKE CREEK, headwaters to Dillon PWS off-channel well, T7S R10W S11 | Cadmium | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_091 | RATTLESNAKE CREEK, headwaters to Dillon PWS off-channel well, T7S R10W S11 | Copper | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_091 | RATTLESNAKE CREEK, headwaters to Dillon PWS off-channel well, T7S R10W S11 | Lead | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_091 | RATTLESNAKE CREEK, headwaters to Dillon PWS off-channel well, T7S R10W S11 | Nitrogen (Total) | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_091 | RATTLESNAKE CREEK, headwaters to Dillon PWS off-channel well, T7S R10W S11 | Phosphorus (Total) | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_091 | RATTLESNAKE CREEK, headwaters to Dillon PWS off-channel well, T7S R10W S11 | Sedimentation/Siltation | 1994 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_100 | FRENCH CREEK, headwaters to mouth (Rattlesnake Creek) | Sedimentation/Siltation | 2000 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_110 | CLARK CANYON CREEK, headwaters to mouth (Beaverhead River), T9S R10W S28 | Phosphorus (Total) | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_110 | CLARK CANYON CREEK, headwaters to mouth (Beaverhead River), T9S R10W S28 | Sedimentation/Siltation | 1988 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_120 | RESERVOIR CREEK, headwaters to mouth (Grasshopper Creek) | Nitrogen (Total) | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_120 | RESERVOIR CREEK, headwaters to mouth (Grasshopper Creek) | Phosphorus (Total) | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_120 | RESERVOIR CREEK, headwaters to mouth (Grasshopper Creek) | Sedimentation/Siltation | 2006 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_131 | STONE CREEK, confluence with unnamed creek in T6S R7W S34 near Beaverhead/Madison county border | Arsenic | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_131 | STONE CREEK, confluence with unnamed creek in T6S R7W S34 near Beaverhead/Madison county border | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_131 | STONE CREEK, confluence with unnamed creek in T6S R7W S34 near Beaverhead/Madison county border | Phosphorus (Total) | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_131 | STONE CREEK, confluence with unnamed creek in T6S R7W S34 near Beaverhead/Madison county border | Sedimentation/Siltation | 1994 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_132 | STONE CREEK, Left Fork and Middle Fork to confluence of un-named tributary, T6S R7W S34 | Nitrates | 2000 | Unassigned | L |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_132 | STONE CREEK, Left Fork and Middle Fork to confluence of un-named tributary, T6S R7W S34 | Sedimentation/Siltation | 1994 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_132 | STONE CREEK, Left Fork and Middle Fork to confluence of un-named tributary, T6S R7W S34 | Turbidity | 1994 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_140 | DYCE CREEK, confluence of East and West Forks to Grasshopper Creek | Nitrogen (Total) | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_140 | DYCE CREEK, confluence of East and West Forks to Grasshopper Creek | Sedimentation/Siltation | 1994 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_160 | STEEL CREEK, headwaters to mouth (Driscol Creek), T6S R12W S18 | Arsenic | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_160 | STEEL CREEK, headwaters to mouth (Driscol Creek), T6S R12W S18 | Nitrogen (Total) | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_160 | STEEL CREEK, headwaters to mouth (Driscol Creek), T6S R12W S18 | Phosphorus (Total) | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_160 | STEEL CREEK, headwaters to mouth (Driscol Creek), T6S R12W S18 | Sedimentation/Siltation | 1992 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_160 | STEEL CREEK, headwaters to mouth (Driscol Creek), T6S R12W S18 | Solids (Suspended/Bedload) | 1992 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_170 | TAYLOR CREEK, headwaters to mouth (Grasshopper Creek) | Nitrogen (Total) | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_170 | TAYLOR CREEK, headwaters to mouth (Grasshopper Creek) | Sedimentation/Siltation | 1996 | In Progress | H |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_180 | SCUDDER CREEK, headwaters to mouth (Grasshopper Creek), T6S R12W S19 | Nitrogen (Total) | 2006 | Unassigned | L |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_180 | SCUDDER CREEK, headwaters to mouth (Grasshopper Creek), T6S R12W S19 | Sedimentation/Siltation | 1996 | In Progress | H |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_011 | BELT CREEK, headwaters to Big Otter Creek | Chromium (total) | 1988 | Unassigned | L |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_011 | BELT CREEK, headwaters to Big Otter Creek | Salinity | 2006 | Unassigned | L |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_011 | BELT CREEK, headwaters to Big Otter Creek | Sedimentation/Siltation | 1988 | Unassigned | L |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_012 | BELT CREEK, Big Otter Creek to mouth (Missouri River) | Chromium (total) | 1988 | Unassigned | L |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_012 | BELT CREEK, Big Otter Creek to mouth (Missouri River) | Copper | 1988 | Unassigned | L |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_012 | BELT CREEK, Big Otter Creek to mouth (Missouri River) | Sedimentation/Siltation | 1988 | Unassigned | L |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_010 | CARPENTER CREEK, headwaters to mouth (Belt Creek) | Mercury | 1988 | Unassigned | L |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_020 | GALENA CREEK, headwaters to mouth (Dry Fork Belt Creek) | Antimony | 1988 | Unassigned | L |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_030 | DRY FORK BELT CREEK, headwaters to mouth (Belt Creek) | Sedimentation/Siltation | 2000 | Unassigned | L |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_040 | LITTLE BELT CREEK, three miles upstream to mouth (Belt Creek) | Nitrogen (Total) | 1988 | Unassigned | L |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_040 | LITTLE BELT CREEK, three miles upstream to mouth (Belt Creek) | Phosphorus (Total) | 1988 | Unassigned | L |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_040 | LITTLE BELT CREEK, three miles upstream to mouth (Belt Creek) | Sedimentation/Siltation | 1988 | Unassigned | L |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_050 | BIG OTTER CREEK, headwaters to mouth (Belt Creek) | Nitrates | 2000 | Unassigned | L |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_050 | BIG OTTER CREEK, headwaters to mouth (Belt Creek) | Sedimentation/Siltation | 1996 | Unassigned | L |
| Benton Lake | Missouri-Sun-Smith | 10030102 | MT41Q002_010 | LAKE CREEK, headwaters to mouth (Benton Lake) | Cadmium | 1992 | Unassigned | L |
| Benton Lake | Missouri-Sun-Smith | 10030102 | MT41Q002_010 | LAKE CREEK, headwaters to mouth (Benton Lake) | Salinity | 1992 | Unassigned | L |
| Benton Lake | Missouri-Sun-Smith | 10030102 | MT41Q002_010 | LAKE CREEK, headwaters to mouth (Benton Lake) | Sedimentation/Siltation | 1992 | Unassigned | L |
| Benton Lake | Missouri-Sun-Smith | 10030102 | MT41Q002_010 | LAKE CREEK, headwaters to mouth (Benton Lake) | Selenium | 1992 | Unassigned | L |
| Benton Lake | Missouri-Sun-Smith | 10030102 | MT41Q002_010 | LAKE CREEK, headwaters to mouth (Benton Lake) | Zinc | 1992 | Unassigned | L |
| Benton Lake | Missouri-Sun-Smith | 10030102 | MT41Q005_020 | BENTON LAKE | Nitrogen (Total) | 2000 | Unassigned | L |
| Benton Lake | Missouri-Sun-Smith | 10030102 | MT41Q005_020 | BENTON LAKE | Salinity | 2006 | Unassigned | L |
| Benton Lake | Missouri-Sun-Smith | 10030102 | MT41Q005_020 | BENTON LAKE | Selenium | 2000 | Unassigned | L |
| Benton Lake | Missouri-Sun-Smith | 10030102 | MT41Q005_020 | BENTON LAKE | Sulfates | 2000 | Unassigned | L |
| Big and Little Dry | Middle Missouri | 10040105 | MT40D001_010 | BIG DRY CREEK, Steves Fork to mouth (Fort Peck Reservoir) | Ammonia (Un-ionized) | 2000 | Unassigned | L |
| Big and Little Dry | Middle Missouri | 10040105 | MT40D001_010 | BIG DRY CREEK, Steves Fork to mouth (Fort Peck Reservoir) | Nitrogen (Total) | 1994 | Unassigned | L |
| Big and Little Dry | Middle Missouri | 10040105 | MT40D001_010 | BIG DRY CREEK, Steves Fork to mouth (Fort Peck Reservoir) | Nitrogen, Nitrate | 1994 | Unassigned | L |
| Big and Little Dry | Middle Missouri | 10040105 | MT40D001_010 | BIG DRY CREEK, Steves Fork to mouth (Fort Peck Reservoir) | Phosphorus (Total) | 1994 | Unassigned | L |
| Big Sandy - Sage | Milk | 10050005 | MT40H001_010 | BIG SANDY CREEK, Lonesome Lake Coulee to mouth (Milk River) | Mercury | 2002 | Unassigned | L |
| Big Springs | Middle Missouri | 10040103 | MT41S004_040 | CASINO CREEK, headwaters to mouth (Big Spring Creek) | Nitrogen (Total) | 1992 | Unassigned | L |
| Big Springs | Middle Missouri | 10040103 | MT41S004_040 | CASINO CREEK, headwaters to mouth (Big Spring Creek) | Phosphorus (Total) | 1992 | Unassigned | L |
| Big Springs | Middle Missouri | 10040103 | MT41S004_052 | COTTONWOOD CREEK, county road at T14N R18E S18 to mouth (Big Spring Creek) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1992 | Unassigned | L |
| Big Springs | Middle Missouri | 10040103 | MT41S004_052 | COTTONWOOD CREEK, county road at T14N R18E S18 to mouth (Big Spring Creek) | Nitrogen (Total) | 1992 | Unassigned | L |
| Big Springs | Middle Missouri | 10040103 | MT41S004_052 | COTTONWOOD CREEK, county road at T14N R18E S18 to mouth (Big Spring Creek) | Oxygen, Dissolved | 1992 | Unassigned | L |
| Big Springs | Middle Missouri | 10040103 | MT41S004_052 | COTTONWOOD CREEK, county road at T14N R18E S18 to mouth (Big Spring Creek) | Phosphorus (Total) | 1992 | Unassigned | L |
| Big Springs | Middle Missouri | 10040103 | MT41S004_052 | COTTONWOOD CREEK, county road at T14N R18E S18 to mouth (Big Spring Creek) | Sedimentation/Siltation | 1992 | Unassigned | L |
| Big Springs | Middle Missouri | 10040103 | MT41S004_052 | COTTONWOOD CREEK, county road at T14N R18E S18 to mouth (Big Spring Creek) | Total Kjehldahl Nitrogen (TKN) | 1992 | Unassigned | L |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Bighorn Lake - Shoshone | Middle Yellowstone | 10080015 | MT43R001_020 | BIGHORN RIVER, Yellowtail Dam to Crow Indian Reservation boundary | Nitrogen (Total) | 2000 | Unassigned | L |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H001_010 | BITTERROOT RIVER, East and West forks to Skalkaho Creek | Copper | 2004 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H001_020 | BITTERROOT RIVER, Skalkaho Creek to Eightmile Creek | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2000 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H001_020 | BITTERROOT RIVER, Skalkaho Creek to Eightmile Creek | Phosphorus (Total) | 2000 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H001_020 | BITTERROOT RIVER, Skalkaho Creek to Eightmile Creek | Sedimentation/Siltation | 1988 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H001_030 | BITTERROOT RIVER, Eightmile Creek to mouth (Clark Fork River) | Copper | 2004 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H001_030 | BITTERROOT RIVER, Eightmile Creek to mouth (Clark Fork River) | Lead | 2004 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H001_030 | BITTERROOT RIVER, Eightmile Creek to mouth (Clark Fork River) | Nitrogen, Nitrate | 1990 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H001_030 | BITTERROOT RIVER, Eightmile Creek to mouth (Clark Fork River) | Sedimentation/Siltation | 2000 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_010 | BASS CREEK, Selway-Bitterroot Wilderness boundary to mouth (un-named channel of Bitterroot River), T9N R20W S3 | Nitrogen (Total) | 2006 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_040 | MILL CREEK, Selway-Bitterroot Wilderness boundary to the mouth (Fred Burr Creek), T7N R20W S19 | Temperature, water | 2000 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_080 | TIN CUP CREEK, Selway-Bitterroot Wilderness boundary to mouth (Bitteroot River) | Nitrogen (Total) | 2006 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_090 | SLEEPING CHILD CREEK, headwaters to mouth (Bitterroot River) | Nitrogen (Total) | 2000 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_090 | SLEEPING CHILD CREEK, headwaters to mouth (Bitterroot River) | Phosphorus (Total) | 2000 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_100 | SKALKAHO CREEK, headwaters to mouth (Bitterroot River) | Mercury | 2000 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_110 | WILLOW CREEK, headwaters to mouth (Bitterroot River) | Nitrogen (Total) | 2006 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_120 | AMBROSE CREEK, headwaters to mouth (Threemile Creek) | Nitrogen (Total) | 2000 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_120 | AMBROSE CREEK, headwaters to mouth (Threemile Creek) | Phosphorus (Total) | 2000 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_130 | MILLER CREEK, headwaters to mouth (Bitterroot River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_130 | MILLER CREEK, headwaters to mouth (Bitterroot River) | Phosphorus (Total) | 2006 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_140 | THREEMILE CREEK, headwaters to mouth (Bitterroot River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1996 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_140 | THREEMILE CREEK, headwaters to mouth (Bitterroot River) | Phosphorus (Total) | 1996 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_160 | NORTH FORK RYE CREEK, headwaters to mouth (Rye Creek-Bitterroot River, South of Darby) | Nitrogen (Total) | 2000 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_160 | NORTH FORK RYE CREEK, headwaters to mouth (Rye Creek-Bitterroot River, South of Darby) | Phosphorus (Total) | 2000 | In Progress | H |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_170 | LICK CREEK, headwaters to mouth (Bitterroot River) | Nitrogen (Total) | 2006 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_170 | LICK CREEK, headwaters to mouth (Bitterroot River) | Phosphorus (Total) | 2006 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_180 | MUDDY SPRING CREEK, headwaters to mouth (Gold Creek) T7N R19W S2 | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_190 | RYE CREEK, North Fork to mouth (Bitterroot River) | Nitrogen (Total) | 2002 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_190 | RYE CREEK, North Fork to mouth (Bitterroot River) | Phosphorus (Total) | 2002 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_200 | NORTH BURNT FORK CREEK, confluence with South Burnt Fork Creek to Mouth (Bitterroot River) | Nitrogen (Total) | 2002 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_200 | NORTH BURNT FORK CREEK, confluence with South Burnt Fork Creek to Mouth (Bitterroot River) | Phosphorus (Total) | 2002 | In Progress | H |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_210 | SWEATHOUSE CREEK, headwaters to mouth (Bitterroot River) | Phosphorus (Total) | 2002 | In Progress | H |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H002_010 | EAST FORK BITTERROOT RIVER, Anaconda-Pintlar Wilderness boundary to mouth (Bitterroot River) | Copper | 2006 | In Progress | H |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H002_010 | EAST FORK BITTERROOT RIVER, Anaconda-Pintlar Wilderness boundary to mouth (Bitterroot River) | Lead | 2006 | In Progress | H |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H002_030 | MEADOW CREEK, headwaters to mouth (East Fork Bitteroot River) | Sedimentation/Siltation | 2006 | In Progress | H |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H003_050 | OVERWHICH CREEK, headwaters to mouth (West Fork Bitterroot River) | Sedimentation/Siltation | 2006 | In Progress | H |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_060 | SANDBAR CREEK, forks to mouth (Willow Creek) | Sedimentation/Siltation | 2002 | In Progress | H |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_131 | BOULDER RIVER, five miles upstream of mouth (Yellowstone River) | Silver | 2004 | Unassigned | L |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_132 | BOULDER RIVER, Natural Bridge and Falls in T3S R12E S26 to 5 miles above the mouth, T1N R14E S34 | Chromium (total) | 2006 | Unassigned | L |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_132 | BOULDER RIVER, Natural Bridge and Falls in T3S R12E S26 to 5 miles above the mouth, T1N R14E S34 | Nickel | 2006 | Unassigned | L |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_132 | BOULDER RIVER, Natural Bridge and Falls in T3S R12E S26 to 5 miles above the mouth, T1N R14E S34 | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_132 | BOULDER RIVER, Natural Bridge and Falls in T3S R12E S26 to 5 miles above the mouth, T1N R14E S34 | Nitrogen (Total) | 2006 | Unassigned | L |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_133 | BOULDER RIVER, confluence of the East Fork boulder River to Natural bridge and Falls | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_133 | BOULDER RIVER, confluence of the East Fork boulder River to Natural bridge and Falls | Nitrogen (Total) | 2006 | Unassigned | L |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_133 | BOULDER RIVER, confluence of the East Fork boulder River to Natural bridge and Falls | Phosphorus (Total) | 2006 | Unassigned | L |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_141 | EAST BOULDER RIVER, Elk Creek to mouth (Boulder River) | Sedimentation/Siltation | 2000 | Unassigned | L |

## Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_010 | BOULDER RIVER, headwaters to Basin Creek | Cadmium | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_010 | BOULDER RIVER, headwaters to Basin Creek | Copper | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_010 | BOULDER RIVER, headwaters to Basin Creek | Iron | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_010 | BOULDER RIVER, headwaters to Basin Creek | Lead | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_010 | BOULDER RIVER, headwaters to Basin Creek | Zinc | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_021 | BOULDER RIVER, Basin Creek to Town of Boulder | Cadmium | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_021 | BOULDER RIVER, Basin Creek to Town of Boulder | Copper | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_021 | BOULDER RIVER, Basin Creek to Town of Boulder | Iron | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_021 | BOULDER RIVER, Basin Creek to Town of Boulder | Lead | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_021 | BOULDER RIVER, Basin Creek to Town of Boulder | Silver | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_021 | BOULDER RIVER, Basin Creek to Town of Boulder | Zinc | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_022 | BOULDER RIVER, Town of Boulder to Cottonwood Creek | Copper | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_022 | BOULDER RIVER, Town of Boulder to Cottonwood Creek | Iron | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_022 | BOULDER RIVER, Town of Boulder to Cottonwood Creek | Lead | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_022 | BOULDER RIVER, Town of Boulder to Cottonwood Creek | Sedimentation/Siltation | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_022 | BOULDER RIVER, Town of Boulder to Cottonwood Creek | Silver | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_022 | BOULDER RIVER, Town of Boulder to Cottonwood Creek | Temperature, water | 1990 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_022 | BOULDER RIVER, Town of Boulder to Cottonwood Creek | Zinc | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_030 | BOULDER RIVER, Cottonwood Creek to the mouth (Jefferson Slough), T1N R3W S2 | Arsenic | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_030 | BOULDER RIVER, Cottonwood Creek to the mouth (Jefferson Slough), T1N R3W S2 | Cadmium | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_030 | BOULDER RIVER, Cottonwood Creek to the mouth (Jefferson Slough), T1N R3W S2 | Copper | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_030 | BOULDER RIVER, Cottonwood Creek to the mouth (Jefferson Slough), T1N R3W S2 | Lead | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_030 | BOULDER RIVER, Cottonwood Creek to the mouth (Jefferson Slough), T1N R3W S2 | Sedimentation/Siltation | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_030 | BOULDER RIVER, Cottonwood Creek to the mouth (Jefferson Slough), T1N R3W S2 | Temperature, water | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E001_030 | BOULDER RIVER, Cottonwood Creek to the mouth (Jefferson Slough), T1N R3W S2 | Zinc | 1988 | In Progress | H |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_010 | UNCLE SAM GULCH, headwaters to mouth (Cataract Creek) | Arsenic | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_010 | UNCLE SAM GULCH, headwaters to mouth (Cataract Creek) | Cadmium | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_010 | UNCLE SAM GULCH, headwaters to mouth (Cataract Creek) | Copper | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_010 | UNCLE SAM GULCH, headwaters to mouth (Cataract Creek) | Lead | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_010 | UNCLE SAM GULCH, headwaters to mouth (Cataract Creek) | Nitrogen, Nitrate | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_010 | UNCLE SAM GULCH, headwaters to mouth (Cataract Creek) | Sedimentation/Siltation | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_010 | UNCLE SAM GULCH, headwaters to mouth (Cataract Creek) | Turbidity | 2006 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_010 | UNCLE SAM GULCH, headwaters to mouth (Cataract Creek) | Zinc | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_020 | CATARACT CREEK, headwaters to mouth (Boulder River) | Arsenic | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_020 | CATARACT CREEK, headwaters to mouth (Boulder River) | Cadmium | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_020 | CATARACT CREEK, headwaters to mouth (Boulder River) | Copper | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_020 | CATARACT CREEK, headwaters to mouth (Boulder River) | Lead | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_020 | CATARACT CREEK, headwaters to mouth (Boulder River) | Mercury | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_020 | CATARACT CREEK, headwaters to mouth (Boulder River) | Nitrogen, Nitrate | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_020 | CATARACT CREEK, headwaters to mouth (Boulder River) | Sedimentation/Siltation | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_020 | CATARACT CREEK, headwaters to mouth (Boulder River) | Zinc | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_030 | BASIN CREEK, headwaters to mouth (Boulder River) | Arsenic | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_030 | BASIN CREEK, headwaters to mouth (Boulder River) | Copper | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_030 | BASIN CREEK, headwaters to mouth (Boulder River) | Lead | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_030 | BASIN CREEK, headwaters to mouth (Boulder River) | Mercury | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_030 | BASIN CREEK, headwaters to mouth (Boulder River) | Sedimentation/Siltation | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_030 | BASIN CREEK, headwaters to mouth (Boulder River) | Zinc | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_040 | HIGH ORE CREEK, headwaters to mouth (Boulder River) | Arsenic | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_040 | HIGH ORE CREEK, headwaters to mouth (Boulder River) | Cadmium | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_040 | HIGH ORE CREEK, headwaters to mouth (Boulder River) | Copper | 1988 | In Progress | H |

## Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_040 | HIGH ORE CREEK, headwaters to mouth (Boulder River) | Lead | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_040 | HIGH ORE CREEK, headwaters to mouth (Boulder River) | Mercury | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_040 | HIGH ORE CREEK, headwaters to mouth (Boulder River) | Sedimentation/Siltation | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_040 | HIGH ORE CREEK, headwaters to mouth (Boulder River) | Temperature, water | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_040 | HIGH ORE CREEK, headwaters to mouth (Boulder River) | Total Suspended Solids (TSS) | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_040 | HIGH ORE CREEK, headwaters to mouth (Boulder River) | Zinc | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_050 | LOWLAND CREEK, headwaters to mouth (Boulder River) | Aluminum | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_050 | LOWLAND CREEK, headwaters to mouth (Boulder River) | Copper | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_050 | LOWLAND CREEK, headwaters to mouth (Boulder River) | Silver | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_061 | ELKHORN CREEK, headwaters to Wood Gulch | Arsenic | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_061 | ELKHORN CREEK, headwaters to Wood Gulch | Cadmium | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_061 | ELKHORN CREEK, headwaters to Wood Gulch | Copper | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_061 | ELKHORN CREEK, headwaters to Wood Gulch | Lead | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_061 | ELKHORN CREEK, headwaters to Wood Gulch | Sedimentation/Siltation | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_061 | ELKHORN CREEK, headwaters to Wood Gulch | Zinc | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_062 | ELKHORN CREEK, Wood Gulch to the mouth (Unnamed Canal/Ditch), T5N R3W S21 | Cadmium | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_062 | ELKHORN CREEK, Wood Gulch to the mouth (Unnamed Canal/Ditch), T5N R3W S21 | Copper | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_062 | ELKHORN CREEK, Wood Gulch to the mouth (Unnamed Canal/Ditch), T5N R3W S21 | Lead | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_062 | ELKHORN CREEK, Wood Gulch to the mouth (Unnamed Canal/Ditch), T5N R3W S21 | Sedimentation/Siltation | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_062 | ELKHORN CREEK, Wood Gulch to the mouth (Unnamed Canal/Ditch), T5N R3W S21 | Zinc | 1988 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_070 | BISON CREEK, headwaters to mouth (Boulder River) | Copper | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_070 | BISON CREEK, headwaters to mouth (Boulder River) | Iron | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_070 | BISON CREEK, headwaters to mouth (Boulder River) | Nitrates | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_080 | LITTLE BOULDER RIVER, headwaters to mouth (Boulder River) | Copper | 1994 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_080 | LITTLE BOULDER RIVER, headwaters to mouth (Boulder River) | Zinc | 1994 | In Progress | H |

# Appendix B:  Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_090 | NORTH FORK LITTLE BOULDER RIVER, headwaters to mouth (Little Boulder) | Nitrogen (Total) | 2006 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_090 | NORTH FORK LITTLE BOULDER RIVER, headwaters to mouth (Little Boulder) | Sedimentation/Siltation | 2006 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_100 | MUSKRAT CREEK, headwaters to mouth (Boulder River) | Copper | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_100 | MUSKRAT CREEK, headwaters to mouth (Boulder River) | Lead | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_110 | McCARTHY CREEK, headwaters to mouth (Boulder River) | Phosphorus (Total) | 2006 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_110 | McCARTHY CREEK, headwaters to mouth (Boulder River) | Sedimentation/Siltation | 1992 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_130 | NURSERY CREEK, headwaters (east branch) to mouth (Muskrat Creek) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_130 | NURSERY CREEK, headwaters (east branch) to mouth (Muskrat Creek) | Nitrogen (Total) | 2006 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_130 | NURSERY CREEK, headwaters (east branch) to mouth (Muskrat Creek) | Sedimentation/Siltation | 2006 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_140 | BIG LIMBER GULCH, headwaters to mouth (Cataract Creek-Boulder River) | Lead | 2000 | In Progress | H |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_140 | BIG LIMBER GULCH, headwaters to mouth (Cataract Creek-Boulder River) | Mercury | 2000 | In Progress | H |
| Bullwhacker - Dog | Middle Missouri | 10040101 | MT41T002_020 | DOG CREEK, Cutbank Creek to mouth (Missouri River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2004 | Unassigned | L |
| Bullwhacker - Dog | Middle Missouri | 10040101 | MT41T002_020 | DOG CREEK, Cutbank Creek to mouth (Missouri River) | Sedimentation/Siltation | 2004 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_020 | BATTLE CREEK, headwaters to mouth (Sixteenmile Creek) | Phosphorus (Total) | 2006 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_020 | BATTLE CREEK, headwaters to mouth (Sixteenmile Creek) | Sedimentation/Siltation | 1990 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_020 | BATTLE CREEK, headwaters to mouth (Sixteenmile Creek) | Temperature, water | 2006 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_030 | BEAVER CREEK, headwaters to mouth (Canyon Ferry Reservoir) | Cadmium | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_030 | BEAVER CREEK, headwaters to mouth (Canyon Ferry Reservoir) | Chromium (total) | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_030 | BEAVER CREEK, headwaters to mouth (Canyon Ferry Reservoir) | Lead | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_030 | BEAVER CREEK, headwaters to mouth (Canyon Ferry Reservoir) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_030 | BEAVER CREEK, headwaters to mouth (Canyon Ferry Reservoir) | Phosphorus (Total) | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_030 | BEAVER CREEK, headwaters to mouth (Canyon Ferry Reservoir) | Silver | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_030 | BEAVER CREEK, headwaters to mouth (Canyon Ferry Reservoir) | Zinc | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_041 | CONFEDERATE GULCH, headwaters to Hunter Gulch | Cadmium | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_041 | CONFEDERATE GULCH, headwaters to Hunter Gulch | Nitrates | 2000 | Unassigned | L |

# Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_042 | CONFEDERATE GULCH, Hunter Gulch to mouth (Canyon Ferry Reservoir) | Nitrates | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_042 | CONFEDERATE GULCH, Hunter Gulch to mouth (Canyon Ferry Reservoir) | Phosphorus (Total) | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_050 | CROW CREEK, National Forest boundary to mouth (Missouri River) | Nitrogen (Total) | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_050 | CROW CREEK, National Forest boundary to mouth (Missouri River) | Phosphorus (Total) | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_050 | CROW CREEK, National Forest boundary to mouth (Missouri River) | Sedimentation/Siltation | 1996 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_060 | CROW CREEK, Crow Creek Falls to National Forest boundary | Copper | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_060 | CROW CREEK, Crow Creek Falls to National Forest boundary | Lead | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_080 | DRY CREEK, headwaters to mouth (Missouri River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_080 | DRY CREEK, headwaters to mouth (Missouri River) | Sedimentation/Siltation | 1988 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_080 | DRY CREEK, headwaters to mouth (Missouri River) | Temperature, water | 2006 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_090 | HELLGATE GULCH, headwaters to mouth (Canyon Ferry Reservoir) | Mercury | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_100 | INDIAN CREEK, headwaters to mouty (Missouri River) | Arsenic | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_100 | INDIAN CREEK, headwaters to mouty (Missouri River) | Cadmium | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_100 | INDIAN CREEK, headwaters to mouty (Missouri River) | Lead | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_100 | INDIAN CREEK, headwaters to mouty (Missouri River) | Mercury | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_110 | MAGPIE CREEK, headwaters to mouth (Canyon Ferry Reservoir) | Nitrogen (Total) | 2006 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_110 | MAGPIE CREEK, headwaters to mouth (Canyon Ferry Reservoir) | Sedimentation/Siltation | 2006 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_120 | SIXTEENMILE CREEK, Lost Creek to mouth (Missouri River) | Nitrogen (Total) | 1988 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_120 | SIXTEENMILE CREEK, Lost Creek to mouth (Missouri River) | Phosphorus (Total) | 1988 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_120 | SIXTEENMILE CREEK, Lost Creek to mouth (Missouri River) | Sedimentation/Siltation | 1988 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_130 | WHITE GULCH, headwaters to mouth (Canyon Ferry Reservoir) | Sedimentation/Siltation | 2006 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_140 | WILSON CREEK, 3.3 miles upstream to mouth (Crow Creek) | Mercury | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_150 | CAVE GULCH, headwaters to mouth (Canyon Ferry Reservoir) | Nitrogen (Total) | 2006 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_150 | CAVE GULCH, headwaters to mouth (Canyon Ferry Reservoir) | Phosphorus (Total) | 2006 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_150 | CAVE GULCH, headwaters to mouth (Canyon Ferry Reservoir) | Sedimentation/Siltation | 1992 | Unassigned | L |

L = Low M = Medium H = High

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_170 | EAST FORK INDIAN CREEK, headwaters to mouth (Indian Creek) | Arsenic | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_170 | EAST FORK INDIAN CREEK, headwaters to mouth (Indian Creek) | Cadmium | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_170 | EAST FORK INDIAN CREEK, headwaters to mouth (Indian Creek) | Lead | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_170 | EAST FORK INDIAN CREEK, headwaters to mouth (Indian Creek) | Mercury | 2000 | Unassigned | L |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I005_020 | TROUT CREEK, headwaters to mouth (Hauser Lake) | Sedimentation/Siltation | 1988 | Unassigned | L |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_010 | WALLACE CREEK, headwaters to mouth (Clark Fork River) | Copper | 2000 | In Progress | H |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_010 | WALLACE CREEK, headwaters to mouth (Clark Fork River) | Zinc | 2000 | In Progress | H |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_020 | CRAMER CREEK, headwaters to mouth (Clark Fork River) | Arsenic | 2000 | In Progress | H |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_020 | CRAMER CREEK, headwaters to mouth (Clark Fork River) | Barium | 2000 | In Progress | H |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_020 | CRAMER CREEK, headwaters to mouth (Clark Fork River) | Cobalt | 2000 | In Progress | H |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_020 | CRAMER CREEK, headwaters to mouth (Clark Fork River) | Copper | 2000 | In Progress | H |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_020 | CRAMER CREEK, headwaters to mouth (Clark Fork River) | Lead | 2000 | In Progress | H |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_020 | CRAMER CREEK, headwaters to mouth (Clark Fork River) | Mercury | 2000 | In Progress | H |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_020 | CRAMER CREEK, headwaters to mouth (Clark Fork River) | Sedimentation/Siltation | 1988 | In Progress | H |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_030 | TENMILE CREEK, headwaters to mouth (Bear Creek-Clark Fork River) | Phosphorus (Total) | 2006 | In Progress | H |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_030 | TENMILE CREEK, headwaters to mouth (Bear Creek-Clark Fork River) | Sedimentation/Siltation | 1994 | In Progress | H |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_050 | MULKEY CREEK, headwaters to mouth (Clark Fork River) | Sedimentation/Siltation | 1988 | In Progress | H |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_060 | RATTLER GULCH, headwaters to mouth (Clark Fork River), T11N R13W S22 | Phosphorus (Total) | 2006 | In Progress | H |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_060 | RATTLER GULCH, headwaters to mouth (Clark Fork River), T11N R13W S22 | Sedimentation/Siltation | 1994 | In Progress | H |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_070 | DEEP CREEK, headwaters to mouth (Bear Creek, which is a tributary to Clark Fork River near Bearmouth) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_070 | DEEP CREEK, headwaters to mouth (Bear Creek, which is a tributary to Clark Fork River near Bearmouth) | Nitrogen (Total) | 2006 | In Progress | H |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_070 | DEEP CREEK, headwaters to mouth (Bear Creek, which is a tributary to Clark Fork River near Bearmouth) | Sedimentation/Siltation | 1996 | In Progress | H |
| Clark Fork River | Lower Clark Fork | 17010204 | MT76M001_010 | CLARK FORK RIVER, the Flathead River to Fish Creek | Copper | 1992 | In Progress | H |
| Clark Fork River | Lower Clark Fork | 17010204 | MT76M001_010 | CLARK FORK RIVER, the Flathead River to Fish Creek | Lead | 2004 | In Progress | H |

# Appendix B:  Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Clark Fork River | Lower Clark Fork | 17010204 | MT76M001_020 | CLARK FORK RIVER, Fish Creek to Rattlesnake Creek | Arsenic | 1990 | In Progress | H |
| Clark Fork River | Lower Clark Fork | 17010204 | MT76M001_020 | CLARK FORK RIVER, Fish Creek to Rattlesnake Creek | Cadmium | 1990 | In Progress | H |
| Clark Fork River | Lower Clark Fork | 17010204 | MT76M001_020 | CLARK FORK RIVER, Fish Creek to Rattlesnake Creek | Copper | 1990 | In Progress | H |
| Clark Fork River | Lower Clark Fork | 17010204 | MT76M001_030 | CLARK FORK RIVER, Rattlesnake Creek to Blackfoot River | Copper | 1990 | In Progress | H |
| Clark Fork River | Lower Clark Fork | 17010204 | MT76M001_030 | CLARK FORK RIVER, Rattlesnake Creek to Blackfoot River | Lead | 1990 | In Progress | H |
| Clark Fork River | Lower Clark Fork | 17010213 | MT76N001_010 | CLARK FORK RIVER, the Flathead River to Noxon Reservoir | Cadmium | 2000 | In Progress | H |
| Clark Fork River | Lower Clark Fork | 17010213 | MT76N001_020 | CLARK FORK RIVER, aka Cabinet Gorge Reservoir, Noxon Dam to Idaho Border | Dissolved Gas Supersaturation | 2006 | Unassigned | L |
| Clark Fork River | Lower Clark Fork | 17010213 | MT76N001_020 | CLARK FORK RIVER, aka Cabinet Gorge Reservoir, Noxon Dam to Idaho Border | Temperature, water | 2006 | Unassigned | L |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_010 | CLARK FORK RIVER, Flint Creek to Little Blackfoot River | Arsenic | 1996 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_010 | CLARK FORK RIVER, Flint Creek to Little Blackfoot River | Copper | 1996 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_010 | CLARK FORK RIVER, Flint Creek to Little Blackfoot River | Lead | 1996 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_010 | CLARK FORK RIVER, Flint Creek to Little Blackfoot River | Sedimentation/Siltation | 1996 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_010 | CLARK FORK RIVER, Flint Creek to Little Blackfoot River | Zinc | 1996 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_030 | CLARK FORK RIVER, the Little Blackfoot River to Cottonwood Creek | Copper | 1990 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_030 | CLARK FORK RIVER, the Little Blackfoot River to Cottonwood Creek | Lead | 1990 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_030 | CLARK FORK RIVER, the Little Blackfoot River to Cottonwood Creek | Sedimentation/Siltation | 1996 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_030 | CLARK FORK RIVER, the Little Blackfoot River to Cottonwood Creek | Zinc | 1990 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_040 | CLARK FORK RIVER, Cottonwood Creek to Warm Springs Creek | Arsenic | 1990 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_040 | CLARK FORK RIVER, Cottonwood Creek to Warm Springs Creek | Cadmium | 1990 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_040 | CLARK FORK RIVER, Cottonwood Creek to Warm Springs Creek | Copper | 1990 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_040 | CLARK FORK RIVER, Cottonwood Creek to Warm Springs Creek | Lead | 1990 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_040 | CLARK FORK RIVER, Cottonwood Creek to Warm Springs Creek | Sedimentation/Siltation | 1996 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010202 | MT76E001_010 | CLARK FORK RIVER, Flint Creek to Blackfoot River | Arsenic | 1992 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010202 | MT76E001_010 | CLARK FORK RIVER, Flint Creek to Blackfoot River | Cadmium | 1992 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010202 | MT76E001_010 | CLARK FORK RIVER, Flint Creek to Blackfoot River | Copper | 1992 | In Progress | H |

## Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Clark Fork River | Upper Clark Fork | 17010202 | MT76E001_010 | CLARK FORK RIVER, Flint Creek to Blackfoot River | Iron | 2006 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010202 | MT76E001_010 | CLARK FORK RIVER, Flint Creek to Blackfoot River | Lead | 1992 | In Progress | H |
| Clark Fork River | Upper Clark Fork | 17010202 | MT76E001_010 | CLARK FORK RIVER, Flint Creek to Blackfoot River | Zinc | 1992 | In Progress | H |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D001_011 | CLARKS FORK YELLOWSTONE RIVER, Bridger Creek to mouth (Yellowstone River) | Ammonia (Total) | 1990 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D001_011 | CLARKS FORK YELLOWSTONE RIVER, Bridger Creek to mouth (Yellowstone River) | Copper | 1992 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D001_011 | CLARKS FORK YELLOWSTONE RIVER, Bridger Creek to mouth (Yellowstone River) | Iron | 1992 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D001_011 | CLARKS FORK YELLOWSTONE RIVER, Bridger Creek to mouth (Yellowstone River) | Lead | 1992 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D001_011 | CLARKS FORK YELLOWSTONE RIVER, Bridger Creek to mouth (Yellowstone River) | Mercury | 1992 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D001_011 | CLARKS FORK YELLOWSTONE RIVER, Bridger Creek to mouth (Yellowstone River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1990 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D001_011 | CLARKS FORK YELLOWSTONE RIVER, Bridger Creek to mouth (Yellowstone River) | Nitrogen (Total) | 1990 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D001_011 | CLARKS FORK YELLOWSTONE RIVER, Bridger Creek to mouth (Yellowstone River) | Phosphorus (Total) | 1990 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D001_011 | CLARKS FORK YELLOWSTONE RIVER, Bridger Creek to mouth (Yellowstone River) | Solids (Suspended/Bedload) | 1990 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D001_011 | CLARKS FORK YELLOWSTONE RIVER, Bridger Creek to mouth (Yellowstone River) | Temperature, water | 1990 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_010 | ELBOW CREEK, headwaters to mouth (Clarks Fork) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_010 | ELBOW CREEK, headwaters to mouth (Clarks Fork) | Nitrogen (Total) | 2006 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_010 | ELBOW CREEK, headwaters to mouth (Clarks Fork) | Sedimentation/Siltation | 1990 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_010 | ELBOW CREEK, headwaters to mouth (Clarks Fork) | Solids (Suspended/Bedload) | 1990 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_020 | BEAR CREEK, headwaters to mouth (Clarks Fork) | Iron | 1988 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_020 | BEAR CREEK, headwaters to mouth (Clarks Fork) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_020 | BEAR CREEK, headwaters to mouth (Clarks Fork) | Phosphorus (Total) | 2006 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_020 | BEAR CREEK, headwaters to mouth (Clarks Fork) | Sedimentation/Siltation | 1988 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_031 | BLUEWATER CREEK, mouth to 9 miles upstream (Clarks Fork Yellowstone River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_031 | BLUEWATER CREEK, mouth to 9 miles upstream (Clarks Fork Yellowstone River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_031 | BLUEWATER CREEK, mouth to 9 miles upstream (Clarks Fork Yellowstone River) | Sedimentation/Siltation | 1988 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_031 | BLUEWATER CREEK, mouth to 9 miles upstream (Clarks Fork Yellowstone River) | Solids (Suspended/Bedload) | 1988 | Unassigned | L |

L = Low  M = Medium  H = High

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_060 | RED LODGE CREEK, Cooney Reservoir to mouth (Rock Creek) | Organic Enrichment (Sewage) Biological Indicators | 2000 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_070 | WILLOW CREEK, headwaters to mouth (Cooney Reservoir) | Sedimentation/Siltation | 1990 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_080 | WEST RED LODGE CREEK, Absaroka-Beartooth Wilderness boundary to mouth (Red Lodge Creek) | Sedimentation/Siltation | 1992 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_100 | SILVERTIP CREEK, state line to mouth (Clarks Fork) | Nitrogen (Total) | 1990 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_100 | SILVERTIP CREEK, state line to mouth (Clarks Fork) | Oxygen, Dissolved | 2006 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_100 | SILVERTIP CREEK, state line to mouth (Clarks Fork) | Phosphorus (Total) | 1990 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_100 | SILVERTIP CREEK, state line to mouth (Clarks Fork) | Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems) | 2006 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_100 | SILVERTIP CREEK, state line to mouth (Clarks Fork) | Solids (Suspended/Bedload) | 1990 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_100 | SILVERTIP CREEK, state line to mouth (Clarks Fork) | Specific Conductance | 1990 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_100 | SILVERTIP CREEK, state line to mouth (Clarks Fork) | Temperature, water | 1996 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_100 | SILVERTIP CREEK, state line to mouth (Clarks Fork) | Total Dissolved Solids | 1990 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_100 | SILVERTIP CREEK, state line to mouth (Clarks Fork) | Turbidity | 2006 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_140 | COTTONWOOD CREEK, headwaters to the mouth (Clarks Fork of Yellowstone), T3S R24E S24 | Oxygen, Dissolved | 2006 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_140 | COTTONWOOD CREEK, headwaters to the mouth (Clarks Fork of Yellowstone), T3S R24E S24 | Solids (Suspended/Bedload) | 1992 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_180 | SOUTH FORK BRIDGER CREEK, tributary to Bridger Creek | Arsenic | 2006 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_180 | SOUTH FORK BRIDGER CREEK, tributary to Bridger Creek | Iron | 2006 | Unassigned | L |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_180 | SOUTH FORK BRIDGER CREEK, tributary to Bridger Creek | Sedimentation/Siltation | 1994 | Unassigned | L |
| Cut Bank - Two Medicine | Marias | 10030201 | MT41M002_080 | BIRCH CREEK, Blacktail Creek to mouth (Two Medicine River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Cut Bank - Two Medicine | Marias | 10030201 | MT41M002_110 | DUPUYER CREEK, confluence of South Fork Dupuyer Creek and Middle Fork Dupuyer Creek to the mouth (Birch Creek) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Cut Bank - Two Medicine | Marias | 10030201 | MT41M002_110 | DUPUYER CREEK, confluence of South Fork Dupuyer Creek and Middle Fork Dupuyer Creek to the mouth (Birch Creek) | Sedimentation/Siltation | 2006 | Unassigned | L |
| Cut Bank - Two Medicine | Marias | 10030201 | MT41M002_110 | DUPUYER CREEK, confluence of South Fork Dupuyer Creek and Middle Fork Dupuyer Creek to the mouth (Birch Creek) | Temperature, water | 1992 | Unassigned | L |
| Cut Bank - Two Medicine | Marias | 10030202 | MT41L001_010 | OLD MAIDS COULEE, headwaters to mouth (Cutbank Creek) | Ammonia (Total) | 1990 | Unassigned | L |

## Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Cut Bank - Two Medicine | Marias | 10030202 | MT41L001_010 | OLD MAIDS COULEE, headwaters to mouth (Cutbank Creek) | Chloride | 1990 | Unassigned | L |
| Cut Bank - Two Medicine | Marias | 10030202 | MT41L001_010 | OLD MAIDS COULEE, headwaters to mouth (Cutbank Creek) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1990 | Unassigned | L |
| Cut Bank - Two Medicine | Marias | 10030202 | MT41L001_010 | OLD MAIDS COULEE, headwaters to mouth (Cutbank Creek) | Phosphorus (Total) | 1990 | Unassigned | L |
| Cut Bank - Two Medicine | Marias | 10030202 | MT41L001_010 | OLD MAIDS COULEE, headwaters to mouth (Cutbank Creek) | Specific Conductance | 1990 | Unassigned | L |
| Cut Bank - Two Medicine | Marias | 10030202 | MT41L001_010 | OLD MAIDS COULEE, headwaters to mouth (Cutbank Creek) | Total Dissolved Solids | 1990 | Unassigned | L |
| Cut Bank - Two Medicine | Marias | 10030202 | MT41L001_040 | CUT BANK CREEK, Blackfeet Reservation boundary to mouth (Marias River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1988 | Unassigned | L |
| Cut Bank - Two Medicine | Marias | 10030202 | MT41L001_040 | CUT BANK CREEK, Blackfeet Reservation boundary to mouth (Marias River) | Temperature, water | 1990 | Unassigned | L |
| Dearborn | Missouri-Sun-Smith | 10030102 | MT41Q003_010 | DEARBORN RIVER, Falls Creek to mouth (Missouri River) | Temperature, water | 1990 | Unassigned | L |
| Fisher | Kootenai | 17010102 | MT76C001_010 | FISHER RIVER, the Silver Butte/Pleasant Valley junction to mouth (Kootenai River) | Lead | 2000 | In Progress | H |
| Fisher | Kootenai | 17010102 | MT76C001_020 | WOLF CREEK, headwaters to mouth (Fisher River) | Sedimentation/Siltation | 1988 | In Progress | H |
| Fisher | Kootenai | 17010102 | MT76C001_020 | WOLF CREEK, headwaters to mouth (Fisher River) | Temperature, water | 1990 | In Progress | H |
| Fisher | Kootenai | 17010102 | MT76C001_030 | RAVEN CREEK, headwaters to mouth (Pleasant Vally Fisher River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Fisher | Kootenai | 17010102 | MT76C001_030 | RAVEN CREEK, headwaters to mouth (Pleasant Vally Fisher River) | Nitrogen (Total) | 2006 | In Progress | H |
| Fisher | Kootenai | 17010102 | MT76C001_030 | RAVEN CREEK, headwaters to mouth (Pleasant Vally Fisher River) | Phosphorus (Total) | 2006 | In Progress | H |
| Fisher | Kootenai | 17010102 | MT76C001_030 | RAVEN CREEK, headwaters to mouth (Pleasant Vally Fisher River) | Sedimentation/Siltation | 1992 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_010 | ASHLEY CREEK, Ashley Lake to Smith Lake | Nitrogen (Total) | 1988 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_010 | ASHLEY CREEK, Ashley Lake to Smith Lake | Oxygen, Dissolved | 2006 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_010 | ASHLEY CREEK, Ashley Lake to Smith Lake | Phosphorus (Total) | 1988 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_010 | ASHLEY CREEK, Ashley Lake to Smith Lake | Sedimentation/Siltation | 1988 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_010 | ASHLEY CREEK, Ashley Lake to Smith Lake | Temperature, water | 1988 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_030 | ASHLEY CREEK, Kalispell airport road to mouth (Flathead River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1990 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_030 | ASHLEY CREEK, Kalispell airport road to mouth (Flathead River) | Nitrogen (Total) | 1990 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_030 | ASHLEY CREEK, Kalispell airport road to mouth (Flathead River) | Oxygen, Dissolved | 1990 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_030 | ASHLEY CREEK, Kalispell airport road to mouth (Flathead River) | Phosphorus (Total) | 1990 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_030 | ASHLEY CREEK, Kalispell airport road to mouth (Flathead River) | Temperature, water | 2006 | In Progress | H |

L = Low  M = Medium  H = High

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_040 | SPRING CREEK, headwaters to mouth (Ashley Creek) | Arsenic | 2006 | Scheduled | M |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_040 | SPRING CREEK, headwaters to mouth (Ashley Creek) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_040 | SPRING CREEK, headwaters to mouth (Ashley Creek) | Nitrogen (Total) | 2006 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_040 | SPRING CREEK, headwaters to mouth (Ashley Creek) | Oxygen, Dissolved | 1992 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_040 | SPRING CREEK, headwaters to mouth (Ashley Creek) | Phosphorus (Total) | 2006 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_050 | FISH CREEK, headwaters to mouth (Ashley Lake) | Phosphorus (Total) | 2000 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_050 | FISH CREEK, headwaters to mouth (Ashley Lake) | Sedimentation/Siltation | 1992 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_050 | FISH CREEK, headwaters to mouth (Ashley Lake) | Solids (Suspended/Bedload) | 1992 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010210 | MT76P001_010 | STILLWATER RIVER, Logan Creek to mouth | Lead | 2010 | Scheduled | M |
| Flathead - Stillwater | Flathead | 17010210 | MT76P001_010 | STILLWATER RIVER, Logan Creek to mouth | Nitrates | 1988 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010210 | MT76P001_010 | STILLWATER RIVER, Logan Creek to mouth | Phosphorus (Total) | 1988 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010210 | MT76P001_010 | STILLWATER RIVER, Logan Creek to mouth | Sedimentation/Siltation | 1988 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010210 | MT76P001_030 | LOGAN CREEK, headwaters to mouth (Tally Lake) | Sedimentation/Siltation | 1988 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010210 | MT76P001_050 | SHEPPARD CREEK, headwaters to mouth (Griffin Creek-Logan Creek-Talley Lake) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010210 | MT76P001_050 | SHEPPARD CREEK, headwaters to mouth (Griffin Creek-Logan Creek-Talley Lake) | Phosphorus (Total) | 2006 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010210 | MT76P001_050 | SHEPPARD CREEK, headwaters to mouth (Griffin Creek-Logan Creek-Talley Lake) | Sedimentation/Siltation | 2006 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010210 | MT76P003_010 | WHITEFISH RIVER, Whitefish Lake to mouth (Stillwater River) | Copper | 2000 | Scheduled | M |
| Flathead - Stillwater | Flathead | 17010210 | MT76P003_010 | WHITEFISH RIVER, Whitefish Lake to mouth (Stillwater River) | Lead | 2000 | Scheduled | M |
| Flathead - Stillwater | Flathead | 17010210 | MT76P003_010 | WHITEFISH RIVER, Whitefish Lake to mouth (Stillwater River) | Nitrogen (Total) | 1988 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010210 | MT76P003_010 | WHITEFISH RIVER, Whitefish Lake to mouth (Stillwater River) | Oil and Grease | 2000 | Unassigned | L |
| Flathead - Stillwater | Flathead | 17010210 | MT76P003_010 | WHITEFISH RIVER, Whitefish Lake to mouth (Stillwater River) | PCB in Water Column | 2000 | Scheduled | M |
| Flathead - Stillwater | Flathead | 17010210 | MT76P003_010 | WHITEFISH RIVER, Whitefish Lake to mouth (Stillwater River) | Temperature, water | 1988 | In Progress | H |
| Flathead - Stillwater | Flathead | 17010210 | MT76P004_010 | WHITEFISH LAKE | Mercury | 2000 | Unassigned | L |
| Flathead - Stillwater | Flathead | 17010210 | MT76P004_010 | WHITEFISH LAKE | Polychlorinated biphenyls | 2000 | Scheduled | M |
| Flathead - Stillwater | Flathead | 17010210 | MT76P004_010 | WHITEFISH LAKE | Sedimentation/Siltation | 1996 | In Progress | H |

## Appendix B:  Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Flathead Headwaters | Flathead | 17010207 | MT76I002_040 | CHALLENGE CREEK, headwaters to mouth (Granite Creek) | Phosphorus (Total) | 2006 | In Progress | H |
| Flathead Lake | Flathead | 17010208 | MT76O003_010 | FLATHEAD LAKE | Mercury | 2000 | Unassigned | L |
| Flathead Lake | Flathead | 17010208 | MT76O003_010 | FLATHEAD LAKE | Polychlorinated biphenyls | 2000 | Scheduled | M |
| Flathead Lake | Flathead | 17010208 | MT76O003_010 | FLATHEAD LAKE | Sedimentation/Siltation | 1996 | In Progress | H |
| Flatwillow - Box Elder | Musselshell | 10040203 | MT40B001_021 | FLATWILLOW CREEK, headwaters to Highway 87 bridge | Sedimentation/Siltation | 2000 | Unassigned | L |
| Flatwillow - Box Elder | Musselshell | 10040203 | MT40B001_022 | FLATWILLOW CREEK, Highway 87 bridge to mouth (Musselshell River) | Mercury | 2004 | Unassigned | L |
| Flatwillow - Box Elder | Musselshell | 10040203 | MT40B001_022 | FLATWILLOW CREEK, Highway 87 bridge to mouth (Musselshell River) | Nitrogen, Nitrate | 2004 | Unassigned | L |
| Flatwillow - Box Elder | Musselshell | 10040203 | MT40B001_022 | FLATWILLOW CREEK, Highway 87 bridge to mouth (Musselshell River) | Sedimentation/Siltation | 2000 | Unassigned | L |
| Flatwillow - Box Elder | Musselshell | 10040203 | MT40B001_040 | NORTH FORK FLATWILLOW CREEK, headwaters to confluence with South Fork | Sedimentation/Siltation | 2002 | Unassigned | L |
| Flatwillow - Box Elder | Musselshell | 10040204 | MT40B002_010 | McDONALD CREEK, North and South Forks to mouth (Box Elder Creek) | Sedimentation/Siltation | 1988 | Unassigned | L |
| Flatwillow - Box Elder | Musselshell | 10040204 | MT40B002_010 | McDONALD CREEK, North and South Forks to mouth (Box Elder Creek) | Specific Conductance | 2006 | Unassigned | L |
| Flatwillow - Box Elder | Musselshell | 10040204 | MT40B002_010 | McDONALD CREEK, North and South Forks to mouth (Box Elder Creek) | Total Dissolved Solids | 2006 | Unassigned | L |
| Flatwillow - Box Elder | Musselshell | 10040204 | MT40B002_020 | CHICAGO GULCH, headwaters to mouth (Fords Creek) | Lead | 1992 | In Progress | H |
| Flatwillow - Box Elder | Musselshell | 10040204 | MT40B002_020 | CHICAGO GULCH, headwaters to mouth (Fords Creek) | pH | 1992 | In Progress | H |
| Flatwillow - Box Elder | Musselshell | 10040204 | MT40B002_020 | CHICAGO GULCH, headwaters to mouth (Fords Creek) | Zinc | 1992 | In Progress | H |
| Flatwillow - Box Elder | Musselshell | 10040204 | MT40B002_030 | COLLAR GULCH, headwaters to mouth (Fords Creek) | Lead | 1992 | In Progress | H |
| Flatwillow - Box Elder | Musselshell | 10040204 | MT40B002_030 | COLLAR GULCH, headwaters to mouth (Fords Creek) | pH | 1992 | In Progress | H |
| Flatwillow - Box Elder | Musselshell | 10040204 | MT40B002_030 | COLLAR GULCH, headwaters to mouth (Fords Creek) | Zinc | 1992 | In Progress | H |
| Flatwillow - Box Elder | Musselshell | 10040204 | MT40B002_040 | CHIPPEWA CREEK, headwaters to confluence with Manitoba Gulch | Antimony | 1992 | In Progress | H |
| Flatwillow - Box Elder | Musselshell | 10040204 | MT40B002_040 | CHIPPEWA CREEK, headwaters to confluence with Manitoba Gulch | Arsenic | 1992 | In Progress | H |
| Flatwillow - Box Elder | Musselshell | 10040204 | MT40B002_040 | CHIPPEWA CREEK, headwaters to confluence with Manitoba Gulch | Cyanide | 1992 | In Progress | H |
| Flatwillow - Box Elder | Musselshell | 10040204 | MT40B002_040 | CHIPPEWA CREEK, headwaters to confluence with Manitoba Gulch | Iron | 1992 | In Progress | H |
| Flatwillow - Box Elder | Musselshell | 10040204 | MT40B002_040 | CHIPPEWA CREEK, headwaters to confluence with Manitoba Gulch | Mercury | 1992 | In Progress | H |
| Flatwillow - Box Elder | Musselshell | 10040204 | MT40B002_040 | CHIPPEWA CREEK, headwaters to confluence with Manitoba Gulch | Sedimentation/Siltation | 1992 | In Progress | H |
| Flatwillow - Box Elder | Musselshell | 10040204 | MT40B002_040 | CHIPPEWA CREEK, headwaters to confluence with Manitoba Gulch | Zinc | 1992 | In Progress | H |

**L = Low  M = Medium  H = High**

## Appendix B:  Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Flint | Upper Clark Fork | 17010202 | MT76E003_011 | FLINT CREEK, Georgetown Lake to confluence with Boulder Creek | Antimony | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_011 | FLINT CREEK, Georgetown Lake to confluence with Boulder Creek | Arsenic | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_011 | FLINT CREEK, Georgetown Lake to confluence with Boulder Creek | Cadmium | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_011 | FLINT CREEK, Georgetown Lake to confluence with Boulder Creek | Copper | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_011 | FLINT CREEK, Georgetown Lake to confluence with Boulder Creek | Lead | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_011 | FLINT CREEK, Georgetown Lake to confluence with Boulder Creek | Mercury | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_011 | FLINT CREEK, Georgetown Lake to confluence with Boulder Creek | Sedimentation/Siltation | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_012 | FLINT CREEK, Boulder Creek to mouth (Clark Fork River) | Arsenic | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_012 | FLINT CREEK, Boulder Creek to mouth (Clark Fork River) | Cadmium | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_012 | FLINT CREEK, Boulder Creek to mouth (Clark Fork River) | Copper | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_012 | FLINT CREEK, Boulder Creek to mouth (Clark Fork River) | Iron | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_012 | FLINT CREEK, Boulder Creek to mouth (Clark Fork River) | Lead | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_012 | FLINT CREEK, Boulder Creek to mouth (Clark Fork River) | Nitrogen (Total) | 1990 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_012 | FLINT CREEK, Boulder Creek to mouth (Clark Fork River) | Phosphorus (Total) | 1990 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_012 | FLINT CREEK, Boulder Creek to mouth (Clark Fork River) | Turbidity | 2006 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_020 | DOUGLAS CREEK, confluence of Middle and South Forks to mouth (Flint Creek), T9N R13W S10 | Nitrogen, Nitrate | 2000 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_030 | NORTH FORK DOUGLAS CREEK, headwaters to mouth (Middle Fork Douglas Creek) | Arsenic | 1990 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_030 | NORTH FORK DOUGLAS CREEK, headwaters to mouth (Middle Fork Douglas Creek) | Cadmium | 1990 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_030 | NORTH FORK DOUGLAS CREEK, headwaters to mouth (Middle Fork Douglas Creek) | Copper | 1990 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_030 | NORTH FORK DOUGLAS CREEK, headwaters to mouth (Middle Fork Douglas Creek) | Sulfates | 2000 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_030 | NORTH FORK DOUGLAS CREEK, headwaters to mouth (Middle Fork Douglas Creek) | Zinc | 1990 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_040 | FRED BURR CREEK, Fred Burr Lake to mouth (Flint Creek) | Arsenic | 1990 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_040 | FRED BURR CREEK, Fred Burr Lake to mouth (Flint Creek) | Lead | 1990 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_040 | FRED BURR CREEK, Fred Burr Lake to mouth (Flint Creek) | Mercury | 1990 | In Progress | H |

## Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Flint | Upper Clark Fork | 17010202 | MT76E003_050 | SOUTH FORK LOWER WILLOW CREEK, headwaters to mouth (Lower Willow Creek Reservoir) | Copper | 1992 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_050 | SOUTH FORK LOWER WILLOW CREEK, headwaters to mouth (Lower Willow Creek Reservoir) | Lead | 1992 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_050 | SOUTH FORK LOWER WILLOW CREEK, headwaters to mouth (Lower Willow Creek Reservoir) | Mercury | 1992 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_060 | BOULDER CREEK, headwaters to mouth (Flint Creek) | Arsenic | 2000 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_060 | BOULDER CREEK, headwaters to mouth (Flint Creek) | Lead | 2000 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_060 | BOULDER CREEK, headwaters to mouth (Flint Creek) | Mercury | 2000 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_060 | BOULDER CREEK, headwaters to mouth (Flint Creek) | Zinc | 2000 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_070 | BARNES CREEK, headwaters to mouth (Flint Creek) | Iron | 2006 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_070 | BARNES CREEK, headwaters to mouth (Flint Creek) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_070 | BARNES CREEK, headwaters to mouth (Flint Creek) | Nitrogen (Total) | 2006 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_070 | BARNES CREEK, headwaters to mouth (Flint Creek) | Phosphorus (Total) | 2006 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_070 | BARNES CREEK, headwaters to mouth (Flint Creek) | Sedimentation/Siltation | 1992 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_090 | PRINCETON GULCH, headwaters to mouth (Boulder Creek) | Nitrates | 2000 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_100 | DOUGLAS CREEK, headwaters to where stream ends, T7N R14W S25 | Arsenic | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_100 | DOUGLAS CREEK, headwaters to where stream ends, T7N R14W S25 | Cadmium | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_100 | DOUGLAS CREEK, headwaters to where stream ends, T7N R14W S25 | Copper | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_100 | DOUGLAS CREEK, headwaters to where stream ends, T7N R14W S25 | Iron | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_100 | DOUGLAS CREEK, headwaters to where stream ends, T7N R14W S25 | Lead | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_100 | DOUGLAS CREEK, headwaters to where stream ends, T7N R14W S25 | Mercury | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_100 | DOUGLAS CREEK, headwaters to where stream ends, T7N R14W S25 | Sedimentation/Siltation | 1990 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_100 | DOUGLAS CREEK, headwaters to where stream ends, T7N R14W S25 | Zinc | 1988 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_110 | SMART CREEK, headwaters to mouth (Flint Creek), T9N R13W S21 | Phosphorus (Total) | 2006 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_110 | SMART CREEK, headwaters to mouth (Flint Creek), T9N R13W S21 | Sedimentation/Siltation | 1994 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_130 | CAMP CREEK, headwaters to terminus, T7N R14W S25 | Arsenic | 1992 | In Progress | H |

# Appendix B:  Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Flint | Upper Clark Fork | 17010202 | MT76E003_130 | CAMP CREEK, headwaters to terminus, T7N R14W S25 | Copper | 1992 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_130 | CAMP CREEK, headwaters to terminus, T7N R14W S25 | Lead | 1992 | In Progress | H |
| Flint | Upper Clark Fork | 17010202 | MT76E003_130 | CAMP CREEK, headwaters to terminus, T7N R14W S25 | Zinc | 1992 | In Progress | H |
| Fort Peck Area Tributaries | Middle Missouri | 10040104 | MT40E002_022 | ARMELLS CREEK, headwaters to Deer Creek | Cadmium | 1992 | In Progress | H |
| Fort Peck Area Tributaries | Middle Missouri | 10040104 | MT40E002_022 | ARMELLS CREEK, headwaters to Deer Creek | Copper | 1992 | In Progress | H |
| Fort Peck Area Tributaries | Middle Missouri | 10040104 | MT40E002_022 | ARMELLS CREEK, headwaters to Deer Creek | Mercury | 1992 | In Progress | H |
| Fort Peck Area Tributaries | Middle Missouri | 10040104 | MT40E002_022 | ARMELLS CREEK, headwaters to Deer Creek | pH | 1992 | In Progress | H |
| Fort Peck Area Tributaries | Middle Missouri | 10040104 | MT40E002_022 | ARMELLS CREEK, headwaters to Deer Creek | Zinc | 1992 | In Progress | H |
| Fort Peck Area Tributaries | Middle Missouri | 10040104 | MT40E002_040 | COW CREEK, Als Creek to mouth (Missouri River) | Aluminum | 1992 | In Progress | H |
| Fort Peck Area Tributaries | Middle Missouri | 10040104 | MT40E002_040 | COW CREEK, Als Creek to mouth (Missouri River) | Copper | 1992 | In Progress | H |
| Fort Peck Area Tributaries | Middle Missouri | 10040104 | MT40E002_040 | COW CREEK, Als Creek to mouth (Missouri River) | Iron | 1992 | In Progress | H |
| Fort Peck Area Tributaries | Middle Missouri | 10040104 | MT40E002_040 | COW CREEK, Als Creek to mouth (Missouri River) | Lead | 1992 | In Progress | H |
| Fort Peck Area Tributaries | Middle Missouri | 10040104 | MT40E002_130 | FARGO COULEE, headwaters to mouth (Armells Creek) | Aluminum | 2006 | In Progress | H |
| Fort Peck Area Tributaries | Middle Missouri | 10040104 | MT40E002_130 | FARGO COULEE, headwaters to mouth (Armells Creek) | Iron | 2006 | In Progress | H |
| Fort Peck Area Tributaries | Middle Missouri | 10040104 | MT40E002_130 | FARGO COULEE, headwaters to mouth (Armells Creek) | Lead | 2006 | In Progress | H |
| Fort Peck Area Tributaries | Middle Missouri | 10040104 | MT40E002_130 | FARGO COULEE, headwaters to mouth (Armells Creek) | Nitrogen (Total) | 2006 | In Progress | H |
| Fort Peck Area Tributaries | Middle Missouri | 10040104 | MT40E002_130 | FARGO COULEE, headwaters to mouth (Armells Creek) | Phosphorus (Total) | 2006 | In Progress | H |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_011 | BEAVER CREEK, headwaters to confluence of Bridge Creek | Nitrogen (Total) | 2006 | Unassigned | L |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_011 | BEAVER CREEK, headwaters to confluence of Bridge Creek | Sedimentation/Siltation | 1988 | Unassigned | L |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_012 | BEAVER CREEK, Nelson to mouth (Missouri River below Hauser Dam) | Sedimentation/Siltation | 1988 | Unassigned | L |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_030 | FALLS GULCH, headwaters to mouth (Holter Lake), T14N R3W S16 | Mercury | 1992 | Unassigned | L |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_040 | VIRGINIA CREEK, headwaters to mouth (Canyon Creek) | Copper | 1988 | Unassigned | L |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_040 | VIRGINIA CREEK, headwaters to mouth (Canyon Creek) | Lead | 1988 | Unassigned | L |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_040 | VIRGINIA CREEK, headwaters to mouth (Canyon Creek) | Zinc | 1988 | Unassigned | L |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_051 | LITTLE PRICKLY PEAR CREEK, North and South Forks to Clark Creek | Sedimentation/Siltation | 1988 | Unassigned | L |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_051 | LITTLE PRICKLY PEAR CREEK, North and South Forks to Clark Creek | Temperature, water | 2000 | Unassigned | L |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_052 | LITTLE PRICKLY PEAR CREEK, Clark Creek to mouth (Missouri River) | Temperature, water | 2000 | Unassigned | L |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_060 | FOOL HEN CREEK, headwaters to mouth (Virgina Creek-Canyon Creek- Little Prickly Pear Creek) | Cadmium | 1988 | Unassigned | L |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_060 | FOOL HEN CREEK, headwaters to mouth (Virgina Creek-Canyon Creek- Little Prickly Pear Creek) | Copper | 1988 | Unassigned | L |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_060 | FOOL HEN CREEK, headwaters to mouth (Virgina Creek-Canyon Creek- Little Prickly Pear Creek) | Lead | 1988 | Unassigned | L |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_060 | FOOL HEN CREEK, headwaters to mouth (Virgina Creek-Canyon Creek- Little Prickly Pear Creek) | Mercury | 1988 | Unassigned | L |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_060 | FOOL HEN CREEK, headwaters to mouth (Virgina Creek-Canyon Creek- Little Prickly Pear Creek) | Silver | 1988 | Unassigned | L |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_060 | FOOL HEN CREEK, headwaters to mouth (Virgina Creek-Canyon Creek- Little Prickly Pear Creek) | Zinc | 2010 | Unassigned | L |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_080 | WOODSIDING GULCH, headwaters to mouth (Little Prickly Pear Creek), T13N R4W S33 | Phosphorus (Total) | 2006 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040102 | MT41R001_010 | COFFEE CREEK, headwaters to mouth (Arrow Creek) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1990 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040102 | MT41R001_010 | COFFEE CREEK, headwaters to mouth (Arrow Creek) | Selenium | 2006 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040102 | MT41R001_010 | COFFEE CREEK, headwaters to mouth (Arrow Creek) | Total Dissolved Solids | 2006 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040102 | MT41R001_020 | ARROW CREEK, Surprise Creek to mouth (Missouri River) | Iron | 2006 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S001_020 | JUDITH RIVER, Ross Fork to Big Spring Creek | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1990 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S001_020 | JUDITH RIVER, Ross Fork to Big Spring Creek | Sedimentation/Siltation | 1988 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_010 | DRY WOLF CREEK, headwaters to mouth (Wolf Creek) | Nitrogen (Total) | 1990 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_010 | DRY WOLF CREEK, headwaters to mouth (Wolf Creek) | Nitrogen, Nitrate | 1990 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_010 | DRY WOLF CREEK, headwaters to mouth (Wolf Creek) | Phosphorus (Total) | 1990 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_010 | DRY WOLF CREEK, headwaters to mouth (Wolf Creek) | Salinity | 1988 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_020 | WOLF CREEK, Dry Wolf Creek to mouth (Judith River) | Iron | 2006 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_020 | WOLF CREEK, Dry Wolf Creek to mouth (Judith River) | Selenium | 2006 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_020 | WOLF CREEK, Dry Wolf Creek to mouth (Judith River) | Total Dissolved Solids | 1992 | Unassigned | L |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_030 | WARM SPRING CREEK, 5 miles upstream to mouth (Judith River) | Nitrogen (Total) | 2000 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_030 | WARM SPRING CREEK, 5 miles upstream to mouth (Judith River) | Nitrogen, Nitrate | 2000 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_030 | WARM SPRING CREEK, 5 miles upstream to mouth (Judith River) | Phosphorus (Total) | 2000 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_030 | WARM SPRING CREEK, 5 miles upstream to mouth (Judith River) | Sedimentation/Siltation | 1988 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_050 | SAGE CREEK, headwaters to mouth (Judith River) | Iron | 2006 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_050 | SAGE CREEK, headwaters to mouth (Judith River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_050 | SAGE CREEK, headwaters to mouth (Judith River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_070 | ROSS FORK JUDITH RIVER, headwaters to mouth (Judith River) | BOD, Biochemical oxygen demand | 2006 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_070 | ROSS FORK JUDITH RIVER, headwaters to mouth (Judith River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_070 | ROSS FORK JUDITH RIVER, headwaters to mouth (Judith River) | Sedimentation/Siltation | 1988 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_080 | SOUTH FORK JUDITH RIVER, headwaters to mouth | Sedimentation/Siltation | 1992 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_100 | LAST CHANCE CREEK, headwaters to mouth (Moccasin Creek) | Cyanide | 2004 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_100 | LAST CHANCE CREEK, headwaters to mouth (Moccasin Creek) | Iron | 2004 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_100 | LAST CHANCE CREEK, headwaters to mouth (Moccasin Creek) | Selenium | 2004 | Unassigned | L |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_100 | LAST CHANCE CREEK, headwaters to mouth (Moccasin Creek) | Thallium | 2004 | Unassigned | L |
| Kootenai | Kootenai | 17010101 | MT76A001_010 | KOOTENAI RIVER, confluence with Yaak River to Idaho border | Temperature, water | 1992 | Unassigned | L |
| Kootenai | Kootenai | 17010101 | MT76D001_010 | KOOTENAI RIVER, Libby Dam to Yaak River | Temperature, water | 1990 | Unassigned | L |
| Kootenai | Kootenai | 17010101 | MT76D002_010 | STANLEY CREEK, headwater to confluence with Fairway Creek | Copper | 1988 | In Progress | H |
| Kootenai | Kootenai | 17010101 | MT76D002_010 | STANLEY CREEK, headwater to confluence with Fairway Creek | Nutrient/Eutrophication Biological Indicators | 2000 | In Progress | H |
| Kootenai | Kootenai | 17010101 | MT76D002_040 | SNOWSHOE CREEK, Cabinet Wilderness boundary to mouth (Big Cherry Creek) | Cadmium | 1988 | In Progress | H |
| Kootenai | Kootenai | 17010101 | MT76D002_040 | SNOWSHOE CREEK, Cabinet Wilderness boundary to mouth (Big Cherry Creek) | Zinc | 1988 | In Progress | H |
| Kootenai | Kootenai | 17010101 | MT76D002_050 | BIG CHERRY CREEK, Snowshoe Creek to Mouth (Libby Creek) | Zinc | 1988 | In Progress | H |
| Kootenai | Kootenai | 17010101 | MT76D002_061 | LIBBY CREEK, from 1 mi above Howard Creek to highway 2 bridge | Mercury | 1996 | In Progress | H |
| Kootenai | Kootenai | 17010101 | MT76D002_062 | LIBBY CREEK, from the highway 2 bridge to mouth (Kootenai River) | Sedimentation/Siltation | 1996 | In Progress | H |
| Kootenai | Kootenai | 17010101 | MT76D002_070 | LAKE CREEK, Bull Lake outlet to mouth (Kootenai River) | Cadmium | 1992 | In Progress | H |

L = Low  M = Medium  H = High

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Kootenai | Kootenai | 17010101 | MT76D002_070 | LAKE CREEK, Bull Lake outlet to mouth (Kootenai River) | Copper | 1992 | In Progress | H |
| Kootenai | Kootenai | 17010101 | MT76D002_070 | LAKE CREEK, Bull Lake outlet to mouth (Kootenai River) | Lead | 1992 | In Progress | H |
| Kootenai | Kootenai | 17010101 | MT76D002_070 | LAKE CREEK, Bull Lake outlet to mouth (Kootenai River) | Mercury in Water Column | 1992 | In Progress | H |
| Kootenai | Kootenai | 17010101 | MT76D002_070 | LAKE CREEK, Bull Lake outlet to mouth (Kootenai River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2000 | In Progress | H |
| Kootenai | Kootenai | 17010101 | MT76D002_070 | LAKE CREEK, Bull Lake outlet to mouth (Kootenai River) | Sedimentation/Siltation | 1992 | In Progress | H |
| Kootenai | Kootenai | 17010101 | MT76D002_070 | LAKE CREEK, Bull Lake outlet to mouth (Kootenai River) | Zinc | 1992 | In Progress | H |
| Kootenai | Kootenai | 17010101 | MT76D002_090 | QUARTZ CREEK, headwaters to confluence with the Kootenai River | Sedimentation/Siltation | 1992 | In Progress | H |
| Kootenai | Kootenai | 17010101 | MT76D002_110 | BRISTOW CREEK, the headwaters to mouth at Lake Koocanusa | Nitrogen (Total) | 2000 | In Progress | H |
| Kootenai | Kootenai | 17010101 | MT76D002_110 | BRISTOW CREEK, the headwaters to mouth at Lake Koocanusa | Sedimentation/Siltation | 1992 | In Progress | H |
| Kootenai | Kootenai | 17010101 | MT76D003_010 | LAKE KOOCANUSA | Selenium | 2012 | Unassigned | L |
| Lake Basin - Spidel | Middle Yellowstone | 10070007 | MT43Q003_010 | SPIDEL WATERFOWL PRODUCTION AREA, T5N R23E S33 | Salinity | 2000 | Unassigned | L |
| Lake Basin - Spidel | Middle Yellowstone | 10070007 | MT43Q003_010 | SPIDEL WATERFOWL PRODUCTION AREA, T5N R23E S33 | Selenium | 2000 | Unassigned | L |
| Lake Basin - Spidel | Upper Yellowstone | 10070004 | MT43F003_010 | BIG LAKE | Salinity | 2000 | Unassigned | L |
| Lake Basin - Spidel | Upper Yellowstone | 10070004 | MT43F003_020 | HAILSTONE LAKE, T3N R20E S13 | Salinity | 2000 | Unassigned | L |
| Lake Basin - Spidel | Upper Yellowstone | 10070004 | MT43F003_030 | HALFBREED LAKE, T3N R21E S33 | Salinity | 2002 | Unassigned | L |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_020 | PRICKLY PEAR CREEK, Helena WWTP Discharge Ditch to Lake Helena | Ammonia (Un-ionized) | 1990 | Unassigned | L |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_020 | PRICKLY PEAR CREEK, Helena WWTP Discharge Ditch to Lake Helena | Temperature, water | 2000 | Unassigned | L |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_030 | PRICKLY PEAR CREEK, Highway 433 (Wylie Dr.) Crossing to Helena WWTP Discharge | Ammonia (Un-ionized) | 2006 | Unassigned | L |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_030 | PRICKLY PEAR CREEK, Highway 433 (Wylie Dr.) Crossing to Helena WWTP Discharge | Temperature, water | 2000 | Unassigned | L |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_040 | PRICKLY PEAR CREEK, Lump Gulch to County Road Wylie Drive | Aluminum | 1988 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_040 | PRICKLY PEAR CREEK, Lump Gulch to County Road Wylie Drive | Antimony | 1988 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_050 | PRICKLY PEAR CREEK, Spring Creek to Lump Gulch | Arsenic | 2000 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_050 | PRICKLY PEAR CREEK, Spring Creek to Lump Gulch | Copper | 2000 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_060 | PRICKLY PEAR CREEK, headwaters to Spring Creek | Cadmium | 1992 | In Progress | H |

## Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_070 | GOLCONDA CREEK, headwaters to mouth (Prickly Pear Creek), T7N R3W S8 | Copper | 1992 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_070 | GOLCONDA CREEK, headwaters to mouth (Prickly Pear Creek), T7N R3W S8 | Zinc | 1992 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_080 | SPRING CREEK, Corbin Creek to mouth (Prickly Pear Creek) | Aluminum | 1988 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_080 | SPRING CREEK, Corbin Creek to mouth (Prickly Pear Creek) | Mercury | 1988 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_080 | SPRING CREEK, Corbin Creek to mouth (Prickly Pear Creek) | Silver | 1988 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_090 | CORBIN CREEK, headwaters to mouth (Spring Creek) | pH | 1988 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_090 | CORBIN CREEK, headwaters to mouth (Spring Creek) | Silver | 1988 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_090 | CORBIN CREEK, headwaters to mouth (Spring Creek) | Temperature, water | 2000 | Unassigned | L |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_100 | MIDDLE FORK WARM SPRINGS CREEK, headwaters to mouth (Warm Springs Creek-Prickly Pear Creek) | Copper | 1988 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_100 | MIDDLE FORK WARM SPRINGS CREEK, headwaters to mouth (Warm Springs Creek-Prickly Pear Creek) | Mercury | 1988 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_120 | CLANCY CREEK, headwaters to mouth (Prickly Pear Creek) | Mercury | 1988 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_130 | LUMP GULCH, headwaters to mouth (Prickly Pear Creek) | Mercury | 1990 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_141 | TENMILE CREEK, headwaters to confluence of Spring Creek | Mercury | 1988 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_141 | TENMILE CREEK, headwaters to confluence of Spring Creek | Sedimentation/Siltation | 1988 | Unassigned | L |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_143 | TENMILE CREEK, Helena Water Treatment Plant to mouth (Prickly Pear Creek) | Mercury | 1988 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_150 | SILVER CREEK, headwaters to T11N R4W S30 / S31 to Lake Helena | DDE | 1992 | Unassigned | L |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_150 | SILVER CREEK, headwaters to T11N R4W S30 / S31 to Lake Helena | Mercury | 1988 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_160 | SEVENMILE CREEK, headwaters to mouth (Tenmile Creek) | Zinc | 2002 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_180 | NORTH FORK WARM SPRINGS CREEK, headwaters to mouth (Warmsprings Creek) | Organic Enrichment (Sewage) Biological Indicators | 2002 | Unassigned | L |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_190 | JACKSON CREEK, headwaters to mouth (McClellan Creek-Prickly Pear Creek) | Zinc | 2006 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_210 | JENNIES FORK, headwaters to mouth (Silver Creek) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_210 | JENNIES FORK, headwaters to mouth (Silver Creek) | Phosphorus (Total) | 2006 | Unassigned | L |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_220 | SKELLY GULCH, headwaters to mouth (Greenhorn Creek/Sevenmile Creek), T10N R5W S2 | Arsenic | 2002 | In Progress | H |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_230 | GRANITE CREEK, headwaters to mouth (Sevenmile Creek) | Arsenic | 2004 | In Progress | H |

L = Low M = Medium H = High

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_230 | GRANITE CREEK, headwaters to mouth (Sevenmile Creek) | Cadmium | 2004 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_010 | MONTANA GULCH, headwaters to mouth (Rock Creek) | Arsenic | 1990 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_010 | MONTANA GULCH, headwaters to mouth (Rock Creek) | Cadmium | 1990 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_010 | MONTANA GULCH, headwaters to mouth (Rock Creek) | Copper | 1990 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_010 | MONTANA GULCH, headwaters to mouth (Rock Creek) | pH | 2000 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_050 | ALDER GULCH, headwaters to mouth (Ruby Creek), T26N R25E S16 | Cadmium | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_050 | ALDER GULCH, headwaters to mouth (Ruby Creek), T26N R25E S16 | Copper | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_050 | ALDER GULCH, headwaters to mouth (Ruby Creek), T26N R25E S16 | Lead | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_050 | ALDER GULCH, headwaters to mouth (Ruby Creek), T26N R25E S16 | Mercury | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_050 | ALDER GULCH, headwaters to mouth (Ruby Creek), T26N R25E S16 | pH | 1996 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_050 | ALDER GULCH, headwaters to mouth (Ruby Creek), T26N R25E S16 | Selenium | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_050 | ALDER GULCH, headwaters to mouth (Ruby Creek), T26N R25E S16 | Zinc | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_060 | RUBY CREEK, Un-Named tributary T25N R25E S21 to mouth (CK Creek) | Aluminum | 2000 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_060 | RUBY CREEK, Un-Named tributary T25N R25E S21 to mouth (CK Creek) | Cadmium | 2000 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_060 | RUBY CREEK, Un-Named tributary T25N R25E S21 to mouth (CK Creek) | Copper | 2000 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_060 | RUBY CREEK, Un-Named tributary T25N R25E S21 to mouth (CK Creek) | Lead | 2000 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_060 | RUBY CREEK, Un-Named tributary T25N R25E S21 to mouth (CK Creek) | Mercury | 2000 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_060 | RUBY CREEK, Un-Named tributary T25N R25E S21 to mouth (CK Creek) | pH | 2000 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_060 | RUBY CREEK, Un-Named tributary T25N R25E S21 to mouth (CK Creek) | Selenium | 2000 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_060 | RUBY CREEK, Un-Named tributary T25N R25E S21 to mouth (CK Creek) | Zinc | 2000 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_070 | RUBY GULCH, headwaters to confluence of Alder Gulch, T25N R25E S21 | Cadmium | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_070 | RUBY GULCH, headwaters to confluence of Alder Gulch, T25N R25E S21 | Chromium (total) | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_070 | RUBY GULCH, headwaters to confluence of Alder Gulch, T25N R25E S21 | Copper | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_070 | RUBY GULCH, headwaters to confluence of Alder Gulch, T25N R25E S21 | Lead | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_070 | RUBY GULCH, headwaters to confluence of Alder Gulch, T25N R25E S21 | Mercury | 1994 | In Progress | H |

# Appendix B:  Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Landusky | Middle Missouri | 10040104 | MT40E002_070 | RUBY GULCH, headwaters to confluence of Alder Gulch, T25N R25E S21 | pH | 1996 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_070 | RUBY GULCH, headwaters to confluence of Alder Gulch, T25N R25E S21 | Selenium | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_070 | RUBY GULCH, headwaters to confluence of Alder Gulch, T25N R25E S21 | Zinc | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_090 | ROCK CREEK, headwaters to mouth (Missouri River) | Cadmium | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_090 | ROCK CREEK, headwaters to mouth (Missouri River) | Copper | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_090 | ROCK CREEK, headwaters to mouth (Missouri River) | Escherichia coli | 2000 | Unassigned | L |
| Landusky | Middle Missouri | 10040104 | MT40E002_090 | ROCK CREEK, headwaters to mouth (Missouri River) | Lead | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_090 | ROCK CREEK, headwaters to mouth (Missouri River) | Mercury | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_090 | ROCK CREEK, headwaters to mouth (Missouri River) | pH | 2000 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_090 | ROCK CREEK, headwaters to mouth (Missouri River) | Selenium | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_090 | ROCK CREEK, headwaters to mouth (Missouri River) | Zinc | 1994 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_100 | MILL GULCH, headwaters to mouth (Rock Creek) | Copper | 1996 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_100 | MILL GULCH, headwaters to mouth (Rock Creek) | Lead | 1996 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_100 | MILL GULCH, headwaters to mouth (Rock Creek) | Mercury | 1996 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_100 | MILL GULCH, headwaters to mouth (Rock Creek) | Nitrates | 2000 | Unassigned | L |
| Landusky | Middle Missouri | 10040104 | MT40E002_100 | MILL GULCH, headwaters to mouth (Rock Creek) | pH | 1996 | In Progress | H |
| Landusky | Middle Missouri | 10040104 | MT40E002_100 | MILL GULCH, headwaters to mouth (Rock Creek) | Selenium | 1996 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I001_030 | BIG HORN CREEK, Zortman Mine to Fort Belknap Reservation boundary | Aluminum | 1994 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I001_030 | BIG HORN CREEK, Zortman Mine to Fort Belknap Reservation boundary | Arsenic | 1994 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I001_030 | BIG HORN CREEK, Zortman Mine to Fort Belknap Reservation boundary | Cadmium | 1994 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I001_030 | BIG HORN CREEK, Zortman Mine to Fort Belknap Reservation boundary | Nickel | 1994 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I001_030 | BIG HORN CREEK, Zortman Mine to Fort Belknap Reservation boundary | Zinc | 1994 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I001_040 | KING CREEK, headwaters to Fort Belknap Reservation boundary | Selenium | 1994 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I001_050 | LODGE POLE CREEK, headwaters to Fort Belknap Reservation boundary | Cadmium | 2004 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I001_050 | LODGE POLE CREEK, headwaters to Fort Belknap Reservation boundary | Mercury | 2004 | In Progress | H |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Landusky | Milk | 10050009 | MT40I002_010 | SWIFT GULCH CREEK, Headwaters to mouth (South Big Horn Creek), T25N R24E S10 | Aluminum | 2008 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I002_010 | SWIFT GULCH CREEK, Headwaters to mouth (South Big Horn Creek), T25N R24E S10 | Arsenic | 2008 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I002_010 | SWIFT GULCH CREEK, Headwaters to mouth (South Big Horn Creek), T25N R24E S10 | Cadmium | 2008 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I002_010 | SWIFT GULCH CREEK, Headwaters to mouth (South Big Horn Creek), T25N R24E S10 | Copper | 2008 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I002_010 | SWIFT GULCH CREEK, Headwaters to mouth (South Big Horn Creek), T25N R24E S10 | Cyanide | 2008 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I002_010 | SWIFT GULCH CREEK, Headwaters to mouth (South Big Horn Creek), T25N R24E S10 | Iron | 2008 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I002_010 | SWIFT GULCH CREEK, Headwaters to mouth (South Big Horn Creek), T25N R24E S10 | Lead | 2008 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I002_010 | SWIFT GULCH CREEK, Headwaters to mouth (South Big Horn Creek), T25N R24E S10 | Nickel | 2008 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I002_010 | SWIFT GULCH CREEK, Headwaters to mouth (South Big Horn Creek), T25N R24E S10 | pH | 2008 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I002_010 | SWIFT GULCH CREEK, Headwaters to mouth (South Big Horn Creek), T25N R24E S10 | Selenium | 2008 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I002_010 | SWIFT GULCH CREEK, Headwaters to mouth (South Big Horn Creek), T25N R24E S10 | Thallium | 2008 | In Progress | H |
| Landusky | Milk | 10050009 | MT40I002_010 | SWIFT GULCH CREEK, Headwaters to mouth (South Big Horn Creek), T25N R24E S10 | Zinc | 2008 | In Progress | H |
| Landusky | Milk | 10050014 | MT40M001_011 | BEAVER CREEK, headwaters to Fort Belknap Reservation boundary | Cadmium | 2006 | In Progress | H |
| Landusky | Milk | 10050014 | MT40M001_011 | BEAVER CREEK, headwaters to Fort Belknap Reservation boundary | Iron | 2006 | In Progress | H |
| Landusky | Milk | 10050014 | MT40M001_011 | BEAVER CREEK, headwaters to Fort Belknap Reservation boundary | Lead | 2006 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_010 | LITTLE BLACKFOOT RIVER, Dog Creek to mouth (Clark Fork River) | Copper | 2000 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_010 | LITTLE BLACKFOOT RIVER, Dog Creek to mouth (Clark Fork River) | Lead | 2000 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_010 | LITTLE BLACKFOOT RIVER, Dog Creek to mouth (Clark Fork River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_010 | LITTLE BLACKFOOT RIVER, Dog Creek to mouth (Clark Fork River) | Sedimentation/Siltation | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_020 | LITTLE BLACKFOOT RIVER, the headwaters to Dog Creek | Arsenic | 1990 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_020 | LITTLE BLACKFOOT RIVER, the headwaters to Dog Creek | Cyanide | 1990 | In Progress | H |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_020 | LITTLE BLACKFOOT RIVER, the headwaters to Dog Creek | Sedimentation/Siltation | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_032 | SPOTTED DOG CREEK, forest boundary to mouth (Little Blackfoot River) | Phosphorus (Total) | 2006 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_032 | SPOTTED DOG CREEK, forest boundary to mouth (Little Blackfoot River) | Sedimentation/Siltation | 1990 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_051 | TELEGRAPH CREEK, headwaters to Hahn Creek | Arsenic | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_051 | TELEGRAPH CREEK, headwaters to Hahn Creek | Beryllium | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_051 | TELEGRAPH CREEK, headwaters to Hahn Creek | Cadmium | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_051 | TELEGRAPH CREEK, headwaters to Hahn Creek | Copper | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_051 | TELEGRAPH CREEK, headwaters to Hahn Creek | Iron | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_051 | TELEGRAPH CREEK, headwaters to Hahn Creek | Sedimentation/Siltation | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_051 | TELEGRAPH CREEK, headwaters to Hahn Creek | Zinc | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_052 | TELEGRAPH CREEK, Hahn Creek to mouth (Little Blackfoot River) | Lead | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_052 | TELEGRAPH CREEK, Hahn Creek to mouth (Little Blackfoot River) | Mercury | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_060 | MONARCH CREEK, headwaters to mouth (Ontario Creek) | Arsenic | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_060 | MONARCH CREEK, headwaters to mouth (Ontario Creek) | Copper | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_060 | MONARCH CREEK, headwaters to mouth (Ontario Creek) | Lead | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_060 | MONARCH CREEK, headwaters to mouth (Ontario Creek) | Mercury | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_060 | MONARCH CREEK, headwaters to mouth (Ontario Creek) | pH | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_060 | MONARCH CREEK, headwaters to mouth (Ontario Creek) | Selenium | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_071 | DOG CREEK, headwaters to Meadow Creek | Arsenic | 2000 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_071 | DOG CREEK, headwaters to Meadow Creek | Lead | 2000 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_071 | DOG CREEK, headwaters to Meadow Creek | Sedimentation/Siltation | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_071 | DOG CREEK, headwaters to Meadow Creek | Zinc | 2000 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_072 | DOG CREEK, Meadow Creek to mouth (Little Blackfoot River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2000 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_072 | DOG CREEK, Meadow Creek to mouth (Little Blackfoot River) | Sedimentation/Siltation | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_080 | SNOWSHOE CREEK, headwaters to mouth (Little Blackfoot River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |

# Appendix B:  Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G004_080 | SNOWSHOE CREEK, headwaters to mouth (Little Blackfoot River) | Sedimentation/Siltation | 1988 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G006_010 | UN-NAMED CREEK, headwaters to mouth (Ontario Creek), T8N R6W S27 | Arsenic | 2000 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G006_010 | UN-NAMED CREEK, headwaters to mouth (Ontario Creek), T8N R6W S27 | Cadmium | 2000 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G006_010 | UN-NAMED CREEK, headwaters to mouth (Ontario Creek), T8N R6W S27 | Copper | 2000 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G006_010 | UN-NAMED CREEK, headwaters to mouth (Ontario Creek), T8N R6W S27 | Lead | 2000 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G006_010 | UN-NAMED CREEK, headwaters to mouth (Ontario Creek), T8N R6W S27 | Mercury | 2000 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G006_010 | UN-NAMED CREEK, headwaters to mouth (Ontario Creek), T8N R6W S27 | pH | 2000 | In Progress | H |
| Little Blackfoot | Upper Clark Fork | 17010201 | MT76G006_010 | UN-NAMED CREEK, headwaters to mouth (Ontario Creek), T8N R6W S27 | Zinc | 2000 | In Progress | H |
| Little Missouri | Little Missouri | 10110201 | MT39F001_010 | THOMPSON CREEK, Wyoming border to mouth (Little Missouri River) | Cadmium | 2006 | Unassigned | L |
| Little Missouri | Little Missouri | 10110201 | MT39F001_010 | THOMPSON CREEK, Wyoming border to mouth (Little Missouri River) | Copper | 2006 | Unassigned | L |
| Little Missouri | Little Missouri | 10110201 | MT39F001_010 | THOMPSON CREEK, Wyoming border to mouth (Little Missouri River) | Iron | 2006 | Unassigned | L |
| Little Missouri | Little Missouri | 10110201 | MT39F001_010 | THOMPSON CREEK, Wyoming border to mouth (Little Missouri River) | Zinc | 2006 | Unassigned | L |
| Little Missouri | Little Missouri | 10110201 | MT39F001_021 | LITTLE MISSOURI RIVER, Highway 323 bridge to South Dakota border | Cadmium | 2006 | Unassigned | L |
| Little Missouri | Little Missouri | 10110201 | MT39F001_021 | LITTLE MISSOURI RIVER, Highway 323 bridge to South Dakota border | Copper | 2006 | Unassigned | L |
| Little Missouri | Little Missouri | 10110201 | MT39F001_021 | LITTLE MISSOURI RIVER, Highway 323 bridge to South Dakota border | Iron | 2006 | Unassigned | L |
| Little Missouri | Little Missouri | 10110201 | MT39F001_021 | LITTLE MISSOURI RIVER, Highway 323 bridge to South Dakota border | Lead | 2006 | Unassigned | L |
| Little Missouri | Little Missouri | 10110201 | MT39F001_021 | LITTLE MISSOURI RIVER, Highway 323 bridge to South Dakota border | Zinc | 2006 | Unassigned | L |
| Little Missouri | Little Missouri | 10110201 | MT39F001_022 | LITTLE MISSOURI RIVER, Wyoming border to the Highway 323 bridge | Cadmium | 2006 | Unassigned | L |
| Little Missouri | Little Missouri | 10110201 | MT39F001_022 | LITTLE MISSOURI RIVER, Wyoming border to the Highway 323 bridge | Copper | 2006 | Unassigned | L |
| Little Missouri | Little Missouri | 10110201 | MT39F001_022 | LITTLE MISSOURI RIVER, Wyoming border to the Highway 323 bridge | Lead | 2006 | Unassigned | L |
| Little Missouri | Little Missouri | 10110201 | MT39F001_022 | LITTLE MISSOURI RIVER, Wyoming border to the Highway 323 bridge | Nitrogen (Total) | 2006 | Unassigned | L |
| Little Missouri | Little Missouri | 10110201 | MT39F001_022 | LITTLE MISSOURI RIVER, Wyoming border to the Highway 323 bridge | Phosphorus (Total) | 2006 | Unassigned | L |
| Little Missouri | Little Missouri | 10110201 | MT39F001_022 | LITTLE MISSOURI RIVER, Wyoming border to the Highway 323 bridge | Zinc | 2006 | Unassigned | L |
| Little Missouri | Little Missouri | 10110204 | MT39G002_010 | LAMESTEER NATIONAL WILDLIFE REFUGE, T12N R60E S15 | Other | 2000 | Unassigned | L |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D001_010 | BIG HOLE RIVER, Divide Creek to mouth (Jefferson River) | Cadmium | 2000 | Unassigned | L |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D001_010 | BIG HOLE RIVER, Divide Creek to mouth (Jefferson River) | Copper | 2000 | Unassigned | L |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D001_010 | BIG HOLE RIVER, Divide Creek to mouth (Jefferson River) | Lead | 2000 | Unassigned | L |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D001_010 | BIG HOLE RIVER, Divide Creek to mouth (Jefferson River) | Zinc | 2000 | Unassigned | L |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_020 | CAMP CREEK, headwaters to mouth (Big Hole River) | Arsenic | 2006 | Unassigned | L |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_070 | SASSMAN GULCH, headwaters to the end of the stream reach in T4S R9W S9 | Arsenic | 1988 | Unassigned | L |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_120 | WICKIUP CREEK, headwaters to mouth (Camp Creek), T2S R8W S1 | Bottom Deposits | 1994 | Unassigned | L |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_120 | WICKIUP CREEK, headwaters to mouth (Camp Creek), T2S R8W S1 | Lead | 1994 | Unassigned | L |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_120 | WICKIUP CREEK, headwaters to mouth (Camp Creek), T2S R8W S1 | Mercury | 1994 | Unassigned | L |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_120 | WICKIUP CREEK, headwaters to mouth (Camp Creek), T2S R8W S1 | Phosphorus (Total) | 2006 | Unassigned | L |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F001_033 | BLACKFOOT RIVER, Belmont Creek to mouth (Clark Fork) | Ammonia (Un-ionized) | 2000 | In Progress | H |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_010 | UNION CREEK, headwaters to mouth (Blackfoot River) | Arsenic | 2000 | In Progress | H |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_010 | UNION CREEK, headwaters to mouth (Blackfoot River) | Copper | 2000 | In Progress | H |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_010 | UNION CREEK, headwaters to mouth (Blackfoot River) | Phosphorus (Total) | 2000 | In Progress | H |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_020 | WEST FORK ASHBY CREEK, headwaters to mouth (East Fork Ashby Creek) | Phosphorus (Total) | 2006 | In Progress | H |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_031 | ELK CREEK, headwaters to Stinkwater Creek | Cadmium | 2000 | In Progress | H |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_031 | ELK CREEK, headwaters to Stinkwater Creek | Nitrogen, Nitrate | 2000 | In Progress | H |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_050 | EAST FORK ASHBY CREEK | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_050 | EAST FORK ASHBY CREEK | Phosphorus (Total) | 2006 | In Progress | H |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_060 | CAMAS CREEK, 1 mile above mouth to mouth (Union Creek) | Phosphorus (Total) | 2006 | In Progress | H |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_090 | WASHOE CREEK, Headwater to mouth (Union Creek) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_090 | WASHOE CREEK, Headwater to mouth (Union Creek) | Nitrogen (Total) | 2006 | In Progress | H |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_090 | WASHOE CREEK, Headwater to mouth (Union Creek) | Phosphorus (Total) | 2006 | In Progress | H |
| Lower Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_120 | WHITE PINE CREEK, headwaters to mouth (Beaver Creek) | Temperature, water | 2006 | In Progress | H |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L001_010 | FLATHEAD RIVER, Flathead Reservation boundary to mouth (Clark Fork River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2010 | Scheduled | M |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L001_010 | FLATHEAD RIVER, Flathead Reservation boundary to mouth (Clark Fork River) | Nitrogen (Total) | 2010 | Scheduled | M |

L = Low M = Medium H = High

## Appendix B:  Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L001_010 | FLATHEAD RIVER, Flathead Reservation boundary to mouth (Clark Fork River) | Phosphorus (Total) | 2010 | Scheduled | M |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L001_010 | FLATHEAD RIVER, Flathead Reservation boundary to mouth (Clark Fork River) | Sedimentation/Siltation | 1990 | Scheduled | M |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L001_010 | FLATHEAD RIVER, Flathead Reservation boundary to mouth (Clark Fork River) | Temperature, water | 1990 | Scheduled | M |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L002_060 | LITTLE BITTERROOT RIVER, Hubbart Reservoir to Flathead Reservation Boundary | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1988 | In Progress | H |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L002_060 | LITTLE BITTERROOT RIVER, Hubbart Reservoir to Flathead Reservation Boundary | Nitrogen (Total) | 1988 | In Progress | H |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L002_060 | LITTLE BITTERROOT RIVER, Hubbart Reservoir to Flathead Reservation Boundary | Phosphorus (Total) | 1988 | In Progress | H |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L002_060 | LITTLE BITTERROOT RIVER, Hubbart Reservoir to Flathead Reservation Boundary | Sedimentation/Siltation | 1988 | In Progress | H |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L002_070 | SULLIVAN CREEK, headwaters to Flathead Indian Reservation | Aluminum | 2006 | In Progress | H |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L002_070 | SULLIVAN CREEK, headwaters to Flathead Indian Reservation | Cadmium | 2006 | In Progress | H |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L002_070 | SULLIVAN CREEK, headwaters to Flathead Indian Reservation | Escherichia coli | 1988 | In Progress | H |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L002_070 | SULLIVAN CREEK, headwaters to Flathead Indian Reservation | pH | 2010 | In Progress | H |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L002_070 | SULLIVAN CREEK, headwaters to Flathead Indian Reservation | Phosphorus (Total) | 1988 | In Progress | H |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L002_070 | SULLIVAN CREEK, headwaters to Flathead Indian Reservation | Sedimentation/Siltation | 1988 | In Progress | H |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L002_070 | SULLIVAN CREEK, headwaters to Flathead Indian Reservation | Zinc | 2006 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H002_010 | CAMP CREEK, headwaters to mouth (Gallatin River) | Escherichia coli | 1988 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H002_010 | CAMP CREEK, headwaters to mouth (Gallatin River) | Nitrogen (Total) | 1988 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H002_010 | CAMP CREEK, headwaters to mouth (Gallatin River) | Sedimentation/Siltation | 1988 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H002_020 | GODFREY CREEK, headwaters to mouth (Moreland Ditch), T1S R3E S12 | Escherichia coli | 1996 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H002_020 | GODFREY CREEK, headwaters to mouth (Moreland Ditch), T1S R3E S12 | Nitrogen (Total) | 1996 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H002_020 | GODFREY CREEK, headwaters to mouth (Moreland Ditch), T1S R3E S12 | Phosphorus (Total) | 1996 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H002_020 | GODFREY CREEK, headwaters to mouth (Moreland Ditch), T1S R3E S12 | Sedimentation/Siltation | 1996 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_010 | EAST GALLATIN RIVER, confluence of Rocky and Bear Creeks to Bridger Creek | Nitrogen (Total) | 2006 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_010 | EAST GALLATIN RIVER, confluence of Rocky and Bear Creeks to Bridger Creek | Phosphorus (Total) | 2006 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_020 | EAST GALLATIN RIVER, Bridger Creek to Smith Creek | Nitrogen (Total) | 1988 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_020 | EAST GALLATIN RIVER, Bridger Creek to Smith Creek | pH | 1990 | In Progress | H |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_020 | EAST GALLATIN RIVER, Bridger Creek to Smith Creek | Phosphorus (Total) | 1988 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_030 | EAST GALLATIN RIVER, Smith Creek to mouth (Gallatin River) | Nitrogen (Total) | 1988 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_030 | EAST GALLATIN RIVER, Smith Creek to mouth (Gallatin River) | pH | 1990 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_040 | SOURDOUGH CREEK, confluence of Limestone Creek and Bozeman Creek to the mouth (East Gallatin River), T2S R6E S6 | Escherichia coli | 1990 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_040 | SOURDOUGH CREEK, confluence of Limestone Creek and Bozeman Creek to the mouth (East Gallatin River), T2S R6E S6 | Nitrogen (Total) | 1990 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_040 | SOURDOUGH CREEK, confluence of Limestone Creek and Bozeman Creek to the mouth (East Gallatin River), T2S R6E S6 | Phosphorus (Total) | 1990 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_040 | SOURDOUGH CREEK, confluence of Limestone Creek and Bozeman Creek to the mouth (East Gallatin River), T2S R6E S6 | Sedimentation/Siltation | 1990 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_050 | JACKSON CREEK, headwaters to mouth (Rocky Creek) | Phosphorus (Total) | 2006 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_050 | JACKSON CREEK, headwaters to mouth (Rocky Creek) | Sedimentation/Siltation | 1992 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_060 | SMITH CREEK, confluence of Ross and Reese Creeks to mouth (East Gallatin River) | Escherichia coli | 2000 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_060 | SMITH CREEK, confluence of Ross and Reese Creeks to mouth (East Gallatin River) | Nitrates | 2000 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_060 | SMITH CREEK, confluence of Ross and Reese Creeks to mouth (East Gallatin River) | Sedimentation/Siltation | 1992 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_070 | REESE CREEK, headwaters to mouth (Smith Creek) | Escherichia coli | 1988 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_070 | REESE CREEK, headwaters to mouth (Smith Creek) | Nitrates | 2000 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_070 | REESE CREEK, headwaters to mouth (Smith Creek) | Solids (Suspended/Bedload) | 1990 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_080 | ROCKY CREEK, confluence of Jackson and Timberline Creeks to mouth (East Gallatin River) | Sedimentation/Siltation | 2000 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_081 | BEAR CREEK, headwaters to mouth (Rocky Creek) | Phosphorus (Total) | 2006 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_081 | BEAR CREEK, headwaters to mouth (Rocky Creek) | Sedimentation/Siltation | 2006 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_081 | BEAR CREEK, headwaters to mouth (Rocky Creek) | Solids (Suspended/Bedload) | 2006 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_090 | THOMPSON CREEK (Thompson Spring), headwaters to mouth (East Gallatin River) | Nitrogen (Total) | 2006 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_090 | THOMPSON CREEK (Thompson Spring), headwaters to mouth (East Gallatin River) | Sedimentation/Siltation | 1990 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_100 | DRY CREEK, headwaters to mouth (East Gallatin River) | Nitrogen (Total) | 2000 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_100 | DRY CREEK, headwaters to mouth (East Gallatin River) | Phosphorus (Total) | 2000 | In Progress | H |

L = Low M = Medium H = High

# Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_100 | DRY CREEK, headwaters to mouth (East Gallatin River) | Sedimentation/Siltation | 1992 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_110 | BRIDGER CREEK, headwaters to mouth (East Gallatin River) | Nitrogen (Total) | 2006 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_110 | BRIDGER CREEK, headwaters to mouth (East Gallatin River) | Phosphorus (Total) | 2006 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_120 | STONE CREEK, headwaters to mouth (Bridger Creek) | Sedimentation/Siltation | 1994 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_129 | HYALITE CREEK, headwaters to the top of Hyalite Reservoir, T4S R6E S23 | Nitrogen (Total) | 2006 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_129 | HYALITE CREEK, headwaters to the top of Hyalite Reservoir, T4S R6E S23 | Phosphorus (Total) | 2006 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_130 | HYALITE CREEK, Hyalite Reservoir to the Bozeman water supply diversion ditch, T3S R5E S23 | Nitrogen (Total) | 2006 | In Progress | H |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_130 | HYALITE CREEK, Hyalite Reservoir to the Bozeman water supply diversion ditch, T3S R5E S23 | Phosphorus (Total) | 2006 | In Progress | H |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G001_012 | JEFFERSON RIVER, confluence of Jefferson Slough to mouth (Missouri River) | Copper | 1990 | In Progress | H |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G001_012 | JEFFERSON RIVER, confluence of Jefferson Slough to mouth (Missouri River) | Lead | 1990 | In Progress | H |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G001_012 | JEFFERSON RIVER, confluence of Jefferson Slough to mouth (Missouri River) | Sedimentation/Siltation | 1988 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G001_012 | JEFFERSON RIVER, confluence of Jefferson Slough to mouth (Missouri River) | Solids (Suspended/Bedload) | 1988 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G001_012 | JEFFERSON RIVER, confluence of Jefferson Slough to mouth (Missouri River) | Temperature, water | 2000 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_050 | NORTH WILLOW CREEK, headwaters to mouth (Willow Creek) | Lead | 1992 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_050 | NORTH WILLOW CREEK, headwaters to mouth (Willow Creek) | Mercury | 1992 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_060 | SOUTH BOULDER RIVER, headwaters to mouth (Jefferson River) | Arsenic | 2000 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_060 | SOUTH BOULDER RIVER, headwaters to mouth (Jefferson River) | Copper | 2000 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_060 | SOUTH BOULDER RIVER, headwaters to mouth (Jefferson River) | Lead | 2000 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_060 | SOUTH BOULDER RIVER, headwaters to mouth (Jefferson River) | Mercury | 2000 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_060 | SOUTH BOULDER RIVER, headwaters to mouth (Jefferson River) | Phosphorus (Total) | 2000 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_080 | WILLOW CREEK, North and South Fork confluence to mouth (Jefferson River) | Temperature, water | 2000 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_080 | WILLOW CREEK, North and South Fork confluence to mouth (Jefferson River) | Zinc | 2000 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_090 | NORWEGIAN CREEK, headwaters to mouth (Willow Creek Reservoir) | Arsenic | 2006 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_090 | NORWEGIAN CREEK, headwaters to mouth (Willow Creek Reservoir) | Nitrogen (Total) | 2006 | Unassigned | L |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_090 | NORWEGIAN CREEK, headwaters to mouth (Willow Creek Reservoir) | Phosphorus (Total) | 2006 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_090 | NORWEGIAN CREEK, headwaters to mouth (Willow Creek Reservoir) | Sedimentation/Siltation | 2006 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_090 | NORWEGIAN CREEK, headwaters to mouth (Willow Creek Reservoir) | Temperature, water | 2006 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_130 | SOUTH WILLOW CREEK, headwaters to mouth (Willow Creek) | Sedimentation/Siltation | 1992 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_130 | SOUTH WILLOW CREEK, headwaters to mouth (Willow Creek) | Zinc | 1992 | Unassigned | L |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_150 | CHARCOAL CREEK, headwaters to mouth (Pony Creek) | Sedimentation/Siltation | 1994 | Unassigned | L |
| Lower Milk | Milk | 10050012 | MT40O001_010 | MILK RIVER, Beaver Creek to mouth (Missouri River) | Escherichia coli | 2000 | Unassigned | L |
| Lower Milk | Milk | 10050012 | MT40O001_010 | MILK RIVER, Beaver Creek to mouth (Missouri River) | Lead | 2000 | Unassigned | L |
| Lower Milk | Milk | 10050012 | MT40O001_010 | MILK RIVER, Beaver Creek to mouth (Missouri River) | Mercury | 2000 | Unassigned | L |
| Lower Milk | Milk | 10050012 | MT40O002_020 | BUGGY CREEK, headwaters to mouth (Milk River) | Iron | 2006 | Unassigned | L |
| Lower Milk | Milk | 10050012 | MT40O002_031 | WILLOW CREEK, headwaters to Halfpint Reservoir, T25N R35E S26 | Sedimentation/Siltation | 1992 | Unassigned | L |
| Lower Milk | Milk | 10050012 | MT40O002_033 | WILLOW CREEK, Halfpint Reservoir to mouth (Milk River), T28N R40E S29 | Sedimentation/Siltation | 1992 | Unassigned | L |
| Lower Milk | Milk | 10050012 | MT40O002_040 | BEAVER CREEK, confluence of Little Beaver Creek and South Fork Beaver Creek to mouth (Willow Creek) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Lower Milk | Milk | 10050012 | MT40O002_040 | BEAVER CREEK, confluence of Little Beaver Creek and South Fork Beaver Creek to mouth (Willow Creek) | Solids (Suspended/Bedload) | 2006 | Unassigned | L |
| Lower Milk | Milk | 10050016 | MT40O003_010 | PORCUPINE CREEK, confluence of West and Middle Forks to mouth (Milk River) | Nitrogen (Total) | 1996 | Unassigned | L |
| Lower Milk | Milk | 10050016 | MT40O003_010 | PORCUPINE CREEK, confluence of West and Middle Forks to mouth (Milk River) | Phosphorus (Total) | 1996 | Unassigned | L |
| Lower Milk | Milk | 10050016 | MT40O003_010 | PORCUPINE CREEK, confluence of West and Middle Forks to mouth (Milk River) | Salinity | 2000 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060001 | MT40S001_011 | MISSOURI RIVER, Fort Peck Dam to Milk River | Temperature, water | 2002 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060001 | MT40S001_012 | MISSOURI RIVER, Milk River to Poplar River | Temperature, water | 2002 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060003 | MT40Q001_011 | POPLAR RIVER, T35N R48E S17 to Fort Peck Reservation, T33N R48E S12 | Escherichia coli | 1990 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060003 | MT40Q001_011 | POPLAR RIVER, T35N R48E S17 to Fort Peck Reservation, T33N R48E S12 | Sedimentation/Siltation | 1990 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060003 | MT40Q001_011 | POPLAR RIVER, T35N R48E S17 to Fort Peck Reservation, T33N R48E S12 | Temperature, water | 1990 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060003 | MT40Q001_012 | MIDDLE FORK POPLAR RIVER, T37N R45E S6 to the mouth (Poplar River), T36N R48E S33 | Escherichia coli | 1990 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060003 | MT40Q001_012 | MIDDLE FORK POPLAR RIVER, T37N R45E S6 to the mouth (Poplar River), T36N R48E S33 | Sedimentation/Siltation | 1990 | Unassigned | L |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Lower Missouri | Lower Missouri | 10060003 | MT40Q001_012 | MIDDLE FORK POPLAR RIVER, T37N R45E S6 to the mouth (Poplar River), T36N R48E S33 | Temperature, water | 1990 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060003 | MT40Q002_010 | BUTTE CREEK, headwaters to mouth (Poplar River) | Iron | 2006 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060003 | MT40Q002_010 | BUTTE CREEK, headwaters to mouth (Poplar River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060003 | MT40Q002_010 | BUTTE CREEK, headwaters to mouth (Poplar River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060003 | MT40Q002_010 | BUTTE CREEK, headwaters to mouth (Poplar River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060003 | MT40Q002_010 | BUTTE CREEK, headwaters to mouth (Poplar River) | Sodium | 1988 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060003 | MT40Q002_010 | BUTTE CREEK, headwaters to mouth (Poplar River) | Specific Conductance | 1990 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060003 | MT40Q002_020 | EAST FORK POPLAR RIVER, Canada border to mouth (Poplar River) | Iron | 1990 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060005 | MT40S003_010 | MISSOURI RIVER, Poplar River to North Dakota border | Temperature, water | 2000 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060005 | MT40S004_010 | CHARLIE CREEK, East and Middle Charlie Creek to mouth (Missouri River) | Iron | 2006 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060005 | MT40S004_010 | CHARLIE CREEK, East and Middle Charlie Creek to mouth (Missouri River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060005 | MT40S004_010 | CHARLIE CREEK, East and Middle Charlie Creek to mouth (Missouri River) | Specific Conductance | 1988 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060005 | MT40S004_020 | HARDSCRABBLE CREEK, headwaters to mouth (Missouri River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060005 | MT40S004_020 | HARDSCRABBLE CREEK, headwaters to mouth (Missouri River) | Specific Conductance | 1992 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060005 | MT40S004_020 | HARDSCRABBLE CREEK, headwaters to mouth (Missouri River) | Total Dissolved Solids | 1992 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060006 | MT40R001_010 | BIG MUDDY CREEK, north corner of Fort Peck Reservation boundary to mouth (Missouri River) | Nitrogen (Total) | 1990 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060006 | MT40R001_010 | BIG MUDDY CREEK, north corner of Fort Peck Reservation boundary to mouth (Missouri River) | Phosphorus (Total) | 1990 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060006 | MT40R001_010 | BIG MUDDY CREEK, north corner of Fort Peck Reservation boundary to mouth (Missouri River) | Sedimentation/Siltation | 1990 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060006 | MT40R001_020 | BIG MUDDY CREEK, Canadian border to northern boundary of Fort Peck Reservation | Copper | 2002 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060006 | MT40R001_020 | BIG MUDDY CREEK, Canadian border to northern boundary of Fort Peck Reservation | Lead | 2002 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060006 | MT40R001_020 | BIG MUDDY CREEK, Canadian border to northern boundary of Fort Peck Reservation | Mercury | 2002 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060006 | MT40R001_020 | BIG MUDDY CREEK, Canadian border to northern boundary of Fort Peck Reservation | Nitrogen (Total) | 1996 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060006 | MT40R001_020 | BIG MUDDY CREEK, Canadian border to northern boundary of Fort Peck Reservation | Organic Enrichment (Sewage) Biological Indicators | 2000 | Unassigned | L |

