319 Project Summaries:
Fiscal Year 2002 through Fiscal Year 2011

July 2011

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**ABSTRACT**

The Montana Department of Environmental Quality (DEQ) solicits project proposals from eligible applicants to further Montana’s Nonpoint Source Program goals. DEQ issues a Call for Grant Applications every year under Section 319(h) of the Federal Clean Water Act (CWA). Section 319(h) funds for projects are distributed competitively to support the most effective and highest priority projects. Applicants must be either a governmental entity or a nonprofit organization. There are three categories for competitive projects: 1. Water Quality (Watershed) Restoration; 2. Ground Water Protection and Restoration; 3. Education and Outreach. This report summaries projects funded through the Montana Nonpoint Source Management Program using Section 319 funds from 2002 through 2011.
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<td>Big Hole River Foundation</td>
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<td>DO</td>
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1.0 FISCAL YEAR 2011

Figure 1-0: TMDL Planning Areas with 319 Project Grants – Fiscal Year 2011

**Education and Outreach Mini Grants**
Soil & Water Conservation Districts of Montana
Laura Andersen – DEQ PM
Education and Outreach
$30,000

**Goals:**
Further the purpose of Montana's 2007 NPS management plan.

**Project Description:**
This would fund grants and management of the 319 mini grant program for the state of Montana to further the purpose of the Montana 2007 NPS management plan.

**Strengthening Watershed Communities Through Education and Outreach for 2011**
Soil & Water Conservation Districts of Montana
Robert Ray – DEQ PM
Education and Outreach
$25,000
Goals:
The proposed project addresses statewide needs to combat NPS pollution and raise awareness through communication, coordination and capacity building of volunteer and professional watershed practitioners and the promotion of the watershed approach with the next generation of Montana leaders. The goals will be achieved through activities and outcomes under three primary project objectives: coordination and support, education and capacity building.

Project Description:
The Montana Watershed Coordination Council seeks support in strengthening Montana's watershed communities through the implementation of statewide education and outreach activities.

Machler Restoration Project
Fergus County Conservation District
Mark Ockey – DEQ PM
Restoration
$185,000

Goals:
To restore a straightened reach of Big Spring Creek with a natural meander pattern and floodplain. The overall goal is to correct a 1960’s channelization project, which is credited, in part, with the passage of the Natural Streambed and Land Protection Act (310 Law). This watershed restoration project will implement goals that tie directly to the 2005 Big Spring Creek TMDL. Outcomes include a 60% longer stream channel restored to a natural riffle pool pattern, increased fish numbers, a natural floodplain, increased downstream stream bank stability, decreased erosion, and a reduction in sediment load, thus improving water quality. Wild trout fisheries should improve by about 60%. Riparian vegetation cover and diversity will be greatly improved by floodplain and channel construction, natural regeneration and plantings. Fish, Wildlife and Parks, purchased an easement here, primarily to implement this project. The owner north of Big Spring Creek has been working on this project for years. His uncle straightened the channel and his goal remains to, "right a wrong" by re-meandering the stream. The owner on the southeast end of the project will benefit by reduced lateral erosion on their property.

Project Description:
The proposed project would re-meander and create an inset flood plain for 4,000 feet of Big Spring Creek downstream of Highway 191 on a straightened stream reach. In this first phase, most of the new channel would meander to the north of the existing channel on private property with a Fish Wildlife and Parks easement. The Fergus Conservation District, local watershed group, Montana Fish, Wildlife and Parks and Trout Unlimited have been working on the project for years. The Big Spring Creek 2005 TMDL states this reach has the most impacts for stream channel characteristics on Big Spring Creek and is a restoration priority due to both channel and riparian issues. A 2010 Preliminary Engineering Report has been completed and includes a 30% completion level plan and cost set.

Muddy Creek Restoration Project
Sun River Watershed Group
Mark Ockey – DEQ PM
Restoration
$100,000
Goals:
Goal of this project is to improve water quality in Muddy Creek by meeting nutrient, salinity and sediment targets in the “Water Quality Protection Plan and TMDLs for the Sun River Watershed, December 2004.” Each landowner will be installing BMP practices including off-stream waters and fencing to reduce animal waste into Muddy Creek.

Project Description:
The SRWG will implement a portion of the Sun TMDL by funding projects to benefit Muddy Creek and the entire lower Sun River. To document water quality project success, monitoring and outreach will be key project components. The public will see a benefit from this project through improved water quality in Muddy Creek and the lower Sun River. Improved water quality will mean the water will meet its intended uses for agriculture, recreation and drinking.

Apsáalooke Watershed Outreach Program
Little Big Horn College
Laura Andersen – DEQ PM
Education and Outreach
$7,000

Goals:
Establish and improve water quality awareness through faculty and administration education and outreach with ultimate incorporation into classroom lessons at Crow Indian Reservation schools.

Project Description:
Little Big Horn College proposes to launch the Apsáalooke Watershed Education Outreach Program which would ultimately establish water curriculum in all elementary, middle and high schools located within the exterior boundaries of the Crow Indian Reservation.

East Fork Elk Creek Springer Bank Stabilization
Lower Clark Fork Watershed Group
Patrick Lizon – DEQ PM
Restoration
$19,000

Goals:
The key objective of this project relative to sediment reduction will be to reduce sediment loading in Elk Creek from 56 tons per year to 7.4 tons per year, a reduction of approximately 86 percent.

Project Description:
This task will involve project planning, survey, design, obtaining necessary permits and construction of a bank stabilization project located on the East Fork Elk Creek (Section 21, T26N, R34W). Approximately 350 lf of stream bank located downstream of a bank stabilization project that was constructed in 1998 on the Springer property. This meander is experiencing significant down valley meander migration, and contributes significant amounts of sediment every year. The site has been identified as a high priority restoration site by the Elk Creek Watershed Council and their Technical Advisory Committee (TAC). The recently approved Watershed Restoration Plan for the lower Clark Fork tributaries also ranks this site as top priority in the Elk Creek drainage.
**Gallatin Ground Water Project**  
Gallatin Local Water Quality District  
Mark Kelley – DEQ PM  
Groundwater  
$70,000

**Goals:**
1. Protect ground-water resources in the Gallatin Local Water Quality District from nonpoint source pollution.  
2. Provide water quality data to local agencies for decision-making.  
3. Increase public awareness on the value and importance of protecting ground-water resources in the Gallatin watershed from nonpoint source pollution and encourage implementation of BMPs for improving water quality.

**Project Description:**
GLWQD will characterize and assess cumulative impacts to ground-water quality from NPS pollution in high density septic system areas and determine nitrate loading to ground water through a combined approach of water quality data collection, evaluation of historical water quality data, spatial analysis of existing septic system information, and mapping of PWS source water protection areas. Homeowner NPS pollution awareness workshops will target owners of septic systems and wells in high density development areas.

**Big Hole Restoration**  
Big Hole Watershed Committee  
Mark Kelley – DEQ PM  
Restoration  
$83,500

**Goals:**
The Big Hole River Restoration project will address four main goals:  
2. Progress on Big Hole Watershed Land Use Planning;  
3. Provide Big Hole Watershed Education and Outreach;  
4. Provide Upper and Lower Big Hole Stakeholder Coordination;  
5. Administration.

**Project Description:**
Conduct monitoring study in the Lower Wise River to provide baseline information for important projects, monitoring data for proposed project and fill a data gap. Implement crucial restoration project on Middle Big Hole TMDL on tributary Wise River that addresses TMDL water quality issues for temperature; Support ongoing efforts in Land Use Planning the 4-county region of the Big Hole Watershed.; Outreach and education will include publication of four newsletters, watershed tour and children’s forum. Provide coordination support and implementation for conveying information at monthly watershed meetings, Drought Management Plan, and project prioritization for the benefit of local stakeholders and government decision-makers; Coordination will include meeting with stakeholders, Technical Advisory groups and sub-committees of BHWC, and related to project management.
Riparian Storm Water and Riparian Outreach  
Montana State University  
Laura Andersen – DEQ PM  
Education and Outreach  
$48,000  

**Goals:**  
MTWC has five specific goals for this project: 1. Organize and facilitate a stormwater conference; 2. Develop and deliver riparian education to targeted audiences; 3. Manage and sustain the volunteer monitoring program; 4. Deliver water quality education to students and educators; and 5. Expand the MTWC website capabilities.

**Project Description:**  
MTWC proposes to expand our program of providing leadership, training, and water education resources to citizens, educators, students and volunteer monitors across the state. Specifically, MTWC will deliver riparian education, organize a stormwater conference, manage and grow the volunteer monitoring program, and expand the MTWC website. The activities in this project will ensure continued growth and delivery of watershed-based, non-point source education and resources that emphasizes personal responsibility and the important role of citizens and students in protecting and restoring local water quality.

Lake Helena Watershed Restoration Project  
Lewis & Clark Water Quality Protection District  
Robert Ray – DEQ PM  
Restoration  
$160,000  

**Goals:**  
The WQPD and the LHWG propose to: 1) develop a prioritization scheme and map for targeted areas of future restoration work; 2) fill in water quality data and information gaps through information exchange and monitoring; 3) measurably reduce temperature, sediment, metals, and nutrient loading; 4) restore Prickly Pear Creek to a functioning condition, 5) re-establish a healthy riparian zone along the stream segment from York Road to Sierra Road; and 6) conduct outreach and education to all members, stakeholders, and public on the activities and issues of the watershed.

**Project Description:**  
The Project tasks include the development of a Lake Helena Watershed Restoration Plan in conjunction with: landowners, agencies, and interested stakeholders; a phased restoration project on the lower end of Prickly Pear Creek; both project effectiveness and continued volunteer monitoring of basin-wide impaired streams within the watershed; and educational and outreach activities.

Grave Creek Revegetation Treatment Project  
Kootenai River Network, Inc.  
Robert Ray – DEQ PM  
Restoration  
$23,000
Goals:
The primary goal of the Grave Creek Revegetation Treatment Project is to implement the remaining revegetation treatment recommendations for the Grave Creek project site. This proposed project will complete the recommendations developed based on the results of 2010 effectiveness monitoring and enhance the important restoration work earlier implemented on Grave Creek in the Tobacco River Drainage.

Project Description:
Develop a Watershed Restoration Plan for Grave Creek and Install coir logs at four locations within the Demonstration Phase, Phase I and Phase II.


Corder Ditch Abandonment
Craighead Institute
Mark Kelley – DEQ PM
Restoration
$80,000

Goals:
To increase Big Hole River instream flows and eliminate impaired thermal inputs by substantially increasing irrigation efficiency, resulting from irrigation diversion ditch abandonment. Flow increases from the ditch abandonment alone will amount to between 8-11 Cfs. based on historical gauge readings. Ditch abandonment will also result in elimination of high temperature inputs created by irrigation returns. Finally, the project eliminates possible catastrophic ditch failure which have had previously resulted in huge sedimentation deliveries to the river.

Project Description:
To increase Big Hole River instream flows and eliminate impaired thermal inputs by substantially increasing irrigation efficiency, resulting from irrigation diversion ditch abandonment. Flow increases from the ditch abandonment alone will amount to between 8-11 Cfs. based on historical gauge readings. Ditch abandonment will also result in elimination of high temperature inputs created by irrigation returns. Finally, the project eliminates possible catastrophic ditch failure which have had previously resulted in huge sedimentation deliveries to the river.

Flathhead Lakeshore Water Quality Protection
Flathead County
Patrick Lizon – DEQ PM
Restoration
$123,000

Goals:
The primary goal of the Bigfork Stormwater Project is to improve water quality in Bigfork Bay and Flathead Lake. To accomplish this goal, the Bigfork Stormwater project is working to develop successful stormwater management strategies and implement systems that result in the reduction on non-point source nutrient and sediment loading. Project goals are consistent with load reductions identified in the TMDL and Montana's Nonpoint Source Nutrient Management Plan. Protecting water quality and beneficial uses such as drinking water, recreation, fish and aquatic life are a high priority for this project.
Projects:
The Bigfork Stormwater Project will implement Flathead Lake TMDL load reductions and management strategies associated with Bigfork Bay by developing a stormwater system engineering design for Bridge Street and constructing a stormwater system for River Street.

Deep Creek Restoration Project
Teton River Watershed Group
Mark Ockey – DEQ PM
Restoration
$67,500

Goals:
This project is intended to improve water quality conditions in Deep Creek and Teton River as the TRWG with eventual goal of these waters meeting state water quality standards. This project will benefit the public as they are able to use these waters for all intended uses including irrigation, recreation, aquatic life and businesses. The landowners who participate in the project will improve their own operations while helping improve state waters they would like to see cleaner and more productive for all uses.

Projects:
This project will address Deep Creek and Teton River water quality problems identified in the WQRP and NRCS aerial assessment by taking a big picture approach to each problem.

Haskell Creek-Reimer Reach Floodplain Renovation
Flathead Conservation District
Patrick Lizon – DEQ PM
Restoration
$30,000

Goals:
1) Reduce nonpoint source pollution from bank related sources of sediment and nutrients to Haskell Creek and its downstream water bodies through passive techniques, 2) reduce local and downstream erosion and sedimentation by reestablishing floodplain connectivity and function, 3) improve riparian habitat and function by increasing cover of native riparian vegetation within the immediate floodplain corridor, 4) implement agricultural BMP’s to prevent introduction of nutrients and 5) implement Flathead Lake TMDL to reduce siltation and sedimentation and its associated nutrients. These actions will also help reduce impacts to a 303(d) listed water body (Whitefish River).

Project Description:
This project will implement a demonstration design already completed for 1,222' of streambank on the Reimer Reach of Haskell Creek by lowering the high banks to floodplain elevation, installing woody debris jams, toe wood and conifer/willow fascines to provide bank stability and reduce bank and terrace erosion, and implementing a rigorous floodplain revegetation plan to create a riparian buffer for agricultural land. This addresses sites identified in the watershed assessment and implements the Flathead Lake TMDL Plan. The project involves the landowner, local businesses, local groups (Haskill Basin Watershed Council) and agencies (MT Watercourse, FCD, DNRC, others).
**Volunteer Monitoring for E. coli**  
Montana State University  
Patrick Lizon – DEQ PM  
Education and Outreach  
$22,500

**Goals:**  
The goals of this project are to engage citizens in the Gallatin and Madison Watersheds in volunteer E. coli monitoring on 303(d) listed streams as a means to increase stewardship of water resources, reduce fecal water pollution, and enhance available E. coli water quality data resources. Monitoring in Gallatin County will be on Bozeman/Sourdough Creek and will build on and fill in gaps in data collected between 2008 and 2010 as part of the TMDL process. Data collection in Madison County will be structured with sets of 5 samples within a 30 day period to allow for assessment of whether Moore Creek is meeting water quality standards. Sample sites on both creeks will be spaced longitudinally along the stream to determine where E. coli concentrations become elevated.

