

MONTANA

Nonpoint Source Management Program

2012 Annual Report

Montana's Vision Statement for Water Quality

Water quality will be restored and protected through the implementation of voluntary best management practices identified in science-based, community supported watershed plans.



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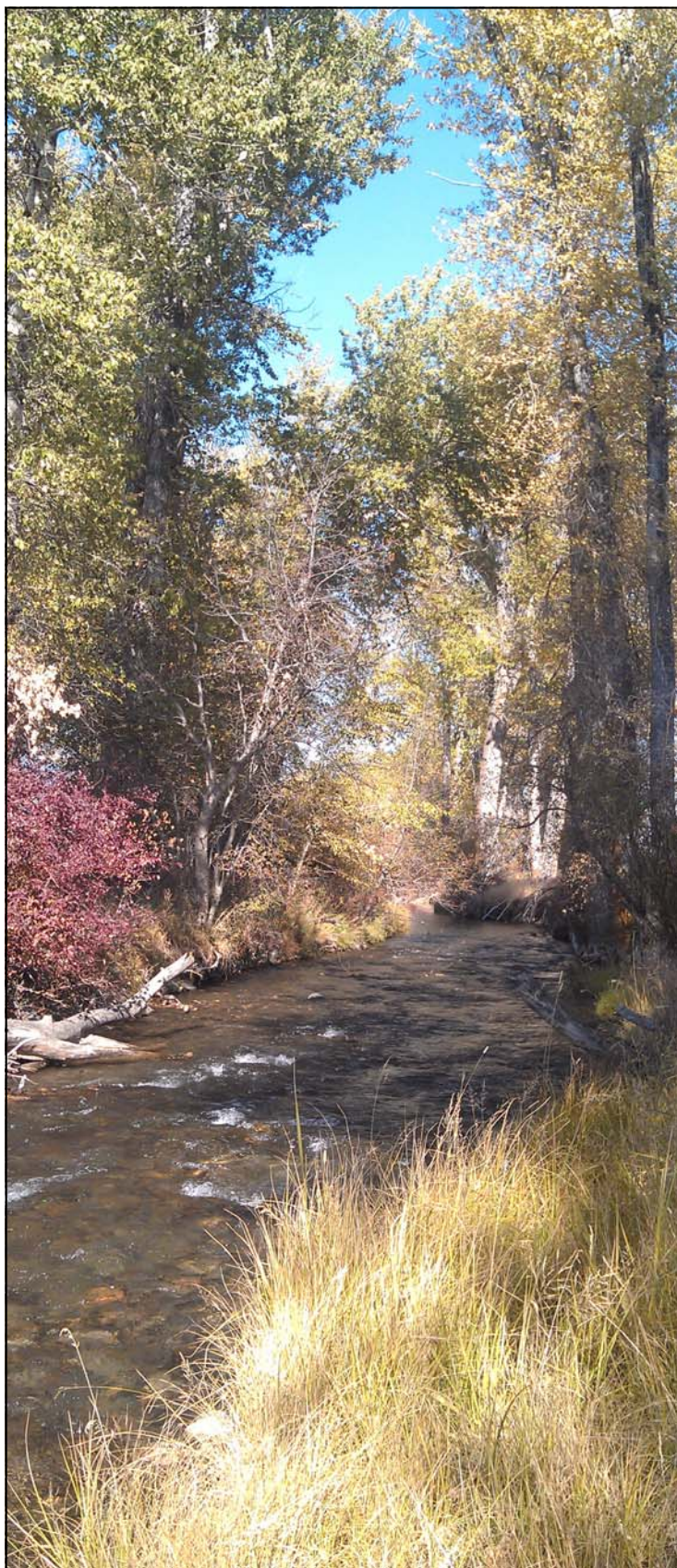
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Nonpoint Source Management Program 2012 Annual Report

The purpose of the Montana Nonpoint Source (NPS) Management Program Annual Report is to inform the public on the annual progress toward fulfilling the goals of the NPS Management Plan, while also satisfying the requirements of Section 319 of the federal Clean Water Act of 1987, which requires states to: 1) assess waterbodies for NPS pollution effects, 2) develop programs to manage those effects, 3) implement those programs, and 4) report on NPS program implementation to the public and to the U.S. Environmental Protection Agency (EPA).

Highlights from the 2012 Nonpoint Source Management Program

Goal: Update the Montana Nonpoint Source Management Plan

Nonpoint Source program staff and partners updated Montana's NPS Management Plan. The updated Plan was submitted to EPA and approved in July 2012.

Goal: Complete Water Quality Plans and Necessary TMDLs

The Watershed Management Section received EPA approval for 198 Total Maximum Daily Loads (TMDLs) in four TMDL Project Areas in 2012.

Goal: Evaluate Reference Sites

The Water Quality Standards Section began re-evaluating 184 reference sites across Montana.

Goal: Provide Support for and Promote the Development and Coordination of Watershed Groups

The Montana Watershed Coordination Council hosted two training sessions this year – "Effective Water Quality Monitoring" and the "2012 Summer Forum: Tools for Healthy Watersheds." Together these trainings reached roughly 200 watershed professionals in Montana.





Implementing the Montana NPS Management Plan

by the Water Quality Planning Bureau and Partners

The watershed planning approach is a coordination tool for all stakeholders interested in conserving water resources in Montana. By collaborating in the watershed approach, DEQ, watershed groups, conservation districts, agencies, tribes, academia, and non-governmental organizations can broadly distribute information, thereby increasing public understanding and participation in water quality protection and nonpoint source issues.

DEQ's Water Quality Planning Bureau (WQPB) manages the Montana NPS Management Program. WQPB's mission is to assure that water quality is maintained and improved so that state waters can support all their beneficial uses. This is accomplished through an integrated approach based on water quality standards development, monitoring and assessment, and development and implementation of water quality plans and TMDLs (Appendix A).

This document highlights important and notable actions taken to achieve the NPS Plan's 5-year goals in three categories: Resource, Policy, and Education and Outreach (Appendix B). The highlighted activities include projects in 2012 by WQPB, interagency councils, watershed groups, and other agencies and organizations to promote collaboration, foster water resource awareness, and protect and improve water quality in Montana.

Montana Department of Environmental Quality

Water Quality Planning Bureau

Water Quality Standards

The Water Quality Standards Section (WQS) develops criteria to identify the level of water quality necessary to protect the beneficial uses of a stream, river, lake, or groundwater resources that contribute to human well-being. The NPS Program seeks to protect and restore these beneficial uses, including drinking water, recreation, and fish and aquatic life. Unlike the other WQP sections, WQS does not receive Section 319 funding; however, WQS's work is instrumental to the rest of the NPS Management Program in Montana.

WQS completed one technical project and is working to complete three technical reports on numeric nutrient standards. First, the technical project involved collecting data in the upper Yellowstone River (Livingston to the confluence of the Big Horn River) to derive numeric nutrient criteria using a computer model, as was done in the Lower Yellowstone River. Second, a final report for the 3-year nutrient-addition field study carried out in Carter County should be available in 2013. Third, the Lower Yellowstone River report entered peer review and public comment in November 2011. The final report should be released early in 2013. Fourth, a report on data collected in the Missouri River (Toston dam to Canyon Ferry Lake) to derive numeric nutrient criteria using a computer model will be available late in 2014; more data must be collected in 2013.

WQS continues working through implementation processes for nutrient criteria, which need to be refined before recommending adoption of nutrient standards to the Board of Environmental Review (BER). Collaborating with the advisory Nutrient Work Group, WQS drafted rules for nutrient standards and their implementation. The rules are still being reviewed and modified. DEQ hopes to present BER with a nutrient standards package in 2013.

WQS revised DEQ's numeric criteria, found in Department Circular DEQ-7, and BER approved them. The revised DEQ-7 became effective in October 2012 and includes 17 new standards, updates to existing pesticide standards, and updates to the required reporting values for more than 200 existing standards.

WQS is in the early stages of developing a macroinvertebrate indicator to be used in the draft sediment-specific assessment method. WQS completed a second round of macroinvertebrate field sampling for sediment assessments in summer 2012.

WQS collected diatom data in the Middle Rockies ecoregion to identify "nutrient-increaser taxa." These diatoms are found in greater concentrations in streams with higher nutrient levels. This type of diatom data will help DEQ identify when these streams are affected by increased nutrient levels. The final report will be available in July 2013.

WQS began re-evaluating 184 DEQ-identified reference sites across the state to further refine and verify the accuracy of the reference sites. This project will take several years. WQS hosted the 2012 Federal and State Toxicology Risk Assessment Committee deliberations in Helena, Montana. The committee provides technical input to EPA on developing new standards and helps establish priorities for new chemical toxicology research.

In 2012, WQS began extensively reviewing data for Silver Bow Creek and initiated a public outreach for its "I" classification. WQS anticipates completing the review in 2013 and recommending to BER an appropriate classification. Following this effort WQS will initiate a similar review for the remaining "I" classified streams.



Water Quality Monitoring and Assessment

The Water Quality Monitoring and Assessment Section (WQMAS) monitors water quality conditions and trends statewide and assesses sources and severity of pollution problems by operating statewide water quality monitoring networks, inventorying pollution sources, and identifying impaired waterbodies.

During 2012, WQMAS began assessing water quality in watersheds that were not included as part of an ongoing TMDL investigation. The findings will provide impairment information for the TMDL program to continue developing TMDLs after 2014. The first project began in the Madison watershed, where WQMAS monitored for metals, nutrients, and bacteria. WQMAS also partnered with a local volunteer monitoring program, the Madison Stream Team, to support a local initiative, save state resources, and promote NPS education and outreach in the watershed. This monitoring focuses on currently impaired streams and uses a risk-based approach to assess previously un-assessed waterbodies in the Madison watershed. In 2013, DEQ will begin sediment and temperature-related monitoring in the Madison.



WQMAS provided monitoring and assessment support to many TMDL projects, which must be completed as part of a consent decree by 2014. Along with a larger workload of impaired waters assessments associated with short-term TMDL projects, this endeavor included the following monitoring projects:

- Lower Blackfoot metals and nutrients
- Bitterroot nutrients and metals
- Central Clark Fork tributaries nutrients
- Clark Fork-Silver Bow metals
- Flathead nutrients
- Thompson nutrients and metals
- Kootenai-Fisher nutrients and metals
- Upper Clark Fork metals
- Hyalite Creek nutrients
- Flint nutrients



During 2012, WQMAS restarted a statewide fixed-station monitoring program, which began with 11 monitoring sites at medium and large rivers. Because new oil and gas production technologies are emerging in northeast Montana, and they are not covered under the Clean Water Act, WQMAS began targeting surface waters in small watersheds where oil and gas is being developed. WQMAS applied for assistance under the Montana DNRC Reclamation and Development Grants Program to investigate baseline groundwater conditions in areas where hydraulic fracturing for oil and gas is taking place.



To support the development of water quality nutrient standards, WQMAS sampled two prairie streams in eastern Montana, in conjunction with the Carter Conservation District. WQMAS also provided monitoring resources for the Yellowstone River to support a nutrient model for large river standards development. Additionally, three streams were sampled in western Montana to address 303(d) list comments or public requests.

In support of TMDL development, WQMAS provided training to volunteers in the Madison on various monitoring techniques, which included how to use field equipment. WQMAS also provided input on monitoring design, methods, field manual preparation, and field training for WQPB and other DEQ staff, as well as for general stakeholders.

