Montana

Nonpoint Source Management Program

2010 Annual Report

Montana's Vision Statement

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

Montana Department of Environmental Quality

WQPBWPSAR-01

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Nonpoint Source Management Program 2010 Annual Report

The purpose of the Montana Nonpoint Source (NPS) Management Program Annual Report is to inform the public about the progress made annually toward fulfilling the goals of the **NPS Management Plan**, while also satisfying the requirements of Section 319(m)(1) of the federal Clean Water Act of 1987. Section 319 of the Clean Water Act requires states to: 1) assess waterbodies for NPS impacts, 2) develop NPS management programs, 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 2010 Nonpoint Source Management Program

Goal: Complete Water Quality Plans and necessary TMDLs

The Watershed Management Section received EPA approval for Total Maximum Day Loads (TMDLs) in two TMDL Planning Areas (TPA) in 2010, with approval expected on three additional TMDL documents in early 2011.

Goal: Evaluate the progress of TMDL implementation

The Watershed Protection Section evaluated the progress of TMDL implementation in four watersheds in 2010: Big Creek (tributary to North Fork Flathead River), Cooke City, Deep Creek (near Townsend), and Upper Lolo Creek. These evaluations summarize restoration activities completed in the TPA since the TMDL was approved by EPA. These evaluations also consider recent monitoring data to determine if water quality is improving and/or if TMDL targets are being met.

Goal: Address NPS pollution from animal feeding operations

The Watershed Protection Section is collaborating with the Montana Association of Conservation Districts on a Section 319 grant contract to address NPS pollution from small livestock operations. The Conservation Advisor for Livestock Operations (CALO) will assess on-ranch management practices associated with animal feeding operations and provide mini-grant opportunities for ranches to reduce NPS pollution from their operations.

Goal: Provide support and promote the development and coordination of watershed groups

The Montana Watershed Coordination Council (MWCC) had a successful year with the 2010 Watershed Symposium "Connecting Communities," education-based committee meetings, and advances within the AmeriCorps VISTA program. In 2010, the Watershed Protection Section supported MWCC with a Section 319 grant.

Goal: Provide GIS Training for Watershed and Wetland Managers

A good understanding of geographic information systems (GIS) is a valuable skill for watershed and wetland managers. Together with MWCC, the Montana Wetland Council and the Montana Natural Heritage Program, DEQ hosted two GIS trainings in 2010.

Implementation of the Montana NPS Management Plan

by the Water Quality Planning Bureau and Collaborating Partners

The watershed planning approach provides a coordination tool for all stakeholders interested in conserving water resources in Montana. The involvement of DEQ, various interagency councils, watershed groups, conservation districts, agencies, tribes, academia, and non-governmental organizations in the watershed approach allows for a broad distribution of information with the intent to increase public understanding and participation in water quality 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).

The information described in this document highlights important or notable actions taken to achieve specific NPS 5-year goals in three categories: resource, policy, and education and outreach (Appendix B). The highlights include actions carried out by WQPB and interagency councils, watershed groups, and other organizations in 2010 to meet NPS 5-year goals, promote collaboration, and foster water resource awareness and protection in Montana.

Montana Department of Environmental Quality
Water Quality Planning Bureau

Water Quality Standards

The Water Quality Standards Section (WQS) develops water quality criteria to identify the level of water quality necessary to protect the beneficial uses of a stream, river, lake, or groundwater resource that contribute to human welfare. Examples of beneficial uses include drinking water, fish and aquatic life, and recreation. The NPS program seeks to protect and restore these beneficial uses.

WQS produces Department Circular DEQ-7, which contains numeric water quality standards for Montana's surface water and groundwater. The numeric water quality standards in DEQ-7 have been established for pollutants that are categorized as toxic, carcinogenic, bioconcentrating, radioactive, nutrient, or harmful. The 2010 revision included:

- the adoption of surface water and groundwater standards for 18 new pesticides and their associated metabolites recently detected in Montana's ground water;
- a new aquatic life standard for one chemical (acrolein);
- the addition of five new human health standards for pesticides;
- the revision of six human health National Recommended Water Quality Criterion for pesticides, modified by EPA to reflect new scientific information;
- the revision of six aquatic life standards for pesticides and insecticides to reflect the incorporation of frequency and duration into the numeric standards;
- changes in the footnotes to add averaging periods and allowable exceedance frequencies for aquatic life numeric standards; and
- a rewrite of the introduction and changes to the format of Circular DEQ-7.

In 2010, WQS began developing new tools for biological water quality indicators. These "Observed/Expected" indicators will be based on macroinvertebrate data collected from high quality reference sites and will be used to establish expectations for healthy stream communities. Future macroinvertebrate sample collections will be compared with reference populations for aquatic life use-support determinations. Two models are being developed, one for coldwater streams and the other for warmwater streams.

In 2010, WQS carried out a scientific study to determine numeric nutrient criteria for eastern Montana prairie streams. The study added soluble nitrogen and phosphorus at controlled levels to a reference-quality prairie stream and then measured the effects on water quality (e.g., dissolved oxygen) and biology (aquatic insect and aquatic plant growth). The study is yielding a wealth of information on the effects of elevated nutrients on prairie streams. A photo from the study is shown to the left; the pipe in the upper right corner is the point where nutrients were added.

In 2010, the development of numeric nutrient standards for Montana waters progressed in two areas: criteria implementation and criteria development. During six meetings in 2010, the Nutrient Work Group discussed many details of DEQ's proposed nutrient criteria implementation process. DEQ also worked with EPA on the state's proposed cost cap for communities where meeting nutrient criteria would be cost-prohibitive. Stakeholder concern about the stringent criteria and complex implementation process remains high. The second area—development of the numeric nutrient criteria—has progressed well. In 2010, DEQ completed a draft assessment methodology for determining nutrient impairment of streams. Final drafts should be ready in early 2011.

In 2008, DEQ published draft numeric nutrient criteria for wadeable streams. In 2010, with input from the Nutrient Work Group, DEQ outlined an improved process for deriving criteria. DEQ also completed a technical report in 2010 that quantitatively defines the breakpoint between wadeable and non-wadeable streams. With this document, and the updated criteria derivation process, DEQ anticipates completing final draft numeric nutrient criteria for wadeable streams in late spring 2011.

Water Quality Monitoring and Assessment

The Water Quality Monitoring and Assessment Section (WQMA) monitors water quality conditions and trends statewide and assesses sources and severity of pollution problems by (a) operating statewide water quality monitoring networks; (b) conducting inventories of pollution sources; and (c) identifying impaired waterbodies.

In 2010, WQMA assessed eight waters. These assessments are included in the 2010 Water Quality Integrated Report, submitted to EPA in December; approval is anticipated in January 2011. In addition to these assessments, sampling was conducted in 32 reference sites across the state as part of the reference project in place since 2000. The reference site project is a collaborative effort among DEQ, the University of Montana's Watershed Clinic, and the Bureau of Land Management.

WQMA also supported the development of water quality standards by sampling six prairie streams in eastern Montana. Two of these sampling events were a collaborative effort between DEQ and the Carter Conservation District. One lake and six streams were also sampled in western Montana to address 303(d) list comments or public requests. In support of TMDL development, more than 45 streams were sampled in TMDL planning areas (TPAs), including Boulder-Elkhorn, Little Blackfoot, Upper Clark Fork, Clark Fork-Drummond, Middle Clark Fork, Rock, and Holter.

In 2010, WQMA supported TMDL development by providing training on various monitoring techniques, which included use of field equipment, such as temperature data loggers, Aquarods, and Tru-Tracks. WQMA provided input on monitoring design, methods, and field training for WQPB and DEQ staff, as well as for general stakeholders.

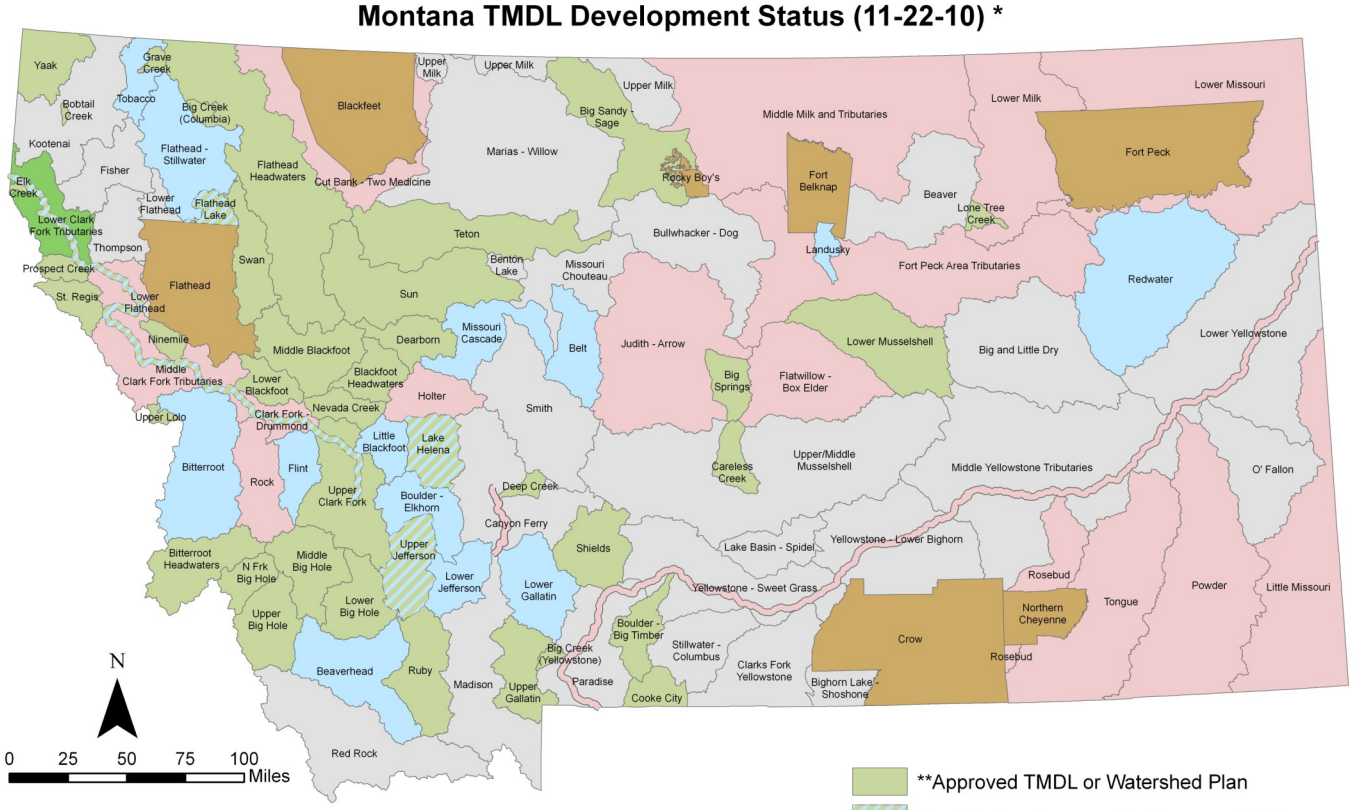
WQMA is currently working with two other sections, Standards and Information Management and Technical Services, to develop a nutrient model for a segment of the Missouri River. This project will be completed in 2012.