**Project Description:**  
The Volunteer monitoring for E. coli project is a collaborative proposal to pilot the collection of volunteer E. coli water quality data as a means to increase water resource stewardship and simultaneously enhance E. coli data resources.

**Clark Fork Watershed Septic Maintenance**  
Tri State Water Quality Council  
Patrick Lizon – DEQ PM  
Groundwater  
$20,000

**Goals:**  
Help communities in the Clark Fork watershed address water quality impacts from expanding population growth and development by improving septic system management.

**Project Description:**  
This project proposes to address nutrient threats/impacts to ground-water quality from septic systems by assisting local governments with development of a septic maintenance tracking system and an assessment of septage disposal capacities within the western Montana region. The project will be undertaken in four of the highest-growth counties in western Montana; will implement ground water protection activities delineated in SWPPs that have high or very high susceptibility ratings for septic contamination, and/or will implement ground-water recommendations from completed TMDLs; and will build upon an existing septic project already underway in these four counties. Project results and approaches will be transferable to other areas of the Clark Fork watershed and the State of Montana.
2.0 Fiscal Year 2010

Swan Watershed TMDL Implementation
Swan Ecosystem
Robert Ray – DEQ PM
Restoration
$49,720

Goals:
Work with stakeholders and citizens to implement the monitoring and restoration recommendations in the "Water Quality Protection Plan and TMDLs for the Swan Lake Watershed" in order to reduce nonpoint source pollution to Swan Lake by following an approved Action Plan.

Project Description:
Swan Ecosystem Center will protect water quality in the Swan Lake watershed. Tasks include:
1)Technical Advisory Group to develop action planning and watershed restoration planning;
2)Watershed group to coordinate a broad range of projects in the watershed and to oversee development of the plans and designs; 3)Forest road assessment to evaluate restoration progress and enable prioritization for watershed restoration planning; 4)Road restoration to reduce sedimentation in the Beaver Creek project area; 5)Lake and Stream monitoring to evaluate progress as specified in the
Swan QAPP; 6) Education and outreach to encourage support and provide residents with guidance for water quality protection; and 7) Project and contract administration.

**Big Hole Watershed Planning**
Big Hole Watershed Committee
Mark Kelley – DEQ PM
Restoration
$126,500

**Goals:**
Water Quality Restoration; Planning; Monitoring; Project Implementation; Increased Stakeholder Participation and Outreach and Education.

**Project Description:**
Implement crucial restoration project on lower Big Hole that addresses TMDL water quality issues and priority concern related to Candidate Conservation Agreement with Assurances (CCAA): Provide planning, support and implementation around watershed Drought Management Plan, floodplain development issues, and project prioritization for the benefit of local stakeholders and government decision-makers; Planning will include convening advisory panel, soliciting public input and organizing topic-related conference or workshops; Provide outreach and education to local residents and stakeholders about on-going efforts around improving water quality and the fishery resource; Outreach and education will include facilitation of strategy meetings, publication of four newsletters, conveying information at monthly watershed meetings, direct landowner meetings and weekly drought updates during summer season.

**Upper Clark Fork Tributary Restoration**
Watershed Restoration Coalition
Mark Kelley – DEQ PM
Restoration
$126,000

**Goals:**
1. Assessing watershed health and project impacts. 2) Peterson Creek Riparian Enhancement. 3. Education and outreach for TMDL implementation. 4. Project Management. 5. Administration.

**Project Description:**
The Watershed Restoration Coalition (WRC) proposes to begin implementation of the Upper Clark Fork Tributaries TMDL with a riparian grazing management project to improve water quality on 303(d)listed Peterson Creek, initiate monitoring for TMDL implementation on other impaired tributaries to the upper Clark Fork River and do education and outreach with landowners along key tributaries. The project is focused on improving grazing and irrigation practices that can have a measurable impact on temperature, sediment-siltation, low-flow and other impairments to upper Clark Fork Basin tributaries.

**Bigfork Storm Water Project**
Flathead County
Robert Ray – DEQ PM
Restoration
$200,000
Goals:
To Improve Water Quality in Bigfork Bay and Flathead Lake; Implement Load Reduction and Management Strategies for Non-Point Source Water pollutants in Bigfork Village; Ensure Compliance with the Quality Assurance and Quality Control Plan; Foster Education and Outreach Programs to Increase Public Awareness; and, Initiate Appropriate Management Measures to Insure Project Success.

Project Description:
The primary goal of the Bigfork Stormwater Project is to develop successful stormwater management strategies and reduce non-point source nutrient and sediment loading in Flathead Lake as outlined in the Total Maximum Daily Load (TMDL) report. Quantitative pollutant load reduction specifically related to this project is difficult to assess at this time due to limited influent concentration data. However, the project proposes to incorporate stormwater management mechanisms that are expected to reduce pollutants by as much as 60%-90% as referenced by published information for applicable stormwater controls. The project’s performance goal will be to reduce stormwater pollutant discharge in compliance with the TMDL limits for Flathead Lake.

Miller Ranch Ruby River Channel Restoration Planning
Ruby Valley Conservation District
Mark Kelley – DEQ PM
Restoration
$18,700

Goals:
The Ruby Watershed Council is the outreach and education division of the Ruby Valley Conservation District. The Ruby Valley Conservation District has a long history of partnering with local landowners, agencies and private groups to have sustainable partnerships and projects on the ground.

Project Description:
Restoration of natural channel processes and ecological function in a straightened reach of the Ruby River, final design, permitting and management. Approximately 1800 feet of the Ruby River, including 2,200 feet of totally new channel and 4,400 feet of new bank will be directly impacted, with benefits to the entire Ruby corridor from Alder to the confluence with the Beaverhead River.

West Fork Nitrogen Monitoring Project
Blue Water Task Force
Mark Ockey – DEQ PM
Restoration
$32,000

Goals:
The purpose of the West Fork Nitrogen Project is to implement a monitoring program that will involve the local land owners and land managers in identifying and promoting solutions to nitrogen loading to the Upper West Fork of the Gallatin. The goals of the project are to fill in data gaps from the Upper Gallatin TMDL nutrient assessment nitrogen sources.
Project Description:
The West Fork Nitrogen Monitoring Project will implement a monitoring program involving local landowners and land managers to identify and promote solutions to nitrogen loading to the Upper West Fork of the Gallatin ("Upper West Fork"). This project will create a data set that will enable better understanding of nitrogen loading occurring along the Upper West Fork as it travels through the Big Sky Golf Course and Big Sky Meadow Village. The Upper Gallatin TMDL assessments documented increased stream water nitrogen concentrations and loads and algal growth in the Upper West Fork as it travels 2 kilometers through the Big Sky Golf Course and Big Sky Meadow Village. However, additional research is needed to more precisely determine the location of the nitrogen sources, corresponding flow paths to the stream and the timing of N loading. The proposed project will use a combination of extensive ground and surface water monitoring of nitrogen, chlorophyll a and nitrate isotopes throughout the growing season to further define nitrogen sources to the Upper West Fork. The information collected through this study will be used to work with local landowners and land managers to develop restoration strategies that minimize nitrogen loading to the Upper West Fork.

Helena Area Groundwater Project Phase II
Lewis & Clark Water Quality Protection District
Robert Ray – DEQ PM
Groundwater
$82,676

Goals:
The ultimate goal is to protect and enhance ground and surface water quality through the development of additional ground water data, data storage and analysis tools, characterization of the interaction of surface and ground water, and public awareness of ground water issues. The activities will support the implementation of the Framework Restoration Plan and TMDLs for the Lake Helena Watershed Planning Area, Montana by determining baseline ground water quality needed to evaluate the efficacy of activities designed to reduce nutrient loading to the shallow ground water system. The characterization of the interaction of surface and ground water will provide a mechanism to link the ground water quality data with surface water quality, with a characterization of nonpoint source impacts to ground water quality.

Project Description:
The proposed project (Phase II) requests funding to complete baseline characterization of the water quality and geochemistry of ground water recharge to Lake Helena and tributary streams within the Helena Valley study area. In accordance with the Montana Non-Point Source Plan, the project will evaluate the impacts of onsite wastewater treatment to receiving ground water quality at monitoring locations in the study area. This project will integrate the results of current focused studies of ground water in the area, which include detailed assessments to characterize the interaction of surface and ground water, with the additional work proposed for this project. The results from all of these studies will be incorporated into a comprehensive report on the interaction of surface and ground water across the Helena Valley. The water quality database developed by the Water Quality Protection District (WQPD) as part of Phase I of the project will be expanded to incorporate additional monitoring data from this project. The SAP developed for Phase I will be utilized for Phase II activities with modifications to include the groundwater/surface water interaction monitoring activities. The final task provides funding for education and outreach to local residents on the proper operation and maintenance of onsite wastewater treatment systems to protect ground water quality by working to control nonpoint
source pollution at the source and dissemination of the results of the project to citizens and water professionals.

**NPS Riparian/Wetland Buffer Education**

Montana State University – Bozeman Montana Watercourse
Laura Andersen – DEQ PM
Education and Outreach
$60,170

**Goals:**
Montana Watercourse in partnership with Montana State University Water Quality Program (MSUWQ) proposed to expand the Voluntary Monitoring Program (VMP) and provide leadership, training and resources to volunteer monitors across the state. Through a volunteer monitoring program, Montana Water Course (MTWC) and MSUWQ will deliver statewide watershed-based non-point source education, resources and training that emphasize personal responsibility and the important role citizens and students play in protecting and restoring local water quality. The goal is to have an informed active network of trained volunteers collecting and uploading data to the VM database.

**Project Description:**
Specifically, MTWC and MSUWQ will continue the Volunteer Water Monitoring Program by training new and existing water monitoring groups, supporting the certification of volunteer monitors, maintaining and updating the Volunteer Monitoring Database, and assisting educators with water quality related service learning projects, conducting a Water Summit for educators and students and other watershed related education support. Additionally, MTWC and MSUWQ will support the Montana Watershed Coordination Council (MWCC) by participating in the MWCC Water Monitoring Workgroup and Education and Outreach Committee.

**Flathead Watershed Best Management Practices Education Campaign**

Flathead Lakers
Patrick Lizon – DEQ PM
Education and Outreach
$40,000

**Goals:**
Promote riparian buffers and Best Management Practices (BMP) to protect and improve water quality in Flathead Lake and throughout the Flathead Watershed.

**Project Description:**
The Flathead Watershed BMPs Education Campaign is a campaign to educate lakeshore and river bank property owners, construction professionals, policy makers and educators about water quality best management practices (BMPs) on lands adjacent to lakes, rivers and streams and to encourage BMPs implementation through regulatory and voluntary programs. The campaign includes:
- evaluating and adapting effective BMP education programs to develop a Flathead Watershed BMPs tool kit,
- informing target audiences about BMPs for maintaining and improving water quality,
- developing recommendations to improve policies and regulations related to stream bank and lakeshore protection, and
inventorying and evaluating watershed education programs for students and developing recommendations for integrating BMPs and riparian buffer education into local watershed education programs.
3.0 Fiscal Year 2009

Ruby Three Fork Corral
Ruby Valley Conservation District
Mark Kelley – DEQ PM
Restoration
$65,000

Goals: The goal of the project is to improve livestock management and handling to reduce the near stream sediment impacts within a targeted sub-basin in the upper Ruby watershed.

Project Description: The project seeks to relocate and reclaim an historic 5 acre livestock sorting corral located adjacent to Tributary Creek, harden a livestock water gap and stream crossing sites, and install a new culvert to improve road drainage from a hillside spring site.

Big Hole Restoration Planning & Education
Big Hole Watershed Committee
Mark Kelley – DEQ PM
Restoration
$135,000
Goals: Water Quality Restoration; Planning; Monitoring; Project Implementation; Increased Stakeholder Participation; Outreach and Education

Project Description: Develop Watershed Restoration Plan (WRP). Implement restoration project (replace two culverts streamcrossing with bridge structure) in upper Big Hole that addresses TMDL water quality issues and priority concern related to CCAA. Provide planning support and implementation around watershed Drought Management Plan, floodplain development issues, and project prioritization for the benefit of local stakeholders and government decision-makers. Planning will include convening advisory panel, soliciting public input, and organizing topic-related conference or workshops: Provide outreach and education to local residents and stakeholders about on-going efforts around improving water quality and the fishery resource. Outreach and education will include facilitation of strategy meetins, publication of four newsetters, conveying information at monthly watershed meetings, direct landowner meetings, and drought updates during summer season.

Deep Creek - Teton River Implementation Project
Teton River Watershed Group
Mark Ockey – DEQ PM
Restoration
$115,000

Goals: This project is intended to bring Deep Creek into water quality compliance with state water quality standards. Will be primarily project implementation though stream restoration and BMPs. Will also include project coordination, monitoring and educational programs.

Project Description: This project will address all Deep Creek issues identified in the WQRP and aerial assessment by riparian corridor fencing, sloping and revegetating stream banks, reducing instream modifications by modifying diversions, landowner education on best management practices (BMP) to improve farming practices, and monitoring to ensure objectives are met. These practices will help implement and support the 2007 Montana Nonpoint Source Management Plan through education and project implementation.

Shields River Watershed Restoration Plan
Park Conservation District
Mark Ockey – DEQ PM
Restoration
$25,000

Goals: The goal of this project is to develop a watershed restoration plan to implement a TMDL for nonpoint source sediment in the Shields River watershed.

Project Description: This project will employ a collaborative, multidisciplinary approach to develop a WRP for the Shields River watershed. Through the assistance of a contracted consulting firm, basin residents, agencies, and nonprofits, will develop a strategy to implement the TMDL developed for this watershed. The watershed will encompass elements prescribed by EPA and DEQ through their respective guidance documents. Deliverables will include a watershed planning document that details the approach to implementing projects and evaluating attainment of water quality goals and load reductions. In addition, the document will provide sufficient detail on restoration approach for specific
projects that will be implemented over the next few years. The plan will also detail an approach and milestones for continued identification of projects, and collection of sufficient information to procure grant funds for projects, so that projects are continually being added to the list of projects.

**Bigfork Storm Water Project II**
Flathead County
Robert Ray – DEQ PM
Restoration
$125,000

**Goals:** To Improve Water Quality in Bigfork Bay and Flathead Lake

**Project Description:** Flathead County is requesting 319 funds for continued support of the urban stormwater quality improvement project for the unincorporated community of Bigfork, located on the northeast corner of Flathead Lake at the mouth of the Swan River. The population of the community has grown an estimated 40% since the 1990 United States (US) Census (current estimated population is 4,355 residents). This population growth is resulting in a significant increase in urban stormwater runoff in the area. In the spring of 2007, at the request of local residents, Flathead County Commissioners got involved to help address stormwater flooding and filtration issues in the community of Bigfork.