Watershed Management

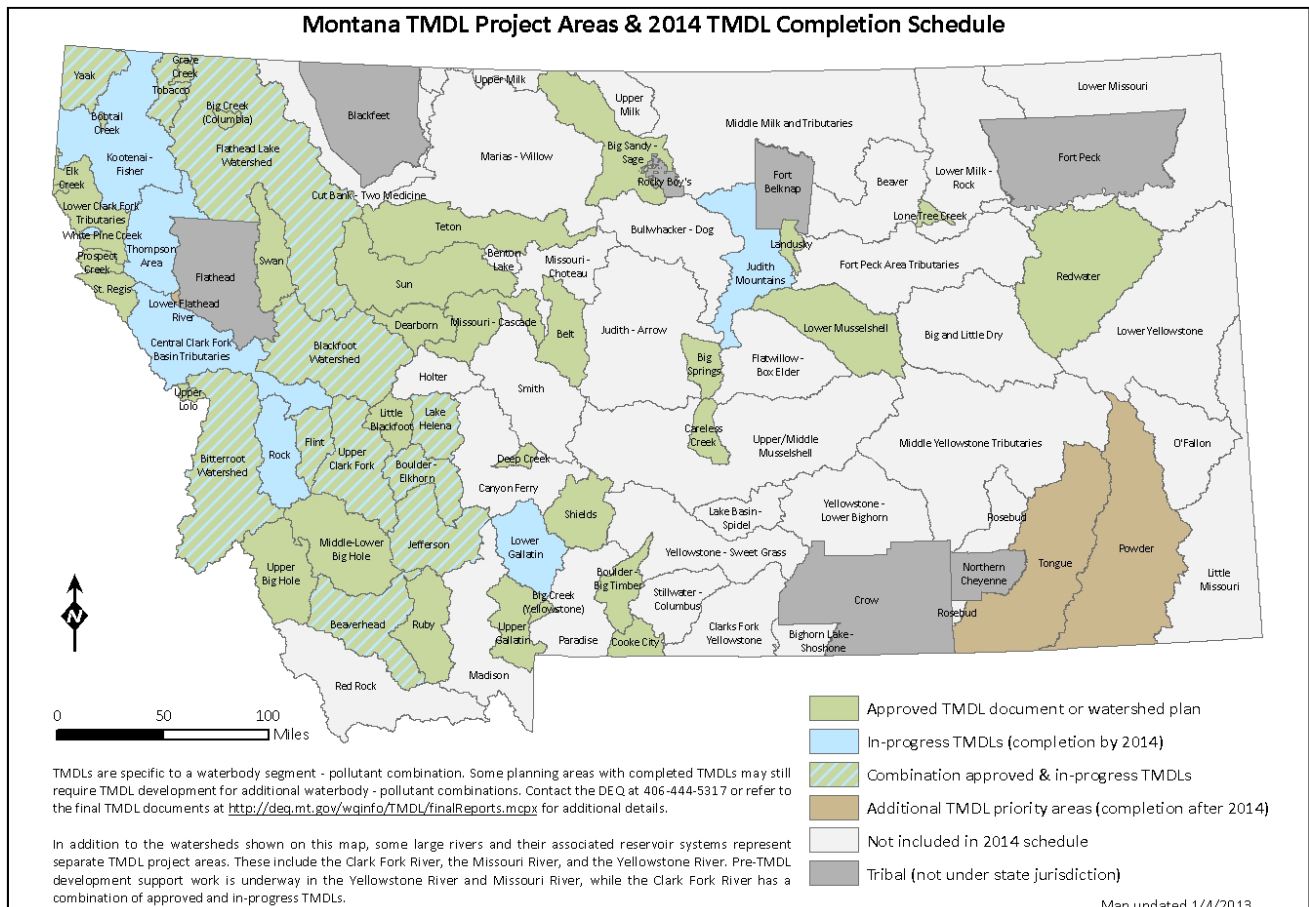
The Watershed Management Section (WMS) develops Total Maximum Daily Loads (TMDLs) for impaired waters on Montana's 303(d) list. A TMDL refers to the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. A TMDL is sometimes expressed as a reduction in pollutant loading necessary to achieve water quality standards. The term TMDL is also used to refer to the written document containing the TMDLs. TMDL documents in Montana typically include the framework for a restoration strategy, including implementation and monitoring recommendations.

In Montana, TMDLs are developed at a watershed scale to include the complete area that contributes a pollutant to a stream. TMDL project areas are established to facilitate this approach and as a way to group TMDL development for multiple waterbodies with similar impairment causes. The map shows Montana's TMDL project areas and their status relative to TMDL development, with a focus on 2 years of TMDL development planning through 2014.

In 2012, EPA approved 63 metals TMDLs in the Landusky project area, 20 sediment TMDLs in the Beaverhead project area, 47 metals and sediment TMDLs in the Flint project area, and 70 metals TMDLs in the Boulder-Elkhorn project area. The total number of completed TMDLs is equal to 198 for 2012.

TMDL project area documents scheduled for completion in 2013 will address nutrients, pathogens and sediment in the Lower Gallatin, sediment, temperature, and nutrients in the Boulder-Elkhorn; sediment, temperature, nutrients, and metals in the Rock; nutrients in the Lower Blackfoot; metals in the Judith Mountains; sediment, temperature, nutrients, and metals in the Kootenai – Fisher; sediment and nutrients in the Upper Clark Fork – Silver Bow; temperature for the Beaverhead – Jefferson Rivers; and metals for the Bonita – Superior.

During 2012, WMS continued to improve the TMDL development process, including integration of updated DEQ assessment methods into TMDL documentation and providing assistance toward development of a database for storing and analyzing sediment and habitat results. WMS also increased stakeholder outreach via TMDL project area websites, referred to as wiki sites.



Watershed Protection

The Watershed Protection Section (WPS) works to protect and restore water quality from the effects of nonpoint source (NPS) pollution. NPS pollution is the state's single largest source of water quality impairment. Unlike pollution from industrial and sewage treatment plants (point sources), NPS pollution comes from many widespread sources and can be generated by most land-use activities. NPS pollution is created when runoff water moves over and through the ground, delivering pollutants to lakes, rivers, wetlands, and groundwater. Common NPS pollutants include sediments, nutrients, heavy metals, pesticides, pathogens, oils, and salts.



WPS receives federal Clean Water Act (CWA) Section 319 funding to address NPS water quality problems in Montana. In December 2012, WPS closed out the fiscal year 2007 Section 319 Projects grant from EPA. This grant (\$1,232,300) allowed DEQ to support 29 NPS projects throughout Montana between 2007 and 2012. In 2012, WPS also closed out the state fiscal year 2011 Section 319 Program grant (\$1,386,317 of federal funds and \$924,211 in state match).

In 2012, DEQ awarded \$868,485 in Section 319 NPS project grants to local projects, funding eight watershed restoration, two groundwater, and six education and outreach projects (Appendix C). Non-federal in-kind matches for these projects totaled \$848,659. WPS continued to use electronic application forms for the fiscal year 2013 Section 319 grant applications. These application forms have greatly reduced the amount of time required by both applicants and reviewers to complete the application process and have been well received.

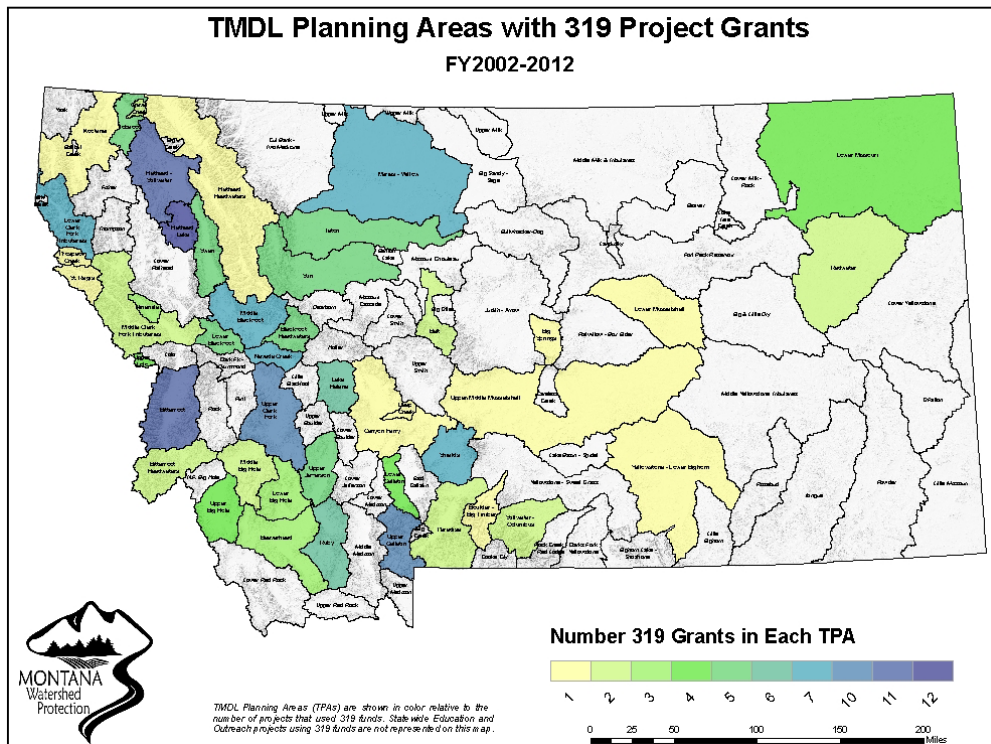
During 2012, WPS managed more than 50 active Section 319 contracts that implemented the state's NPS Management Plan. WPS is working to reduce the number of open contracts by limiting contractors to two active contracts, closing contracts within the original timeframe and promoting fewer large contracts (versus many smaller contracts). WPS closed 27 Section 319 contracts in 2012 and expects to close 8 more by mid-February 2013 (i.e., contracts that expired in December 2012 with final reports due within 45 days). See Appendix D for a complete list of contracts closed in 2012.

Beginning in July 2010, DEQ contracted the Soil and Water Conservation Districts of Montana, Inc. (SWCDMI) to manage the Section 319 Mini-Grants Program. Through this program, up to \$2,000 per project is available to support local groups engaged in water quality and NPS pollution education efforts. SWCDMI works with the Montana Watershed Coordination Council's Education and Outreach Committee to review applications. SWCDMI awarded nine mini-grants in February and another four mini-grants in September, for a total of \$23,090 awarded in 2012. For a complete list of mini-grants awarded in 2012 see Appendix E.

The Montana Nonpoint Source Management Plan (NPS Plan) was updated in 2012. The NPS Plan is the guiding document for nonpoint source management in Montana and is required to be updated every 5 years. WPS worked with partners to review language, priorities, and best management practices (BMPs) for the update. The 2012 NPS Plan is much more user friendly than previous versions. The updated NPS Plan includes a new five-year action plan with actions and identified priorities in three categories. These categories are Resource, Policy, and Education and Outreach. Each action has a responsible party and measurable milestones to determine success and is detailed in Appendix B.

WPS continued working with watershed groups to develop Watershed Restoration Plans (WRPs). The NPS program has funded 16 groups to develop WRPs. In 2012, WQPB accepted six WRPs in Montana (Shields, Sun, Teton, Upper Big Hole, Upper Gallatin River, and Upper Clark Fork tributaries) and provided comment on multiple draft WRPs. A complete list of WRPs under development are included in Appendix G. WRPs are an important planning document for groups doing on-the-ground watershed restoration and must contain nine elements specified by EPA:

1. An identification of the causes and sources of water quality impairment.
2. An estimate of the load reductions and management measures necessary to meet standards.
3. A description of the NPS management measures that will need to be implemented.
4. An estimate of the amounts of technical and financial assistance needed.
5. An information/education component.
6. A schedule for implementing the NPS management measures.
7. A description of interim measurable milestones.
8. A set of criteria that can be used to determine whether loading reductions are being achieved over time.
9. A monitoring component to evaluate the effectiveness of the implementation efforts over time.