Watershed Management

The Watershed Management Section (WMS) is responsible for developing scientifically defensible 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 that results in meeting 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. EPA-approved TMDL documents can be used by watershed groups and conservation districts to develop watershed restoration plans.

In Montana, TMDLs are developed at a watershed scale to include the complete area that contributes a pollutant to a stream. TMDL Planning Areas (TPAs) were established to facilitate this approach. The map below shows the TPAs in the state and their status relative to TMDL development.

Montana TMDL Development Status (11-22-10) *



* Includes activities by both the MTDEQ and USEPA

** TMDL's are specific to a water body - pollutant combination. Some planning areas with completed TMDL's may still require TMDL development for additional water body - pollutant combinations.

*** Not under state jurisdiction

In addition to the TPA's shown on this map, large rivers and their associated reservoir systems represent separate TMDL development projects. These include the Clark Fork River, the Upper Missouri River, the Lower Missouri River, and the Yellowstone River. Some TMDL development support work is underway in the Yellowstone River and upper Missouri River, and nutrient TMDL's have been completed for the Clark Fork River. A second phase of nutrient TMDL development will be necessary for the Clark Fork River.

In 2010, EPA approved TMDLs for sediment, nutrients, and *E. coli* in the West Fork Gallatin River and sediment, metals, and temperature TMDLs for the Upper Clark Fork tributaries. Three additional documents were submitted to EPA with approval anticipated in early 2011: sediment TMDLs for the Lower Clark Fork, nutrient and salinity TMDLs for the Redwater, and metals TMDLs for the Missouri-Cascade-Belt.

Development of a TMDL typically spans two years. In 2010, WMS collected data and performed source assessment activities in the following TPAs: Beaverhead (sediment and turbidity); Bitterroot Mainstem (nutrients); and the Boulder-Elkhorn (metals, nutrients, sediment, and temperature). Completed TMDLs are expected in 2012.

Watershed Protection

The Watershed Protection Section (WPS) works to protect and restore water quality from the impacts 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 as runoff moves over and through the ground, picking up and carrying natural and human-made pollutants into lakes, rivers, wetlands, and even underground sources of drinking water. Common NPS pollutants include sediments, nutrients, heavy metals, pesticides, pathogens, oils, and salts.

WPS receives funding under the federal Clean Water Act (CWA) Section 319 to support activities addressing NPS water quality problems through watershed restoration, groundwater, and education projects. In October 2010, WPS closed out the fiscal year 2005 Section 319 projects grant from EPA. This grant, for $1,416,457, allowed DEQ to support 26 NPS projects throughout Montana between 2005 and 2010.

In 2010, DEQ awarded $900,090 in Section 319 NPS project grants to fund nine projects for watershed restoration, one for groundwater, and three for education and outreach (Appendix C). Non-federal, in-kind matches for these projects totaled $790,975. In 2010, DEQ used $225,182 in Section 319 funds for TMDL planning, for a total Section 319 projects grant of $1,125,272.

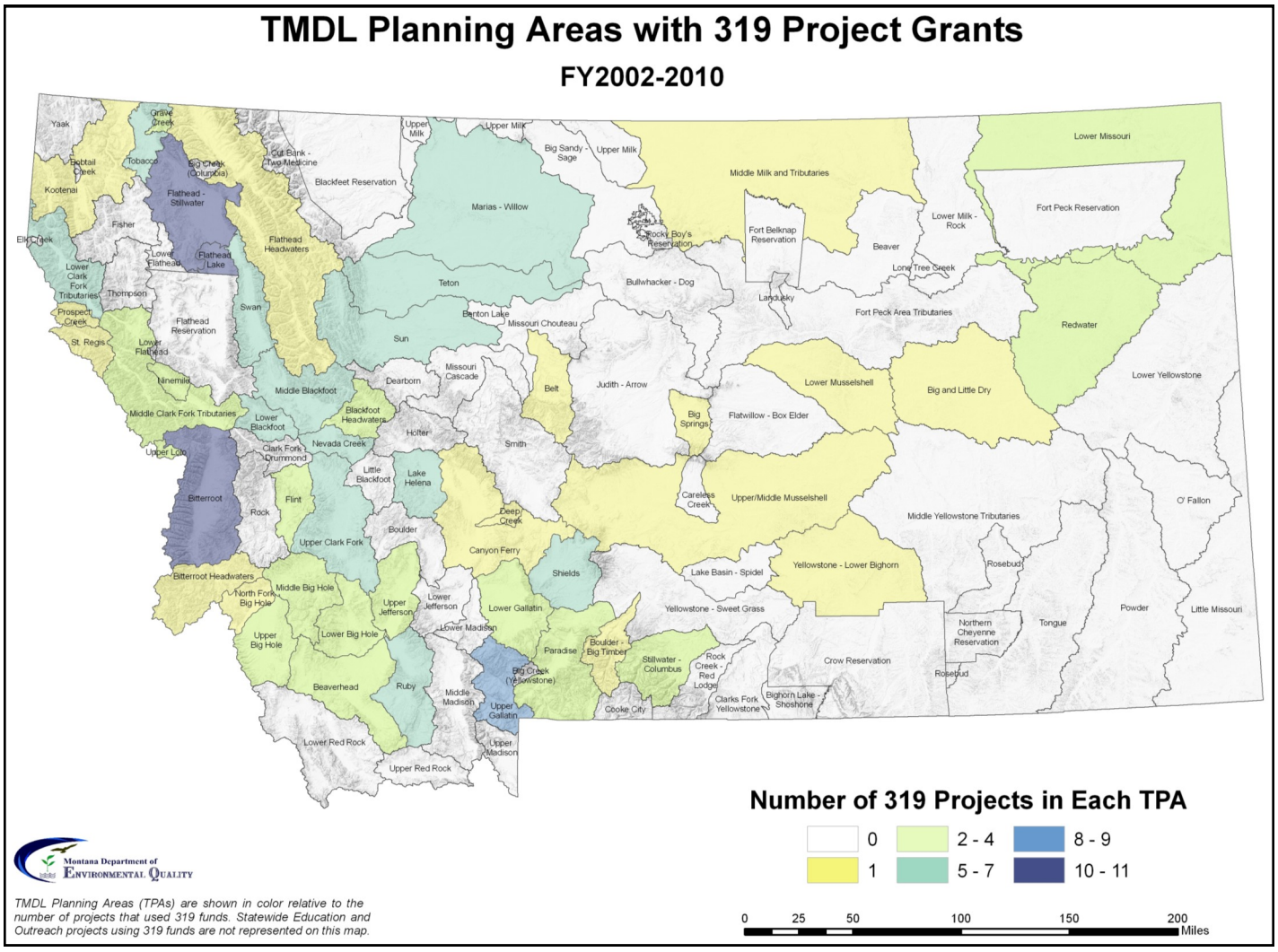
A significant portion of Montana's Section 319 project funding is used to reduce NPS pollution. DEQ tracks estimated pollutant reductions for projects addressing sediment, nitrogen, and phosphorus. These reductions often continue long after the project has been completed. Consequently, it is difficult to provide accurate pollutant reduction numbers for a specific year for all completed projects. DEQ expects to see sediment, nitrogen, and phosphorus reductions from four of the watershed restoration projects initiated in 2010: Swan; Big Hole; Upper Clark Fork tributaries; and Conservation Advisor for Livestock Operations.

During 2010, WPS managed more than 50 active Section 319 contracts that implemented the state's NPS Management Plan. Between fiscal years 2002 and 2010, WPS managed more than a hundred Section 319 projects (see map on page 7). In 2010, WPS and EPA developed a spreadsheet with information on projects throughout the state linked to TMDL implementation. The spreadsheet is being used to populate WQPB's Waterbody Assessment and Reporting Database (WARD). DEQ envisions the WARD system tracking waterbody/pollutant impairments from listing to TMDL development to TMDL implementation to delisting, providing a tracking system for evaluating TMDL implementation progress.

In 2010, WPS continued to work with watershed groups to develop Watershed Restoration Plans (WRPs). CWA Section 319 has funded 16 groups in various stages of developing WRPs. WRPs are an important planning document for groups doing on-the-ground watershed restoration and must contain nine essential elements as specified by EPA:

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

In 2010, WPS evaluated the progress of TMDL implementation in four watersheds: Big Creek (tributary to North Fork Flathead River), Cooke City, Deep Creek (near Townsend), and Upper Lolo Creek. These evaluations summarize restoration activities completed in the TMDL Planning Area (TPA) since TMDL approval. These evaluations also consider recent monitoring data to determine if water quality is improving and/or if TMDL targets are being met. Draft evaluations were reviewed internally in December in order to better develop the report format and content. Final evaluations are expected in early 2011 and will be published on the Nonpoint Source Program website (http://deq.mt.gov/wqinfo/nonpoint/NonpointSourceProgram.mcpx).