# Appendix B:  Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Lower Missouri | Lower Missouri | 10060006 | MT40R001_020 | BIG MUDDY CREEK, Canadian border to northern boundary of Fort Peck Reservation | Phosphorus (Total) | 1996 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060006 | MT40R001_020 | BIG MUDDY CREEK, Canadian border to northern boundary of Fort Peck Reservation | Zinc | 2002 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060006 | MT40R003_010 | MEDICINE LAKE | Cadmium | 2006 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060006 | MT40R003_010 | MEDICINE LAKE | Lead | 2006 | Unassigned | L |
| Lower Missouri | Lower Missouri | 10060006 | MT40R003_010 | MEDICINE LAKE | Mercury | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_020 | FOURMILE CREEK, headwaters to North Dakota border | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_020 | FOURMILE CREEK, headwaters to North Dakota border | Nitrogen (Total) | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_020 | FOURMILE CREEK, headwaters to North Dakota border | Total Dissolved Solids | 1988 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_030 | FIRST HAY CREEK, headwaters to mouth (Yellowstone River) | Copper | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_030 | FIRST HAY CREEK, headwaters to mouth (Yellowstone River) | Iron | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_030 | FIRST HAY CREEK, headwaters to mouth (Yellowstone River) | Lead | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_030 | FIRST HAY CREEK, headwaters to mouth (Yellowstone River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_030 | FIRST HAY CREEK, headwaters to mouth (Yellowstone River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_030 | FIRST HAY CREEK, headwaters to mouth (Yellowstone River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_030 | FIRST HAY CREEK, headwaters to mouth (Yellowstone River) | Solids (Suspended/Bedload) | 1988 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_030 | FIRST HAY CREEK, headwaters to mouth (Yellowstone River) | Total Dissolved Solids | 1988 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_040 | LONE TREE CREEK, confluence of North Fork to mouth (Yellowstone River) | Iron | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_040 | LONE TREE CREEK, confluence of North Fork to mouth (Yellowstone River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_040 | LONE TREE CREEK, confluence of North Fork to mouth (Yellowstone River) | Solids (Suspended/Bedload) | 1988 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_051 | FOX CREEK, headwaters to mouth (Yellowstone River), T22N R59E S19 | Arsenic | 1994 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_051 | FOX CREEK, headwaters to mouth (Yellowstone River), T22N R59E S19 | Iron | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_051 | FOX CREEK, headwaters to mouth (Yellowstone River), T22N R59E S19 | Lead | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_051 | FOX CREEK, headwaters to mouth (Yellowstone River), T22N R59E S19 | Mercury | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_051 | FOX CREEK, headwaters to mouth (Yellowstone River), T22N R59E S19 | Nitrogen (Total) | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_051 | FOX CREEK, headwaters to mouth (Yellowstone River), T22N R59E S19 | Phosphorus (Total) | 2006 | Unassigned | L |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_051 | FOX CREEK, headwaters to mouth (Yellowstone River), T22N R59E S19 | Solids (Suspended/Bedload) | 1988 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_051 | FOX CREEK, headwaters to mouth (Yellowstone River), T22N R59E S19 | Sulfates | 1988 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_051 | FOX CREEK, headwaters to mouth (Yellowstone River), T22N R59E S19 | Total Dissolved Solids | 1988 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_052 | NORTH FORK FOX CREEK, headwaters to mouth (Fox Creek), T22N R58E S21 | Arsenic | 1994 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_052 | NORTH FORK FOX CREEK, headwaters to mouth (Fox Creek), T22N R58E S21 | Iron | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_052 | NORTH FORK FOX CREEK, headwaters to mouth (Fox Creek), T22N R58E S21 | Lead | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_052 | NORTH FORK FOX CREEK, headwaters to mouth (Fox Creek), T22N R58E S21 | Mercury | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_052 | NORTH FORK FOX CREEK, headwaters to mouth (Fox Creek), T22N R58E S21 | Nitrogen (Total) | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_052 | NORTH FORK FOX CREEK, headwaters to mouth (Fox Creek), T22N R58E S21 | Phosphorus (Total) | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_052 | NORTH FORK FOX CREEK, headwaters to mouth (Fox Creek), T22N R58E S21 | Solids (Suspended/Bedload) | 1988 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_052 | NORTH FORK FOX CREEK, headwaters to mouth (Fox Creek), T22N R58E S21 | Sulfates | 1988 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_052 | NORTH FORK FOX CREEK, headwaters to mouth (Fox Creek), T22N R58E S21 | Total Dissolved Solids | 1988 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_060 | O'BRIEN CREEK, state line to mouth (Yellowstone River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_060 | O'BRIEN CREEK, state line to mouth (Yellowstone River) | Selenium | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_070 | CRANE CREEK, headwaters to mouth (Yellowstone River) | Sedimentation/Siltation | 1988 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_100 | COTTONWOOD CREEK, headwaters to mouth (Yellowstone River) | Cadmium | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_100 | COTTONWOOD CREEK, headwaters to mouth (Yellowstone River) | Iron | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_110 | BURNS CREEK, headwaters to mouth (Yellowstone River) | Iron | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_110 | BURNS CREEK, headwaters to mouth (Yellowstone River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_110 | BURNS CREEK, headwaters to mouth (Yellowstone River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_110 | BURNS CREEK, headwaters to mouth (Yellowstone River) | Solids (Suspended/Bedload) | 1992 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_130 | GLENDIVE CREEK, headwaters to mouth (Yellowstone River) | Cadmium | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_130 | GLENDIVE CREEK, headwaters to mouth (Yellowstone River) | Chromium (total) | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_130 | GLENDIVE CREEK, headwaters to mouth (Yellowstone River) | Copper | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_130 | GLENDIVE CREEK, headwaters to mouth (Yellowstone River) | Iron | 2006 | Unassigned | L |

L = Low  M = Medium  H = High

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_130 | GLENDIVE CREEK, headwaters to mouth (Yellowstone River) | Lead | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_130 | GLENDIVE CREEK, headwaters to mouth (Yellowstone River) | Nickel | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_130 | GLENDIVE CREEK, headwaters to mouth (Yellowstone River) | Selenium | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_130 | GLENDIVE CREEK, headwaters to mouth (Yellowstone River) | Solids (Suspended/Bedload) | 1990 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_130 | GLENDIVE CREEK, headwaters to mouth (Yellowstone River) | Zinc | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_141 | CEDAR CREEK, 26 miles upstream to mouth (Yellowstone River) | Arsenic | 2000 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_141 | CEDAR CREEK, 26 miles upstream to mouth (Yellowstone River) | Copper | 2000 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_141 | CEDAR CREEK, 26 miles upstream to mouth (Yellowstone River) | Iron | 2000 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_141 | CEDAR CREEK, 26 miles upstream to mouth (Yellowstone River) | Lead | 2000 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_142 | CEDAR CREEK, 26 to 45 miles above the mouth | Copper | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_142 | CEDAR CREEK, 26 to 45 miles above the mouth | Iron | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_142 | CEDAR CREEK, 26 to 45 miles above the mouth | Lead | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_142 | CEDAR CREEK, 26 to 45 miles above the mouth | Selenium | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_150 | CABIN CREEK, headwaters to mouth (Yellowstone River) | Nitrogen (Total) | 1990 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_150 | CABIN CREEK, headwaters to mouth (Yellowstone River) | Oxygen, Dissolved | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_150 | CABIN CREEK, headwaters to mouth (Yellowstone River) | Sedimentation/Siltation | 1994 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_180 | SEARS CREEK, headwaters to mouth (Yellowstone River) | Copper | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_180 | SEARS CREEK, headwaters to mouth (Yellowstone River) | Iron | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_180 | SEARS CREEK, headwaters to mouth (Yellowstone River) | Lead | 2006 | Unassigned | L |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_180 | SEARS CREEK, headwaters to mouth (Yellowstone River) | Solids (Suspended/Bedload) | 2006 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F001_010 | MADISON RIVER, Ennis Dam to mouth (Missouri River) | Copper | 1990 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F001_010 | MADISON RIVER, Ennis Dam to mouth (Missouri River) | Lead | 1990 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F001_010 | MADISON RIVER, Ennis Dam to mouth (Missouri River) | Sedimentation/Siltation | 2000 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F001_010 | MADISON RIVER, Ennis Dam to mouth (Missouri River) | Temperature, water | 1990 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F002_020 | ELK CREEK, headwaters to mouth (Madison River) | Nitrates | 2000 | Unassigned | L |

## Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Madison | Upper Missouri Tribs. | 10020007 | MT41F002_020 | ELK CREEK, headwaters to mouth (Madison River) | Phosphorus (Total) | 2000 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F002_020 | ELK CREEK, headwaters to mouth (Madison River) | Sedimentation/Siltation | 1992 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F002_020 | ELK CREEK, headwaters to mouth (Madison River) | Temperature, water | 2000 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F002_020 | ELK CREEK, headwaters to mouth (Madison River) | Turbidity | 2000 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F002_030 | HOT SPRINGS CREEK, headwaters to mouth (Madison River) | Arsenic | 2000 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_010 | BLAINE SPRING CREEK, headwaters to mouth (Madison River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_010 | BLAINE SPRING CREEK, headwaters to mouth (Madison River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_010 | BLAINE SPRING CREEK, headwaters to mouth (Madison River) | Sedimentation/Siltation | 2006 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_020 | O'DELL SPRING CREEK, headwaters to mouth (Madison River) | Arsenic | 2000 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_050 | JACK CREEK, headwaters to mouth (Madison River) | Sedimentation/Siltation | 1992 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_060 | NORTH MEADOW CREEK, headwaters to mouth (Enis Lake) | Phosphorus (Total) | 2000 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_060 | NORTH MEADOW CREEK, headwaters to mouth (Enis Lake) | Sedimentation/Siltation | 1994 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_070 | SOUTH MEADOW CREEK, headwaters to mouth (Enis Lake) | Lead | 1994 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_100 | WEST FORK MADISON RIVER, headwaters to mouth (Madison River) | Arsenic | 2000 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_100 | WEST FORK MADISON RIVER, headwaters to mouth (Madison River) | Cadmium | 2000 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_100 | WEST FORK MADISON RIVER, headwaters to mouth (Madison River) | Lead | 2000 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_100 | WEST FORK MADISON RIVER, headwaters to mouth (Madison River) | Temperature, water | 2000 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_110 | ELK RIVER, headwaters to mouth (West Fork Madison River) | Bottom Deposits | 1992 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_130 | MOORE CREEK, springs to mouth (Fletcher Channel), T5S R1W S15 | Arsenic | 2000 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_130 | MOORE CREEK, springs to mouth (Fletcher Channel), T5S R1W S15 | Escherichia coli | 2000 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_140 | ANTELOPE CREEK, headwaters to mouth (Cliff Lake) | Sedimentation/Siltation | 2006 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_150 | BUFORD CREEK, headwaters to confluence with West Fork Madison River | Arsenic | 2006 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_150 | BUFORD CREEK, headwaters to confluence with West Fork Madison River | Sedimentation/Siltation | 1992 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F005_030 | ENNIS LAKE, to the Ennis Lake Dam, T4S R1E S20 | Chromium (total) | 2000 | Unassigned | L |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F006_010 | SOUTH FORK MADISON RIVER, headwaters to Hebgen Lake | Arsenic | 2000 | Unassigned | L |

## Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Madison | Upper Missouri Tribs. | 10020007 | MT41F006_020 | RED CANYON CREEK, headwaters to mouth (Hebgen Lake) | Sedimentation/Siltation | 1990 | Unassigned | L |
| Marias - Willow | Marias | 10030203 | MT41P002_030 | PONDERA COULEE, headwaters to mouth (Marias River) | Salinity | 1988 | Unassigned | L |
| Marias - Willow | Marias | 10030203 | MT41P002_050 | CORRAL CREEK, headwaters to mouth (Cottonwood Creek) | Phosphorus (Total) | 2000 | Unassigned | L |
| Marias - Willow | Marias | 10030204 | MT41P004_020 | EAGLE CREEK, headwaters to mouth (Tiber Reservoir) | Nitrogen (Total) | 2000 | Unassigned | L |
| Marias - Willow | Marias | 10030204 | MT41P004_020 | EAGLE CREEK, headwaters to mouth (Tiber Reservoir) | Phosphorus (Total) | 2000 | Unassigned | L |
| Marias - Willow | Marias | 10030204 | MT41P005_010 | OILMONT WETLAND, T35N R1W S31 | Arsenic | 2000 | Unassigned | L |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_150 | CHARCOAL CREEK, headwaters to mouth (Big Hole River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_150 | CHARCOAL CREEK, headwaters to mouth (Big Hole River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_150 | CHARCOAL CREEK, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 2006 | Unassigned | L |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_020 | JERRY CREEK, headwaters to mouth (Big Hole River) | Lead | 2000 | Unassigned | L |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_070 | CALIFORNIA CREEK, headwaters to mouth (French Creek-Deep Creek) | Iron | 1992 | Unassigned | L |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_080 | OREGON CREEK, headwaters to mouth (California Creek-French Creek-Deep Creek) | Lead | 2000 | Unassigned | L |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_120 | TWELVEMILE CREEK, headwaters to mouth (Deep Creek) | Sedimentation/Siltation | 1992 | Unassigned | L |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_160 | FISHTRAP CREEK, confluence of West & Middle Forks to mouth (Big Hole River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_170 | PINTLAR CREEK, headwaters to mouth (Big Hole River) | Temperature, water | 2000 | Unassigned | L |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_230 | GOLD CREEK, headwaters to mouth (Wise River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_230 | SAWLOG CREEK, headwaters to mouth (Big Hole River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F001_031 | BLACKFOOT RIVER, Nevada Creek to Monture Creek | Temperature, water | 2000 | In Progress | H |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F001_032 | BLACKFOOT RIVER, Monture Creek to Belmont Creek | Temperature, water | 2000 | In Progress | H |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_110 | KLEINSCHMIDT CREEK, 1.5 miles upstream to mouth (North Fork Blackfoot River) | Arsenic | 2000 | In Progress | H |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_110 | KLEINSCHMIDT CREEK, 1.5 miles upstream to mouth (North Fork Blackfoot River) | Copper | 2000 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_020 | CEDAR CREEK, headwaters to mouth (Clark Fork River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_020 | CEDAR CREEK, headwaters to mouth (Clark Fork River) | Nitrogen (Total) | 2006 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_050 | TROUT CREEK, headwaters to mouth (Clark Fork River) | Turbidity | 2002 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_090 | PETTY CREEK, headwaters to mouth (Clark Fork River) | Sedimentation/Siltation | 1988 | In Progress | H |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_090 | PETTY CREEK, headwaters to mouth (Clark Fork River) | Temperature, water | 2000 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_100 | WEST FORK PETTY CREEK, headwaters to mouth (Petty Creek) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_100 | WEST FORK PETTY CREEK, headwaters to mouth (Petty Creek) | Nitrogen (Total) | 2006 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_100 | WEST FORK PETTY CREEK, headwaters to mouth (Petty Creek) | Phosphorus (Total) | 2006 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_100 | WEST FORK PETTY CREEK, headwaters to mouth (Petty Creek) | Sedimentation/Siltation | 1990 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_130 | GRANT CREEK, headwaters to mouth (Clark Fork River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_130 | GRANT CREEK, headwaters to mouth (Clark Fork River) | Sedimentation/Siltation | 1988 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_130 | GRANT CREEK, headwaters to mouth (Clark Fork River) | Temperature, water | 1990 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_160 | NEMOTE CREEK, headwaters to mouth (confluence Clark Fork River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_160 | NEMOTE CREEK, headwaters to mouth (confluence Clark Fork River) | Nitrogen (Total) | 2006 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_160 | NEMOTE CREEK, headwaters to mouth (confluence Clark Fork River) | Phosphorus (Total) | 2006 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_160 | NEMOTE CREEK, headwaters to mouth (confluence Clark Fork River) | Temperature, water | 1992 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_170 | DRY CREEK, headwaters to mouth (Clark Fork River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_170 | DRY CREEK, headwaters to mouth (Clark Fork River) | Nitrogen (Total) | 2006 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_180 | FLAT CREEK, headwaters to mouth (Clark Fork) | Antimony | 2002 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_180 | FLAT CREEK, headwaters to mouth (Clark Fork) | Arsenic | 2002 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_180 | FLAT CREEK, headwaters to mouth (Clark Fork) | Cadmium | 2002 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_180 | FLAT CREEK, headwaters to mouth (Clark Fork) | Copper | 2002 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_180 | FLAT CREEK, headwaters to mouth (Clark Fork) | Lead | 2002 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_180 | FLAT CREEK, headwaters to mouth (Clark Fork) | Mercury | 2002 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_180 | FLAT CREEK, headwaters to mouth (Clark Fork) | Sedimentation/Siltation | 2002 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_010 | LYNCH CREEK, headwaters to mouth (Clark Fork River) | Nitrogen (Total) | 1988 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_010 | LYNCH CREEK, headwaters to mouth (Clark Fork River) | Phosphorus (Total) | 1988 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_010 | LYNCH CREEK, headwaters to mouth (Clark Fork River) | Sedimentation/Siltation | 1988 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_010 | LYNCH CREEK, headwaters to mouth (Clark Fork River) | Temperature, water | 2006 | In Progress | H |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_160 | SWAMP CREEK, West Fork Swamp Creek to mouth (Clark Fork River), T20N R27W S3 | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_160 | SWAMP CREEK, West Fork Swamp Creek to mouth (Clark Fork River), T20N R27W S3 | Nitrogen (Total) | 2006 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_160 | SWAMP CREEK, West Fork Swamp Creek to mouth (Clark Fork River), T20N R27W S3 | Phosphorus (Total) | 2006 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_160 | SWAMP CREEK, West Fork Swamp Creek to mouth (Clark Fork River), T20N R27W S3 | Sedimentation/Siltation | 1996 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_170 | HENRY CREEK, headwaters to mouth (Clark Fork River), T19N R26W S1 | Nitrogen (Total) | 2006 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_170 | HENRY CREEK, headwaters to mouth (Clark Fork River), T19N R26W S1 | Phosphorus (Total) | 2006 | In Progress | H |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_170 | HENRY CREEK, headwaters to mouth (Clark Fork River), T19N R26W S1 | Sedimentation/Siltation | 1992 | In Progress | H |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J001_011 | MILK RIVER, Fresno Dam to Thirtymile Creek | Mercury | 2000 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J001_012 | MILK RIVER, Thirtymile Creek to Dobson Creek | Mercury | 2000 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J001_013 | MILK RIVER, Dobson Creek to Whitewater Creek | Mercury | 2000 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J001_020 | MILK RIVER, Whitewater Creek to Beaver Creek | Iron | 2000 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J001_020 | MILK RIVER, Whitewater Creek to Beaver Creek | Nitrates | 1990 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J002_010 | BEAVER CREEK, Beaver Creek Reservoir to mouth (Milk River) | Iron | 2006 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J002_010 | BEAVER CREEK, Beaver Creek Reservoir to mouth (Milk River) | Lead | 2006 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J002_010 | BEAVER CREEK, Beaver Creek Reservoir to mouth (Milk River) | Mercury | 2006 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J002_010 | BEAVER CREEK, Beaver Creek Reservoir to mouth (Milk River) | Sedimentation/Siltation | 1988 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J002_010 | BEAVER CREEK, Beaver Creek Reservoir to mouth (Milk River) | Temperature, water | 1988 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J002_020 | BULLHOOK CREEK, headwaters to the Bullhook Dam, T32N R16E S16 | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1988 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J002_020 | BULLHOOK CREEK, headwaters to the Bullhook Dam, T32N R16E S16 | Sedimentation/Siltation | 1988 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J002_020 | BULLHOOK CREEK, headwaters to the Bullhook Dam, T32N R16E S16 | Temperature, water | 1988 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J002_030 | LITTLE BOXELDER CREEK, headwaters to mouth (Milk River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1988 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J002_030 | LITTLE BOXELDER CREEK, headwaters to mouth (Milk River) | Nitrogen (Total) | 1988 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J002_030 | LITTLE BOXELDER CREEK, headwaters to mouth (Milk River) | Phosphorus (Total) | 1988 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J002_030 | LITTLE BOXELDER CREEK, headwaters to mouth (Milk River) | Sedimentation/Siltation | 1988 | Unassigned | L |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Middle Milk and Tributaries | Milk | 10050004 | MT40J002_030 | LITTLE BOXELDER CREEK, headwaters to mouth (Milk River) | Temperature, water | 1988 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050007 | MT40J003_010 | LODGE CREEK, Canadian border to mouth (Milk River) | Mercury | 2006 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050007 | MT40J003_010 | LODGE CREEK, Canadian border to mouth (Milk River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1992 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050007 | MT40J003_010 | LODGE CREEK, Canadian border to mouth (Milk River) | Nitrogen (Total) | 1992 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050007 | MT40J003_010 | LODGE CREEK, Canadian border to mouth (Milk River) | Oxygen, Dissolved | 1992 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050007 | MT40J003_010 | LODGE CREEK, Canadian border to mouth (Milk River) | Phosphorus (Total) | 1992 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050008 | MT40J004_010 | BATTLE CREEK, Canadian border to mouth (Milk River) | Sedimentation/Siltation | 2000 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050009 | MT40I001_020 | PEOPLES CREEK, headwaters to Fort Belknap Reservation boundary | Mercury | 2006 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050009 | MT40I001_020 | PEOPLES CREEK, headwaters to Fort Belknap Reservation boundary | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050009 | MT40I001_020 | PEOPLES CREEK, headwaters to Fort Belknap Reservation boundary | Phosphorus (Total) | 2006 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050009 | MT40I001_020 | PEOPLES CREEK, headwaters to Fort Belknap Reservation boundary | Temperature, water | 1988 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050010 | MT40J005_020 | COTTONWOOD CREEK, Black Coulee to mouth (Milk River) | Iron | 2006 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050010 | MT40J005_020 | COTTONWOOD CREEK, Black Coulee to mouth (Milk River) | Sedimentation/Siltation | 2006 | Unassigned | L |
| Middle Milk and Tributaries | Milk | 10050011 | MT40K001_010 | WHITEWATER CREEK, Canadian border to mouth (Milk River) | Mercury | 2006 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_020 | HARRIS CREEK, headwaters to mouth (Yellowstone River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_020 | HARRIS CREEK, headwaters to mouth (Yellowstone River) | Solids (Suspended/Bedload) | 1992 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_030 | SUNDAY CREEK, the North and South Forks to mouth (Yellowstone River) | Copper | 2006 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_030 | SUNDAY CREEK, the North and South Forks to mouth (Yellowstone River) | Iron | 2006 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_030 | SUNDAY CREEK, the North and South Forks to mouth (Yellowstone River) | Lead | 2006 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_030 | SUNDAY CREEK, the North and South Forks to mouth (Yellowstone River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1990 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_030 | SUNDAY CREEK, the North and South Forks to mouth (Yellowstone River) | Nitrogen (Total) | 1990 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_030 | SUNDAY CREEK, the North and South Forks to mouth (Yellowstone River) | Phosphorus (Total) | 1990 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_030 | SUNDAY CREEK, the North and South Forks to mouth (Yellowstone River) | Total Kjehldahl Nitrogen (TKN) | 1990 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_040 | MUSTER CREEK, headwaters to mouth (Yellowstone River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1992 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_040 | MUSTER CREEK, headwaters to mouth (Yellowstone River) | Phosphorus (Total) | 1992 | Unassigned | L |

L = Low M = Medium H = High

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_040 | MUSTER CREEK, headwaters to mouth (Yellowstone River) | Solids (Suspended/Bedload) | 1992 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_060 | DEADMAN CREEK, headwaters to mouth (North Fork Sunday Creek) | Nitrogen (Total) | 2006 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_060 | DEADMAN CREEK, headwaters to mouth (North Fork Sunday Creek) | Phosphorus (Total) | 2006 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_070 | STELLAR CREEK, headwaters to mouth (Little Porcupine Creek) | Cadmium | 2006 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_070 | STELLAR CREEK, headwaters to mouth (Little Porcupine Creek) | pH | 2006 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_070 | STELLAR CREEK, headwaters to mouth (Little Porcupine Creek) | Phosphorus (Total) | 2006 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_080 | NORTH FORK SUNDAY CREEK, Custer/Rosebud County border to mouth (Sunday Creek) | Sedimentation/Siltation | 1994 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_080 | NORTH FORK SUNDAY CREEK, Custer/Rosebud County border to mouth (Sunday Creek) | Sodium | 1994 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_080 | NORTH FORK SUNDAY CREEK, Custer/Rosebud County border to mouth (Sunday Creek) | Solids (Suspended/Bedload) | 1994 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_080 | NORTH FORK SUNDAY CREEK, Custer/Rosebud County border to mouth (Sunday Creek) | Specific Conductance | 1994 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_080 | NORTH FORK SUNDAY CREEK, Custer/Rosebud County border to mouth (Sunday Creek) | Total Dissolved Solids | 1994 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_090 | SARPY CREEK, Crow Indian Reservation Boundary to mouth (Yellowstone River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_090 | SARPY CREEK, Crow Indian Reservation Boundary to mouth (Yellowstone River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_090 | SARPY CREEK, Crow Indian Reservation Boundary to mouth (Yellowstone River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_090 | SARPY CREEK, Crow Indian Reservation Boundary to mouth (Yellowstone River) | Total Kjehldahl Nitrogen (TKN) | 2006 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_110 | EAST FORK ARMELLS CREEK, Colstrip to mouth (Armells Creek) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1994 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_110 | EAST FORK ARMELLS CREEK, Colstrip to mouth (Armells Creek) | Nitrogen (Total) | 1994 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_110 | EAST FORK ARMELLS CREEK, Colstrip to mouth (Armells Creek) | Specific Conductance | 1990 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_110 | EAST FORK ARMELLS CREEK, Colstrip to mouth (Armells Creek) | Total Dissolved Solids | 1990 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_160 | LITTLE PORCUPINE CREEK, headwaters to mouth (Yellowstone River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1990 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_160 | LITTLE PORCUPINE CREEK, headwaters to mouth (Yellowstone River) | Nitrogen (Total) | 1990 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_160 | LITTLE PORCUPINE CREEK, headwaters to mouth (Yellowstone River) | Phosphorus (Total) | 1990 | Unassigned | L |
| Middle Yellowstone Tributaries | Lower Yellowstone | 10100001 | MT42K002_160 | LITTLE PORCUPINE CREEK, headwaters to mouth (Yellowstone River) | Total Dissolved Solids | 1990 | Unassigned | L |

## Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_030 | NUMBER FIVE COULEE, headwaters to mouth (Cottonwood Creek) | Lead | 1988 | Unassigned | L |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_040 | SAND COULEE CREEK, confluence with Cottonwood Creek to the mouth (Missouri River) | Lead | 1988 | Unassigned | L |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_040 | SAND COULEE CREEK, confluence with Cottonwood Creek to the mouth (Missouri River) | Salinity | 2000 | Unassigned | L |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_040 | SAND COULEE CREEK, confluence with Cottonwood Creek to the mouth (Missouri River) | Zinc | 1988 | Unassigned | L |
| Missouri Choteau | Missouri-Sun-Smith | 10030102 | MT41Q002_050 | BOX ELDER CREEK, Spring Creek to mouth (Missouri River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Missouri Choteau | Missouri-Sun-Smith | 10030102 | MT41Q002_050 | BOX ELDER CREEK, Spring Creek to mouth (Missouri River) | Sedimentation/Siltation | 1992 | Unassigned | L |
| Missouri River | Middle Missouri | 10040101 | MT41T001_010 | MISSOURI RIVER, the Marias River to Bullwhacker Creek | Copper | 2000 | Unassigned | L |
| Missouri River | Middle Missouri | 10040101 | MT41T001_010 | MISSOURI RIVER, the Marias River to Bullwhacker Creek | Lead | 2000 | Unassigned | L |
| Missouri River | Middle Missouri | 10040104 | MT40E001_010 | MISSOURI RIVER, Bullwhacker Creek to Fort Peck Reservoir | Arsenic | 1990 | Unassigned | L |
| Missouri River | Middle Missouri | 10040104 | MT40E001_010 | MISSOURI RIVER, Bullwhacker Creek to Fort Peck Reservoir | Copper | 2000 | Unassigned | L |
| Missouri River | Middle Missouri | 10040104 | MT40E004_010 | FORT PECK RESERVOIR | Lead | 2000 | Unassigned | L |
| Missouri River | Middle Missouri | 10040104 | MT40E004_010 | FORT PECK RESERVOIR | Mercury | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I001_011 | MISSOURI RIVER, headwaters to Toston Dam | Arsenic | 2006 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I001_011 | MISSOURI RIVER, headwaters to Toston Dam | Nitrogen (Total) | 1988 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I001_011 | MISSOURI RIVER, headwaters to Toston Dam | Sedimentation/Siltation | 1988 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I001_012 | MISSOURI RIVER, Toston Dam to Canyon Ferry Reservoir | Cadmium | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I001_012 | MISSOURI RIVER, Toston Dam to Canyon Ferry Reservoir | Copper | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I001_012 | MISSOURI RIVER, Toston Dam to Canyon Ferry Reservoir | Lead | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I001_012 | MISSOURI RIVER, Toston Dam to Canyon Ferry Reservoir | Sedimentation/Siltation | 1988 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I003_010 | CANYON FERRY RESERVOIR | Ammonia (Un-ionized) | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I003_010 | CANYON FERRY RESERVOIR | Arsenic | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I003_010 | CANYON FERRY RESERVOIR | Thallium | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I004_030 | MISSOURI RIVER, Holter Dam to Little Prickly Pear Creek | Nitrogen (Total) | 1988 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I004_030 | MISSOURI RIVER, Holter Dam to Little Prickly Pear Creek | Phosphorus (Total) | 1988 | Unassigned | L |

## Appendix B:  Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I004_030 | MISSOURI RIVER, Holter Dam to Little Prickly Pear Creek | Sedimentation/Siltation | 1988 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I007_020 | HOLTER LAKE Hauser Dam to Holter Lake Spillway | Mercury | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I007_040 | HAUSER LAKE | Arsenic | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I007_040 | HAUSER LAKE | DDT | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I007_040 | HAUSER LAKE | Endosulfan sulfate | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I007_040 | HAUSER LAKE | Endrin aldehyde | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I007_040 | HAUSER LAKE | Mercury | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I007_040 | HAUSER LAKE | Nitrogen, Nitrate | 1988 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I007_040 | HAUSER LAKE | Oxygen, Dissolved | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I007_040 | HAUSER LAKE | Phosphorus (Total) | 1988 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_011 | MISSOURI RIVER, Sun River to Rainbow Dam | Chromium (total) | 1992 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_011 | MISSOURI RIVER, Sun River to Rainbow Dam | Mercury | 1992 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_011 | MISSOURI RIVER, Sun River to Rainbow Dam | Polychlorinated biphenyls | 1992 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_011 | MISSOURI RIVER, Sun River to Rainbow Dam | Sedimentation/Siltation | 1988 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_011 | MISSOURI RIVER, Sun River to Rainbow Dam | Selenium | 1992 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_011 | MISSOURI RIVER, Sun River to Rainbow Dam | Solids (Suspended/Bedload) | 1988 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_011 | MISSOURI RIVER, Sun River to Rainbow Dam | Turbidity | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_013 | MISSOURI RIVER, Rainbow Dam to Morony Dam | Arsenic | 1992 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_013 | MISSOURI RIVER, Rainbow Dam to Morony Dam | Copper | 1992 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_013 | MISSOURI RIVER, Rainbow Dam to Morony Dam | Polychlorinated biphenyls | 1992 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_013 | MISSOURI RIVER, Rainbow Dam to Morony Dam | Sedimentation/Siltation | 1988 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_013 | MISSOURI RIVER, Rainbow Dam to Morony Dam | Temperature, water | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_013 | MISSOURI RIVER, Rainbow Dam to Morony Dam | Turbidity | 2000 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_014 | MISSOURI RIVER, Morony Dam to Marias River | Aluminum | 1992 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_014 | MISSOURI RIVER, Morony Dam to Marias River | Arsenic | 1992 | Unassigned | L |

L = Low  M = Medium  H = High

## Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_014 | MISSOURI RIVER, Morony Dam to Marias River | Cadmium | 1992 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_014 | MISSOURI RIVER, Morony Dam to Marias River | Copper | 1992 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_014 | MISSOURI RIVER, Morony Dam to Marias River | Iron | 1992 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_014 | MISSOURI RIVER, Morony Dam to Marias River | Lead | 1992 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_014 | MISSOURI RIVER, Morony Dam to Marias River | Nitrogen (Total) | 1988 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_014 | MISSOURI RIVER, Morony Dam to Marias River | Phosphorus (Total) | 1988 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_014 | MISSOURI RIVER, Morony Dam to Marias River | Sedimentation/Siltation | 1988 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_014 | MISSOURI RIVER, Morony Dam to Marias River | Zinc | 1992 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_021 | MISSOURI RIVER, Little Prickly Pear Creek to Sheep Creek | Arsenic | 1992 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_021 | MISSOURI RIVER, Little Prickly Pear Creek to Sheep Creek | Nitrogen (Total) | 1988 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_021 | MISSOURI RIVER, Little Prickly Pear Creek to Sheep Creek | Sedimentation/Siltation | 1988 | Unassigned | L |
| Missouri River | Missouri-Sun-Smith | 10030102 | MT41Q001_022 | MISSOURI RIVER, Sheep Creek to Sun River | Sedimentation/Siltation | 1988 | Unassigned | L |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_011 | NEVADA CREEK, headwaters to Nevada Lake | Cadmium | 2000 | In Progress | H |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_011 | NEVADA CREEK, headwaters to Nevada Lake | Mercury | 2000 | In Progress | H |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_081 | DOUGLAS CREEK, headwaters to Murray Creek | Arsenic | 2006 | In Progress | H |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_082 | DOUGLAS CREEK, Murray Creek to mouth (Nevada-Cottonwood Creeks) | Arsenic | 2006 | In Progress | H |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_120 | MURRAY CREEK, headwaters to mouth (Douglas Creek), T12N R12W S6 | Arsenic | 2006 | In Progress | H |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F007_020 | NEVADA LAKE, reservoir of Nevada Creek | Sedimentation/Siltation | 1996 | In Progress | H |
| Ninemile | Lower Clark Fork | 17010204 | MT76M004_020 | STONY CREEK, headwaters to mouth (Ninemile Creek) | Phosphorus (Total) | 2006 | In Progress | H |
| North Fork Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_020 | MUSSIGBROD CREEK, headwaters to mouth (North Fork Big Hole River) | Lead | 2000 | Unassigned | L |
| North Fork Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_030 | JOHNSON CREEK, headwaters to mouth (North Fork Big Hole River) | Nitrogen (Total) | 2006 | Unassigned | L |
| North Fork Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_040 | SCHULTZ CREEK, headwaters to mouth (Johnson Creek) | Sedimentation/Siltation | 1992 | Unassigned | L |
| North Fork Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_060 | TIE CREEK, headwaters to mouth (North Fork Big Hole River) | Nitrogen (Total) | 2006 | Unassigned | L |
| North Fork Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_090 | JOSEPH CREEK, headwaters to mouth (Trail Creek) | Copper | 2002 | Unassigned | L |
| North Fork Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_090 | JOSEPH CREEK, headwaters to mouth (Trail Creek) | Lead | 2002 | Unassigned | L |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| O` Fallon | Lower Yellowstone | 10100005 | MT42L001_010 | PENNEL CREEK, headwaters to mouth (O'Fallon Creek) | Total Dissolved Solids | 1988 | Unassigned | L |
| O` Fallon | Lower Yellowstone | 10100005 | MT42L001_020 | SANDSTONE CREEK, headwaters to mouth (O'Fallon Creek) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| O` Fallon | Lower Yellowstone | 10100005 | MT42L001_020 | SANDSTONE CREEK, headwaters to mouth (O'Fallon Creek) | Nitrogen (Total) | 2006 | Unassigned | L |
| Paradise | Upper Yellowstone | 10070001 | MT43B002_021 | BEAR CREEK, 1/2 mile below Jardine Mine to mouth (Yellowstone River) | Temperature, water | 2002 | Unassigned | L |
| Paradise | Upper Yellowstone | 10070002 | MT43B004_051 | BILLMAN CREEK, 1.3 miles upstream to mouth (Yellowstone River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Paradise | Upper Yellowstone | 10070002 | MT43B004_051 | BILLMAN CREEK, 1.3 miles upstream to mouth (Yellowstone River) | Sedimentation/Siltation | 1992 | Unassigned | L |
| Paradise | Upper Yellowstone | 10070002 | MT43B004_052 | BILLMAN CREEK, headwaters to 1.3 miles above mouth (Yellowstone River) | Combined Biota/Habitat Bioassessments | 2006 | Unassigned | L |
| Paradise | Upper Yellowstone | 10070002 | MT43B004_052 | BILLMAN CREEK, headwaters to 1.3 miles above mouth (Yellowstone River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Paradise | Upper Yellowstone | 10070002 | MT43B004_052 | BILLMAN CREEK, headwaters to 1.3 miles above mouth (Yellowstone River) | Sedimentation/Siltation | 1992 | Unassigned | L |
| Paradise | Upper Yellowstone | 10070002 | MT43B004_061 | TOM MINER CREEK, Tepee Creek to mouth (Yellowstone River) | Temperature, water | 2002 | Unassigned | L |
| Paradise | Upper Yellowstone | 10070002 | MT43B004_102 | SIX MILE CREEK, Absaroka-Beartooth Wilderness boundary to National Forest boundary | Sedimentation/Siltation | 2000 | Unassigned | L |
| Powder | Lower Yellowstone | 10090207 | MT42J001_010 | POWDER RIVER, Wyoming border to Little Powder River | Salinity | 2008 | Scheduled | M |
| Powder | Lower Yellowstone | 10090208 | MT42I001_010 | LITTLE POWDER RIVER, the border to mouth (Powder River) | Salinity | 1996 | Scheduled | M |
| Powder | Lower Yellowstone | 10090209 | MT42J003_011 | POWDER RIVER, Little Powder River to Mizpah Creek | Salinity | 1996 | Scheduled | M |
| Powder | Lower Yellowstone | 10090209 | MT42J003_012 | POWDER RIVER, Mizpah Creek to mouth (Yellowstone River) | Salinity | 1996 | Scheduled | M |
| Powder | Lower Yellowstone | 10090209 | MT42J004_010 | STUMP CREEK, headwaters to mouth (Powder River) | Salinity | 2008 | Scheduled | M |
| Powder | Lower Yellowstone | 10090210 | MT42J005_011 | MIZPAH CREEK, headwaters to Corral Creek | Salinity | 2008 | Scheduled | M |
| Powder | Lower Yellowstone | 10090210 | MT42J005_012 | MIZPAH CREEK, Corral Creek to the mouth (Powder River) | Salinity | 2010 | Scheduled | M |
| Prospect Creek | Lower Clark Fork | 17010213 | MT76N003_022 | COX GULCH headwaters to mouth (Prospect Creek) | Zinc | 2004 | In Progress | H |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A001_010 | RED ROCK RIVER, Lima Dam to Clark Canyon Reservoir | Lead | 2000 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A001_010 | RED ROCK RIVER, Lima Dam to Clark Canyon Reservoir | Sedimentation/Siltation | 1990 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A001_010 | RED ROCK RIVER, Lima Dam to Clark Canyon Reservoir | Temperature, water | 2006 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A001_010 | RED ROCK RIVER, Lima Dam to Clark Canyon Reservoir | Zinc | 2000 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A001_020 | RED ROCK RIVER, Lower Red Rock Lake to Lima Dam | Nitrogen (Total) | 2006 | Unassigned | L |

# Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A001_020 | RED ROCK RIVER, Lower Red Rock Lake to Lima Dam | Phosphorus (Total) | 2006 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A001_020 | RED ROCK RIVER, Lower Red Rock Lake to Lima Dam | Sedimentation/Siltation | 1990 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A001_020 | RED ROCK RIVER, Lower Red Rock Lake to Lima Dam | Temperature, water | 1992 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A003_010 | MEDICINE LODGE CREEK, headwaters to mouth (Horse Prairie Creek) | Phosphorus (Total) | 2006 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A003_010 | MEDICINE LODGE CREEK, headwaters to mouth (Horse Prairie Creek) | Sedimentation/Siltation | 2006 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A003_010 | MEDICINE LODGE CREEK, headwaters to mouth (Horse Prairie Creek) | Temperature, water | 2006 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A003_020 | MUDDY CREEK, confluence of Sourdough and Wilson Creek to mouth (Big Sheep Creek), T14S R10W S10 | Turbidity | 2000 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A003_090 | HORSE PRAIRIE CREEK, headwaters to mouth (Clark Canyon Res) | Arsenic | 2000 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A003_090 | HORSE PRAIRIE CREEK, headwaters to mouth (Clark Canyon Res) | Cadmium | 2000 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A003_090 | HORSE PRAIRIE CREEK, headwaters to mouth (Clark Canyon Res) | Copper | 2000 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A003_090 | HORSE PRAIRIE CREEK, headwaters to mouth (Clark Canyon Res) | Lead | 2000 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A003_090 | HORSE PRAIRIE CREEK, headwaters to mouth (Clark Canyon Res) | Mercury | 2000 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A003_090 | HORSE PRAIRIE CREEK, headwaters to mouth (Clark Canyon Res) | Zinc | 2000 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A003_100 | BLOODY DICK CREEK, headwaters to mouth (Horse Prairie Creek) | Nitrogen (Total) | 2006 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A003_100 | BLOODY DICK CREEK, headwaters to mouth (Horse Prairie Creek) | Phosphorus (Total) | 2006 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A003_150 | SHEEP CREEK, Muddy Creek to mouth (Red Rock River) | Nonnative Fish, Shellfish, or Zooplankton | 2006 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A003_150 | SHEEP CREEK, Muddy Creek to mouth (Red Rock River) | Sedimentation/Siltation | 2006 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_010 | PRICE CREEK, headwaters to mouth (Red Rock River) | Sedimentation/Siltation | 1990 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_030 | FISH CREEK, headwaters to mouth (Metzel Creek) | Sedimentation/Siltation | 1990 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_040 | CORRAL CREEK, headwaters to mouth (Red Rock Creek) | Phosphorus (Total) | 2006 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_040 | CORRAL CREEK, headwaters to mouth (Red Rock Creek) | Sedimentation/Siltation | 1990 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_050 | EAST FORK CLOVER CREEK, headwaters to mouth (Clover Creek) | Phosphorus (Total) | 2006 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_050 | EAST FORK CLOVER CREEK, headwaters to mouth (Clover Creek) | Sedimentation/Siltation | 1992 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_070 | LONG CREEK, headwaters to mouth (Red Rock River) | Sedimentation/Siltation | 1990 | Unassigned | L |

L = Low M = Medium H = High

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_080 | O'DELL CREEK, headwaters to mouth (Lower Red Rock Lake) | Turbidity | 2000 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_090 | PEET CREEK, headwaters to mouth (Red Rock River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_090 | PEET CREEK, headwaters to mouth (Red Rock River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_090 | PEET CREEK, headwaters to mouth (Red Rock River) | Sedimentation/Siltation | 1990 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_100 | TOM CREEK, headwaters to mouth (Upper Red Rock Lake) | Sedimentation/Siltation | 1990 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_110 | RED ROCK CREEK, headwaters to mouth (Upper Red Rock Lake) | Turbidity | 2000 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_130 | JONES CREEK, headwaters to mouth (Winslow Creek) | Phosphorus (Total) | 2006 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_130 | JONES CREEK, headwaters to mouth (Winslow Creek) | Sedimentation/Siltation | 1990 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_140 | BEAN CREEK, headwaters to Mouth (Red Rock River), T14S R3E S7 | Sedimentation/Siltation | 1996 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A005_020 | LOWER RED ROCK LAKE | Sedimentation/Siltation | 2000 | Unassigned | L |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A005_030 | UPPER RED ROCK LAKE | Sedimentation/Siltation | 1990 | Unassigned | L |
| Redwater | Lower Missouri | 10060001 | MT40S002_030 | SAND CREEK, confluence of East and West Forks to mouth (Missouri River) | Sedimentation/Siltation | 1990 | Unassigned | L |
| Redwater | Lower Missouri | 10060002 | MT40P002_010 | EAST REDWATER CREEK, headwaters to mouth (Redwater River) | Sedimentation/Siltation | 1992 | Unassigned | L |
| Redwater | Middle Missouri | 10040104 | MT40E003_020 | NELSON CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Cadmium | 2006 | Unassigned | L |
| Redwater | Middle Missouri | 10040104 | MT40E003_020 | NELSON CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Copper | 2006 | Unassigned | L |
| Rock | Upper Clark Fork | 17010202 | MT76E002_020 | EAST FORK ROCK CREEK, East Fork Reservoir to mouth (Middle Fork Rock Creek) | Nitrogen, Nitrate | 2006 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_020 | EAST FORK ROCK CREEK, East Fork Reservoir to mouth (Middle Fork Rock Creek) | Sedimentation/Siltation | 1992 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_020 | EAST FORK ROCK CREEK, East Fork Reservoir to mouth (Middle Fork Rock Creek) | Temperature, water | 1992 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_030 | WEST FORK ROCK CREEK, headwaters to mouth (Rock Creek) | Mercury | 2000 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_050 | BREWSTER CREEK, East Fork to mouth (Rock Creek) | Phosphorus (Total) | 2006 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_050 | BREWSTER CREEK, East Fork to mouth (Rock Creek) | Sedimentation/Siltation | 1992 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_060 | SOUTH FORK ANTELOPE CREEK, headwaters to mouth (Antelope Creek), T6N R15W S22 | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1994 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_060 | SOUTH FORK ANTELOPE CREEK, headwaters to mouth (Antelope Creek), T6N R15W S22 | Phosphorus (Total) | 1994 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_060 | SOUTH FORK ANTELOPE CREEK, headwaters to mouth (Antelope Creek), T6N R15W S22 | Sedimentation/Siltation | 1994 | In Progress | H |

## Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Rock | Upper Clark Fork | 17010202 | MT76E002_060 | SOUTH FORK ANTELOPE CREEK, headwaters to mouth (Antelope Creek), T6N R15W S22 | Temperature, water | 1994 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_070 | QUARTZ GULCH, headwaters to mouth (Eureka Gulch) | Mercury | 2006 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_070 | QUARTZ GULCH, headwaters to mouth (Eureka Gulch) | Sedimentation/Siltation | 1992 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_090 | EUREKA GULCH, confluence of Quartz Gulch and Basin Gulch to mouth (Un-Named Ditch) | Arsenic | 2006 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_090 | EUREKA GULCH, confluence of Quartz Gulch and Basin Gulch to mouth (Un-Named Ditch) | Mercury | 2006 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_090 | EUREKA GULCH, confluence of Quartz Gulch and Basin Gulch to mouth (Un-Named Ditch) | Sedimentation/Siltation | 1992 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_090 | EUREKA GULCH, confluence of Quartz Gulch and Basin Gulch to mouth (Un-Named Ditch) | Solids (Suspended/Bedload) | 1992 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_100 | SCOTCHMAN GULCH, headwaters to mouth (Upper Willow Creek) | Phosphorus (Total) | 2006 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_100 | SCOTCHMAN GULCH, headwaters to mouth (Upper Willow Creek) | Sedimentation/Siltation | 1988 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_110 | SLUICE GULCH, headwaters to mouth (Rock Creek) | Arsenic | 1996 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_110 | SLUICE GULCH, headwaters to mouth (Rock Creek) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_110 | SLUICE GULCH, headwaters to mouth (Rock Creek) | Sedimentation/Siltation | 2006 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_120 | FLAT GULCH, headwaters to mouth (Rock Creek) | Nitrogen (Total) | 2006 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_120 | FLAT GULCH, headwaters to mouth (Rock Creek) | Phosphorus (Total) | 2006 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_120 | FLAT GULCH, headwaters to mouth (Rock Creek) | Sedimentation/Siltation | 1988 | In Progress | H |
| Rock | Upper Clark Fork | 17010202 | MT76E002_160 | MINERS GULCH, headwaters to mouth (Upper Willow Creek), T8N R15W S23 | Sedimentation/Siltation | 1994 | In Progress | H |
| Rosebud | Middle Yellowstone | 10100003 | MT42A001_012 | ROSEBUD CREEK, Northern Cheyenne Reservation boundary to an irrigation dam 3.8 mi above the mouth | Other | 2000 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C001_010 | RUBY RIVER, Ruby Dam to mouth (Beaverhead River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C001_020 | RUBY RIVER, confluence of East, West, and Middle Forks to Ruby Reservoir | Phosphorus (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_010 | WISCONSIN CREEK, headwaters to mouth (Ruby River) | Arsenic | 2002 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_010 | WISCONSIN CREEK, headwaters to mouth (Ruby River) | Copper | 2002 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_010 | WISCONSIN CREEK, headwaters to mouth (Ruby River) | Lead | 2002 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_010 | WISCONSIN CREEK, headwaters to mouth (Ruby River) | Mercury | 2002 | Unassigned | L |

L = Low M = Medium H = High

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_020 | MILL CREEK, headwaters to mouth (Ruby River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_020 | MILL CREEK, headwaters to mouth (Ruby River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_040 | ALDER GULCH, headwaters to mouth (Ruby River) | Lead | 2000 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_040 | ALDER GULCH, headwaters to mouth (Ruby River) | Manganese | 2000 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_040 | ALDER GULCH, headwaters to mouth (Ruby River) | Mercury | 2000 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_040 | ALDER GULCH, headwaters to mouth (Ruby River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_050 | RAMSHORN CREEK, headwaters to mouth (Ruby River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_060 | CURRANT CREEK, headwaters to mouth (Ramshorn Creek), T4S R4W S35 | Copper | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_060 | CURRANT CREEK, headwaters to mouth (Ramshorn Creek), T4S R4W S35 | Lead | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_060 | CURRANT CREEK, headwaters to mouth (Ramshorn Creek), T4S R4W S35 | Nitrogen (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_060 | CURRANT CREEK, headwaters to mouth (Ramshorn Creek), T4S R4W S35 | Phosphorus (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_090 | CALIFORNIA CREEK, headwaters to mouth (Ruby River), T5S R4W S30 | Phosphorus (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_100 | GARDEN CREEK, headwaters to mouth (Ruby Reservoir) | Nitrogen (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_100 | GARDEN CREEK, headwaters to mouth (Ruby Reservoir) | Phosphorus (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_110 | MORMON CREEK, headwaters to mouth (Upper end of Ruby River Reservoir ) | Phosphorus (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_030 | COTTONWOOD CREEK, headwaters to mouth (Ruby River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_040 | EAST FORK RUBY RIVER, headwaters to mouth (Ruby River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_040 | EAST FORK RUBY RIVER, headwaters to mouth (Ruby River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_060 | SWEETWATER CREEK, headwaters to mouth (Ruby River) | Temperature, water | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_090 | MIDDLE FORK RUBY RIVER, Divide Creek to mouth (Ruby River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_090 | MIDDLE FORK RUBY RIVER, Divide Creek to mouth (Ruby River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_110 | POISON CREEK, headwaters to mouth (Ruby River), T11S R3W S18 | Cadmium | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_110 | POISON CREEK, headwaters to mouth (Ruby River), T11S R3W S18 | Lead | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_110 | POISON CREEK, headwaters to mouth (Ruby River), T11S R3W S18 | Nitrogen (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_110 | POISON CREEK, headwaters to mouth (Ruby River), T11S R3W S18 | Phosphorus (Total) | 2006 | Unassigned | L |

# Appendix B:  Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_120 | BASIN CREEK, headwaters to mouth (Ruby River), T11S R3W S20 | Nitrogen (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_120 | BASIN CREEK, headwaters to mouth (Ruby River), T11S R3W S20 | Phosphorus (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_130 | BURNT CREEK, headwaters to mouth (Ruby River), T10S R3W S21 | Nitrogen (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_130 | BURNT CREEK, headwaters to mouth (Ruby River), T10S R3W S21 | Phosphorus (Total) | 2006 | Unassigned | L |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_140 | HAWKEYE CREEK, headwaters to mouth (Middle Fork Ruby River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Shields | Upper Yellowstone | 10070003 | MT43A002_020 | ANTELOPE CREEK, headwaters to mouth (Shields River) | Solids (Suspended/Bedload) | 1992 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J001_010 | SMITH RIVER, North and South Forks to Hound Creek | Escherichia coli | 2000 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J001_010 | SMITH RIVER, North and South Forks to Hound Creek | Phosphorus (Total) | 2000 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J001_020 | SMITH RIVER, Hound Creek to mouth (Missouri River) | Phosphorus (Total) | 2000 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J001_020 | SMITH RIVER, Hound Creek to mouth (Missouri River) | Temperature, water | 1988 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_011 | NORTH FORK SMITH RIVER, Lake Sutherlin to mouth (Smith River), T9N R6E S21 | Escherichia coli | 2000 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_011 | NORTH FORK SMITH RIVER, Lake Sutherlin to mouth (Smith River), T9N R6E S21 | Nitrogen (Total) | 2000 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_011 | NORTH FORK SMITH RIVER, Lake Sutherlin to mouth (Smith River), T9N R6E S21 | Phosphorus (Total) | 2000 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_020 | HOUND CREEK, Spring Creek to mouth (Smith River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_030 | SHEEP CREEK, headwaters to mouth (Smith River) | Aluminum | 2012 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_030 | SHEEP CREEK, headwaters to mouth (Smith River) | Escherichia coli | 2000 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_030 | SHEEP CREEK, headwaters to mouth (Smith River) | Iron | 2012 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_040 | BEAVER CREEK, headwaters to mouth (Smith River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_040 | BEAVER CREEK, headwaters to mouth (Smith River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_040 | BEAVER CREEK, headwaters to mouth (Smith River) | Sedimentation/Siltation | 1990 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_050 | BENTON GULCH, headwaters to mouth (Smith River) | Escherichia coli | 2000 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_060 | ELK CREEK, headwaters to mouth (Camas Creek) | Nitrogen (Total) | 2006 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_060 | ELK CREEK, headwaters to mouth (Camas Creek) | Phosphorus (Total) | 2006 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_060 | ELK CREEK, headwaters to mouth (Camas Creek) | Sedimentation/Siltation | 1990 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_060 | ELK CREEK, headwaters to mouth (Camas Creek) | Temperature, water | 1988 | Unassigned | L |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_070 | THOMPSON GULCH, headwaters to mouth (Smith River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_070 | THOMPSON GULCH, headwaters to mouth (Smith River) | Sedimentation/Siltation | 1988 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_081 | NEWLAN CREEK, Newlan Reservoir to mouth (Smith River) | Escherichia coli | 2000 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_081 | NEWLAN CREEK, Newlan Reservoir to mouth (Smith River) | Sedimentation/Siltation | 1988 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_081 | NEWLAN CREEK, Newlan Reservoir to mouth (Smith River) | Temperature, water | 2006 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_082 | NEWLAN CREEK, headwaters to Newlan Reservoir | Cadmium | 2006 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_082 | NEWLAN CREEK, headwaters to Newlan Reservoir | Nitrogen (Total) | 2006 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_082 | NEWLAN CREEK, headwaters to Newlan Reservoir | Phosphorus (Total) | 2006 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_082 | NEWLAN CREEK, headwaters to Newlan Reservoir | Sedimentation/Siltation | 1988 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_082 | NEWLAN CREEK, headwaters to Newlan Reservoir | Solids (Suspended/Bedload) | 1990 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_100 | LITTLE CAMAS CREEK, headwaters to mouth (Camas Creek) | Nitrogen (Total) | 2006 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_100 | LITTLE CAMAS CREEK, headwaters to mouth (Camas Creek) | Temperature, water | 1990 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_110 | CAMAS CREEK, junction of Big and Little Camas Creeks to mouth (Smith River) | Escherichia coli | 2000 | Unassigned | L |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_120 | MOOSE CREEK, headwaters to mouth (Sheep Creek) | Nitrogen (Total) | 2006 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C001_020 | STILLWATER RIVER, Forest Service Boundary to the mouth (Yellowstone River), T2S R20E S20 | Cadmium | 2006 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C001_020 | STILLWATER RIVER, Forest Service Boundary to the mouth (Yellowstone River), T2S R20E S20 | Chromium (total) | 2006 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C001_020 | STILLWATER RIVER, Forest Service Boundary to the mouth (Yellowstone River), T2S R20E S20 | Copper | 2006 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C001_020 | STILLWATER RIVER, Forest Service Boundary to the mouth (Yellowstone River), T2S R20E S20 | Cyanide | 2006 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C001_020 | STILLWATER RIVER, Forest Service Boundary to the mouth (Yellowstone River), T2S R20E S20 | Mercury | 2006 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C001_020 | STILLWATER RIVER, Forest Service Boundary to the mouth (Yellowstone River), T2S R20E S20 | Nickel | 2006 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C001_020 | STILLWATER RIVER, Forest Service Boundary to the mouth (Yellowstone River), T2S R20E S20 | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C002_010 | LODGEPOLE CREEK, headwaters to mouth (Castle Creek) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C002_030 | CASTLE CREEK, headwaters to the mouth (Limestone Creek), T4S R15E S29 | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C002_041 | GROVE CREEK, confluence of South Fork Grove Creek, T4S R18E S13 to the mouth (Stillwater River), T3S R18E S34 | Phosphorus (Total) | 2006 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C002_041 | GROVE CREEK, confluence of South Fork Grove Creek, T4S R18E S13 to the mouth (Stillwater River), T3S R18E S34 | Sedimentation/Siltation | 1992 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C002_050 | FISHTAIL CREEK, headwaters to mouth (West Rosebud Creek) | Iron | 2006 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C002_050 | FISHTAIL CREEK, headwaters to mouth (West Rosebud Creek) | Lead | 2006 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C002_070 | JOE HILL CREEK, headwaters to mouth (Stillwater River) | Sedimentation/Siltation | 1992 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C002_081 | BUTCHER CREEK, highway 78 to mouth (Rosebud Creek) | Solids (Suspended/Bedload) | 1996 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C002_082 | BUTCHER CREEK, headwaters to highway 78 | Phosphorus (Total) | 1996 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C002_082 | BUTCHER CREEK, headwaters to highway 78 | Sedimentation/Siltation | 1996 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C002_082 | BUTCHER CREEK, headwaters to highway 78 | Solids (Suspended/Bedload) | 1996 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C002_090 | WEST ROSEBUD CREEK, headwaters to mouth (Rosebud Creek) | Benthic-Macroinvertebrate Bioassessments | 2006 | Unassigned | L |
| Stillwater - Columbus | Upper Yellowstone | 10070005 | MT43C002_100 | ROSEBUD CREEK, East and West Branches to mouth (Stillwater River) | Benthic-Macroinvertebrate Bioassessments | 2006 | Unassigned | L |
| Sun | Marias | 10030205 | MT41K004_030 | FREEZEOUT LAKE | Phosphorus (Total) | 2000 | Unassigned | L |
| Sun | Missouri-Sun-Smith | 10030104 | MT41K002_040 | HUBER COULEE, headwaters to mouth (Sun River Valley Ditch) | Escherichia coli | 2012 | Unassigned | L |
| Thompson | Lower Clark Fork | 17010213 | MT76N005_030 | McGREGOR CREEK, McGregor Lale to mouth (Thompson River) | Phosphorus (Total) | 2006 | In Progress | H |
| Thompson | Lower Clark Fork | 17010213 | MT76N005_030 | McGREGOR CREEK, McGregor Lale to mouth (Thompson River) | Sedimentation/Siltation | 1992 | In Progress | H |
| Thompson | Lower Clark Fork | 17010213 | MT76N005_030 | McGREGOR CREEK, McGregor Lale to mouth (Thompson River) | Temperature, water | 2006 | In Progress | H |
| Thompson | Lower Clark Fork | 17010213 | MT76N005_040 | LITTLE THOMPSON RIVER, headwaters to mouth (Thompson River), T22N R25W S8 | Phosphorus (Total) | 2006 | In Progress | H |
| Thompson | Lower Clark Fork | 17010213 | MT76N005_040 | LITTLE THOMPSON RIVER, headwaters to mouth (Thompson River), T22N R25W S8 | Sedimentation/Siltation | 1992 | In Progress | H |
| Thompson | Lower Clark Fork | 17010213 | MT76N005_060 | LAZIER CREEK, headwaters to mouth (Thompson River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Thompson | Lower Clark Fork | 17010213 | MT76N005_060 | LAZIER CREEK, headwaters to mouth (Thompson River) | Nitrogen (Total) | 2006 | In Progress | H |
| Thompson | Lower Clark Fork | 17010213 | MT76N005_060 | LAZIER CREEK, headwaters to mouth (Thompson River) | Phosphorus (Total) | 2006 | In Progress | H |
| Thompson | Lower Clark Fork | 17010213 | MT76N005_060 | LAZIER CREEK, headwaters to mouth (Thompson River) | Sedimentation/Siltation | 1992 | In Progress | H |
| Thompson | Lower Clark Fork | 17010213 | MT76N005_070 | MCGINNIS CREEK, headwaters to mouth (Little Thompson River) | Phosphorus (Total) | 2006 | In Progress | H |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Thompson | Lower Clark Fork | 17010213 | MT76N005_070 | MCGINNIS CREEK, headwaters to mouth (Little Thompson River) | Sedimentation/Siltation | 1992 | In Progress | H |
| Tobacco | Kootenai | 17010101 | MT76D004_020 | FORTINE CREEK, headwaters to mouth (Grave Creek) | Temperature, water | 2006 | In Progress | H |
| Tobacco | Kootenai | 17010101 | MT76D004_050 | LIME CREEK, headwaters to mouth (Fortine Creek) | Arsenic | 2006 | In Progress | H |
| Tobacco | Kootenai | 17010101 | MT76D004_050 | LIME CREEK, headwaters to mouth (Fortine Creek) | Nitrogen (Total) | 2006 | In Progress | H |
| Tobacco | Kootenai | 17010101 | MT76D004_050 | LIME CREEK, headwaters to mouth (Fortine Creek) | Phosphorus (Total) | 2006 | In Progress | H |
| Tongue | Middle Yellowstone | 10090101 | MT42B001_010 | TONGUE RIVER, Wyoming border to Tongue River Reservoir | Iron | 2008 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090101 | MT42B002_031 | HANGING WOMAN CREEK, Stroud Creek to mouth (Tongue River) | Iron | 1996 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090101 | MT42B002_031 | HANGING WOMAN CREEK, Stroud Creek to mouth (Tongue River) | Salinity | 2008 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090101 | MT42B002_031 | HANGING WOMAN CREEK, Stroud Creek to mouth (Tongue River) | Sedimentation/Siltation | 2000 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090101 | MT42B002_032 | HANGING WOMAN CREEK, Wyoming border to Stroud Creek | Salinity | 1996 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090101 | MT42B003_010 | TONGUE RIVER RESERVOIR | Oxygen, Dissolved | 2008 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090101 | MT42B003_010 | TONGUE RIVER RESERVOIR | Solids (Suspended/Bedload) | 2008 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C001_011 | TONGUE RIVER, Twelve Mile Dam to mouth (Yellowstone River) | Cadmium | 2008 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C001_011 | TONGUE RIVER, Twelve Mile Dam to mouth (Yellowstone River) | Copper | 2008 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C001_011 | TONGUE RIVER, Twelve Mile Dam to mouth (Yellowstone River) | Iron | 2008 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C001_011 | TONGUE RIVER, Twelve Mile Dam to mouth (Yellowstone River) | Lead | 2008 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C001_011 | TONGUE RIVER, Twelve Mile Dam to mouth (Yellowstone River) | Nickel | 2008 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C001_011 | TONGUE RIVER, Twelve Mile Dam to mouth (Yellowstone River) | Salinity | 2008 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C001_011 | TONGUE RIVER, Twelve Mile Dam to mouth (Yellowstone River) | Solids (Suspended/Bedload) | 2008 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C001_011 | TONGUE RIVER, Twelve Mile Dam to mouth (Yellowstone River) | Sulfates | 2008 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C001_011 | TONGUE RIVER, Twelve Mile Dam to mouth (Yellowstone River) | Zinc | 2008 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C001_013 | TONGUE RIVER, Hanging Woman Creek to Beaver Creek | Iron | 1996 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C001_013 | TONGUE RIVER, Hanging Woman Creek to Beaver Creek | Solids (Suspended/Bedload) | 1996 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C001_014 | TONGUE RIVER, Beaver Creek to Twelve Mile Dam, T6N R48E S29 | Iron | 1996 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C001_014 | TONGUE RIVER, Beaver Creek to Twelve Mile Dam, T6N R48E S29 | Solids (Suspended/Bedload) | 1996 | Scheduled | M |