Stormwater runoff covers many impervious surfaces in Bigfork, including school parking lots, commercially developed areas and residential sections of town. This nonpoint source surface runoff from rain and snowmelt picks up nutrients, bacteria, sediment and heavy metals and deposits these pollutants in Flathead Lake. To evaluate the current system, Flathead County initiated a Preliminary Engineering Report (PER) in late 2007, funded by DEQ 319, DNRC and Flathead Basin Commission. The initial implementation focus will be on a collaborative project with the Bigfork School District to finalize the installation of a StormTech Drainage System for the Bigfork High School parking lot. This portion of the project complements the system installed in the summer of 2008 at the Bigfork Elementary and Middle School. Based on site observations, runoff from school parking lots, playgrounds, roofs, and sidewalks are the primary contributor to stormwater drainage entering the conveyance system near the top and central areas along Grand Drive in Bigfork.

The primary goal of the Bigfork Stormwater Project is to develop successful stormwater management strategies and implement steps that result in the reduction of non-point source nutrient and sediment loading in Bigfork Bay and Flathead Lake as outlined in the Total Maximum Daily Load (TMDL) report. The TMDL Implementation Strategy states “Growth in unincorporated areas throughout the basin has been shown to pose a future threat to the lake’s quality. Land use planning, education and implementing BMP’s for all future development should also be a primary focus of the water quality restoration effort.” This will help meet Montana’s Nonpoint Source Management program goals “to protect and restore water quality from the impacts of nonpoint sources of pollution in order to provide a clean and healthy environment.” It is anticipated that this project will serve as a model for other lakeside communities in Flathead County to implement the development of effective stormwater management practices.
Sun River Flow Temperature Project
Sun River Watershed Group
Mark Ockey – DEQ PM
Restoration
$95,000

Goals: 1) Reduce the amount of water removed from the Sun River for irrigation and thereby increase flows in the Sun River and reduce the temperature of the water in the Sun River; 2) Reduce the amount of irrigation tailwater being added to Sun River tributaries, thereby reducing the magnitude, duration and frequency of irrigation-induced flow fluctuations in the tributaries, which will in turn reduce the rate of erosion in the tributaries; 3) Monitor changes in water quality in the Sun River watershed.

Project Description: Four new, real-time flow gauges will be installed in canals operated by the Greenfields Irrigation District and its partners. Real-time flow data from these and other gauges in the Sun River watershed will be made available to irrigators and the general public, in real-time, via a website. The data on the website will then be used to make more timely adjustments to the amount of water being removed from the Sun River for irrigation. 319 funds will also be used to help fund the continued operation and maintenance of 3 USGS gauges on the Sun River. A Watershed Restoration Plan will be created as part of this project, and the Sun River Watershed Group will host/organize numerous education and outreach events designed to help landowners and other stakeholders better protect and manage water resources in the Sun River watershed.

Middle Blackfoot TMDL Clearwater Implementation
Clearwater Resource Council
Mark Ockey – DEQ PM
Restoration
$20,000

Goals: 1) Establish a watershed planning group and coordinate development of a Quality Assurance Project Plan, 2) Clearwater Watershed Characterization using existing data, 3) Clearwater watershed lakes trophic status, trends, and potential sources of NPS pollution that may influence future trends, 4) Lakes Sample Analysis Plan (SAP) and volunteer lake monitoring, 5) Engage and educate the local community regarding water quality issues, and 6) Administer the project and report results.

Project Description: The Middle Blackfoot-Nevada Creek TMDL included the Clearwater watershed and addressed sediment loading and nutrient issues associated with five 303(d) listed streams in the Clearwater basin (Buck Creek, Richmond Creek, Deer Creek, Blanchard Creek, and the West Fork Clearwater River). The TMDL also summarized issues on Seeley and Salmon lakes and recommended further monitoring, a detailed review of available data to determine appropriate monitoring parameters and frequency, compilation of sufficient data for a watershed loading and lake response model, and better definition of nutrient source loadings. The main goal of the proposed project is to develop a watershed restoration plan (WRP) that will implement guidance in the Middle Blackfoot-Nevada Creek TMDL. In order to accomplish this, we will conduct a critical analysis of all existing information about Clearwater Watershed lakes and streams and will engage stakeholders in the valley in a watershed planning group.
**Elk Creek Restoration Project**  
Lower Clark Fork Watershed Group  
Robert Ray – DEQ PM  
Restoration  
$20,000

**Goals:** The goals for this project are to improve water quality by reducing sediment loads in sediment impaired waters, improve stream habitat and riparian vegetation in order to restore native fish populations, and to implement a monitoring program that documents water quality improvements resulting from the funded restoration project. An additional goal of this project is to provide a forum for discussion on the range of appropriate alternatives for river restoration efforts and use that discussion in shaping a final design for the Elk Creek Springer site.

**Project Description:** Elk Creek Bank Stabilization (Springer Site)  
This task will involve project planning, survey, and design of a bank stabilization project located on the East Fork Elk Creek (Section 21, T26N, R34W), approximately 375-400 lf of streambank located downstream of a bank stabilization project that was constructed in 1998 on the Springer property. This meander is experiencing significant down valley meander migration, and contributes significant amounts of sediment every year. The site has been identified as a high priority restoration site by the Elk Creek Watershed Council and their Technical Advisory Committee (TAC). Project design will be based an updated, site specific assessment of the Elk Creek project area by the selected contractor. Montana Fish, Wildlife and Parks (MFWP) will determine an appropriate work window for the construction and provide technical assistance throughout the project. Prior to project design, the contractor will organize and hold a workshop in the lower Clark Fork area to discuss stream restoration project designs in northwest Montana.

**Swan Watershed TMDL Implementation**  
Swan EcoSystem Center  
Robert Ray – DEQ PM  
Restoration  
$40,000

**Goals:** Reduce nonpoint source pollution to Swan Lake by following an approved Action Plan to implement the recommendations of the 2004 Water Quality Protection Plan and TMDLs for the Swan Lake Watershed, including restoration and monitoring, and by encouraging awareness and a sense of responsibility among residents of the watershed. Develop a comprehensive restoration plan working collaboratively with stakeholder agencies and NGOs.

**Project Description:** Swan Ecosystem Center will protect water quality in the Swan Lake Watershed. Tasks include: 1) Technical advisory group support to develop action planning, 2) Watershed group coordination and support to oversees projects, 3) Watershed Restoration Plan development, 4) Road BMP installation and restoration to reduce sedimentation in the Beaver Creek project area, 5) Lake and stream long-term trend monitoring as specified in the Swan QAPP, 6) Education and outreach to support water quality protection, and 7) Project and contract reporting and administration.
DEQ Watershed Protection Section Support
Montana DEQ
Robert Ray – DEQ PM
Restoration - Montana At-large
$47,000

Clark Fork Watershed Septic Project
Tri-State Water Quality Council
Kristy Zhinin – DEQ PM
Groundwater
$38,000

**Goals:** To develop and implement a groundwater and septic initiative to help communities in the Clark Fork watershed address water quality impacts from expanding population growth and development.

**Project Description:** This project proposes to address nutrient threats/impacts to ground-water quality from septic systems (both individual and large-capacity) by assisting local governments with identification and development of targeted septic policy initiatives and public awareness efforts. The project will be undertaken four of the six highest-growth counties in western Montana, and will implement SWPPs with high or very high susceptibility ratings for septic contamination in Ravalli and Sanders Counties, and will implement ground-water recommendations from completed TMDLs for the Clark Fork River and Flathead Lake in Ravalli, Missoula and Lake Counties. Project results and approaches will be transferable to other areas of the Clark Fork watershed and the state.

Bitterroot Hazardous Waste Disposal
Ravalli County
Mark Kelley – DEQ PM
Groundwater
$30,000

**Goals:** To implement the City of Hamilton's Water protection Plan by removing and properly disposing of household waste materials from the Bitterroot Valley (not including electronic waste).

**Project:** Will continue program to protect groundwater from non-point source pollution through hazardous waste collection and disposal. Support voluntary activities such as disposal of household waste to protect groundwater. Conduct outreach activities to protect groundwater. Encourage and support waste reduction education and outreach. And educate on basic hydrology linking drinking water to groundwater sources.

Helena Area Groundwater Project
Lewis & Clark County WQPD
Robert Ray – DEQ PM
Groundwater
$30,000

**Goals:** The Project was developed with several goals. The project goals and specific tasks may be summarized as follows:
1) Develop and implement a long-term ground water quality monitoring program for Helena area aquifers.

2) All existing and new ground water quality data will be incorporated into GIS compatible database for analysis of changes in water quality over time. The database will provide baseline data for the monitoring program to evaluate existing and future impacts to ground water resources, and their connection to surface water in the study area.

3) Hydrogeologic assessments will be performed at areas of suspected impacts to water quality from septic systems. The studies will be used to refine the results of the Lewis & Clark County Groundwater Vulnerability Study of the Helena Area that utilizes a modified DRASTIC model and resulting Groundwater Sensitivity Map.

4) Community outreach and education regarding the ground water quality issues within the watershed will be developed using a combination of presentations at water-related public meetings and media advertisements.

**Project Description:** The ground water project will be implemented by establishing a long term ground water monitoring and assessment program. A Sample Analysis Plan will be developed for the project. The data will be used to assess short and long term changes in ground water quality in relation to standards for defined beneficial uses of the water resource. The data will be used to assess the impact of septic systems as nonpoint pollution sources to local ground water. The new monitoring data will be compiled with historical data into a GIS linked database for use in assessment of water quality changes. More detailed assessments of areas with elevated nitrate levels will be performed to evaluate impacts from septic systems, and to refine a DRASTIC model of aquifer sensitivity for the study area. The final component of the project represents the public education program, which will be implemented through presentations and workshop activities completed in association with existing watershed group meetings.

**NPS Riparian Wetland Buffer Education Campaign**
Montana State University – Watercourse
Kristy Zhinin – DEQ PM
E&O
$52,000

**Goals:** The goal of this proposal is to support and expand the efforts of the Riparian Buffer Public Education Campaign currently being overseen by the Flathead Conservation District with resources, curriculum, activities and support. The focus of this proposal is on educational efforts targeted to Montana K-12 students and teachers in areas of the state experiencing rapid development, and which are part of the above named educational campaign. Additional support will be provided to Eric Vincent’s Eco Challenge Effort that focuses on student Riparian Repair Teams. Throughout the project, MTWC will coordinate and communicate with other on-going riparian/wetland efforts in the state.

**Project Description:** MTWC proposes to create resources and activities that foster watershed stewardship for future generations through increased appreciation of the role of riparian and wetland areas in controlling NPS, and to support the efforts of the current Riparian Buffer Public Education Campaign and the Eco Challenge effort through additional educational activities and trainings. The activities will focus on connecting the students to the greater community and will foster awareness of the restoration needs that are a focus of the Governor’s Restoration Economy efforts.
Delivering Well Educated
Montana State University Extension Service
Kristy Zhinin – DEQ PM
E&O
$39,000

Goals: Well Educated addresses the five year goals listed in table 5.3 of the NPS Management Plan by orchestrating a statewide educational campaign to address 1) urban growth and development issues and 2) small farm and ranch conservation. The program directly addresses these goals through the following two objectives:
1. Delivery of a well owner educational campaign to enhance the knowledge of Montana well owners on ground water quality, septic system maintenance, and responsibilities of land owners in protecting ground water.
2. Delivery of an enhanced ground water quality database as a tool for educating land owners and county facilitators about water quality issues in areas with rapid development, in addition to assisting in management and decision making.

Project Description: Delivering Well Educated will expand the existing Well Educated program to a state wide educational campaign targeting well and septic owners. The Well Educated is a program which empowers private well owners in Montana to monitor, assess, protect, and treat the quality of their drinking water when necessary. This current Montana State University Extension Water Quality (MSUEWQ) program originated from well owner education efforts started at MSU in 1989 under the Well Aware program which tested almost 1,300 wells across the state. The program is a collaborative effort between MSUEWQ, and partners in participating counties that provides well owners with materials to sample their well water quality. Participants collect water samples from their wells and send them to Energy Laboratories in Billings, MT. MSUEWQ receives results from the lab and delivers them to well owners with interpretation materials, parameter fact sheets and an educational DVD. In Montana, there is currently no effort to coordinate ground water protection and stewardship. Well Educated fills part of this void by delivering a statewide campaign to educate well owners and foster public ownership of ground water resources. Between 2004 and 2008, the program reached about 1350 participants. In addition to educating homeowners, the program also centralizes water quality results into one database that would not otherwise be tracked outside the homeowner’s files. The outcome is a service that helps prevent nonpoint source ground water contamination from private wells through well owner education while simultaneously providing means to monitor ground water quality.

Mini-Grants
Montana DEQ
Kristy Zhinin – DEQ PM
E&O
$24,000

Goals: To provide financial and technical assistance to local stakeholders by providing a tool for small grant awards to help complete and enhance new or on-going NPS projects.

Project Description: DEQ will develop specific but flexible program guidelines for various types of education activities, which would be eligible for financial and technical assistance for interested school systems, organizations, volunteer groups, i.e. the general public. Educational activity types could include but are not limited to: start-up for volunteer monitoring, purchasing of equipment for nonpoint source...
education, producing educational pamphlets/documents/calendars, assisting in water festivals or tours, producing radio/television/billboard/newspaper/magazine messages, etc. Education must be geared towards non-point source pollution, or mechanisms and issues dealing with cumulative impacts on water quality. Awarded mini-grants will be $1,500.

**Flint Creek TMDL Coordination**
Granite County Conservation District
Darrin Kron – DEQ PM
TMDL Planning
$20,000

**Goals:** Provide an avenue for future water quality restoration work in the Flint Creek Watershed.

**Project Description:** The Granite Conservation District will continue to assist in coordinating public and technical stakeholder involvement activities for TMDL formation in the Flint Creek TMDL Planning Area (TPA) with DEQ. The contractor will assist in landowner outreach, land access scheduling, and information dissemination for the Total Maximum Daily Load (TMDL) process in the Flint Creek Watershed. A water quality restoration plan (WRP) will be completed by the watershed group during the end of, and just after, the TMDL process. The goal is to provide a locally lead effort for constructing a useful WRP for use in prioritizing restoration projects which fit into TMDL recommendations and are socially and economically feasable.

**Lolo TMDL Coordination**
Lolo Watershed Group
Banning Starr – DEQ PM
TMDL Planning
$10,000

**Goals:** 1) Build the organizational capacity of the Lolo Watershed Group through education and outreach activities to increase participation in conservation and restoration planning (Lolo Watershed Group Board, Advisory Board, members and stakeholders)
2) Begin development of a Watershed Restoration Plan.