WPS continues to use and promote the Nonpoint Source wiki (http://montananps319grants.pbworks.com), a web forum where stakeholders and the public can participate in discussions, leave comments, and ask questions about NPS issues. The wiki also facilitates the review of Section 319 grant applications each fall by providing an easily accessible forum to retrieve and post grant documents.

Through a mini-grants project, DEQ provides limited funding ($1,500 per project) to support local groups engaged in water quality and NPS pollution education efforts. In February 2010, DEQ awarded seven mini-grants following a second call for applications for fiscal year 2010. Beginning in state fiscal year 2011 (July 2010), DEQ contracted the Soil and Water Conservation Districts of Montana Inc. to manage the mini-grants program, awarding four mini-grants in July. In 2010, DEQ closed out 15 mini-grant projects. For a complete list of mini-grants awarded in 2010 see Appendix E.

DEQ is currently working with the Montana Association of Conservation Districts on a Section 319 grant to address NPS pollution from small livestock operations. The grant will fund a Conservation Advisor for Livestock Operations (CALO), who will assess ranch management practices associated with animal feeding operations and provide mini-grant opportunities for ranchers to reduce NPS pollution from their operations.

Success Story: Forestry Best Management Practices

Big Creek, North Fork of the Flathead River

Big Creek is a large tributary of the North Fork of the Flathead River in northwest Montana. It provides critical spawning habitat for threatened bull trout migrating out of Flathead Lake. The entire watershed is within the jurisdiction of the Flathead National Forest. Big Creek was placed on the 1996 303(d) List of impaired waters because it was determined to be only partially supporting its aquatic life and coldwater fishery beneficial uses due to sedimentation (pollutant), as well as alterations in stream-side vegetation cover (pollution). The source of impairment was determined to be historic logging practices and associated road-building, with extensive effects originating on private lands in the headwaters of Big Creek that have since been transferred to the U..S. Forest Service (USFS). To address the effects of sedimentation on fish and aquatic life habitat, the Watershed Restoration Plan for Big Creek North Fork of the Flathead River was completed in 2003.

The watershed restoration plan prescribed a variety of restoration activities for the identified human sources of pollution. To date, restoration activities implemented by the Flathead National Forest include revegetating 20–25 acres of skid roads, decommissioning more than 60 miles of road, augmenting large woody debris, and using best management practices (BMPs) on more than 89 miles of road, which includes 19 culvert replacements and the construction of 2 bridges.

In 2009, DEQ collected aquatic macroinvertebrate samples, and in 2010 USFS and DEQ staff collected instream sediment data to determine if sufficient progress has be made in reducing sediment impacts. An evaluation of the data and criteria indicate that sedimentation has been alleviated. Additionally, long-term monitoring of subsurface sediment (McNeil Core data) in the primary bull trout spawning reach indicates fine sediment levels have decreased significantly. The TMDL Evaluation of Progress concludes that the improvement in water quality in the Big Creek watershed warrants a formal assessment of water quality standards. The assessment would evaluate whether or not sediment continues to impair the fish and aquatic life beneficial use.

If the evaluation finds that sediment is no longer a cause of impairment, the sediment TMDL will be attained and Big Creek will be removed from Montana's 303(d) list of impaired waters in Montana's next Integrated Report (2012).

Information Management and Technical Services

The Information Management and Technical Services Section (IMTS) provides information management and technical service support for the Nonpoint Source Program and for the entire Water Quality Planning Bureau (WQPB). Support includes developing data/information systems and managing and administering water quality metric data, water quality assessments, contracts, bibliographic references, the water quality library, and the inventory of monitoring equipment. IMTS also provides project management support, IT coordination, mentoring for other state environmental agency data management programs, and water quality/watershed modeling support for TMDL and water quality standards development.

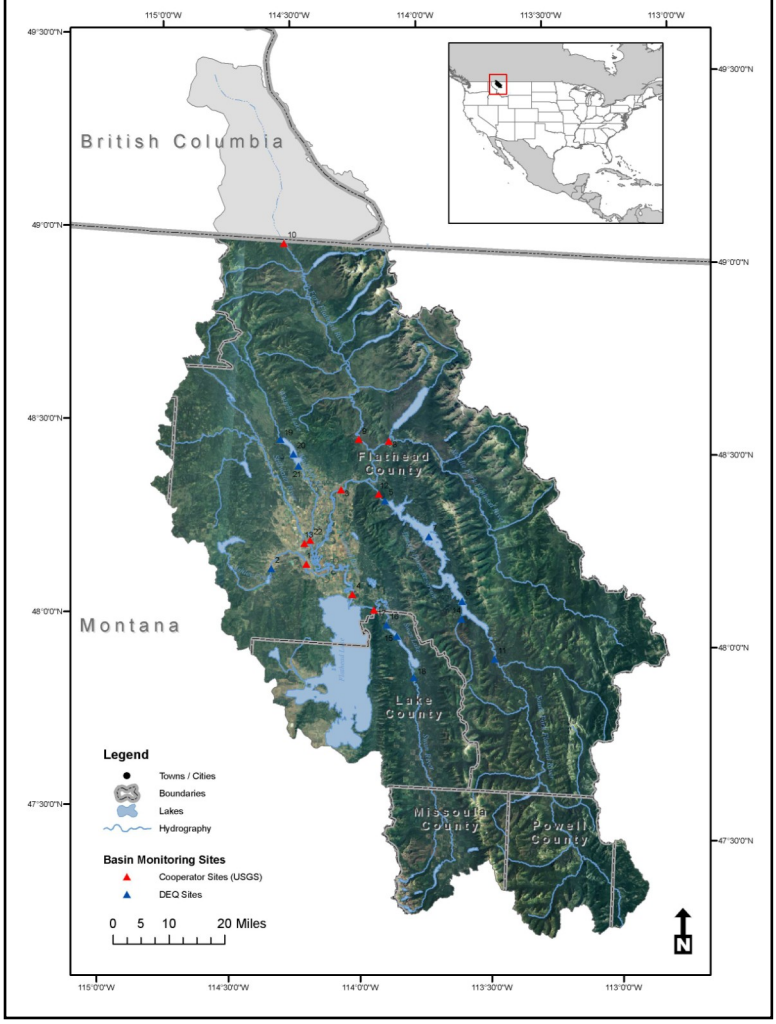
IMTS Data Management manages and administers eight relational databases and nine information system applications. These databases support the Clean Water Act (CWA) section 305(b) assessments and 303(d) listing decisions, water quality metric data, contracts, bibliographic references, and an inventory of monitoring equipment. Via the Internet, IMTS publishes the Integrated Report, public comments on draft reports and documents, and water quality library queries; it also hosts wiki sites for the Section 319, TMDL, and water quality standards programs. IMTS provides support for analyzing stream temperature data and processing water quality metric data from EPA's WQX and USGS's NWIS data systems. In addition, IMTS provides reporting tools from the program's water quality assessment and water quality metric databases. In addition, IMTS supports five geodatabases that contain Montana's surface water use classifications, water quality monitoring and references sites, point source outfalls, and 305(b) assessment units. These geodatabases will be published on the state's GIS Data Portal (http://gisportal.msl.mt.gov/GPT9/catalog/main/home.page).

In 2010, IMTS Data Management developed and submitted the Montana 2010 Water Quality Integrated Report (IR). A public comment period was conducted from September 13 to November 21, 2010. The state's final 2010 IR and accompanying 303(d) list were submitted to EPA Region 8 in December 2010; approval is anticipated in January 2011.

In August 2005, IMTS Data Management began developing a data system for managing water quality assessments and tracking TMDL development and implementation. The system will integrate EPA's Assessment Database with state requirements for documenting water quality assessments and tracking restoration activities (i.e., TMDL development through restoration). Phase 1 of the project, developing the Water Quality Assessment, Reporting, and Documentation (WARD) system, was completed at the end of 2007. Clean up and certification of the initial data migration for 1,105 individual water quality assessment files and the associated library references was completed February 24, 2010, and the data system was used for the 2010 Integrated Report. IMTS also developed WARD Phase 2, which provides explicit tracking tools for waterbody-pollutant listings (i.e., TMDL tracking), from initial listing to TMDL development to restoration activities and effectiveness reviews.

In 2010, IMTS Data Management converted WQPB from Microsoft Office 2003 to Office 2007 and began developing a Bureau-level Standard Operating Procedure (SOP) for document production and publication. The SOP will provide explicit guidance for internally and externally published documents, defining standard formats, style, word usage, and templates. The SOP will improve WQPB's efficiency and consistency throughout the production and publication of documents and reports.

Site Map of Flathead Lake Watershed and Associated Monitoring Locations *during 2007-2008*



The 2010 field season marked the first year of the new water quality metric data system, the Montana EQuIS (Environmental Quality Information System) for WQX (MT-eWQX). IMTS worked to integrate EPA's Water Quality Exchange (WQX) database elements and state-specific data elements, into the core EQuIS database schema. Of states reporting ambient water quality data to EPA, Montana became the first to successfully implement EQuIS for WQX and submit data to EPA using the Data Exchange Network. With the program's experience and success, Data Management mentored other programs and state agencies seeking to implement a similar system for submitting their monitoring data to the national data warehouse.

In 2010, IMTS Modeling hired a hydrogeologist, increasing the section's ability to model groundwater–surface water relationships by tracking water quality constituents from groundwater sources. Also in 2010, IMTS Modeling provided support for TMDL planning in the Bitterroot River (nutrients and temperature), Upper Clark Fork River (sediment), Little Blackfoot River (nutrients and sediment), and Flint Creek (nutrients).

Additionally, IMTS Modeling completed a water quality QUAL2K report, supporting the development of numeric nutrient standards on the lower Yellowstone River; developed a new cross-sectional algae distribution model (WADE2K); created a new application for acquiring and transforming weather data; and created a new application and modeling algorithm for precipitation distribution. The latter tool is being used to develop a map displaying the distribution of precipitation from 1981 to 2010.