In 2012, WPS participated in various partner agency meetings. In May, WPS worked with the US Forest Service to hold the annual DEQ–Forest Service coordination meeting in Missoula. Topics included regional and Forest-specific activities, TMDLs, assessment procedures, permits, TMDL Implementation Evaluation documents, and opportunities for improved coordination. The Forest Service presented DEQ’s Director with an appreciation award for DEQ’s efforts in the successful restoration and de-listing of Big Creek in the Flathead National Forest.

On November 2, 2012, DEQ signed a Memorandum of Understanding (MOU) with USDA/NRCS. The MOU formalizes the collaboration between NRCS and DEQ to protect and enhance water resources in Montana. In particular, the MOU lays out the framework under which NRCS and DEQ will collaborate to do the following:

- Address point and nonpoint source pollution from animal feeding operations
- Review Section 319 project applications
- Identify suitable watersheds for the NRCS National Water Quality Initiative
- Develop technical/practice standards, technical references, administrative rules, and internal planning policy related to animal feeding operations
- Support the NRCS State Technical Committee

DEQ and NRCS have already begun to implement the new MOU.

Information Management and Technical Services

The Information Management and Technical Services (IMTS) Section develops and manages science and business-related information systems and provides technical support for the Water Quality Planning Bureau, including the Nonpoint Source Program. IMTS also provides project management, agency-bureau IT coordination, mentors other state environmental agencies in data management, and supports water quality/watershed modeling to develop TMDLs and water quality standards. IMTS is divided into the Data Management Group and the Modeling Group.

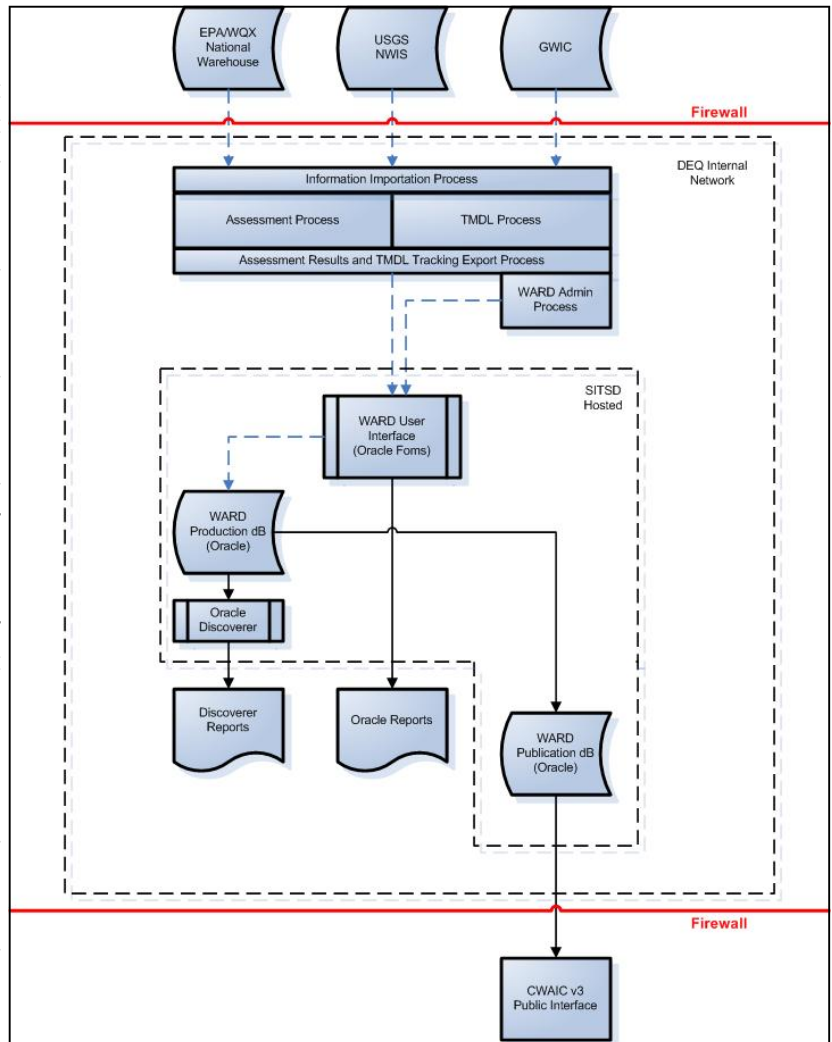
IMTS Data Management manages and administers nine relational databases and information management applications. These databases support the Clean Water Act (CWA) section 305(b) assessments and 303(d) listing decisions, water quality metric data, contracts, bibliographic references, and an inventory of monitoring equipment. IMTS publishes online the state's biennial water quality Integrated Report (IR), solicits public comments on draft reports and documents, and enables water quality library queries; it also provides administrative support for WQPB's wiki sites maintained for the Section 319, TMDL, and water quality standards programs.

Data Management supports EPA's WQX and USGS's NWIS data systems, which are used to analyze stream temperature data and process water quality metric data. Data Management provides reporting tools from the program's water quality assessment and water quality metric databases. Data Management also maintains five geo-databases that contain Montana's surface water use classifications, water quality monitoring and references sites, point-source outfalls, and 305(b) assessment units. These will be published at <http://gisportal.msl.mt.gov/GPT9/catalog/main/home.page>.

In May 2012, EPA Region 8 approved the 2012 Montana IR and accompanying 303(d) list. The IR has updates on nine assessment units, including 79 pollutant delistings for EPA-approved TMDLs and 2 delistings for achieved water quality standards.

During 2012, IMTS Data Management developed a new data system for managing sediment and habitat assessments on wadeable streams. The Sediment and Habitat Data Manager integrates the management of data elements common to evaluating sediment regime and habitat conditions for streams. These elements include details of channel cross-sections, pools, riffles, large woody debris, channel substrate (pebble counts), vegetation (greenline), and bank erosion estimate (BEHI). Managing all assessment projects and site visits in a common relational database will allow staff to discern common traits, trends, and measures and better inform development of target values that support fish and other aquatic life.

IMTS Data Management began work on two major application development projects: Clean Water Act Information Center (CWAIC) version 3 and WARD phase 3 (see chart). The CWAIC website provides public access to the state's IR, among other things, and will use enhanced software for Web-based data searching and GIS mapping. The new version will allow database access via queries or directly through a mapping interface. New data warehouse architecture will also enhance query efficiency and streamline system management, reducing overall operating and maintenance costs.



Through a National Environmental Information Exchange Network grant, EPA helped fund the Water Quality Assessment, Reporting, and Documentation system (WARD) phase 3 project. This will allow the program to fully integrate EPA's Assessment Database (ADB), required for federal reporting, within the state's WARD data system, eliminating data redundancies and achieving a state-maintained system for documenting and reporting state assessment data and information. The project will implement electronic reporting for IRs. This project will also create the warehouse for assessment data in the latest CWAIC application.

IMTS Data Management processed 180 water quality data packets (as of October 26th) from 63 unique monitoring projects into its water quality database: Montana EQUIS (Environmental Quality Information System) for WQX (MT-eWQX). Of these 180 packets, 170 were new data inserts, 7 were data revisions or corrections, and 3 were deletions.

IMTS's Modeling Group supported modeling for TMDL planning in the Bitterroot River (nutrients and temperature), Flint Creek (nutrients), and Flathead Basin (nutrients), as well as storm water analysis for the Lower Gallatin TMDL and analysis of on-site wastewater (septic) system loading to groundwater for various projects. Other work include publishing the final report for the Yellowstone River QUAL2K model, supporting numeric nutrient standards development on the Upper Yellowstone River and Upper Missouri River; completing a long-term (100-year) model run for Tongue River watershed, investigating natural variation of salinity concentrations; and initiating a modeling project for salinity in the Tongue River and Powder River basins for TMDL development.

Quality Assurance and Quality Control

The Quality Assurance and Quality Control Section (QAQC) supports the Nonpoint Source Program and WQPB and its contractors by developing and describing the management and technical procedures that will assure the quality of environmental information used to support decisions. This is referred to as a "quality system." It provides WQPB with a practical framework for managing the quality of activities, resulting in environmental determinations and controls.



In 2012, QAQC aided WQPB by building processes to support (a) developing water quality criteria, (b) reporting the condition of the state's waters, (c) developing TMDLs, (d) implementing best management practices, and (e) determining the effectiveness of implementation strategies.

QAQC coordinates with other agencies, conservation districts, watershed groups, and other entities to ensure quality data that can be used in water quality assessments as well as for developing TMDL and implementing projects funded

by CWA Section 319 grants. As the state's monitoring strategy is implemented, QAQC assists with numerous project-specific quality assurance project plans (QAPPs) and sampling and analysis plans (SAPs). As new or modified methods and processes are developed, QAQC drafts or revises many of WQPB's Standard Operating Procedures (SOPs).

All groups that receive Section 319 funding are required to submit a QAPP and/or SAP before monitoring. Along with Montana State University-Extension Water Quality and Montana Watercourse, QAQC helped develop a general QAPP to provide data quality guidelines and a basic framework for training volunteers. QAQC encourages volunteer monitoring groups to develop clear and thorough QAPPs, which outlines the project's goals, objectives and processes. In addition, SAPs document the procedural and analytical requirements for projects. Using these planning documents increases the validity of the data, and quality data will help make better decisions about the watershed.

In 2012, QAQC collaborated with several conservation districts, watershed groups, and volunteer monitoring groups to develop 4 QAPPs/SAPs and 12 SAPs. The focus on volunteer monitoring was for baseline water quality and trend analysis, as

well as to monitor for effectiveness of restoration activities and pollutant load reductions, and monitor to characterize groundwater and surface water interactions. Projects included

- Gallatin Groundwater Project QAPP/SAP
- Haskill Creek – Reimer Bank Stabilization Project QAPP/SAP
- Sun River QAPP
- Teton River QAPP
- Ashby Creek Restoration Monitoring SAP
- Belt Creek Acid Mine Discharge-Recharge Area Identification SAP
- Big Pipestone Creek and Jefferson Slough Habitat & Sediment Source Monitoring
- Bozeman Creek Volunteer Monitoring for *E. Coli* SAP
- Big Fork Stormwater Project SAP
- Grave Creek SAP
- Helena Valley NPS Assessment SAP
- Little Bighorn Watershed Metals Baseline Monitoring SAP
- Moore Creek Volunteer Monitoring for *E. Coli* SAP
- Morrell Creek Monitoring Project SAP
- Sun River Watershed – Muddy Creek Restoration Project SAP
- Upper Clark Fork Tributaries Project Effectiveness Monitoring SAP

QAQC's goals for 2013 include developing temperature and EC/SAR (salinity) assessment methods and new SOPs for specific water quality monitoring aspects that lack procedures. The new methods will provide a structured and consistent approach to assessments for those pollutants and will allow DEQ to make reproducible and defensible decisions about beneficial-use support. The new SOPs will document field monitoring activities that lack procedures and will create conformance to technical and quality system requirements and to support data quality.



Partners and Highlights

The Water Quality Planning Bureau has met nonpoint source goals and successfully maintained the viability of watershed groups across the state by supporting and coordinating with organizations such as the Montana Watershed Coordination Council, Montana Watercourse, Montana State University Extension Water Quality, Montana Association of Conservation Districts, Montana Wetland Council, and numerous state and federal agencies.

Volunteer Monitoring Partnership



The Water Quality Planning Bureau (WQPB) partners with a number of organizations, including Montana State University Extension Water Quality (MSUEWQ), Montana Watercourse, and Montana Watershed Coordination Council (MWCC) to promote volunteer monitoring (VM) efforts across the state.

This year the Madison Stream Team, the Little Bighorn College, and the Clearwater Resource Council received DEQ Volunteer Monitoring Lab Analyses Support. In the future, the WQPB's Watershed Protection Section would like to increase volunteer monitoring participation and funding for lab analyses by restructuring deadlines and requirements, specifically

implementing a new deadline of March 29 for proposals. WQPB will hold meetings in January and February in two different Montana locations to provide information and support to groups through Q&A sessions and reference documents. In April, a review panel of MWCC Monitoring Work Group members will review QAPP/SAP drafts. Before volunteer monitoring funds are allocated, DEQ must approve a group's application and QAPP/SAP.