**L = Low M = Medium H = High**

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Tongue | Middle Yellowstone | 10090102 | MT42C002_020 | OTTER CREEK, headwaters to mouth (Tongue River) | Iron | 1996 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C002_020 | OTTER CREEK, headwaters to mouth (Tongue River) | Salinity | 1996 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C002_020 | OTTER CREEK, headwaters to mouth (Tongue River) | Solids (Suspended/Bedload) | 1996 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C002_061 | PUMPKIN CREEK, headwaters to Little Pumpkin Creek | Salinity | 1996 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C002_061 | PUMPKIN CREEK, headwaters to Little Pumpkin Creek | Temperature, water | 1996 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C002_062 | PUMPKIN CREEK, Little Pumpkin Creek to the mouth (Tongue River) | Salinity | 1996 | Scheduled | M |
| Tongue | Middle Yellowstone | 10090102 | MT42C002_062 | PUMPKIN CREEK, Little Pumpkin Creek to the mouth (Tongue River) | Temperature, water | 1996 | Scheduled | M |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_110 | SWAMP CREEK, headwaters to mouth (Big Hole River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_110 | SWAMP CREEK, headwaters to mouth (Big Hole River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_120 | ROCK CREEK, headwaters to mouth (Big Hole River) | Nitrogen (Total) | 2002 | Unassigned | L |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_120 | ROCK CREEK, headwaters to mouth (Big Hole River) | Phosphorus (Total) | 2002 | Unassigned | L |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_150 | GOVERNOR CREEK, headwaters to mouth (Warm Springs Creek) | Copper | 2000 | Unassigned | L |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_160 | PINE CREEK, headwaters to mouth (Andrus Creek) | Phosphorus (Total) | 2006 | Unassigned | L |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_170 | FOX CREEK, headwaters to mouth (Governor Creek) | Phosphorus (Total) | 2006 | Unassigned | L |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_180 | WARM SPRINGS CREEK, headwaters to mouth (Big Hole River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_180 | WARM SPRINGS CREEK, headwaters to mouth (Big Hole River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_180 | WARM SPRINGS CREEK, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 2006 | Unassigned | L |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_190 | STEEL CREEK, headwaters to mouth (Big Hole River) | Cadmium | 2000 | Unassigned | L |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_190 | STEEL CREEK, headwaters to mouth (Big Hole River) | Copper | 2000 | Unassigned | L |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_210 | McVEY CREEK, headwaters to mouth (Big Hole River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_210 | McVEY CREEK, headwaters to mouth (Big Hole River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_051 | MILL CREEK, headwaters to section line between Sec 27 and 28, T4N, R11W | Chromium (total) | 1988 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_052 | MILL CREEK, line between sections 27-28 T4N R11W to Mill-Willow Bypass diversion | Aluminum | 1988 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_061 | WILLOW CREEK, headwaters to T4N R10W S30 | Phosphorus (Total) | 2006 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_072 | LOST CREEK, the south State Park boundary to mouth (Clark Fork River) | Iron | 2000 | In Progress | H |

## Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_072 | LOST CREEK, the south State Park boundary to mouth (Clark Fork River) | Manganese | 2000 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_072 | LOST CREEK, the south State Park boundary to mouth (Clark Fork River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1990 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_072 | LOST CREEK, the south State Park boundary to mouth (Clark Fork River) | Sulfates | 1996 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_100 | DEMPSEY CREEK, the national forest boundary to mouth (Clark Fork River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2000 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_131 | PETERSON CREEK, headwaters to Jack Creek | Nitrogen (Total) | 2006 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_131 | PETERSON CREEK, headwaters to Jack Creek | Phosphorus (Total) | 2006 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_131 | PETERSON CREEK, headwaters to Jack Creek | Total Kjehldahl Nitrogen (TKN) | 2006 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G003_020 | SILVER BOW CREEK, headwaters to mouth (Clark Fork River) | Aluminum | 1996 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G003_020 | SILVER BOW CREEK, headwaters to mouth (Clark Fork River) | Arsenic | 1996 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G003_020 | SILVER BOW CREEK, headwaters to mouth (Clark Fork River) | Copper | 1996 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G003_020 | SILVER BOW CREEK, headwaters to mouth (Clark Fork River) | Iron | 1996 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G003_020 | SILVER BOW CREEK, headwaters to mouth (Clark Fork River) | Lead | 1996 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G003_020 | SILVER BOW CREEK, headwaters to mouth (Clark Fork River) | Manganese | 1996 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G003_020 | SILVER BOW CREEK, headwaters to mouth (Clark Fork River) | Nitrates | 1996 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G003_020 | SILVER BOW CREEK, headwaters to mouth (Clark Fork River) | Sedimentation/Siltation | 1996 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G003_020 | SILVER BOW CREEK, headwaters to mouth (Clark Fork River) | Silver | 1996 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G003_020 | SILVER BOW CREEK, headwaters to mouth (Clark Fork River) | Zinc | 1996 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_072 | DUNKLEBERG CREEK, T9N R12W S2 to mouth (Un-named Canal), T10N R11W S30 | Nitrogen (Total) | 1990 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_082 | HOOVER CREEK, Miller Lake to mouth (Clark Fork River) | Nitrogen (Total) | 1990 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_092 | GOLD CREEK, the forest boundary to mouth (Clark Fork River) | Nitrogen (Total) | 1990 | In Progress | H |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_111 | WARM SPRINGS CREEK, headwaters to line between R9W and R10W | Sedimentation/Siltation | 1988 | In Progress | H |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_010 | STORM CASTLE CREEK, headwaters to the mouth (Gallatin River), T4S R4E S33 | Phosphorus (Total) | 2000 | Unassigned | L |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_020 | TAYLOR FORK, Lee Metcalf Wilderness boundary to mouth (Gallatin River) | Sedimentation/Siltation | 2000 | Unassigned | L |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_020 | TAYLOR FORK, Lee Metcalf Wilderness boundary to mouth (Gallatin River) | Solids (Suspended/Bedload) | 2000 | Unassigned | L |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_030 | CACHE CREEK, headwaters to mouth (Taylor Fork) | Sedimentation/Siltation | 1988 | Unassigned | L |

L = Low M = Medium H = High

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_030 | CACHE CREEK, headwaters to mouth (Taylor Fork) | Solids (Suspended/Bedload) | 1988 | Unassigned | L |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_040 | WEST FORK GALLATIN RIVER, confluence Middle and North Forks to mouth (Gallatin River) | Phosphorus (Total) | 2000 | Unassigned | L |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_060 | SOUTH FORK WEST FORK GALLATIN RIVER, headwaters to mouth (West Fork Gallatin River) | Phosphorus (Total) | 2000 | Unassigned | L |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G001_011 | JEFFERSON RIVER, headwaters to confluence of Jefferson Slough | Copper | 1990 | In Progress | H |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G001_011 | JEFFERSON RIVER, headwaters to confluence of Jefferson Slough | Lead | 1990 | In Progress | H |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G001_011 | JEFFERSON RIVER, headwaters to confluence of Jefferson Slough | Sedimentation/Siltation | 1988 | Unassigned | L |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G001_011 | JEFFERSON RIVER, headwaters to confluence of Jefferson Slough | Solids (Suspended/Bedload) | 1988 | Unassigned | L |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G001_011 | JEFFERSON RIVER, headwaters to confluence of Jefferson Slough | Temperature, water | 2000 | In Progress | H |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_010 | BIG PIPESTONE CREEK, headwaters to mouth (Jefferson Slough), T1N R4W S11 | Nitrogen (Total) | 1990 | Unassigned | L |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_010 | BIG PIPESTONE CREEK, headwaters to mouth (Jefferson Slough), T1N R4W S11 | Phosphorus (Total) | 1990 | Unassigned | L |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_010 | BIG PIPESTONE CREEK, headwaters to mouth (Jefferson Slough), T1N R4W S11 | Temperature, water | 2000 | Unassigned | L |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_020 | HALFWAY CREEK, headwaters to mouth (Big Pipestone Creek-Jefferson River) | Sedimentation/Siltation | 1992 | Unassigned | L |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_040 | LITTLE PIPESTONE CREEK, headwaters to mouth (Big Pipestone Creek) | Nitrogen (Total) | 2006 | Unassigned | L |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_040 | LITTLE PIPESTONE CREEK, headwaters to mouth (Big Pipestone Creek) | Phosphorus (Total) | 2006 | Unassigned | L |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_110 | CHERRY CREEK, headwaters to mouth (Jefferson River) | Zinc | 2006 | In Progress | H |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_140 | WHITETAIL CREEK, Whitetail Reservoir to mouth (Jeferson Slough) | Aluminum | 2006 | In Progress | H |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_140 | WHITETAIL CREEK, Whitetail Reservoir to mouth (Jeferson Slough) | Ammonia (Un-ionized) | 2006 | Unassigned | L |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_140 | WHITETAIL CREEK, Whitetail Reservoir to mouth (Jeferson Slough) | Copper | 2006 | In Progress | H |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_140 | WHITETAIL CREEK, Whitetail Reservoir to mouth (Jeferson Slough) | Lead | 2006 | In Progress | H |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_140 | WHITETAIL CREEK, Whitetail Reservoir to mouth (Jeferson Slough) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1994 | Unassigned | L |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_140 | WHITETAIL CREEK, Whitetail Reservoir to mouth (Jeferson Slough) | Nitrogen (Total) | 1994 | Unassigned | L |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_140 | WHITETAIL CREEK, Whitetail Reservoir to mouth (Jeferson Slough) | Phosphorus (Total) | 1994 | Unassigned | L |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_140 | WHITETAIL CREEK, Whitetail Reservoir to mouth (Jeferson Slough) | Silver | 2006 | In Progress | H |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_160 | FITZ CREEK, headwaters to mouth (Little Whitetail Creek) | Phosphorus (Total) | 2006 | Unassigned | L |

## Appendix B:  Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_160 | FITZ CREEK, headwaters to mouth (Little Whitetail Creek) | Sedimentation/Siltation | 1996 | Unassigned | L |
| Upper Milk | Milk | 10050002 | MT40F003_010 | MILK RIVER, Eastern, Canada border to Fresno Reservoir | Copper | 2006 | Unassigned | L |
| Upper Milk | Milk | 10050002 | MT40F003_010 | MILK RIVER, Eastern, Canada border to Fresno Reservoir | Iron | 2006 | Unassigned | L |
| Upper Milk | Milk | 10050002 | MT40F003_010 | MILK RIVER, Eastern, Canada border to Fresno Reservoir | Lead | 2006 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A001_010 | MUSSELSHELL RIVER, North & South Fork confluence to Deadmans Basin Diversion Canal | Nitrogen (Total) | 1996 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A001_010 | MUSSELSHELL RIVER, North & South Fork confluence to Deadmans Basin Diversion Canal | Phosphorus (Total) | 1996 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A001_010 | MUSSELSHELL RIVER, North & South Fork confluence to Deadmans Basin Diversion Canal | Sedimentation/Siltation | 1996 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A001_020 | MUSSELSHELL RIVER, Deadmans Basin Supply Canal to HUC boundary near Roundup | Nitrogen (Total) | 1988 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A001_020 | MUSSELSHELL RIVER, Deadmans Basin Supply Canal to HUC boundary near Roundup | Phosphorus (Total) | 1988 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A001_020 | MUSSELSHELL RIVER, Deadmans Basin Supply Canal to HUC boundary near Roundup | Sedimentation/Siltation | 1988 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A002_030 | TRAIL CREEK, headwaters to mouth (North Fork Musselshell River) | Sedimentation/Siltation | 2006 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A002_040 | MILL CREEK, headwaters to mouth (North Fork Musselshell River) | Sedimentation/Siltation | 1992 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A002_070 | FISH CREEK, headwaters to mouth (Musselshell River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A002_070 | FISH CREEK, headwaters to mouth (Musselshell River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A002_070 | FISH CREEK, headwaters to mouth (Musselshell River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A002_080 | PAINTED ROBE CREEK, headwaters to mouth (Musselshell River) | Nitrogen (Total) | 1994 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A002_080 | PAINTED ROBE CREEK, headwaters to mouth (Musselshell River) | Salinity | 1994 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A002_090 | HALF BREED CREEK, headwaters to mouth (Musselshell River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1992 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A002_090 | HALF BREED CREEK, headwaters to mouth (Musselshell River) | Nitrogen (Total) | 1992 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A002_090 | HALF BREED CREEK, headwaters to mouth (Musselshell River) | Total Kjehldahl Nitrogen (TKN) | 1992 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A005_010 | DEADMANS BASIN RESERVOIR | Copper | 2006 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A005_010 | DEADMANS BASIN RESERVOIR | Iron | 2006 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A005_010 | DEADMANS BASIN RESERVOIR | Lead | 2006 | Unassigned | L |

# Appendix B:  Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Upper/Middle Musselshell | Musselshell | 10040202 | MT40C002_010 | NORTH WILLOW CREEK, headwaters to mouth (Musselshell River) | Iron | 2006 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040202 | MT40C002_010 | NORTH WILLOW CREEK, headwaters to mouth (Musselshell River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040202 | MT40C002_010 | NORTH WILLOW CREEK, headwaters to mouth (Musselshell River) | Phosphorus (Total) | 2006 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040202 | MT40C002_010 | NORTH WILLOW CREEK, headwaters to mouth (Musselshell River) | Sedimentation/Siltation | 1994 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040202 | MT40C002_010 | NORTH WILLOW CREEK, headwaters to mouth (Musselshell River) | Solids (Suspended/Bedload) | 1994 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040202 | MT40C002_010 | NORTH WILLOW CREEK, headwaters to mouth (Musselshell River) | Specific Conductance | 2006 | Unassigned | L |
| Upper/Middle Musselshell | Musselshell | 10040202 | MT40C002_010 | NORTH WILLOW CREEK, headwaters to mouth (Musselshell River) | Sulfates | 2006 | Unassigned | L |
| Yaak | Kootenai | 17010103 | MT76B002_010 | SEVENTEEN MILE CREEK, headwaters to mouth (Yaak River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Yaak | Kootenai | 17010103 | MT76B002_020 | LAP CREEK, headwaters to mouth (Yaak River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Yaak | Kootenai | 17010103 | MT76B002_060 | SPREAD CREEK, headwaters to mouth (Yaak River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2010 | In Progress | H |
| Yaak | Kootenai | 17010103 | MT76B002_070 | PETE CREEK, headwaters to mouth (Yaak River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Yaak | Kootenai | 17010103 | MT76B002_090 | WEST FORK YAAK RIVER, headwaters to mouth (Yaak River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Yaak | Kootenai | 17010103 | MT76B002_100 | EAST FORK YAAK RIVER, headwaters to mouth (Yaak River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | In Progress | H |
| Yellowstone - Lower Bighorn | Middle Yellowstone | 10070007 | MT43Q002_010 | FLY CREEK, Crow Indian Reservation boundary to mouth (Yellowstone River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Yellowstone - Lower Bighorn | Middle Yellowstone | 10070007 | MT43Q002_010 | FLY CREEK, Crow Indian Reservation boundary to mouth (Yellowstone River) | Nitrogen (Total) | 2006 | Unassigned | L |
| Yellowstone - Lower Bighorn | Middle Yellowstone | 10070007 | MT43Q002_010 | FLY CREEK, Crow Indian Reservation boundary to mouth (Yellowstone River) | Oxygen, Dissolved | 2006 | Unassigned | L |
| Yellowstone - Lower Bighorn | Middle Yellowstone | 10070008 | MT43E001_010 | PRYOR CREEK, Interstate 90 bridge to mouth (Yellowstone River) | Benthic-Macroinvertebrate Bioassessments | 2006 | Unassigned | L |
| Yellowstone - Lower Bighorn | Middle Yellowstone | 10070008 | MT43E001_011 | PRYOR CREEK, Crow Reservation Boundary to Interstate 90 bridge | Sedimentation/Siltation | 1990 | Unassigned | L |
| Yellowstone - Lower Bighorn | Middle Yellowstone | 10080015 | MT43R001_010 | BIGHORN RIVER, Crow Indian Res. Boundary to mouth (Yellowstone River) | Lead | 1996 | Unassigned | L |
| Yellowstone - Lower Bighorn | Middle Yellowstone | 10080015 | MT43R001_010 | BIGHORN RIVER, Crow Indian Res. Boundary to mouth (Yellowstone River) | Mercury | 1996 | Unassigned | L |
| Yellowstone - Lower Bighorn | Middle Yellowstone | 10080015 | MT43R002_010 | TULLOCK CREEK, Crow Indian Reservation Boundary to mouth (Bighorn River) | Iron | 1990 | Unassigned | L |
| Yellowstone - Lower Bighorn | Middle Yellowstone | 10080015 | MT43R002_010 | TULLOCK CREEK, Crow Indian Reservation Boundary to mouth (Bighorn River) | Nitrogen (Total) | 1990 | Unassigned | L |
| Yellowstone - Lower Bighorn | Middle Yellowstone | 10080015 | MT43R002_010 | TULLOCK CREEK, Crow Indian Reservation Boundary to mouth (Bighorn River) | Phosphorus (Total) | 1990 | Unassigned | L |
| Yellowstone - Lower Bighorn | Middle Yellowstone | 10080015 | MT43R002_010 | TULLOCK CREEK, Crow Indian Reservation Boundary to mouth (Bighorn River) | Sedimentation/Siltation | 1990 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070002 | MT43B004_012 | OTTER CREEK, headwaters to 2 mi downstream of Highway 191 bridge | Sedimentation/Siltation | 1996 | Unassigned | L |

## Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070002 | MT43B004_022 | BIG TIMBER CREEK, headwaters downstream to Swamp Creek | Arsenic | 2006 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070002 | MT43B004_022 | BIG TIMBER CREEK, headwaters downstream to Swamp Creek | Cadmium | 2006 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070002 | MT43B004_022 | BIG TIMBER CREEK, headwaters downstream to Swamp Creek | Copper | 2006 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070002 | MT43B004_022 | BIG TIMBER CREEK, headwaters downstream to Swamp Creek | Iron | 2006 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070002 | MT43B004_022 | BIG TIMBER CREEK, headwaters downstream to Swamp Creek | Lead | 2006 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070002 | MT43B004_022 | BIG TIMBER CREEK, headwaters downstream to Swamp Creek | Manganese | 2006 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070002 | MT43B004_022 | BIG TIMBER CREEK, headwaters downstream to Swamp Creek | Nickel | 2006 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070002 | MT43B004_022 | BIG TIMBER CREEK, headwaters downstream to Swamp Creek | Sedimentation/Siltation | 1992 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070002 | MT43B004_022 | BIG TIMBER CREEK, headwaters downstream to Swamp Creek | Selenium | 2006 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070002 | MT43B004_022 | BIG TIMBER CREEK, headwaters downstream to Swamp Creek | Solids (Suspended/Bedload) | 1992 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070002 | MT43B004_042 | UPPER DEER CREEK, headwaters to Cartwright Gulch | Solids (Suspended/Bedload) | 1996 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070004 | MT43F002_010 | DUCK CREEK, headwaters to mouth (Yellowstone River) | Sedimentation/Siltation | 1996 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070004 | MT43F002_022 | CANYON CREEK, headwaters to highway 532 | Oxygen, Dissolved | 2006 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070004 | MT43F002_022 | CANYON CREEK, headwaters to highway 532 | Sedimentation/Siltation | 2006 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070004 | MT43F002_040 | VALLEY CREEK, headwaters to mouth (Yellowstone River) | Benthic-Macroinvertebrate Bioassessments | 2006 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070004 | MT43F002_040 | VALLEY CREEK, headwaters to mouth (Yellowstone River) | Oxygen, Dissolved | 2006 | Unassigned | L |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070004 | MT43F002_040 | VALLEY CREEK, headwaters to mouth (Yellowstone River) | Sedimentation/Siltation | 1992 | Unassigned | L |
| Yellowstone River | Lower Yellowstone | 10100001 | MT42K001_010 | YELLOWSTONE RIVER, the Cartersville Diversion Dam to Powder River | Copper | 1992 | Unassigned | L |
| Yellowstone River | Lower Yellowstone | 10100001 | MT42K001_010 | YELLOWSTONE RIVER, the Cartersville Diversion Dam to Powder River | Lead | 1992 | Unassigned | L |
| Yellowstone River | Lower Yellowstone | 10100001 | MT42K001_010 | YELLOWSTONE RIVER, the Cartersville Diversion Dam to Powder River | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1990 | Unassigned | L |
| Yellowstone River | Lower Yellowstone | 10100001 | MT42K001_010 | YELLOWSTONE RIVER, the Cartersville Diversion Dam to Powder River | pH | 1990 | Unassigned | L |
| Yellowstone River | Lower Yellowstone | 10100001 | MT42K001_010 | YELLOWSTONE RIVER, the Cartersville Diversion Dam to Powder River | Solids (Suspended/Bedload) | 1990 | Unassigned | L |
| Yellowstone River | Lower Yellowstone | 10100001 | MT42K001_010 | YELLOWSTONE RIVER, the Cartersville Diversion Dam to Powder River | Total Dissolved Solids | 1990 | Unassigned | L |
| Yellowstone River | Lower Yellowstone | 10100001 | MT42K001_010 | YELLOWSTONE RIVER, the Cartersville Diversion Dam to Powder River | Zinc | 1992 | Unassigned | L |
| Yellowstone River | Lower Yellowstone | 10100004 | MT42M001_011 | YELLOWSTONE RIVER, Lower Yellowstone Diversion Dam to North Dakota border | Chromium (total) | 1992 | Unassigned | L |

L = Low  M = Medium  H = High

## Appendix B: Waters in need of TMDLs [303(d) list] and TMDL Priority Schedule

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Yellowstone River | Lower Yellowstone | 10100004 | MT42M001_011 | YELLOWSTONE RIVER, Lower Yellowstone Diversion Dam to North Dakota border | Copper | 1992 | Unassigned | L |
| Yellowstone River | Lower Yellowstone | 10100004 | MT42M001_011 | YELLOWSTONE RIVER, Lower Yellowstone Diversion Dam to North Dakota border | Lead | 1992 | Unassigned | L |
| Yellowstone River | Lower Yellowstone | 10100004 | MT42M001_011 | YELLOWSTONE RIVER, Lower Yellowstone Diversion Dam to North Dakota border | Nitrogen (Total) | 1990 | Unassigned | L |
| Yellowstone River | Lower Yellowstone | 10100004 | MT42M001_011 | YELLOWSTONE RIVER, Lower Yellowstone Diversion Dam to North Dakota border | pH | 1990 | Unassigned | L |
| Yellowstone River | Lower Yellowstone | 10100004 | MT42M001_011 | YELLOWSTONE RIVER, Lower Yellowstone Diversion Dam to North Dakota border | Phosphorus (Total) | 1990 | Unassigned | L |
| Yellowstone River | Lower Yellowstone | 10100004 | MT42M001_011 | YELLOWSTONE RIVER, Lower Yellowstone Diversion Dam to North Dakota border | Sedimentation/Siltation | 1988 | Unassigned | L |
| Yellowstone River | Lower Yellowstone | 10100004 | MT42M001_011 | YELLOWSTONE RIVER, Lower Yellowstone Diversion Dam to North Dakota border | Total Dissolved Solids | 1988 | Unassigned | L |
| Yellowstone River | Middle Yellowstone | 10070007 | MT43F001_010 | YELLOWSTONE RIVER, City of Billings PWS to Huntley Diversion Dam | Arsenic | 2008 | Unassigned | L |
| Yellowstone River | Middle Yellowstone | 10070007 | MT43F001_010 | YELLOWSTONE RIVER, City of Billings PWS to Huntley Diversion Dam | Benthic-Macroinvertebrate Bioassessments | 2008 | Unassigned | L |
| Yellowstone River | Middle Yellowstone | 10070007 | MT43F001_010 | YELLOWSTONE RIVER, City of Billings PWS to Huntley Diversion Dam | Dissolved oxygen saturation | 2008 | Unassigned | L |
| Yellowstone River | Middle Yellowstone | 10070007 | MT43F001_010 | YELLOWSTONE RIVER, City of Billings PWS to Huntley Diversion Dam | Nutrient/Eutrophication Biological Indicators | 2008 | Unassigned | L |
| Yellowstone River | Middle Yellowstone | 10070007 | MT43F001_010 | YELLOWSTONE RIVER, City of Billings PWS to Huntley Diversion Dam | Oil and Grease | 2012 | Unassigned | L |
| Yellowstone River | Middle Yellowstone | 10070007 | MT43F001_010 | YELLOWSTONE RIVER, City of Billings PWS to Huntley Diversion Dam | Solids (Suspended/Bedload) | 2008 | Unassigned | L |
| Yellowstone River | Middle Yellowstone | 10070007 | MT43Q001_011 | YELLOWSTONE RIVER, Huntley Diversion Dam to mouth of Big Horn River | Ammonia (Un-ionized) | 1996 | Unassigned | L |
| Yellowstone River | Middle Yellowstone | 10070007 | MT43Q001_011 | YELLOWSTONE RIVER, Huntley Diversion Dam to mouth of Big Horn River | Oil and Grease | 2012 | Unassigned | L |
| Yellowstone River | Middle Yellowstone | 10070007 | MT43Q001_011 | YELLOWSTONE RIVER, Huntley Diversion Dam to mouth of Big Horn River | Sedimentation/Siltation | 1988 | Unassigned | L |
| Yellowstone River | Middle Yellowstone | 10070007 | MT43Q001_011 | YELLOWSTONE RIVER, Huntley Diversion Dam to mouth of Big Horn River | Total Dissolved Solids | 1988 | Unassigned | L |
| Yellowstone River | Upper Yellowstone | 10070001 | MT43B001_010 | YELLOWSTONE RIVER, Yellowstone Park Boundary to Reese Creek | Ammonia (Total) | 1990 | Unassigned | L |
| Yellowstone River | Upper Yellowstone | 10070001 | MT43B001_010 | YELLOWSTONE RIVER, Yellowstone Park Boundary to Reese Creek | Arsenic | 1992 | Unassigned | L |
| Yellowstone River | Upper Yellowstone | 10070001 | MT43B001_010 | YELLOWSTONE RIVER, Yellowstone Park Boundary to Reese Creek | Copper | 1992 | Unassigned | L |
| Yellowstone River | Upper Yellowstone | 10070001 | MT43B001_010 | YELLOWSTONE RIVER, Yellowstone Park Boundary to Reese Creek | Lead | 1992 | Unassigned | L |
| Yellowstone River | Upper Yellowstone | 10070001 | MT43B001_010 | YELLOWSTONE RIVER, Yellowstone Park Boundary to Reese Creek | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1990 | Unassigned | L |
| Yellowstone River | Upper Yellowstone | 10070001 | MT43B001_010 | YELLOWSTONE RIVER, Yellowstone Park Boundary to Reese Creek | Sedimentation/Siltation | 1990 | Unassigned | L |
| Yellowstone River | Upper Yellowstone | 10070001 | MT43B001_011 | YELLOWSTONE RIVER, Montana State border to Yellowstone Park Boundary | Ammonia (Un-ionized) | 2006 | Unassigned | L |

| TMDL Planning Area | Watershed | HUC | ID305B | WaterbodyName/Location | Pollutant | Cycle First Listed | TMDL Status | TMDL Priority (2012-2014) |
|---|---|---|---|---|---|---|---|---|
| Yellowstone River | Upper Yellowstone | 10070001 | MT43B001_011 | YELLOWSTONE RIVER, Montana State border to Yellowstone Park Boundary | Arsenic | 1992 | Unassigned | L |
| Yellowstone River | Upper Yellowstone | 10070001 | MT43B001_011 | YELLOWSTONE RIVER, Montana State border to Yellowstone Park Boundary | Copper | 1992 | Unassigned | L |
| Yellowstone River | Upper Yellowstone | 10070001 | MT43B001_011 | YELLOWSTONE RIVER, Montana State border to Yellowstone Park Boundary | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1988 | Unassigned | L |
| Yellowstone River | Upper Yellowstone | 10070001 | MT43B001_011 | YELLOWSTONE RIVER, Montana State border to Yellowstone Park Boundary | Sedimentation/Siltation | 1988 | Unassigned | L |
| Yellowstone River | Upper Yellowstone | 10070004 | MT43F001_011 | YELLOWSTONE RIVER, City of Laurel PWS to City of Billings PWS | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | Unassigned | L |
| Yellowstone River | Upper Yellowstone | 10070004 | MT43F001_011 | YELLOWSTONE RIVER, City of Laurel PWS to City of Billings PWS | Oil and Grease | 2012 | Unassigned | L |

**L = Low  M = Medium  H = High**

## Appendix C:  Waters with Use Support Assessments during the 2012 Reporting Cycle

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location |
|---|---|---|---|---|
| Big Creek (Columbia) | Flathead | 17010206 | MT76Q002_050 | BIG CREEK, tributary to North Fork of the Flathead River |
| Flathead - Stillwater | Flathead | 17010210 | MT76P003_020 | SWIFT CREEK, headwaters (East and West Forks) to mouth (Whitefish Lake) |
| Kootenai | Kootenai | 17010101 | MT76D003_010 | LAKE KOOCANUSA |
| Missouri River | Middle Missouri | 10040104 | MT40E004_010 | FORT PECK RESERVOIR |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_030 | SHEEP CREEK, headwaters to mouth (Smith River) |
| Sun | Missouri-Sun-Smith | 10030104 | MT41K002_040 | HUBER COULEE, headwaters to mouth (Sun River Valley Ditch) |
| Yellowstone River | Middle Yellowstone | 10070007 | MT43F001_010 | YELLOWSTONE RIVER, City of Billings PWS to Huntley Diversion Dam |
| Yellowstone River | Middle Yellowstone | 10070007 | MT43Q001_011 | YELLOWSTONE RIVER, Huntley Diversion Dam to mouth of Big Horn River |
| Yellowstone River | Upper Yellowstone | 10070004 | MT43F001_011 | YELLOWSTONE RIVER, City of Laurel PWS to City of Billings PWS |

## Appendix D: Impairment Causes De-Listed from the 2010 303(d) List (Category 5)

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairement | Delisting Reason | Delisting Date |
|---|---|---|---|---|---|---|---|
| Beaver | Milk | 10050014 | MT40M002_010 | FLAT CREEK, headwaters to mouth (Beaver Creek), T27N R32E S35 | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Beaver | Milk | 10050014 | MT40M002_020 | LARB CREEK, headwaters to mouth (Beaver Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_070 | WEST FORK DYCE CREEK, headwaters to mouth (Dyce Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_120 | RESERVOIR CREEK, headwaters to mouth (Grasshopper Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_140 | DYCE CREEK, confluence of East and West Forks to Grasshopper Creek | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Beaverhead | Upper Missouri Tribs. | 10020002 | MT41B002_170 | TAYLOR CREEK, headwaters to mouth (Grasshopper Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_011 | BELT CREEK, headwaters to Big Otter Creek | Arsenic | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_011 | BELT CREEK, headwaters to Big Otter Creek | Cadmium | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_011 | BELT CREEK, headwaters to Big Otter Creek | Copper | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_011 | BELT CREEK, headwaters to Big Otter Creek | Lead | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_011 | BELT CREEK, headwaters to Big Otter Creek | Zinc | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_012 | BELT CREEK, Big Otter Creek to mouth (Missouri River) | Arsenic | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_012 | BELT CREEK, Big Otter Creek to mouth (Missouri River) | Cadmium | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_012 | BELT CREEK, Big Otter Creek to mouth (Missouri River) | Iron | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_012 | BELT CREEK, Big Otter Creek to mouth (Missouri River) | Lead | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_012 | BELT CREEK, Big Otter Creek to mouth (Missouri River) | Salinity | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_012 | BELT CREEK, Big Otter Creek to mouth (Missouri River) | Zinc | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_010 | CARPENTER CREEK, headwaters to mouth (Belt Creek) | Arsenic | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_010 | CARPENTER CREEK, headwaters to mouth (Belt Creek) | Cadmium | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_010 | CARPENTER CREEK, headwaters to mouth (Belt Creek) | Copper | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_010 | CARPENTER CREEK, headwaters to mouth (Belt Creek) | Iron | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_010 | CARPENTER CREEK, headwaters to mouth (Belt Creek) | Lead | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_010 | CARPENTER CREEK, headwaters to mouth (Belt Creek) | Silver | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_010 | CARPENTER CREEK, headwaters to mouth (Belt Creek) | Zinc | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_020 | GALENA CREEK, headwaters to mouth (Dry Fork Belt Creek) | Arsenic | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_020 | GALENA CREEK, headwaters to mouth (Dry Fork Belt Creek) | Cadmium | EPA approval of TMDL (4A) | 1/24/2011 |

## Appendix D: Impairment Causes De-Listed from the 2010 303(d) List (Category 5)

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairement | Delisting Reason | Delisting Date |
|---|---|---|---|---|---|---|---|
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_020 | GALENA CREEK, headwaters to mouth (Dry Fork Belt Creek) | Copper | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_020 | GALENA CREEK, headwaters to mouth (Dry Fork Belt Creek) | Iron | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_020 | GALENA CREEK, headwaters to mouth (Dry Fork Belt Creek) | Lead | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_020 | GALENA CREEK, headwaters to mouth (Dry Fork Belt Creek) | Zinc | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_030 | DRY FORK BELT CREEK, headwaters to mouth (Belt Creek) | Arsenic | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_030 | DRY FORK BELT CREEK, headwaters to mouth (Belt Creek) | Cadmium | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_030 | DRY FORK BELT CREEK, headwaters to mouth (Belt Creek) | Copper | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_030 | DRY FORK BELT CREEK, headwaters to mouth (Belt Creek) | Iron | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_030 | DRY FORK BELT CREEK, headwaters to mouth (Belt Creek) | Lead | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_030 | DRY FORK BELT CREEK, headwaters to mouth (Belt Creek) | Zinc | EPA approval of TMDL (4A) | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_040 | LITTLE BELT CREEK, three miles upstream to mouth (Belt Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Big and Little Dry | Middle Missouri | 10040105 | MT40D001_010 | BIG DRY CREEK, Steves Fork to mouth (Fort Peck Reservoir) | Total Kjehldahl Nitrogen (TKN) | Other | 11/11/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H001_020 | BITTERROOT RIVER, Skalkaho Creek to Eightmile Creek | Temperature, water | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H001_030 | BITTERROOT RIVER, Eightmile Creek to mouth (Clark Fork River) | Temperature, water | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_010 | BASS CREEK, Selway-Bitterroot Wilderness boundary to mouth (un-named channel of Bitterroot River), T9N R20W S3 | Sedimentation/Siltation | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_010 | BASS CREEK, Selway-Bitterroot Wilderness boundary to mouth (un-named channel of Bitterroot River), T9N R20W S3 | Total Kjehldahl Nitrogen (TKN) | Other | 11/14/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_080 | TIN CUP CREEK, Selway-Bitterroot Wilderness boundary to mouth (Bitteroot River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_090 | SLEEPING CHILD CREEK, headwaters to mouth (Bitterroot River) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_090 | SLEEPING CHILD CREEK, headwaters to mouth (Bitterroot River) | Temperature, water | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_110 | WILLOW CREEK, headwaters to mouth (Bitterroot River) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_110 | WILLOW CREEK, headwaters to mouth (Bitterroot River) | Temperature, water | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_110 | WILLOW CREEK, headwaters to mouth (Bitterroot River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/14/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_120 | AMBROSE CREEK, headwaters to mouth (Threemile Creek) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_130 | MILLER CREEK, headwaters to mouth (Bitterroot River) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 8/17/2011 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairement | Delisting Reason | Delisting Date |
|---|---|---|---|---|---|---|---|
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_130 | MILLER CREEK, headwaters to mouth (Bitterroot River) | Temperature, water | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_140 | THREEMILE CREEK, headwaters to mouth (Bitterroot River) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_150 | McCLAIN CREEK, headwaters to mouth (Sin-tin-tin-em-ska Creek), T11N R20W S23 | Sedimentation/Siltation | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_170 | LICK CREEK, headwaters to mouth (Bitterroot River) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_170 | LICK CREEK, headwaters to mouth (Bitterroot River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/14/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_180 | MUDDY SPRING CREEK, headwaters to mouth (Gold Creek) T7N R19W S2 | Sedimentation/Siltation | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_190 | RYE CREEK, North Fork to mouth (Bitterroot River) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_200 | NORTH BURNT FORK CREEK, confluence with South Burnt Fork Creek to Mouth (Bitterroot River) | Bottom Deposits | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_200 | NORTH BURNT FORK CREEK, confluence with South Burnt Fork Creek to Mouth (Bitterroot River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/14/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_210 | SWEATHOUSE CREEK, headwaters to mouth (Bitterroot River) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H005_011 | LOLO CREEK, Mormon Creek to mouth (Bitterroot River) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H005_012 | LOLO CREEK, Sheldon Creek to Mormon Creek | Sedimentation/Siltation | EPA approval of TMDL (4A) | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H005_013 | LOLO CREEK, headwaters to Sheldon Creek | Sedimentation/Siltation | EPA approval of TMDL (4A) | 8/17/2011 |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_132 | BOULDER RIVER, Natural Bridge and Falls in T3S R12E S26 to 5 miles above the mouth, T1N R14E S34 | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_133 | BOULDER RIVER, confluence of the East Fork boulder River to Natural bridge and Falls | Total Kjehldahl Nitrogen (TKN) | Other | 11/9/2011 |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_090 | NORTH FORK LITTLE BOULDER RIVER, headwaters to mouth (Little Boulder) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Boulder - Elkhorn | Upper Missouri Tribs. | 10020006 | MT41E002_130 | NURSERY CREEK, headwaters (east branch) to mouth (Muskrat Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_110 | MAGPIE CREEK, headwaters to mouth (Canyon Ferry Reservoir) | Total Kjehldahl Nitrogen (TKN) | Other | 11/8/2011 |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_120 | SIXTEENMILE CREEK, Lost Creek to mouth (Missouri River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Canyon Ferry | Missouri-Sun-Smith | 10030101 | MT41I002_150 | CAVE GULCH, headwaters to mouth (Canyon Ferry Reservoir) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Clark Fork - Drummond | Upper Clark Fork | 17010202 | MT76E004_070 | DEEP CREEK, headwaters to mouth (Bear Creek, which is a tributary to Clark Fork River near Bearmouth) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D001_011 | CLARKS FORK YELLOWSTONE RIVER, Bridger Creek to mouth (Yellowstone River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_010 | ELBOW CREEK, headwaters to mouth (Clarks Fork) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |

## Appendix D: Impairment Causes De-Listed from the 2010 303(d) List (Category 5)

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairement | Delisting Reason | Delisting Date |
|---|---|---|---|---|---|---|---|
| Clarks Fork Yellowstone | Upper Yellowstone | 10070006 | MT43D002_100 | SILVERTIP CREEK, state line to mouth (Clarks Fork) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Fisher | Kootenai | 17010102 | MT76C001_030 | RAVEN CREEK, headwaters to mouth (Pleasant Vally Fisher River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_010 | ASHLEY CREEK, Ashley Lake to Smith Lake | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_030 | ASHLEY CREEK, Kalispell airport road to mouth (Flathead River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/11/2011 |
| Flathead - Stillwater | Flathead | 17010208 | MT76O002_040 | SPRING CREEK, headwaters to mouth (Ashley Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Flathead - Stillwater | Flathead | 17010210 | MT76P003_020 | SWIFT CREEK, headwaters (East and West Forks) to mouth (Whitefish Lake) | Phosphorus (Total) | State Determines water quality standard is being met | 10/20/2011 |
| Flint | Upper Clark Fork | 17010202 | MT76E003_070 | BARNES CREEK, headwaters to mouth (Flint Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Fort Peck Area Tributaries | Middle Missouri | 10040104 | MT40E002_130 | FARGO COULEE, headwaters to mouth (Armells Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Holter | Missouri-Sun-Smith | 10030101 | MT41I005_011 | BEAVER CREEK, headwaters to confluence of Bridge Creek | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_010 | DRY WOLF CREEK, headwaters to mouth (Wolf Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Judith - Arrow | Middle Missouri | 10040103 | MT41S002_030 | WARM SPRING CREEK, 5 miles upstream to mouth (Judith River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Kootenai | Kootenai | 17010101 | MT76D002_110 | BRISTOW CREEK, the headwaters to mouth at Lake Koocanusa | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Landusky | Middle Missouri | 10040104 | MT40E002_090 | ROCK CREEK, headwaters to mouth (Missouri River) | Fecal Coliform | Other | 11/7/2011 |
| Little Missouri | Little Missouri | 10110201 | MT39F001_022 | LITTLE MISSOURI RIVER, Wyoming border to the Highway 323 bridge | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_090 | WASHOE CREEK, Headwater to mouth (Union Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_040 | BULL RIVER, the North Fork to mouth (Cabinet Gorge Reservoir) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 12/21/2010 |
| Lower Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_090 | MARTEN CREEK, headwaters to mouth (Noxon Reservoir) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 12/21/2010 |
| Lower Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_120 | WHITE PINE CREEK, headwaters to mouth (Beaver Creek) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 12/21/2010 |
| Lower Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_140 | SWAMP CREEK, Cabinet Mountains Wilderness boundary to mouth (Noxon Reservoir) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 12/21/2010 |
| Lower Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_180 | DRY CREEK, headwaters to mouth (Bull River), T28N R33W S32 | Sedimentation/Siltation | EPA approval of TMDL (4A) | 12/21/2010 |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L001_010 | FLATHEAD RIVER, Flathead Reservation boundary to mouth (Clark Fork River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Flathead | Lower Clark Fork | 17010212 | MT76L002_060 | LITTLE BITTERROOT RIVER, Hubbart Reservoir to Flathead Reservation Boundary | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H002_010 | CAMP CREEK, headwaters to mouth (Gallatin River) | Fecal Coliform | Other | 11/9/2011 |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H002_020 | GODFREY CREEK, headwaters to mouth (Moreland Ditch), T1S R3E S12 | Fecal Coliform | Other | 11/7/2011 |

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| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairement | Delisting Reason | Delisting Date |
|---|---|---|---|---|---|---|---|
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_040 | SOURDOUGH CREEK, confluence of Limestone Creek and Bozeman Creek to the mouth (East Gallatin River), T2S R6E S6 | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_060 | SMITH CREEK, confluence of Ross and Reese Creeks to mouth (East Gallatin River) | Fecal Coliform | Other | 11/8/2011 |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_070 | REESE CREEK, headwaters to mouth (Smith Creek) | Fecal Coliform | Other | 11/8/2011 |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_110 | BRIDGER CREEK, headwaters to mouth (East Gallatin River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_129 | HYALITE CREEK, headwaters to the top of Hyalite Reservoir, T4S R6E S23 | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Gallatin | Upper Missouri Tribs. | 10020008 | MT41H003_130 | HYALITE CREEK, Hyalite Reservoir to the Bozeman water supply diversion ditch, T3S R5E S23 | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_090 | NORWEGIAN CREEK, headwaters to mouth (Willow Creek Reservoir) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Milk | Milk | 10050012 | MT40O001_010 | MILK RIVER, Beaver Creek to mouth (Missouri River) | Fecal Coliform | Other | 11/8/2011 |
| Lower Missouri | Lower Missouri | 10060003 | MT40Q002_010 | BUTTE CREEK, headwaters to mouth (Poplar River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Missouri | Lower Missouri | 10060005 | MT40S004_010 | CHARLIE CREEK, East and Middle Charlie Creek to mouth (Missouri River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Missouri | Lower Missouri | 10060006 | MT40R001_020 | BIG MUDDY CREEK, Canadian border to northern boundary of Fort Peck Reservation | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_020 | FOURMILE CREEK, headwaters to North Dakota border | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_030 | FIRST HAY CREEK, headwaters to mouth (Yellowstone River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_051 | FOX CREEK, headwaters to mouth (Yellowstone River), T22N R59E S19 | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_052 | NORTH FORK FOX CREEK, headwaters to mouth (Fox Creek), T22N R58E S21 | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_110 | BURNS CREEK, headwaters to mouth (Yellowstone River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_150 | CABIN CREEK, headwaters to mouth (Yellowstone River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_010 | BLAINE SPRING CREEK, headwaters to mouth (Madison River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_130 | MOORE CREEK, springs to mouth (Fletcher Channel), T5S R1W S15 | Fecal Coliform | Other | 11/8/2011 |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_020 | CEDAR CREEK, headwaters to mouth (Clark Fork River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_100 | WEST FORK PETTY CREEK, headwaters to mouth (Petty Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_160 | NEMOTE CREEK, headwaters to mouth (confluence Clark Fork River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_170 | DRY CREEK, headwaters to mouth (Clark Fork River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_010 | LYNCH CREEK, headwaters to mouth (Clark Fork River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |

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| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairement | Delisting Reason | Delisting Date |
|---|---|---|---|---|---|---|---|
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_160 | SWAMP CREEK, West Fork Swamp Creek to mouth (Clark Fork River), T20N R27W S3 | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_170 | HENRY CREEK, headwaters to mouth (Clark Fork River), T19N R26W S1 | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Middle Milk and Tributaries | Milk | 10050004 | MT40J002_030 | LITTLE BOXELDER CREEK, headwaters to mouth (Milk River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Middle Milk and Tributaries | Milk | 10050007 | MT40J003_010 | LODGE CREEK, Canadian border to mouth (Milk River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Middle Yellowstone Tributarie | Lower Yellowstone | 10100001 | MT42K002_060 | DEADMAN CREEK, headwaters to mouth (North Fork Sunday Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/9/2011 |
| Middle Yellowstone Tributarie | Lower Yellowstone | 10100001 | MT42K002_110 | EAST FORK ARMELLS CREEK, Colstrip to mouth (Armells Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Middle Yellowstone Tributarie | Lower Yellowstone | 10100001 | MT42K002_160 | LITTLE PORCUPINE CREEK, headwaters to mouth (Yellowstone River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_020 | COTTONWOOD CREEK, 1 mile above Stockett to mouth (Sand Coulee Creek-Missouri River) | Aluminum | EPA approval of TMDL (4A) | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_020 | COTTONWOOD CREEK, 1 mile above Stockett to mouth (Sand Coulee Creek-Missouri River) | Cadmium | EPA approval of TMDL (4A) | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_020 | COTTONWOOD CREEK, 1 mile above Stockett to mouth (Sand Coulee Creek-Missouri River) | Iron | EPA approval of TMDL (4A) | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_020 | COTTONWOOD CREEK, 1 mile above Stockett to mouth (Sand Coulee Creek-Missouri River) | Nickel | EPA approval of TMDL (4A) | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_020 | COTTONWOOD CREEK, 1 mile above Stockett to mouth (Sand Coulee Creek-Missouri River) | Zinc | EPA approval of TMDL (4A) | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_030 | NUMBER FIVE COULEE, headwaters to mouth (Cottonwood Creek) | Aluminum | EPA approval of TMDL (4A) | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_030 | NUMBER FIVE COULEE, headwaters to mouth (Cottonwood Creek) | Cadmium | EPA approval of TMDL (4A) | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_030 | NUMBER FIVE COULEE, headwaters to mouth (Cottonwood Creek) | Iron | EPA approval of TMDL (4A) | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_030 | NUMBER FIVE COULEE, headwaters to mouth (Cottonwood Creek) | Nickel | EPA approval of TMDL (4A) | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_030 | NUMBER FIVE COULEE, headwaters to mouth (Cottonwood Creek) | Zinc | EPA approval of TMDL (4A) | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_060 | SAND COULEE, headwaters to mouth (Sand Coulee Creek) | Aluminum | EPA approval of TMDL (4A) | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_060 | SAND COULEE, headwaters to mouth (Sand Coulee Creek) | Cadmium | EPA approval of TMDL (4A) | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_060 | SAND COULEE, headwaters to mouth (Sand Coulee Creek) | Copper | EPA approval of TMDL (4A) | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_060 | SAND COULEE, headwaters to mouth (Sand Coulee Creek) | Iron | EPA approval of TMDL (4A) | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_060 | SAND COULEE, headwaters to mouth (Sand Coulee Creek) | Nickel | EPA approval of TMDL (4A) | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_060 | SAND COULEE, headwaters to mouth (Sand Coulee Creek) | Salinity | EPA approval of TMDL (4A) | 1/24/2011 |

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| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairement | Delisting Reason | Delisting Date |
|---|---|---|---|---|---|---|---|
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_060 | SAND COULEE, headwaters to mouth (Sand Coulee Creek) | Zinc | EPA approval of TMDL (4A) | 1/24/2011 |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I004_030 | MISSOURI RIVER, Holter Dam to Little Prickly Pear Creek | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| North Fork Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_030 | JOHNSON CREEK, headwaters to mouth (North Fork Big Hole River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| O` Fallon | Lower Yellowstone | 10100005 | MT42L001_020 | SANDSTONE CREEK, headwaters to mouth (O'Fallon Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A001_020 | RED ROCK RIVER, Lower Red Rock Lake to Lima Dam | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A003_100 | BLOODY DICK CREEK, headwaters to mouth (Horse Prairie Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Red Rock | Upper Missouri Tribs. | 10020001 | MT41A004_090 | PEET CREEK, headwaters to mouth (Red Rock River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Redwater | Lower Missouri | 10060001 | MT40S002_010 | PRAIRIE ELK CREEK, East and Middle Forks to mouth (Missouri River) | Nitrogen (Total) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060001 | MT40S002_010 | PRAIRIE ELK CREEK, East and Middle Forks to mouth (Missouri River) | Phosphorus (Total) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060001 | MT40S002_010 | PRAIRIE ELK CREEK, East and Middle Forks to mouth (Missouri River) | Total Kjehldahl Nitrogen (TKN) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060001 | MT40S002_030 | SAND CREEK, confluence of East and West Forks to mouth (Missouri River) | Nitrogen (Total) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060001 | MT40S002_030 | SAND CREEK, confluence of East and West Forks to mouth (Missouri River) | Phosphorus (Total) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060001 | MT40S002_030 | SAND CREEK, confluence of East and West Forks to mouth (Missouri River) | Total Kjehldahl Nitrogen (TKN) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P001_012 | REDWATER RIVER, Hell Creek to Buffalo Springs Creek | Nitrogen (Total) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P001_012 | REDWATER RIVER, Hell Creek to Buffalo Springs Creek | Phosphorus (Total) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_010 | EAST REDWATER CREEK, headwaters to mouth (Redwater River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_010 | EAST REDWATER CREEK, headwaters to mouth (Redwater River) | Nitrogen (Total) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_010 | EAST REDWATER CREEK, headwaters to mouth (Redwater River) | Phosphorus (Total) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_010 | EAST REDWATER CREEK, headwaters to mouth (Redwater River) | Specific Conductance | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_010 | EAST REDWATER CREEK, headwaters to mouth (Redwater River) | Sulfates | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_010 | EAST REDWATER CREEK, headwaters to mouth (Redwater River) | Total Dissolved Solids | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_010 | EAST REDWATER CREEK, headwaters to mouth (Redwater River) | Total Kjehldahl Nitrogen (TKN) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_020 | HORSE CREEK, headwaters to mouth at Redwater River near town of Circle | Nitrogen (Total) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_020 | HORSE CREEK, headwaters to mouth at Redwater River near town of Circle | Phosphorus (Total) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_020 | HORSE CREEK, headwaters to mouth at Redwater River near town of Circle | Salinity | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_030 | PASTURE CREEK, headwaters to mouth at Redwater River | Nitrogen (Total) | EPA approval of TMDL (4A) | 12/29/2010 |

# Appendix D: Impairment Causes De-Listed from the 2010 303(d) List (Category 5)

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairement | Delisting Reason | Delisting Date |
|---|---|---|---|---|---|---|---|
| Redwater | Lower Missouri | 10060002 | MT40P002_030 | PASTURE CREEK, headwaters to mouth at Redwater River | Total Kjehldahl Nitrogen (TKN) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Middle Missouri | 10040104 | MT40E003_010 | TIMBER CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Nitrogen (Total) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Middle Missouri | 10040104 | MT40E003_010 | TIMBER CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Phosphorus (Total) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Middle Missouri | 10040104 | MT40E003_010 | TIMBER CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Total Kjehldahl Nitrogen (TKN) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Middle Missouri | 10040104 | MT40E003_020 | NELSON CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Nitrates | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Middle Missouri | 10040104 | MT40E003_020 | NELSON CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Nitrogen (Total) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Middle Missouri | 10040104 | MT40E003_020 | NELSON CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Phosphorus (Total) | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Middle Missouri | 10040104 | MT40E003_020 | NELSON CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Sulfates | EPA approval of TMDL (4A) | 12/29/2010 |
| Redwater | Middle Missouri | 10040104 | MT40E003_020 | NELSON CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Total Dissolved Solids | EPA approval of TMDL (4A) | 12/29/2010 |
| Rock | Upper Clark Fork | 17010202 | MT76E002_120 | FLAT GULCH, headwaters to mouth (Rock Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_020 | MILL CREEK, headwaters to mouth (Ruby River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_040 | ALDER GULCH, headwaters to mouth (Ruby River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_030 | COTTONWOOD CREEK, headwaters to mouth (Ruby River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_040 | EAST FORK RUBY RIVER, headwaters to mouth (Ruby River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_090 | MIDDLE FORK RUBY RIVER, Divide Creek to mouth (Ruby River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_120 | BASIN CREEK, headwaters to mouth (Ruby River), T11S R3W S20 | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_130 | BURNT CREEK, headwaters to mouth (Ruby River), T10S R3W S21 | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J001_010 | SMITH RIVER, North and South Forks to Hound Creek | Fecal Coliform | Other | 11/8/2011 |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_011 | NORTH FORK SMITH RIVER, Lake Sutherlin to mouth (Smith River), T9N R6E S21 | Fecal Coliform | Other | 11/8/2011 |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_020 | HOUND CREEK, Spring Creek to mouth (Smith River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_030 | SHEEP CREEK, headwaters to mouth (Smith River) | Fecal Coliform | Other | 11/8/2011 |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_030 | SHEEP CREEK, headwaters to mouth (Smith River) | Mercury | State Determines water quality standard is being met | 3/13/2012 |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_040 | BEAVER CREEK, headwaters to mouth (Smith River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_050 | BENTON GULCH, headwaters to mouth (Smith River) | Fecal Coliform | Other | 11/8/2011 |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_060 | ELK CREEK, headwaters to mouth (Camas Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |

# Appendix D: Impairment Causes De-Listed from the 2010 303(d) List (Category 5)

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairement | Delisting Reason | Delisting Date |
|---|---|---|---|---|---|---|---|
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_070 | THOMPSON GULCH, headwaters to mouth (Smith River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_082 | NEWLAN CREEK, headwaters to Newlan Reservoir | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_110 | CAMAS CREEK, junction of Big and Little Camas Creeks to mouth (Smith River) | Fecal Coliform | Other | 11/8/2011 |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_120 | MOOSE CREEK, headwaters to mouth (Sheep Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Thompson | Lower Clark Fork | 17010213 | MT76N005_060 | LAZIER CREEK, headwaters to mouth (Thompson River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Tobacco | Kootenai | 17010101 | MT76D004_010 | TOBACCO RIVER, confluence of Grave Creek & Fortine Creek to mouth (Lake Koocanusa) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 9/9/2011 |
| Tobacco | Kootenai | 17010101 | MT76D004_020 | FORTINE CREEK, headwaters to mouth (Grave Creek) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 9/9/2011 |
| Tobacco | Kootenai | 17010101 | MT76D004_030 | EDNA CREEK, headwaters to mouth (Fortine Creek) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 9/9/2011 |
| Tobacco | Kootenai | 17010101 | MT76D004_040 | SWAMP CREEK, headwaters to mouth (Fortine Creek) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 9/9/2011 |
| Tobacco | Kootenai | 17010101 | MT76D004_050 | LIME CREEK, headwaters to mouth (Fortine Creek) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 9/9/2011 |
| Tobacco | Kootenai | 17010101 | MT76D004_050 | LIME CREEK, headwaters to mouth (Fortine Creek) | Total Kjehldahl Nitrogen (TKN) | Other | 11/14/2011 |
| Tobacco | Kootenai | 17010101 | MT76D004_070 | THERRIAULT CREEK, headwaters to mouth (Tobacco River) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 9/9/2011 |
| Tobacco | Kootenai | 17010101 | MT76D004_080 | DEEP CREEK, headwaters to mouth (Fortine Creek) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 9/9/2011 |
| Tobacco | Kootenai | 17010101 | MT76D004_091 | SINCLAIR CREEK, confluence of un-named tributary, Lat -114.945 Long 48.908 to mouth (Tobacco River) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 9/9/2011 |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_180 | WARM SPRINGS CREEK, headwaters to mouth (Big Hole River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_040 | WEST FORK GALLATIN RIVER, confluence Middle and North Forks to mouth (Gallatin River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | EPA approval of TMDL (4A) | 9/30/2010 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_040 | WEST FORK GALLATIN RIVER, confluence Middle and North Forks to mouth (Gallatin River) | Nitrogen (Total) | EPA approval of TMDL (4A) | 9/30/2010 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_040 | WEST FORK GALLATIN RIVER, confluence Middle and North Forks to mouth (Gallatin River) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 9/30/2010 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_050 | MIDDLE FORK WEST FORK GALLATIN RIVER, headwaters to mouth (West Fork Gallatin River) | Escherichia coli | EPA approval of TMDL (4A) | 9/30/2010 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_050 | MIDDLE FORK WEST FORK GALLATIN RIVER, headwaters to mouth (West Fork Gallatin River) | Fecal Coliform | EPA approval of TMDL (4A) | 9/30/2010 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_050 | MIDDLE FORK WEST FORK GALLATIN RIVER, headwaters to mouth (West Fork Gallatin River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | EPA approval of TMDL (4A) | 9/30/2010 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_050 | MIDDLE FORK WEST FORK GALLATIN RIVER, headwaters to mouth (West Fork Gallatin River) | Solids (Suspended/Bedload) | EPA approval of TMDL (4A) | 9/30/2010 |

## Appendix D: Impairment Causes De-Listed from the 2010 303(d) List (Category 5)

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairement | Delisting Reason | Delisting Date |
|---|---|---|---|---|---|---|---|
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_060 | SOUTH FORK WEST FORK GALLATIN RIVER, headwaters to mouth (West Fork Gallatin River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | EPA approval of TMDL (4A) | 9/30/2010 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_060 | SOUTH FORK WEST FORK GALLATIN RIVER, headwaters to mouth (West Fork Gallatin River) | Sedimentation/Siltation | EPA approval of TMDL (4A) | 9/30/2010 |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_140 | WHITETAIL CREEK, Whitetail Reservoir to mouth (Jeferson Slough) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A002_070 | FISH CREEK, headwaters to mouth (Musselshell River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A002_080 | PAINTED ROBE CREEK, headwaters to mouth (Musselshell River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Upper/Middle Musselshell | Musselshell | 10040202 | MT40C002_010 | NORTH WILLOW CREEK, headwaters to mouth (Musselshell River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Yellowstone - Lower Bighorn | Middle Yellowstone | 10070007 | MT43Q002_010 | FLY CREEK, Crow Indian Reservation boundary to mouth (Yellowstone River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |
| Yellowstone - Lower Bighorn | Middle Yellowstone | 10080015 | MT43R002_010 | TULLOCK CREEK, Crow Indian Reservation Boundary to mouth (Bighorn River) | Total Kjehldahl Nitrogen (TKN) | Other | 11/10/2011 |

## Appendix E: Beneficial Use Support Changes during the 2012 Reporting Cycle

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Beneficial Use | 2010 | 2012 |
|---|---|---|---|---|---|---|---|
| Bitterroot | Upper Clark Fork | 17010205 | MT76H001_020 | BITTERROOT RIVER, Skalkaho Creek to Eightmile Creek | Aquatic Life | P | N |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H001_020 | BITTERROOT RIVER, Skalkaho Creek to Eightmile Creek | Primary Contact Recreation | P | N |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H001_030 | BITTERROOT RIVER, Eightmile Creek to mouth (Clark Fork River) | Aquatic Life | P | N |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_040 | MILL CREEK, Selway-Bitterroot Wilderness boundary to the mouth (Fred Burr Creek), T7N R20W S19 | Aquatic Life | X | P |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_130 | MILLER CREEK, headwaters to mouth (Bitterroot River) | Aquatic Life | P | N |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_130 | MILLER CREEK, headwaters to mouth (Bitterroot River) | Primary Contact Recreation | P | N |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H003_020 | NEZ PERCE FORK BITTERROOT RIVER, headwaters to mouth (West Fork Bitterroot River) | Aquatic Life | F | P |
| Clark Fork River | Lower Clark Fork | 17010213 | MT76N001_010 | CLARK FORK RIVER, the Flathead River to Noxon Reservoir | Aquatic Life | F | P |
| Cooke City | Upper Yellowstone | 10070001 | MT43B002_040 | MILLER CREEK, headwaters to mouth (Soda Butte Creek) | Aquatic Life | X | N |
| Cut Bank - Two Medicine | Marias | 10030201 | MT41M001_010 | TWO MEDICINE RIVER, Birch Creek to mouth (Marias River) | Aquatic Life | F | I |
| Elk Creek | Lower Clark Fork | 17010213 | MT76N003_060 | ELK CREEK, headwaters to mouth (Cabinet Gorge Reservoir) | Aquatic Life | F | N |
| Flathead - Stillwater | Flathead | 17010210 | MT76P003_020 | SWIFT CREEK, headwaters (East and West Forks) to mouth (Whitefish Lake) | Aquatic Life | P | F |
| Flathead - Stillwater | Flathead | 17010210 | MT76P003_020 | SWIFT CREEK, headwaters (East and West Forks) to mouth (Whitefish Lake) | Drinking Water | I | F |
| Flathead - Stillwater | Flathead | 17010210 | MT76P003_020 | SWIFT CREEK, headwaters (East and West Forks) to mouth (Whitefish Lake) | Primary Contact Recreation | I | F |
| Kootenai | Kootenai | 17010101 | MT76D002_020 | DRY CREEK, 1 mile upstream from State Highway 56 to mouth (Lake Creek) | Aquatic Life | F | P |
| Kootenai | Kootenai | 17010101 | MT76D002_030 | KEELER CREEK, headwaters to Lake Creek | Aquatic Life | F | P |
| Kootenai | Kootenai | 17010101 | MT76D002_100 | CRIPPLE HORSE CREEK, headwaters to mouth (Lake Koocanusa) | Aquatic Life | F | P |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_180 | NORTH FORK WARM SPRINGS CREEK, headwaters to mouth (Warmsprings Creek) | Aquatic Life | F | P |
| Lower Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_140 | SWAMP CREEK, Cabinet Mountains Wilderness boundary to mouth (Noxon Reservoir) | Aquatic Life | X | N |
| Lower Milk | Milk | 10050012 | MT40O001_010 | MILK RIVER, Beaver Creek to mouth (Missouri River) | Agricultural | P | F |
| Lower Milk | Milk | 10050012 | MT40O001_010 | MILK RIVER, Beaver Creek to mouth (Missouri River) | Primary Contact Recreation | T | N |
| Lower Yellowstone | Lower Yellowstone | 10100004 | MT42M002_080 | SMITH CREEK, headwaters to mouth (Yellowstone River) | Aquatic Life | F | P |
| Madison | Upper Missouri Tribs. | 10020007 | MT41F004_120 | GAZELLE CREEK, headwaters to mouth (West Fork Madison River) | Aquatic Life | F | P |
| Marias - Willow | Marias | 10030203 | MT41P001_022 | MARIAS RIVER, county road at T29N R6E S17 to mouth (Missouri River) | Aquatic Life | F | I |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F005_030 | DEER CREEK, headwaters to mouth (Seeley Lake) | Aquatic Life | F | P |

**F = Full Support  P = Partial Support  T = Threatened  N = Not Supported  X = Not Assessed  I = Insufficient Information**

## Appendix E: Beneficial Use Support Changes during the 2012 Reporting Cycle

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Beneficial Use | 2010 | 2012 |
|---|---|---|---|---|---|---|---|
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_010 | TAMARACK CREEK, headwaters to mouth (Clark Fork River) | Aquatic Life | X | P |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_060 | FISH CREEK, West and South Forks to mouth (Clark Fork River) | Aquatic Life | F | P |
| Middle Clark Fork Tributaries | Lower Clark Fork | 17010204 | MT76M002_120 | RATTLESNAKE CREEK, headwaters to mouth (Clark Fork River) | Aquatic Life | F | P |
| Missouri River | Middle Missouri | 10040104 | MT40E004_010 | FORT PECK RESERVOIR | Aquatic Life | I | N |
| Missouri River | Middle Missouri | 10040104 | MT40E004_010 | FORT PECK RESERVOIR | Primary Contact Recreation | P | F |
| Missouri River | Missouri-Sun-Smith | 10030101 | MT41I007_040 | HAUSER LAKE | Drinking Water | X | N |
| Paradise | Upper Yellowstone | 10070001 | MT43B002_010 | REESE CREEK, border to mouth (Yellowstone River) | Aquatic Life | F | P |
| Rosebud | Middle Yellowstone | 10100003 | MT42A001_012 | ROSEBUD CREEK, Northern Cheyenne Reservation boundary to an irrigation dam 3.8 mi above the mouth | Aquatic Life | X | P |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_080 | WEST FORK RUBY RIVER, headwaters to mouth (Ruby River) | Aquatic Life | F | P |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_150 | SHOVEL CREEK, headwaters to mouth (Cabin Creek) | Aquatic Life | F | P |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_030 | SHEEP CREEK, headwaters to mouth (Smith River) | Aquatic Life | X | N |
| Smith | Missouri-Sun-Smith | 10030103 | MT41J002_030 | SHEEP CREEK, headwaters to mouth (Smith River) | Drinking Water | N | F |
| St. Regis | Lower Clark Fork | 17010204 | MT76M003_030 | SILVER CREEK, headwaters to mouth (St. Regis River) | Aquatic Life | F | P |
| Tobacco | Kootenai | 17010101 | MT76D004_091 | SINCLAIR CREEK, confluence of un-named tributary, Lat -114.945 Long 48.908 to mouth (Tobacco River) | Aquatic Life | X | N |
| Upper/Middle Musselshell | Musselshell | 10040201 | MT40A002_020 | ANTELOPE CREEK, headwaters to mouth (Musselshell River) | Aquatic Life | F | I |
| Yellowstone - Sweet Grass | Upper Yellowstone | 10070004 | MT43F002_030 | KEYSER CREEK, headwaters to mouth (Yellowstone River) | Aquatic Life | F | I |
| Yellowstone River | Lower Yellowstone | 10100001 | MT42K001_020 | YELLOWSTONE RIVER, the Big Horn to Cartersville Diversion Dam | Aquatic Life | X | P |
| Yellowstone River | Lower Yellowstone | 10100004 | MT42M001_012 | YELLOWSTONE RIVER, Powder River to Lower Yellowstone Diversion Dam | Aquatic Life | X | P |
| Yellowstone River | Middle Yellowstone | 10070007 | MT43Q001_011 | YELLOWSTONE RIVER, Huntley Diversion Dam to mouth of Big Horn River | Primary Contact Recreation | I | N |

**F = Full Support  P = Partial Support  T = Threatened  N = Not Supported  X = Not Assessed  I = Insufficient Information**

## Appendix F: EPA-Approved TMDLs

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_011 | BELT CREEK, headwaters to Big Otter Creek | Arsenic | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_011 | BELT CREEK, headwaters to Big Otter Creek | Cadmium | 2012 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_011 | BELT CREEK, headwaters to Big Otter Creek | Copper | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_011 | BELT CREEK, headwaters to Big Otter Creek | Lead | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_011 | BELT CREEK, headwaters to Big Otter Creek | Zinc | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_012 | BELT CREEK, Big Otter Creek to mouth (Missouri River) | Arsenic | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_012 | BELT CREEK, Big Otter Creek to mouth (Missouri River) | Cadmium | 2012 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_012 | BELT CREEK, Big Otter Creek to mouth (Missouri River) | Iron | 2012 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_012 | BELT CREEK, Big Otter Creek to mouth (Missouri River) | Lead | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_012 | BELT CREEK, Big Otter Creek to mouth (Missouri River) | Salinity | 2006 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U001_012 | BELT CREEK, Big Otter Creek to mouth (Missouri River) | Zinc | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_010 | CARPENTER CREEK, headwaters to mouth (Belt Creek) | Arsenic | 2012 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_010 | CARPENTER CREEK, headwaters to mouth (Belt Creek) | Cadmium | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_010 | CARPENTER CREEK, headwaters to mouth (Belt Creek) | Copper | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_010 | CARPENTER CREEK, headwaters to mouth (Belt Creek) | Iron | 2012 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_010 | CARPENTER CREEK, headwaters to mouth (Belt Creek) | Lead | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_010 | CARPENTER CREEK, headwaters to mouth (Belt Creek) | Silver | 2012 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_010 | CARPENTER CREEK, headwaters to mouth (Belt Creek) | Zinc | 2012 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_020 | GALENA CREEK, headwaters to mouth (Dry Fork Belt Creek) | Arsenic | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_020 | GALENA CREEK, headwaters to mouth (Dry Fork Belt Creek) | Cadmium | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_020 | GALENA CREEK, headwaters to mouth (Dry Fork Belt Creek) | Copper | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_020 | GALENA CREEK, headwaters to mouth (Dry Fork Belt Creek) | Iron | 2012 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_020 | GALENA CREEK, headwaters to mouth (Dry Fork Belt Creek) | Lead | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_020 | GALENA CREEK, headwaters to mouth (Dry Fork Belt Creek) | Zinc | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_030 | DRY FORK BELT CREEK, headwaters to mouth (Belt Creek) | Arsenic | 2012 | 1/24/2011 |

## Appendix F: EPA-Approved TMDLs

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_030 | DRY FORK BELT CREEK, headwaters to mouth (Belt Creek) | Cadmium | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_030 | DRY FORK BELT CREEK, headwaters to mouth (Belt Creek) | Copper | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_030 | DRY FORK BELT CREEK, headwaters to mouth (Belt Creek) | Iron | 2012 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_030 | DRY FORK BELT CREEK, headwaters to mouth (Belt Creek) | Lead | 1988 | 1/24/2011 |
| Belt | Missouri-Sun-Smith | 10030105 | MT41U002_030 | DRY FORK BELT CREEK, headwaters to mouth (Belt Creek) | Zinc | 1988 | 1/24/2011 |
| Big Creek (Columbia) | Flathead | 17010206 | MT76Q002_050 | BIG CREEK, tributary to North Fork of the Flathead River | Sedimentation/Siltation | 1992 | 6/9/2003 |
| Big Sandy - Sage | Milk | 10050005 | MT40H001_010 | BIG SANDY CREEK, Lonesome Lake Coulee to mouth (Milk River) | Salinity | 1988 | 4/23/2002 |
| Big Sandy - Sage | Milk | 10050005 | MT40H001_010 | BIG SANDY CREEK, Lonesome Lake Coulee to mouth (Milk River) | Sulfates | 1988 | 4/23/2002 |
| Big Sandy - Sage | Milk | 10050005 | MT40H001_010 | BIG SANDY CREEK, Lonesome Lake Coulee to mouth (Milk River) | Total Dissolved Solids | 1988 | 4/23/2002 |
| Big Sandy - Sage | Milk | 10050006 | MT40G001_011 | SAGE CREEK, Laird Creek to the confluence of Russell Creek, T36N R9E S32 | Salinity | 1988 | 4/23/2002 |
| Big Sandy - Sage | Milk | 10050006 | MT40G001_011 | SAGE CREEK, Laird Creek to the confluence of Russell Creek, T36N R9E S32 | Sulfates | 1988 | 4/23/2002 |
| Big Sandy - Sage | Milk | 10050006 | MT40G001_011 | SAGE CREEK, Laird Creek to the confluence of Russell Creek, T36N R9E S32 | Total Dissolved Solids | 1988 | 4/23/2002 |
| Big Sandy - Sage | Milk | 10050006 | MT40G001_012 | SAGE CREEK, the section line between 1 & 12 T36N R6E to the mouth | Salinity | 1988 | 4/23/2002 |
| Big Sandy - Sage | Milk | 10050006 | MT40G001_012 | SAGE CREEK, the section line between 1 & 12 T36N R6E to the mouth | Sulfates | 1988 | 4/23/2002 |
| Big Sandy - Sage | Milk | 10050006 | MT40G001_012 | SAGE CREEK, the section line between 1 & 12 T36N R6E to the mouth | Total Dissolved Solids | 1988 | 4/23/2002 |
| Big Springs | Middle Missouri | 10040103 | MT41S004_010 | BIG SPRING CREEK, East Fork Big Spring Creek to Casino Creek | Polychlorinated biphenyls | 2004 | 9/29/2005 |
| Big Springs | Middle Missouri | 10040103 | MT41S004_020 | BIG SPRING CREEK, confluence of Casino Creek to mouth (Judith River) | Nitrogen (Total) | 2008 | 9/29/2005 |
| Big Springs | Middle Missouri | 10040103 | MT41S004_020 | BIG SPRING CREEK, confluence of Casino Creek to mouth (Judith River) | Phosphorus (Total) | 1996 | 9/29/2005 |
| Big Springs | Middle Missouri | 10040103 | MT41S004_020 | BIG SPRING CREEK, confluence of Casino Creek to mouth (Judith River) | Polychlorinated biphenyls | 2000 | 9/29/2005 |
| Big Springs | Middle Missouri | 10040103 | MT41S004_020 | BIG SPRING CREEK, confluence of Casino Creek to mouth (Judith River) | Sedimentation/Siltation | 1996 | 9/29/2005 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H001_020 | BITTERROOT RIVER, Skalkaho Creek to Eightmile Creek | Temperature, water | 1988 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H001_030 | BITTERROOT RIVER, Eightmile Creek to mouth (Clark Fork River) | Temperature, water | 2012 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_010 | BASS CREEK, Selway-Bitterroot Wilderness boundary to mouth (un-named channel of Bitterroot River), T9N R20W S3 | Sedimentation/Siltation | 2012 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_090 | SLEEPING CHILD CREEK, headwaters to mouth (Bitterroot River) | Sedimentation/Siltation | 1988 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_090 | SLEEPING CHILD CREEK, headwaters to mouth (Bitterroot River) | Temperature, water | 1990 | 8/17/2011 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_110 | WILLOW CREEK, headwaters to mouth (Bitterroot River) | Sedimentation/Siltation | 1992 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_110 | WILLOW CREEK, headwaters to mouth (Bitterroot River) | Temperature, water | 2006 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_120 | AMBROSE CREEK, headwaters to mouth (Threemile Creek) | Sedimentation/Siltation | 2012 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_130 | MILLER CREEK, headwaters to mouth (Bitterroot River) | Sedimentation/Siltation | 1992 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_130 | MILLER CREEK, headwaters to mouth (Bitterroot River) | Temperature, water | 1992 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_140 | THREEMILE CREEK, headwaters to mouth (Bitterroot River) | Sedimentation/Siltation | 1996 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_150 | McCLAIN CREEK, headwaters to mouth (Sin-tin-tin-em-ska Creek), T11N R20W S23 | Sedimentation/Siltation | 1992 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_170 | LICK CREEK, headwaters to mouth (Bitterroot River) | Sedimentation/Siltation | 1992 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_180 | MUDDY SPRING CREEK, headwaters to mouth (Gold Creek) T7N R19W S2 | Sedimentation/Siltation | 1992 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_190 | RYE CREEK, North Fork to mouth (Bitterroot River) | Sedimentation/Siltation | 2000 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_200 | NORTH BURNT FORK CREEK, confluence with South Burnt Fork Creek to Mouth (Bitterroot River) | Bottom Deposits | 2002 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H004_210 | SWEATHOUSE CREEK, headwaters to mouth (Bitterroot River) | Sedimentation/Siltation | 2012 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H005_011 | LOLO CREEK, Mormon Creek to mouth (Bitterroot River) | Sedimentation/Siltation | 2002 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H005_012 | LOLO CREEK, Sheldon Creek to Mormon Creek | Sedimentation/Siltation | 2002 | 8/17/2011 |
| Bitterroot | Upper Clark Fork | 17010205 | MT76H005_013 | LOLO CREEK, headwaters to Sheldon Creek | Sedimentation/Siltation | 2002 | 8/17/2011 |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H002_010 | EAST FORK BITTERROOT RIVER, Anaconda-Pintlar Wilderness boundary to mouth (Bitterroot River) | Sedimentation/Siltation | 1992 | 4/12/2006 |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H002_010 | EAST FORK BITTERROOT RIVER, Anaconda-Pintlar Wilderness boundary to mouth (Bitterroot River) | Temperature, water | 2006 | 4/12/2006 |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H002_020 | REIMEL CREEK, headwaters to mouth (East Fork Bitterroot River) | Sedimentation/Siltation | 1992 | 4/12/2006 |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H002_070 | LAIRD CREEK, headwaters to mouth (East Fork Bitterroot River), T2N R20 S35 | Sedimentation/Siltation | 1992 | 4/12/2006 |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H002_080 | GILBERT CREEK, headwaters to mouth (Laird Creek), T1N R20W S10 | Sedimentation/Siltation | 1992 | 4/12/2006 |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H003_010 | WEST FORK BITTERROOT RIVER, headwaters to mouth | Sedimentation/Siltation | 1988 | 4/12/2006 |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H003_010 | WEST FORK BITTERROOT RIVER, headwaters to mouth | Temperature, water | 2008 | 4/12/2006 |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H003_020 | NEZ PERCE FORK BITTERROOT RIVER, headwaters to mouth (West Fork Bitterroot River) | Temperature, water | 1996 | 4/12/2006 |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H003_040 | HUGHES CREEK, headwaters to the mouth (West Fork Bitterroot River) | Sedimentation/Siltation | 1988 | 4/12/2006 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H003_040 | HUGHES CREEK, headwaters to the mouth (West Fork Bitterroot River) | Temperature, water | 1990 | 4/12/2006 |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H003_050 | OVERWHICH CREEK, headwaters to mouth (West Fork Bitterroot River) | Temperature, water | 1992 | 4/12/2006 |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H003_060 | DITCH CREEK, headwaters to mouth (West Fork Bitterroot River) | Sedimentation/Siltation | 1992 | 4/12/2006 |
| Bitterroot Headwaters | Upper Clark Fork | 17010205 | MT76H003_070 | BUCK CREEK, headwaters to mouth (West Fork Bitterroot), T1N R22W S36 | Sedimentation/Siltation | 2010 | 4/12/2006 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F001_010 | BLACKFOOT RIVER, headwaters to Landers Fork | Cadmium | 1996 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F001_010 | BLACKFOOT RIVER, headwaters to Landers Fork | Copper | 1996 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F001_010 | BLACKFOOT RIVER, headwaters to Landers Fork | Iron | 1996 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F001_010 | BLACKFOOT RIVER, headwaters to Landers Fork | Lead | 1996 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F001_010 | BLACKFOOT RIVER, headwaters to Landers Fork | Manganese | 1996 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F001_010 | BLACKFOOT RIVER, headwaters to Landers Fork | Zinc | 1996 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F001_020 | BLACKFOOT RIVER, Landers Fork to Nevada Creek | Aluminum | 1996 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F001_020 | BLACKFOOT RIVER, Landers Fork to Nevada Creek | Cadmium | 1996 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F001_020 | BLACKFOOT RIVER, Landers Fork to Nevada Creek | Iron | 1996 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F001_020 | BLACKFOOT RIVER, Landers Fork to Nevada Creek | Sedimentation/Siltation | 1996 | 5/19/2004 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F001_020 | BLACKFOOT RIVER, Landers Fork to Nevada Creek | Zinc | 1996 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_020 | WILLOW CREEK, Sandbar Creek to mouth (Blackfoot River), T15N R7W S34 | Sedimentation/Siltation | 2002 | 5/19/2004 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_030 | POORMAN CREEK, headwaters to mouth (Blackfoot River) | Cadmium | 1990 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_030 | POORMAN CREEK, headwaters to mouth (Blackfoot River) | Copper | 1990 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_030 | POORMAN CREEK, headwaters to mouth (Blackfoot River) | Lead | 1990 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_030 | POORMAN CREEK, headwaters to mouth (Blackfoot River) | Sedimentation/Siltation | 1988 | 5/19/2004 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_040 | BEARTRAP CREEK, Mike Horse Creek to mouth (Blackfoot River) | Cadmium | 1988 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_040 | BEARTRAP CREEK, Mike Horse Creek to mouth (Blackfoot River) | Copper | 1988 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_040 | BEARTRAP CREEK, Mike Horse Creek to mouth (Blackfoot River) | Iron | 1988 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_040 | BEARTRAP CREEK, Mike Horse Creek to mouth (Blackfoot River) | Lead | 1988 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_040 | BEARTRAP CREEK, Mike Horse Creek to mouth (Blackfoot River) | Manganese | 1988 | 10/10/2003 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_040 | BEARTRAP CREEK, Mike Horse Creek to mouth (Blackfoot River) | Zinc | 1988 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_060 | SANDBAR CREEK, forks to mouth (Willow Creek) | Aluminum | 1990 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_060 | SANDBAR CREEK, forks to mouth (Willow Creek) | Copper | 1990 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_060 | SANDBAR CREEK, forks to mouth (Willow Creek) | Iron | 1990 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_060 | SANDBAR CREEK, forks to mouth (Willow Creek) | Manganese | 1990 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F002_070 | ARRASTRA CREEK, headwaters to mouth (Blackfoot River) | Sedimentation/Siltation | 1992 | 5/19/2004 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F003_010 | MIKE HORSE CREEK, headwaters to mouth (Beartrap Creek) | Aluminum | 2006 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F003_010 | MIKE HORSE CREEK, headwaters to mouth (Beartrap Creek) | Cadmium | 2006 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F003_010 | MIKE HORSE CREEK, headwaters to mouth (Beartrap Creek) | Copper | 2006 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F003_010 | MIKE HORSE CREEK, headwaters to mouth (Beartrap Creek) | Iron | 2006 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F003_010 | MIKE HORSE CREEK, headwaters to mouth (Beartrap Creek) | Lead | 2006 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F003_010 | MIKE HORSE CREEK, headwaters to mouth (Beartrap Creek) | Manganese | 2006 | 10/10/2003 |
| Blackfoot Headwaters | Upper Clark Fork | 17010203 | MT76F003_010 | MIKE HORSE CREEK, headwaters to mouth (Beartrap Creek) | Zinc | 2006 | 10/10/2003 |
| Bobtail Creek | Kootenai | 17010101 | MT76D002_080 | BOBTAIL CREEK, headwaters to mouth (Kootenai River) | Sedimentation/Siltation | 2000 | 4/27/2005 |
| Bobtail Creek | Kootenai | 17010101 | MT76D002_080 | BOBTAIL CREEK, headwaters to mouth (Kootenai River) | Turbidity | 2000 | 4/27/2005 |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_131 | BOULDER RIVER, five miles upstream of mouth (Yellowstone River) | Copper | 2004 | 9/11/2009 |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_131 | BOULDER RIVER, five miles upstream of mouth (Yellowstone River) | Iron | 2004 | 9/11/2009 |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_131 | BOULDER RIVER, five miles upstream of mouth (Yellowstone River) | Lead | 2004 | 9/11/2009 |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_132 | BOULDER RIVER, Natural Bridge and Falls in T3S R12E S26 to 5 miles above the mouth, T1N R14E S34 | Copper | 2010 | 9/11/2009 |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_132 | BOULDER RIVER, Natural Bridge and Falls in T3S R12E S26 to 5 miles above the mouth, T1N R14E S34 | Iron | 2010 | 9/11/2009 |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_132 | BOULDER RIVER, Natural Bridge and Falls in T3S R12E S26 to 5 miles above the mouth, T1N R14E S34 | Lead | 2010 | 9/11/2009 |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_133 | BOULDER RIVER, confluence of the East Fork boulder River to Natural bridge and Falls | Copper | 2010 | 9/11/2009 |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_133 | BOULDER RIVER, confluence of the East Fork boulder River to Natural bridge and Falls | Iron | 2010 | 9/11/2009 |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_133 | BOULDER RIVER, confluence of the East Fork boulder River to Natural bridge and Falls | Lead | 2010 | 9/11/2009 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_134 | BOULDER RIVER, headwaters to confluence of East Fork Boulder River | Copper | 2006 | 9/11/2009 |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_134 | BOULDER RIVER, headwaters to confluence of East Fork Boulder River | Iron | 2010 | 9/11/2009 |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B004_134 | BOULDER RIVER, headwaters to confluence of East Fork Boulder River | Lead | 2006 | 9/11/2009 |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B005_010 | BASIN CREEK, headwater to mouth (Boulder River) | Copper | 2010 | 9/11/2009 |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B005_010 | BASIN CREEK, headwater to mouth (Boulder River) | Iron | 2010 | 9/11/2009 |
| Boulder - Big Timber | Upper Yellowstone | 10070002 | MT43B005_010 | BASIN CREEK, headwater to mouth (Boulder River) | Lead | 2010 | 9/11/2009 |
| Careless Creek | Musselshell | 10040201 | MT40A002_050 | CARELESS CREEK, confluence with Deadmans Basin Canal to mouth (Musselshell River) | Sedimentation/Siltation | 1988 | 12/21/2001 |
| Clark Fork River | Lower Clark Fork | 17010204 | MT76M001_010 | CLARK FORK RIVER, the Flathead River to Fish Creek | Nitrogen (Total) | 2000 | 10/21/1998 |
| Clark Fork River | Lower Clark Fork | 17010204 | MT76M001_010 | CLARK FORK RIVER, the Flathead River to Fish Creek | Phosphorus (Total) | 2000 | 10/21/1998 |
| Clark Fork River | Lower Clark Fork | 17010204 | MT76M001_020 | CLARK FORK RIVER, Fish Creek to Rattlesnake Creek | Chlorophyll-a | 1988 | 10/21/1998 |
| Clark Fork River | Lower Clark Fork | 17010204 | MT76M001_020 | CLARK FORK RIVER, Fish Creek to Rattlesnake Creek | Nitrogen (Total) | 1990 | 10/21/1998 |
| Clark Fork River | Lower Clark Fork | 17010204 | MT76M001_020 | CLARK FORK RIVER, Fish Creek to Rattlesnake Creek | Organic Enrichment (Sewage) Biological Indicators | 1990 | 10/21/1998 |
| Clark Fork River | Lower Clark Fork | 17010204 | MT76M001_020 | CLARK FORK RIVER, Fish Creek to Rattlesnake Creek | Phosphorus (Total) | 1990 | 10/21/1998 |
| Clark Fork River | Lower Clark Fork | 17010204 | MT76M001_030 | CLARK FORK RIVER, Rattlesnake Creek to Blackfoot River | Nutrient/Eutrophication Biological Indicators | 2000 | 10/21/1998 |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_010 | CLARK FORK RIVER, Flint Creek to Little Blackfoot River | Nitrogen (Total) | 1996 | 10/21/1998 |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_010 | CLARK FORK RIVER, Flint Creek to Little Blackfoot River | Phosphorus (Total) | 1996 | 10/21/1998 |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_030 | CLARK FORK RIVER, the Little Blackfoot River to Cottonwood Creek | Nitrogen (Total) | 1990 | 10/21/1998 |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_030 | CLARK FORK RIVER, the Little Blackfoot River to Cottonwood Creek | Phosphorus (Total) | 1990 | 10/21/1998 |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_040 | CLARK FORK RIVER, Cottonwood Creek to Warm Springs Creek | Nitrogen (Total) | 1990 | 10/21/1998 |
| Clark Fork River | Upper Clark Fork | 17010201 | MT76G001_040 | CLARK FORK RIVER, Cottonwood Creek to Warm Springs Creek | Phosphorus (Total) | 1990 | 10/21/1998 |
| Clark Fork River | Upper Clark Fork | 17010202 | MT76E001_010 | CLARK FORK RIVER, Flint Creek to Blackfoot River | Nitrogen (Total) | 1994 | 10/21/1998 |
| Clark Fork River | Upper Clark Fork | 17010202 | MT76E001_010 | CLARK FORK RIVER, Flint Creek to Blackfoot River | Phosphorus (Total) | 1994 | 10/21/1998 |
| Cooke City | Upper Yellowstone | 10070001 | MT43B002_031 | SODA BUTTE CREEK, McLaren Tailings to Montana Border | Copper | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070001 | MT43B002_031 | SODA BUTTE CREEK, McLaren Tailings to Montana Border | Iron | 1996 | 1/6/2003 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Cooke City | Upper Yellowstone | 10070001 | MT43B002_031 | SODA BUTTE CREEK, McLaren Tailings to Montana Border | Lead | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070001 | MT43B002_031 | SODA BUTTE CREEK, McLaren Tailings to Montana Border | Manganese | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070001 | MT43B002_040 | MILLER CREEK, headwaters to mouth (Soda Butte Creek) | Aluminum | 2006 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070001 | MT43B002_040 | MILLER CREEK, headwaters to mouth (Soda Butte Creek) | Cadmium | 2006 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070001 | MT43B002_040 | MILLER CREEK, headwaters to mouth (Soda Butte Creek) | Copper | 2006 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070001 | MT43B002_040 | MILLER CREEK, headwaters to mouth (Soda Butte Creek) | Iron | 2006 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070001 | MT43B002_040 | MILLER CREEK, headwaters to mouth (Soda Butte Creek) | Lead | 2006 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070001 | MT43B002_040 | MILLER CREEK, headwaters to mouth (Soda Butte Creek) | Manganese | 2006 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070001 | MT43B002_040 | MILLER CREEK, headwaters to mouth (Soda Butte Creek) | Zinc | 2006 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070005 | MT43C001_010 | STILLWATER RIVER, headwaters to Flood Creek | Copper | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070005 | MT43C001_010 | STILLWATER RIVER, headwaters to Flood Creek | Iron | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070005 | MT43C001_010 | STILLWATER RIVER, headwaters to Flood Creek | Manganese | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070005 | MT43C001_010 | STILLWATER RIVER, headwaters to Flood Creek | pH | 2002 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070005 | MT43C001_010 | STILLWATER RIVER, headwaters to Flood Creek | Sedimentation/Siltation | 2002 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070005 | MT43C002_140 | DAISY CREEK, headwaters to mouth (Stillwater River) | Aluminum | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070005 | MT43C002_140 | DAISY CREEK, headwaters to mouth (Stillwater River) | Cadmium | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070005 | MT43C002_140 | DAISY CREEK, headwaters to mouth (Stillwater River) | Copper | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070005 | MT43C002_140 | DAISY CREEK, headwaters to mouth (Stillwater River) | Iron | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070005 | MT43C002_140 | DAISY CREEK, headwaters to mouth (Stillwater River) | Lead | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070005 | MT43C002_140 | DAISY CREEK, headwaters to mouth (Stillwater River) | Manganese | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070005 | MT43C002_140 | DAISY CREEK, headwaters to mouth (Stillwater River) | pH | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070005 | MT43C002_140 | DAISY CREEK, headwaters to mouth (Stillwater River) | Sedimentation/Siltation | 2000 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070005 | MT43C002_140 | DAISY CREEK, headwaters to mouth (Stillwater River) | Zinc | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070006 | MT43D001_020 | CLARKS FORK YELLOWSTONE RIVER, headwaters to Montana Border | Cadmium | 1992 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070006 | MT43D001_020 | CLARKS FORK YELLOWSTONE RIVER, headwaters to Montana Border | Copper | 1992 | 1/6/2003 |

## Appendix F: EPA-Approved TMDLs

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Cooke City | Upper Yellowstone | 10070006 | MT43D001_020 | CLARKS FORK YELLOWSTONE RIVER, headwaters to Montana Border | Lead | 1992 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070006 | MT43D001_020 | CLARKS FORK YELLOWSTONE RIVER, headwaters to Montana Border | pH | 1992 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070006 | MT43D001_020 | CLARKS FORK YELLOWSTONE RIVER, headwaters to Montana Border | Silver | 1992 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070006 | MT43D001_020 | CLARKS FORK YELLOWSTONE RIVER, headwaters to Montana Border | Zinc | 1992 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070006 | MT43D002_110 | FISHER CREEK, headwaters to mouth (Clarks Fork Yellowstone River) | Aluminum | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070006 | MT43D002_110 | FISHER CREEK, headwaters to mouth (Clarks Fork Yellowstone River) | Cadmium | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070006 | MT43D002_110 | FISHER CREEK, headwaters to mouth (Clarks Fork Yellowstone River) | Copper | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070006 | MT43D002_110 | FISHER CREEK, headwaters to mouth (Clarks Fork Yellowstone River) | Iron | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070006 | MT43D002_110 | FISHER CREEK, headwaters to mouth (Clarks Fork Yellowstone River) | Lead | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070006 | MT43D002_110 | FISHER CREEK, headwaters to mouth (Clarks Fork Yellowstone River) | Manganese | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070006 | MT43D002_110 | FISHER CREEK, headwaters to mouth (Clarks Fork Yellowstone River) | pH | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070006 | MT43D002_110 | FISHER CREEK, headwaters to mouth (Clarks Fork Yellowstone River) | Sedimentation/Siltation | 2002 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070006 | MT43D002_110 | FISHER CREEK, headwaters to mouth (Clarks Fork Yellowstone River) | Silver | 1996 | 1/6/2003 |
| Cooke City | Upper Yellowstone | 10070006 | MT43D002_110 | FISHER CREEK, headwaters to mouth (Clarks Fork Yellowstone River) | Zinc | 1996 | 1/6/2003 |
| Dearborn | Missouri-Sun-Smith | 10030102 | MT41Q003_020 | MIDDLE FORK DEARBORN RIVER, headwaters to mouth (Dearborn River) | Sedimentation/Siltation | 1988 | 5/25/2005 |
| Dearborn | Missouri-Sun-Smith | 10030102 | MT41Q003_030 | SOUTH FORK DEARBORN RIVER, headwaters to mouth (Dearborn River) | Sedimentation/Siltation | 2002 | 5/25/2005 |
| Dearborn | Missouri-Sun-Smith | 10030102 | MT41Q003_040 | FLAT CREEK, Henry Creek to mouth (Dearborn River) | Sedimentation/Siltation | 1988 | 5/25/2005 |
| Deep Creek | Missouri-Sun-Smith | 10030101 | MT41I002_070 | DEEP CREEK, National Forest Boundary to mouth (Missouri River) | Sedimentation/Siltation | 1988 | 10/16/1997 |
| Elk Creek | Lower Clark Fork | 17010213 | MT76N003_060 | ELK CREEK, headwaters to mouth (Cabinet Gorge Reservoir) | Sedimentation/Siltation | 1988 | 12/8/1998 |
| Flathead Headwaters | Flathead | 17010206 | MT76Q002_080 | COAL CREEK, South Fork to mouth (North Fork Flathead) | Sedimentation/Siltation | 2006 | 5/24/2005 |
| Flathead Lake | Flathead | 17010208 | MT76O003_010 | FLATHEAD LAKE | Nitrogen (Total) | 1996 | 3/31/2002 |
| Flathead Lake | Flathead | 17010208 | MT76O003_010 | FLATHEAD LAKE | Phosphorus (Total) | 1996 | 3/31/2002 |
| Grave Creek | Kootenai | 17010101 | MT76D004_060 | GRAVE CREEK, Foundation Creek to mouth (Fortine Creek) | Sedimentation/Siltation | 1990 | 5/10/2005 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_020 | PRICKLY PEAR CREEK, Helena WWTP Discharge Ditch to Lake Helena | Arsenic | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_020 | PRICKLY PEAR CREEK, Helena WWTP Discharge Ditch to Lake Helena | Cadmium | 1988 | 10/2/2006 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_020 | PRICKLY PEAR CREEK, Helena WWTP Discharge Ditch to Lake Helena | Copper | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_020 | PRICKLY PEAR CREEK, Helena WWTP Discharge Ditch to Lake Helena | Lead | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_020 | PRICKLY PEAR CREEK, Helena WWTP Discharge Ditch to Lake Helena | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1990 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_020 | PRICKLY PEAR CREEK, Helena WWTP Discharge Ditch to Lake Helena | Nitrogen (Total) | 2010 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_020 | PRICKLY PEAR CREEK, Helena WWTP Discharge Ditch to Lake Helena | Phosphorus (Total) | 2008 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_020 | PRICKLY PEAR CREEK, Helena WWTP Discharge Ditch to Lake Helena | Sedimentation/Siltation | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_020 | PRICKLY PEAR CREEK, Helena WWTP Discharge Ditch to Lake Helena | Zinc | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_030 | PRICKLY PEAR CREEK, Highway 433 (Wylie Dr.) Crossing to Helena WWTP Discharge | Arsenic | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_030 | PRICKLY PEAR CREEK, Highway 433 (Wylie Dr.) Crossing to Helena WWTP Discharge | Cadmium | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_030 | PRICKLY PEAR CREEK, Highway 433 (Wylie Dr.) Crossing to Helena WWTP Discharge | Copper | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_030 | PRICKLY PEAR CREEK, Highway 433 (Wylie Dr.) Crossing to Helena WWTP Discharge | Lead | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_030 | PRICKLY PEAR CREEK, Highway 433 (Wylie Dr.) Crossing to Helena WWTP Discharge | Nitrogen (Total) | 2008 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_030 | PRICKLY PEAR CREEK, Highway 433 (Wylie Dr.) Crossing to Helena WWTP Discharge | Phosphorus (Total) | 2008 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_030 | PRICKLY PEAR CREEK, Highway 433 (Wylie Dr.) Crossing to Helena WWTP Discharge | Sedimentation/Siltation | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_030 | PRICKLY PEAR CREEK, Highway 433 (Wylie Dr.) Crossing to Helena WWTP Discharge | Zinc | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_040 | PRICKLY PEAR CREEK, Lump Gulch to County Road Wylie Drive | Arsenic | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_040 | PRICKLY PEAR CREEK, Lump Gulch to County Road Wylie Drive | Cadmium | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_040 | PRICKLY PEAR CREEK, Lump Gulch to County Road Wylie Drive | Copper | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_040 | PRICKLY PEAR CREEK, Lump Gulch to County Road Wylie Drive | Lead | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_040 | PRICKLY PEAR CREEK, Lump Gulch to County Road Wylie Drive | Sedimentation/Siltation | 2000 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_040 | PRICKLY PEAR CREEK, Lump Gulch to County Road Wylie Drive | Temperature, water | 2010 | 9/27/2009 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_040 | PRICKLY PEAR CREEK, Lump Gulch to County Road Wylie Drive | Zinc | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_050 | PRICKLY PEAR CREEK, Spring Creek to Lump Gulch | Cadmium | 2000 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_050 | PRICKLY PEAR CREEK, Spring Creek to Lump Gulch | Lead | 2000 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_050 | PRICKLY PEAR CREEK, Spring Creek to Lump Gulch | Sedimentation/Siltation | 1988 | 9/27/2006 |

## Appendix F: EPA-Approved TMDLs

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_050 | PRICKLY PEAR CREEK, Spring Creek to Lump Gulch | Zinc | 2000 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_060 | PRICKLY PEAR CREEK, headwaters to Spring Creek | Lead | 1992 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_060 | PRICKLY PEAR CREEK, headwaters to Spring Creek | Total Suspended Solids (TSS) | 2008 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_070 | GOLCONDA CREEK, headwaters to mouth (Prickly Pear Creek), T7N R3W S8 | Cadmium | 1992 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_070 | GOLCONDA CREEK, headwaters to mouth (Prickly Pear Creek), T7N R3W S8 | Lead | 1992 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_080 | SPRING CREEK, Corbin Creek to mouth (Prickly Pear Creek) | Arsenic | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_080 | SPRING CREEK, Corbin Creek to mouth (Prickly Pear Creek) | Cadmium | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_080 | SPRING CREEK, Corbin Creek to mouth (Prickly Pear Creek) | Copper | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_080 | SPRING CREEK, Corbin Creek to mouth (Prickly Pear Creek) | Lead | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_080 | SPRING CREEK, Corbin Creek to mouth (Prickly Pear Creek) | Nitrogen (Total) | 2008 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_080 | SPRING CREEK, Corbin Creek to mouth (Prickly Pear Creek) | Phosphorus (Total) | 2008 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_080 | SPRING CREEK, Corbin Creek to mouth (Prickly Pear Creek) | Total Suspended Solids (TSS) | 2008 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_080 | SPRING CREEK, Corbin Creek to mouth (Prickly Pear Creek) | Zinc | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_090 | CORBIN CREEK, headwaters to mouth (Spring Creek) | Arsenic | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_090 | CORBIN CREEK, headwaters to mouth (Spring Creek) | Cadmium | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_090 | CORBIN CREEK, headwaters to mouth (Spring Creek) | Copper | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_090 | CORBIN CREEK, headwaters to mouth (Spring Creek) | Lead | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_090 | CORBIN CREEK, headwaters to mouth (Spring Creek) | Solids (Suspended/Bedload) | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_090 | CORBIN CREEK, headwaters to mouth (Spring Creek) | Zinc | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_100 | MIDDLE FORK WARM SPRINGS CREEK, headwaters to mouth (Warm Springs Creek-Prickly Pear Creek) | Arsenic | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_100 | MIDDLE FORK WARM SPRINGS CREEK, headwaters to mouth (Warm Springs Creek-Prickly Pear Creek) | Cadmium | 2008 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_100 | MIDDLE FORK WARM SPRINGS CREEK, headwaters to mouth (Warm Springs Creek-Prickly Pear Creek) | Lead | 2008 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_100 | MIDDLE FORK WARM SPRINGS CREEK, headwaters to mouth (Warm Springs Creek-Prickly Pear Creek) | Sedimentation/Siltation | 1990 | 10/2/2006 |

## Appendix F: EPA-Approved TMDLs

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_100 | MIDDLE FORK WARM SPRINGS CREEK, headwaters to mouth (Warm Springs Creek-Prickly Pear Creek) | Zinc | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_110 | WARM SPRINGS CREEK, the Middle Fork to mouth (Prickly Pear Creek) | Arsenic | 1990 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_110 | WARM SPRINGS CREEK, the Middle Fork to mouth (Prickly Pear Creek) | Cadmium | 1990 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_110 | WARM SPRINGS CREEK, the Middle Fork to mouth (Prickly Pear Creek) | Lead | 1990 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_110 | WARM SPRINGS CREEK, the Middle Fork to mouth (Prickly Pear Creek) | Sedimentation/Siltation | 1990 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_110 | WARM SPRINGS CREEK, the Middle Fork to mouth (Prickly Pear Creek) | Zinc | 2008 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_120 | CLANCY CREEK, headwaters to mouth (Prickly Pear Creek) | Arsenic | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_120 | CLANCY CREEK, headwaters to mouth (Prickly Pear Creek) | Cadmium | 2008 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_120 | CLANCY CREEK, headwaters to mouth (Prickly Pear Creek) | Copper | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_120 | CLANCY CREEK, headwaters to mouth (Prickly Pear Creek) | Lead | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_120 | CLANCY CREEK, headwaters to mouth (Prickly Pear Creek) | Sedimentation/Siltation | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_120 | CLANCY CREEK, headwaters to mouth (Prickly Pear Creek) | Zinc | 2008 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_130 | LUMP GULCH, headwaters to mouth (Prickly Pear Creek) | Cadmium | 1990 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_130 | LUMP GULCH, headwaters to mouth (Prickly Pear Creek) | Copper | 1990 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_130 | LUMP GULCH, headwaters to mouth (Prickly Pear Creek) | Lead | 1990 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_130 | LUMP GULCH, headwaters to mouth (Prickly Pear Creek) | Total Suspended Solids (TSS) | 2008 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_130 | LUMP GULCH, headwaters to mouth (Prickly Pear Creek) | Zinc | 1990 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_141 | TENMILE CREEK, headwaters to confluence of Spring Creek | Arsenic | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_141 | TENMILE CREEK, headwaters to confluence of Spring Creek | Cadmium | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_141 | TENMILE CREEK, headwaters to confluence of Spring Creek | Copper | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_141 | TENMILE CREEK, headwaters to confluence of Spring Creek | Lead | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_141 | TENMILE CREEK, headwaters to confluence of Spring Creek | Zinc | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_142 | TENMILE CREEK, Spring Creek to Helena Water Treatment Plant, Lat 46.573 Long -112.214 | Arsenic | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_142 | TENMILE CREEK, Spring Creek to Helena Water Treatment Plant, Lat 46.573 Long -112.214 | Cadmium | 1988 | 9/27/2006 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_142 | TENMILE CREEK, Spring Creek to Helena Water Treatment Plant, Lat 46.573 Long -112.214 | Copper | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_142 | TENMILE CREEK, Spring Creek to Helena Water Treatment Plant, Lat 46.573 Long -112.214 | Lead | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_142 | TENMILE CREEK, Spring Creek to Helena Water Treatment Plant, Lat 46.573 Long -112.214 | Sedimentation/Siltation | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_142 | TENMILE CREEK, Spring Creek to Helena Water Treatment Plant, Lat 46.573 Long -112.214 | Zinc | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_143 | TENMILE CREEK, Helena Water Treatment Plant to mouth (Prickly Pear Creek) | Arsenic | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_143 | TENMILE CREEK, Helena Water Treatment Plant to mouth (Prickly Pear Creek) | Cadmium | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_143 | TENMILE CREEK, Helena Water Treatment Plant to mouth (Prickly Pear Creek) | Copper | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_143 | TENMILE CREEK, Helena Water Treatment Plant to mouth (Prickly Pear Creek) | Lead | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_143 | TENMILE CREEK, Helena Water Treatment Plant to mouth (Prickly Pear Creek) | Nitrogen (Total) | 2008 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_143 | TENMILE CREEK, Helena Water Treatment Plant to mouth (Prickly Pear Creek) | Nutrient/Eutrophication Biological Indicators | 2002 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_143 | TENMILE CREEK, Helena Water Treatment Plant to mouth (Prickly Pear Creek) | Phosphorus (Total) | 2008 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_143 | TENMILE CREEK, Helena Water Treatment Plant to mouth (Prickly Pear Creek) | Sedimentation/Siltation | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_143 | TENMILE CREEK, Helena Water Treatment Plant to mouth (Prickly Pear Creek) | Zinc | 1988 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_150 | SILVER CREEK, headwaters to T11N R4W S30 / S31 to Lake Helena | Arsenic | 1988 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_160 | SEVENMILE CREEK, headwaters to mouth (Tenmile Creek) | Arsenic | 2008 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_160 | SEVENMILE CREEK, headwaters to mouth (Tenmile Creek) | Copper | 2008 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_160 | SEVENMILE CREEK, headwaters to mouth (Tenmile Creek) | Lead | 2002 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_160 | SEVENMILE CREEK, headwaters to mouth (Tenmile Creek) | Nitrogen (Total) | 2008 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_160 | SEVENMILE CREEK, headwaters to mouth (Tenmile Creek) | Phosphorus (Total) | 2002 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_160 | SEVENMILE CREEK, headwaters to mouth (Tenmile Creek) | Sedimentation/Siltation | 1992 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_180 | NORTH FORK WARM SPRINGS CREEK, headwaters to mouth (Warmsprings Creek) | Arsenic | 2002 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_180 | NORTH FORK WARM SPRINGS CREEK, headwaters to mouth (Warmsprings Creek) | Cadmium | 2008 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_180 | NORTH FORK WARM SPRINGS CREEK, headwaters to mouth (Warmsprings Creek) | Sedimentation/Siltation | 2002 | 10/2/2006 |