Governor's Award 2010

In September 2010, Kyle Flynn, of the Information Management and Technical Services Section, and Mike Suplee, of the Water Quality Standards Section, were recognized by Governor Brian Schweitzer for their advancement in water-quality science, specifically their work on the development of numeric nutrient criteria for the Yellowstone River. They developed a QUAL2K steady-state model that predicts, and later will be used to establish nutrient criteria, for nitrogen and phosphorus. Criteria are necessary to control benthic algal growth and prevent exceedance of dissolved oxygen and other water quality standards. Their collaborative work and collective vision have resulted in major advancements in the national use of models to develop water quality standards.

Quality Assurance and Quality Control

The Quality Assurance and Quality Control Section (QAQC) supports the Nonpoint Source Program, WQPB, and its contractors by 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.

QAQC carries out the water quality monitoring strategy for the Bureau that includes monitoring intermittent streams and developing processes used to support the creation of water quality criteria, report on the condition of the state's waters, develop Total Maximum Daily Loads (TMDLs), implement best management practices, and determine the effectiveness of implementation strategies. The state's Monitoring Strategy was delivered to EPA in 2009. As the monitoring strategy is implemented, numerous project-specific quality assurance project plans (QAPPs) and sampling and analysis plans (SAPs) will need to be developed. As new or modified methods and processes are completed, QAQC will have to review many of the Bureau's SOPs.

DEQ solicits outside data and information from local, state, and federal agencies; volunteer monitors; nonprofit organizations; private entities; and other groups or individuals who have an interest in water quality. This data must be defensible and its quality known before it is considered for use in DEQ Water Quality Assessments. In 2010, DEQ established the minimum quality requirements for the 2012 Call for Data. This is important to water quality monitoring programs because planning documentation (QAPPs and/or SAPs) is a requirement for data to even be considered for assessment purposes.

QAQC implemented collaborative monitoring with the Bureau of Land Management, U.S. Forest Service, Tri-State Water Council, U.S. Geological Survey, University of Montana, and a number of conservation districts, watershed groups, and non-profit organizations. These partnerships are important because they are often maintained from TMDL development through the implementation of projects funded by Section 319 grants administered by the Watershed Protection Section.

All volunteer groups that receive funding through the Section 319 program are required to submit a SAP before monitoring. A General QAPP was developed by the Montana State University Water Quality Program, Montana Watercourse, and DEQ to provide general data quality guidelines and a basic framework for training members of a volunteer monitoring group. Project-specific QAPPs are also developed for particular monitoring areas with specific goals and objectives. The goal of a volunteer monitoring group may be to evaluate the effectiveness of implementation efforts or trend analysis. Volunteer monitoring groups are encouraged to develop clear and thorough QAPPs, which outline the goals and objectives of the project and document the design of the stream monitoring program, in turn increasing data validity.

QAQC helped develop two QAPPs, seven SAPs, and two SAP addendums focusing on monitoring Section 319 restoration activities for effectiveness and pollutant-load reductions, including the Well Educated Program QAPP; Jack Creek Water Quality Monitoring SAP; Lake Helena Watershed Monitoring Plan SAP (addendum); Lower Grave Creek Restoration Project QAPP/SAP; Sun River Watershed Monitoring SAP; Upper Clark Fork Tributaries Assessment and Effectiveness Monitoring QAPP; Clearwater Basin Adopt-a-Lake Monitoring Program SAP; Big Spring Creek Nutrient SAP; Teton Spring Creek SAP (addendum); Teton Deep Creek SAP; and Braziel Creek Restoration Monitoring SAP. QAQC also collaborated with the Greater Gallatin Watershed Council Volunteer Stream Monitoring Program to train volunteers.

Collaborating Partners

The Water Quality Planning Bureau has carried out 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, Montana Association of Conservation Districts, Montana Wetland Council, and various Montana state agencies.

Volunteer Monitoring Partnership

In 2010, DEQ initiated a Section 319 grant with Montana Watercourse (MTWC) at Montana State University to coordinate a volunteer water monitoring program that provides technical training and guidance to groups interested in conducting water monitoring. MTWC also manages the volunteer monitoring database and provides education and outreach activities to citizens interested in becoming volunteers.

DEQ continued to provide grants for lab analysis to volunteer monitoring groups during 2010. Funding for lab sample analysis was provided to the Livingston School District for monitoring riparian restoration projects along Fleshman Creek and to the Lewis and Clark Water Quality Protection District for monitoring in the tributaries of Lake Helena. The project's goal was to refine the source assessments initiated through the Framework Water Quality Restoration Plan and Total Maximum Daily Loads for the Lake Helena Watershed Planning Area.

In 2010, DEQ made a portion of the lab analysis funding available to assist volunteer monitoring groups with the cost of biological analysis by professional taxonomy labs. The Greater Gallatin Watershed Council will be receiving lab analysis support for macroinvertebrate samples collected from four streams in the Gallatin River watershed. In anticipation of future funding for volunteer monitoring lab analysis, DEQ has also provided monitoring guidance to a number of watershed groups who are either planning or performing volunteer monitoring efforts, such as the Upper Jefferson Watershed Council and the Madison Watershed Partnership.

Goals for the Volunteer Monitoring Partnership in 2011 include continuing to provide support for volunteer monitoring groups throughout the state; working with the Montana Watershed Coordination Council (MWCC) Water Quality Monitoring Work Group to strengthen the lab support program; increasing participation in the lab analysis grant program; making lab analysis funding available to volunteer groups collecting both chemical and biological data (i.e., aquatic macroinvertebrates and periphyton); exploring the possibility of an audit program for stream restoration projects to evaluate the long-term effectiveness of restoration efforts (similar to the forestry BMP audits program coordinated by DNRC); and, working with the DEQ quality assurance Officer, MSU Extension Water Quality staff, and the MWCC Water Quality Monitoring Work Group to develop a Sampling and Analysis Plan template to aid volunteer monitoring groups in planning their sampling efforts.

Montana Watershed Coordination Council

The Montana Watershed Coordination Council (MWCC) is a statewide information and support network created to advance 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 organizations to share resources, identify and capitalize on opportunities for collaboration, and avoid duplication of efforts.

MWCC is lead by two co-chairs and a steering committee; there is also a Funding Committee and two initiative based committees: Water Resources and Education and Outreach, both of which are chaired by DEQ's Nonpoint Source staff. Within these two committees there are multiple work-groups. Four work groups are co-chaired by DEQ staff, including the Water Activities Work Group, Water Quality Monitoring Work Group, Outreach Materials, and the Groundwater Work Group. These and the other MWCC work groups offer forums for agencies, academia, conservation districts, watershed groups, and nonprofit organizations to discuss issues and offer solutions to water resource needs in Montana. 2010 marked the first full year that MWCC had a part-time coordinator. The coordinator position has provided MWCC with a consistent point of contact and helped facilitate the growth of the organization. This position is partially funded with Section 319 funds from DEQ. The new MWCC website (www.mtwatersheds.org) has more information.

In 2010, MWCC moved away from business-driven council meetings to an educational approach that encourages member attendance by having experts present on various topics throughout the year. The December council meeting highlighted the Groundwater Work Group and the topic of exempt wells in Montana. The meeting was well attended: more than 45 people gathered in Butte to hear the presentations and exchange ideas. The January 20, 2011, council meeting will be held in Helena and will have a legislative focus.

In October 2010, The Water Activities Work Group (WAWG) of the Water Resources Committee met to review the draft Section 319 grant applications with DEQ. Because WAWG consists of members from various watershed groups, state agencies, and other organizations that have a diverse interest in water quality, they are in a unique position to offer feedback on these draft applications.

The main MWCC event for 2010 was the Montana Watershed Symposium, held in Helena, September 7–9. The symposium's theme was "Connecting Communities" and provided professional development and networking opportunities through short courses, presentations, panel discussions, and evening events. DEQ hosted one of the short courses, a Section 319 grant writing workshop attended by 15 people. For the symposium, the Outreach Materials Work Group created a new map of Montana watersheds illustrating which watersheds have active watershed groups (see page 14).

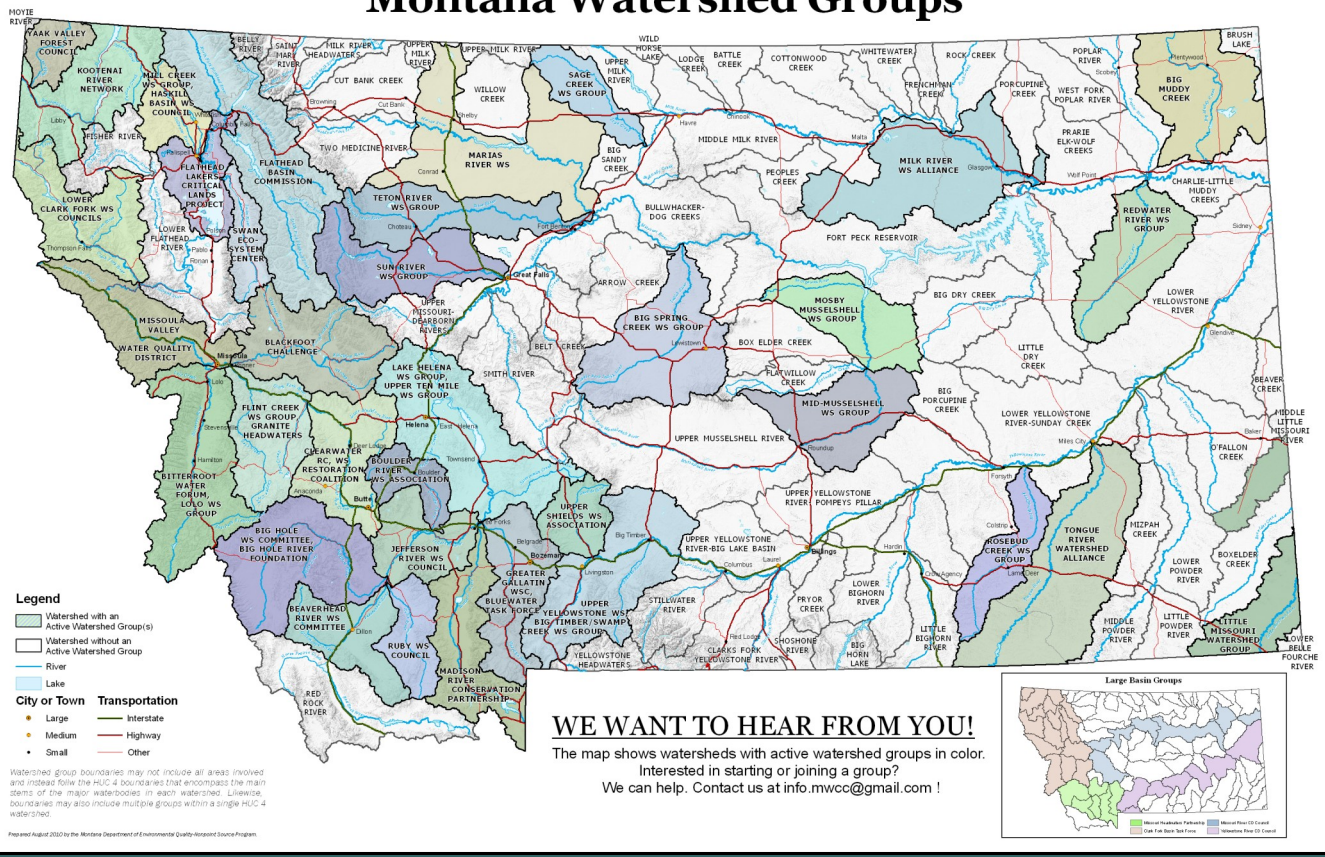
The symposium took the place of the regular spring and fall watershed coordinator trainings for 2010; thus, the Training Work Group began to draft a plan to facilitate MWCC trainings in the future. This plan will compile all the information necessary for future MWCC trainings and will include topical information that could be used at a variety of events. The next watershed coordinator training is scheduled for September 2011.