Changes in lab analyses funding were made, in part, because of feedback from a volunteer monitoring session held during MWCC's Summer Forum. To better assess needs and direct future volunteer monitoring efforts and funding, MSUEWQ surveyed current volunteer efforts, presented the results, and facilitated a conversation about existing resources and opportunities for improvement. Conclusions from the discussion were grouped into three components: personnel, technical support, and equipment and analytical support. A key personnel finding was the need to capitalize on the new Big Sky Watershed Corps program, jointly coordinated through the Montana Conservation Corps, the Montana Association of Conservation Districts, and MWCC. DEQ, MSUEWQ, and the MWCC Monitoring Committee are working to improve technical and analytical support.

Volunteer monitoring is important for linking communities with water quality and building critical datasets. This year, the Madison Stream Team exemplified the great role volunteer efforts can play in developing datasets important to agencies and water quality assessment. The Madison Watershed Partnership, DEQ, MSUEWQ, Big Sky Watershed Corps, and a dedicated group of volunteers coordinated to monitor 6 streams encompassing 18 sites. The collected data will be used for water quality assessment, TMDL development, and baseline information for future BMP and assessment monitoring. Past volunteer efforts have facilitated the development of the framework necessary for developing quality control and quality assurance measures required for high quality data.



Success Story: Improved Road Infrastructure and Data Collection

Swift Creek near Whitefish, Montana

The Swift Creek watershed, located in Northwestern Montana, includes three assessment units, the East Fork, the West Fork and the mainstem of Swift Creek from the confluence of the east and west forks to Whitefish Lake. This mountainous drainage is dynamic in nature with a flashy, snowmelt-driven hydrograph and high bedload sediment transport.

Swift Creek, along with its east and west forks, was put on the 1996 303(d) List of impaired waters because these segments were partially supporting aquatic life and coldwater fisheries, as a result of nutrient and sediment pollutants. The impairment sources included silviculture and road/highways as well as natural sources.

Better understanding of the natural background sediment and nutrient loads, coupled with improvements in road infrastructure by Plum Creek Timber Company, the Flathead National Forest and the Montana DNRC Stillwater State Forest contributed to water quality improvements and de-listing. The Whitefish County Water and Sewer District was also an important contributor, in part through securing three (2002, 2003 and 2005) Section 319 grants, which were used to monitor water quality, review existing data, and develop and implement restoration activities. These restoration activities along Swift Creek and its tributaries have included replacement of approximately 15 culverts, as well as 3 bridges designed to reduce sediment from road and bridge sources.

In 2009 and 2011, sediment and nutrient monitoring data reviews found improvements in water quality, which led to determinations that these three segments are fully supporting aquatic life and a coldwater fishery. The 2012 Integrated Report reflects the delisting of sediment and/or nutrient impairments on these three segments.



Montana Association of Conservation Districts

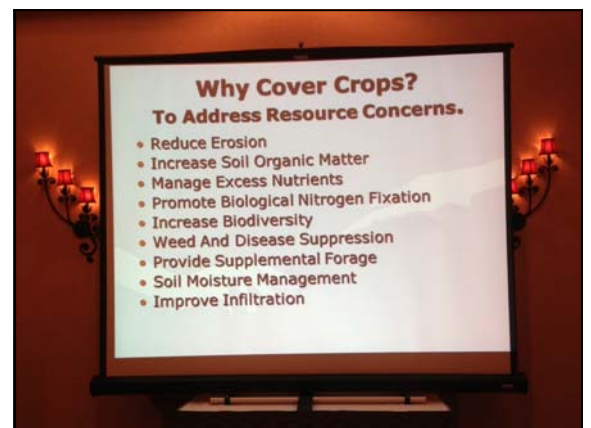
For more than 70 years, the Montana Association of Conservation Districts (MACD) has contributed to the success of its constituent conservation districts across the state. Created in 1942, MACD is a nonprofit association governed by a statewide board of directors, who simultaneously serve as district supervisors in their own jurisdictions. In order to carry out the specific directives of the board, MACD has an office in Helena.

Montana's 58 conservation districts use locally-led and largely non-regulatory approaches to successfully address natural resource issues. Districts have a decades-long history of conserving Montana's resources by matching the needs of local people with technical and financial resources, initiating good conservation practices to benefit all Montanans.

2012 was a productive year for MACD in assisting with nonpoint source pollution issues across the state. Some activities included:

1. Administering the mini-grant program for DEQ, allowing tens of thousands of dollars to be sent to dozens of groups across Montana to address NPS issues.
2. Working closely with partners at the Montana Watershed Coordination Council (MWCC) to provide their administrative and financial services and to administer contracts.
3. Hiring a new contractor for the Conservation Advisor for Livestock Operations (CALO) program to work with landowners in the Shields and Stillwater river valleys. In early December, the CALO program published an operator's guide to help livestock operators self-assess their situation. The guide offers ideas for possible next steps.
4. Administering a new Water Quality Assistance and Support program with MWCC and support from DEQ. More than \$80,000 was earmarked for 10 groups working on water quality issues across the state.

In 2012, MACD's Irrigation Water Management program included nearly 50 fields. The program helps growers to efficiently manage their water resources, improving water quality in many ways. In addition, conservation districts across the state continue to manage Montana's Natural Streambed and Land Preservation Act (310 permit) program. And finally, MACD is part of a nationwide movement to improve soil health, addressing NPS issues by managing soil to reduce the need for herbicides, pesticides, insecticides, and fertilizers.



Montana Watershed Coordination Council



The Montana Watershed Coordination Council (MWCC) is a statewide network that supports and advances local watershed work. MWCC links local watershed groups, natural resource agencies, and private organizations with the goal of enhancing, conserving, and protecting natural resources and sustaining the high quality of life in Montana for present and future generations. MWCC provides a forum for sharing resources, identifying and capitalizing on opportunities for collaboration, and preventing duplication of efforts.

In January 2012, MWCC hosted its Annual General Meeting, during which it approved Operating Guidelines. Mark Haggerty, of Headwaters Economics, gave a well-received presentation on oil and gas development. MWCC

approved a change in leadership structure to a Chair, Vice-Chair, and Treasurer and voted in officers for those positions. MWCC formalized its Steering Committee as 11 voting members and several non-voting members who serve as advisors. In addition, MWCC has a Water Resources and Education and Outreach committee as well as a new Development Committee; all three committees are chaired by staff from DEQ's Water Quality Planning Bureau. Multiple work-groups within these committees (some of which are led by DEQ staff) offer forums for agencies, academia, conservation districts, watershed groups, and nonprofit organizations to discuss issues and offer solutions to water resource needs in Montana.

In May, MWCC's Training and Monitoring work groups hosted the spring coordinator training: Effective Water Quality Monitoring. Developed by DEQ, this 3-day training was created for watershed group coordinators, conservation district employees, and Big Sky Watershed Corp members. This training helped participants understand how to conduct an effective water quality monitoring project, including project planning, learning field methods, and analyzing data.

In August, MWCC hosted the Summer Watershed Forum: Tools for Healthy Watersheds. Nearly 100 watershed professionals throughout Montana participated in this 2-day conference. Breakout sessions focused on protecting, managing, and restoring watersheds. The Big Sky Watershed Corps presented on their various service projects. A watershed restoration planning workshop, volunteer monitoring forum, and tour of the Lake Helena watershed rounded out Day 2.

The 2012 inaugural year of the Big Sky Watershed Corps-AmeriCorps partnership program was a huge success. In June, the Governor's Office of Community Service awarded 15 host site slots for placement for the upcoming (2013) term. The selected host sites are located throughout Montana, and many of the incoming members will be working directly on developing or expanding citizen-based water monitoring projects within their host watersheds. This will expand the capacity of host organizations, as well as improve the network of water monitoring programs across Montana.

In October, MWCC received funds from DEQ to create a Water Quality Assistance and Support (WQAS) program. The program committed \$80,000 to 10 different groups in Montana to provide capacity and financial assistance to organizations that have, or are initiating, water quality projects in their watersheds. WQAS will result in more coordinated local efforts, leading to improved water quality throughout Montana.



Montana Wetland Council

The Montana Wetland Program is part of the Technical and Financial Assistance Bureau of DEQ's Planning, Prevention and Assistance Division and leads the Montana Wetland Council. DEQ's Wetland Program provides state leadership to conserve wetlands for their water quality, water quantity, habitat, and flood control benefits. As the lead state agency for wetland protection, DEQ collaborates with the Montana Wetland Council to develop and implement the state wetland plan.

The Montana Wetland Council is an active network of diverse interests that cooperates to conserve and restore Montana's wetlands and riparian ecosystems. The council's mission is to coordinate efforts to protect, conserve, and enhance Montana's wetland and riparian resources for present and future generations. The council coordinated more than 500 Montanans in the planning process to create "A Strategic Framework for Wetland and Riparian Area Conservation and Restoration in Montana 2008 –2012." The state plan prioritizes and directs collective efforts in conserving and restoring wetlands and riparian areas. The council's four working groups are based on the strategic directions from the state plan and include the following topics:

- Public Education and Professional Development
- Mapping, Monitoring, and Assessment
- Restoration
- Local Government, Vulnerable Wetlands, and Public Policy

The council is currently assessing progress from the 5-year plan and updating the plan through 2017.

Montana's overarching wetland goal is "no overall 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." Council participants work to implement the strategic framework and meet three times each year to exchange information and find solutions to complex wetland and riparian issues. The council's listserv has grown to more than 700 individuals, and all interested parties are encouraged to participate.



In 2012, DEQ's Wetland Program hosted three day-long Montana Wetland Council meetings. Approximately 50–75 people attended each meeting and came away with information and contacts to help address wetland and riparian management issues. Meeting topics focused on the following:

January 19 – Wetland Mitigation and Other Aquatic Ecosystem Exchange and Market Mechanisms.

Participants learned about wetland mitigation developments in Montana, ecosystem exchange, and market mechanisms and approaches used in Montana as well as new approaches that may be coming to Montana. Compensatory mitigation and other market drivers for offsetting the effects on water resources are increasingly important mechanisms for restoring wetlands and other aquatic ecosystems. Peer-reviewed research continues to document that restoration success is limited; i.e., current restoration practices fail to recover original levels of wetland ecosystem functions, even after many decades. If current restoration practices are used to justify further degradation, then global loss of wetland ecosystem function and structure will spread.

May 30 – Energy Development and Agriculture: Wetland and Riparian Issues Affecting Central and Eastern Montana.

Continued loss of grasslands and wetland complexes in eastern Montana underscore the need for expanded efforts to conserve these habitats on public and private lands. Sessions highlighted the recent advances in GIS technology that can identify high-priority habitat for waterfowl and described the various state and federal programs to assist landowners in conserving wildlife habitats. Participants saw examples of how these federal programs have been implemented in eastern Montana. Other talks focused on the expansion of energy development in northeast Montana, which may greatly affect the quantity and quality of regional water resources. Description of the interconnections among the various uses of water and natural processes in semi-arid northeast Montana showed a complex resource management system that must be understood in order to sustain the natural water-oriented systems here.



November 15 – Targeted Wetland Restoration for Water Quality Improvement, Habitat, Flood Storage, and Overall Watershed Management.

Eight presentations focused on targeted restoration, ranging from a pilot project integrating wetland restoration in TMDL watershed plans (Big Hole and Gallatin), to a new Web-based tool to explore where protecting and restoring wetlands can help address water quantity and quality impairments. The Montana Natural Heritage Program's reference network was showcased. Several site-specific restoration projects that improved water quality were highlighted. A discussion on targeting conservation practices in agricultural watersheds in the Midwest was included to demonstrate other practices across the county, and a restoration project implemented under EPA's Resource Conservation and Recovery Act was presented.