## Appendix F: EPA-Approved TMDLs

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_180 | NORTH FORK WARM SPRINGS CREEK, headwaters to mouth (Warmsprings Creek) | Zinc | 2008 | 10/2/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_210 | JENNIES FORK, headwaters to mouth (Silver Creek) | Lead | 1994 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_210 | JENNIES FORK, headwaters to mouth (Silver Creek) | Sedimentation/Siltation | 1994 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I006_220 | SKELLY GULCH, headwaters to mouth (Greenhorn Creek/Sevenmile Creek), T10N R5W S2 | Sedimentation/Siltation | 1994 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I007_010 | LAKE HELENA | Arsenic | 1994 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I007_010 | LAKE HELENA | Lead | 1994 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I007_010 | LAKE HELENA | Nitrogen (Total) | 2008 | 9/27/2006 |
| Lake Helena | Missouri-Sun-Smith | 10030101 | MT41I007_010 | LAKE HELENA | Phosphorus (Total) | 2008 | 9/27/2006 |
| Lone Tree Creek | Milk | 10050012 | MT40O002_050 | LONE TREE CREEK, headwaters to mouth at Willow Creek | Nitrogen (Total) | 2000 | 9/21/2001 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D001_010 | BIG HOLE RIVER, Divide Creek to mouth (Jefferson River) | Temperature, water | 2000 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_010 | TRAPPER CREEK, headwaters to mouth (Big Hole River) | Arsenic | 2010 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_010 | TRAPPER CREEK, headwaters to mouth (Big Hole River) | Cadmium | 2010 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_010 | TRAPPER CREEK, headwaters to mouth (Big Hole River) | Copper | 1990 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_010 | TRAPPER CREEK, headwaters to mouth (Big Hole River) | Lead | 1990 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_010 | TRAPPER CREEK, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 2000 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_010 | TRAPPER CREEK, headwaters to mouth (Big Hole River) | Zinc | 1990 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_020 | CAMP CREEK, headwaters to mouth (Big Hole River) | Nitrogen (Total) | 2010 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_020 | CAMP CREEK, headwaters to mouth (Big Hole River) | Phosphorus (Total) | 2006 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_020 | CAMP CREEK, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 2006 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_020 | CAMP CREEK, headwaters to mouth (Big Hole River) | Solids (Suspended/Bedload) | 2006 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_040 | DIVIDE CREEK, headwaters to mouth (Big Hole River) | Nitrogen (Total) | 2010 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_040 | DIVIDE CREEK, headwaters to mouth (Big Hole River) | Phosphorus (Total) | 2006 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_040 | DIVIDE CREEK, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 1990 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_040 | DIVIDE CREEK, headwaters to mouth (Big Hole River) | Temperature, water | 2006 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_040 | DIVIDE CREEK, headwaters to mouth (Big Hole River) | Total Kjehldahl Nitrogen (TKN) | 2006 | 9/3/2009 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_050 | MOOSE CREEK, headwaters to mouth (Big Hole River at Maiden Rock) | Sedimentation/Siltation | 2010 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_060 | GROSE CREEK, headwaters to mouth (Big Hole River) | Nitrogen (Total) | 2010 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_060 | GROSE CREEK, headwaters to mouth (Big Hole River) | Phosphorus (Total) | 2006 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_060 | GROSE CREEK, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 1988 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_090 | BIRCH CREEK, headwaters to National Forest Boundary | Sedimentation/Siltation | 1990 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_100 | BIRCH CREEK, National Forest Boundary to mouth (Big Hole River) | Sedimentation/Siltation | 2010 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_120 | WICKIUP CREEK, headwaters to mouth (Camp Creek), T2S R8W S1 | Copper | 1994 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_140 | SOAP CREEK, headwaters to mouth (Big Hole River), T2S R9W S10 | Nitrogen (Total) | 2010 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_140 | SOAP CREEK, headwaters to mouth (Big Hole River), T2S R9W S10 | Phosphorus (Total) | 2006 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_140 | SOAP CREEK, headwaters to mouth (Big Hole River), T2S R9W S10 | Sedimentation/Siltation | 1994 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_160 | ROCHESTER CREEK, headwaters to mouth (Big Hole River), T3S R6W S29 | Arsenic | 2000 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_160 | ROCHESTER CREEK, headwaters to mouth (Big Hole River), T3S R6W S29 | Copper | 2000 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_160 | ROCHESTER CREEK, headwaters to mouth (Big Hole River), T3S R6W S29 | Lead | 2000 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_160 | ROCHESTER CREEK, headwaters to mouth (Big Hole River), T3S R6W S29 | Mercury | 2000 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_160 | ROCHESTER CREEK, headwaters to mouth (Big Hole River), T3S R6W S29 | Sedimentation/Siltation | 1994 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_180 | LOST CREEK, headwaters to mouth (Lost Creek Canal/Ditch), T4S R9W S15 | Arsenic | 2006 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_180 | LOST CREEK, headwaters to mouth (Lost Creek Canal/Ditch), T4S R9W S15 | Nitrogen (Total) | 2006 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_180 | LOST CREEK, headwaters to mouth (Lost Creek Canal/Ditch), T4S R9W S15 | Phosphorus (Total) | 2006 | 9/3/2009 |
| Lower Big Hole | Upper Missouri Tribs. | 10020004 | MT41D002_180 | LOST CREEK, headwaters to mouth (Lost Creek Canal/Ditch), T4S R9W S15 | Sedimentation/Siltation | 1996 | 9/3/2009 |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_010 | UNION CREEK, headwaters to mouth (Blackfoot River) | Iron | 2010 | 12/23/2009 |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_010 | UNION CREEK, headwaters to mouth (Blackfoot River) | Solids (Suspended/Bedload) | 1990 | 12/23/2009 |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_010 | UNION CREEK, headwaters to mouth (Blackfoot River) | Temperature, water | 1990 | 12/23/2009 |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_020 | WEST FORK ASHBY CREEK, headwaters to mouth (East Fork Ashby Creek) | Sedimentation/Siltation | 1988 | 12/23/2009 |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_031 | ELK CREEK, headwaters to Stinkwater Creek | Sedimentation/Siltation | 1988 | 12/23/2009 |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_032 | ELK CREEK, Stinkwater Creek to mouth (Blackfoot River) | Sedimentation/Siltation | 1988 | 12/23/2009 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_032 | ELK CREEK, Stinkwater Creek to mouth (Blackfoot River) | Temperature, water | 2000 | 12/23/2009 |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_040 | KENO CREEK, headwaters to mouth (Elk Creek) | Sedimentation/Siltation | 1996 | 12/23/2009 |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_050 | EAST FORK ASHBY CREEK | Sedimentation/Siltation | 1996 | 12/23/2009 |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_060 | CAMAS CREEK, 1 mile above mouth to mouth (Union Creek) | Sedimentation/Siltation | 1988 | 12/23/2009 |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_070 | BELMONT CREEK, headwaters to mouth (Blackfoot River) | Sedimentation/Siltation | 1992 | 12/23/2009 |
| Lower Blackfoot | Upper Clark Fork | 17010203 | MT76F006_090 | WASHOE CREEK, Headwater to mouth (Union Creek) | Sedimentation/Siltation | 1994 | 12/23/2009 |
| Lower Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_040 | BULL RIVER, the North Fork to mouth (Cabinet Gorge Reservoir) | Sedimentation/Siltation | 1994 | 12/21/2010 |
| Lower Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_090 | MARTEN CREEK, headwaters to mouth (Noxon Reservoir) | Sedimentation/Siltation | 2000 | 12/21/2010 |
| Lower Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_120 | WHITE PINE CREEK, headwaters to mouth (Beaver Creek) | Sedimentation/Siltation | 2006 | 12/21/2010 |
| Lower Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_140 | SWAMP CREEK, Cabinet Mountains Wilderness boundary to mouth (Noxon Reservoir) | Sedimentation/Siltation | 2012 | 12/21/2010 |
| Lower Clark Fork Tributaries | Lower Clark Fork | 17010213 | MT76N003_180 | DRY CREEK, headwaters to mouth (Bull River), T28N R33W S32 | Sedimentation/Siltation | 1996 | 12/21/2010 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D001_020 | BIG HOLE RIVER, Divide Creek to Pintlar Creek | Copper | 2000 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D001_020 | BIG HOLE RIVER, Divide Creek to Pintlar Creek | Lead | 2000 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D001_020 | BIG HOLE RIVER, Divide Creek to Pintlar Creek | Sedimentation/Siltation | 2010 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D001_020 | BIG HOLE RIVER, Divide Creek to Pintlar Creek | Temperature, water | 2000 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_020 | JERRY CREEK, headwaters to mouth (Big Hole River) | Copper | 2000 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_020 | JERRY CREEK, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 2010 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_030 | DELANO CREEK, headwaters to mouth (Jerry Creek) | Sedimentation/Siltation | 1992 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_040 | DEEP CREEK, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 1990 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_050 | FRENCH CREEK, headwaters to mouth (Deep Creek) | Arsenic | 1990 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_050 | FRENCH CREEK, headwaters to mouth (Deep Creek) | Copper | 2010 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_050 | FRENCH CREEK, headwaters to mouth (Deep Creek) | Sedimentation/Siltation | 2010 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_070 | CALIFORNIA CREEK, headwaters to mouth (French Creek-Deep Creek) | Arsenic | 1992 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_070 | CALIFORNIA CREEK, headwaters to mouth (French Creek-Deep Creek) | Copper | 2010 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_070 | CALIFORNIA CREEK, headwaters to mouth (French Creek-Deep Creek) | Sedimentation/Siltation | 1992 | 9/3/2009 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_070 | CALIFORNIA CREEK, headwaters to mouth (French Creek-Deep Creek) | Turbidity | 2006 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_080 | OREGON CREEK, headwaters to mouth (California Creek-French Creek-Deep Creek) | Arsenic | 2000 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_080 | OREGON CREEK, headwaters to mouth (California Creek-French Creek-Deep Creek) | Copper | 2000 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_080 | OREGON CREEK, headwaters to mouth (California Creek-French Creek-Deep Creek) | Sedimentation/Siltation | 1990 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_090 | SIXMILE CREEK, headwaters to mouth (California Creek) | Sedimentation/Siltation | 2002 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_110 | SEVENMILE CREEK, headwaters to mouth (Deep Creek) | Sedimentation/Siltation | 1990 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_130 | CORRAL CREEK, headwaters to mouth (Deep Creek) | Sedimentation/Siltation | 1992 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_160 | FISHTRAP CREEK, confluence of West & Middle Forks to mouth (Big Hole River) | Sedimentation/Siltation | 1990 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_200 | WISE RIVER, headwaters to mouth (Big Hole River) | Cadmium | 2010 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_200 | WISE RIVER, headwaters to mouth (Big Hole River) | Copper | 2010 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_200 | WISE RIVER, headwaters to mouth (Big Hole River) | Lead | 2010 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_200 | WISE RIVER, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 2010 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_210 | PATTENGAIL CREEK, headwaters to mouth (Wise River) | Sedimentation/Siltation | 2002 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_220 | ELKHORN CREEK, headwaters to mouth (Jacobson Creek) | Arsenic | 1996 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_220 | ELKHORN CREEK, headwaters to mouth (Jacobson Creek) | Cadmium | 1996 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_220 | ELKHORN CREEK, headwaters to mouth (Jacobson Creek) | Copper | 1996 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_220 | ELKHORN CREEK, headwaters to mouth (Jacobson Creek) | Lead | 1996 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_220 | ELKHORN CREEK, headwaters to mouth (Jacobson Creek) | Sedimentation/Siltation | 1996 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_220 | ELKHORN CREEK, headwaters to mouth (Jacobson Creek) | Zinc | 1996 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D003_230 | GOLD CREEK, headwaters to mouth (Wise River) | Sedimentation/Siltation | 1990 | 9/3/2009 |
| Middle Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_230 | SAWLOG CREEK, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 1996 | 9/3/2009 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F001_031 | BLACKFOOT RIVER, Nevada Creek to Monture Creek | Nitrogen (Total) | 1996 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F001_031 | BLACKFOOT RIVER, Nevada Creek to Monture Creek | Phosphorus (Total) | 1996 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F001_031 | BLACKFOOT RIVER, Nevada Creek to Monture Creek | Sedimentation/Siltation | 2010 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F001_032 | BLACKFOOT RIVER, Monture Creek to Belmont Creek | Nitrogen (Total) | 1996 | 9/22/2008 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F001_032 | BLACKFOOT RIVER, Monture Creek to Belmont Creek | Phosphorus (Total) | 1996 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F001_032 | BLACKFOOT RIVER, Monture Creek to Belmont Creek | Sedimentation/Siltation | 2010 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_010 | FRAZIER CREEK, headwaters to mouth (Blackfoot River), T14N R12W S28 | Nitrogen (Total) | 2010 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_010 | FRAZIER CREEK, headwaters to mouth (Blackfoot River), T14N R12W S28 | Phosphorus (Total) | 2006 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_010 | FRAZIER CREEK, headwaters to mouth (Blackfoot River), T14N R12W S28 | Sedimentation/Siltation | 2006 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_010 | FRAZIER CREEK, headwaters to mouth (Blackfoot River), T14N R12W S28 | Total Kjehldahl Nitrogen (TKN) | 2006 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_040 | COTTONWOOD CREEK, 10 miles upstream to mouth (Blackfoot River) | Sedimentation/Siltation | 2010 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_050 | WALES CREEK, reservoir outlet to mouth (Blackfoot River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_050 | WALES CREEK, reservoir outlet to mouth (Blackfoot River) | Nitrogen (Total) | 2010 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_050 | WALES CREEK, reservoir outlet to mouth (Blackfoot River) | Phosphorus (Total) | 2006 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_050 | WALES CREEK, reservoir outlet to mouth (Blackfoot River) | Sedimentation/Siltation | 1992 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_060 | WARD CREEK, headwaters to Browns Lake | Sedimentation/Siltation | 2002 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_070 | WARREN CREEK, headwaters to mouth (Blackfoot River) | Sedimentation/Siltation | 2010 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_080 | YOURNAME CREEK, headwaters to mouth (Blackfoot River) | Nitrogen (Total) | 2010 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_080 | YOURNAME CREEK, headwaters to mouth (Blackfoot River) | Phosphorus (Total) | 2006 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_080 | YOURNAME CREEK, headwaters to mouth (Blackfoot River) | Sedimentation/Siltation | 2006 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_090 | ROCK CREEK, headwaters to mouth (North Fork Blackfoot River) | Sedimentation/Siltation | 1992 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_100 | MONTURE CREEK, headwaters to mouth (Blackfoot River) | Sedimentation/Siltation | 2010 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_110 | KLEINSCHMIDT CREEK, 1.5 miles upstream to mouth (North Fork Blackfoot River) | Sedimentation/Siltation | 2006 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F004_110 | KLEINSCHMIDT CREEK, 1.5 miles upstream to mouth (North Fork Blackfoot River) | Temperature, water | 2000 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F005_020 | RICHMOND CREEK, headwaters to mouth (Lake Alva) | Sedimentation/Siltation | 1992 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F005_030 | DEER CREEK, headwaters to mouth (Seeley Lake) | Sedimentation/Siltation | 1992 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F005_040 | WEST FORK CLEARWATER RIVER, headwaters to mouth (Clearwater River) | Nitrogen (Total) | 2010 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F005_040 | WEST FORK CLEARWATER RIVER, headwaters to mouth (Clearwater River) | Phosphorus (Total) | 2010 | 9/22/2008 |
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F005_040 | WEST FORK CLEARWATER RIVER, headwaters to mouth (Clearwater River) | Sedimentation/Siltation | 2010 | 9/22/2008 |

## Appendix F: EPA-Approved TMDLs

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Middle Blackfoot | Upper Clark Fork | 17010203 | MT76F005_060 | BLANCHARD CREEK, North Fork to mouth (Clearwater River) | Sedimentation/Siltation | 1990 | 9/22/2008 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_020 | COTTONWOOD CREEK, 1 mile above Stockett to mouth (Sand Coulee Creek-Missouri River) | Aluminum | 2012 | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_020 | COTTONWOOD CREEK, 1 mile above Stockett to mouth (Sand Coulee Creek-Missouri River) | Cadmium | 1988 | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_020 | COTTONWOOD CREEK, 1 mile above Stockett to mouth (Sand Coulee Creek-Missouri River) | Iron | 2012 | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_020 | COTTONWOOD CREEK, 1 mile above Stockett to mouth (Sand Coulee Creek-Missouri River) | Nickel | 1988 | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_020 | COTTONWOOD CREEK, 1 mile above Stockett to mouth (Sand Coulee Creek-Missouri River) | Zinc | 1988 | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_030 | NUMBER FIVE COULEE, headwaters to mouth (Cottonwood Creek) | Aluminum | 1988 | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_030 | NUMBER FIVE COULEE, headwaters to mouth (Cottonwood Creek) | Cadmium | 1988 | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_030 | NUMBER FIVE COULEE, headwaters to mouth (Cottonwood Creek) | Iron | 2012 | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_030 | NUMBER FIVE COULEE, headwaters to mouth (Cottonwood Creek) | Nickel | 1988 | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_030 | NUMBER FIVE COULEE, headwaters to mouth (Cottonwood Creek) | Zinc | 1988 | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_060 | SAND COULEE, headwaters to mouth (Sand Coulee Creek) | Aluminum | 1992 | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_060 | SAND COULEE, headwaters to mouth (Sand Coulee Creek) | Cadmium | 1992 | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_060 | SAND COULEE, headwaters to mouth (Sand Coulee Creek) | Copper | 2012 | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_060 | SAND COULEE, headwaters to mouth (Sand Coulee Creek) | Iron | 2012 | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_060 | SAND COULEE, headwaters to mouth (Sand Coulee Creek) | Nickel | 1992 | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_060 | SAND COULEE, headwaters to mouth (Sand Coulee Creek) | Salinity | 2000 | 1/24/2011 |
| Missouri Cascade | Missouri-Sun-Smith | 10030102 | MT41Q002_060 | SAND COULEE, headwaters to mouth (Sand Coulee Creek) | Zinc | 1992 | 1/24/2011 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_011 | NEVADA CREEK, headwaters to Nevada Lake | Copper | 2010 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_011 | NEVADA CREEK, headwaters to Nevada Lake | Iron | 2010 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_011 | NEVADA CREEK, headwaters to Nevada Lake | Lead | 2000 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_011 | NEVADA CREEK, headwaters to Nevada Lake | Nitrogen (Total) | 1992 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_011 | NEVADA CREEK, headwaters to Nevada Lake | Phosphorus (Total) | 2010 | 9/22/2008 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_011 | NEVADA CREEK, headwaters to Nevada Lake | Solids (Suspended/Bedload) | 1996 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_011 | NEVADA CREEK, headwaters to Nevada Lake | Temperature, water | 2010 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_011 | NEVADA CREEK, headwaters to Nevada Lake | Total Kjehldahl Nitrogen (TKN) | 1996 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_012 | NEVADA CREEK, Nevada Lake to mouth (Blackfoot River) | Nitrogen (Total) | 2010 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_012 | NEVADA CREEK, Nevada Lake to mouth (Blackfoot River) | Phosphorus (Total) | 1996 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_012 | NEVADA CREEK, Nevada Lake to mouth (Blackfoot River) | Sedimentation/Siltation | 1996 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_012 | NEVADA CREEK, Nevada Lake to mouth (Blackfoot River) | Temperature, water | 2010 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_012 | NEVADA CREEK, Nevada Lake to mouth (Blackfoot River) | Total Kjehldahl Nitrogen (TKN) | 1996 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_021 | JEFFERSON CREEK, headwaters to 1 mile above confluence with Madison Gulch | Sedimentation/Siltation | 1990 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_022 | JEFFERSON CREEK, 1 mile above Madison Gulch to mouth (Nevada Creek) | Aluminum | 2006 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_022 | JEFFERSON CREEK, 1 mile above Madison Gulch to mouth (Nevada Creek) | Iron | 2006 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_022 | JEFFERSON CREEK, 1 mile above Madison Gulch to mouth (Nevada Creek) | Nitrogen (Total) | 2010 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_022 | JEFFERSON CREEK, 1 mile above Madison Gulch to mouth (Nevada Creek) | Phosphorus (Total) | 2006 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_022 | JEFFERSON CREEK, 1 mile above Madison Gulch to mouth (Nevada Creek) | Sedimentation/Siltation | 1988 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_022 | JEFFERSON CREEK, 1 mile above Madison Gulch to mouth (Nevada Creek) | Solids (Suspended/Bedload) | 1988 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_030 | GALLAGHER CREEK, headwaters to mouth (Nevada Creek) | Nitrogen (Total) | 2010 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_030 | GALLAGHER CREEK, headwaters to mouth (Nevada Creek) | Phosphorus (Total) | 2006 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_030 | GALLAGHER CREEK, headwaters to mouth (Nevada Creek) | Sedimentation/Siltation | 2006 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_030 | GALLAGHER CREEK, headwaters to mouth (Nevada Creek) | Total Kjehldahl Nitrogen (TKN) | 2006 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_040 | BRAZIEL CREEK, 2.8 miles upstream from mouth (Nevada Creek), T12N R10W S22 | Nitrogen (Total) | 2010 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_040 | BRAZIEL CREEK, 2.8 miles upstream from mouth (Nevada Creek), T12N R10W S22 | Phosphorus (Total) | 2006 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_040 | BRAZIEL CREEK, 2.8 miles upstream from mouth (Nevada Creek), T12N R10W S22 | Sedimentation/Siltation | 1988 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_050 | MCELWAIN CREEK, diversion of Company Ditch to mouth (Nevada Creek), T13N R11W S18 | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_050 | MCELWAIN CREEK, diversion of Company Ditch to mouth (Nevada Creek), T13N R11W S18 | Nitrogen (Total) | 2010 | 9/22/2008 |

## Appendix F: EPA-Approved TMDLs

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_050 | MCELWAIN CREEK, diversion of Company Ditch to mouth (Nevada Creek), T13N R11W S18 | Phosphorus (Total) | 2006 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_050 | MCELWAIN CREEK, diversion of Company Ditch to mouth (Nevada Creek), T13N R11W S18 | Sedimentation/Siltation | 1988 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_060 | BLACK BEAR CREEK, headwaters to mouth (Bear Creek), T12N R12W S22 | Nitrogen (Total) | 2010 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_060 | BLACK BEAR CREEK, headwaters to mouth (Bear Creek), T12N R12W S22 | Phosphorus (Total) | 2006 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_060 | BLACK BEAR CREEK, headwaters to mouth (Bear Creek), T12N R12W S22 | Sedimentation/Siltation | 1988 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_060 | BLACK BEAR CREEK, headwaters to mouth (Bear Creek), T12N R12W S22 | Solids (Suspended/Bedload) | 1988 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_060 | BLACK BEAR CREEK, headwaters to mouth (Bear Creek), T12N R12W S22 | Total Kjehldahl Nitrogen (TKN) | 2006 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_071 | WASHINGTON CREEK, headwaters to Cow Gulch | Sedimentation/Siltation | 2010 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_072 | WASHINGTON CREEK, Cow Gulch to mouth (Nevada Creek) | Iron | 2010 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_072 | WASHINGTON CREEK, Cow Gulch to mouth (Nevada Creek) | Sedimentation/Siltation | 1988 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_081 | DOUGLAS CREEK, headwaters to Murray Creek | Nitrate/Nitrite (Nitrite + Nitrate as N) | 1990 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_081 | DOUGLAS CREEK, headwaters to Murray Creek | Nitrogen (Total) | 2010 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_081 | DOUGLAS CREEK, headwaters to Murray Creek | Phosphorus (Total) | 1990 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_081 | DOUGLAS CREEK, headwaters to Murray Creek | Sedimentation/Siltation | 1990 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_081 | DOUGLAS CREEK, headwaters to Murray Creek | Temperature, water | 1990 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_081 | DOUGLAS CREEK, headwaters to Murray Creek | Total Kjehldahl Nitrogen (TKN) | 1990 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_082 | DOUGLAS CREEK, Murray Creek to mouth (Nevada-Cottonwood Creeks) | Nitrogen (Total) | 2010 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_082 | DOUGLAS CREEK, Murray Creek to mouth (Nevada-Cottonwood Creeks) | Phosphorus (Total) | 1990 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_082 | DOUGLAS CREEK, Murray Creek to mouth (Nevada-Cottonwood Creeks) | Sedimentation/Siltation | 1990 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_082 | DOUGLAS CREEK, Murray Creek to mouth (Nevada-Cottonwood Creeks) | Temperature, water | 1990 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_082 | DOUGLAS CREEK, Murray Creek to mouth (Nevada-Cottonwood Creeks) | Total Kjehldahl Nitrogen (TKN) | 1990 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_090 | COTTONWOOD CREEK, South Fork Cottonwood Creek to mouth (Douglas Creek) | Sedimentation/Siltation | 2010 | 9/2/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_090 | COTTONWOOD CREEK, South Fork Cottonwood Creek to mouth (Douglas Creek) | Temperature, water | 2010 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_100 | NEVADA SPRING CREEK, headwaters to mouth (Nevada Creek) | Sedimentation/Siltation | 1992 | 9/22/2008 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_120 | MURRAY CREEK, headwaters to mouth (Douglas Creek), T12N R12W S6 | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_120 | MURRAY CREEK, headwaters to mouth (Douglas Creek), T12N R12W S6 | Nitrogen (Total) | 2010 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_120 | MURRAY CREEK, headwaters to mouth (Douglas Creek), T12N R12W S6 | Phosphorus (Total) | 2006 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_120 | MURRAY CREEK, headwaters to mouth (Douglas Creek), T12N R12W S6 | Sedimentation/Siltation | 1994 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_120 | MURRAY CREEK, headwaters to mouth (Douglas Creek), T12N R12W S6 | Temperature, water | 1994 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_120 | MURRAY CREEK, headwaters to mouth (Douglas Creek), T12N R12W S6 | Total Kjehldahl Nitrogen (TKN) | 2006 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F003_130 | BUFFALO GULCH, headwaters to mouth (Nevada Creek) | Sedimentation/Siltation | 2002 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F007_020 | NEVADA LAKE, reservoir of Nevada Creek | Nitrogen (Total) | 2010 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F007_020 | NEVADA LAKE, reservoir of Nevada Creek | Oxygen, Dissolved | 1996 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F007_020 | NEVADA LAKE, reservoir of Nevada Creek | Phosphorus (Total) | 1996 | 9/22/2008 |
| Nevada Creek | Upper Clark Fork | 17010203 | MT76F007_020 | NEVADA LAKE, reservoir of Nevada Creek | Total Kjehldahl Nitrogen (TKN) | 1996 | 9/22/2008 |
| Ninemile | Lower Clark Fork | 17010204 | MT76M004_010 | NINEMILE CREEK, headwaters to mouth (Clark Fork River) | Sedimentation/Siltation | 1996 | 7/26/2003 |
| Ninemile | Lower Clark Fork | 17010204 | MT76M004_020 | STONY CREEK, headwaters to mouth (Ninemile Creek) | Sedimentation/Siltation | 1994 | 7/26/2005 |
| Ninemile | Lower Clark Fork | 17010204 | MT76M004_040 | JOSEPHINE CREEK, headwaters to mouth (Ninemile Creek) | Sedimentation/Siltation | 2006 | 7/26/2005 |
| Ninemile | Lower Clark Fork | 17010204 | MT76M004_060 | CEDAR CREEK, headwaters to mouth (Ninemile Creek) | Sedimentation/Siltation | 2006 | 7/26/2005 |
| Ninemile | Lower Clark Fork | 17010204 | MT76M004_070 | KENNEDY CREEK, headwaters to mouth (Ninemile Creek) | Copper | 1988 | 7/26/2005 |
| Ninemile | Lower Clark Fork | 17010204 | MT76M004_070 | KENNEDY CREEK, headwaters to mouth (Ninemile Creek) | Lead | 1988 | 7/26/2005 |
| Ninemile | Lower Clark Fork | 17010204 | MT76M004_070 | KENNEDY CREEK, headwaters to mouth (Ninemile Creek) | Mercury | 1988 | 7/26/2005 |
| Ninemile | Lower Clark Fork | 17010204 | MT76M004_070 | KENNEDY CREEK, headwaters to mouth (Ninemile Creek) | Sedimentation/Siltation | 1988 | 7/26/2005 |
| Ninemile | Lower Clark Fork | 17010204 | MT76M004_070 | KENNEDY CREEK, headwaters to mouth (Ninemile Creek) | Zinc | 1988 | 7/26/2005 |
| Ninemile | Lower Clark Fork | 17010204 | MT76M004_080 | LITTLE MCCORMICK CREEK, headwaters to mouth (McCormick Creek) | Sedimentation/Siltation | 2006 | 7/26/2005 |
| North Fork Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_010 | NORTH FORK BIG HOLE RIVER, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 1990 | 6/30/2009 |
| North Fork Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_020 | MUSSIGBROD CREEK, headwaters to mouth (North Fork Big Hole River) | Sedimentation/Siltation | 2010 | 9/3/2009 |
| North Fork Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_030 | JOHNSON CREEK, headwaters to mouth (North Fork Big Hole River) | Sedimentation/Siltation | 1990 | 6/30/2009 |
| North Fork Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_060 | TIE CREEK, headwaters to mouth (North Fork Big Hole River) | Sedimentation/Siltation | 1992 | 6/30/2009 |

## Appendix F: EPA-Approved TMDLs

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| North Fork Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_070 | TRAIL CREEK, headwaters to Joseph Creek | Sedimentation/Siltation | 1990 | 6/30/2009 |
| North Fork Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_080 | TRAIL CREEK, Joseph Creek to mouth (North Fork Big Hole River) | Sedimentation/Siltation | 1990 | 6/30/2009 |
| North Fork Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_090 | JOSEPH CREEK, headwaters to mouth (Trail Creek) | Sedimentation/Siltation | 1990 | 6/30/2009 |
| North Fork Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_100 | RUBY CREEK, headwaters to mouth (North Fork Big Hole River) | Sedimentation/Siltation | 2000 | 6/30/2009 |
| Prospect Creek | Lower Clark Fork | 17010213 | MT76N003_020 | PROSPECT CREEK, headwaters to mouth (Clark Fork River) | Antimony | 2000 | 12/27/2006 |
| Prospect Creek | Lower Clark Fork | 17010213 | MT76N003_020 | PROSPECT CREEK, headwaters to mouth (Clark Fork River) | Lead | 2000 | 12/27/2006 |
| Prospect Creek | Lower Clark Fork | 17010213 | MT76N003_020 | PROSPECT CREEK, headwaters to mouth (Clark Fork River) | Sedimentation/Siltation | 2010 | 1/21/2009 |
| Prospect Creek | Lower Clark Fork | 17010213 | MT76N003_020 | PROSPECT CREEK, headwaters to mouth (Clark Fork River) | Zinc | 2000 | 12/27/2006 |
| Prospect Creek | Lower Clark Fork | 17010213 | MT76N003_021 | ANTIMONY CREEK, headwaters to mouth (Prospect Creek) | Antimony | 2008 | 12/27/2006 |
| Prospect Creek | Lower Clark Fork | 17010213 | MT76N003_021 | ANTIMONY CREEK, headwaters to mouth (Prospect Creek) | Arsenic | 2004 | 12/27/2006 |
| Prospect Creek | Lower Clark Fork | 17010213 | MT76N003_021 | ANTIMONY CREEK, headwaters to mouth (Prospect Creek) | Lead | 2004 | 12/27/2006 |
| Prospect Creek | Lower Clark Fork | 17010213 | MT76N003_022 | COX GULCH headwaters to mouth (Prospect Creek) | Antimony | 2010 | 12/27/2006 |
| Prospect Creek | Lower Clark Fork | 17010213 | MT76N003_022 | COX GULCH headwaters to mouth (Prospect Creek) | Lead | 2004 | 12/27/2006 |
| Prospect Creek | Lower Clark Fork | 17010213 | MT76N003_050 | CLEAR CREEK, headwaters to mouth (Prospect Creek) | Sedimentation/Siltation | 2006 | 1/21/2009 |
| Prospect Creek | Lower Clark Fork | 17010213 | MT76N003_070 | DRY CREEK, headwaters (confluence of East andWest Forks) to mouth (Prospect Creek) | Sedimentation/Siltation | 2010 | 1/21/2009 |
| Redwater | Lower Missouri | 10060001 | MT40S002_010 | PRAIRIE ELK CREEK, East and Middle Forks to mouth (Missouri River) | Nitrogen (Total) | 2012 | 12/29/2010 |
| Redwater | Lower Missouri | 10060001 | MT40S002_010 | PRAIRIE ELK CREEK, East and Middle Forks to mouth (Missouri River) | Phosphorus (Total) | 1990 | 12/29/2010 |
| Redwater | Lower Missouri | 10060001 | MT40S002_010 | PRAIRIE ELK CREEK, East and Middle Forks to mouth (Missouri River) | Total Kjehldahl Nitrogen (TKN) | 1990 | 12/29/2010 |
| Redwater | Lower Missouri | 10060001 | MT40S002_030 | SAND CREEK, confluence of East and West Forks to mouth (Missouri River) | Nitrogen (Total) | 2012 | 12/29/2010 |
| Redwater | Lower Missouri | 10060001 | MT40S002_030 | SAND CREEK, confluence of East and West Forks to mouth (Missouri River) | Phosphorus (Total) | 1990 | 12/29/2010 |
| Redwater | Lower Missouri | 10060001 | MT40S002_030 | SAND CREEK, confluence of East and West Forks to mouth (Missouri River) | Total Kjehldahl Nitrogen (TKN) | 1990 | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P001_012 | REDWATER RIVER, Hell Creek to Buffalo Springs Creek | Nitrogen (Total) | 2000 | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P001_012 | REDWATER RIVER, Hell Creek to Buffalo Springs Creek | Phosphorus (Total) | 2000 | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_010 | EAST REDWATER CREEK, headwaters to mouth (Redwater River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2006 | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_010 | EAST REDWATER CREEK, headwaters to mouth (Redwater River) | Nitrogen (Total) | 2012 | 12/29/2010 |

## Appendix F: EPA-Approved TMDLs

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Redwater | Lower Missouri | 10060002 | MT40P002_010 | EAST REDWATER CREEK, headwaters to mouth (Redwater River) | Phosphorus (Total) | 2006 | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_010 | EAST REDWATER CREEK, headwaters to mouth (Redwater River) | Specific Conductance | 1992 | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_010 | EAST REDWATER CREEK, headwaters to mouth (Redwater River) | Sulfates | 1992 | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_010 | EAST REDWATER CREEK, headwaters to mouth (Redwater River) | Total Dissolved Solids | 1992 | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_010 | EAST REDWATER CREEK, headwaters to mouth (Redwater River) | Total Kjehldahl Nitrogen (TKN) | 2006 | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_020 | HORSE CREEK, headwaters to mouth at Redwater River near town of Circle | Nitrogen (Total) | 2012 | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_020 | HORSE CREEK, headwaters to mouth at Redwater River near town of Circle | Phosphorus (Total) | 2012 | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_020 | HORSE CREEK, headwaters to mouth at Redwater River near town of Circle | Salinity | 2000 | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_030 | PASTURE CREEK, headwaters to mouth at Redwater River | Nitrogen (Total) | 2012 | 12/29/2010 |
| Redwater | Lower Missouri | 10060002 | MT40P002_030 | PASTURE CREEK, headwaters to mouth at Redwater River | Total Kjehldahl Nitrogen (TKN) | 2006 | 12/29/2010 |
| Redwater | Middle Missouri | 10040104 | MT40E003_010 | TIMBER CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Nitrogen (Total) | 2012 | 12/29/2010 |
| Redwater | Middle Missouri | 10040104 | MT40E003_010 | TIMBER CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Phosphorus (Total) | 2006 | 12/29/2010 |
| Redwater | Middle Missouri | 10040104 | MT40E003_010 | TIMBER CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Total Kjehldahl Nitrogen (TKN) | 2006 | 12/29/2010 |
| Redwater | Middle Missouri | 10040104 | MT40E003_020 | NELSON CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Nitrates | 2000 | 12/29/2010 |
| Redwater | Middle Missouri | 10040104 | MT40E003_020 | NELSON CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Nitrogen (Total) | 2012 | 12/29/2010 |
| Redwater | Middle Missouri | 10040104 | MT40E003_020 | NELSON CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Phosphorus (Total) | 2012 | 12/29/2010 |
| Redwater | Middle Missouri | 10040104 | MT40E003_020 | NELSON CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Sulfates | 2006 | 12/29/2010 |
| Redwater | Middle Missouri | 10040104 | MT40E003_020 | NELSON CREEK, headwaters to mouth (Big Dry Creek arm of Fort Peck Res) | Total Dissolved Solids | 2012 | 12/29/2010 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C001_010 | RUBY RIVER, Ruby Dam to mouth (Beaverhead River) | Sedimentation/Siltation | 1988 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C001_010 | RUBY RIVER, Ruby Dam to mouth (Beaverhead River) | Temperature, water | 2000 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C001_020 | RUBY RIVER, confluence of East, West, and Middle Forks to Ruby Reservoir | Sedimentation/Siltation | 1990 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_010 | WISCONSIN CREEK, headwaters to mouth (Ruby River) | Sedimentation/Siltation | 1990 | 5/15/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_020 | MILL CREEK, headwaters to mouth (Ruby River) | Sedimentation/Siltation | 1990 | 5/15/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_020 | MILL CREEK, headwaters to mouth (Ruby River) | Temperature, water | 1990 | 5/15/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_030 | INDIAN CREEK, headwaters to mouth (Leonard Slough) | Sedimentation/Siltation | 2006 | 5/9/2007 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_040 | ALDER GULCH, headwaters to mouth (Ruby River) | Sedimentation/Siltation | 1990 | 5/15/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_050 | RAMSHORN CREEK, headwaters to mouth (Ruby River) | Lead | 1988 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_050 | RAMSHORN CREEK, headwaters to mouth (Ruby River) | Sedimentation/Siltation | 2004 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_060 | CURRANT CREEK, headwaters to mouth (Ramshorn Creek), T4S R4W S35 | Sedimentation/Siltation | 1992 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_090 | CALIFORNIA CREEK, headwaters to mouth (Ruby River), T5S R4W S30 | Sedimentation/Siltation | 1994 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_100 | GARDEN CREEK, headwaters to mouth (Ruby Reservoir) | Sedimentation/Siltation | 1996 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C002_110 | MORMON CREEK, headwaters to mouth (Upper end of Ruby River Reservoir ) | Sedimentation/Siltation | 1996 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_020 | COAL CREEK, headwaters to mouth (Middle Fork Ruby River) | Sedimentation/Siltation | 2006 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_030 | COTTONWOOD CREEK, headwaters to mouth (Ruby River) | Sedimentation/Siltation | 1990 | 5/15/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_040 | EAST FORK RUBY RIVER, headwaters to mouth (Ruby River) | Sedimentation/Siltation | 2006 | 5/15/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_050 | WARM SPRINGS CREEK, headwaters to mouth (Ruby River) | Sedimentation/Siltation | 1990 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_060 | SWEETWATER CREEK, headwaters to mouth (Ruby River) | Chlorophyll-a | 2002 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_060 | SWEETWATER CREEK, headwaters to mouth (Ruby River) | Nitrogen (Total) | 2002 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_060 | SWEETWATER CREEK, headwaters to mouth (Ruby River) | Phosphorus (Total) | 2002 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_060 | SWEETWATER CREEK, headwaters to mouth (Ruby River) | Sedimentation/Siltation | 1992 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_080 | WEST FORK RUBY RIVER, headwaters to mouth (Ruby River) | Sedimentation/Siltation | 1990 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_090 | MIDDLE FORK RUBY RIVER, Divide Creek to mouth (Ruby River) | Sedimentation/Siltation | 1990 | 5/15/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_110 | POISON CREEK, headwaters to mouth (Ruby River), T11S R3W S18 | Sedimentation/Siltation | 1992 | 5/9/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_120 | BASIN CREEK, headwaters to mouth (Ruby River), T11S R3W S20 | Sedimentation/Siltation | 1992 | 5/15/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_130 | BURNT CREEK, headwaters to mouth (Ruby River), T10S R3W S21 | Sedimentation/Siltation | 1992 | 5/15/2007 |
| Ruby | Upper Missouri Tribs. | 10020003 | MT41C003_150 | SHOVEL CREEK, headwaters to mouth (Cabin Creek) | Sedimentation/Siltation | 1992 | 5/9/2007 |
| Shields | Upper Yellowstone | 10070003 | MT43A001_011 | SHIELDS RIVER, Cottonwood Creek to mouth (Yellowstone River) | Sedimentation/Siltation | 1988 | 6/30/2009 |
| Shields | Upper Yellowstone | 10070003 | MT43A001_012 | SHIELDS RIVER, headwaters to Cottonwood Creek | Sedimentation/Siltation | 1988 | 6/30/2009 |
| Shields | Upper Yellowstone | 10070003 | MT43A002_010 | POTTER CREEK, headwaters to the mouth (Flathead Creek), T3N R9E S18 | Sedimentation/Siltation | 1988 | 6/30/2009 |
| Shields | Upper Yellowstone | 10070003 | MT43A002_010 | POTTER CREEK, headwaters to the mouth (Flathead Creek), T3N R9E S18 | Solids (Suspended/Bedload) | 1988 | 6/30/2009 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| St. Regis | Lower Clark Fork | 17010204 | MT76M003_010 | ST. REGIS RIVER, headwaters to mouth (Clark Fork River) | Sedimentation/Siltation | 1990 | 9/10/2008 |
| St. Regis | Lower Clark Fork | 17010204 | MT76M003_010 | ST. REGIS RIVER, headwaters to mouth (Clark Fork River) | Temperature, water | 2002 | 9/10/2008 |
| St. Regis | Lower Clark Fork | 17010204 | MT76M003_020 | TWELVE MILE CREEK, headwaters to mouth (St. Regis River) | Sedimentation/Siltation | 1992 | 9/10/2008 |
| St. Regis | Lower Clark Fork | 17010204 | MT76M003_020 | TWELVE MILE CREEK, headwaters to mouth (St. Regis River) | Temperature, water | 2002 | 9/10/2008 |
| St. Regis | Lower Clark Fork | 17010204 | MT76M003_040 | BIG CREEK, the East and Middle Forks to mouth (St. Regis River) | Sedimentation/Siltation | 2002 | 9/10/2008 |
| St. Regis | Lower Clark Fork | 17010204 | MT76M003_040 | BIG CREEK, the East and Middle Forks to mouth (St. Regis River) | Temperature, water | 1992 | 9/10/2008 |
| St. Regis | Lower Clark Fork | 17010204 | MT76M003_070 | LITTLE JOE CREEK, North Fork to mouth (St. Regis River) | Sedimentation/Siltation | 1992 | 9/10/2008 |
| St. Regis | Lower Clark Fork | 17010204 | MT76M003_080 | NORTH FORK LITTLE JOE CREEK, headwaters to mouth (Little Joe Creek) | Sedimentation/Siltation | 1992 | 9/10/2008 |
| Sun | Marias | 10030205 | MT41K004_030 | FREEZEOUT LAKE | Selenium | 1988 | 2/22/2005 |
| Sun | Marias | 10030205 | MT41K004_030 | FREEZEOUT LAKE | Sulfates | 1990 | 2/22/2005 |
| Sun | Marias | 10030205 | MT41K004_030 | FREEZEOUT LAKE | Total Dissolved Solids | 1988 | 2/22/2005 |
| Sun | Missouri-Sun-Smith | 10030104 | MT41K001_010 | SUN RIVER, Gibson Dam to Muddy Creek | Sedimentation/Siltation | 1988 | 2/23/2005 |
| Sun | Missouri-Sun-Smith | 10030104 | MT41K001_010 | SUN RIVER, Gibson Dam to Muddy Creek | Temperature, water | 1990 | 2/23/2005 |
| Sun | Missouri-Sun-Smith | 10030104 | MT41K001_020 | SUN RIVER, Muddy Creek to mouth (Missouri River) | Nitrogen (Total) | 1988 | 2/23/2005 |
| Sun | Missouri-Sun-Smith | 10030104 | MT41K001_020 | SUN RIVER, Muddy Creek to mouth (Missouri River) | Phosphorus (Total) | 1988 | 2/23/2005 |
| Sun | Missouri-Sun-Smith | 10030104 | MT41K001_020 | SUN RIVER, Muddy Creek to mouth (Missouri River) | Sedimentation/Siltation | 1988 | 2/23/2005 |
| Sun | Missouri-Sun-Smith | 10030104 | MT41K001_020 | SUN RIVER, Muddy Creek to mouth (Missouri River) | Total Suspended Solids (TSS) | 1988 | 2/23/2005 |
| Sun | Missouri-Sun-Smith | 10030104 | MT41K002_010 | MUDDY CREEK, headwaters to mouth (Sun River) | Nitrogen (Total) | 1988 | 2/23/2005 |
| Sun | Missouri-Sun-Smith | 10030104 | MT41K002_010 | MUDDY CREEK, headwaters to mouth (Sun River) | Phosphorus (Total) | 1988 | 2/23/2005 |
| Sun | Missouri-Sun-Smith | 10030104 | MT41K002_010 | MUDDY CREEK, headwaters to mouth (Sun River) | Salinity | 1990 | 2/23/2005 |
| Sun | Missouri-Sun-Smith | 10030104 | MT41K002_010 | MUDDY CREEK, headwaters to mouth (Sun River) | Sedimentation/Siltation | 1988 | 2/23/2005 |
| Sun | Missouri-Sun-Smith | 10030104 | MT41K002_010 | MUDDY CREEK, headwaters to mouth (Sun River) | Selenium | 2006 | 2/23/2005 |
| Sun | Missouri-Sun-Smith | 10030104 | MT41K002_010 | MUDDY CREEK, headwaters to mouth (Sun River) | Sulfates | 1990 | 2/23/2005 |
| Sun | Missouri-Sun-Smith | 10030104 | MT41K002_010 | MUDDY CREEK, headwaters to mouth (Sun River) | Temperature, water | 1990 | 2/23/2005 |
| Sun | Missouri-Sun-Smith | 10030104 | MT41K002_010 | MUDDY CREEK, headwaters to mouth (Sun River) | Total Dissolved Solids | 1990 | 2/23/2005 |

## Appendix F: EPA-Approved TMDLs

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Sun | Missouri-Sun-Smith | 10030104 | MT41K002_020 | FORD CREEK, from mouth 2 miles upstream (Smith Creek-Elk Creek-Sun River) | Sedimentation/Siltation | 2000 | 2/22/2005 |
| Swan | Flathead | 17010211 | MT76K002_010 | SWAN LAKE | BOD, sediment load (Sediment Oxygen Demand) | 2008 | 8/31/2004 |
| Swan | Flathead | 17010211 | MT76K002_010 | SWAN LAKE | Nitrogen (Total) | 2010 | 8/31/2004 |
| Swan | Flathead | 17010211 | MT76K002_010 | SWAN LAKE | Phosphorus (Total) | 2010 | 8/31/2004 |
| Swan | Flathead | 17010211 | MT76K002_010 | SWAN LAKE | Sedimentation/Siltation | 1996 | 8/31/2004 |
| Swan | Flathead | 17010211 | MT76K003_010 | JIM CREEK, headwaters to mouth (Swan River), T21 R18W S8 | Sedimentation/Siltation | 1990 | 8/31/2004 |
| Swan | Flathead | 17010211 | MT76K003_031 | GOAT CREEK, headwaters to Squeezer Creek | Total Suspended Solids (TSS) | 1992 | 8/31/2004 |
| Teton | Marias | 10030205 | MT41O001_010 | TETON RIVER, Muddy Creek to mouth (Marias River) | Salinity | 1996 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O001_010 | TETON RIVER, Muddy Creek to mouth (Marias River) | Sedimentation/Siltation | 1996 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O001_010 | TETON RIVER, Muddy Creek to mouth (Marias River) | Sulfates | 1996 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O001_010 | TETON RIVER, Muddy Creek to mouth (Marias River) | Total Dissolved Solids | 1996 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O001_020 | TETON RIVER, Deep Creek to Muddy Creek | Salinity | 2000 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O001_020 | TETON RIVER, Deep Creek to Muddy Creek | Sulfates | 2000 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O001_020 | TETON RIVER, Deep Creek to Muddy Creek | Temperature, water | 2000 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O001_020 | TETON RIVER, Deep Creek to Muddy Creek | Total Dissolved Solids | 2000 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O001_020 | TETON RIVER, Deep Creek to Muddy Creek | Total Suspended Solids (TSS) | 1988 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O002_010 | WILLOW CREEK, headwaters to mouth (Deep Creek) | Sedimentation/Siltation | 1988 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O002_020 | DEEP CREEK, Willow Creek to mouth (Teton River) | Nitrogen (Total) | 2002 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O002_020 | DEEP CREEK, Willow Creek to mouth (Teton River) | Phosphorus (Total) | 2002 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O002_020 | DEEP CREEK, Willow Creek to mouth (Teton River) | Sedimentation/Siltation | 1988 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O002_060 | TETON SPRING CREEK, the city of Choteau to mouth (Teton River) | Nitrogen (Total) | 2002 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O002_060 | TETON SPRING CREEK, the city of Choteau to mouth (Teton River) | Sedimentation/Siltation | 2002 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O002_070 | TETON SPRING CREEK, headwaters to city of Choteau | Sedimentation/Siltation | 2002 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O002_070 | TETON SPRING CREEK, headwaters to city of Choteau | Temperature, water | 2002 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O004_020 | PRIEST BUTTE LAKE | Salinity | 1988 | 11/26/2003 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Teton | Marias | 10030205 | MT41O004_020 | PRIEST BUTTE LAKE | Selenium | 1988 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O004_020 | PRIEST BUTTE LAKE | Sulfates | 1988 | 11/26/2003 |
| Teton | Marias | 10030205 | MT41O004_020 | PRIEST BUTTE LAKE | Total Dissolved Solids | 1988 | 11/26/2003 |
| Tobacco | Kootenai | 17010101 | MT76D004_010 | TOBACCO RIVER, confluence of Grave Creek & Fortine Creek to mouth (Lake Koocanusa) | Sedimentation/Siltation | 1988 | 9/16/2011 |
| Tobacco | Kootenai | 17010101 | MT76D004_020 | FORTINE CREEK, headwaters to mouth (Grave Creek) | Sedimentation/Siltation | 1990 | 9/16/2011 |
| Tobacco | Kootenai | 17010101 | MT76D004_030 | EDNA CREEK, headwaters to mouth (Fortine Creek) | Sedimentation/Siltation | 1992 | 9/16/2011 |
| Tobacco | Kootenai | 17010101 | MT76D004_040 | SWAMP CREEK, headwaters to mouth (Fortine Creek) | Sedimentation/Siltation | 1992 | 9/16/2011 |
| Tobacco | Kootenai | 17010101 | MT76D004_050 | LIME CREEK, headwaters to mouth (Fortine Creek) | Sedimentation/Siltation | 1996 | 9/16/2011 |
| Tobacco | Kootenai | 17010101 | MT76D004_070 | THERRIAULT CREEK, headwaters to mouth (Tobacco River) | Sedimentation/Siltation | 1988 | 9/16/2011 |
| Tobacco | Kootenai | 17010101 | MT76D004_080 | DEEP CREEK, headwaters to mouth (Fortine Creek) | Sedimentation/Siltation | 2006 | 9/16/2011 |
| Tobacco | Kootenai | 17010101 | MT76D004_091 | SINCLAIR CREEK, confluence of un-named tributary, Lat -114.945 Long 48.908 to mouth (Tobacco River) | Sedimentation/Siltation | 2012 | 9/16/2011 |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D001_030 | BIG HOLE RIVER, headwaters to Pintlar Creek | Sedimentation/Siltation | 2010 | 6/30/2009 |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D001_030 | BIG HOLE RIVER, headwaters to Pintlar Creek | Temperature, water | 2000 | 6/30/2009 |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_110 | SWAMP CREEK, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 1990 | 6/30/2009 |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_120 | ROCK CREEK, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 2002 | 6/30/2009 |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_140 | MINER CREEK, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 1990 | 6/30/2009 |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_150 | GOVERNOR CREEK, headwaters to mouth (Warm Springs Creek) | Sedimentation/Siltation | 2010 | 9/3/2009 |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_160 | PINE CREEK, headwaters to mouth (Andrus Creek) | Sedimentation/Siltation | 2010 | 9/3/2009 |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_170 | FOX CREEK, headwaters to mouth (Governor Creek) | Sedimentation/Siltation | 2010 | 9/3/2009 |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_190 | STEEL CREEK, headwaters to mouth (Big Hole River) | Nitrogen (Total) | 2010 | 6/30/2009 |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_190 | STEEL CREEK, headwaters to mouth (Big Hole River) | Phosphorus (Total) | 2000 | 6/30/2009 |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_190 | STEEL CREEK, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 2010 | 6/30/2009 |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_200 | FRANCIS CREEK, headwaters to mouth (Steel Creek) | Nitrogen (Total) | 2006 | 6/30/2009 |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_200 | FRANCIS CREEK, headwaters to mouth (Steel Creek) | Phosphorus (Total) | 2006 | 6/30/2009 |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_200 | FRANCIS CREEK, headwaters to mouth (Steel Creek) | Sedimentation/Siltation | 1990 | 6/30/2009 |

# Appendix F: EPA-Approved TMDLs

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_210 | McVEY CREEK, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 1992 | 6/30/2009 |
| Upper Big Hole | Upper Missouri Tribs. | 10020004 | MT41D004_220 | DOOLITTLE CREEK, headwaters to mouth (Big Hole River) | Sedimentation/Siltation | 1992 | 6/30/2009 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_012 | WARM SPRINGS CREEK, Meyers Dam T5N R12W S25 to mouth (Clark Fork), T6N R9W S6 | Arsenic | 1996 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_012 | WARM SPRINGS CREEK, Meyers Dam T5N R12W S25 to mouth (Clark Fork), T6N R9W S6 | Cadmium | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_012 | WARM SPRINGS CREEK, Meyers Dam T5N R12W S25 to mouth (Clark Fork), T6N R9W S6 | Copper | 1996 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_012 | WARM SPRINGS CREEK, Meyers Dam T5N R12W S25 to mouth (Clark Fork), T6N R9W S6 | Iron | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_012 | WARM SPRINGS CREEK, Meyers Dam T5N R12W S25 to mouth (Clark Fork), T6N R9W S6 | Lead | 1996 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_012 | WARM SPRINGS CREEK, Meyers Dam T5N R12W S25 to mouth (Clark Fork), T6N R9W S6 | Zinc | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_030 | CABLE CREEK, headwaters to mouth (Warm Springs Creek) | Sedimentation/Siltation | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_040 | STORM LAKE CREEK, headwaters to mouth (Un-Named canal/Ditch) | Sedimentation/Siltation | 2006 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_051 | MILL CREEK, headwaters to section line between Sec 27 and 28, T4N, R11W | Arsenic | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_051 | MILL CREEK, headwaters to section line between Sec 27 and 28, T4N, R11W | Cadmium | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_051 | MILL CREEK, headwaters to section line between Sec 27 and 28, T4N, R11W | Copper | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_051 | MILL CREEK, headwaters to section line between Sec 27 and 28, T4N, R11W | Lead | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_051 | MILL CREEK, headwaters to section line between Sec 27 and 28, T4N, R11W | Zinc | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_052 | MILL CREEK, line between sections 27-28 T4N R11W to Mill-Willow Bypass diversion | Arsenic | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_052 | MILL CREEK, line between sections 27-28 T4N R11W to Mill-Willow Bypass diversion | Cadmium | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_052 | MILL CREEK, line between sections 27-28 T4N R11W to Mill-Willow Bypass diversion | Copper | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_052 | MILL CREEK, line between sections 27-28 T4N R11W to Mill-Willow Bypass diversion | Iron | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_052 | MILL CREEK, line between sections 27-28 T4N R11W to Mill-Willow Bypass diversion | Lead | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_052 | MILL CREEK, line between sections 27-28 T4N R11W to Mill-Willow Bypass diversion | Zinc | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_061 | WILLOW CREEK, headwaters to T4N R10W S30 | Arsenic | 2006 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_061 | WILLOW CREEK, headwaters to T4N R10W S30 | Cadmium | 2006 | 3/4/2010 |

## Appendix F: EPA-Approved TMDLs

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_061 | WILLOW CREEK, headwaters to T4N R10W S30 | Copper | 2006 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_061 | WILLOW CREEK, headwaters to T4N R10W S30 | Iron | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_061 | WILLOW CREEK, headwaters to T4N R10W S30 | Lead | 2006 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_061 | WILLOW CREEK, headwaters to T4N R10W S30 | Sedimentation/Siltation | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_061 | WILLOW CREEK, headwaters to T4N R10W S30 | Zinc | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_062 | WILLOW CREEK, T4N R10W S30 to mouth (Mill Creek), T4N R10W S11 | Arsenic | 2000 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_062 | WILLOW CREEK, T4N R10W S30 to mouth (Mill Creek), T4N R10W S11 | Cadmium | 2000 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_062 | WILLOW CREEK, T4N R10W S30 to mouth (Mill Creek), T4N R10W S11 | Copper | 2000 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_062 | WILLOW CREEK, T4N R10W S30 to mouth (Mill Creek), T4N R10W S11 | Iron | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_062 | WILLOW CREEK, T4N R10W S30 to mouth (Mill Creek), T4N R10W S11 | Lead | 2000 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_062 | WILLOW CREEK, T4N R10W S30 to mouth (Mill Creek), T4N R10W S11 | Sedimentation/Siltation | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_062 | WILLOW CREEK, T4N R10W S30 to mouth (Mill Creek), T4N R10W S11 | Zinc | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_072 | LOST CREEK, the south State Park boundary to mouth (Clark Fork River) | Arsenic | 2000 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_072 | LOST CREEK, the south State Park boundary to mouth (Clark Fork River) | Copper | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_072 | LOST CREEK, the south State Park boundary to mouth (Clark Fork River) | Lead | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_080 | MODESTY CREEK, headwaters to mouth (Clark Fork River) | Arsenic | 2000 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_080 | MODESTY CREEK, headwaters to mouth (Clark Fork River) | Cadmium | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_080 | MODESTY CREEK, headwaters to mouth (Clark Fork River) | Copper | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_080 | MODESTY CREEK, headwaters to mouth (Clark Fork River) | Lead | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_100 | DEMPSEY CREEK, the national forest boundary to mouth (Clark Fork River) | Sedimentation/Siltation | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_110 | TIN CUP JOE CREEK, Tin Cup Lake to mouth (Clark Fork River) | Sedimentation/Siltation | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_120 | MILL-WILLOW BYPASS, Mill and Willow Creek diversion to Silver Bow Creek (below ponds) | Arsenic | 1996 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_120 | MILL-WILLOW BYPASS, Mill and Willow Creek diversion to Silver Bow Creek (below ponds) | Cadmium | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_120 | MILL-WILLOW BYPASS, Mill and Willow Creek diversion to Silver Bow Creek (below ponds) | Copper | 1996 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_120 | MILL-WILLOW BYPASS, Mill and Willow Creek diversion to Silver Bow Creek (below ponds) | Lead | 1996 | 3/4/2010 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_120 | MILL-WILLOW BYPASS, Mill and Willow Creek diversion to Silver Bow Creek (below ponds) | Zinc | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_131 | PETERSON CREEK, headwaters to Jack Creek | Copper | 2006 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_131 | PETERSON CREEK, headwaters to Jack Creek | Iron | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_131 | PETERSON CREEK, headwaters to Jack Creek | Lead | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_131 | PETERSON CREEK, headwaters to Jack Creek | Sedimentation/Siltation | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_132 | PETERSON CREEK, Jack Creek to mouth (Clark Fork River) | Iron | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_132 | PETERSON CREEK, Jack Creek to mouth (Clark Fork River) | Sedimentation/Siltation | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_132 | PETERSON CREEK, Jack Creek to mouth (Clark Fork River) | Temperature, water | 2000 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G002_140 | ANTELOPE CREEK, headwaters to mouth (Gardner Ditch) | Sedimentation/Siltation | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G003_030 | GERMAN GULCH, headwaters to mouth (Silver Bow Creek) | Arsenic | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G003_030 | GERMAN GULCH, headwaters to mouth (Silver Bow Creek) | Cyanide | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G003_030 | GERMAN GULCH, headwaters to mouth (Silver Bow Creek) | Selenium | 2002 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G003_031 | BEEFSTRAIGHT CREEK, Minnesota Gulch to mouth (German Gulch) | Cyanide | 2004 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_071 | DUNKLEBERG CREEK, headwaters to T9N R12W S2 SW | Arsenic | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_071 | DUNKLEBERG CREEK, headwaters to T9N R12W S2 SW | Cadmium | 1990 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_071 | DUNKLEBERG CREEK, headwaters to T9N R12W S2 SW | Copper | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_071 | DUNKLEBERG CREEK, headwaters to T9N R12W S2 SW | Iron | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_071 | DUNKLEBERG CREEK, headwaters to T9N R12W S2 SW | Lead | 1990 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_071 | DUNKLEBERG CREEK, headwaters to T9N R12W S2 SW | Zinc | 1990 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_072 | DUNKLEBERG CREEK, T9N R12W S2 to mouth (Un-named Canal), T10N R11W S30 | Arsenic | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_072 | DUNKLEBERG CREEK, T9N R12W S2 to mouth (Un-named Canal), T10N R11W S30 | Cadmium | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_072 | DUNKLEBERG CREEK, T9N R12W S2 to mouth (Un-named Canal), T10N R11W S30 | Copper | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_072 | DUNKLEBERG CREEK, T9N R12W S2 to mouth (Un-named Canal), T10N R11W S30 | Iron | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_072 | DUNKLEBERG CREEK, T9N R12W S2 to mouth (Un-named Canal), T10N R11W S30 | Lead | 1990 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_072 | DUNKLEBERG CREEK, T9N R12W S2 to mouth (Un-named Canal), T10N R11W S30 | Zinc | 2010 | 3/4/2010 |

## Appendix F: EPA-Approved TMDLs

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_081 | HOOVER CREEK, headwaters to Miller Lake | Sedimentation/Siltation | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_081 | HOOVER CREEK, headwaters to Miller Lake | Turbidity | 2000 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_082 | HOOVER CREEK, Miller Lake to mouth (Clark Fork River) | Sedimentation/Siltation | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_091 | GOLD CREEK, headwaters to National Forest boundary | Lead | 2000 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_092 | GOLD CREEK, the forest boundary to mouth (Clark Fork River) | Iron | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_092 | GOLD CREEK, the forest boundary to mouth (Clark Fork River) | Lead | 2010 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_100 | BROCK CREEK, headwaters to mouth (Clark Fork River) | Sedimentation/Siltation | 1988 | 3/4/2010 |
| Upper Clark Fork | Upper Clark Fork | 17010201 | MT76G005_112 | WARM SPRINGS CREEK, from line between R9W and R10W to mouth (Clark Fork River) | Sedimentation/Siltation | 1988 | 3/4/2010 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_040 | WEST FORK GALLATIN RIVER, confluence Middle and North Forks to mouth (Gallatin River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2012 | 9/30/2010 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_040 | WEST FORK GALLATIN RIVER, confluence Middle and North Forks to mouth (Gallatin River) | Nitrogen (Total) | 2000 | 9/30/2010 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_040 | WEST FORK GALLATIN RIVER, confluence Middle and North Forks to mouth (Gallatin River) | Sedimentation/Siltation | 1990 | 9/30/2010 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_050 | MIDDLE FORK WEST FORK GALLATIN RIVER, headwaters to mouth (West Fork Gallatin River) | Escherichia coli | 2012 | 9/30/2010 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_050 | MIDDLE FORK WEST FORK GALLATIN RIVER, headwaters to mouth (West Fork Gallatin River) | Fecal Coliform | 2000 | 9/30/2010 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_050 | MIDDLE FORK WEST FORK GALLATIN RIVER, headwaters to mouth (West Fork Gallatin River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2000 | 9/30/2010 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_050 | MIDDLE FORK WEST FORK GALLATIN RIVER, headwaters to mouth (West Fork Gallatin River) | Solids (Suspended/Bedload) | 1990 | 9/30/2010 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_060 | SOUTH FORK WEST FORK GALLATIN RIVER, headwaters to mouth (West Fork Gallatin River) | Nitrate/Nitrite (Nitrite + Nitrate as N) | 2000 | 9/30/2010 |
| Upper Gallatin | Upper Missouri Tribs. | 10020008 | MT41H005_060 | SOUTH FORK WEST FORK GALLATIN RIVER, headwaters to mouth (West Fork Gallatin River) | Sedimentation/Siltation | 1990 | 9/30/2010 |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_010 | BIG PIPESTONE CREEK, headwaters to mouth (Jefferson Slough), T1N R4W S11 | Sedimentation/Siltation | 2010 | 9/22/2009 |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_010 | BIG PIPESTONE CREEK, headwaters to mouth (Jefferson Slough), T1N R4W S11 | Total Suspended Solids (TSS) | 1996 | 9/22/2009 |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_030 | HELLS CANYON CREEK, headwaters to mouth (Jefferson River) | Sedimentation/Siltation | 1992 | 9/22/2009 |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_040 | LITTLE PIPESTONE CREEK, headwaters to mouth (Big Pipestone Creek) | Sedimentation/Siltation | 1990 | 9/22/2009 |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_100 | FISH CREEK, headwaters to mouth (Jefferson Canal), T1S R5W S12 | Sedimentation/Siltation | 1996 | 9/22/2009 |

| TMDL Planning Area | Watershed | HUC | ID305B | Waterbody Name/Location | Cause of Impairment | Cycle First Listed | TMDL Completion Date |
|---|---|---|---|---|---|---|---|
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_110 | CHERRY CREEK, headwaters to mouth (Jefferson River) | Sedimentation/Siltation | 2006 | 9/22/2009 |
| Upper Jefferson | Upper Missouri Tribs. | 10020005 | MT41G002_140 | WHITETAIL CREEK, Whitetail Reservoir to mouth (Jeferson Slough) | Sedimentation/Siltation | 1994 | 9/22/2009 |
| Upper Lolo | Upper Clark Fork | 17010205 | MT76H005_030 | GRANITE CREEK, headwaters to mouth (Lolo Creek) | Sedimentation/Siltation | 1988 | 6/24/2003 |
| Upper Lolo | Upper Clark Fork | 17010205 | MT76H005_040 | EAST FORK LOLO CREEK, headwaters to mouth (Confluence with Lolo Creek) | Sedimentation/Siltation | 1990 | 6/24/2003 |
| Upper Lolo | Upper Clark Fork | 17010205 | MT76H005_050 | WEST FORK LOLO CREEK, headwaters to mouth (Lolo Creek) | Sedimentation/Siltation | 1992 | 6/24/2003 |
| Upper Lolo | Upper Clark Fork | 17010205 | MT76H005_060 | LOST PARK CREEK, headwaters to mouth (Confluence with East Fork Lolo Creek) | Sedimentation/Siltation | 1992 | 6/24/2003 |
| Upper Lolo | Upper Clark Fork | 17010205 | MT76H005_070 | LEE CREEK, headwaters to mouth (West Fork Lolo Creek) | Sedimentation/Siltation | 2002 | 6/24/2003 |
| Yaak | Kootenai | 17010103 | MT76B002_010 | SEVENTEEN MILE CREEK, headwaters to mouth (Yaak River) | Sedimentation/Siltation | 1992 | 9/10/2008 |
| Yaak | Kootenai | 17010103 | MT76B002_020 | LAP CREEK, headwaters to mouth (Yaak River) | Sedimentation/Siltation | 2006 | 9/10/2008 |
| Yaak | Kootenai | 17010103 | MT76B002_080 | SOUTH FORK YAAK RIVER, headwaters to mouth (Yaak River) | Sedimentation/Siltation | 1992 | 9/10/2008 |