2010 Watershed Symposium

Connecting Communities

- September 7-9, 2010
- Helena, Montana
- Over 170 Attendees
- 40 Speakers
- 2 Short Courses
- 12 Concurrent Sessions
- A Funder's Forum
- 2 Evening Programs
- Opening and Closing Remarks by Bill Yellowtail
- Keynote Address by IBM's Dr. Cameron Brooks, Big Green Innovations Director

Montana Watershed Groups



Watershed group boundaries may not include all areas involved and instead follow the HUC 4 boundaries that encompass the main stems of the major waterbodies in each watershed. Likewise, boundaries may also include multiple groups within a single HUC 4 watershed.

Prepared August 2010 by the Montana Department of Environmental Quality-Nonpoint Source Program.

WE WANT TO HEAR FROM YOU!

The map shows watersheds with active watershed groups in color.
Interested in starting or joining a group?
We can help. Contact us at info.mwcc@gmail.com !

In 2010, the Outreach Materials Work Group was busy with the first ever annual report summarizing MWCC activities in 2009. The report contained a message from the co-chairs and updates from the individual committees. The 2010 Annual Report will be available in January 2011. A new MWCC brochure was released in 2010, describing MWCC and the services it offers. The work group also developed a new logo for MWCC, which reflects the growth that MWCC has seen as a maturing organization.

In 2010, the Outreach Materials Work Group began revising the MWCC website (www.mtwatersheds.org) to make it more user-friendly and simplify the update process. This was necessary in order to give MWCC a more approachable and established presence on the Internet. To facilitate registration for the symposium, the current MWCC website was updated for online registration and payment. These features will be included in the new website, scheduled to launch in early 2011.

In July 2010, Rabi Vandergon began his 1-year term as an AmeriCorps VISTA (Volunteer in Service to America) member with MWCC. His service is focused on expanding the partnership between the Montana Association of Conservation Districts (MACD), the Montana Conservation Corps (MCC), and MWCC. These three organizations are developing a program titled "Big Sky Watershed Corps". This new AmeriCorps program will potentially place 10 members at watershed groups and conservation districts in Montana in 2011. Members would serve for 46 weeks, from October 2011 through August 2012. The main goals for the program are membership development, volunteer recruitment, education and outreach, and watershed health and protection. The watershed health goal will address water quality and water quantity issues through data collection, water monitoring, watershed restoration, and project plans. Mr. Vandergon is currently building interest for the program, assisting with work plans, and working with potential host site locations to determine feasibility with the Watershed Corps program.

In late 2010, the Watershed Recognition Work Group began planning for the 2011 recognition awards ceremony, hosted by MWCC and the Montana Wetland Council. This joint event occurs every other year; the next ceremony will take place on May 26, 2011, in Helena. Nominations for awards will be accepted in early 2011.

Watershed and Wetland GIS Training

In 2010, the Montana Natural Heritage Program, Montana Watershed Coordination Council, Montana Wetland Council, and DEQ, sponsored two geographic information system (GIS) training events.

The first training was held March 18–19 in Helena and focused on using GIS for watershed and wetland planning and protection. The goal of the training was to increase participants' knowledge and use of GIS, GIS resources available for Montana, and GIS information specific to wetlands and watershed protection. Sixteen people participated, including watershed coordinators, conservation district members, nonprofit organization employees, and tribal representatives. Participants were taught the basic functions and uses of GIS, common analysis tools, how to create and print maps, how to use handheld GPS units and upload data, how to find watershed and wetland data, and how to integrate data for watershed and wetland applications.

The second training took place on November 16 in Billings. This training was held at the beginning of the annual Montana Association of Conservation Districts Convention and was geared toward conservation districts and their work with wetlands and watersheds. Fourteen participants attended the one-day course, which was more basic than the training in March. Participants were given a basic overview of GIS and its applications and common terminology and participated in hands-on activities to find data online and create a basic map and simple data analysis.

Interest and response to both of these trainings was so positive that collaborative planning for GIS training in 2011 has already begun.

Montana Wetlands Council

The Montana Wetland Council is a 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."

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 are encouraged to participate. 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.

In 2010, DEQ's Wetland Program hosted three Wetland Council meetings focusing on different topics. Approximately 45 –70 people attended each meeting and came away with information and contacts to help address wetland and riparian management issues. Meeting topics included:

January 19 - Wetland hydrology and what hydrology is needed to restore and maintain high-functioning wetlands and keep water in the watershed. Many water-development, land-development, and landscape management practices, as well as unintended consequences or unregulated changes to the hydrology can affect the health of wetlands and the persistence of wetlands on the landscape.

May 5 - Invasive plants in wetlands and aquatic areas and why so many of the worst weeds invade wetlands and aquatic areas, forming monotypes. Wetland restoration practitioners and wetland managers learned what they can do about these challenges. Next to habitat loss, invasive species are a management's biggest challenge.

November 5 - Wetland assessments for decision-making; and why understanding wetland condition and assessing their functions is necessary for sound natural resource management and regulatory decisions. While functional assessments have been used and refined since the mid-1990s in Montana, recent advances have been made in better assessing wetland condition. Attendees learned about the available tools and how wetland assessments are used in decision-making.

In 2010, the Wetland Program completed 12 wetland and riparian contracts and in-house projects that furthered the goals of the Strategic Framework. These contracts and projects included:

- conducting seven wetland plant identification workshops and updating the wetland plant database on the Montana Natural Heritage Program's website;
- developing, publishing, and distributing 2,000 copies of a booklet titled "Common Native and Invasive Wetland Plants in Montana";
- conducting two channel migration studies (Ruby River and the Lower Flathead River above Flathead Lake) to assist local governments with science-based natural resource information for sound riparian protection and land-use decision-making;
- developing a Montana Decision-Makers Guide to Wetlands to create an online training module concerning wetlands. One of seven Web-based modules on Montana water issues, the Web-based self-study guide will aid Montana's decision-makers;
- georeferencing 10,185 digital photos of wetlands associated with more than 9,600 surveys of pond breeding amphibians and aquatic reptiles. The color-coded photos can be accessed at http://mtnhp.org/Tracker;
- enhancing flood plain mapping by developing a strategic mapping and implementation plan and a mapping priority needs list, and by generating a flood plain status map for each county as a GIS layer;
- hosting a Region 8 wetland program capacity-building workshop in Bozeman, September 21–24, to exchange information with colleagues in other states and tribes across the region about wetland program development;
- developing macroinvertebrate wetland associations and a pilot implementation of monitoring tools. The purpose of the project is to develop comprehensive accounts of dragonflies, damselflies, and butterflies that are associated with wetland habitats in Montana and to determine which of these species are indicators of good wetland integrity. The program will also develop monitoring tools for these taxa in conjunction with condition assessments;
- expanding riparian and wetland restoration tools and options by developing a beaver habitat suitability index model. The model will determine potential relocation sites and help to restore beavers to suitable areas;
- conducting 12 riparian Best Management Practices (BMP) listening sessions and focus groups across Montana; conducting more than 40 interviews for specific case studies to identify riparian BMPs that are working; taking the pulse of riparian literacy and protection understanding in Montana; and
- producing digital wetland and riparian maps for 75 USGS quadrangles in southwest Montana, using the U.S. Fish and Wildlife Services' National Wetland Inventory standards and the Classification of Riparian Systems.

MONTANA WETLAND COUNCIL

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Integrating Wetlands into Watershed Restoration Planning

by DEQ Wetland Program and Montana Wetlands Legacy Partnership

DEQ's Wetland Program is currently working on a project to better integrate wetlands into watershed restoration planning. This collaborative project includes staff from the Watershed Protection Section and DEQ's Wetland Program, as well as the Montana Wetlands Legacy Partnership, watershed groups, and interested stakeholders.

Integrating wetlands into watershed restoration plans is one of the most effective means to protect wetlands from the indirect impacts of urbanization and other land uses and to fill in the gaps where wetlands fall outside of state or federal jurisdiction. This project specifically focuses on how we can protect or restore wetlands based on their contributions to water quality, such as storing sediment, recycling nutrients, or reducing stream temperature, and how restoring targeted wetlands can help address some of our most pressing water quality issues.

This project will be conducted in two pilot watersheds where interested watershed groups will help to identify and prioritize wetlands in their watershed restoration plans. Some of the beneficial products of this project are a Web-based application that allows watershed groups to explore the aquatic resources within their planning area and an increased understanding of how wetlands influence water quality and quantity within a watershed. In addition, the project will identify obtainable goals for wetland restoration and protection and identify wetlands that are priorities for restoration or protection to support water quality improvement goals.