In 2012, the Wetland Program completed several wetland and riparian contracts and in-house projects that furthered the goals of Montana's Strategic Framework:

- Developed Wetland Program Plans to guide DEQ's wetland program and integrate wetlands more fully into other DEQ water programs.
- Developed an In-Lieu-Fee aquatic mitigation program as an additional option for CWA permittees to comply with the federal Mitigation Rule.
- Initiated the US Army Corps of Engineers' Silver Jackets program in Montana to implement recommendations from the 2011 Floodplain Assessment report.
- Investigated and updated DEQ's 401 certification program and process to strengthen and enhance wetland protection at the state level.
- Developed and provided the second professional wetland science continuing education course through the Extended University at Montana State University. This 3-day course focused on planning for wetland restoration success.

On-going projects include:

- Demonstrating approximate floodplain mapping for four rural local governments on the Big Hole River and developing standards and guidance for regulatory floodplain mapping.
- Researching options regarding wetland water quality standards and their necessity to further protect wetlands in Montana.

Demonstrating how incorporating wetlands into Watershed Restoration Plans can be used to address known water quality impairments identified in the TMDL process.

2012 Montana Storm Water Conference

Weathering the Storm: Strategies and Solutions for Managing Storm Water

Kalispell hosted the state's second Storm Water Conference, from April 10 to 12, which attracted 138 participants from throughout the state and provided a valuable forum for sharing information on stormwater and protecting water quality in Montana. Attendees represented engineering and consulting firms, state and federal agencies, county and city governments, watershed groups, water and wastewater facilities, landscaping businesses, and nonprofit water protection organizations.

The conference goals were in direct response to the 2007 Nonpoint Source Management Plan and addressed the following objectives:

- Protect and restore Montana's streams and lakes from non-point source pollution
- Protect and restore Montana's naturally occurring wetlands and riparian areas from adverse effects
- Use constructed wetlands as a BMP where appropriate to improve water quality

Additionally, the conference addressed urban growth and development issues, including low-impact development that positively affect water quality. Major conference topics explored:

- Montana Storm Water Case Studies – Successes and Lessons Learned
- Water Quality Monitoring
- Natural Landscapes and Storm Water Management
- Designs for Storm Water Management

Keynote and General Session topics included:

- Storm Water, Sustainable Development, and Property Rights
- EPA – National and Regional Perspectives on Storm Water Management
- Storm Water Utilities: Development and Implementation
- Funding Options for Storm Water Projects – State Grant and Loan Programs
- Low-Impact Development: Principles, Practices, and Application Trends
- Guiding Behavioral Change through Local and Statewide Storm Water Education Programs
- Cooperation and Coordination between Development Interests and Floodplain and Stormwater Managers



The final day of the conference was devoted to tours that focused on various storm water treatment projects that protect water quality, including constructed wetlands, riparian buffer restoration, and the Bigfork Storm Water Project.

Post-conference evaluations strongly supported future storm water conferences, and participants asked that future conferences include sessions on:

- a. specific designs for storm water projects,
- b. information that targets both MS4 and non-MS4 communities,
- c. community storm water education programs, and situational storm water design options.

Looking Forward

DEQ continues to demonstrate that the Montana Nonpoint Source Management Program is committed to and capable of addressing nonpoint source pollution in Montana and that a voluntary, incentive-based approach works well in this state. The state has many committed partner agencies, non-governmental organizations, and concerned citizens who participate in addressing nonpoint source water quality pollution.

Priorities for 2013 include:

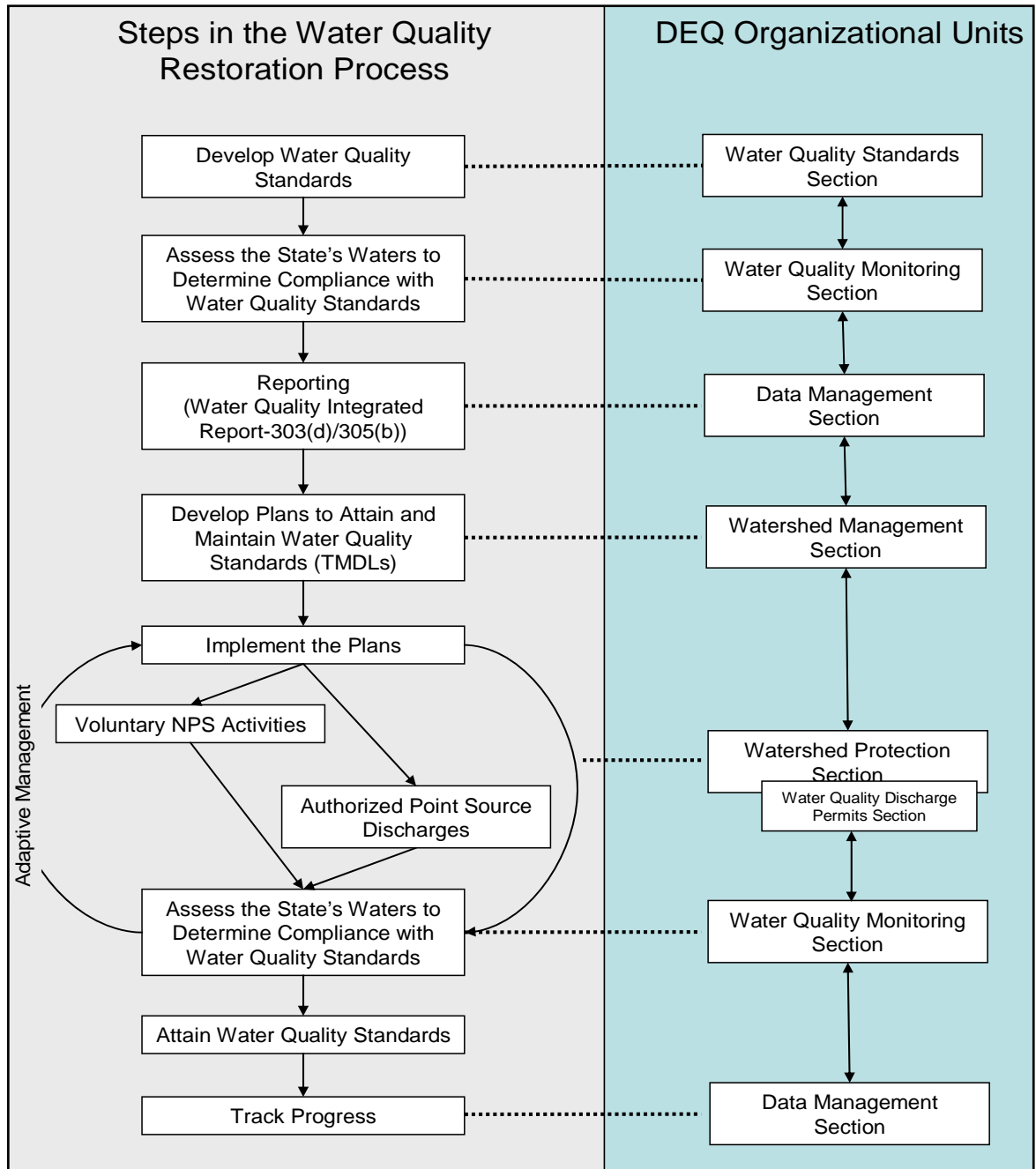
- Present nutrient standards package to the Board of Environmental Review
- Continue to develop and implement watershed-based TMDLs
- Review and accept Watershed Restoration Plans
- Complete TMDL Implementation Evaluations
- Revise Section 319 Reporting Guidance for contractors in Montana
- Develop SOPs for specific water quality monitoring

A major concern is the continuing decrease in Section 319 funding to Montana from the federal government. In Montana, federal Section 319 funds are essential in providing a clean and healthful environment. Montana's 319 funds support substantive agency activities, coordination, planning and programs, as well as on-the-ground projects in communities throughout the state, creating jobs while protecting and restoring Montana's irreplaceable natural resources. Without this funding the local economies and environments would suffer. Potential negative effects from the proposed budget cuts for Section 319 may be compounded by possible decreased federal funding to other natural resource agencies, including the Natural Resource Conservation Service, U.S. Forest Service, and Environmental Protection Agency. These cuts, in conjunction with additional requirements for the Section 319 program (e.g., limiting programmatic funding to 50% of the state's 319 award), may require the Section 319 program to shift priorities to meet these requirements.



Appendices

Appendix A – Water Quality Planning Bureau Integrated Approach



1. The Water Quality Standards Section defines the goals for a waterbody by designating its uses, setting criteria to protect those uses, and establishing provisions to protect waterbodies from pollutants.
2. The Water Quality Monitoring and Assessment Section monitors water quality conditions and trends statewide and assesses sources and severity of pollution problems.
3. The Data Management Section reports assessment findings.
4. The Watershed Management Section develops TMDL plans for waters not meeting standards.
5. The Watershed Protection Section supports the nonpoint source implementation of TMDLs.
6. Water quality standards developed by the Water Quality Standards Section are used throughout DEQ, such as in the Montana Pollutant Discharge Elimination System program, to ensure clean water protection by all permitted point-source dischargers.

Appendix B – Montana Nonpoint Source Management Program's 5-Year Action Plan and Priorities

The Montana Nonpoint Source (NPS) Management Program's goal is to provide a clean and healthy environment by protecting and restoring water quality from the effects of nonpoint sources of pollution. The short-term (5-year) goal of Montana's NPS Management Program is to demonstrate significant progress in protecting and restoring Montana's water quality from nonpoint sources of pollution as measured by achieving the actions outlined in the NPS Management Plan. These actions focus on three specific areas: resource-specific goals, policy-specific goals, and education and outreach-specific goals.

5-year Action Plan for addressing NPS Pollution – Resource Related Actions

No.	Responsible Party	Actions (Outcomes/Objectives)	Measurable Milestones/Outputs	2012 Accomplishments
R1*	DEQ, EPA	Complete Water Quality Improvement Plans (WQIPs) and necessary TMDLs.	<ul style="list-style-type: none"> At least 500 additional TMDL pollutant-waterbody combinations between 2012 and 2014 	<ul style="list-style-type: none"> 198 TMDLs, addressing 209 pollutant-waterbody combinations, written and approved in 2012.
R2*	DEQ	Conduct statewide water quality assessments.	<ul style="list-style-type: none"> 130 water quality assessments completed by 2014 	<ul style="list-style-type: none"> Monitoring occurred on at least 160 waterbodies for water quality assessments, statewide fixed-station monitoring and TMDL support efforts. Significant progress on data analysis for impairment determination has occurred on 100 waterbodies and information is currently being updated in DEQ's WARD database.
R3*	DEQ	Review/update Water Quality Integrated Report (305(b)/303(d)).	<ul style="list-style-type: none"> Updated reports in 2014 and 2016 	<ul style="list-style-type: none"> 2012 Integrated Report approved by EPA in May 2012.
R4	DEQ	Re-evaluate the chemical, physical, and biological condition of reference sites.	<ul style="list-style-type: none"> At least 100 reference sites re-evaluated by 2017 	<ul style="list-style-type: none"> WQS began the re-evaluation of the 184 reference sites across the state identified by DEQ as reference sites. This effort will further refine and verify the accuracy of the reference sites. The re-evaluation of these reference sites will be a multi-year project.
R5*	DEQ	Work with watershed groups to develop watershed restoration plans (WRPs).	<ul style="list-style-type: none"> 20 DEQ-accepted WRPs by 2017 	<ul style="list-style-type: none"> DEQ accepted 6 in 2012. See Appendix G for a complete list.
R6*	DEQ	Encourage and fund WQIP- and WRP-directed NPS watershed restoration projects, including demonstration projects, for adoption of new technology.	<ul style="list-style-type: none"> Annually fund on-the-ground watershed restoration activities 	<ul style="list-style-type: none"> 9 Watershed Restoration projects were funded in 2012.