**Flathead TMDL Coordination**
Montana DNRC - FBC
Rob Rung – DEQ PM
TMDL Planning
$15,000

**Goals:** The proposed project is designed to assist the State in meeting the load reductions that will be required as per the Flathead Lake Total Maximum Daily Load (TMDL) for nitrogen and phosphorus.

**Project Description:** Increased awareness of TMDL process and activities in the Flathead Basin, providing a strengthened line of communication between DEQ and the local stakeholders. Assist with providing outreach to all stakeholders within the Flathead Basin on TMDL and NPS water quality issues.
Flathead TMDL Education & Outreach
Flathead County
Rob Rung – DEQ PM
TMDL Planning
$20,000

**Goals:** To increase communication and education of the Agricultural Community in the Flathead Basin.

**Project Description:** Contractor will review current information from public sources to compile a Technical Summary Report responding in detail to the following questions:

- How much agricultural land, of what type (e.g., row crops, pasture/hay, irrigated, dry land, grazing, etc.) exists within the Flathead Basin?
- Where is it located?
- How much land is irrigated for agricultural purposes, what type of irrigation practices are being utilized, and where?
- Where are the known irrigation withdrawals and returns?
- What are the types and magnitudes of fertilizers applied to these agricultural lands?
- Are there any significant trends in agricultural practices in the Flathead Basin (e.g., conversion of agricultural lands to residential/commercial land uses)?

Report will be in summary form to assist the Montana Department of Environmental Quality (DEQ) in completing Total Maximum Daily Loads (TMDL) in the Flathead Basin. Contractor will coordinate with DEQ Project Manager as to the types information and depth of detail available for inclusion into report.

Contractor will act as a liaison for the Water Quality Planning Bureau programs and the Flathead Basin Agricultural Community. The Contractor will work with individual agricultural landowners as necessary to gather site-specific information. The Contractor will detail to the agricultural parties and interested stakeholders the progress of TMDL development and/or non-point source issues and relay concerns and or comments to the DEQ Project Manager. Contractor will facilitate WQPB interactions via meetings, conference calls, etc. as agreed upon with the DEQ Project Manager. Contractor will communicate with the DEQ Project Manager as to Outreach efforts either requested by stakeholders or conducted by the contractor. Communication will be by either email or telephone and will be dependent upon need. Contractor will communicate at a minimum on a monthly basis.

Upper Gallatin
Blue Water Task Force
Mark Kelley – DEQ PM
TMDL Planning/ Restoration
$10,000

**Goals:** In conjunction with the DEQ, will develop a draft Watershed Restoration Plan for the Upper Gallatin Watershed, by building on the Upper Gallatin TMDL to develop the nine elements of a Watershed Restoration Plan.

**Project Description:** Continue work based on the Upper Gallatin TMDL by performing the following tasks: identification of impairment causes, estimates of load reductions from management measures, describing nonpoint measures to achieve load reductions, estimate technical and financial assistance needed, information and education activities, an implementation schedule, interim measures for assessing implementation progress, measures to assess the progress toward water quality standards,
and monitoring for cumulative effectiveness of restoration efforts. The Blue Water Task Force (BWTF) will coordinate these activities; involve and engage all parties involved; provide review and oversight on all components of the project; and facilitate communication between all partners, stakeholders and the community.

**Lower Gallatin**
Greater Gallatin Watershed Council
Pete Schade – DEQ PM
TMDL Planning
$90,000

**Goals:** Goals are to develop a public involvement strategy for the Lower/East Gallatin TMDL Planning Area and to initiate TMDL development through preliminary source assessments and existing water quality condition characterization.

**Project Description:** This proposal aims to initiate TMDL development in the planning area through a variety of technical assessments for nutrients, sediment and e coli.

**Montana TMDL At-Large**
Montana DEQ TMDL
Dean Yashan – DEQ PM
TMDL Planning
$135,000

**Goals:** To provide technical assistance to Watershed Management Section via private contractors for work on Total Maximum Daily Load (TMDL) projects in Montana.
### 4.0 Fiscal Year 2008

#### Bitterroot Headwaters TMDL Implementation

**Bitterroot Water Forum**
Mark Kelley – DEQ PM
Restoration
$30,000

**Goals/Description N/A**

#### Blackfoot Watershed Water Quality Restoration

**Blackfoot Challenge**
Robert Ray – DEQ PM
Restoration
$50,000

**Goals:** Address sediment and habitat related impairments in lower Nevada Creek. Address sediment and habitat related impairments in Braziel Creek. Reduce sediment loading to Monture Creek through restoration of Dick Creek. Identify road sediment reduction measures in the Blackfoot Headwaters Planning Area. Increase awareness of water quality issues in the watershed and promote water quality restoration. Increase opportunities for water quality restoration
Project Description: Implement channel and riparian restoration on lower Nevada Creek. Implement channel and riparian restoration on Braziel Creek. Implement channel and riparian restoration, grazing management, and road improvements in Dick Creek. Design projects related to reduction of road derived sediment in Liverpool and Park Creeks. Conduct “Water Quality in your Watershed” workshops. Continue coordination of water quality restoration partnership in the Blackfoot watershed.

Big Spring Watershed Restoration
Fergus County Conservation District
Mark Ockey – DEQ PM
Restoration
$70,000

Goals/Description N/A

Bigfork Storm Water Project
Flathead County
Robert Ray – DEQ PM
Restoration
$60,000

Goals: Goal 1: To implement improvements to the current stormwater system in downtown Bigfork including filtration treatment of storm water runoff prior to discharging into Bigfork Bay. These improvements will address pollutant reduction as outlined in the TMDL and the 303 (d) list of impaired water bodies.

Goal 2: To complete the Final Basis Of Design Report for stormwater treatment improvements in downtown Bigfork. Prepartation of the Final Basis of Design Report will include final design criteria, preliminary list of drawings, preliminary list of specifications and a written description of the proposed improvements.

Goal 3: Develop an outreach and education program to include forming the Bigfork Stormwater Advisory Committee, public meetings, contracting with a Project Coordinator, and developing water quality presentations.

Goal 4: A site-specific Sample Analysis Plan (SAP) will be created to validate consistency in testing stormwater runoff prior to stormwater collection system improvements and following final system improvements. Implement initial water quality monitoring.

Project Description: 319 funds will support Flathead County's urban stormwater quality improvement program for Bigfork. Of greatest concern, is the lack of filtration throughout the system, resulting in stormwater discharging directly into Flathead Lake and the Swan River with minimal or no effluent treatment. The Swan River, which runs through Bigfork Bay, contributes approximately ten percent of the water that enters Flathead Lake annually. Many of the stormwater discharge sites in Bigfork are along the section of Swan River that feeds directly into Flathead Lake. Surface run off in Bigfork crosses school parking lots, commercially developed areas, and residential sections of town and is picking up contaminants and pollutants on its journey to the lake.
Flathead Lake is a classified A-1 waterbody and is on the 303 (d) list of impaired waters in Montana. It has been identified as not fully supporting aquatic life as a result of nitrogen, phosphorus, total suspended solids and siltation. A Total Maximum Daily Load (TMDL) and Nutrient Management Plan were completed in 2001. This proposal addresses Section 7 (Restoration Strategy) of the Plan “… implementation of on-the-ground restoration measures...including: 1) a focused source assessment to locate specific agricultural and urban sources and, 2) a feasibility study to evaluate alternative control measures.”

Flathead Lake is an outstanding aquatic resource that is important to the county as well as the entire state of Montana. Due to the downward trend of water quality in Flathead Lake, it is important to address issues related to infrastructure needs of the Bigfork stormwater system and its relationship to nutrient loading. 319 funds will help to develop a plan of action and final design for the project addressing water quality issues, challenges with stormwater conveyance and the impact of future development in the area.

This project will proceed in phases. The first phase was to secure funding for the Preliminary Engineering Report (PER) to evaluate the current system. Through a collaborative effort with Montana DNRC, Flathead Basin Commission, DEQ and the Flathead Conservation District, Flathead County has secured resources to complete the PER. The PER is currently in process and is scheduled for completion by May of 2008. The second phase will be to develop the final mitigation design plan, a Bigfork Stormwater Advisory Committee, an outreach and education program and a SAP prior to construction. The final phase will be implementation/ construction of identified system upgrades and post-construction water quality testing.

**Mid Musselshell Watershed Restoration Project**
Lower Musselshell Conservation District
Marck Ockey – DEQ PM
Restoration
$95,000

Goals/Description N/A

**NPS At-Large Projects**
Montana DEQ,
Robert Ray – DEQ PM
Restoration
$50,000

Goals/Description N/A

**Prickly Pear Creek Re-Watering Project**
Montana Water Trust
Robert Ray – DEQ PM
Restoration
$17,000
Goals: Montana Water Trust’s (MWT) goals for the proposed Prickly Pear Creek Re-watering Project are to reduce the existing TMDL impairments (thermal modification, nutrients, and siltation) by re-watering this chronically de-watered Creek.

Project Description: Prickly Pear Creek faces numerous beneficial use impairments due to metals, nutrients, siltation, and thermal modification, as summarized in the Water Quality Restoration Plan and Total Maximum Daily Loads (TMDLs) for the Lake Helena Watershed. Implementation of the Montana Water Trust’s proposed Prickly Pear Creek Re-Watering Project (Project) would address the above TMDLs by potentially providing year-round connectivity in Prickly Pear Creek from Wylie Drive to Helena Wastewater Treatment Plant Discharge (MT41I006_030). The MWT plans to achieve these goals through cooperation with stakeholders and water leasing. Expected flows could range from a minimum of 5 cfs to as much as 20+ cfs, dependent upon the number of landowners willing to cooperate and the amount of winter snowpack. The project will build on the results achieved through a similar project on Prickly Pear Creek section (MT41I006_030), implemented by MWT as a pilot project in the late summer of 2007.

Saurbier Feedlot Reclamation Project
Ruby Valley Conservation District
Mark Kelley – DEQ PM
Restoration
$23,000

Goals: To remove extensive animal waste piles and reduce potential surface water contamination, nutrient loading and sediment deposition in the Ruby River.

Project Description: This project involves clean up, waste removal, reclamation, fencing and off stream water development for a relocated feed lot site adjacent to the Ruby River.

Swan Watershed TMDL Implementation
Swan EcoSystem Center
Robert Ray – DEQ PM
Restoration
$40,000

Goals: Reduce nonpoint source pollution to Swan Lake by following an approved Action Plan to implement the recommendations in the 2004 “Water Quality Protection Plan and TMDLs for the Swan Lake Watershed” and by encouraging awareness and a sense of responsibility among residents and visitors of the watershed. Reduce sedimentation from roads by implement Best Management Practices.

Project Description: Swan Ecosystem Center will protect and enhance water quality in the Swan Lake Watershed by: 1) continuing to implement a TMDL Action Plan and Technical Advisory Group; 2) repairing nine TMDL sites and other sites not previously identified to reduce erosion and sedimentation; 3) coordinating a watershed group to oversee activities; 4) continuing stream and lake trend monitoring; 5) providing water quality information for all ages; and 6) keeping good records, managing finances and reporting to DEQ.
**Teton Spring Creek**  
Teton County Conservation District  
Mark Ockey  
Restoration  
$35,000.00

**Goals:** Help meet recommendations set forth in the State NPS Plan & TMDLs for the Teton Watershed by reducing thermal modifications and decreasing nutrient ans sediment loads in Teton Spring Creek, a State listed 303(d) waterbody.

**Project Description:** Project will include a new range and riparian management plan for cattle grazing along Spring Creek. This will include the use of riparian pastures and the creation of a riparian buffer along the stream. Project will also help develop off-site stock watering facilities.

**Ninemile Restoration Phase II**  
Trout Unlimited  
Robert Ray – DEQ PM  
Restoration  
$25,000

**Goals:** Continued implementation of the WQRP and TMDL for the Ninemile Watershed.

**Project Description:** Funding is currently needed for the development, construction and demonstration of a successful sediment reduction project on Little McCormick Creek, a 303(d) listed stream. The restoration of placer mine impacts on Little McCormick Creek are consistent with load reductions identified in the Water Quality Restoration Plan and Ninemile TMDLs.

**Groundwater Monitoring in Flathead Basin**  
Flathead Basin Comission  
Robert Ray – DEQ PM  
Groundwater  
$25,000

**Goals/Description N/A**

**Hamilton Source Water Protection Project**  
Ravalli County  
Robert Ray – DEQ PM  
Groundwater  
$75,000

**Goals:** To protect Hamilton’s groundwater resources from nonpoint source pollution by updating and implementing Hamilton’s Source Water Protection Plan, collecting and safely disposing of waste before it reaches the ground water, and implementing a multifaceted education and outreach campaign on groundwater protection.

**Project Description:** Through collaboration with the City of Hamilton Public Works Department, Ravalli County Planning Department, Bitter Root Water Forum, local septic service companies, Montana Bureau...
of Mines and Geology and local schools, the Ravalli County Environmental Health Department will do the following as part of this project: (1) Update and implement the SWPP for the City of Hamilton; (2) monitor up to 50 wells within Hamilton’s Source Water Protection Area for nitrates, specific conductivity, total dissolved solids and bacteria; (3) enact a multifaceted educational campaign to raise community awareness of watershed and water quality issues; and (4) provide incentives for homeowners within Hamilton’s Source Water Protection Area to pump and maintain their septic systems.

**Riparian Buffer Education Campaign**
Flathead Conservation District
Rob Rung – DEQ PM
E&O
$120,000

**Goals:** Increasing public awareness and appreciation for the crucial role that riparian areas play in protecting the clean water that we love and depend on in Montana.

**Project Description:** Many areas of Montana are experiencing mounting pressure from growth and development, as more and more people choose to live in and around our western valleys. The citizens of Montana must be informed about the critical functions that riparian areas play, and the benefits that these areas provide to all of us. A collaboration of local water quality districts, conservation districts, and county environmental health divisions would like to expand the geographic and strategic scope of an existing riparian public educational campaign to include more western Montana communities and to develop a television Public Service Announcement/informational advertisement that would be made available statewide.

**Critical Lands Outreach & Education Project**
Flathead Lakers
Rob Rung – DEQ PM
E&O
$35,000

**Goals:** The 2008 Flathead Critical Lands Education and Outreach Project goals are to:
1. sustain the outreach coordination position and outreach activities in priority riparian and wetland areas,
2. develop and conduct educational workshops on riparian areas and stream restoration for land owners and Realtors, and
3. conduct outreach to inform the public and generate support for Flathead County Policy implementation strategies that protect water quality.