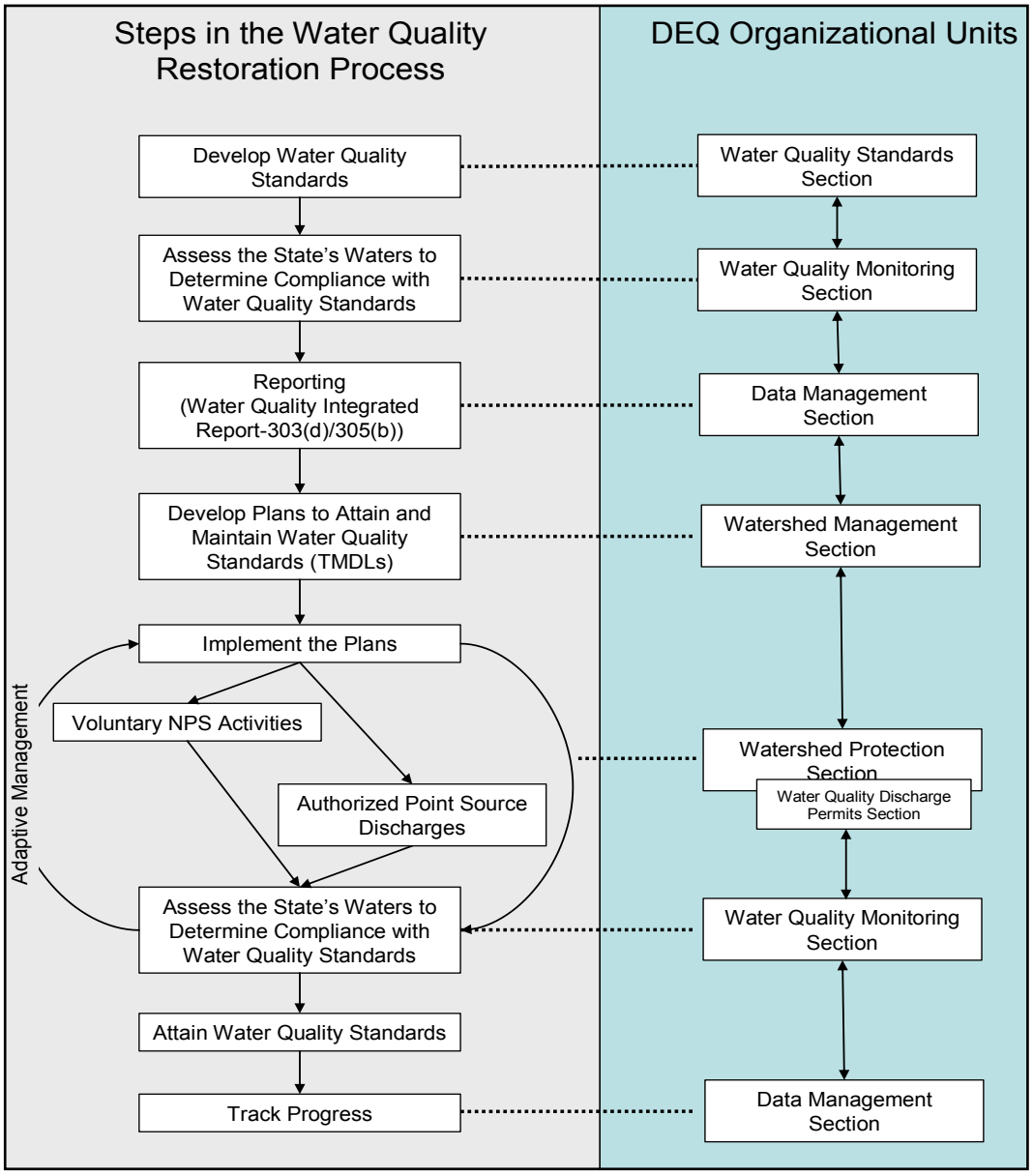
Looking Forward

DEQ has demonstrated that the 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 water quality protection and restoration for nonpoint sources. DEQ is committed to providing effective leadership and training to support our collective interest in a clean and healthy environment.

Priorities for 2011 include significant progress toward completing TMDLs and Framework Water Quality Improvement Plans; increased implementation of TMDLs and their evaluations; a better understanding of the needs of watershed coordinators in order to provide more effective training and capacity-building opportunities; and significant progress in updating the current 2007 NPS Management Plan for 2012.

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 implementation of TMDLs.
6. Additionally, water quality standards developed by the Water Quality Standards Section are used throughout DEQ, such as in the Montana Pollutant Discharge Elimination System (MPDES) program, to ensure clean water protection by all permitted point-source dischargers.

Appendix B - Montana Nonpoint Source Management Program 5- Year Goals and Action Plan

The Montana Nonpoint Source (NPS) Management Program's goal is to protect and restore water quality from the effects of nonpoint sources of pollution in order to provide a clean and healthy environment. 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.

Resource-Specific 5-Year Goals for the State's Nonpoint Source Plan

5-Year Goals	Measurable Outcomes in 2010
Complete Water Quality Plans and necessary TMDLs	EPA approved TMDLs for sediment, nutrients, and *E. coli* in the West Fork Gallatin River and sediment, metals, and temperature TMDLs for the Upper Clark Fork tributaries. Three additional documents were submitted to EPA; approval is anticipated in early 2011 for sediment TMDLs for the Lower Clark Fork, nutrient and salinity TMDLs for the Redwater, and metals TMDLs for the Missouri-Cascade-Belt.
Conduct water quality assessments statewide	WQMA assessed eight waters, which were reflected in the 2010 Water Quality Integrated Report submitted to EPA in December; approval is anticipated in January 2011.
Review/update Integrated Water Quality Report (305(b)/303(d))	IMTS developed and submitted the Montana 2010 Water Quality Integrated Report (IR). A public comment period was conducted from September 13 to November 21, 2010. The state's final 2010 IR and accompanying 303(d) list were submitted to EPA Region 8 in December 2010; approval is anticipated in January 2011.
Reference site monitoring and assessment	Sampling was conducted in 32 reference sites across the state as part of the reference project in place since 2000. The reference site project is a collaborative effort among DEQ, the University of Montana's Watershed Clinic, and the Bureau of Land Management.
Increase DEQ internal monitoring support for TMDL program	As part of the support for TMDL development, 15 streams were sampled in the Boulder-Elkhorn TMDL Planning Area (TPA), 9 streams in the Upper Clark Fork TPA, 5 streams in the Holter TPA, 6 streams in the Little Blackfoot TPA, 3 streams in the Clark Fork-Drummond TPA, 7 streams in the Rock TPA, and 1 stream in the Middle Clark Fork TPA. In 2010 WQMA supported TMDL development by providing training on various monitoring techniques, which included use of field equipment, such as temperature data loggers, Aquarods, and Tru-Tracks.
Work with watershed groups to develop watershed restoration plans	WPS continued to work with watershed groups to develop Watershed Restoration Plans (WRPs). The 319 program has funded 16 groups that are in various stages of developing their WRPs.
Implement restoration projects identified in Water Quality Plans/TMDLs	WPS managed over 50 active Section 319 contracts implementing the state's Nonpoint Source Management Plan. Between fiscal years 2002 and 2010, the section managed over a hundred Section 319 projects in Montana. WPS and EPA created a spreadsheet with information on projects throughout the state linked to TMDL implementation. The spreadsheet is being used to populate the Bureau's Waterbody Assessment and Reporting Database (WARD).

Monitor 319 restoration activities for effectiveness and pollutant load reductions	QAQC collaborated in developing two QAPPs, seven SAPs, and two SAP addendums focusing on monitoring Section 319 restoration activities for effectiveness and pollutant-load reductions, including the Well Educated Program QAPP; Jack Creek Water Quality Monitoring SAP; Lake Helena Watershed Monitoring Plan SAP (addendum); Lower Grave Creek Restoration Project QAPP/SAP; Sun River Watershed Monitoring SAP; Upper Clark Fork Tributaries Assessment and Effectiveness Monitoring QAPP; Clearwater Basin Adopt-a-Lake Monitoring Program SAP; Big Spring Creek Nutrient SAP; Teton Spring Creek SAP (addendum); Teton Deep Creek SAP; and Braziel Creek Restoration Monitoring SAP.
Establish a statewide monitoring strategy for monitoring Section 319 and other watershed restoration activities for practice effectiveness, load reductions, and instream water quality achievements	QAQC carries out the water quality monitoring strategy for the Bureau that includes monitoring of intermittent streams and development of processes. The state's Monitoring Strategy was delivered to EPA in 2009. As the monitoring strategy is implemented, numerous project-specific quality assurance project plans (QAPPs) and sampling and analysis plans (SAPs) will need to be developed with assistance from the Quality Assurance Section.
Conduct 5-year reviews of completed and implemented TMDLs	WPS evaluated the progress of TMDL implementation in four watersheds: Big Creek (tributary to North Fork Flathead River), Cooke City, Deep Creek (near Townsend), and Upper Lolo Creek. Final evaluations are expected in early 2011.
Collaborate with federal, state, and local agencies to promote conservation tillage (no-till, direct seed), vegetated filter strips, and riparian buffers	DEQ is currently working with the Blackfoot Challenge, Sun Watershed Group, Teton Conservation District, Upper Clark Fork, and local landowners on Section 319 grant contracts that involve stream restoration and the installation of riparian buffers.
SMZ review for protection of water quality, 2 facets: 1) restored watershed monitoring, 2) collaborative research projects (i.e. DNRC & Plum Creek)	The Department of Natural Resources and Conservation reviewed streamside management zones for their Habitat Conservation Plan.
Overlap priority areas with USFS/DNRC using GIS for coordinating watershed planning process (needs assessment versus existing budgets)	WPS is participating in the Multi-Agency Integrated Restoration Strategy (MA-IRS) coordinated by the Department of Natural Resources and Conservation.
Work with MSU Extension, DNRC, USFS-R8, NRCS, and BLM to develop a targeted list of BMPs for grazing (those that achieve water quality standards)	The WPS is participating in the Animal Feeding Operations/Confined Animal Feeding Operation Partnership. DEQ is currently working with the Montana Association of Conservation Districts on a Section 319 grant contract to address NPS pollution from small livestock operations through a Conservation Advisor for Livestock Operations (CALO).
Provide reviews and comment on outside agency proposed projects	WQPB continues to provide review and comment on outside agency projects and proposals.
Develop, maintain, and enhance Clean Water Act Information Center public access to data system	WQPB administered the Clean Water Act Information Center, which provides public access to Montana's Water Quality Integrated Report (305(b) and 303(d) lists). In December DEQ submitted an updated 2010 Integrated Report to EPA for approval.
Administer STORET water quality database system/administer Web-based STORET Interface Module for non-DEQ STORET data submittals	The 2010 field season marked the first year of the new water quality metric data system, the Montana EQuIS (Environmental Quality Information System) for WQX (MT-eWQX), which replaced STORET. IMTS worked to integrate EPA's Water Quality Exchange (WQX) database elements and state-specific data elements into the core EQuIS database.
Initiate monitoring project for large rivers (e.g. Missouri, Yellowstone)	WQMA is currently working with the Standards and Information Management and Technical Services sections to develop a nutrient model for a segment of the Missouri River. This project will be completed in 2012.