R7	DEQ	Identify the TMDL Planning Areas having WQIPs and TMDLs in which at least some implementation activity has occurred during the previous calendar year.	<ul style="list-style-type: none"> Annual reporting spreadsheet included in NPS Annual Report 	<ul style="list-style-type: none"> Implementation activities occurred in 26 TMDL Planning Areas during 2012.
R8*	DEQ	Develop and implement a monitoring strategy for Section 319 restoration activities for effectiveness and pollutant load reductions.	<ul style="list-style-type: none"> Approved monitoring strategy by 2017 	<ul style="list-style-type: none"> No activity related to the development of a comprehensive effectiveness and load-reduction monitoring strategy.
			<ul style="list-style-type: none"> 100% of projects for nutrient and sediment reduction reported to EPA Grant Reporting and Tracking System 	<ul style="list-style-type: none"> All projects reported for 2012.
R9*	DEQ	Conduct TMDL implementation evaluations (TIE).	<ul style="list-style-type: none"> Complete 20 reviews by 2017 	<ul style="list-style-type: none"> 4 TIEs have been completed to date (none in 2012).
R10	DNRC	Work with forest agency partners (especially DNRC Forestry Assistance) to ensure effective forestry BMP and SMZ activities.	<ul style="list-style-type: none"> Biannual reports on forestry BMP audits 	<ul style="list-style-type: none"> The Montana Forestry Best Management Practices (BMP) Working Group met twice in 2012 to discuss current and on-going forest BMP activities in the state. The group is currently working on updating Water Quality BMPs for "Montana Forests," a popular publication used by forest operators for BMP information. Led by the Montana Department of Natural Resources and Conservation (DNRC), 42 field reviews were completed in summer 2012 to evaluate whether forestry BMPs were being applied and were effectively limiting nonpoint source pollution from harvest operations in Montana. Results show that across all ownerships (state, federal, industry, and non-industry private forests), BMPs were properly applied 98% of the time and were effective in protecting soil and water resources 99% of the time.
R11	DNRC	Work with forest agency partners to develop assessments to ensure BMPs and SMZs are protecting riparian and wetland functions.	<ul style="list-style-type: none"> Assessment of BMP and SMZ adequacy for riparian and wetland functions 	<ul style="list-style-type: none"> The Montana Streamside Management Zone (SMZ) law was applied 97% of the time across all ownerships, with effectiveness occurring 99% of the time.
R12	DNRC, Plum Creek	Assess the effectiveness of SMZ and HCPs.	<ul style="list-style-type: none"> Reporting from the resource agencies on SMZ and HCPs by 2017 	<ul style="list-style-type: none"> No activity.
R13*	DEQ	Provide reviews and comment on outside agency proposed projects that may have an effect on NPS pollution.	<ul style="list-style-type: none"> Reviews completed and comments provided as appropriate 	<ul style="list-style-type: none"> DEQ reviewed and commented on numerous plans/projects in 2012 as requested.

R14	DEQ	Develop, maintain, and enhance Clean Water Act Information Center (CWAIC online) to provide public access.	<ul style="list-style-type: none"> System operable and available to public 	<ul style="list-style-type: none"> The Data Management Group began work on two other major application development projects: CWAIC version 3 and WARD phase 3. The program's CWAIC (Clean Water Act Information Center) website provides public access to the state's biennial water quality Integrated Reports.
R15	DEQ	Administer MT-eWQX water quality database system.	<ul style="list-style-type: none"> Upload all ambient water quality monitoring data collected by DEQ, its contractors, or data partners to EPA National STORET/WQX water quality data warehouse 	<ul style="list-style-type: none"> The Data Management Group processed 180 unique water quality data packets (as of October 26, 2012) from 63 unique monitoring projects into its water quality metric database: Montana EQUIS (Environmental Quality Information System) for WQX (MT-eWQX). Of these 180 packets, 170 were new data inserts, 7 were data revisions or corrections, and 3 were deletions correcting errant station IDs.
R16	DEQ	Administer electronic data deliverables (EDD) submittal process for non-DEQ eWQX data submittals using EQUIS data management tools.	<ul style="list-style-type: none"> Provide Web access to data submittal process information, data management tools and training, and technical assistance to data partners and contractors 	<ul style="list-style-type: none"> ITMS conducted 398 data transactions to WQX through 11/26/2012. IMTS did not conduct any training MT-eWQX events for data partners during 2012 because all active partners are trained and fully capable with the data submission tools and process.
R17*	DEQ	Develop nutrient models for large rivers (e.g., Missouri, Yellowstone).	<ul style="list-style-type: none"> Models developed for at least 2 large river segments by 2017 	<ul style="list-style-type: none"> Lower Yellowstone River nutrient model was completed, and the modeling report has been vetted via peer review under EPA's NSTEPS Program (Nutrient Scientific Technical Exchange Partnership & Support). The report will be published soon. Missouri River nutrient model data collection has been conducted, and model development is in progress. Upper Yellowstone River nutrient model data was collected during 2012 and model development will start in 2013.
R18*	DEQ	Protect, restore, and create riparian and wetland buffers designed to prevent or reduce NPS pollution.	<ul style="list-style-type: none"> 3 miles of riparian and/or wetland buffers as part of Section 319 contracts 	<ul style="list-style-type: none"> Multiple projects were active in 2012 that included protecting, restoring, or creating riparian buffers to reduce NPS pollution. These projects (212060, 212064, 211073, 211083, 212061, 212058, 211069, 212055, 211077, and 211072) will eventually create more than 23,000 feet (4.3 miles) of buffers.
R19	DEQ	Identify watersheds where NPS pollution from AFOs can be reduced.	<ul style="list-style-type: none"> Identify 3 high-priority watersheds for restoration work by 2017 	<ul style="list-style-type: none"> Through the CALO contract with SWCDMI, DEQ identified the Shields and Stillwater Rivers as watersheds where NPS pollution from AFOs can be reduced. An "On-Site Guide for Livestock Operations" was developed in 2012 as part of this project.

R20	DEQ	Encourage additional stormwater quality improvement projects funded through the state revolving fund program.	<ul style="list-style-type: none"> At least 4 stormwater projects funded by 2017 	<ul style="list-style-type: none"> No activity in 2012.
R21*	DEQ	Manage and implement the NPS program in efficient and effective manner, including fiscal management.	<ul style="list-style-type: none"> Provide consistent guidance on state reporting requirements 	<ul style="list-style-type: none"> WPS is currently revising its 319 contract reporting requirements, to be implemented in FY2013 contracts.
			<ul style="list-style-type: none"> Conduct contract "kick-off" meetings 	<ul style="list-style-type: none"> WPS conducted 9 kick-off meetings with contractors in 2012.
			<ul style="list-style-type: none"> Ensure 75% of 319 contracts are closed by initially-agreed date 	<ul style="list-style-type: none"> 42% of 319 contracts closed in 2012 were completed by the initial contract end date.
			<ul style="list-style-type: none"> Refine watershed project field evaluation form 	<ul style="list-style-type: none"> No activity.

* Indicates a high priority for the NPS Program

5-year Action Plan for addressing NPS Pollution – Policy Related Actions

No.	Responsible Party	Actions (Outcomes/Objectives)	Measurable Milestones/Outputs	2012 Accomplishments
P1*	DEQ, FWP, MWCC, USACE, USFS, NRCS, BLM, DNRC, Individual watershed groups, private consulting firms, USFWS, MACD, others	Develop an interagency policy for river restoration work, emphasizing restoration of natural processes.	<ul style="list-style-type: none"> Interagency policy supported by a wide range of government, nonprofit, and private entities by 2017 	<ul style="list-style-type: none"> No activity.
P2*	DEQ in collaboration with agencies, watershed groups, and other interested parties	Develop and implement a strategy for identifying priority watersheds on which to focus technical and financial resources, leading to two 12-digit HUC watersheds achieving water quality standards.	<ul style="list-style-type: none"> Strategy document, set of action items, and at least 1 action item completed by 2017 	<ul style="list-style-type: none"> Discussions initiated with NRCS and USFS in 2012.
P3*	DEQ	Develop and implement DEQ water quality improvement MOUs with agencies, including USFS, BLM, DNRC, MDT, NRCS, and MFWP.	<ul style="list-style-type: none"> 3 MOUs established or revised by 2017 	<ul style="list-style-type: none"> DEQ and NRCS signed an MOU in 2012 to formalize collaboration between NRCS and DEQ to protect and enhance water resources in Montana.
P4	DEQ	Assist in efforts to develop cumulative effects assessment strategies for groundwater in high-density septic/development areas.	<ul style="list-style-type: none"> Provide assistance with developing 5 assessment strategies 	<ul style="list-style-type: none"> The DEQ Method for Estimating Attenuation of Nutrients from Septic Systems (MEANSS) assesses the potential significance of nutrient loading from septic systems within the watershed; MEANSS has been used in five TPAs to assess nutrient loading: Bitterroot, Bison, Flint, Little Blackfoot, Lower Gallatin. On-going efforts, supported in part by 319 funds including a 2012 grant in the Lake Helena watershed.

P5	DEQ, DNRC, NRCS, irrigation districts, CDs, watershed groups, private landowners	Provide technical and/or financial support to efforts designed to reduce irrigation-induced NPS pollution.	<ul style="list-style-type: none"> • Technical and/or financial support provided to at least 3 projects 	<ul style="list-style-type: none"> • In 2012, DEQ awarded one 319 grant providing financial support to irrigators: the Big Pipestone Creek Restoration Project in the Jefferson River watershed. This project will promote irrigation efficiency and reduce NPS pollution from irrigation sources.
P6*	DEQ	Develop numeric nutrient water quality standards and implementation procedures for surface waters.	<ul style="list-style-type: none"> • Standards and implementation procedures in place by 2012 	<ul style="list-style-type: none"> • The criteria have been developed and DEQ continues to work with stakeholders on the details of implementation.
			<ul style="list-style-type: none"> • BER-approved nutrient trading policy for point/nonpoint sources 	<ul style="list-style-type: none"> • Nutrient trading regulations were adopted at the December 7, 2012, Board meeting.
P7*	DEQ	Develop technical basis for a lake classification system based on nutrient status.	<ul style="list-style-type: none"> • Lake classification system by 2017 	<ul style="list-style-type: none"> • No activity.
P8*	DEQ	Develop and circulate numeric standards for all pesticides identified in Montana groundwater and surface waters.	<ul style="list-style-type: none"> • Adoption of numeric standards for all pesticides within 4 years of DEQ notification of detection in state waters 	<ul style="list-style-type: none"> • The October 2012 revision to the DEQ-7 incorporates numeric standards for all of the detected pesticides.
P9	counties, with DEQ support	Encourage the establishment of additional Water Quality Protection Districts (WQPD) within urban areas.	<ul style="list-style-type: none"> • One additional WQPD established by 2017 	<ul style="list-style-type: none"> • No activity.
P10*	cities and counties	Incorporate NPS pollution prevention into city and county planning processes.	<ul style="list-style-type: none"> • By 2017, 3 additional communities have incorporated NPS pollution prevention into local planning processes 	<ul style="list-style-type: none"> • No activity.
P11	DEQ	Support improved urban stormwater management and information sharing through the MS4 task force.	<ul style="list-style-type: none"> • Active MS4 task force by 2013 	<ul style="list-style-type: none"> • The MS4 Task Force was formed at the 2012 Stormwater Conference. It is scheduled to meet twice a year – June and December. Topics to be discussed include MS4 Annual Reports, DEQ compliance evaluation inspection findings, and MS4 audits.
P12*	DEQ, MWCC, collaborate with other federal, state, and local agencies	Develop a system or network for long-term monitoring that will produce data to evaluate water quality trends in waterbodies with completed TMDLs.	<ul style="list-style-type: none"> • Develop system/network architecture by 2015 	<ul style="list-style-type: none"> • No activity.
			<ul style="list-style-type: none"> • Begin implementation by 2017 	<ul style="list-style-type: none"> • No activity.
P13	DEQ	Develop guidance for water quality monitoring.	<ul style="list-style-type: none"> • Guidance for monitoring under Section 319 contracts 	<ul style="list-style-type: none"> • No activity.
			<ul style="list-style-type: none"> • QAPP guidance 	<ul style="list-style-type: none"> • No activity.
			<ul style="list-style-type: none"> • SAP guidance 	<ul style="list-style-type: none"> • No activity.