**Project Description:** The 2008 Flathead Critical Lands Education and Outreach Project is a collaborative effort to conserve lands critical to maintaining and improving water quality in the Flathead Watershed. The project is focusing efforts in the Flathead Valley upstream from Flathead Lake since this area contributes the highest nutrient loads to the lake and is facing acute growth pressures. If funded, this grant proposal will fund implementation of education and outreach activities to inform target audiences about the importance of vegetated riparian corridors and wetlands for maintaining and improving water quality, encourage protection, restoration, and stewardship of these critical lands for water quality.
protection, and encourage implementation of water quality protection measures in the Flathead County Growth Policy implementation strategies.

Target audiences include stream and river bank and wetland land owners, Realtors, land use planners, commissioners, and county residents. Project activities include workshops, tours, informational materials, maps, neighborhood and partner meetings, and land owner visits to encourage protection and restoration of priority riparian buffers and wetlands. Expected outcomes of proposed activities are increased land owner understanding of the importance of lands critical to maintaining or improving water quality, new protection and restoration projects initiated by land owners, and Flathead County Growth Policy implementation strategies promoted and implemented to protect water quality.

**NPS Education for Diverse Audiences**
Montana State University - Montana Watercourse
Rob Rung – DEQ PM
E&O
$80,000

**Goals:** To reach targeted audiences with NPS resources and information to empower and inspire knowledgeable leaders and community professionals to voluntarily reduce their impact on Montana’s water resources. To provide the development community with resources concerning low impact development, stormwater BMP’s, groundwater protection and wetland and riparian area buffers. To continue providing volunteer monitoring training and database support for long term data collection for watershed groups and other volunteers. To support the education community with materials and resources to incorporate NPS issues into curricula and other educational venues. To support NPS information dissemination through MTWC website and MWCC watershed group support.

**Project Description:** First, Montana Watercourse proposes to expand an already successful outreach campaign to members of Montana’s development community. These educational efforts will deliver information and resources on topics listed above to the following potential audiences: developers, contractors, landscapers, architects, engineers, local government officials, real estate agents and landowners. Montana Watercourse will also continue to research successful methods to reach this audience by fostering open communication with development leaders. Montana Watercourse proposes to provide leadership and resources to volunteer monitors across the state. Specifically, this proposal will continue the Volunteer Water Monitoring Program through training new and existing water monitoring groups, supporting the certification of volunteer monitors, supporting watershed efforts of Montana Watershed Coordination Council (MWCC) by improving the Volunteer Water Monitoring Project data repository and participating in the MWCC Water Monitoring Workgroup. MTWC proposes to assist the educational community through delivery of water curriculum workshops, trainings and support for K-12 and non-formal educators. In order to sustain these programs and maximize the efforts of water quality E & O in Montana, the Montana Watercourse’s website needs professional updates to be a more interactive, effective tool. Lastly, coordination and administrative tasks address the methods for overseeing the outcomes of the proposal and reporting and invoicing DEQ according to the requirements of the grant.

**Montana Livestock NPS Water Quality Initiative**
Montana State University-Extension Service
Mark Ockey – DEQ PM
E&O
Goals: The following outcomes are set forth by the applicant and supporters: a) Enhanced capacity to provide education and technical assistance to animal feeding operations, and livestock/animal owners on small acreages by multiple agencies and institutions across Montana, b) Increased level of NPS awareness and knowledge for animal feeding operations, and livestock/animal owners on small acreages, and c) Increased implementation of water quality best management practices related to livestock production and animal agriculture across Montana.

Project Description: Montana State University Extension seeks to fund a non-point source (NPS) education and technical assistance team to address nutrients, sediments and pathogens originating from animal feeding operations (AFOs) and animals on small acreages including small AFOs, seasonal AFOs and “hobby farms” or “ranchettes.” Appropriate state agencies, federal agencies and commodity associations will be recruited to participate and contribute. State wide coverage will be established through the Extension county delivery system and participation of recruited partners.

Flint Creek TMDL
Granite Conservation District
Darrin Kron – DEQ PM
TMDL Planning
$160,000

Project Description: The Granite Conservation District will assist in coordinating public and technical stakeholder involvement activities for TMDL formation in the Flint Creek TMDL Planning Area (TPA) with DEQ. The contractor will assist in landowner outreach, land access scheduling, and information dissemination for the Total Maximum Daily Load (TMDL) process in the Flint Creek Watershed. Granite CD will also coordinate and participate in TMDL planning by providing a functional watershed forum which will provide watershed and TMDL education, coordinate land access for monitoring, and disseminate TMDL related information at Watershed meetings. Contractor will undertake initial steps for compiling necessary data for completion of the Flint TMDL.

Upper Gallatin TMDL
Blue Water Task Force
Pete Schade – DEQ PM
TMDL Planning
$75,000

Goals: In conjunction with the DEQ, our goals are to build on the previous year’s 319 project, Upper Gallatin Watershed TMDL: Phase 4, by conducting source assessments for sediment and pathogens on 303(d) listed streams in the Upper Gallatin TMDL Planning Area

Project Description: Continue progress towards completion of the Upper Gallatin TMDL by performing the following tasks: water quality sampling and source assessments as defined in the TMDL Project Plan and associated Sampling and Analysis Plans (SAPs) Throughout the entire project, the Blue Water Task Force (BWTF) will coordinate TMDL outreach activities; involve and engage all parties involved; provide review and oversight on all components of the project; and facilitate communication between all partners, stakeholders and the community.
**Lower Gallatin TMDL**
Greater Gallatin Watershed Council  
Pete Schade – DEQ PM  
TMDL Planning  
$75,000

**Goals:** Goals are to develop a public involvement strategy for the Lower/East Gallatin TMDL Planning Area and to initiate TMDL development through preliminary source assessments and existing water quality condition characterization

**Project Description:** This proposal aims to initiate TMDL development in the planning area through a variety of technical assessments for nutrients, sediment and e coli.

**Flathead/Stillwater TMDL**
Flathead Conservation District  
Jim Bond – DEQ PM  
TMDL Planning  
$40,000

**Goals:** 1) Temperature modeling for TMDL development. 2) Data and information gathering to assist with sediment TMDL development.

**Project Description:** Conservation District (CD) will assist DEQ in subcontracting work to implement a sampling analysis plan for temperature on Ashley Creek and Whitefish River. The collected data will then be used to build temperature models to develop TMDLs and allocations, and a report will be completed detailing the effort and results of the project. Additionally, tasks will be conducted that gather 310 permit information and stormwater system information which will be used to assist with sediment TMDL development for the Flathead-Stillwater TMDL Planning Area.
5.0 Fiscal Year 2007

Haskil Basin Bridge & Restoration
Flathead CD (direct negotiate)
Ann Storrar – DEQ PM
Restoration
$25,000

Goals: The mission of the Haskill Basin Watershed Council (HBWC) is to maintain and enhance the chemical, biological and physical integrity of Haskill Creek by a voluntary and cooperative effort. Agreed upon goals for attaining the purpose of the mission statement include the completion of a detailed watershed assessment as a basis for setting priorities and measuring progress against objectives over time; maintaining, or where needed, restoring the chemical, biological and physical integrity of Haskill Creek by stabilizing stream banks, improving stream habitat and riparian vegetation; improving water quality and native fish populations; and protecting the watershed by developing a comprehensive water quality plan based on objective, scientific input from all stakeholders, among other goals. Phases 1 and 2 of this project, completion of a comprehensive watershed assessment, have been completed. Phase 3 of the project, which includes: preparation of final designs for two in-stream demonstration projects, monitoring, completion of a water quality management plan, and continued coordination and administration for the project is partially complete. One demonstration project was constructed in 2005,
and another is scheduled for end of fiscal year 2006. A Flathead basin-wide TMDL model is being developed which will incorporate data collected in Phase 3. Once this model is complete and TMDL target values have been established, the water quality management plan can be completed. Funding obtained though this grant will enable the HBWC to repair the damage that occurred in spring 2006 to the demonstration project, the Voerman/Klungness stream restoration work completed in fall 2005. Funding would also enable the HBWC to assess the success of the demonstration project in reducing the pollutant load in Haskill Creek. Haskill Creek may contribute significant pollutants to the Whitefish River, a 303 (d) listed waterbody, which flows into Flathead Lake, also a 303 (d) listed waterbody.

**Project Description:** Haskill Creek, a major tributary to the Whitefish River, in northwestern Montana, was not listed as a water quality limited waterbody by Montana DEQ 2002 303(d) list), but is considered as a high priority watershed in the Flathead Conservation District for planning and restoration work by the District. In addition, Haskill Creek is a tributary to the Whitefish River, which has numerous pollutants or conditions identified as causes of impairment. Part of the effort to characterize the Whitefish River should involve consideration of pollutant contributions from Haskill Basin. The City of Whitefish obtains much of its drinking water from upper Haskill Creek. The drainage is impacted to various degrees by residential and recreational development, and agricultural practices. This 319 grant would fund the maintenance for the in-stream demonstration project in Haskill Basin, monitoring, and continued coordination and administration for the project. This work is based on a comprehensive watershed assessment that provides various recommendations for potential watershed and stream and habitat restoration activities. This project is a continuation of work completed through 3 previous 319 grants which included public education, monitoring, restoration design, coordination/administration and development of a preliminary water quality management plan for the drainage. Funding from this grant will enable the HBWC to investigate the success of the restoration work at reducing non-point source pollution in Haskill Creek.

**Big Coulee Phase II**  
Sun River Watershed Group  
Taylor Greenup – DEQ PM  
Restoration  
$70,350

**Goals:** The overall goal of the Big Coulee Water Quality Improvement Project is to reduce return flows and sediment loads into Sun and Missouri Rivers. The primary goals of this project are to: 1) Implement the comprehensive TMDL and watershed plan developed by DEQ and Sun River Watershed Group to meet all beneficial uses of the water in the Big Coulee basin, 2) Improve water quality and quantity by rejuvenating riparian corridor, improving stream dynamics and improving farming practices to have a positive impact on all beneficial uses, and 3) Monitoring program to document project improvements.

**Project Description:** The Sun River Watershed in cooperation with Cascade and Teton Conservation Districts, and state and federal agencies are working together to improve the water quality and quantity on Big Coulee. This proposal will continue to pull together these efforts and be the tool to accomplish the project goals. Reducing irrigation return flows, improved agriculture practices, erosion control measures and information & education will be the key emphasis to accomplish this project.
**Teton Watershed Implementation and Monitoring Project Phase II**
Teton River Watershed Group
Taylor Greenup – DEQ PM
Restoration
$68,334

**Goals:** This is a project to bring the Teton River Watershed into compliance with water quality standards. Implementation and monitoring project goals are to: 1) implement the TMDL and watershed plan for the Teton River, 2) enhance the Teton River water quality and quantity through rejuvenation of the riparian corridor, improving stream dynamics and changing land management for a positive impact on all beneficial uses, 3) Teton River Watershed Group (TRWG) education program is to improve teamwork between everyone interested in the Teton Watershed that will help lead to improved water quality and quantity in the basin and 4) effective watershed monitoring program documenting status and trends of water quality, water quantity, and all beneficial uses.

**Project Description:** This proposal will continue to pull together the cooperative efforts working together to address the water quality and quantity issues in the Teton River Watershed to implement the TMDL program and watershed planning, erosion control and education programs. Erosion control, improved riparian conditions, and improved agriculture practices (BMPs) will be the primary tasks accomplished to meet the water quality and quantity goals. A monitoring program will continue to ensure progress is being made.

**Ruby Water Quality Restoration Project Implementation Plan**
Ruby Valley Conservation District
Mark Kelley – DEQ PM
Restoration
$25,500

**Goals:** To restore impaired streams listed in the Ruby River WQRP to the level that they will be considered fully functional for all beneficial uses.

**Project Description:** The Ruby Valley Conservation District (RVCD) seeks to actively plan and pursue water quality restoration efforts throughout the Ruby River watershed basin. While the completed WQRP provides a prioritized restoration strategy based on data collected and targeted TMDL levels, the RVCD would like to create a specific 5 year action plan for how to achieve these goals. It is important to develop a practical, long-term strategy based on additional criteria such as: level and source of impairment, location, potential landowner/agency cooperation, availability of funding and probability of success. To ensure successful implementation it is important to bring all of the stakeholders and their concerns together to define and prioritize the restoration projects. Once the Five year restoration plan is completed it will provide the restoration road map for the Ruby Watershed.
Prickly Pear - Lake Helena Project
Lewis & Clark County Water Quality Protection District
Robert Ray – DEQ PM
Restoration
$64,296

**Goals:** Begin Implementation of the Water Quality Restoration Plan and TMDLs for the Lake Helena Planning Area, Montana.

Objective 1: Engage landowners, agencies, and interested stakeholders in scoping, planning, and implementing watershed planning efforts and water quality improvement projects as outlined in the TMDLs and the Water Quality Restoration Planning process through continued development of Watershed Groups.

Objective 2: Improve water quality within the Lake Helena Planning Area through increased stream flows, riparian revegetation, and reductions in contaminant loading by implementing the TMDLs and the Best Management Practices (BMPs) identified in Water Quality Restoration planning process. Develop projects to install BMPs and other efforts to reduce loads of existing human caused pollutants (primarily sediment but also metals and nutrient sources) and work to reduce temperature impairments identified in the 2006 Framework Water Quality Restoration Plan and Total Maximum Daily Loads (TMDLs) for the Lake Helena Planning Area Final Report: Volume II.

**Project Description:** Project would implement goal and objectives as stated above by funding 1) continued coordination services for watershed groups to ensure their ongoing participation and citizen representation in the implementation phase of the TMDL/restoration plan as developed, 2) tackling the initial steps of implementing a Septic System Maintenance District to target allocation reductions from one of the major nutrient sources identified in the TMDL plan, 3) to conduct a stream assessment of two reaches of Prickly Pear Creek for the development and design of stream projects to address sediment, nutrient, metals, and temperature impairments as outlined in the TMDL plan, and 4) an educational and outreach component including funding to allow continued water resource education for 4th & 5th graders in the Helena Area schools including field trips to local streams, community outreach by way of watershed group newsletters, annual reports, meeting notices, minutes, and other notices mailed to the public regarding watershed issues and implementation efforts.

Ninemile Watershed TMDL Implementation
Trout Unlimited (Missoula)
Ann Storrar – DEQ PM
Restoration
$35,000

**Goals/Description N/A**

Blackfoot TMDL Implementation & Project Design
Blackfoot Challenge
Ann Storrar – DEQ PM
Restoration
$64,400

**Goals:** Goal 1 – Reduce potential sediment contributions to the Blackfoot River system, reduce road surface erosion, and improve fish passage.

Objective 1 – Replace culverts on Poorman Creek and Cottonwood Creek with bridges.
Objective 2 – Conduct pre and post project monitoring.
Goal 2 – Begin implementation of Nevada Creek water quality restoration plans
Objective 3 – Design two water quality restoration projects in Nevada Creek.
Goal 3 – Increase water quality restoration plan and TMDL implementation activities in the Blackfoot Headwaters Planning Area.
Objective 4 – Host Restoration Seminar for landowners in the Blackfoot Headwaters
Objective 5 – Coordinate Blackfoot restoration partnership and Blackfoot Headwaters Restoration Work Group.