## Appendix G:  Monitoring Schedule for 2011 - 2014

**The following areas are scheduled to be monitored and/or assessed during the period of 2012 through 2014 for the purposes indicated. This list is not necessarily inclusive and plans may change due to unforseen circumstances**

| Basin | HUC | Huc Name | Waterbody Name | Monitoring Objectives: Standards Development | Ambient (305b) | TMDL Development | Restoration Effectiveness |
|---|---|---|---|---|---|---|---|
| Columbia | 17010101 | Upper Kootenai | Big Cherry Creek | | | X | |
| Columbia | 17010101 | Upper Kootenai | Bristow Creek | | X | X | |
| Columbia | 17010101 | Upper Kootenai | Deep Creek | | | X | |
| Columbia | 17010101 | Upper Kootenai | Edna Creek | | | X | |
| Columbia | 17010101 | Upper Kootenai | Fortine Creek | | | X | |
| Columbia | 17010101 | Upper Kootenai | Lake Creek | | | X | |
| Columbia | 17010101 | Upper Kootenai | Libby Creek | | X | X | |
| Columbia | 17010101 | Upper Kootenai | Lime Creek | | | X | |
| Columbia | 17010101 | Upper Kootenai | Quartz Creek | | | X | |
| Columbia | 17010101 | Upper Kootenai | Snowshoe Creek | | | X | |
| Columbia | 17010101 | Upper Kootenai | Stanley Creek (Fairway) | | X | | |
| Columbia | 17010101 | Upper Kootenai | Swamp Creek | | | X | |
| Columbia | 17010101 | Upper Kootenai | Therriault Creek | | | X | |
| Columbia | 17010101 | Upper Kootenai | Tobacco River | | | X | |
| Columbia | 17010102 | Fisher | Fisher River | | | X | |
| Columbia | 17010102 | Fisher | Raven Creek | | X | X | |
| Columbia | 17010102 | Fisher | Wolf Creek | | X | X | |
| Columbia | 17010103 | Yaak | East Fork Yaak River | | | X | |
| Columbia | 17010103 | Yaak | Lap Creek | | | X | |
| Columbia | 17010103 | Yaak | Pete Creek | | | X | |
| Columbia | 17010103 | Yaak | Seventeen Mile Creek | | | X | |
| Columbia | 17010103 | Yaak | Spread Creek | | | X | |
| Columbia | 17010103 | Yaak | West Fork Yaak River | | | X | |
| Columbia | 17010201 | Upper Clark Fork | Dempsey Creek | | X | X | |
| Columbia | 17010201 | Upper Clark Fork | Dog Creek | | | X | |
| Columbia | 17010201 | Upper Clark Fork | Dunkleberg Creek | | X | X | |
| Columbia | 17010201 | Upper Clark Fork | Gold Creek | | X | X | |

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| Basin | HUC | Huc Name | Waterbody Name | Monitoring Objectives: Standards Development | Ambient (305b) | TMDL Development | Restoration Effectiveness |
|---|---|---|---|---|---|---|---|
| Columbia | 17010201 | Upper Clark Fork | Hoover Creek | | X | X | |
| Columbia | 17010201 | Upper Clark Fork | Little Blackfoot River | | | X | |
| Columbia | 17010201 | Upper Clark Fork | Lost Creek | | X | X | |
| Columbia | 17010201 | Upper Clark Fork | Mill Creek | | | X | |
| Columbia | 17010201 | Upper Clark Fork | Monarch Creek | | | X | |
| Columbia | 17010201 | Upper Clark Fork | Peterson Creek | | X | X | |
| Columbia | 17010201 | Upper Clark Fork | Silver Bow Creek | | | X | |
| Columbia | 17010201 | Upper Clark Fork | Snowshoe Creek | | | X | |
| Columbia | 17010201 | Upper Clark Fork | Spotted Dog Creek | | | X | |
| Columbia | 17010201 | Upper Clark Fork | Storm Lake Creek | | X | | |
| Columbia | 17010201 | Upper Clark Fork | Telegraph Creek | | | X | |
| Columbia | 17010201 | Upper Clark Fork | Un-Named Creek | | | X | |
| Columbia | 17010201 | Upper Clark Fork | Warm Springs Creek | | X | X | |
| Columbia | 17010201 | Upper Clark Fork | Willow Creek | | X | X | |
| Columbia | 17010202 | Flint-Rock | Antelope Creek | | X | | |
| Columbia | 17010202 | Flint-Rock | Barnes Creek | | | X | |
| Columbia | 17010202 | Flint-Rock | Basin Gulch | | X | | |
| Columbia | 17010202 | Flint-Rock | Boulder Creek | | | X | |
| Columbia | 17010202 | Flint-Rock | Brewster Creek | | X | X | |
| Columbia | 17010202 | Flint-Rock | Camp Creek | | | X | |
| Columbia | 17010202 | Flint-Rock | Cramer Creek | | X | X | |
| Columbia | 17010202 | Flint-Rock | Deep Creek | | X | X | |
| Columbia | 17010202 | Flint-Rock | Douglas Creek | | | X | |
| Columbia | 17010202 | Flint-Rock | East Fork Rock Creek | | | X | |
| Columbia | 17010202 | Flint-Rock | Eureka Gulch | | | X | |
| Columbia | 17010202 | Flint-Rock | Flat Gulch | | | X | |
| Columbia | 17010202 | Flint-Rock | Flint Creek | | | X | |

## Appendix G:  Monitoring Schedule for 2011 - 2014

**The following areas are scheduled to be monitored and/or assessed during the period of 2012 through 2014 for the purposes indicated. This list is not necessarily inclusive and plans may change due to unforseen circumstances**

| Basin | HUC | Huc Name | Waterbody Name | Monitoring Objectives: Standards Development | Ambient (305b) | TMDL Development | Restoration Effectiveness |
|---|---|---|---|---|---|---|---|
| Columbia | 17010202 | Flint-Rock | Fred Burr Creek | | | X | |
| Columbia | 17010202 | Flint-Rock | Miners Gulch | | | X | |
| Columbia | 17010202 | Flint-Rock | Mulkey Creek | | | X | |
| Columbia | 17010202 | Flint-Rock | North Fork Douglas Creek | | | X | |
| Columbia | 17010202 | Flint-Rock | Princeton Gulch | | | X | |
| Columbia | 17010202 | Flint-Rock | Quartz Gulch | | X | X | |
| Columbia | 17010202 | Flint-Rock | Rattler Gulch | | X | X | |
| Columbia | 17010202 | Flint-Rock | Scotchman Gulch | | | X | |
| Columbia | 17010202 | Flint-Rock | Sluice Gulch | | X | X | |
| Columbia | 17010202 | Flint-Rock | Smart Creek | | X | X | |
| Columbia | 17010202 | Flint-Rock | South Fork Antelope Creek | | X | X | |
| Columbia | 17010202 | Flint-Rock | South Fork Lower Willow Creek | | | X | |
| Columbia | 17010202 | Flint-Rock | Tenmile Creek | | X | X | |
| Columbia | 17010202 | Flint-Rock | Upper Willow Creek | | X | | |
| Columbia | 17010202 | Flint-Rock | Wallace Creek | | X | X | |
| Columbia | 17010202 | Flint-Rock | Welcome Creek | | X | | |
| Columbia | 17010202 | Flint-Rock | West Fork Rock Creek | | X | X | |
| Columbia | 17010203 | Blackfoot | Arrastra Creek | | | | X |
| Columbia | 17010203 | Blackfoot | Beartrap Creek | | | | X |
| Columbia | 17010203 | Blackfoot | Blackfoot River | | | X | X |
| Columbia | 17010203 | Blackfoot | Braziel Creek | | | X | |
| Columbia | 17010203 | Blackfoot | Camas Creek | | | X | |
| Columbia | 17010203 | Blackfoot | Day Gulch | | | X | |
| Columbia | 17010203 | Blackfoot | Douglas Creek | | | X | |
| Columbia | 17010203 | Blackfoot | East Fork Ashby Creek | | | X | |
| Columbia | 17010203 | Blackfoot | Elk Creek | | | X | |
| Columbia | 17010203 | Blackfoot | Kleinschmidt Creek | | | X | |

## Appendix G:  Monitoring Schedule for 2011 - 2014

**The following areas are scheduled to be monitored and/or assessed during the period of 2012 through 2014 for the purposes indicated. This list is not necessarily inclusive and plans may change due to unforseen circumstances**

| Basin | HUC | Huc Name | Waterbody Name | Monitoring Objectives: Standards Development | Ambient (305b) | TMDL Development | Restoration Effectiveness |
|---|---|---|---|---|---|---|---|
| Columbia | 17010203 | Blackfoot | Mike Horse Creek | | | | X |
| Columbia | 17010203 | Blackfoot | Murray Creek | | | X | |
| Columbia | 17010203 | Blackfoot | Nevada Creek | | | X | |
| Columbia | 17010203 | Blackfoot | Nevada Lake | | | X | |
| Columbia | 17010203 | Blackfoot | Poorman Creek | | | X | X |
| Columbia | 17010203 | Blackfoot | Sandbar Creek | | | X | X |
| Columbia | 17010203 | Blackfoot | Shingle Mill Creek | | | X | |
| Columbia | 17010203 | Blackfoot | Union Creek | | | X | |
| Columbia | 17010203 | Blackfoot | Washoe Creek | | | X | |
| Columbia | 17010203 | Blackfoot | West Fork Ashby Creek | | | X | |
| Columbia | 17010203 | Blackfoot | Willow Creek | | | | X |
| Columbia | 17010204 | Middle Clark Fork | Cache Creek | | X | | |
| Columbia | 17010204 | Middle Clark Fork | Cedar Creek | | X | X | |
| Columbia | 17010204 | Middle Clark Fork | Dry Creek | | X | X | |
| Columbia | 17010204 | Middle Clark Fork | Flat Creek | | X | X | |
| Columbia | 17010204 | Middle Clark Fork | Grant Creek | | X | X | |
| Columbia | 17010204 | Middle Clark Fork | Hall Gulch | | X | | |
| Columbia | 17010204 | Middle Clark Fork | Nemote Creek | | X | X | |
| Columbia | 17010204 | Middle Clark Fork | Ninemile Creek | | X | | |
| Columbia | 17010204 | Middle Clark Fork | North Fork Fish Creek | | X | | |
| Columbia | 17010204 | Middle Clark Fork | Petty Creek | | X | X | |
| Columbia | 17010204 | Middle Clark Fork | Stony Creek | | X | X | |
| Columbia | 17010204 | Middle Clark Fork | Straight Creek | | X | | |
| Columbia | 17010204 | Middle Clark Fork | Trout Creek | | | X | |
| Columbia | 17010204 | Middle Clark Fork | West Fork Petty Creek | | X | X | |
| Columbia | 17010204 | Middle Clark Fork | White Creek | | X | | |
| Columbia | 17010205 | Bitterroot | Ambrose Creek | | | X | |

**The following areas are scheduled to be monitored and/or assessed during the period of 2012 through 2014 for the purposes indicated. This list is not necessarily inclusive and plans may change due to unforseen circumstances**

| Basin | HUC | Huc Name | Waterbody Name | Monitoring Objectives: Standards Development | Ambient (305b) | TMDL Development | Restoration Effectiveness |
|---|---|---|---|---|---|---|---|
| Columbia | 17010205 | Bitterroot | Bass Creek | | | X | |
| Columbia | 17010205 | Bitterroot | Bitterroot River | | X | X | |
| Columbia | 17010205 | Bitterroot | Burnt Fork | | X | | |
| Columbia | 17010205 | Bitterroot | East Fork Bitterroot River | | | X | |
| Columbia | 17010205 | Bitterroot | Eight Mile Creek | | X | | |
| Columbia | 17010205 | Bitterroot | Lick Creek | | | X | |
| Columbia | 17010205 | Bitterroot | Lolo Creek | | X | X | |
| Columbia | 17010205 | Bitterroot | McClain Creek | | | X | |
| Columbia | 17010205 | Bitterroot | Meadow Creek | | | X | |
| Columbia | 17010205 | Bitterroot | Mill Creek | | | X | |
| Columbia | 17010205 | Bitterroot | Miller Creek | | X | X | |
| Columbia | 17010205 | Bitterroot | Muddy Spring Creek | | | X | |
| Columbia | 17010205 | Bitterroot | North Burnt Fork Creek | | | X | |
| Columbia | 17010205 | Bitterroot | North Fork Rye Creek | | | X | |
| Columbia | 17010205 | Bitterroot | Overwhich Creek | | | X | |
| Columbia | 17010205 | Bitterroot | Rye Creek | | X | X | |
| Columbia | 17010205 | Bitterroot | Skalkaho Creek | | | X | |
| Columbia | 17010205 | Bitterroot | Sleeping Child Creek | | | X | |
| Columbia | 17010205 | Bitterroot | Sweathhouse Creek | | X | X | |
| Columbia | 17010205 | Bitterroot | Three Mile Creek | | X | X | |
| Columbia | 17010205 | Bitterroot | Tin Cup Creek | | | X | |
| Columbia | 17010205 | Bitterroot | Unnamed Stream | | X | | |
| Columbia | 17010205 | Bitterroot | Willoughby Creek | | X | | |
| Columbia | 17010205 | Bitterroot | Willow Creek | | X | X | |
| Columbia | 17010207 | Middle Fork Flathead | Challenge Creek | | X | X | |
| Columbia | 17010208 | Flathead Lake | Ashley Creek | | | X | |
| Columbia | 17010208 | Flathead Lake | Fish Creek | | | X | |

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| Basin | HUC | Huc Name | Waterbody Name | Monitoring Objectives: Standards Development | Ambient (305b) | TMDL Development | Restoration Effectiveness |
|---|---|---|---|---|---|---|---|
| Columbia | 17010208 | Flathead Lake | Flathead Lake | | | X | |
| Columbia | 17010208 | Flathead Lake | Spring Creek | | | X | |
| Columbia | 17010210 | Stillwater | East Fork Swift Creek | | | X | |
| Columbia | 17010210 | Stillwater | Logan Creek | | | X | |
| Columbia | 17010210 | Stillwater | Sheppard Creek | | | X | |
| Columbia | 17010210 | Stillwater | Stillwater River | | | X | |
| Columbia | 17010210 | Stillwater | Swift Creek | | | X | |
| Columbia | 17010210 | Stillwater | West Fork Swift Creek | | | X | |
| Columbia | 17010210 | Stillwater | Whitefish Lake | | | X | |
| Columbia | 17010210 | Stillwater | Whitefish River | | | X | |
| Columbia | 17010211 | Swan | Goat Creek | | | | X |
| Columbia | 17010211 | Swan | Jim Creek | | | | X |
| Columbia | 17010211 | Swan | Swan Lake | | | | X |
| Columbia | 17010212 | Lower Flathead | Little Bitterroot River | | X | X | |
| Columbia | 17010212 | Lower Flathead | Sullivan Creek | | X | X | |
| Columbia | 17010213 | Lower Clark Fork | Cox Gulch | | | X | |
| Columbia | 17010213 | Lower Clark Fork | Elk Creek | | | | X |
| Columbia | 17010213 | Lower Clark Fork | Henry Creek | | X | X | |
| Columbia | 17010213 | Lower Clark Fork | Lazier Creek | | X | X | |
| Columbia | 17010213 | Lower Clark Fork | Little Thompson River | | X | X | |
| Columbia | 17010213 | Lower Clark Fork | Lynch Creek | | X | X | |
| Columbia | 17010213 | Lower Clark Fork | McGinnis Creek | | X | X | |
| Columbia | 17010213 | Lower Clark Fork | McGregor Creek | | X | X | |
| Columbia | 17010213 | Lower Clark Fork | Swamp Creek | | X | X | |
| Columbia | 17010213 | Lower Clark Fork | White Pine Creek | | | X | |
| Columbia | Multiple | Multiple HUCS | Clark Fork River | | X | X | |
| Columbia | Multiple | Multiple HUCS | Flathead River | | | X | |

## Appendix G: Monitoring Schedule for 2011 - 2014

**The following areas are scheduled to be monitored and/or assessed during the period of 2012 through 2014 for the purposes indicated. This list is not necessarily inclusive and plans may change due to unforseen circumstances**

| Basin | HUC | Huc Name | Waterbody Name | Monitoring Objectives: Standards Development | Ambient (305b) | TMDL Development | Restoration Effectiveness |
|---|---|---|---|---|---|---|---|
| Lower Missouri | 10030104 | Judith | Huber Coulee | | X | | |
| Lower Missouri | 10030205 | Teton | North Fork Teton River | | X | | |
| Lower Missouri | 10030205 | Teton | Waldron Creek | | X | | |
| Lower Missouri | 10040103 | Judith | Big Spring Creek | | | | X |
| Lower Missouri | 10040104 | Fort Peck Reservoir | Alder Gulch | | | X | |
| Lower Missouri | 10040104 | Fort Peck Reservoir | Armells Creek | | | X | |
| Lower Missouri | 10040104 | Fort Peck Reservoir | Cow Creek | X | | X | |
| Lower Missouri | 10040104 | Fort Peck Reservoir | Fargo Coulee | | | X | |
| Lower Missouri | 10040104 | Fort Peck Reservoir | Hart Creek | X | | | |
| Lower Missouri | 10040104 | Fort Peck Reservoir | Hell Creek | X | | | |
| Lower Missouri | 10040104 | Fort Peck Reservoir | Mill Gulch | | | X | |
| Lower Missouri | 10040104 | Fort Peck Reservoir | Montana Gulch | | | X | |
| Lower Missouri | 10040104 | Fort Peck Reservoir | Rock Creek | | | X | |
| Lower Missouri | 10040104 | Fort Peck Reservoir | Ruby Creek | | | X | |
| Lower Missouri | 10040104 | Fort Peck Reservoir | Ruby Gulch | | | X | |
| Lower Missouri | 10040104 | Fort Peck Reservoir | Snap Creek | X | | | |
| Lower Missouri | 10040106 | Little Dry | Little Dry Creek | X | | | |
| Lower Missouri | 10040201 | Upper Musselshell | Careless Creek | | | | X |
| Lower Missouri | 10050009 | Peoples | Big Horn Creek | | | X | |
| Lower Missouri | 10050009 | Peoples | King Creek | | | X | |
| Lower Missouri | 10050009 | Peoples | Lodge Pole Creek | | | X | |
| Lower Missouri | 10050009 | Peoples | Swift Gulch Creek | | | X | |
| Lower Missouri | 10050010 | Cottonwood | Woody Island Coulee | X | | | |
| Lower Missouri | 10050012 | Lower Milk | Willow Creek | X | | | |
| Lower Missouri | 10050014 | Beaver | Beaver Creek | | | X | |
| Lower Missouri | 10050015 | Rock | Bitter Creek | X | | | |
| Lower Missouri | 10050015 | Rock | Rock Creek | X | | | |

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| Basin | HUC | Huc Name | Waterbody Name | Monitoring Objectives: Standards Development | Ambient (305b) | TMDL Development | Restoration Effectiveness |
|---|---|---|---|---|---|---|---|
| Lower Missouri | 10050015 | Rock | Willlow Creek | X | | | |
| Lower Missouri | 10060003 | Poplar | East Fork Poplar River | | X | | |
| Lower Missouri | 10060003 | Poplar | Lower Middle Fork Poplar River | | X | | |
| Lower Missouri | 10060003 | Poplar | Middle Fork Poplar River | | X | | |
| Lower Missouri | 10060003 | Poplar | Poplar River | | X | | |
| Lower Missouri | 10060004 | West Fork Poplar | West Fork Poplar River | | X | | |
| Upper Missouri | 10020001 | Red Rock | Bloody Dick Creek | X | | | |
| Upper Missouri | 10020002 | Beaverhead | Beaverhead River | | | X | |
| Upper Missouri | 10020002 | Beaverhead | Blacktail Deer Creek | | | X | |
| Upper Missouri | 10020002 | Beaverhead | Clark Canyon Creek | | | X | |
| Upper Missouri | 10020002 | Beaverhead | Dyce Creek | | | X | |
| Upper Missouri | 10020002 | Beaverhead | Farlin Creek | | | X | |
| Upper Missouri | 10020002 | Beaverhead | French Creek | | | X | |
| Upper Missouri | 10020002 | Beaverhead | Price Creek | X | | | |
| Upper Missouri | 10020002 | Beaverhead | Rattlesnake Creek | | | X | |
| Upper Missouri | 10020002 | Beaverhead | Reservoir Creek | | | X | |
| Upper Missouri | 10020002 | Beaverhead | Scudder Creek | | | X | |
| Upper Missouri | 10020002 | Beaverhead | Spring Creek | | | X | |
| Upper Missouri | 10020002 | Beaverhead | Steel Creek | | | X | |
| Upper Missouri | 10020002 | Beaverhead | Stone Creek | | | X | |
| Upper Missouri | 10020002 | Beaverhead | Taylor Creek | | | X | |
| Upper Missouri | 10020002 | Beaverhead | West Fork Blacktail Deer Creek | | | X | |
| Upper Missouri | 10020002 | Beaverhead | West Fork Dyce Creek | | | X | |
| Upper Missouri | 10020003 | Ruby | Basin Creek | | | | X |
| Upper Missouri | 10020003 | Ruby | Burnt Creek | | | | X |
| Upper Missouri | 10020003 | Ruby | Coal Creek | | | | X |
| Upper Missouri | 10020003 | Ruby | Cottonwood Creek | | | | X |

## Appendix G:  Monitoring Schedule for 2011 - 2014

**The following areas are scheduled to be monitored and/or assessed during the period of 2012 through 2014 for the purposes indicated. This list is not necessarily inclusive and plans may change due to unforseen circumstances**

| Basin | HUC | Huc Name | Waterbody Name | Monitoring Objectives: Standards Development | Ambient (305b) | TMDL Development | Restoration Effectiveness |
|---|---|---|---|---|---|---|---|
| Upper Missouri | 10020003 | Ruby | East Fork Ruby River | | | | X |
| Upper Missouri | 10020003 | Ruby | Garden Creek | | | | X |
| Upper Missouri | 10020003 | Ruby | Middle Fork Ruby River | | | | X |
| Upper Missouri | 10020003 | Ruby | Mormon Creek | | | | X |
| Upper Missouri | 10020003 | Ruby | North Fork Greenhorn Creek | X | | | |
| Upper Missouri | 10020003 | Ruby | Poison Creek | | | | X |
| Upper Missouri | 10020003 | Ruby | Ruby River | | | | X |
| Upper Missouri | 10020003 | Ruby | Shovel Creek | | | | X |
| Upper Missouri | 10020003 | Ruby | Sweetwater Creek | | | | X |
| Upper Missouri | 10020003 | Ruby | Warm Springs Creek | | | | X |
| Upper Missouri | 10020003 | Ruby | West Fork Ruby River | | | | X |
| Upper Missouri | 10020004 | Big Hole | Johnson  Creek | | X | | |
| Upper Missouri | 10020004 | Big Hole | LaMarche Creek | | X | | |
| Upper Missouri | 10020004 | Big Hole | Seymour Creek | | X | | |
| Upper Missouri | 10020004 | Big Hole | Tie Creek | | X | | |
| Upper Missouri | 10020004 | Big Hole | Trail Creek | | X | | |
| Upper Missouri | 10020004 | Big Hole | Willow Creek | X | X | | |
| Upper Missouri | 10020005 | Jefferson | Cherry Creek | | | X | |
| Upper Missouri | 10020005 | Jefferson | Fish Creek | | X | | |
| Upper Missouri | 10020005 | Jefferson | Jefferson River | | | X | |
| Upper Missouri | 10020005 | Jefferson | Whitetail Creek | | | X | |
| Upper Missouri | 10020005 | Jefferson | Willow Creek South Fork | X | | | |
| Upper Missouri | 10020006 | Boulder | Basin Creek | | | X | |
| Upper Missouri | 10020006 | Boulder | Big Limber Gulch | | | X | |
| Upper Missouri | 10020006 | Boulder | Bison Creek | | | X | |
| Upper Missouri | 10020006 | Boulder | Boulder River | | | X | |
| Upper Missouri | 10020006 | Boulder | Cataract Creek | | X | X | |

## Appendix G: Monitoring Schedule for 2011 - 2014

**The following areas are scheduled to be monitored and/or assessed during the period of 2012 through 2014 for the purposes indicated. This list is not necessarily inclusive and plans may change due to unforseen circumstances**

| Basin | HUC | Huc Name | Waterbody Name | Monitoring Objectives: Standards Development | Ambient (305b) | TMDL Development | Restoration Effectiveness |
|---|---|---|---|---|---|---|---|
| Upper Missouri | 10020006 | Boulder | Elkhorn Creek | | X | X | |
| Upper Missouri | 10020006 | Boulder | High Ore Creek | | | X | |
| Upper Missouri | 10020006 | Boulder | Little Boulder River | | | X | |
| Upper Missouri | 10020006 | Boulder | Lowland Creek | | | X | |
| Upper Missouri | 10020006 | Boulder | McCarthy Creek | | X | X | |
| Upper Missouri | 10020006 | Boulder | Muskrat Creek | | | X | |
| Upper Missouri | 10020006 | Boulder | North Fork Little Boulder River | | | X | |
| Upper Missouri | 10020006 | Boulder | Nursery Creek | | X | X | |
| Upper Missouri | 10020006 | Boulder | Uncle Sam Gulch | | X | X | |
| Upper Missouri | 10020007 | Madison | numerous waters: basin-scale monitoring | | X | | |
| Upper Missouri | 10020008 | Gallatin | Bear Creek | | X | X | |
| Upper Missouri | 10020008 | Gallatin | Bridger Creek | | | X | |
| Upper Missouri | 10020008 | Gallatin | Camp Creek | | | X | |
| Upper Missouri | 10020008 | Gallatin | Dry Creek | | | X | |
| Upper Missouri | 10020008 | Gallatin | East Gallatin River | | | X | |
| Upper Missouri | 10020008 | Gallatin | Godfrey Creek | | | X | |
| Upper Missouri | 10020008 | Gallatin | Hyalite Creek | | | X | |
| Upper Missouri | 10020008 | Gallatin | Jackson Creek | | | X | |
| Upper Missouri | 10020008 | Gallatin | Reese Creek | | | X | |
| Upper Missouri | 10020008 | Gallatin | Rocky Creek | | | X | |
| Upper Missouri | 10020008 | Gallatin | Smith Creek | | | X | |
| Upper Missouri | 10020008 | Gallatin | Sourdough Creek (Bozeman Creek) | | | X | |
| Upper Missouri | 10020008 | Gallatin | Stone Creek | | | X | |
| Upper Missouri | 10020008 | Gallatin | Thompson Creek | | | X | |
| Upper Missouri | 10030101 | Upper Missouri | Beaver Creek | | X | | |
| Upper Missouri | 10030101 | Upper Missouri | Big Springs | | X | | |
| Upper Missouri | 10030101 | Upper Missouri | Broadwater/Missouri Canal | | X | | |

# Appendix G:  Monitoring Schedule for 2011 - 2014

**The following areas are scheduled to be monitored and/or assessed during the period of 2012 through 2014 for the purposes indicated. This list is not necessarily inclusive and plans may change due to unforseen circumstances**

| Basin | HUC | Huc Name | Waterbody Name | Monitoring Objectives: Standards Development | Ambient (305b) | TMDL Development | Restoration Effectiveness |
|---|---|---|---|---|---|---|---|
| Upper Missouri | 10030101 | Upper Missouri | Canyon Ferry Reservoir | | X | | |
| Upper Missouri | 10030101 | Upper Missouri | Clancy Creek | | | X | |
| Upper Missouri | 10030101 | Upper Missouri | Corbin Creek | | | X | |
| Upper Missouri | 10030101 | Upper Missouri | Crow Creek | | X | | |
| Upper Missouri | 10030101 | Upper Missouri | Deep Creek | | | | X |
| Upper Missouri | 10030101 | Upper Missouri | Dry Creek | | X | X | |
| Upper Missouri | 10030101 | Upper Missouri | Golconda Creek | | | X | |
| Upper Missouri | 10030101 | Upper Missouri | Granite Creek | | | X | |
| Upper Missouri | 10030101 | Upper Missouri | Grayson Creek | | X | | |
| Upper Missouri | 10030101 | Upper Missouri | Hauser Lake | | X | | |
| Upper Missouri | 10030101 | Upper Missouri | Holcim WWTP | | X | | |
| Upper Missouri | 10030101 | Upper Missouri | Jackson Creek | | | X | |
| Upper Missouri | 10030101 | Upper Missouri | Lump Gulch | | | X | |
| Upper Missouri | 10030101 | Upper Missouri | Middle Fork Warm Springs Creek | | | X | |
| Upper Missouri | 10030101 | Upper Missouri | Montana Ditch | | X | | |
| Upper Missouri | 10030101 | Upper Missouri | Prickly Pear Creek | | | X | |
| Upper Missouri | 10030101 | Upper Missouri | Sevenmile Creek | | | X | |
| Upper Missouri | 10030101 | Upper Missouri | Silver Creek | | | X | |
| Upper Missouri | 10030101 | Upper Missouri | Sixteenmile Creek | | X | | |
| Upper Missouri | 10030101 | Upper Missouri | Skelly Gulch | | | X | |
| Upper Missouri | 10030101 | Upper Missouri | Spring Creek | | | X | |
| Upper Missouri | 10030101 | Upper Missouri | Tenmile Creek | | X | X | |
| Upper Missouri | 10030101 | Upper Missouri | Trout Creek | | X | | |
| Upper Missouri | 10030101 | Upper Missouri | White's Gulch | | X | | |
| Upper Missouri | 10030102 | Upper Missouri-Dearborn | Middle Fork Dearborn River | X | | | |
| Upper Missouri | Multiple | Multiple HUCS | Missouri River | | X | | |
| Yellowstone | 10070002 | Upper Yellowstone | Boulder River | X | | | |

## Appendix G:  Monitoring Schedule for 2011 - 2014

**The following areas are scheduled to be monitored and/or assessed during the period of 2012 through 2014 for the purposes indicated. This list is not necessarily inclusive and plans may change due to unforseen circumstances**

| Basin | HUC | Huc Name | Waterbody Name | Monitoring Objectives: Standards Development | Ambient (305b) | TMDL Development | Restoration Effectiveness |
|---|---|---|---|---|---|---|---|
| Yellowstone | 10070002 | Upper Yellowstone | Sweet Grass Creek | X | | | |
| Yellowstone | 10070003 | Shields | Shields River | X | | | |
| Yellowstone | 10070005 | Stillwater | Stillwater River | X | | | |
| Yellowstone | 10070006 | Clarks Fork Yellowstone | Clarks Fork Yellowstone River | X | | | |
| Yellowstone | 10070008 | Pryor | Pryor Creek | X | | | |
| Yellowstone | 10090208 | Little Powder | Little Powder River | X | | | |
| Yellowstone | 10090209 | Lower Powder | Crow Creek | X | | | |
| Yellowstone | 10100001 | Lower Yellowstone-Sunday | Armells Creek | X | | | |
| Yellowstone | 10100001 | Lower Yellowstone-Sunday | Custer Creek | X | | | |
| Yellowstone | 10100004 | Lower Yellowstone | Cedar Creek | X | | | |
| Yellowstone | 10100004 | Lower Yellowstone | Lost Boy Creek | X | | | |
| Yellowstone | 10100005 | O'Fallon | O'Fallon Creek | X | | | |
| Yellowstone | 10110201 | Upper Little Missouri | Little Beaver Creek | X | | | |
| Yellowstone | 10110202 | Box Elder | Box Elder Creek | X | X | | |
| Yellowstone | 10110202 | Box Elder | Chicago Gulch | | | X | |
| Yellowstone | 10110202 | Box Elder | Chippewa Creek | | | X | |
| Yellowstone | 10110202 | Box Elder | Collar Gulch | | | X | |
| Yellowstone | Multiple | Multiple HUCS | Little Missouri River | X | | X | |
| Yellowstone | Multiple | Multiple HUCS | Yellowstone River | X | | | |

# ATTACHMENT 1: MONTANA WATER QUALITY ASSESSMENT METHOD

# Water Quality Assessment Method

**November 28, 2011**

**Prepared by:**
Water Quality Planning Bureau
Montana Department of Environmental Quality
1520 E. Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901

WQPBWQM-001

**Suggested citation:** Department of Environmental Quality, Water Quality Planning Bureau. 2011. Water Quality Assessment Method. Helena, MT: Montana Dept. of Environmental Quality.

**REVISION HISTORY**

| Revision No. | Date | Modified By | Sections Modified | Description of Changes |
|---|---|---|---|---|
| 3.0 | June 2011 | M. McCarthy | All | Major revision to provide a structured and consistent approach for assessing Montana's waters. The most significant changes to the process are the incorporation of pollutant-specific methods to assess water quality and a specific process for evaluating data used for assessments. |
| 4.0 | Nov 2011 | M. McCarthy | All | Minor revision in response to public comments. Temperature was removed as one of the pollutant groups. Tables were removed from Section 6. |

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# ACRONYMS

| Acronym | Definition |
|---|---|
| AFDW | Ash Free Dry Weight |
| ARM | Administrative Rules of Montana |
| AU | Assessment Unit |
| BOD | Biochemical Oxygen Demand |
| CFL | Cycle First Listed |
| CFR | Code of Federal Regulations |
| CWA | Clean Water Act |
| DEQ | Department of Environmental Quality (Montana) |
| DO | Dissolved Oxygen |
| DQA | Data Quality Assessment |
| EPA | Environmental Protection Agency (US) |
| HBI | Hilsenhoff Biotic Index |
| MCA | Montana Code Annotated |
| MWQA | Montana Water Quality Act |
| NHD | National Hydrography Data(set) |
| QA | Quality Assurance |
| QAPP | Quality Assurance Project Plan |
| QC | Quality Control |
| RPD | Residual Pool Depth |
| RSI | Riffle Stability Index |
| SAP | Sampling and Analysis Plan |
| SCD | Sufficient Credible Data |
| TMDL | Total Maximum Daily Load |
| TN | Total Nitrogen |
| TP | Total Phosphorus |
| USGS | United States Geological Survey |
| WARD | Water quality Assessment, Reporting, and Documentation system |
| WQS | Water Quality Standards |

# EXECUTIVE SUMMARY

This update of the Montana Department of Environmental Quality's (DEQ) Water Quality Assessment Method includes a substantial change in the process. The ultimate goal is to provide a structured and consistent approach for assessing Montana's waters. DEQ's assessment method is built to the goals and concepts of Montana's Water Quality Act and better aligns the assessment process with the water quality goals expressed in Montana's water quality standards.

At present, DEQ has developed assessment methods for nutrients, sediment, and metals pollutant groups, which represent the most common pollutants impairing Montana's surface waters. Each pollutant method provides for sound and consistent water quality assessments, which will allow DEQ to make reproducible and defensible decisions about beneficial-use support.

This new method differs from the Water Quality Assessment Process and Method that was used in previous listing cycles and includes two significant changes: (1) the incorporation of pollutant-specific methods to assess water quality; (2) a specific process for evaluating data used for assessments.

Under the new assessment method, determinations of beneficial-use support are specific to the pollutant groups. Each pollutant group has specific core indicators that have spatial and temporal requirements, defined index periods, and a minimum sample size. Each pollutant-specific method has a clear decision framework and uses statistical analysis for making decisions of beneficial use support or non-support.

The nutrient and sediment methods have two levels of assessment. Core indicators are collected in the first level of assessment to evaluate whether water quality standards have been met or not. When clear decisions cannot be made, a Level II assessment is performed. This often requires another year of data collection and may require supplemental indicators to help support the decisions.

Previous versions of the state's assessment method (for the period 2000–2008) used a process called Sufficient Credible Data (SCD) to determine the validity and reliability of data used in assessments. SCD considered the technical, representative, currency, quality, and spatial and temporal components of readily available data and information for each data type (biological, chemical, and physical/habitat). It also established a measure of rigor for each data type. The sum of all data types were then translated into a qualitative statement of confidence for the beneficial-use assessment.

The new pollutant-based assessment method also has specific objectives and decision-making criteria for determining the validity and reliability of data used in making assessments. Rather than using SCD, the new method uses a process called Data Quality Assessment (DQA). DQA considers most of the same technical, spatial, temporal, quality, and age components as the SCD process; however, a DQA is conducted individually per beneficial use and pollutant group (e.g., aquatic life – nutrients). Further, this process considers Montana's large size, the number of waterbodies within the state's jurisdiction, current water quality management goals, and limited resources for monitoring.

Montana's new Water Quality Assessment Method will provide a consistent process that the entire water quality management program can use—each for its specific program need—when evaluating water quality. The new method also provides DEQ with a transparent and repeatable process for making use-support decisions and, moreover, it will improve the level of certainty in assessment decisions.

# 1.0 INTRODUCTION

The Montana Department of Environmental Quality (DEQ) is the state agency responsible for implementing components of the Montana Water Quality Act (MWQA). The MWQA reflects the federal Water Pollution Control Act, commonly referred to as the “Clean Water Act” (CWA), for waters under state jurisdiction. DEQ assesses water quality based on established standards, using available data, and reports its findings on the status and trends of water quality in Montana’s biennial Integrated Report.

This document describes the assessment methods DEQ uses to make decisions about beneficial-use support (i.e., whether surface water quality standards have been met). Additionally, this document describes for the public how assessment decisions about water quality are made.

This new method differs from the Water Quality Assessment Process and Method that was used in previous listing cycles and includes two significant changes: (1) the incorporation of pollutant-specific methods to assess water quality; (2) a specific process for evaluating data used for assessments.

## 1.1 METHODS OVERVIEW

At present, DEQ has developed individual assessment methods for nutrients, sediment, and metals pollutant groups, which represent the most common pollutants impairing Montana’s surface waters. The assessment method for each pollutant group is based on the best available science and techniques for making consistent use-support decisions. DEQ recognizes that each method may be adjusted, or new methods may be developed, as more tools and information become available and as science improves. Additional methods will be phased in over time as they are developed. In addition, DEQ will establish a general process as needed that will apply to other pollutants (e.g., *E. Coli*, pesticides, organics) numeric standards.

DEQ’s use-support decisions to list or not list a waterbody are based on the frameworks provided in this Assessment Method document. These decisions are based on scientifically valid and representative data that meet the requirements specified in this document. The methods provide continuity and consistency for assessors to make sound decisions, which in turn will allow DEQ to make reproducible and defensible listing decisions.

Each method requires collecting specific data. A standard protocol allows data sets to be compared. In addition, each method has specific requirements for assessing data quality in order to determine that data’s validity and reliability. Each method also has rules for making decisions about use support or non-support.

## 1.2 EVALUATION OVERVIEW

In order to make decisions about whether a waterbody supports its beneficial uses, the assessment methods include two basic levels of rigor for evaluating data. In the first level of assessment core indicators are collected to evaluate support of beneficial use. In some cases, clear decisions cannot be made, requiring a second level of assessment. During a Level II assessment additional data (more core indicators) are collected, along with supplemental indicators, if available, to help make a decision.

For example, for evaluating use support for aquatic life, both the nutrients and sediment methods consider how different data types relate. To the degree practicable, they also consider all applicable data and information. Chemical or physical core indicator data can be considered together with biological core indicator data to determine use support or non-support. Greater weight is given to the core indicators that provide direct indication of impairment, and individual decisions are made by applying both narrative and numeric criteria for the data. When the data types agree in Level I assessments, use-support determinations can be made. When measures do not agree, a Level II assessment is required. If conclusions remain unclear after a Level II assessment, best professional judgment is applied, and management is consulted to determine an outcome; the methods clearly describe the cases in which this should occur.

Because a one-size-fits-all monitoring program—which would apply a broad suite of parameters to every waterbody—is resource intensive, DEQ currently uses a pragmatic, focused approach to monitoring. In order to make the right water quality use-support decisions, DEQ is moving toward risk-based assessments that align with EPA's Watershed Risk Assessment ideas. This version of the assessment method is deliberately focused on the most prevailing causes of impairment. DEQ will monitor and assess for the parameter group(s) identified as likely to cause impairment for that waterbody. Although DEQ is focusing on the pollutant-specific assessments described in this document, other pollutants and pollution will be considered when there is an identified risk. This will be addressed when planning and developing the monitoring design.

# 2.0 Water Quality Standards

Water quality standards define the water quality goals of a waterbody by designating the uses it is expected to support. Standards set the criteria that define the water quality necessary to protect the designated beneficial uses and prevent degradation through nondegradation provisions. Thus, water quality standards are a triad comprising beneficial uses, criteria, and nondegradation. States adopt water quality standards to protect beneficial uses, enhance the quality of water, and meet MWQA requirements. This assessment methodology is consistent with Montana's water quality standards and forms the basis for assessing water quality conditions.

## 2.1 Beneficial Uses

Montana classifies its waterbodies according to the present and future beneficial uses they should be capable of supporting. Beneficial uses are the desirable uses of surface waters that should be supported and protected for all that use or benefit from it (e.g., drinking water, recreation, aquatic life, and irrigation). The surface water quality standards and procedures, located in the Administrative Rules of Montana (ARM) Subchapter 6, begin with a policy statement identifying the general beneficial uses of Montana's waters:

*ARM 17.30.601 – POLICY*

> *(1) The following standards are adopted to conserve water by protecting, maintaining, and improving the quality and potability of water for public water supplies, wildlife, fish and aquatic life, agriculture, industry, recreation, and other beneficial uses.*

For the purposes of this assessment method, the beneficial uses to be evaluated are summarized into the following categories: drinking water, aquatic life (coldwater or warmwater fish), recreation, and agriculture. Generally, if a waterbody supports drinking water, culinary and food processing, recreation, and aquatic life beneficial uses, the state assumes it will also support agricultural and industrial uses. However, additional salinity and toxicity information may be required to determine suitability for agricultural use.

In ARM, the beneficial uses are further grouped into classes (e.g., A-closed, A-1, B-1, B-2, etc.) based on ecological factors related to the waterbody's location and potential to support its uses[1]. These classes are primarily based on water temperature, the fish and associated aquatic life expected to be found, and the treatment required for potable water. **Table 1-1** describes the beneficial uses expressed per use class.

**Table 1-1. Beneficial Uses Described in Use Classification**

| **Beneficial Uses** | **Use Classification** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **A Closed** | **A-1** | **B-1** | **B-2** | **B-3** | **C-1** | **C-2** | **C-3** |
| Drinking, culinary, and food processing (simple disinfection) | **X** | | | | | | | |
| Drinking, culinary, and food processing (conventional treatment of naturally present impurities) | | **X** | | | | | | |
| Drinking, culinary, and food processing (conventional treatment) | | | **X** | **X** | **X** | | | **M** |
| Fishes (salmonid) & assoc. aquatic life (growth) | **X**[2] | **X** | **X** | **X** | | **X** | **X** | |
| Fishes (salmonid) & assoc. aquatic life (propagation) | | **X** | **X** | **M** | | **X** | **M** | |
| Fishes (non-salmonid) & assoc. aquatic life (growth) | | | | | **X** | | | **X** |
| Fishes (non-salmonid) & assoc. aquatic life (propagation) | | | | | **X** | | | **X** |
| Bathing, swimming, recreation (plus aesthetics via general prohibitions) | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| Agriculture water supply | | **X** | **X** | **X** | **X** | **X** | **X** | **M** |
| Industrial water supply | | **X** | **X** | **X** | **X** | **X** | **X** | **M** |
| X = Beneficial Use M = Marginal Use | | | | | | | | |

A waterbody supports its beneficial uses when it meets the water quality standards (WQS) established to protect those uses. A waterbody is impaired when any one of its WQS is not met. Determining whether a specific use is supported is independent of all other beneficial uses for that same waterbody. For example, a waterbody may not support aquatic life and primary recreations because of excess nutrients, but support drinking water and agriculture uses. In addition, under rulemaking by the Montana Board of Environmental Review and subsequent approval by EPA, beneficial uses cannot be removed from a waterbody without carrying out a formal use-attainability analysis. The current assessment methods allow DEQ to determine whether each waterbody fully supports each of its beneficial uses regarding specific pollutants. In future revisions of the assessment method DEQ will address how to apply the "threatened" status.

[1] ARM 17.30.621- 629 and 17.30.650-658

[2] The A-Closed class does not distinguish between salmonid and non-salmonid fishes.

## 2.2 Water Quality Criteria

The second major component of water quality standards is the criteria used to protect the beneficial uses of all surface waters. Water quality criteria can be expressed in either numeric or narrative form.

**NOTE:** In Montana, common usage of the word “standards” is often applied to both numeric and narrative criteria. Waters must protect the most sensitive use; therefore, when more than one use is associated with a pollutant group, the most stringent criteria should be used to assess beneficial use support.

### 2.2.1 Numeric Criteria

Criteria expressed as constituent concentrations, or levels, are commonly referred to as numeric criteria. States may adopt numeric criteria based upon EPA’s CWA 304(a) guidance values or develop state- or site-specific criteria, per CWA 303(c). In either case, numeric criteria (1) are use specific, (2) must be based on sound scientific rationale, and (3) must contain sufficient constituents, or parameters, to protect the beneficial use.

Montana has established numeric criteria for:

- chronic and acute levels of constituents affecting fishes and associated aquatic life (Circular DEQ-7)
- human health risks from constituents through drinking, culinary, and food processing uses (Circular DEQ-7)
- human health risks from *Escherichia coli* levels via recreation in and on the water (ARM 17.30.620-629)
- aesthetic qualities from excess algal biomass and nutrient levels in the Clark Fork River (ARM 17.30.631)
- risks to agriculture from excessive dissolved salts—expressed as electrical conductivity and sodium absorption ratio—in the Powder, Tongue, Rosebud, and Little Powder rivers (ARM 17.30.670)

Numeric criteria are more than simple expressions of the allowable concentration (i.e., magnitude) of a pollutant; aquatic life criteria also take into consideration the duration of exposure to the pollutant (averaging period) and frequency (how often the criteria can be exceeded). Acute criteria are based on a 1-hour exposure event and can be exceeded only once, on average, in a 3-year period. Chronic criteria are based on a 96-hour exposure and can be exceeded only once, on average, in a 3-year period. Human health standards have a frequency and duration of zero and are expressed as “may not exceed.” Magnitude, duration, and frequency combined provide the context for applying numeric criteria in use-support decision-making.

### 2.2.2 Narrative Criteria

Narrative criteria are expressed as statements of the desired water quality goal. Unlike numeric criteria, they are qualitative descriptions without definitive expressions of magnitude, duration, or frequency. Narrative criteria are used for pollutants for which numeric criteria are difficult to specify, such as color and odor, or where natural occurrence and variability would make definitive numerical limits overly complex, such as with sediment. Instead, narrative criteria rely upon an understanding of what constitutes harm to the uses they are intended to protect. Uses must be considered individually. Harm-to-use determinations may rely upon more generalized criteria to interpret harmful conditions, or upon best professional judgment.

**Natural or Naturally Occurring**
Some of Montana's water quality standards are defined as a relative change from what would naturally exist, such as "no increases are allowed above naturally occurring condition" or "no change from natural". Because all of our criteria are prefaced with "no person may," DEQ will make assessment decisions only when human-caused sources are identified. If no human-caused sources are found, DEQ will make no beneficial-use support decisions.

## 2.3 NONDEGRADATION

The final component of a state's water quality standards is the nondegradation provision, which is used in conjunction with other elements of water quality standards to form a comprehensive approach to protect and enhance water quality. Montana nondegradation provisions maintain and protect existing water quality conditions. In essence, the nondegradation provisions are intended to protect surface waters whose quality is currently superior to the water quality criteria. In Montana, nondegradation is applied using a pollutant-specific approach as they affect the individual uses that are fully supported. For example, when a waterbody is impaired for nutrients, it is not supporting all of its applicable beneficial uses. The goal is to maintain the other uses that are supported by the existing water quality.

The Administrative Rules of Montana describe the requirements for what constitutes non-significant degradation and the conditions under which authorizations to degrade (i.e., discharge permits) are allowed (ARM 17.30.701–718).

# 3.0 IDENTIFYING AVAILABLE WATER QUALITY DATA

DEQ is required by state and federal law to assemble and evaluate all existing and readily available data and information for assessing surface water quality in Montana. DEQ must ensure that the data used for assessments are valid and reliable. Data submitted from outside sources must be defensible and the quality of that data known before being considered for assessments.

In preparation of the state's water quality Integrated Report, DEQ solicits water quality data biennially during its Call for Data. During the Call for Data, DEQ notifies interested parties via an automatic mailing list service comprised of individuals, agencies, and other entities involved in water quality monitoring and management. Outside data and information may be submitted from other local, state, and federal agencies; volunteer monitoring groups; private entities; nonprofit organizations; and individuals involved in water quality monitoring and management. The data and information obtained from outside sources are combined with the results of DEQ's ongoing monitoring efforts to provide the basis for water quality assessments. In addition, DEQ obtains data that are housed in different databases (e.g., NWIS, STORET, GWAIC, MFISH) for data quality assessments.

Minimum data requirements have been established and are published in Montana's call for existing and readily available data (**Section 3.1**). DEQ may decide not to use particular data or information that does not meet data quality requirements. Because data may be submitted by entities without a known quality program, DEQ requests that a Quality Assurance Project Plan (QAPP) and/or Sampling and Analysis Plan (SAP) are included so that DEQ can assess the quality of the data. DEQ may use data from universities and other agencies with known quality programs, even if a SAP or QAPP is not included with the data submission. DEQ may contact the agency to ensure that the data collection followed established protocols and will also ensure that the appropriate metadata is included.

DEQ will review chemical, biological, and physical/habitat data to determine if its rigor is adequate for use in decision-making. In addition, to be useful for assessing the waterbody, data must be representative of the ambient water quality conditions. If data are of sufficient quality, they are incorporated into the water quality assessments.

## 3.1 Minimum Data Requirements

In order for DEQ to use data for decision-making, the data must be of documented quality and must include the minimum requirements listed below (this also applies to data submitted by outside sources). Data that does not meet DEQ quality objectives will not be included formally in the assessment but may be used to supplement the assessment determination.

- Data must be <10 years old. Data >10 years old may be considered for historical reference or if conditions are known not to have changed.
- Data must be linked to a particular site on a particular waterbody and include location information (e.g., latitude/longitude).
- Data must be submitted to DEQ in the specific MT-eWQX format using the data submittal process described in "MT-eWQX Guidance Manual - Call for Data" available at http://deq.mt.gov/wqinfo/datamgmt/MTEWQX.mcpx. MT-eWQX is DEQ's main repository for storing water quality monitoring data, which includes physical, chemical, biological, and habitat data from a variety of projects across the state.
- Data must include written documentation, such as a Quality Assurance Project Plan (QAPP) and/or Sampling and Analysis Plan (SAP) that clearly describes the following:
  - monitoring objective
  - data quality objectives
  - study design, including the rationale for the selection of sampling sites, water quality parameters, and sampling frequency, as well as the project controls that assured the actual sampling met the intended design
  - field and laboratory sample collection and analytical methods
  - Quality Assurance/Quality Control (QA/QC) requirements
  - data analysis, including the verification and validation processes
- Data must include written assurance or QA/QC documentation demonstrating that procedures and methods in the QAPP and SAP were followed to support reproducible results and meet data requirements.
- Data must include field notes, laboratory notations, or summaries that indicate deviations from the QAPP or SAP and their potential impact on the data quality and objective outcome.

## 3.2 Data Quality Assessments

The Montana Water Quality Act directs DEQ to "develop and maintain a data management system that can be used to assess the validity and reliability of the data used in the listing and priority ranking process." DEQ's data management system permits the assessor to document all the measures of data rigor. This assessment record allows users to understand an assessor's basis (i.e., level of underlying information) for his/her use-support decisions. Data quality assessments (DQA) are conducted for each waterbody per each beneficial use and pollutant group (e.g., aquatic life – nutrients). Previous versions of the state's assessment method (for the period 2000–2008) used a process called Sufficient Credible Data (SCD) to determine the validity and reliability of data used in assessments.

Data are evaluated for validity and reliability for use in assessment decisions. The DQA reviews physical, chemical, and biological data, as well as information about the technical, spatial/temporal, quality, and age of the data. The process allows DEQ to make decisions for individual beneficial uses when sufficient data is available for specific pollutants identified as likely to impair a particular use. DQAs are completed when performing the assessment in accordance to the pollutant-specific assessment method. Each pollutant-based method has specific data quality requirements, and in order to assess the data, these requirements must be met. For these other pollutants where a method has not yet been fully developed, the DQA review process in these cases will consider the specific standard that is applied, as well as, all steps of the data collection and analysis process.

# 4.0 Assessment Units

Water quality assessments are made on waterbody segments (stream reaches, lakes, or reservoirs) called Assessment Units (AUs). AUs are delineated using various factors, such as by minimum and maximum length (streams only); along hydrologic or watershed boundaries; or by use classification, geomorphology, or surrounding land use. AUs are intended to represent relatively homogeneous segments and have endpoint criteria to keep them manageable for reporting.

An AU's geographic location is based on the U.S. Geological Survey's (USGS) high resolution 1:24,000 National Hydrographic Dataset (NHD). The high resolution NHD provides the best representation of the state's surface waters and is generally equivalent to USGS 1:24,000 topographic maps.

DEQ assigns a unique identification (ID) number to each AU. **Table 4-1** describes the ID naming convention used in AU assessments.

**Table 4-1. AUID Naming Convention**

| Example: MT41B001_010 – Beaverhead River, Clark Canyon Dam to Grasshopper Creek | | |
|---|---|---|
| **MT41B** | **001** | **010** |
| **Location:** This identifier (41B) signifies one of Montana's 86 minor basins. | **Predominance Sequence:** The 3-digit number (001, 002, etc.) begins the predominance sequencing of the waterbodies within the minor basin. Generally, "001" indicates the mainstem river of the minor basin. | **Individual Segments:** The last three digits identify the individual segments occurring within the predominance level. |

## 4.1 Managing the Assessment Record Data

Detailed records of water quality assessments are maintained in DEQ's Water Quality Assessment, Reporting, and Documentation information management system (WARD). The assessment record includes (a) citations of all underlying data and information used in the assessment, (b) a record of the data quality assessment, (c) a data matrix highlighting key data and information from each citation, (d) summary information on the listing history and overall condition of the waterbody, and (e) specific use-support details, including causes and sources of impairment where identified, and (f) pollutant delistings including delisting reason and date. This information provides the basis for the state's list of impaired waters in need of TMDL development.

# 5.0 REPORTING THE STATUS OF MONTANA'S WATER QUALITY

Waters under state jurisdiction are assessed to determine whether they support their beneficial uses and meet water quality standards. As required under the MWQA, DEQ assesses water quality based on established standards, using available data, and reports its findings on the status and trends of water quality. Montana's biennial Integrated Report describes the quality of Montana's waters and provides an overall assessment on the status of water quality conditions in the state and lists the impaired waters not meeting state water quality standards and that require a Total Maximum Daily Load (TMDL). This report also satisfies the requirements of CWA sections 303(d) and 305(b). Per section 305(b), the Integrated Report describes general water quality conditions of the state's water resources. Per section 303(d), the Integrated Report lists waters known to not be meeting state water quality standards and that require a Total Maximum Daily Load (TMDL).

## 5.1 LISTING CATEGORIES FOR SURFACE WATERS

For the Integrated Report, AUs are assigned to a listing category based on assessment results (**Table 5.1**). There are five core categories based on EPA listing guidance and rules; Category 4 has three subcategories. Also, the state has added two user-defined, or custom, categories to Category 2. Categories range from fully supporting all uses (Category 1) to one or more impaired uses, which requires a TMDL (Category 5). Waters in Categories 4A, 4B, 4C and 5 represent the state's entire catalogue of known impaired waters.

**Table 5-1. Integrated Report Federal Listing Categories**

| Integrated Report Category | Description |
|---|---|
| Category 1 | All applicable beneficial uses have been assessed and all uses are determined to be fully supported. |
| Category 2 | Available data and/or information indicate that some, but not all, of the beneficial uses are supported. |
| *Category 2A*[1] | *Available data and/or information indicate that some, but not all, of the beneficial uses are supported* (i.e., all assessed uses are fully supported but not all uses have been assessed). |
| *Category 2B*[1] | *Available data and/or information indicate that a water quality standard is exceeded due to an apparent natural source in the absence of any identified anthropogenic (human-caused) sources.* |
| Category 3 | There is insufficient data to assess the use-support of any applicable beneficial use; no use-support determinations have been made. |
| Category 4A | All TMDLs needed to rectify all identified threats or impairments have been completed and approved (i.e., all necessary TMDLs have been completed). |
| Category 4B | "Other pollution control requirements required by local, state, or federal authority" [see 40 CFR 130.7(b)(1)(iii)] are in place, are expected to address all waterbody-pollutant combinations, and are expected to attain all WQS in a reasonable period of time. These control requirements act "in lieu of" a TMDL, thus no actual TMDLs are required. |
| Category 4C | Identified threats or impairments result from pollution categories such as dewatering or habitat modification and, thus, a TMDL is not required (i.e., TMDLs are not required since no pollutant-related use impairment is identified). |
| Category 5 | One or more applicable beneficial uses are impaired or threatened and a TMDL is required to address the factors causing the impairment or threat. |

[1]Categories 2A and 2B are state-defined categories.