P14	DEQ, MWCC, MSUEWQ	Provide technical and financial support to volunteer monitoring groups.	<ul style="list-style-type: none"> Continue funding for laboratory analysis 	<ul style="list-style-type: none"> DEQ funding for lab analyses was restructured to improve assistance in the development of QAPP/SAPs for FY13. Section 319 funding to MSUEWQ further provided support and structure to volunteer monitoring programs through a session at the MWCC Summer Forum, instructional videos, and trainings.
			<ul style="list-style-type: none"> Provide on-going technical support for development of QAPPs and SAPs 	
P15	DEQ	Develop a nutrient trading policy that encourages nutrient load reductions consistent with WQIP/TMDLs.	<ul style="list-style-type: none"> Nutrient Trading Policy and demonstrated effective trades 	<ul style="list-style-type: none"> The Nutrient Trading Policy was approved by the Board of Environmental Review in December 2012. A trade has been effected by the city of Helena.

* Indicates a high priority for the NPS Program

5-year Action Plan for addressing NPS Pollution – Education and Outreach Actions

No.	Responsible Party	Actions (Outcomes/Objectives)	Measurable Milestones/Outputs	2013 Accomplishments
EO1*	MTWC, DEQ	Incorporate school lesson plans that address water resources and NPS pollution issues.	<ul style="list-style-type: none"> Incorporate up to 20 lessons into the appropriate units of study at 60 elementary schools, 30 middle schools, and 20 high schools 	<ul style="list-style-type: none"> 21 teachers attended a Project WET training hosted by Montana Watercourse (MTWC) in 2012.
EO2*	MWCC	Provide support and promote the development and coordination of watershed groups through MWCC activities, training workshops, advertising campaigns, etc.	<ul style="list-style-type: none"> Annual watershed coordinator training 	<ul style="list-style-type: none"> MWCC hosted "Effective Water Quality Training" in May 2012.
			<ul style="list-style-type: none"> Annual watershed tour 	<ul style="list-style-type: none"> MWCC Water Activities workgroup hosted a tour of restoration sites in the Lake Helena watershed in August 2012.
			<ul style="list-style-type: none"> Bi-weekly newsletter 	<ul style="list-style-type: none"> MWCC published the Bi-Weekly E-News consistently throughout 2012.
			<ul style="list-style-type: none"> Coordinate a volunteer water monitoring group to collect water quality data and human-effects info within specific watersheds. 	<ul style="list-style-type: none"> In 2012, the MWCC Monitoring Work Group reconvened with new and existing members to link entities that conduct water monitoring in Montana with helpful resources and to promote effective citizen-based monitoring programs.
EO3*	DEQ	Support riparian and wetland buffer education campaigns.	<ul style="list-style-type: none"> Support 5 county-wide campaigns by 2017 	<ul style="list-style-type: none"> No activity.
EO4	DEQ, MDT, MSU	Promote and support BMP training for road maintenance personnel.	<ul style="list-style-type: none"> Compile library of training materials 	<ul style="list-style-type: none"> No activity.
			<ul style="list-style-type: none"> Bi-annual training for road maintenance personnel 	<ul style="list-style-type: none"> DEQ met with the MDT maintenance supervisor for the Lolo District in October 2012 and discussed ways to limit winter traction sand from entering Lolo Creek.
EO5	DEQ	Develop and deliver multi-media presentations that teach basic concepts in reducing NPS pollution from agricultural sources.	<ul style="list-style-type: none"> Develop at least 2 presentations 	<ul style="list-style-type: none"> No activity.
			<ul style="list-style-type: none"> Deliver each presentation twice by 2017 	<ul style="list-style-type: none"> No activity.
EO6	DEQ	Support conferences that address stormwater pollution prevention and control strategies.	<ul style="list-style-type: none"> Two stormwater conferences held between 2012 and 2017 	<ul style="list-style-type: none"> DEQ awarded a Section 319 contract to Montana Watercourse for FY2013 to plan a Stormwater Conference for 2014.

EO7	DEQ	Identify and/or develop monitoring and assessment methods for private landowners to inform land management decisions.	<ul style="list-style-type: none"> • Develop self-assessment tool for private landowners by 2017 	<ul style="list-style-type: none"> • The On-Site Guide to Livestock Operations was developed by the CALO project in 2012.
EO8	DEQ, MWCC, MSUEWQ	Provide training opportunities for volunteer monitors.	<ul style="list-style-type: none"> • Training provided to 10 watershed groups by 2017 	<ul style="list-style-type: none"> • MWCC provided training to 14 watershed groups and conservation districts in 2012 on Water Quality Monitoring geared toward volunteer monitoring groups.
EO9	DNRC, Montana Logging Assoc., and MSU Forestry Ext.	Promote and conduct forestry BMP and stewardship educational workshops and programs.	<ul style="list-style-type: none"> • Annual BMP/SMZ education workshops for loggers and landowners • Forest stewardship program targeting small landowners throughout Montana 	<ul style="list-style-type: none"> • In cooperation with the Montana Logging Association, DNRC put on its annual BMP/ streamside management zone (SMZ) workshop in five Montana cities in May 2012. Additionally, DNRC conducted pre-operation site visits to discuss specific BMPs and the SMZ law with forest operators. Montana State University Extension Forestry offered three Forest Stewardship courses, an education program for family forest landowners, in 2012.

* Indicates a high priority for the NPS Program



Appendix C – Fiscal Year 2012 Section 319 Project Awards

Project Name	Project Sponsor	DEQ Project Officer	319 Funds	Non-Federal Match Funds	Total Project Cost
Watershed Restoration Projects					
Bitterroot Watershed Restoration Planning	Bitter Root Water Forum	Laura Andersen	\$ 21,000	\$ 14,300	\$ 35,300
Blackfoot Watershed Water Quality and Native Fish Restoration	Blackfoot Challenge	Mark Ockey	\$ 121,320	\$ 80,900	\$ 202,220
West Fork Nitrogen Reduction Plan and Implementation	Blue Water Task Force	Ann McCauley	\$ 50,000	\$ 33,334	\$ 83,334
Big Pipestone Creek Restoration Project-Phase 1	Jefferson River Watershed Council	Ann McCauley	\$ 68,000	\$ 122,800	\$ 190,800
Miller Ranch Ruby River Channel Restoration	Ruby Valley CD	Ann McCauley	\$ 104,500	\$ 115,500	\$ 220,000
Ninemile Creek Watershed Restoration Plan and Josephine Creek Mine Reclamation	Trout Unlimited	Elena Evans	\$ 38,400	\$ 25,600	\$ 64,000
Browns Gulch Restoration Project-Phase 1	Watershed Restoration Coalition	Laura Andersen	\$ 100,000	\$ 187,582	\$ 287,582
Creating Ripples of Change for Flathead's Critical Lands and Lakeshores	Flathead Lakers	Elena Evans	\$ 50,000	\$ 35,000	\$ 85,000
<i>Watershed Restoration Projects Sub-Total</i>			\$ 553,220	\$ 615,016	\$ 1,168,236
Groundwater Projects					
Helena Valley Non-point Source Assessment	Lewis & Clark WQPD	Robert Ray	\$ 77,265	\$ 59,610	\$ 136,875
Belt Creek Acid Mine Discharge - Recharge Area Identification	Montana Salinity Control Association	Mark Ockey	\$ 108,000	\$ 81,150	\$ 189,150
<i>Groundwater Projects Sub-Total</i>			\$ 185,265	\$ 140,760	\$ 326,025
Education and Outreach Projects					
Riparian and Flow Restoration Education in the Bitterroot and Upper Clark Fork Watersheds	Clark Fork Coalition	Laura Andersen	\$ 20,000	\$ 18,500	\$ 38,500
Nonpoint Source Mobile Field Station	Livingston School Districts	Mark Ockey	\$ 14,500	\$ 10,650	\$ 25,150
Watershed Institute for Watershed Coordinators	Montana Watercourse	Laura Andersen	\$ 20,000	\$ 13,400	\$ 33,400
Enhancing Advanced Volunteer Monitoring Capabilities in Montana	MSU Extension-Water Quality	Elena Evans	\$ 20,000	\$ 13,333	\$ 33,333
Education & Outreach Mini-Grants	Soil & Water Conservation Districts of MT	Laura Andersen	\$ 25,500	\$ 17,000	\$ 42,500
Strengthening Watershed Communities	Soil & Water Conservation Districts of MT	Robert Ray	\$ 30,000	\$ 20,000	\$ 50,000
<i>Education and Outreach Projects Sub-Total</i>			\$ 130,000	\$ 92,883	\$ 222,883
Total			\$ 868,485	\$ 848,659	\$ 1,717,144

Appendix D – Section 319 Projects Closed in 2012

Contract Number	Contractor	Project Name	Amount Expended	Final Payment Date
207042	Ruby Valley CD	Ruby WQ Restoration	\$ 20,200.00	11/26/2012
207044	Trout Unlimited	Ninemile TMDL	\$ 35,000.00	7/23/2012
207055	Blue Water Task Force, Inc.	Upper Gallatin Watershed TMDL	\$ 100,000.00	8/20/2012
207058	Deer Lodge Valley Conservation District	Upper Clark Fork	\$ 150,000.00	7/20/2012
207059	Granite Conservation District	Flint Creek TMDL	\$ 10,000.00	7/24/2012
208026	Bitter Root Water Forum	TMDL Implementation	\$ 25,430.62	8/20/2012
208027	Blackfoot Challenge	Blackfoot Watershed Restoration	\$ 50,000.00	3/16/2012
208029	Flathead County	Bigfork Storm Water Project	\$ 95,000.00	3/16/2012
208034	Teton County Conservation District	Teton Spring Creek	\$ 34,727.51	1/19/2012
208037	Ravalli County Environmental Health	Hamilton Source Water Protection	\$ 58,146.95	2/14/2012
209064	Flathead County	Big Fork Storm Water Project Phase II	\$ 137,972.45	9/7/2012
209065	Sun River Watershed Group	Sun River Flow Temp Project	\$ 95,000.00	2/24/2012
209066	Clearwater Resource Council	Middle Blackfoot TMDL Clearwater Implementation	\$ 20,000.00	7/26/2012
209067	Lower Clark Fork Watershed Group	Elk Creek Restoration Project	\$ 16,317.50	1/19/2012
209068	Swan Eco System	Swan Watershed TMDL Implementation	\$ 40,000.00	4/23/2012
210112	Lewis & Clark County	Helena Groundwater Project Phase II	\$ 95,000.00	11/14/2012
210113	Montana Watercourse	Montana Volunteer Monitoring	\$ 60,170.00	8/21/2012
210114	Ruby Valley Conservation District	Miller Ranch Ruby River Channel Restoration Design	\$ 18,700.00	1/10/2012
210117	Flathead Lakers	Flathead Watershed BMPs Education Campaign	\$ 40,000.00	10/29/2012
210128	Jefferson River Watershed Council	Upper Jefferson TMDL	\$ 5,000.00	4/18/2012
210145	Soil & Water Conservation Districts of MT	Education & Outreach Mini-Grants FY 2011	\$ 26,619.39	7/27/2012
211077	Kootenai River Network, Inc.	Grave Creek Revegetation Treatments Projects	\$ 23,000.00	10/30/2012
211080	Flathead County	Flathead Lakeshore Water Quality Project	\$ 106,882.97	10/24/2012
211084	Tri-State Water Quality Council	Clark Fork Watershed Septic Maintenance	\$ 326.15	12/31/2012
211117	Whitefish Lake Institute	Volunteer Lake Monitoring	\$ 15,000.00	2/21/2012
212009	Oasis Environmental, Inc.	Nutrient Water Quality Sampling Shields River Watershed	\$ 19,001.29	4/12/2012
212080	US Forest Service	Ruby Watershed Restoration Review Projects	\$ 6,442.85	7/27/2012