Project Description: Implement culvert replacement project in Poorman Creek under Blackfoot Headwaters TMDL. Prevent potential sediment contribution to Blackfoot River by replacing undersized culvert in Cottonwood Creek. Design two projects in Nevada Creek to address identified water quality impairment listings and sources based on proposed TMDL targets. Conduct Blackfoot Headwaters Restoration Seminar as part of education/outreach program to increase awareness of water quality issues and restoration opportunities. Form Blackfoot Headwaters Restoration Work Group to develop strategies for implementation of completed TMDLs.

Upper Lolo TMDL - Top Four Culverts Replacement
Montana Trout
Mark Kelley – DEQ PM
Restoration
$30,000

Goals: Implement activities identified in the Upper Lolo TMDL (2003) to reduce sediment sources and demonstrate progress toward achieving water quality standards. Monitoring to document and certify the impacts and benefits associated with replacement of the top three priority culverts in the Upper Lolo TMDL project area. Assure the long-term effectiveness of properly designed road crossing structures.

Project Description: The primary purpose of this proposal is to improve the health and condition of the Upper Lolo Creek watershed through re-establishment of aquatic habitat connectivity and passage of flood flows by the replacement of the top three priority culverts (Granite Cr., North Fork of Granite Cr., and East Fork of Lolo Cr), as called for in the Upper Lolo TMDL.

Swan Watershed TMDL Implementation
Swan Ecosystem
Ann Storrar – DEQ PM
Restoration
$58,340

Goals: Reduce nonpoint source pollution to Swan Lake by following and approved Action Plan to implement the recommendations of the 2004 Water Quality Protection Plan and TMDLs for the Swan Lake Watershed and by encouraging awareness and a sense of responsibility among residents of the watershed.

Project Description: Swan Ecosystem Center will protect water quality in the Swan Lake watershed by: 1) continuing to implement a TMDL Action Plan and Technical Advisory Group; 2) repairing 12 TMDL sites and one fish barrier; 3) coordinating a watershed group; 4) continuing stream and lake trend
monitoring; 5) providing water quality information for all ages; 6) keeping good records, managing finances and reporting to DEQ.

Crow Creek Restoration Project
Lower Clark Fork Watershed Group
Ann Storrar – DEQ PM
Restoration
$49,500

Goals: Crow Creek is an important tributary to Prospect Creek, a 303d listed waterbody. This drainage is in bull trout critical habitat and a bull trout priority area. Crow Creek supports healthy populations of both bull trout and westslope cutthroat trout. The objective of this project is to restore this impacted section of Crow Creek. The addition of riparian vegetation will stabilize stream backs, reducing the amount of sediment input, help lower stream temperatures, increase the amount of large woody debris, and increase the complexity of salmonid habitat. The addition of habitat structures, such as log vanes and large woody debris jams, will add much needed habitat complexity through this reach of Crow Creek. It is crucial to restore this section of Crow Creek because it contains the highest numbers of bull trout and westslope cutthroat trout within the entire drainage, especially for a population that may be at risk of disappearing. It may also be important to restore this reach to introduce spawning bull trout back into the system. The restoration completed in Crow Creek will benefit only the native species present in the drainage.

Goal 1: Implement certain recommendations for restoration work contained in the watershed assessment performed for Prospect Creek and in the Lower Clark Fork River Drainage Habitat Problem Assessment.

Goal 2: Improve water quality by reducing non-point pollution, stabilizing stream banks, and improving stream habitat and riparian vegetation in order to restore native fish populations, and to educate landowners in this (and regional) drainages of this benefits of having a watershed plan.

Goal 3: Implement a monitoring program that documents water quality improvements resulting from the funded restoration projects.

Project Description: The project proposes to restore a section of Crow Creek (tributary to Prospect Creek) which intersects the Bonneville Power Administration (BPA) power line to a more proper functioning channel. Approximately ½ mile of Crow Creek has been detrimentally impacted due to extensive clearing underneath the power line right-of-way. Work will include extensive revegetation with low growing species, reconstructing the entire reach located under the power line back to natural channel dimensions (reducing width to depth ratios where the channel is over-widened and constructing a single channel where a braided channel currently exists), and adding habitat structures such as log vanes and large woody debris to provide bank stability and additional rearing habitat. Work would be completed with heavy equipment in the summer/fall of 2007. Riparian planning may take place over several years.

Habitat condition within the project area is poor. There is a significant lack of large woody debris within the section of restoration, which likely corresponds to the loss of riparian vegetation when the power lines were constructed and additional maintenance thereafter. Pools are also lacking within this reach, probably in direct relation to the lack of wood to form large pools. Bank erosion is significantly higher than expected for a drainage of this size, as well as surface fines. The section has width to depth ratios that are higher than the natural condition of the stream, and large sections of this reach have braided channels that have formed.
The contractor will complete the project at location (N47 degrees, 31.511’ / W115 degrees, 33.423’) as described in final design plans (to be completed winter and spring of 2007). Implementation of this task will be based on the stream assessments previously completed for the Prospect Creek drainage and an updated, site specific assessment of the Crow Creek drainage, Prospect Creek TMDL Plan development, as well as prioritization by the Prospect Creek Watershed Council and its Technical Advisory Committee. The contractor will obtain appropriate 310 and Corps of Engineers permits. MFWP will determine an appropriate work window for the construction and provide technical assistance throughout the project. Techniques to be used on the Crow Creek project include channel reconstruction, bank stabilization, fish habitat enhancement and riparian revegetation. The contractor will follow the requirements of the Biological Evaluation for Cutthroat and Bull Trout habitat (Crow Creek is located in the Bull Trout Core Recovery Area) and carnivores: lynx, grizzly bear and gray wolf. The project will be completed as specified in the approved plans. The contractor will secure concurrence of the contracting officer for any modifications.

**Grave Creek Restoration Phase III**
Kootenai River Network
Ann Storrar – DEQ PM
Restoration
$30,000

**Goals:** The primary goal of the Grave Creek Phase III Restoration Project is to implement 5,900-ft.of channel restoration activities to improve water quality and fish and wildlife habitat for threatened bull trout (Salvelinus confluentus) and westslope cutthroat trout (Oncorhynchus clarki lewisii) in the upper Kootenai River watershed of northwest Montana. This goal will be accomplished by reconstructing the proper channel forms and riparian conditions present prior to substantial anthropogenic-caused modifications to the river corridors.

**Project Description:** The Grave Creek- Phase III project will be implemented in one phase (Fall 2007). Kootenai River Network (KRN) has contracted final engineering designs for restoration of the Grave Creek- Phase III Restoration Project in 2005. The final designs will restore approximately 5,900-ft of Grave Creek channel and extensive revegetation efforts to facilitate riparian succession at the site.. The project will include reconstructing the proper plan, profile, and cross-sectional dimensions of the reach, installing native material fish habitat structures, and revegetating approximately 5,900-ft.of riparian floodplain. Riparian management plans and agreements will be developed in cooperation with the landowners to ensure restoration actions are maintained in perpetuity.

**Marias River Watershed - A N Wasteway Rehabilitation**
Pondera County Conservation District
Taylor Greenup – DEQ PM
Restoration
$69,000

**Goals:** Protect and improve the quality of land and water resources within the Marias River Watershed. Stabilize areas of erosion, reduce sedimentation to the river, prevent further loss of land, and protect structures. Apply a variety of corrective measures and/or construction methods to address water-quality degradation problems. Design, construct, monitor, and evaluate bank stabilization restoration project to provide proper and effective examples of restoration and stabilization methods necessary for location conditions.
**Project Description:** This project would consist of constructing new irrigation infrastructure to prevent severe bank erosion and sedimentation at the distal end of the AN-Canal from affecting the Marias River.

**Stream salinity, siltation, and flow impacts from saltcedar infestation in the Sarpy Creek watershed**  
Treasure County Weed Board  
Taylor Greenup – DEQ PM  
Groundwater  
$15,000

**Goals:** The major goals of this project are to find how to reduce non-point source pollution by testing transpiration levels and soil salinity in existing salt cedar stands in Treasure County.

**Project Description:** Configure a saltcedar test plot in Treasure County near the confluence with the Yellowstone River and monitor transpiration and soil salinity.

1. Review existing literature on saltcedar transpiration rates in southwestern States.
2. Measure transpiration rates on several individual trees using meters, and analyze soil for chemical constituents and try to identify mineral species that are concentrating under salt cedar thickets.
3. Report findings.
4. Administer project and report findings.
Completion of the these tasks will provide information about possible bank restoration of native plants and/or grasses to stop bank erosion and stream sedimentation.

**Mini Grants Fiscal Year07**  
Montana DEQ  
Andrew Jakes – DEQ PM  
E&O  
$20,000

**Goals:** To provide financial and technical assistance to local stakeholders by providing a tool for small grant awards to help complete and enhance new or on-going NPS projects.

**Project Description:** DEQ will develop specific but flexible program guidelines for various types of education activities, which would be eligible for financial and technical assistance for interested school systems, organizations, volunteer groups, i.e. the general public. Educational activity types could include but are not limited to: start-up for volunteer monitoring, purchasing of equipment for nonpoint source education, producing educational pamphlets/documents/calendars, assisting in water festivals or tours, producing radio/television/billboard/newspaper/magazine messages, etc. Education must be geared towards non-point source pollution, or mechanisms and issues dealing with cumulative impacts on water quality. Awarded mini-grants will be no larger that $1,500. The mini-grant program can be accomplished through the following criteria:

Sub Task 1: Develop parameters for incoming applications
Sub Task 2: Elicit applications through Education & Outreach; Promote the mini-grant program
Sub Task 3: Award grants and administer contracts
Sub Task 4: Compose, receive and consolidate quarterly and final reports through contract period. Provide quarterly reports to EPA via Grant Reporting Tracking System (GRTS) database. A final report will also be input to GRTS.
**Volunteer Water Monitoring Certification Pilot**  
Montana State University – Watercourse  
Andrew Jakes – DEQ PM  
E&O  
$19,890

**Goals:** This project aims to serve multiple purposes, both on a watershed level and statewide:
1. Support, improve, and enhance nonpoint source pollution education by developing skills and expertise for volunteer water monitoring efforts, improving ability of individuals to perform credible volunteer monitoring methods, and empower communities in communicating and disseminating results locally, statewide and regionally.
2. Increase knowledge and awareness of nonpoint source pollution issues in the Sun/Teton watersheds and support, improve, and enhance the ability for citizens and educational groups to collect, analyze, and distribute quality data.
3. Communicate statewide the Volunteer Monitoring Program’s certification program to current and future volunteer water monitors.

**Project Description:** By creating a pilot certification model for volunteer water quality monitoring, the statewide Volunteer Monitoring Program will be able to offer a more rigorous training program to volunteer monitors across the state and enable them to have the technical skills needed to collect and report valid, accurate water quality data. Development of the pilot will include close collaboration from two Montana State University based water resource programs, the Montana Watercourse and the Extension Water Quality program, as well as the Sun and Teton River Watershed Groups. The groups have collaborated in the past, utilizing the expertise from both organizations to implement high quality water quality educational programming. To implement this pilot, the scientists and educators from these teams will work closely with watershed groups on the Sun and Teton Rivers. The certification will include extensive training, follow-up, data analysis, and community outreach. Through the success of this pilot, other certification programs can be implemented statewide.

**Electronic Assistance to Watershed Projects**
Montana State University - Water Center  
Andrew Jakes – DEQ PM  
E&O  
$19,980.00

**Goals:** Achieve a high level of relevant education among Montanans who are conducting projects to mitigate NPS pollution, as well as those who may become involved in such projects.

**Project Description:** The object is to provide electronic, comprehensive, up-to-date information concerning Montana watershed restoration projects, water quality topics, educational events, active watershed groups and committees, and links to sources of financial and technical support. Montana Water Center outreach staff will do this by:

Augment the existing Montana Watershed Projects Database  
http://water.montana.edu/watersheds/projects/default.asp with projects completed since 2004, and add USDA projects for the period 2004-2006 and earlier if possible. The database is used by state and federal infrastructure and natural-resources funding programs that have applications in hand, and need
to understand all the projects that have been conducted previously in the watershed or the immediate area, and their outcomes. Consequently it must be brought up to date periodically, with the necessary labor funded by a new grant. The updating will involve gathering project information from the Montana DEQ, Montana Fish, Wildlife & Parks, and the USDA NRCS. As well, if available in assessable format, we shall request to post results of watershed projects funded by DNRC and Montana Association of Conservation Districts. At least 100 new project descriptions will be made available electronically. We shall coordinate fully with the Governor's Restoration Initiative Task Force to assure this work does not duplicate efforts undertaken for that initiative by the Natural Resources Information System of the Montana State Library. At the present moment, it appears any projects database that will be begun under that initiative is likely to use a GIS interface, will include topics (like brownfields restoration) not covered herein, and will build on the information collected for the watersheds projects database. If a database is initiated by the Governor's Restoration Initiative Task Force, both databases can be used in conjunction with one another to serve as a powerful tool and will be promoted together on Montana Water, MWCC websites and various list serves.

Greatly bolstering the existing Montana Water water-topics pages at http://water.montana.edu/topics/default.htm with information that is current and pertinent to Montana, as requested by the MWCC Outreach & Education Committee: Watershed restoration, changing land use, surface/groundwater interactions, water supply, aquatic species and water quality are the general subjects that will be covered.

Issuing 12 installments of the Montana Water E-newsletter, and continually building its circulation. This e-publication, archived at http://water.montana.edu/newsletter/archives/default.asp currently reaches about 1600 subscribers with updates on Montana water research, feature stories about university faculty and projects, links to new or newly-discovered resources of interest to Montana water people, events listings and links, news stories on important court decisions, legislative initiatives, and more.

Critical Land Project
Flathead Lakers
Andrew Jakes – DEQ PM
E&O
$10,000

Goals: The Critical Lands Education and Outreach Project goals include to:
Goal 1: Encourage protection of critical areas through voluntary land protection agreements.
Goal 2: Encourage maintaining, protecting, and restoring vegetation buffers of at least 50 to 300 feet along streams, rivers and wetlands to protect water quality.
Goal 3: Strengthen the Flathead Lakers’ internal capacity to manage and continue the Critical Lands Project.