## 5.2 CHANGING REPORTING CATEGORIES

A waterbody in a particular category may change categories during a reporting cycle if new data or information indicates that the previous assessment should be updated and causes are added (listed) or removed (delisted). However, reporting categories are assigned by the database based on the "worst case" listing. For example, if one of two pollutants is delisted because a TMDL is approved, the reporting category remains as 5, but if both causes have approved TMDLs, the category changes to 4A. This waterbody will not move to category 1 until all uses are fully supported and all causes are delisted because water quality standards are now met.

## 5.3 DELISTING FROM CATEGORY 5

The Montana Water Quality Act contemplates that listings may be revised when new monitoring data becomes available (75-5-702(1) MCA.) This is implied to be both new listings and removal of existing listings (delisting). The act is less specific about the delisting mechanism. For consistency and to assure that lists submitted to EPA for approval meet both the needs of the Montana Water Quality Act and federal Clean Water Act, the specific reasons for delisting used in this version of the assessment method are the "good cause" provisions provided in 40 CFR Part 130.7(b)(6)(iv). Pollutants may be removed from the impaired waters in need of TMDLs if any of the conditions in **Table 5-2** are met.

If all impairment causes for a waterbody are delisted and all beneficial uses attained, the water will be moved to Category 1.

**Table 5-2. Delisting Process Used by Montana**

| Delist Reason | Delist Result |
|---|---|
| New data or information indicates full support of beneficial uses because water quality has been restored and water quality standards are being met. | The waterbody-pollutant combination is moved from Category 5 to Category 1. |
| Flaws in the original analysis of data and information led to the cause being incorrectly listed. | The waterbody-pollutant combination is removed from Category 5, and the AU moves to the listing category as defined by the status of those remaining listings. |
| Other point source or nonpoint source controls are expected to meet water quality standards. | The waterbody-pollutant combination is moved from Category 5 to Category 4B. |
| The impairment is due to a non-pollutant. | The waterbody-pollutant combination is moved from Category 5 to Category 4C if no other pollutant cause remains listed. |
| A TMDL was completed and approved by EPA. | The waterbody-pollutant combination is moved from Category 5 to Category 4A if all pollutant causes have approved TMDLs. |
| The waterbody is not in the state's jurisdiction. | The waterbody-pollutant combination is removed from Category 5, and the waterbody AU is removed (retired) from the state's data system. |
| Other | The waterbody-pollutant combination is removed from Category 5, and the AU moves to the listing category as defined by the status of those remaining listings. |

# 6.0 METHODS FOR ASSESSING POLLUTANT GROUPS

Metals, nutrients, and sediment will each be evaluated independently in order to determine beneficial-use support. The method for each parameter provides a consistent and defensible approach for assessing whether the pollutant is impairing a waterbody's ability to support its beneficial uses. Based on the decision frameworks provided in this Assessment Method document, DEQ will determine whether to list or not list a cause on the assessed waterbody.

Study boundaries or assessment reaches consist of an AU or various reaches of a defined AU. Based on assessment method requirements, the assessor develops a sampling design to define the assessment reach and determine when stratification is warranted. For example, an AU can be stratified when one of its reach's condition differs substantially from other parts of the AU (i.e., it is not homogeneous).

**Appendix A** includes templates that summarize each assessment method. Each template describes:

- beneficial uses relevant to the pollutant group
- applicable surface waters
- core indicators
- specific data requirements
- requirements for data quality assessment
- decision rules and analytical tools

**Appendix B** includes listing decision-making matrices for nutrients.

## 6.1 METALS

**Beneficial Uses:** Aquatic Life/Fishes & Drinking Water

**Applicability:** All Montana Surface Waters

**Level I Core Indicators:** Metals Concentrations

**Method Overview:** Using numeric WQS for metals, a single-level process determines whether beneficial uses are being supported. The total recoverable fraction is considered for all metals except aluminum (which is analyzed for the dissolved fraction).

For aquatic life/fishes, a Level I assessment evaluates metals concentration data against acute and chronic aquatic life WQS, using a fixed allowable exceedance rate of 10%. If any of the following conditions are met within the dataset, the waterbody is not attaining water quality standards for a particular metal: (1) aquatic life WQS exceedance rate > 10%; (2) at least one sample exceeds twice the acute aquatic life WQS; or (3) silver has a single exceedance of the acute aquatic life standard.

For drinking water, a Level I assessment evaluates metals concentration data against human health WQS. The waterbody is not attaining water quality standards if any sample exceeds the human health WQS.

If aquatic life or human health standards are exceeded but no human-caused metals sources are located in the waterbody, the assessor should consult management for a case-by-case review.

**Tables A-3** and **A-4** in **Appendix A** provide more details about the specific requirements and decision rules for metals assessments.

## 6.2 Nutrients – Mountainous and Transitional Streams

**Beneficial Uses:** Aquatic Life/Fishes & Primary Contact Recreation

**Applicability:** Wadeable Streams (perennial or intermittent; Strahler Order ≤6)

**Level I Core Indicators:** Nutrients [Total Nitrogen (TN), Total Phosphorus (TP)], Benthic Algal Chlorophyll-*a*/Ash-Free Dry Weight, Diatoms (if available data exists)

**Level II Core Indicators:** Nutrients (TN, TP), Benthic Algal Chlorophyll-*a*/Ash-Free Dry Weight, Diatoms, Macroinvertebrates

**Method Overview:** Using ecoregion-specific nutrient criteria, a two-level process determines whether beneficial uses are being supported. The Level I assessment considers together the results from two nutrient statistical tests, benthic algal chlorophyll-*a* and ash-free dry weight, and diatom metric results, if available (except in the Middle Rockies ecoregion for which there are no validated diatom increaser metrics). The Level II assessment requires both diatom metric results and macroinvertebrate metric results. A Level II assessment is performed only when the Level I assessment conclusions are unclear. When a conclusion for a Level II assessment is unclear, consult management to determine the outcome. The decision matrices that are used to arrive at impairment determinations are included in **Appendix B**.

**Table A-1** in **Appendix A** provides more details about the specific requirements and decision rules for nutrients assessments for mountainous and transitional streams.

## 6.3 Nutrients – Prairie Streams

**Beneficial Uses:** Aquatic Life/Fishes & Primary Contact Recreation

**Applicability:** Wadeable Streams (perennial or intermittent; Strahler Order ≤6)

**Level I Core Indicators:** Nutrients [Total Nitrogen (TN), Total Phosphorus (TP)], Diatoms, Instantaneous Dawn Dissolved Oxygen (DO) Minimum and Afternoon DO Maximum or Long-term DO

**Level II Core Indicators:** Nutrients (TN, TP), Diatoms, Instantaneous Dawn DO Minimum and Afternoon DO Maximum or Long-term DO, Mean Biological Oxygen Demand (BOD), Visual Field Assessment

**Method Overview:** Using ecoregion-specific nutrient criteria, a two-level process determines whether beneficial uses are being supported. The Level I assessment considers together the results from two nutrient statistical tests, diatom metric results, and dissolved oxygen delta values (either instantaneous or long term). The Level II assessment incorporates biochemical oxygen demand and visual field assessments (Fish Cover/Other Form). A Level II assessment is performed only when the Level I assessment conclusions are unclear. When a conclusion for a Level II assessment is unclear, consult management to determine the outcome. The decision matrices that are used to arrive at impairment determinations are included in **Appendix B**.

**Table A-2** in **Appendix A** provides more detail about the specific requirements and decision rules for nutrients assessments for prairie streams.

## 6.4 Sediment

**Beneficial Uses:** Aquatic Life/Fishes

**Applicability:** Western Montana Streams (perennial or intermittent; Strahler Order ≤4) in Northern, Middle, Canadian Rockies, Idaho Batholith Level III Ecoregions

**Level I Core Indicators:** Riffle Percent Fines (<5.7 mm and <2 mm), Pool Tail Fines (<6 mm), Mean Residual Pool Depth, Pool Frequency, Width/Depth Ratio

**Level II Core Indicators:** Riffle Stability Index (RSI), Subsurface Fines, Intragravel Dissolved Oxygen and Flow, Residual Pool Volume, Diatoms, Macroinvertebrates

**Method Summary:** Using narrative WQS for sediment, a two-level process determines whether beneficial uses are being supported. The Level I assessment includes percent riffle fines (<5.7mm and <2mm), percent pool tail fines (<6mm), residual pool depth, width/depth ratio and pool frequency data. If all physical parameters are within the acceptable range of reference, then the waterbody will be considered “not impaired”. Fine sediment parameters (riffle and pool fines) and pool filling parameters (pool depth and frequency) along with width/depth ratio are evaluated separately to determine attainment. When one or more physical parameter values are outside the reference range, a Level II assessment is performed unless a majority of the physical parameters are out of range which would indicate impairment. The Level II assessment incorporates additional data collected for each core indicator and biological measures, diatoms and macroinvertebrates, may be evaluated; additional parameters are optional. When Level II assessments are unclear, consult management and a local biologist (if feasible) to determine the outcome.

**Table A-5** in **Appendix A** provides more detail about the specific requirements and decision rules for sediment assessments.

# 7.0 Prioritizing TMDL Development for Listed Waters

When a waterbody is placed on the Category 5 list of impaired waters in need of TMDLs, state and federal law requires all necessary TMDLs to be developed. Considerations for prioritizing waterbodies for TMDL development are outlined in (75-5-702(7) MCA). DEQ's TMDL development priority is based on several factors with focus on completing TMDLs in high priority watersheds or TMDL Planning Areas. A description of the TMDL prioritization process and the factors for selecting TMDL Planning Areas can be found in the most recent Integrated Report.

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# APPENDIX A – ASSESSMENT METHOD TEMPLATES

**Table A-1. Nutrients – Mountainous and Transitional Streams**

| **Pollutant Group** | **Determining Assessment Reaches** |
|---|---|
| NUTRIENTS - Mountainous & Transitional Streams | The assessor develops the Sampling and Analysis Plan using best professional judgment to define the assessment reach and determine when stratification is warranted (e.g., stratify when one reach of the total segment can be isolated and its condition is substantially different from other parts of the segment). |
| **Beneficial Uses** | |
| Aquatic Life/Fishes (Cold Water) & Primary Contact Recreation | |
| **Applicability** | **Overwhelming Evidence of impairment** |
| Wadeable Montana streams (perennial or intermittent; Strahler Order ≤ 6) in western mountainous and transitional ecoregions | Rigorous data collection is unnecessary if the following are evident: (1) fish kills involving massive growths of senescent algae mats that are attached to the bottom or floating (with DO at dawn likely < 1 mg/L); **or** (2) filamentous algal growth covers the entire bottom from bank to bank and extends continuously for a substantial longitudinal distance (> 150m). |
| **Computations Using Non-Detect Data** | |
| Convert non-detects in the dataset to 50% of reported detection limit; if >> 15% of dataset is non-detect, consult WQPB Standards Section. | |

| **Assessment Method Overview: Using Core Indicators** | **Very Large Datasets** | |
|---|---|---|
| Method considers together nutrient concentration data and biological core indicator data to determine attainment of ecoregion-specific nutrient criteria using a two-level process. **<u>Level I assessment</u>** considers the results from two nutrient statistical tests, benthic algal chlorophyll-*a* (Chl *a*) or ash-free dry weight (AFDW), and diatom metric results (if available). **<u>Level II assessment</u>** requires diatom metric results (except in the Middle Rockies ecoregion for which, at present, there are no validated diatom increaser metrics) *and* macroinvertebrate metric results. Perform Level II assessment only when Level I assessment conclusions are "unclear"; when Level II is "unclear," consult management to determine final outcome. Appendix B contains the decision matrix for attainment determinations. | Assess using nutrient concentrations alone if a very large nutrient dataset exists [n ≥ 90 (listed streams); n ≥ 50 (unlisted streams)] | |
| | **Statistical Analyses for Nutrient Concentration Data** | |
| | **Methods** | **Limits on Decision Errors** |
| | Exact Binomial Test | α = 0.25 (25%); β = 0.14 - 0.35 (14% - 35%)<br>critical exceedance rate (p) = 0.2 (20%);<br>effect size (p2) = 0.15 (15%) |
| | One-Sample Student's T-test for the Mean | α = 0.25 (25%);<br>critical exceedance rate (p) = 0.2 (20%) |

| | **Core Indicators** | **Analysis of Core Indicators** | **Index Period** | **Minimum Sample Size** | **Data Independence** |
|---|---|---|---|---|---|
| **Level I** | Nutrient Concentration (TN, TP) | Data (mg/L) are evaluated against nutrient criteria using two statistical tests. One of two Excel spreadsheets is used to determine exceedances, depending on current listing status. | Ecoregion-Specific Growing Season<br><br>(July 1-Sept. 30 except for the Northwestern Glaciated Plains which is June 16-Sept. 30) | n ≥ 13 (listed);<br>n ≥ 12 (unlisted);<br>n = 7 (with ≥ 4 exceedances) | ≥ 30 days;<br>≥ 1 stream mile |
| | Benthic Algal Chlorophyll-*a*/Ash-Free Dry Weight (AFDW) | Data are evaluated against recommended criteria (threshold values: 120 mg Chl*a*/m$^2$ or 35 g AFDW/m$^2$). | | n ≥ 3 | |
| | Diatoms (must be included if data is available) | Data are evaluated using an "increaser taxa probability of impairment" metric value (threshold value: 51%). | | n ≥ 2 (n = 0 in Middle Rockies ecoregion) | |
| **Level II** | Nutrient Concentration (TN, TP) | If additional data are collected, re-evaluate using analyses described in Level I prior to incorporating diatoms and macroinvertebrates. | Ecoregion-Specific Growing Season<br><br>(July 1-Sept. 30 except for the Northwestern Glaciated Plains which is June 16-Sept. 30) | n ≥ 13 (listed);<br>n ≥ 12 (unlisted);<br>n = 7 (with ≥ 4 exceedances) | ≥ 30 days;<br>≥ 1 stream mile |
| | Benthic Algae Chlorophyll-*a*/Ash-Free Dry Weight (AFDW) | | | n ≥ 3 | |
| | Diatoms | If additional data are collected, re-evaluate using Level I Analysis described above. Diatoms are required for Level II assessment. | | n ≥ 2 (n = 0 in Middle Rockies ecoregion) | |
| | Macroinvertebrates | Data are evaluated using the Hilsenhoff Biotic Index (HBI) score (threshold value: 4). | | n ≥ 2 (n ≥ 3 in Middle Rockies ecoregion) | |

**Table A-2. Nutrients – Prairie Streams**

| Pollutant Group | Determining Assessment Reaches |
|---|---|
| NUTRIENTS - Prairie Streams<br>**Beneficial Uses**<br>Aquatic Life/Fishes (Warm Water) & Primary Contact Recreation | The assessor develops the Sampling and Analysis Plan using best professional judgment to define the assessment reach and determine when stratification is warranted (e.g., stratify when one reach of the total segment can be isolated and its condition is substantially different from other parts of the segment). |
| **Applicability** | **Overwhelming Evidence of impairment** |
| Wadeable Montana streams (perennial or intermittent; Strahler Order ≤ 6) in eastern prairie ecoregions<br>**Computations Using Non-Detect Data**<br>Convert non-detects in the dataset to 50% of reported detection limit; if >> 15% of dataset is non-detect, consult WQPB Standards Section. | Rigorous data collection is unnecessary if the following are evident: (1) fish kills involving massive growths of senescent algae mats that are attached to the bottom or floating (DO at dawn likely <1 mg/L); **or** (2) filamentous algal growth covers the entire bottom from bank to bank and extends continuously for a substantial longitudinal distance (>150m). |

| Assessment Method Overview: Using Core Indicators | Very Large Datasets | |
|---|---|---|
| Method considers together nutrient concentration data and other water chemistry core indicators to determine attainment of ecoregion-specific nutrient criteria using a two-level process. <u>**Level I assessment**</u> considers together the results from two nutrient statistical tests, diatom metric results, and dissolved oxygen delta values (i.e., the daily DO maximum minus the daily DO minimum). <u>**Level II assessment**</u> incorporates biochemical oxygen demand (BOD) and visual field assessments (Fish Cover/Other Form). Perform Level II assessment only when Level I assessment conclusions are "unclear"; when Level II is "unclear," consult management to determine final outcome. Appendix B contains the decision matrix for attainment determinations. | Assess using nutrient concentrations alone if a very large nutrient dataset exists [n ≥ 90 (listed streams); n ≥ 50 (unlisted streams)] | |
| | **Statistical Analyses for Nutrient Concentration Data** | |
| | **Methods** | **Limits on Decision Errors** |
| | Exact Binomial Test | α = 0.25 (25%); β = 0.14 - 0.35 (14% - 35%)<br>critical exceedance rate (p) = 0.2 (20%);<br>effect size (p2) = 0.15 (15%) |
| | One-Sample Student's T-test for the Mean | α = 0.25 (25%);<br>critical exceedance rate (p) = 0.2 (20%) |

| | Core Indicators | Analysis of Core Indicators | Index Period | Minimum Sample Size | Data Independence |
|---|---|---|---|---|---|
| **Level I** | Nutrient Concentration (TN, TP) | Data (mg/L) are evaluated against nutrient criteria using two statistical tests. One of two Excel spreadsheets is used to determine exceedances, depending on current listing status. | Ecoregion-Specific Growing Season<br><br>(July 1-Sept. 30 except for the Northwestern Glaciated Plains which is June 16-Sept. 30) | n ≥ 13 (listed);<br>n ≥ 12 (unlisted);<br>n = 7 (with ≥ 4 exceed.) | ≥ 30 days;<br>≥ 1 stream mile |
| | Diatoms | Data are evaluated using an "increaser taxa probability of impairment" metric value (threshold value: 51%) | | n ≥ 2 | |
| | Dissolved Oxygen (DO) Deltas | Deltas (i.e., the daily DO maximum minus the daily DO minimum) are evaluated against a concentration threshold (threshold value: 5.3 mg/L) | | n ≥ 3 | <u>Instantaneous</u>: ≥ 1 day (daily min. pre-dawn to 8:00 am; daily max. usually 2:30 pm - 5:00 pm); <u>Continuous:</u> ≥ 1 day (15-min. time step) |

| | | | | | |
|---|---|---|---|---|---|
| **Level II** | Nutrient Concentration (TN, TP) | If additional data are collected, re-evaluate using analyses described in Level I prior to incorporating BOD and visual assessment | Ecoregion-Specific Growing Season<br><br>(July 1-Sept. 30 except for the Northwestern Glaciated Plains which is June 16-Sept. 30) | n ≥ 13 (listed);<br>n ≥ 12 (unlisted);<br>n = 7 (with ≥ 4 exceed.) | ≥ 30 days;<br>≥ 1 stream mile |
| | Diatoms | | | n ≥ 2 | |
| | Dissolved Oxygen (DO) Deltas | | | n ≥ 3 | <u>Instantaneous</u>: ≥ 1 day (daily min. pre-dawn to 8:00 am; daily max. usually 2:30 pm - 5:00 pm); <u>Continuous:</u> ≥ 1 day (15-min. time step) |
| | Biochemical Oxygen Demand (BOD) | Data are evaluated against a concentration threshold (threshold value: 8 mg/L). | | n ≥ 3 | Standard 5-day BOD test |
| | Visual Field Assessments | Observations of high levels of benthic algae or macrophytes may indicate nitrogen or phosphorus pollution (i.e., excess nutrients) | | n ≥ 2 (during diatom sampling and at least once per site per reach) | |

**Table A-3. Metals – Aquatic Life/Fishes (Cold and Warm Water)**

<table>
<tr><th colspan="3">Pollutant Group</th><th colspan="3">Determining Assessment Reaches</th></tr>
<tr><td colspan="3">METALS</td><td colspan="3" rowspan="3">The assessor develops the Sampling and Analysis Plan using best professional judgment to define the assessment reach and determine when stratification is warranted (e.g., stratify when one reach of the total segment can be isolated and its condition is substantially different from other parts of the segment).</td></tr>
<tr><th colspan="3">Beneficial Uses</th></tr>
<tr><td colspan="3">Aquatic Life/Fishes (Cold and Warm Water)</td></tr>
<tr><th colspan="3">Applicability</th><th colspan="3">Overwhelming Evidence of impairment</th></tr>
<tr><td colspan="3">Montana surface waters</td><td colspan="3">Rigorous data collection is unnecessary if either of the following are evident: (1) ≥ 1 sample exceeds twice the acute aquatic life water quality standards (WQS), or (2) ≥ 2 exceedances of aquatic life WQS within an existing sample size of n = 3 to 7.</td></tr>
<tr><th colspan="4">Computations Using Non-Detect Data</th><td colspan="2" rowspan="2"></td></tr>
<tr><td colspan="4">Include non-detects in the dataset if the water quality standard (WQS) is higher than the laboratory detection limit for that metal parameter.</td></tr>
<tr><th colspan="4">Computations Using J-Flagged Data</th><th colspan="2">Very Large Datasets</th></tr>
<tr><td colspan="4">Data are flagged "J" when the empirical data result falls between the Reporting Limit (RL) and the Method Detection Limit (MDL). J flagged data must not be included in the dataset when the associated WQS lies between the RL and the MDL. Include J flagged data when the RL and the MDL are either both above or both below the WQS.</td><td colspan="2">A method for how to select independent samples and deal with larger data sets is being developed and will be addressed at a future date.</td></tr>
<tr><th colspan="4">Assessment Method Overview: Using Core Indicators</th><th colspan="2">Statistical Analyses for Metals Concentration Data</th></tr>
<tr><td colspan="4" rowspan="2">Method considers metals concentration data to determine attainment of water quality standards (WQS) documented in the current Circular DEQ-7 using a single-level process. <u>Level I assessment</u> evaluates metals concentration data against acute and chronic aquatic life WQS; the total recoverable fraction is considered for all metals except aluminum (which is analyzed for the dissolved fraction). If any of the following conditions are met within the dataset, the waterbody is not attaining WQS for a particular metal: (1) aquatic life WQS exceedance rate > 10%, or (2) ≥ 1 sample exceeds twice the acute aquatic life WQS, or (3) silver has a single exceedance of the acute aquatic life standard. If aquatic life standards are exceeded but no human-caused metals sources are located in the waterbody, the assessor should consult management for a case-by-case review.</td><th>Methods</th><th>Limits on Decision Errors</th></tr>
<tr><td>Percent exceedance rate</td><td>α and β =<br>approximately<br>0.35 (35%)</td></tr>
<tr><th rowspan="2">Level I</th><th>Core Indicators</th><th>Analysis of Core Indicators</th><th>Index Period</th><th>Minimum Sample Size</th><th>Data Independence</th></tr>
<tr><td>Metals Concentration (includes hardness for the hardness-based aquatic life standards)</td><td>Data (µg/L) are evaluated against both acute and chronic aquatic life WQS using an allowable exceedance rate of 10%</td><td>Year-round</td><td>n ≥ 8; or n = 3-7 with ≥ 2 exceedances, where necessary</td><td>DEQ will assess sample sets where at least 33% are collected during high flow and the remaining collected during baseflow;<br>≥ 30 days during baseflow;<br>temporal independence is evaluated on a case-by-case basis during high flow;<br>≥ 1 stream mile or > 1 acre</td></tr>
</table>

**Table A-4. Metals – Drinking Water**

<table>
<tr><th colspan="2">Pollutant Group</th><th colspan="4">Determining Assessment Reaches</th></tr>
<tr><td colspan="2">METALS</td><td colspan="4" rowspan="3">The assessor develops the Sampling and Analysis Plan using best professional judgment to define the assessment reach and determine when stratification is warranted (e.g., stratify when one reach of the total segment can be isolated and its condition is substantially different from other parts of the segment).</td></tr>
<tr><th colspan="2">Beneficial Uses</th></tr>
<tr><td colspan="2">Drinking Water</td></tr>
<tr><th colspan="2">Applicability</th><th colspan="4">Overwhelming Evidence of impairment</th></tr>
<tr><td colspan="2">Montana surface waters</td><td colspan="4">Rigorous data collection is unnecessary if the following is evident:<br>≥ 1 sample exceeds the human health standard.</td></tr>
<tr><th colspan="4">Computations Using Non-Detect Data</th><td colspan="2" rowspan="2"></td></tr>
<tr><td colspan="4">Include non-detects in the dataset if the water quality standards (WQS) is higher than the laboratory detection limit for that metal parameter.</td></tr>
<tr><th colspan="4">Computations Using J-Flagged Data</th><th colspan="2">Very Large Datasets</th></tr>
<tr><td colspan="4">Data are flagged "J" when the empirical data result falls between the Reporting Limit (RL) and the Method Detection Limit (MDL). J flagged data must not be included in the dataset when the associated WQS lies between the RL and the MDL. Include J flagged data when the RL and the MDL are either both above or both below the WQS.</td><td colspan="2">A method for how to select independent samples and deal with larger data sets is being developed and will be addressed at a future date.</td></tr>
<tr><th colspan="4">Assessment Method Overview: Using Core Indicators</th><th colspan="2">Statistical Analyses for Metals Concentration Data</th></tr>
<tr><td colspan="4" rowspan="2">Method considers metals concentration data to determine attainment of water quality standards (WQS) documented in the current Circular DEQ-7 using a single-level process. <u>Level I assessment</u> evaluates metals concentration data against human health WQS; the total recoverable fraction is considered for all metals except aluminum (which is analyzed for the dissolved fraction). If the following condition is met within the dataset, the waterbody is not attaining WQS for a particular metal: ≥ 1 sample exceeds the human health WQS. If human health exceedances exist but no human-caused metals sources are located in the waterbody, the assessor should consult management for a case-by-case review.</td><th>Methods</th><th>Limits on Decision Errors</th></tr>
<tr><td>Percent exceedance rate</td><td>n/a</td></tr>
<tr><th rowspan="2">Level I</th><th>Core Indicators</th><th>Analysis of Core Indicators</th><th>Index Period</th><th>Minimum Sample Size</th><th>Data Independence</th></tr>
<tr><td>Metals Concentration</td><td>Data (µg/L) are evaluated against human health WQS using an allowable exceedance rate of 0%</td><td>Year-round</td><td>n ≥ 8; or n ≥ 1 with ≥ 1 exceedances, where necessary</td><td>DEQ will assess sample sets where at least 33% are collected during high flow and the remaining collected during baseflow;<br>≥ 30 days during baseflow;<br>temporal independence is evaluated on a case-by-case basis during high flow;<br>≥ 1 stream mile or > 1 acre</td></tr>
</table>

**Table A-5. Sedimentation/Siltation and Bedload Solids**

| Pollutant Group | Determining Assessment Reaches |
|---|---|
| SEDIMENT (Sedimentation/Siltation and Bedload Solids) | Physical data must be collected from a minimum of 1 representative site per stream segment. If the segment is homogeneous, 1 site must be sampled per 5 miles. The assessor will use best professional judgment to determine whether data from multiple sites may be combined; the combined reaches must be relatively homogeneous (i.e., no transition between two channel types). The site length considered sufficient to effectively describe habitats can vary depending on the heterogeneity of the stream, but must be ≥ 20 times the bankfull width. |
| **Beneficial Uses** | |
| Aquatic Life/Fishes (Cold Water) | |
| **Applicability** | **Overwhelming Evidence of impairment** |
| Western Montana streams (perennial or intermittent) that are: (1) Strahler Order ≤ 4 (order 1 only when appropriate), (2) perennial or intermittent (as appropriate), and (3) contained within the Northern, Middle, and Canadian Rockies or Idaho Batholith level III ecoregions. | Rigorous data collection is unnecessary if both of the following criteria are met: (1) known sources of sediment have been identified and documented, and, (2) for the stream segment being assessed, the average value for a parameter is equal to or greater than the maximum value plus the median value for the same parameter from the applicable reference dataset. Only percent fine core indicators (derived from pebble count and grid toss) will be used in overwhelming evidence-based decisions. |
| **Computations Using Non-Detect Data** | |
| n/a | |

| Assessment Method Overview: Using Core Indicators | Statistical Analyses for Sediment Data | |
|---|---|---|
| | **Methods** | **Limits on Decision Errors** |
| Method considers together physical and biological core indicator data to determine attainment of water quality standards for sediment using a two-level process. **<u>Level 1 assessment</u>** includes percent riffle fines (<5.7mm and <2mm), percent pool tail fines (< 6mm), residual pool depth (RPD), width/depth ratio and pool frequency data. Fine sediment parameters (riffle and pool fines) and pool filling parameters (pool depth and frequency) along with width/depth ratio are evaluated separately to determine attainment. If all physical parameters are within the acceptable range of reference, then the waterbody will be considered "not impaired". When one or more physical parameter values are outside the reference range, a Level II assessment is performed unless a majority of the physical parameters are out of range which would indicate impairment. The **Level II assessment** incorporates additional data collected for each core indicator and biological measures, diatoms and macroinvertebrates, may be evaluated; additional parameters are optional. When Level II assessments are unclear, consult management and a local biologist (if feasible) to determine the outcome. | 1-Sample Wilcoxon Signed Rank Test | α = 0.25 (25%)<br>Tests compare potentially impaired stream data against reference condition data, literature values, or TMDL target values. |
| | Mann-Whitney U test | |

| | Core Indicators | Analysis of Core Indicators | Index Period | Minimum Sample Size | Data Independence |
|---|---|---|---|---|---|
| **Level I <u>and</u> Level II** | Riffle Fines (< 5.7mm) | Data are evaluated against a reference dataset or literature/TMDL target values using one of two statistical tests. During Level II assessment, both years' data will be combined unless conditions have changed sufficiently since first year. | Baseflow | n ≥ 1 site (reference) or 3 sites (literature); ≤ 4 riffles; 400 particles | Hydrologic water year; ≥ 1 site per 5 stream miles if segment is homogeneous or ≥ 1 site per channel type transition if heterogeneous |
| | Riffle Fines (< 2mm) | | | | |
| | Pool Tail Grid Fines (< 6mm) | | | n ≥ 1 site (reference) or 3 sites (literature); ≤ 10 scour pool tails; 3 grid tosses per pool tail | |
| | Mean Residual Pool Depth (RPD) | | | n ≥ 1 site (reference) or 3 sites (literature); ≤ 20 scour pools | |
| | Pool Frequency | | | n ≥ 1 site (reference) or 3 sites (literature) | |
| | Width/Depth Ratio | | | n ≥ 1 site (reference) or 3 sites (literature) | |
| | Diatoms | Data are evaluated using a sediment "increaser taxa probability of impairment" metric value | Ecoregion-Specific Growing Season (July 1-Sept. 30 except for the Northwestern Glaciated Plains which is June 16-Sept. 30) | n ≥ 2 (for each metric) | ≥ 30 days;<br>≥ 1 stream mile |
| | Macroinvertebrates | Data are evaluated using Observed/Expected (O/E) metric values | | | |

| | | |
|---|---|---|
| **Level II** | Riffle Stability Index (RSI) | These additional parameters may be (but are not required to be) collected only during Level II when core indicators do not yield a straightforward sediment impairment determination. When planning the second year of data collection, a local biologist and/or hydrologist should be contacted (if feasible), to determine which of these additional parameters should be collected to appropriately address particular issues. |
| | Subsurface Fines | |
| | Intragravel Dissolved Oxygen and Flow | |
| | Residual Pool Volume (V*) | |

# APPENDIX B – DECISION MATRICES FOR NUTRIENTS

**Table B-1. Nutrients – Mountain and Transitional Level I Decision Matrix**

| Scenario | Nutrient Binomial Test | Nutrient T-test | Benthic Algae | Diatom Increaser Taxa-Probability of Impairment (OPTIONAL)* | Resulting Decision | Further Sampling? | If you have collected the data for, or have the data for, a level II assessment: |
|---|---|---|---|---|---|---|---|
| 1 | PASS | PASS | ≤120 mg Chl*a*/m$^2$ or ≤35 g AFDW/m$^2$ | ≤51% | Waterbody is not nutrient impaired. All indications show that the stream is in compliance. | No | |
| 2 | PASS | PASS | ≤120 mg Chl*a*/m$^2$ or ≤35 g AFDW/m$^2$ | >51% | Waterbody is not nutrient impaired. Most indications show that the stream is in compliance. If diatom metric used, may be giving a false positive. | No | |
| 3 | PASS | FAIL | ≤120 mg Chl*a*/m$^2$ or ≤35 g AFDW/m$^2$ | ≤51% | Waterbody might be nutrient impaired. If diatom metric and benthic Chl*a* data were both used, waterbody is not nutrient impaired. Suggests pulsed nutrient loads occur but magnitude and durations is not sufficient to manifest problems instream, as shown by in-compliance Chla and diatom metric. If diatom data not used, impairment unclear, so carry out level II assessment. | Maybe. Do level II assessment if required, which includes macroinverteb rates and diatom samples | Go to "Mountains & transitional 2" tab |
| 4 | PASS | FAIL | ≤120 mg Chl*a*/m$^2$ or ≤35 g AFDW/m$^2$ | >51% | Waterbody might be nutrient impaired. If diatom metric and benthic Chl*a* data were both used, waterbody is nutrient impaired. Suggests pulsed nutrient loads occur but may have missed peak benthic algae biomass, but diatoms indicate there is a nutrient problem. If diatom data not used, impairment unclear, so carry out level II assessment. | Maybe. Do level II assessment if required, which includes macroinverteb rates and diatom samples | Go to "Mountains & transitional 2" tab |

**Table B-1. Nutrients – Mountain and Transitional Level I Decision Matrix**

| Scenario | Nutrient Binomial Test | Nutrient T-test | Benthic Algae | Diatom Increaser Taxa-Probability of Impairment (OPTIONAL)* | Resulting Decision | Further Sampling? | If you have collected the data for, or have the data for, a level II assessment: |
|---|---|---|---|---|---|---|---|
| 5 | FAIL | PASS | ≤120 mg Chl*a*/$m^2$ or ≤35 g AFDW/$m^2$ | ≤51% | Waterbody might be nutrient impaired. If diatom metric and benthic Chl*a* data were both used, waterbody is not nutrient impaired. Nutrient concentrations are in excess of the allowable exceedance rate, but there is no indication of concentrations greatly elevated above the criteria (i.e., passed t-test). No excess algal growth, and increaser taxa impairment-probability is below threshold. If only benthic Chl*a* data were used (no diatom data), unclear; do a level II assessment. | Maybe. Do level II assessment if required, which includes macroinverteb rates and diatom samples | Go to "Mountains & transitional 2" tab |
| 6 | FAIL | PASS | ≤120 mg Chl*a*/$m^2$ or ≤35 g AFDW/$m^2$ | >51% | Waterbody might be nutrient impaired. If diatom metric and benthic Chla were both used, waterbody is nutrient impaired. Diatom metric confirms results of the nutrient concentration data (failed binomial, thus elevated nutrients). Timing may have missed peak Chla biomass. If only benthic Chla were used (no diatom data), do a level II assessment. | Maybe. Do level II assessment if required, which includes macroinverteb rates and diatom samples | Go to "Mountains & transitional 2" tab |
| 7 | FAIL | FAIL | ≤120 mg Chl*a*/$m^2$ or ≤35 g AFDW/$m^2$ | ≤51% | Unclear — Nutrient concentrations are in excess of the exceedance rate and there is indication of concentrations much in excess of the criteria (failed t-test). Likely that waterbody sometimes has excess benthic algae biomass, algae sampling timing may have missed peaks. Do a level II assessment to complete decision. Further algae and nutrient sampling is justified. | Yes. Do level II assessment which includes macroinverteb rates and diatom samples | Go to "Mountains & transitional 2" tab |

**Table B-1. Nutrients – Mountain and Transitional Level I Decision Matrix**

| Scenario | Nutrient Binomial Test | Nutrient T-test | Benthic Algae | Diatom Increaser Taxa-Probability of Impairment (OPTIONAL)* | Resulting Decision | Further Sampling? | If you have collected the data for, or have the data for, a level II assessment: |
|---|---|---|---|---|---|---|---|
| 8 | FAIL | FAIL | ≤120 mg Chl*a*/$m^2$ or ≤35 g AFDW/$m^2$ | >51% | Waterbody might be nutrient impaired. If diatom metric and benthic Chla were both used, waterbody is nutrient impaired. Both assessments of nutrient concentrations indicate elevated concentrations, and the diatom increaser taxa metric shows high probability of impairment. Timing of benthic algae sampling may have missed peaks. If only Chla data was used, unclear; do a level II assessment. | Maybe. Do level II assessment if required, which includes macroinverteb rates and diatom samples | Go to "Mountains & transitional 2" tab |
| 9 | PASS | PASS | >120 mg Chl*a*/$m^2$ or >35 g AFDW/$m^2$ | ≤51% | Unclear — Algae might be taking up nutrients and leading to lower instream nutrient concentrations with concurrent high benthic algae biomass; however, diatom metric (if available) contradicts Chla data. Normally in this scenario TP and/or TN would be expected to exceed criteria. Do a level II assessment to complete decision. | Yes. Do level II assessment which includes macroinverteb rates and diatom samples | Go to "Mountains & transitional 2" tab |
| 10 | PASS | PASS | >120 mg Chl*a*/$m^2$ or >35 g AFDW/$m^2$ | >51% | Unclear — Algae may be taking up nutrients and leading to low instream nutrient concentrations with concurrent high benthic algae biomass; diatom metric (if available) supports this idea. Normally in this scenario TP and/or TN would be expected to exceed their criteria. Do a level II assessment to complete decision. | Yes. Do level II assessment which includes macroinverteb rates and diatom samples | Go to "Mountains & transitional 2" tab |
| 11 | PASS | FAIL | >120 mg Chl*a*/$m^2$ or >35 g AFDW/$m^2$ | ≤51% | Waterbody is nutrient impaired. Non-compliance with the T-test suggests that pulsed nutrient loads are allowing high algae biomass to be maintained via luxury uptake. Diatoms may be giving a false negative. | No | |

**Table B-1. Nutrients – Mountain and Transitional Level I Decision Matrix**

| Scenario | Nutrient Binomial Test | Nutrient T-test | Benthic Algae | Diatom Increaser Taxa- Probability of Impairment (OPTIONAL)* | Resulting Decision | Further Sampling? | If you have collected the data for, or have the data for, a level II assessment: |
|---|---|---|---|---|---|---|---|
| 12 | PASS | FAIL | >120 mg Chl*a*/$m^2$ or >35 g AFDW/$m^2$ | >51% | Waterbody <u>is</u> nutrient impaired. Non-compliance with the T-test suggests that pulsed nutrient loads are allowing high algae biomass to be maintained via luxury uptake. Diatoms confirm enrichment finding. | No | |
| 13 | FAIL | PASS | >120 mg Chl*a*/$m^2$ or >35 g AFDW/$m^2$ | ≤51% | Waterbody <u>is</u> nutrient impaired. Suggests sustained nutrient values above the standard but not necessarily pulsed nutrient loading. Diatoms may be giving a false negative. | No | |
| 14 | FAIL | PASS | >120 mg Chl*a*/$m^2$ or >35 g AFDW/$m^2$ | >51% | Waterbody <u>is</u> nutrient impaired. Suggests sustained nutrient values above the standard but not necessarily pulsed nutrient loading. | No | |
| 15 | FAIL | FAIL | >120 mg Chl*a*/$m^2$ or >35 g AFDW/$m^2$ | ≤51% | Waterbody <u>is</u> nutrient impaired. Most indicators show that the stream is not in compliance. Diatoms could be giving a false negative. | No | |
| 16 | FAIL | FAIL | >120 mg Chl*a*/$m^2$ or >35 g AFDW/$m^2$ | >51% | Waterbody <u>is</u> nutrient impaired. All indicators show that the stream is not in compliance. | No | |

* However, if the data minima are available for this data category, they must be used in the decision framework. No diatom increaser taxa metrics are available for the Middle Rockies.

**Table B-2. Nutrients – Mountain and Transitional Level II Decision Matrix**

READ FIRST: You should be on this sheet due to an "unclear" result from the level I assessment. If you have collected new data as part of your level II work, you should take your entire dataset and first go back to the "Mountain & transitional 1" tab to see if you can now come to an unambiguous conclusion there. If you get an "unclear" result again, return here and follow the decision rules on this tab.

| Scenario(s) | Scenario subclass | Nutrient Binomial Test | Nutrient T-test | Benthic Algae | Diatom Increaser Taxa-Probability of Impairment | Macroinvertebrate HBI Score | Resulting Decision | Other Considerations |
|---|---|---|---|---|---|---|---|---|
| 5,6 | 5/6a | FAIL | PASS | ≤120 mg Chl*a*/$m^2$ or ≤35 g AFDW/ $m^2$ | n/a | >4 | Waterbody is nutrient impaired. Nutrients are elevated, according to Binomial, and HBI score suggests nutrients are the cause. Sampling timing may have missed algal peak . | This scenario will apply in the Middle Rockies where there is no diatom increaser metrics available |
| 5,6 | 5/6b | FAIL | PASS | ≤120 mg Chl*a*/$m^2$ or ≤35 g AFDW/ $m^2$ | n/a | ≤4 | Waterbody is not nutrient impaired. Nutrients are elevated, according to Binomial, but acceptable algal growth and acceptable HBI score suggests nutrients are not causing a serious problem. Stream may have characteristics that prevent somewhat elevated nutrients from impacting uses (high shade, for example). | This scenario will apply in the Middle Rockies where there is no diatom increaser metrics available |
| 7,8 | 7/8a | FAIL | FAIL | ≤120 mg Chl*a*/$m^2$ or ≤35 g AFDW/ $m^2$ | ≤51% | >4 | Waterbody is nutrient impaired. Nutrients are elevated, and HBI score suggests nutrients are the cause. Sampling timing may have missed algal peak; cause of acceptable diatom metric result not clear (possible false negative, or close the decision threshold?). | |

**Table B-2. Nutrients – Mountain and Transitional Level II Decision Matrix**

READ FIRST: You should be on this sheet due to an "unclear" result from the level I assessment. If you have collected new data as part of your level II work, you should take your entire dataset and first go back to the "Mountain & transitional 1" tab to see if you can now come to an unambiguous conclusion there. If you get an "unclear" result again, return here and follow the decision rules on this tab.

| Scenario(s) | Scenario subclass | Nutrient Binomial Test | Nutrient T-test | Benthic Algae | Diatom Increaser Taxa- Probability of Impairment | Macroinvertebrate HBI Score | Resulting Decision | Other Considerations |
|---|---|---|---|---|---|---|---|---|
| 7,8 | 7/8b | FAIL | FAIL | ≤120 mg Chl*a*/m$^2$ or ≤35 g AFDW/ m$^2$ | ≤51% | ≤4 | Borderline still. **Consult management and discuss process to determine final outcome.** | Is the macroinvertebrate O/E score > 1.0? Suggest increased macroinvertebrate diversity resulting from increased primary productivity. |
| 9 | 9a | PASS | PASS | >120 mg Chl*a*/m$^2$ or >35 g AFDW/ m$^2$ | ≤51% | >4 | Waterbody <u>is</u> nutrient impaired. Algae may be taking up nutrients and leading to low instream nutrient concentrations with concurrent high benthic algae biomass. Eutrophication is supported by high HBI score. Diatoms may be giving a false negative or may be near the decision threshold. | |
| 9 | 9b | PASS | PASS | >120 mg Chl*a*/m$^2$ or >35 g AFDW/ m$^2$ | ≤51% | ≤4 | Mixed signals; nutrient concentration acceptable, diatom metric and HBI show no problems, but high benthic algal biomass. **Consult management and discuss process to determine final outcome.** | Is the macroinvertebrate O/E score > 1.0? Suggest increased macroinvertebrate diversity resulting from increased primary productivity. |

**Table B-2. Nutrients – Mountain and Transitional Level II Decision Matrix**

READ FIRST: You should be on this sheet due to an "unclear" result from the level I assessment. If you have collected new data as part of your level II work, you should take your entire dataset and first go back to the "Mountain & transitional 1" tab to see if you can now come to an unambiguous conclusion there. If you get an "unclear" result again, return here and follow the decision rules on this tab.

| Scenario(s) | Scenario subclass | Nutrient Binomial Test | Nutrient T-test | Benthic Algae | Diatom Increaser Taxa-Probability of Impairment | Macroinvertebrate HBI Score | Resulting Decision | Other Considerations |
|---|---|---|---|---|---|---|---|---|
| 10 | 10a | PASS | PASS | >120 mg Chl*a*/m$^2$ or >35 g AFDW/m$^2$ | >51% | >4 | Waterbody <u>is</u> nutrient impaired. Algae may be taking up nutrients and leading to low instream nutrient concentrations with concurrent high benthic algae biomass. Diatoms and HBI score suggests nutrients are the cause. | |
| 10 | 10b | PASS | PASS | >120 mg Chl*a*/m$^2$ or >35 g AFDW/m$^2$ | >51% | ≤4 | Mixed signals; nutrient concentration acceptable, diatom metric and HBI show contradictory results, and there is elevated benthic algal biomass. **Consult management and discuss process to determine final outcome.** | Is the macroinvertebrate O/E score > 1.0? Suggest increased macroinvertebrate diversity resulting from increased primary productivity. |

**Table B-3. Nutrients – Plains Level I Decision Matrix**

| Scenario | Nutrient Binomial Test | Nutrient T-test | DO delta | Plains Region Diatom Increaser Taxa-Probability of Impairment | Resulting Decision | Further Sampling? | If you have collected the data for, or have the data for, a level II assessment: | Notes |
|---|---|---|---|---|---|---|---|---|
| 1 | PASS | PASS | ≤ 5.3 mg/L | ≤51% | Waterbody is not nutrient impaired. All indications show that the stream is in compliance. | No | | |
| 2 | PASS | PASS | ≤ 5.3 mg/L | >51% | Unclear — Algae & plants might be taking up nutrients and leading to lower instream nutrient concentrations concurrent with high algae and plant biomass; however, diatom metric contradicts DO delta results. Normally in this scenario TP and/or TN would be expected to exceed criteria. Do a level II assessment to complete decision. | Yes. Do level II assessment. For this scenario this means a required 2nd summer of data collection. Collect BOD data. | | |
| 3 | PASS | FAIL | ≤ 5.3 mg/L | ≤51% | Waterbody is not nutrient impaired. Suggests pulsed nutrient loads occur but magnitude and durations is not sufficient to manifest problems instream, as shown by compliance with DO delta and diatom metric. | No | | |
| 4 | PASS | FAIL | ≤ 5.3 mg/L | >51% | Waterbody is nutrient impaired. Suggests pulsed nutrient loads occur but DO delta may have given false negative; diatoms however indicate there is a nutrient problem. | No | | |

**Table B-3. Nutrients – Plains Level I Decision Matrix**

| Scenario | Nutrient Binomial Test | Nutrient T-test | DO delta | Plains Region Diatom Increaser Taxa-Probability of Impairment | Resulting Decision | Further Sampling? | If you have collected the data for, or have the data for, a level II assessment: | Notes |
|---|---|---|---|---|---|---|---|---|
| 5 | FAIL | PASS | ≤ 5.3 mg/L | ≤51% | Unclear—Nutrient concentrations are in excess of the allowable exceedance rate, but there is no indication of concentrations greatly elevated above the criteria (i.e., passed t-test). No exceedance of DO delta, and diatom increaser taxa in compliance. Inherently high false-negative rates of the response variables could be leading to their outcomes. Do a level II assessment to complete decision. | Yes. Do level II assessment. For this scenario this means a required 2nd summer of data collection. **SEE NOTES TO RIGHT.** | | If you suspect problem may be manifested via very high phytoplankton concentrations, collect phytoplankton Chla as well. |
| 6 | FAIL | PASS | ≤ 5.3 mg/L | >51% | Waterbody <u>is</u> nutrient impaired. Diatom metric confirms results of the nutrient concentration data (failed binomial, thus elevated nutrients). False negative likely for the DO delta result. | No | | |
| 7 | FAIL | FAIL | ≤ 5.3 mg/L | ≤51% | Unclear — Nutrient concentrations are in excess of the exceedance rate and there is indication of concentrations much in excess of the criteria (failed t-test). Inherent high false negative rates of both the diatom metric and DO delta may be why they do not indicate a problem. Do a level II assessment to complete decision. Further nutrient, DO delta, and diatom data sampling is justified. | Yes. Do level II assessment. For this scenario this means a required 2nd summer of data collection. **SEE NOTES TO RIGHT.** | Go to "Plains 2" tab | If you suspect problem may be manifested via very high phytoplankton concentrations, collect phytoplankton Chla as well. |

**Table B-3. Nutrients – Plains Level I Decision Matrix**

| Scenari o | Nutrient Binomial Test | Nutrient T-test | DO delta | Plains Region Diatom Increaser Taxa-Probability of Impairment | Resulting Decision | Further Sampling? | If you have collected the data for, or have the data for, a level II assessment: | Notes |
|---|---|---|---|---|---|---|---|---|
| 8 | FAIL | FAIL | ≤ 5.3 mg/L | >51% | Waterbody is nutrient impaired. Both assessments of nutrient concentrations indicate elevated concentrations, and the diatom increaser taxa metric shows a nutrient impact. DO delta measurements may have missed high values (i.e., false negative). | No | | |
| 9 | PASS | PASS | > 5.3 mg/L | ≤51% | Unclear — Algae & plants might be taking up nutrients and leading to lower instream nutrient concentrations concurrent with high algae and plant biomass; however, diatom metric contradicts DO delta results. Normally in this scenario TP and/or TN would be expected to exceed criteria. Do a level II assessment to complete decision. | Yes. Do level II assessment. For this scenario this means a required 2nd summer of data collection. Collect BOD data. **SEE NOTES TO RIGHT.** | Go to "Plains 2" tab | If you suspect problem may be manifested via very high phytoplankton concentrations, collect phytoplankton Chla as well. |
| 10 | PASS | PASS | > 5.3 mg/L | >51% | Unclear — Algae may be taking up nutrients and leading to low instream nutrient concentrations with concurrent high algae and plant biomass; diatom metric supports this idea as do the DO delta results. Normally in this scenario TP and/or TN would be expected to exceed their criteria. Do a level II assessment to complete decision. | Yes. Do level II assessment. For this scenario this means a required 2nd summer of data collection. Collect BOD data. **SEE NOTES TO RIGHT.** | Go to "Plains 2" tab | If you suspect problem may be manifested via very high phytoplankton concentrations, collect phytoplankton Chla as well. |

**Table B-3. Nutrients – Plains Level I Decision Matrix**

| Scenario | Nutrient Binomial Test | Nutrient T-test | DO delta | Plains Region Diatom Increaser Taxa-Probability of Impairment | Resulting Decision | Further Sampling? | If you have collected the data for, or have the data for, a level II assessment: | Notes |
|---|---|---|---|---|---|---|---|---|
| 11 | PASS | FAIL | > 5.3 mg/L | ≤51% | Waterbody is nutrient impaired. Non-compliance with the T-test suggests that pulsed nutrient loads are allowing high algae and plant biomass to be maintained, Diatoms may be giving a false negative. | No | | |
| 12 | PASS | FAIL | > 5.3 mg/L | >51% | Waterbody is nutrient impaired. Non-compliance with the T-test suggests that pulsed nutrient loads are allowing high algae and plant biomass to be maintained, Diatoms confirm enrichment finding. | No | | |
| 13 | FAIL | PASS | > 5.3 mg/L | ≤51% | Waterbody is nutrient impaired. Suggests sustained nutrient values above the standard but not necessarily pulsed nutrient loading. Diatom metrics may be giving a false negative. | No | | |
| 14 | FAIL | PASS | > 5.3 mg/L | >51% | Waterbody is nutrient impaired. Suggests sustained nutrient values above the standard but not necessarily pulsed nutrient loading. | No | | |
| 15 | FAIL | FAIL | > 5.3 mg/L | ≤51% | Waterbody is nutrient impaired. Most indicators show that the stream is not in compliance. Diatoms probably giving a false negative. | No | | |
| 16 | FAIL | FAIL | > 5.3 mg/L | >51% | Waterbody is nutrient impaired. All indicators show that the stream is not in compliance. | No | | |

**Table B-4. Nutrients – Plains Level II Decision Matrix**

READ FIRST: You should be on this sheet due to an "unclear" result from the level I assessment. If you have collected new data as part of your level II work, you should take your entire dataset and first go back to the "Plains 1" tab to see if you can now come to an unambiguous conclusion there. If you get an "unclear" result again, return here and follow the decision rules on this tab.

| **Scenario** | **Scenario Subclass** | **Nutrient Binomial Test** | **Nutrient T-test** | **DO delta** | **Plains Region Diatom Increaser Taxa- Probability of Impairment** | **BOD** | **Resulting Decision** | **Notes** |
|---|---|---|---|---|---|---|---|---|
| 2 | 2a | PASS | PASS | ≤ 5.3 mg/L | >51% | > 8.0 mg/L | Waterbody <u>may be</u> nutrient impaired, **BUT SEE NOTE TO RIGHT TO MAKE FINAL CALL**. Possible BOD problem; if DEQ-7 DO standards (1-Day Minimum; use your dawn DO measurements) have not been exceeded, <u>do not</u> list for BOD. If they have, <u>do</u> list for BOD. Consult with your manager on BOD listing details. | Consider diatom samples for which impairment probability is >51%. If magnitudes are >>> 51% <u>and</u> a high proportion (50%+) of the diatom sampling event are > 51%, nutrient listing <u>is likely</u> justified; **consult management and discuss final outcome.** |
| 2 | 2b | PASS | PASS | ≤ 5.3 mg/L | >51% | ≤ 8.0 mg/L | Waterbody <u>may be</u> nutrient impaired. (1) If the assessment reach meets the conditions in the Notes box to right, waterbody <u>is</u> nutrient impaired. (2) If waterbody does not meet the conditions in the Notes box to right, waterbody <u>is not</u> nutrient impaired. | Consider diatom samples for which impairment probability is >51%. If magnitudes are >>> 51% <u>and</u> a high proportion (50%+) of the diatom sampling event are > 51%, nutrient listing <u>is likely</u> justified; **consult management and discuss final outcome.** |

**Table B-4. Nutrients – Plains Level II Decision Matrix**

READ FIRST: You should be on this sheet due to an "unclear" result from the level I assessment. If you have collected new data as part of your level II work, you should take your entire dataset and first go back to the "Plains 1" tab to see if you can now come to an unambiguous conclusion there. If you get an "unclear" result again, return here and follow the decision rules on this tab.

| Scenario | Scenario Subclass | Nutrient Binomial Test | Nutrient T-test | DO delta | Plains Region Diatom Increaser Taxa-Probability of Impairment | BOD | Resulting Decision | Notes |
|---|---|---|---|---|---|---|---|---|
| 5 | n/a | FAIL | PASS | ≤ 5.3 mg/L | ≤51% | n/a | (1) If visual assessment methods (Fish Cover/Other form) indicate very high levels of algae and/or macrophytes, or phytoplankton density is very high, waterbody is nutrient impaired. Consistent failure of the binomial indicates elevated nutrients. The inherently high false-negative rates of the diatom metrics and DO delta may have prevented those parameters from indicating a problem. (2) If visual assessment does not show very high levels of algae and/or macrophytes, nor are phytoplankton densities high, borderline still. **For (2), consult management and discuss process to determine final outcome.** | |
| 7 | n/a | FAIL | FAIL | ≤ 5.3 mg/L | ≤51% | n/a | (1) If visual assessment methods (Fish Cover/Other form) indicate very high levels of algae and/or macrophytes, or very high phytoplankton density, waterbody is nutrient impaired. The inherently high false-negative rates of the diatom metrics and DO delta have likely prevented those parameters from indicating a problem. (2) If visual assessment does not show high levels of algae and/or plants, and phytoplankton densities are not high, borderline still. **For (2), consult management and discuss process to determine final outcome.** | |
| 9 | 9a | PASS | PASS | > 5.3 mg/L | ≤51% | > 8.0 mg/L | Waterbody is not nutrient impaired. Problem is likely related to BOD, which is an organic enrichment problem. Waterbody should be listed for BOD; consult with your manager on BOD listing details. | |

**Table B-4. Nutrients – Plains Level II Decision Matrix**

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| Scenario | Scenario Subclass | Nutrient Binomial Test | Nutrient T-test | DO delta | Plains Region Diatom Increaser Taxa-Probability of Impairment | BOD | Resulting Decision | Notes |
|---|---|---|---|---|---|---|---|---|
| 9 | 9b | PASS | PASS | > 5.3 mg/L | ≤51% | ≤ 8.0 mg/L | (1) If visual assessment methods (Fish Cover/Other form) indicate very high levels of algae and/or macrophytes, especially if Coontail (*Ceratophyllum* spp.) dominates, or alternatively, waterbody has very high phytoplankton density, waterbody is nutrient impaired. Algae and/or macrophytes are probably taking up the nutrients. (2) If visual assessment does not show excessive high levels of algae and/or plants, and phytoplankton density is not high, waterbody is probably not nutrient impaired. **SEE NOTE AT RIGHT TO MAKE FINAL CALL.** | Consider in this scenario how close DO deltas are to the threshold, and how many. If >> 5.3 mg/L and many deltas exceed, nutrient listing is likely justified. If not, site is not nutrient impaired. **Consult management and discuss final outcome.** |
| 10 | 10a | PASS | PASS | > 5.3 mg/L | >51% | > 8.0 mg/L | (1) If visual assessment methods (Fish Cover/Other form) indicate high levels of algae and/or macrophytes, or alternatively, waterbody has very high phytoplankton density, waterbody is nutrient impaired. Algae and/or macrophytes are probably taking up the nutrients. Problem is also related to BOD, and should be listed for BOD as well. (2) If visual assessment methods (Fish Cover/Other form) does not indicate high levels of algae and/or macrophytes, nor is there high phytoplankton density, waterbody should be listed for BOD. **For (2), consult with your manager on final nutrient listing decision.** | |

**Table B-4. Nutrients – Plains Level II Decision Matrix**

READ FIRST: You should be on this sheet due to an "unclear" result from the level I assessment. If you have collected new data as part of your level II work, you should take your entire dataset and first go back to the "Plains 1" tab to see if you can now come to an unambiguous conclusion there. If you get an "unclear" result again, return here and follow the decision rules on this tab.

| Scenario | Scenario Subclass | Nutrient Binomial Test | Nutrient T-test | DO delta | Plains Region Diatom Increaser Taxa-Probability of Impairment | BOD | Resulting Decision | Notes |
|---|---|---|---|---|---|---|---|---|
| 10 | 10b | PASS | PASS | > 5.3 mg/L | >51% | ≤ 8.0 mg/L | (1) If visual assessment methods (Fish Cover/Other form) indicate high levels of algae and/or macrophytes, or alternatively, waterbody has very high phytoplankton density, waterbody is nutrient impaired. Algae and/or macrophytes are probably taking up the nutrients. (2) If visual assessment does not show high levels of algae and/or plants, nor is there high phytoplankton density, borderline still. **For (2), consult management and discuss process to determine final outcome.** | |