Policy-Directed 5-Year Goals for the State's Nonpoint Source Plan

5-Year Goals	Measurable Outcomes in 2010
Provide 319 funding to projects that implement NPS and TMDL water quality restoration strategies	DEQ awarded $900,090 in Section 319 NPS project grants, funding nine watershed restoration projects, one groundwater project, and three education and outreach projects (Appendix C). Non-federal, in-kind matches for these projects amounted to $790,975. DEQ used $225,182 in CWA Section 319 funds for the TMDL planning effort, for a total of $1,125,272 in Section 319 project grant funds.
Develop and implement DEQ water quality improvement MOUs with agencies, including USFS, BLM, DNRC, MDT, and FWP	WPS developed an MOU between the DEQ and the Bureau of Land Management that identifies the commitments for communicating and acting on nonpoint source water quality issues. The goal of the MOU is to maintain or restore water quality on lands managed or influenced by the Bureau of Land Management.
Assist in efforts to develop a cumulative impact assessment strategy for ground-water impacts in high density septic/development areas	WPS is working with Lewis and Clark County on a groundwater Section 319 grant that may be useful as model for other areas. The grant assists Lewis and Clark County in developing a program to ensure proper maintenance of septic systems by homeowners. Inadequate or lack of septic system maintenance has been demonstrated to affect drinking water and the environment. WPS is working with the TriState Water Quality Council to develop a Section 319 grant to address septic systems in Missoula, Lake, Granite, and Mineral counties.
Assist in the review of subdivision stormwater rules.	No activity in 2010.
Implement collaborative monitoring processes with federal, state, and local agencies on federal and state land projects, focusing on riparian zone management in achieving water quality standards	QAQC implemented collaborative monitoring with the Bureau of Land Management, U.S. Forest Service, Tri-State Water Council, U.S. Geological Survey, University of Montana, and a number of conservation districts, watershed groups, and nonprofit organizations. These partnerships are important because they are often maintained from TMDL development through the implementation of projects funded by Section 319 grants administered by WPS.
Continue water quality participation in the ITEEM process by collaborating with the IRTWG group	The Montana Department of Transportation leads the effort to better coordinate and plan for environmental effects in large-scale transportation corridors. This project has been put on hold for economic reasons.
Develop numeric nutrient water quality standards and implementation procedures for surface waters	The development of numeric nutrient standards for Montana waters progressed in two areas: criteria implementation and criteria development. During six meetings, the Nutrient Work Group discussed many details of DEQ's proposed nutrient criteria implementation process. DEQ also work with EPA on the state's proposed cost cap for communities where meeting nutrient criteria would be cost-prohibitive. Stakeholder concern over stringent criteria and the complex implementation process remains high. The second area—development of the numeric nutrient criteria themselves—has progressed well. DEQ completed a draft assessment methodology for determining nutrient impairment of streams. Final drafts should be ready in early 2011.

Develop technical basis for a lake classification system based on nutrient status	In 2009 WQS began collating all available lake data that had been collected since 2003, putting it into a database. This is a first step toward the analytical phase in which DEQ will begin to work on an empirically-based lake classification system. The analytical phase of the lake classification system has been postponed until 2011.
Promulgate numeric standards for all pesticides identified in Montana groundwater and surface waters.	WQS produces Department Circular DEQ-7, which contains numeric water quality standards for Montana's surface water and groundwater. The numeric water quality standards in DEQ-7 have been established for pollutants that are categorized as toxic, carcinogenic, bioconcentrating, radioactive, nutrient, or harmful. The 2010 revision included: • the adoption of surface water and groundwater standards for 18 new pesticides and their associated metabolites recently detected in Montana's ground water; • a new aquatic life standard for one chemical (acrolein); • the addition of five new human health standards for pesticides; • the revision of six human health NRWQC for pesticides, modified by EPA to reflect new scientific information; • the revision of six aquatic life standards for pesticides and insecticides to reflect the incorporation of frequency and duration into the numeric standards; • changes in the footnotes to add averaging periods and allowable exceedance frequencies for aquatic life numeric standards; and • a rewrite of the introduction and changes to the format of Circular DEQ-7.
Develop biocriteria for wadeable streams	WQSS began developing new criteria for biological water quality indicators. These "Observed/Expected" indicators will be based on macroinvertebrate data collected from high-quality reference sites and will be used to establish expectations for healthy stream communities. Future macroinvertebrate sample collections will be compared with reference populations for aquatic life use-support determinations. Two models are being developed, one for coldwater streams and the other for warmwater streams.
Develop Standard Operation Procedures (SOP) for monitoring intermittent streams	QAQC continues to carry out the water quality monitoring strategy for the Bureau that includes monitoring intermittent streams and developing processes. The state's Monitoring Strategy was delivered to EPA in 2009. As the monitoring strategy is implemented, numerous project-specific quality assurance project plans and sampling and analysis plans will need to be developed with assistance from the Quality Assurance Section. As new or modified methods and processes are completed, QAQC will need to review many of the Bureau SOPs.
Review and recommend revisions or updates to Montana's Groundwater Plan	The Groundwater Plan update, by Department of Natural Resources and Conservation, is currently on hold while pursuing development of State Water Plan.
Form an MS4 task force to promote and coordinate stormwater management activities	No activity in 2010.

Education and Outreach 5-Year Goals for the State's Nonpoint Source Plan	
5-Year Goal	**Measurable Outcomes in 2010**
Provide support and promote the development and coordination of watershed groups through MWCC activities, training workshops, advertising campaigns, etc.	MWCC is lead by two co-chairs and a steering committee; there is also a Funding Committee and two initiative based committees: Water Resources and Education and Outreach, both of which are chaired by DEQ NPS staff. Within these two committees there are multiple work-groups. Four work groups are co-chaired by DEQ staff including the Water Activities Work Group, Water Quality Monitoring Work Group, Outreach Materials, and the Groundwater Work Group. 2010 marked the first full year that MWCC had a part-time coordinator. This position is partially funded with Section 319 funds from DEQ.
Support the certification of volunteer monitors in watershed groups	DEQ initiated a 319 grant with Montana Watercourse (MTWC) at Montana State University to coordinate a volunteer water monitoring program that provides technical training and guidance to groups interested in conducting water monitoring. MTWC also manages the volunteer monitoring database and provides education and outreach activities to citizens interested in becoming volunteers.
Improve DEQ website for public access to information on NPS Program	WPS continues to use and promote the Nonpoint Source wiki (http://montananps319grants.pbworks.com), an online forum where stakeholders and the public can participate in discussions, leave comments, and ask questions about NPS issues. The wiki also facilitates the review of Section 319 grant applications each fall by providing an easily accessible forum to retrieve and post grant documents.
Develop educational campaign: urban growth and development issues (i.e., stormwater runoff, septic system maintenance, transportation infrastructure, low impact development)	WPS worked with Montana Watercourse to begin planning for a second Stormwater Conference, following the great success of the 2009 Conference. The next Stormwater Conference will be organized by MTWC, in collaboration with DEQ and other partners, and will be held in 2011 or 2012, depending on funding.
Develop educational campaign: riparian and wetland buffer protection	In 2008 WPS awarded a Section 319 grant to the Flathead Conservation District (FCD) for a Riparian Buffer Education Campaign. The campaign used television, radio, and print media in multiple counties to communicate information about riparian stewardship and BMPs. In early 2010 WPS increased the total funding for that grant to help pay for a comprehensive effectiveness evaluation of the campaign. The FCD contracted with the Bureau of Business and Economic Research of the University of Montana to conduct a survey and report the findings. The evaluation consisted of a phone survey before and after the media campaign to gauge the public's knowledge and opinions of riparian stewardship. The final Evaluation Survey Report will be available in early 2011.
Develop educational campaign: small farm and ranch conservation; work with NRCS, DNRC, MSU Extension, and Farm Bureau	DEQ is currently working with the Montana Association of Conservation Districts on a Section 319 grant to address NPS pollution from small livestock operations. The contract will provide funds to hire a Conservation Advisor for Livestock Operations (CALO), who will assess ranch management practices associated with animal feeding operations and provide mini-grant opportunities for ranchers to reduce NPS pollution. This project has the potential to expand to a broader segment of the state.
Work with statewide organizations (e.g., MEEA, Project WET) to establish and expand water curriculum in schools	WPS manages the Section 319 NPS Education for Diverse Audiences grant, administered by the MSU Montana Watercourse. Montana Watercourse worked with the Office of Public Instruction, Project WET, Project Webfoot, Project Learning Tree, the Watershed Education Network, and others to hold workshops and develop curriculum for K-12 students. This grant was completed in the fall of 2010.
Develop and promote BMP training for road maintenance personnel using Local Technical Assistance Program (LTAP) and other venues	No activity in 2010.