Project Description: The Critical Lands Project is a collaborative effort to protect lands that are essential to protecting and improving water quality in the Flathead Watershed. The project is focusing efforts in the Flathead Valley upstream from Flathead Lake, since this area contributes the highest nutrient loads to the lake and is facing acute growth pressures. This Critical Lands Project Education and Outreach grant proposal will provide funding for partners to inform target audiences about the importance of vegetated riparian corridors and wetlands for maintaining and improving water quality, and encourage critical lands protection, restoration, and stewardship in previously identified priority areas. Target audiences include stream and river bank landowners, Realtors, builders, developers, county planning boards and county commissioners, and the general public. Project activities include workshops, tours, presentations, informational materials, maps and landowner visits to encourage protection and
restoration of priority riparian buffers and wetlands. Expected outcomes of proposed activities are increased landowner understanding of the importance of lands critical to maintaining or improving water quality and support for their protection or restoration, new protection and restoration projects initiated by landowners, and water quality and critical lands protection measures incorporated in Flathead County land use policies, regulations, and development proposals.

**Upper Gallatin TPA**
Blue Water Task Force
Pete Schade – DEQ PM
TMDL Planning
$100,000

**Goals:** Goals are to build on the previous year’s 319 project, Upper Gallatin Watershed TMDL: Phase II, by conducting source assessments and modeling for sediment and pathogens on 303(d) listed streams in the Upper Gallatin TMDL Planning Area

**Project Description:** Continue progress towards completion of the Upper Gallatin TMDL by implementing the Public Participation and Outreach plan developed under DEQ contract no 206060. Continue source assessments, sampling and modeling as defined by sampling and analysis plans developed under contract 206060.

**Lower / East Gallatin TPA**
Greater Gallatin Watershed Council
Pete Schade – DEQ PM
TMDL Planning
$100,000

**Goals:** Goals are to implement a public involvement strategy for the Lower/East Gallatin TMDL Planning Area and to continue TMDL development through implementation of Sampling and Analysis Plans developed under Phase One (DEQ contract no. 206059)

**Project Description:** This proposal aims to continue TMDL development in the planning area through a variety of early phase assessments: to be decided based on outcomes of Phase I assessments.

**Bitterroot TPA**
Tri-State Water Quality Council
Banning Starr – DEQ PM
TMDL Planning
$85,674

**Goals/Description N/A**

**Upper Clark Fork TPA**
Deer Lodge Valley Conservation District
Jim Bond – DEQ PM
TMDL Planning
$150,000
Goals: The goal of this project is completing the TMDL planning in the Upper Clark Fork River Basin with emphasis on tributaries to the Clark Fork River. As part of planning, the goal of this project also includes on going planning and water quality restoration within the basin through the local watershed group. Montana Department of Environmental Quality (MTDEQ) will lead TMDL development and the WRC will work in partnership with them on planning, assessment, monitoring, and implementation projects they are leading in the basin.

Project Description: Compilation of basin water quality data is underway and should be completed in the near future. These data and information will be used to develop a database of chemical, physical, and biological information for the TMDL planning area. Funding from this grant will be used to implement a Quality Assurance Project Plan (QAPP) data collection effort to fill data gaps and complete the TMDL planning process. The WRC and MTDEQ are working in partnership with each other to cost share basin data collection and planning. In addition, some implementation of best management practices are underway and are also part of this project providing cost share since they are listed streams or tributary to listed stream. In addition to TMDL planning on listed streams, the project includes a comprehensive watershed assessment on Browns Gulch, range and agricultural lands assessment and planning by the Deer Lodge conservation district, and implementation of restoration project on the WRC’s East Valley project. Other restoration efforts are underway as well as part of the overall basin work the WRC is doing and bring value to this project.

**Flint Creek TPA**
Granite County Conservation District
Darrin Kron – DEQ PM
TMDL Planning
$10,000

Project Description: The Granite Conservation District will assist in coordinating public and technical stakeholder involvement activities for TMDL formation in the Flint Creek TMDL Planning Area (TPA) with DEQ. The contractor will assist in landowner outreach, land access scheduling, and information dissemination for the Total Maximum Daily Load (TMDL) process in the Flint Creek Watershed. Granite CD will also coordinate and participate in TMDL planning by providing a functional watershed forum which will provide watershed and TMDL education, coordinate land access for monitoring, and disseminate TMDL related information at Watershed meetings.

**Montana At Large**
Montana DEQ
Dean Yashan – DEQ PM
TMDL Planning
$112,036

Goals: To provide technical assistance to Watershed Management Section via private contractors for work on Total Maximum Daily Load (TMDL) projects in Montana.
6.0 FISCAL YEAR 2006

Grave Creek Restoration Phase II
Kootenai River Network
Ann Storrar – DEQ PM
Restoration
$100,000

Goals: The primary goal of the Grave Creek Phase III Restoration Project is to implement 5,900-ft. of channel restoration activities to improve water quality and fish and wildlife habitat for threatened bull trout (Salvelinus confluentus) and westslope cutthroat trout (Oncorhynchus clarki lewisi) in the upper Kootenai River watershed of northwest Montana. This goal will be accomplished by reconstructing the proper channel forms and riparian conditions present prior to substantial anthropogenic-caused modifications to the river corridors. The KRN will use existing final engineering designs prepared by a private consultant (River Design Group, Inc. October 2005) to reduce nutrient and sediment contributions, restore native fish habitat, reduce habitat fragmentation, and improve water quality in the Grave Creek drainage. Restoration practices will be similar to those employed in previous Demonstration and Phases 1 and 2 project reaches; however, substantial changes to channel pattern are not anticipated due to the higher degree of floodplain developments. The restoration plan, when implemented, will improve water quality, allow the stream to provide its beneficial use support.
designations, and facilitate near-term removal from the 303(d) list of impaired water bodies as indicated in the “Grave Creek Watershed Water Quality and Habitat Restoration Plan and Sediment Total Maximum Daily Loads” (March, 2005). This project is integral to the development and implementation of a comprehensive watershed recovery plan for the Tobacco River drainage.

**Project Description:** In the Tobacco River watershed the cumulative two and one half miles of the lower mainstem of the Grave Creek drainage are currently in an impaired condition from both a physical and biological standpoint. The reach contributes excessive sediment to impaired 303(d) listed stream segments. The project will include active restoration to restore the proper form and function of the river corridor. By reducing sediment and nutrient sources through bank and channel restoration efforts, water quality will improve as well as aquatic habitat quality and quantity for threatened and sensitive fish species. To date, one mile of the lower main stem has undergone extensive restoration activities as identified in previous MT-DEQ 319 approved restoration project implementations. The Grave Creek-Phase III project will be implemented in one phase (Fall 2006). KRN has contracted final engineering designs for restoration of the Grave Creek- Phase III Restoration Project in 2005. The final designs will restore approximately 5,900-ft of Grave Creek channel and extensive revegetation efforts to facilitate riparian succession at the site. The project will include reconstructing the proper plan, profile, and cross-sectional dimensions of the reach, installing native material fish habitat structures, and revegetating approximately 5,900-ft of riparian floodplain. Riparian management plans and agreements will be developed in cooperation with the landowners to ensure restoration actions are maintained in perpetuity.

**Fort Peck Watershed Restoration Project Phase II**  
Fort Peck Water Users Association  
Taylor Greenup – DEQ PM  
Restoration  
$47,350  

**Goals:** To minimize the quantity and maximize the quality of return flows to the Missouri River

**Project Description:** The main purpose of the Fort Peck Irrigation Project (FPIP) Watershed Plan is to identify and rehabilitate the irrigation inefficiencies within the watershed boundaries.

**Blackfoot Restoration Monitoring & Stewardship Support**  
Blackfoot Challenge, Inc.  
Ann Storrar – DEQ PM  
Restoration  
$37,800  

**Goals:** Goal 1 – Conduct monitoring to support the improvement of water quality in the Blackfoot Watershed.  
Objective 1 – Collect post-restoration data on 5 water quality related restoration projects and support established monitoring stations in the Blackfoot.

Goal 2 – Develop projects to improve water quality  
Objective 2 – Work directly with landowners in the Blackfoot Watershed to develop projects and implement best management practices.
Goal 3 – Demonstrate to landowners how restoration activities improve water quality. Objective 3 – Host tour of completed water quality restoration projects and monitoring.

**Project Description:** Conduct post-project monitoring on 5 water quality restoration projects. Analyze pre and post restoration monitoring data to document changes in water quality as a result of restoration activities. Support established USGS stations in Nevada Creek and the Blackfoot River near Bonner. Work with landowners throughout the Blackfoot Watershed to develop projects that are aimed at improving water quality. Target interested landowners in the Blackfoot Headwaters planning area to implement projects outlined in approved TMDLs. Educational tours for landowners in the Blackfoot watershed focusing on water quality restoration and monitoring. Provide coordination and administration to ensure successful project implementation and completion.

**Swan Watershed TMDL Implementation**
Swan EcoSystem
Ann Storrar – DEQ PM
Restoration
$52,200

**Goals:** Protect and restore water quality in the Swan Lake watershed of Northwest Montana.

**Project Description:** Swan Ecosystem Center will continue coordinating implementation of the Water Quality Protection Plan and TMDL for the Swan Lake Watershed, 2004. This includes: This includes convening a Technical Advisory Group to develop an Action Plan, reducing nonpoint source pollution on a critical tributary, coordinating a watershed group, synthesizing monitoring data to inform future restoration in the watershed, water quality awareness and education, monitoring water quality in lakes and streams and administering grant requirements.

**MODFLOW as a predictor of Salt Flow in GroundWater**
Liberty CD
Taylor Greenup – DEQ PM
Groundwater
$69,529

**Goals:** Evaluate the relative impacts of cropping practices on ground-water flow directions, ground-water levels, hydraulic gradients, and growth/reduction of saline seep areas using a computer generated simulation (MODFLOW).

**Project Description:** The MTDEQ and EPA have expressed interest in using ground-water flow modeling to estimate the reduction in salt loads to surface water as a result of land-use change. In the absence of data for specific sites, a ground-water flow model could be used to calculate the change in ground-water discharge to the surface under a variety of land-use conditions including native grasses, CRP, alfalfa, or combinations thereof. MODFLOW (McDonald and Harbaugh, 1988) is a ground-water flow model that can be used to calculate head (ground-water levels) and ground-water flux; moreover, this type of model can be used to calculate the difference in head and flux as result of changes in other components of the water balance such as evapotranspiration (ET), recharge, and drainage by streams. As with any modeling, a robust model requires sufficient high-quality data for model calibration including long-term water-level and precipitation data, cropping information, topographic and various other hydrogeologic parameters at the field level. These data are generally not available, but they do exist on the Highwood
Bench as a result of an intensive 3-year study (Miller and others, 1980) that, among other objectives, documented the changes in ground-water levels due to changes in cropping patterns. A flow model, properly calibrated using these data, should be transferable to many other watersheds in the glaciated portion of northern Montana. In addition, the Highwood Bench study included monitoring ground-water flux to agricultural drains; such data would provide a good basis for calibrating a model that would calculate ground-water discharge to surface water. The objective is to establish a ground-water flow model calibrated to ground-water and surface-water conditions observed at the Highwood Bench site. Of particular interest is the establishment of absolute values and the distribution of ET. Then, land-use (distribution of ET) would be changed to address various possible conditions; the net change in ground-water levels and ground-water flow to surface water would be calculated. Several “what if” models, based on ET, would be constructed and the results presented. For example, a comparison could be made between planting alfalfa around a seep area and planting alfalfa in the recharge area; both ground-water levels, and ground-water discharge to surface water would be calculated.

### 2006 Ruby Groundwater / Surface Water Interaction Model
Ruby Valley CD
Mark Kelley – DEQ PM
Groundwater
$73,096

**Goals:** Goal 1: Groundwater flow modeling and GIS interface for Lower Ruby Valley, Goal 2: Complete education and outreach and public interaction to assist TMDL implementation efforts and develop a long-range plan to protect water quality and quantity throughout the Ruby Watershed.

**Project Description:** The Ruby Groundwater/Surface Water Interaction Model is an applied effort linked to TMDL implementation. The RVCD has a legacy of protecting watershed resources and implementing conservation plans, and local efforts are aimed at preserving and enhancing watershed resource and water quality. The RVCD designed this project to promote Best Management Practices (BMPs) by developing a clear understanding of groundwater and surface water interaction using a combination of state-of-the-art computer modeling as well as the required education and outreach to communicate the findings. Specifically, this project funds the second phase of Lower Ruby Valley Groundwater Management Plan. The second phase will use the management plan data set and GIS themes in a transient MODFLOW three-dimensional groundwater flow model as well as a MODBRNCH surface water model. The goal is to refine the water budget through transient model runs, predict surface water and groundwater interaction resulting from management changes (e.g., irrigation efficiency, new groundwater supplies, changes in the vegetation cover, changes in irrigation water routing, etc.), and develop a GIS dataset to help decision makers implement the Lower Ruby Valley Groundwater Management Plan and pending Ruby Watershed Water Quality Restoration Plan (WQRP, finalized in Dec. 2005). Data collected for the lower Ruby Watershed shows that groundwater is a major controlling factor for Ruby River flows. Changes in how groundwater and irrigation water is managed could impact surface water and the coldwater fishery. The pending WQRP links late summertime thermal impairment in the Ruby River and reduced flows from associated irrigation practices / return flows, among other factors. Modeling will improve the ability of decision makers to convey this information to the public and move forward with conservation plans. The final product will also help implement the TMDL in terms of predicting changes in groundwater discharge/surface water recharge resulting from management changes linked to irrigation water application, water conveyance, vegetative cover, and new water supplies.
**NPS Information & Education**
Montana State University - Montana Watercourse
Andrew Jakes – DEQ PM
E&O
$75,290

**Goals:**
1) Improve local capacity and basic knowledge of watershed and water quality issues among educators and their students.
2) Provide community and statewide support for increasing awareness of watershed and ground water quality issues.
3) Volunteer monitoring support and training for K-12 and Community efforts statewide to improve awareness and information about local water quality.

**Project Description:** Tasks related to improving K-12 teacher ability to convey water quality and watershed education to students; improved ability for MWCC and local watershed efforts to provide water education and support that will improve ability to manage water; improved ability to show landowners tools for maintaining ground water quality; and training and support for volunteer monitoring efforts across the state.

**Mini-Grants**
DEQ Water Quality Planning Bureau
Andrew Jakes – DEQ PM
E&O
$20,000

**Goals:** To provide financial and technical assistance to local stakeholders by providing a tool for small grant awards to help complete and enhance new or on-going NPS projects.

**Project Description:** DEQ will develop specific but flexible program guidelines for the types (define types) of education activities, which would be eligible for financial and technical assistance for interested school systems, organizations, volunteer groups, i.e. the general public. Education must be geared towards non-point source pollution, or mechanisms and issues dealing with cumulative impacts on water quality. Awarded mini-grants will be no larger that $1,500. The mini-grant program can be accomplished through the following criteria:

- **Sub Task 1:** Develop parameters for incoming applications
- **Sub Task 2:** Elicit applications through Education & Outreach; Promote the mini-grant program
- **Sub Task 3:** Award grants and administer contracts
- **Sub Task 4:** Compose, receive and consolidate quarterly and final reports through contract period. Provide quarterly reports to EPA via Grant Reporting Tracking System (GRTS) database. A final report will also be input to GRTS.