Appendix E – Section 319 Mini-Grant Projects in 2012

Contract	Project Sponsor	Project Title	Award
<i>Mini-Grants Awarded in March 2012 by SWCDMI (DEQ contract #211070)</i>			
SWCDMI-MG12-06	Beaverhead Conservation District	Beaverhead Watershed Committee Display Board	\$ 1,700
SWCDMI-MG12-07	Bitter Root Water Forum	FFA Field Trip	\$ 1,495
SWCDMI-MG12-08	Bitter Root Water Forum	East Fork Revegetation Project	\$ 2,000
SWCDMI-MG12-09	Clark Fork Coalition	Kids River Expo 2012	\$ 2,000
SWCDMI-MG12-10	Greater Gallatin Watershed Council	Greater Gallatin Watershed Map Installation	\$ 620
SWCDMI-MG12-11	Sun River Watershed Group	Sun River Volunteer Monitoring	\$ 2,000
SWCDMI-MG12-12	Sweet Grass County CD	Big Timber Creek Channel Stabilization	\$ 1,500
SWCDMI-MG12-13	Teton River Watershed Group	Teton River Volunteer Monitoring	\$ 2,000
SWCDMI-MG12-14	Watershed Restoration Coalition	1st Annual Clark Fork River Festival	\$ 1,775
<i>Mini-Grants Awarded in October 2012 by SWCDMI (DEQ contract #)</i>			
SWCDMI-MG13-01	Bitter Root Water Forum	Revegetation on E. Fork	\$ 2,000
SWCDMI-MG13-02	Flathead Lakers	Flathead River Steward	\$ 2,000
SWCDMI-MG13-03	Lower Musselshell CD	Best Practices Workshops	\$ 2,000
SWCDMI-MG13-04	Montana Watercourse	Ground Water Trunk	\$ 2,000
Calendar Year 2012 Total			\$ 23,090

Appendix F—Volunteer Monitoring Lab Analysis Support Grants in 2012

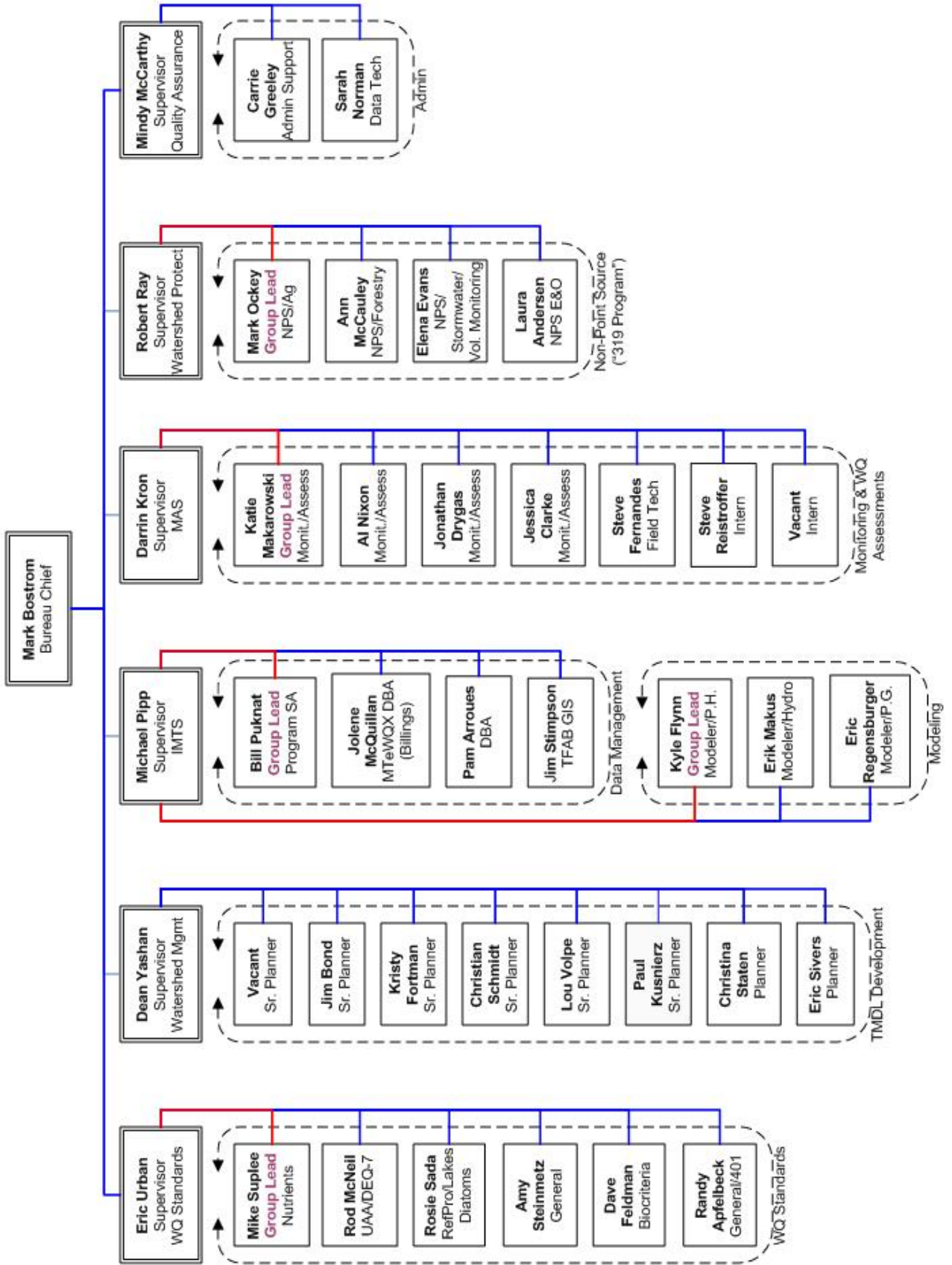
Sponsor	Project	Project Description	Funding Award	Award Date
Lindbergh Lake HOA	Lindbergh Lake Volunteer Monitoring	The Lindbergh Lake Homeowner's Association (LLHOA) has sampled nutrient parameters in Lindbergh lake on and off since 1989. The funding will cover lab analysis of nutrient and chlorophyll-a concentrations at three locations in the lake as well as at a site in the river outlet during the summers of 2011 and 2012.	\$775	July 2011
Trout Unlimited	Mattie V Creek Volunteer Monitoring	Trout Unlimited was awarded funding for aquatic macroinvertebrate community analysis of samples collected from Mattie V Creek in the Ninemile Creek drainage west of Missoula. Macroinvertebrate samples were collected from fixed sites in a control reach and a restored reach both before and after stream rehabilitation work occurred in response to legacy effects of placer mining. Samples will be analyzed by Dave Stagliano, aquatic ecologist with the Montana Natural Heritage Program.	\$1,380	September 2011
Madison Watershed Partnership	Madison Stream Teams Volunteer Monitoring	The newly formed Madison Stream Team Program, under the direction of Madison Watershed Partnership Coordinator Sunni Heikes-Knapton, received funding to sample nutrients and metals in five streams during fall 2011 and spring/summer 2012. MSU EWQ assisted with developing the DEQ approved SAP. The five streams being sampled are on Montana's 303(d) list of impaired waters with TMDL development forthcoming. The Stream Teams are collecting data associated with the 303(d) listed causes of impairment, which will aid subsequent TMDL development for these streams which currently have limited data availability.	\$2,500	October 2011
Apsáalooke Water and Wastewater Authority	Bighorn River Watershed Volunteer Monitoring	The Apsáalooke Water and Wastewater Authority of the Crow Tribe of Native Americans was awarded lab analysis funding to assist with obtaining a baseline water quality data for ground and surface water prior to the forthcoming operation of a large industrial plant that will convert coal to liquid fuels. MSUEWQ will assist the Crow Tribe with developing the SAP.	\$2,000	November 2011

Appendix G—Watershed Restoration Plan (WRP) Status

Watershed/Group Name	Funding	WRP Status
Lower Clark Fork Watershed Group - Tributary Creeks	2005 319, 604(b) funding, 2009 319	ACCEPTED (October 2010).
Shields River/ Park CD	2009 319 (contract 209063)	ACCEPTED (September 2012).
Sun River/ Sun River WG	2009 319 (contract 209065)	ACCEPTED (February 2012).
Swan River/ Swan Ecosystem Center	2007, 2008, 2009 319	ACCEPTED (October 2010).
Teton River/ Teton WG	2009 319 (contract 209062)	ACCEPTED (October 2012).
Upper Big Hole/Big Hole Watershed Committee (BHWC), Upper Big Hole Partnership	2009 319 (contract 209061)	ACCEPTED (December 2012).
Upper Clark Fork/ Watershed Restoration Coalition	2007 TMDL 319 (contract 207058)	ACCEPTED (December 2012).
Upper Gallatin/ Blue Water Task Force	2009 TMDL 319 (contract 209078)	ACCEPTED (September 2012).
Upper Jefferson/ Jefferson River Watershed Council	2010 TMDL 319 (contract 210128)	Final Draft Submitted. In draft form spring 2011.
Beaverhead Watershed Committee	2010 TMDL 319 (contract 210140)	Under Development. Just starting on the WRP
Bitterroot River / Bitter Root Water Forum (BRWF)	2012 319 (contract 212054)	Under Development. Scheduled to be completed by June 30, 2013.
Blackfoot/ Blackfoot Challenge	2012 319 (contract 212055)	Under Development. Reviewed draft "cross walk" document in 2010.
Flint Creek WG	2009 TMDL 319 (contract 209074)	Under Development. Scheduled to be completed by Feb 1, 2014.
Lake Helena Watershed Group	2011 319 (contract 211072)	Under Development. In draft stages.
Lolo Watershed Group	2009 TMDL 319 (contract 209075)	Under Development. Reviewed June 2011. Antipate acceptance after current revisions.
Middle-Lower Big Hole/Big Hole Watershed Committee (BHWC)	2010 319 (contract 210109)	Under Development. Will be completed following completion of Up-per Big Hole WRP.
Ninemile / Trout Unlimited	2011 319 (contract 212059)	Under Development.
Clearwater River/ Clearwater Resource Council (CRC)	2009 319 (contract 209066)	Not Complete WRP. Preliminary research done. No plans for writing actual WRP yet.
Flathead Lake/Flathead Lakers	2012 319 (contract 212061)	Not Complete WRP. Completion by summer 2014.
Big Fork/Flathead County	2009 319 (contract 209064)	NOT ACCEPTED. Completed, however, county unable to address DEQ's comments on addressing area sources & actions.
Big Spring/ Fergus County CD and Big Spring Creek Watershed Council (BSCWC)	2008 319 (contract 208028)	NOT ACCEPTED. Not originally intended to be a complete WRP; final product submitted, does not meet all nine minimum elements.
Ruby River/ Ruby WG	2007 319 (contract 207042)	NOT ACCEPTED. Draft completed in summer 2011, does not incorporate 9 elements or DEQ comments. No final submitted.

Appendix H – Water Quality Planning Bureau Organizational Chart

Organization & Staffing of the Water Quality Planning Bureau (01/07/2013)





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