Appendix C – 319 Fiscal Year 2010 Section 319 Project Summaries

Project Name	Project Sponsor	DEQ Project Officer	DEQ Contract Number	319 Funds	Non-Federal Match Funds	Total Project Cost
Watershed Restoration Projects						
Swan TMDL Implementation FY10	Swan EcoSystem	Robert Ray	210115	$49,720	$38,800	$88,520
Big Hole Watershed Planning, Education & Restoration FY10	Big Hole Watershed Committee	Mark Kelley	210109	$126,500	$87,000	$213,500
Upper Clark Fork Tributary Restoration	Watershed Restoration Coalition	Laura Andersen	210116	$100,000	$109,160	$209,160
Bigfork Storm Water Project FY10	Flathead County	Robert Ray	210111	$200,000	$250,000	$450,000
Miller Ranch Ruby River Channel Restoration	Ruby Valley Conservation District	Mark Kelley	210114	$18,700	$12,500	$31,200
West Fork Nitrogen Monitoring Project	Blue Water Task Force	Mark Ockey	210110	$32,000	$21,700	$53,700
NPS Support	DEQ-WQPB	Robert Ray		$148,000	$0	$148,000
Watershed Restoration Projects Sub-Total				*$674,920*	*$519,160*	*$1,194,080*
Groundwater Projects						
Helena Groundwater Project Phase II	Lewis & Clark County	Robert Ray	210112	$95,000	$172,352	$267,352
Groundwater Projects Sub-Total				*$95,000*	*$172,352*	*$267,352*
Information & Education Projects						
Montana Volunteer Monitoring	Montana State University-Bozeman Montana Watercourse	Patrick Lizon	210113	$60,170	$50,113	$110,283
Flathead Watershed BMPs Education Campaign	Flathead Lakers	Patrick Lizon	210117	$40,000	$31,350	$71,350
Mini Grants	SWCDMI	Laura Andersen	210145	$30,000	$18,000	$48,000
Information and Education Projects Sub-Total				*$130,170*	*$99,463*	*$229,633*
TMDL Planning Projects						
Montana at Large TMDL Support	DEQ-WQPB	Dean Yashan		$225,182	$0	$300,000
TMDL Planning Projects Sub-Total				*$225,182*	*$0*	*$300,000*
TOTAL				**$1,125,272**	**$790,975**	**$1,991,065**

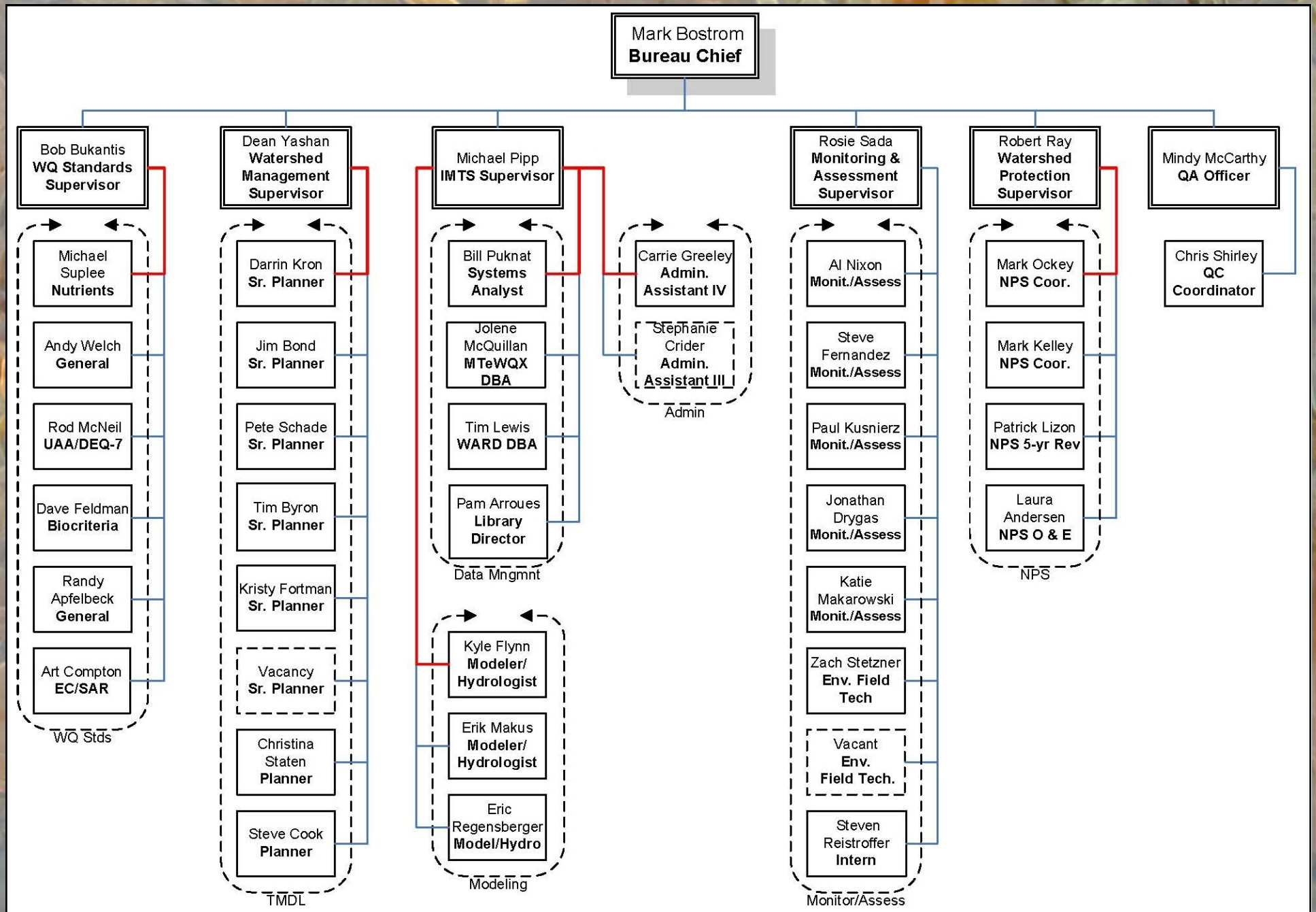
Appendix D – Section 319 Projects Closed in 2010

Project Name	Description	Funding	Start Date	Closed Date
Park CD	205057 - Paradise 319	$48,888	6/17/2005	6/14/2010
Kootenai River Network	205058 - Tobacco Watershed TMDL	$100,000	6/23/2005	6/17/2010
Fort Peck Irrigation District Phase II	206045 - Irrigation Efficiency/WQ Improvement	$47,350	6/26/2006	3/25/2010
Watershed Restoration Coalition	206054 - Deerlodge CD TMDL	$220,000	6/22/2006	8/16/2010
Pondera County CD	207050 - Marias River A-N Wasteway Rehab	$69,000	6/21/2007	2/12/2010
Treasure County Weed District	207051 - Salt Cedar Investigation	$15,000	6/21/2007	4/30/2010
TriState Water Quality Council	207057 - Bitterroot TMDL	$69,000	6/25/2007	2/12/2010
Sage Creek-5-Year Review	208018 - Salinity Monitoring in the Sage Creek Watershed	$11,275	2/15/2008	12/16/2010
Ruby Valley CD	208032 - Saurbier Feedlot Reclamation Project	$23,000	7/1/2008	9/16/2010
Swan Ecosystem Center	208033 - Swan Watershed TMDL Implementation	$40,000	6/23/2008	9/14/2010
Flathead Lakers	208039 - Critical Lands Outreach and Education Project	$35,000	6/17/2008	8/18/2010
MSU Watercourse	208040 - NPS Education for Diverse Audiences	$80,000	6/18/2008	8/19/2010
MSU Extension	208041 - Montana Livestock NPS Water Quality Initiative	$20,000	7/1/2008	9/8/2010
Flathead CD	208043 - Flathead/Stillwater TMDL	$40,000	6/23/2008	2/16/2010
USGS	210101 - Jefferson River TMDL	$9,000	4/27/2010	6/17/2010

Appendix E – 2010 Section 319 Mini-Grant Project Summaries

Contract	Project Sponsor	Project Title	Start Date	End Date	Funding
Mini-Grants Awarded in February 2010 by DEQ					
WQPB-MG10-09	Clark Fork Coalition	Rivers Rise, Build Back Webisodes	2/23/2010	6/31/2011	$1,500
WQPB-MG10-10	Greater Gallatin Watershed Council	Demonstration Rain Garden Pilot Project: A Local Approach to Stormwater Management in the Gallatin Watershed	2/23/2010	6/31/2011	$1,500
WQPB-MG10-11	City of Kalispell	Stormwater Erosion and Education Program (SEEP)	2/23/2010	6/31/2011	$1,500
WQPB-MG10-12	Lake County	Waterfront Living Education Brochure (2nd Edition)	2/23/2010	6/31/2011	$1,500
WQPB-MG10-13	Marias River Watershed Group	Marias River Watershed Youth Float 2010	2/23/2010	6/31/2011	$1,500
WQPB-MG10-14	Park County Conservation District	Shields Watershed Water Quality Monitoring	2/23/2010	6/31/2011	$1,500
WQPB-MG10-15	Ruby Valley Conservation District	Realtors Workshop	2/23/2010	6/31/2011	$1,500
Mini-Grants Awarded in September 2010 by SWCDMI (DEQ contract #210145)					
SWCDMI-MG11-01	Fairfield School District	Big Coulee Stream Bank Stabilization	9/1/2010	6/30/2011	$1,500
SWCDMI-MG11-02	Lewis and Clark City/County Health Department	Septic System Maintenance Program	9/1/2010	6/30/2011	$1,500
SWCDMI-MG11-03	Ruby Valley Conservation District	Soil Health Seminar	9/1/2010	6/30/2011	$1,500
SWCDMI-MG11-04	Judith Basin Conservation District	Water Quality Meetings	9/1/2010	6/30/2011	$1,500
Calendar Year 2010 Total					**$16,500**

Appendix F – Water Quality Planning Bureau Organizational Chart



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