**Lower Blackfoot TMDL**
Blackfoot Challenge, Inc.
Tim Byron – DEQ PM
TMDL Planning
$100,000
**Goals:** The goal of the Lower Blackfoot TMDL Project is to complete development of Habitat and Water Quality Restoration/TMDL Plans for the Lower Blackfoot Planning Area through a process that provides education and outreach, and ensures stakeholder and public involvement. Activities will include additional assessments on 303(d) listed water bodies, existing data review; development of targets and allocations as well as restoration and monitoring strategies; and preparation of the final document.

Objective 1: Develop and provide a final Habitat and Water Quality Restoration/TMDL Plans that meets DEQ/EPA TMDL requirements for the Lower Blackfoot planning area by the 2007 deadline.

Objective 2: Administer and coordinate this effort through the Blackfoot Habitat and Water Quality Restoration (HWQR) Committee. Administer and coordinate this effort with existing DEQ contracts, ongoing TMDL development activities, and with education and outreach to Basin residents to ensure stakeholder and public involvement in the development process.

**Project Description:** Conduct assessments and data analysis leading to a Final TMDL document for the Lower Blackfoot TMDL Planning Area.

**Jefferson River Watershed**
Jefferson Valley Conservation District
Darrin Kron – DEQ PM
TMDL Planning
$108,000

**Goals:** Assimilate and assess previously collected nutrient, sediment, metals, and temperature information into a Water Quality Restoration Plan document and appendices that contain all necessary TMDL components.

**Project Description:** Phase IV of the watershed project is to complete the TMDL development process for the Upper Jefferson Jefferson River Planning Area.

**Upper Clark Fork (Tibs) TMDL Phase I**
East Deer Lodge Valley Conservation District
Jim Bond – DEQ PM
TMDL Planning
$220,000

**Goals:** The goal of this project is completing the TMDL planning in the Upper Clark Fork River Basin with emphasis on tributaries to the Clark Fork River. As part of planning, the goal of this project also includes ongoing planning and water quality restoration within the basin through the local watershed group. MTDEQ will lead TMDL development and the WRC will work in partnership with them on planning, assessment, monitorirng, and implementation projects they are leading in the basin.

**Project Description:** Compilation of basin water quality data is underway and should be completed in the near future. These data and information will be used to develop a database of chemical, physical, and biological information for the TMDL planning area. Funding from this grant will be used to implement a Quality Assurance Project Plan (QAPP) data collection effort to fill data gaps and complete the TMDL planning process. The WRC and MTDEQ are working in partnership with each other to cost share basin data collection and planning. In addition, some implementation of best management
practices are underway and are also part of this project providing cost share since they are listed streams or tributary to listed stream. In addition to TMDL planning on listed streams, the project includes a comprehensive watershed assessment on Browns Gulch, range and agricultural lands assessment and planning by the Deer Lodge conservation district, and implementation of restoration project on the WRC's East Valley project. Other restoration efforts are underway as well as part of the overall basin work the WRC is doing and bring value to this project.

**Flathead Water Quality Protection**
Flathead Basin Commission / Department of Natural Resources and Conservation
Ann Storrar – DEQ PM
TMDL Planning/Restoration
$19,000

**Goals:** Continue the Flathead Basin Commission (FBC) education and outreach programs

**Project Description:** Continue the Flathead Basin Commission (FBC) education and outreach programs concerning the mission and duties of the FBC (Montana Code Annotated 2005, 75-7-300) build public awareness of the FBC for DEQ nonpoint sources, Total Maximum Daily Load (TMDL) and water quality protection and other related programs in the basin, and to aid in disseminating information about the FBC throughout the course of the contract. Contractor will engage in general education and outreach activities concerning the FBC including, but not limited to, daily public interface on all manner of local, state, regional, and bi-national matters of the FBC. The activities will include local phone calls, public and news media inquiries and releases; biennial report preparation; workshops and seminar presentations on FBC and its work; and special education and outreach projects as identified throughout the course of the project. This work will be done under the direction of the FBC Executive Director as tasked by the FBC Education & Outreach Committee. Contractor will also continue the efforts of the FBC VMP through an individual hired for planning, preparing, and conducting VMP workshops and training sessions to acquire water quality data within the Flathead Basin. Contractor will maintain all data files and conduct a program review that will evaluate the quality of the data acquired through the VMP to date, and provide an assessment of future program developments, adjustments, and continuation. The VMP work will be done under the direction of the FBC Executive Director as tasked by the FBC Voluntary Nutrient Reduction Strategy Program Committee working jointly with the FBC Monitoring Committee to be sure the VMP is coordinated with the updating of the basin monitoring plan

**Bitterroot Lolo**
Bitterroot Water Forum
Pete Schade – DEQ PM
TMDL Planning
$60,000

**Goals:** 1.Conduct watershed assessments for nutrients and sediment in Rye Creek, a tributary to the Bitterroot River. Rye Creek is listed for sediment and nutrient related impairments. Assessments will 1) verify impairment listings and 2) provide information for load estimates.
2.Develop and implement a public and stakeholder involvement strategy for the Bitterroot TMDL.

**Project Description:** The Bitterroot Tributary Assessments: Rye Creek project will conduct sediment and nutrient assessments in Rye Creek, a tributary to the Bitterroot River. Sediment and nutrient conditions will be assessed as will sources of sediment and nutrient loading. Methods employed will be used
throughout the Bitterroot Watershed for similar tributary assessments. Considerable coordination among different subcontractors, land management agencies, landowners and the DEQ will be necessary to ensure that assessment methods and protocols are consistent. In addition to tributary assessments, the contractor will develop, implement and update the Bitterroot TMDL Public and Stakeholder Participation Plan.

**Bitterroot River**  
Tri-State Water Quality Council  
Pete Schade – DEQ PM  
TMDL Planning  
$24,970

**Goals:** Conduct field water quality sampling for nutrients, suspended sediments, and flows on eight tributaries of the Bitterroot River and conduct field water quality sampling for nutrients and suspended sediments at seven existing monitoring sites on the Bitterroot River.

**Project Description:** Conduct field water quality sampling for nutrients, suspended sediments, and flows on eight tributaries of the Bitterroot river and conduct field water quality sampling for nutrients and suspended sediments at seven existing monitoring sites on the Bitterroot River. Sampling methods and protocols will follow those defined in the Sampling and Analysis Plan: Nutrient Sampling in the Bitterroot River Mainstem TMDL Planning Area including Eight Tributaries. Sampling will consist of 12 monthly mainstem sampling events (July 2006 – June 2007) and 2 tributary sampling events (July 2006, Oct 2006).

**Upper Gallatin Watershed II**  
Montana State University - Montana Watercourse  
Pete Schade – DEQ PM  
TMDL Planning  
$33,435

**Goals:** In conjunction with the DEQ, our goals are determine nitrogen loading amounts in streams impaired by nutrients in the Upper Gallatin TMDL Planning Area (TPA). Two components needed to model nutrient conditions in the Upper Gallatin TPA are included in this proposal: Land-Use/Land-Cover (LULC) analysis using recent aerial photography and in-stream nutrient processing using in-stream sampling and field and lab analysis methods.

**Project Description:** Continue progress towards completion of the Upper Gallatin TMDL by performing the following tasks associated with development of nutrient TMDLs: LULC Analysis, In-Stream Nitrogen Processing Assessments.

**Lower Gallatin**  
Greater Gallatin Watershed Council  
Pete Schade – DEQ PM  
TMDL Planning  
$75,900
Goals: Goals are to develop a public involvement strategy for the Lower/East Gallatin TMDL Planning Area and to initiate TMDL development through preliminary source assessments and existing water quality condition characterization

Project Description: This proposal aims to initiate TMDL development in the planning area through a variety of early phase assessments: watershed characterization, aerial assessments, compilation of existing data, development of an overall TMDL Project Plan, and development of a public and stakeholder involvement strategy.

**Upper Gallatin TMDL II**
Blue Water Task Force
Pete Schade – DEQ PM
TMDL Planning
$99,000

Goals: In conjunction with the DEQ, our goals are to build on the previous year’s 319 project, Upper Gallatin Watershed TMDL: Phase II, by conducting source assessments for sediment and pathogens on 303d) listed streams in the Upper Gallatin TMDL Planning Area

Project Description: Continue progress towards completion of the Upper Gallatin TMDL by performing the following tasks: water quality sampling and source assessments as defined in the TMDL Project Plan and associated Sampling and Analysis Plans (SAPs) developed under DEQ contract no. 205052. Throughout the entire project, the Blue Water Task Force (BWTF) will coordinate all TMDL activities; involve and engage all parties involved; provide review and oversight on all components of the project; and facilitate communication between all partners, stakeholders and the community. The BWTF will also develop a written public and stakeholder involvement strategy that will guide the Upper Gallatin TMDL Public Involvement process.

**DEQ Contracted Services**
Montana DEQ
Dean Yashan
TMDL Planning
$85,130

Goals: To provide technical assistance to Watershed Management Section via private contractors for work on Total Maximum Daily Load (TMDL) projects in Montana.
7.0 Fiscal Year 2005

Figure 7-1: TMDL Planning Areas (TPAs) with 319 Projects: Fiscal Year 2005

Coal Creek Restoration Project
Flathead Basin Commission
Mark Kelley – DEQ PM
Restoration
$26,000


Project Description: This project implements the draft of the Water Quality Assessment and TMDLs for the Flathead Headwaters Planning Area. This document found that Coal Creek is impaired for coldwater fisheries. The TMDL for Coal Creek proposed that all existing sources of sediment identified in Coal Creek be fixed. However, the document also stated that it was unknown if fixing those sediment sources would cause significant improvements to the bull trout fishery. Therefore, the TMDL proposed a second phase allocation that would initiate surveys of the entire Coal Creek Drainage. This survey would answer the question of whether the current stream morphology and sediment conditions in Coal Creek are influencing the lack of spawning bull trout. In addition, the document proposed a voluntary water quality improvement strategy for Red Meadow, Whale and Sullivan Creeks.
**Big Coulee Water Quality Improvement Project**
Sun River Watershed Group
Mark Kelley – DEQ PM
Restoration
$47,300

**Goals:** The overall goal of the Big Coulee Water Quality Improvement Project is to reduce return flows and sediment loads into Sun and Missouri Rivers. The primary goals of this project are to: 1) Improve water quality and quantity in Big Coulee to meet all beneficial uses and 2) Monitoring program to document project improvements.

**Project Description:** The Sun River Watershed in cooperation with Cascade and Teton Conservation Districts, and state and federal agencies are working together to improve the water quality and quantity on Big Coulee. This proposal will continue to pull together these efforts and be the tool to accomplish the project goals. Reducing irrigation return flows, improved agriculture practices, erosion control measures and information & education will be the key emphasis to accomplish this project.

**Upper, Middle Blackfoot / Nevada Creek TMDL Implementation Project**
Blackfoot Challenge
Carole Mackin – DEQ PM
Restoration
$125,960

**Goals:** We have three major goals and they are to 1) Address water quality concerns and causes of impairment on 303(d) listed streams in the Middle Blackfoot and Nevada Creek Planning Areas; 2) Monitor program improvements in the Middle Blackfoot and Nevada Creek Planning Areas by documenting conditions and water quality improvements from restoration activities through environmental loading estimates; and 3) Improve public involvement in water quality restoration in the Middle Blackfoot and Nevada Creek Planning Areas by raising public awareness of water quality issues through information and outreach.

**Project Description:** The proposed projects under this application implement the Blackfoot Restoration Plan and will address the following TMDL and water quality concerns in the Middle Blackfoot and Nevada Creek Planning Areas:
- The stream restoration projects on Hoyt Creek, a tributary to Monture Creek, will improve fisheries beneficial uses and reduce sediment and habitat degradation.
- The stream restoration project on the mainstem of the Blackfoot River at the United State Fish and Wildlife Service (USFWS) Waterfowl Production Area will reduce sediment loading, improve habitat and restore a naturally functioning floodplain
- The stream restoration projects on Nevada Creek will reduce sediment loading, improve habitat, and improve instream flows.
- Working with partners and private landowners will result in completion of the existing projects and development of at least six new voluntary projects with willing landowners to achieve Water Quality within Middle Blackfoot and Nevada Creek TMDL area to reduce WQ loading.
- The monitoring project will document conditions in the Middle Blackfoot and Nevada Creek and will measure pre and post project conditions related to impairments, allocations and targets.
- The public outreach project will reach all landowners in the Blackfoot through local newspapers and targeted 303(d) listed landowners through direct mailings.
**Teton TMDL Implementation and Monitoring Project**
Teton River Watershed Group
Mark Kelley – DEQ PM
Restoration
$57,700

**Goals:** This is a project to bring the Teton River Watershed into compliance with water quality standards. Implementation and monitoring project goals are to: 1) implement the TMDL and watershed plan for the Teton River, 2) enhance the Teton River water quality and quantity through rejuvenation of the riparian corridor, improving stream dynamics and changing land management for a positive impact on all beneficial uses, 3) TRWG education program is to improve teamwork between everyone interested in the Teton Watershed that will help lead to improved water quality and quantity in the basin and 4) effective watershed monitoring program documenting status and trends of water quality, water quantity, and all beneficial uses

**Project Description:** This proposal will continue to pull together the cooperative efforts working together to address the water quality and quantity issues in the Teton River Watershed to implement the TMDL program and watershed planning, erosion control and education programs. Erosion control, improved riparian conditions, and improved agriculture practices (BMPs) will be the primary tasks accomplished to meet the water quality and quantity goals. A monitoring program will continue to ensure progress is being made.

**Elk & Pilgrim Creek Restoration Projects**
Lower Clark Fork Watershed Group
Carole Mackin – DEQ PM
Restoration
$42,400

**Goals:** Goal 1: Implement recommendations for restoration work contained in the watershed assessments performed for Elk Creek and Pilgrim Creek. Goal 2: Improve water quality by reducing non-point pollution, stabilizing stream banks, and improving stream habitat and riparian vegetation in order to restore native fish populations, and to educate landowners in these two specific (and regional) drainages of this benefits of the benefits of having a watershed plan. Goal 3: Implement a monitoring program that documents water quality improvements resulting from the funded restoration projects.

**Project Description:** Provide final design plans, materials, equipment and personnel to implement one demonstration project on Elk Creek, and one demonstration project on Pilgrim Creek. The Implementation of this task will be based on the stream assessments previously completed for each watershed and TMDL Plan development as well as prioritization by each Watershed Council and its Technical Advisory Committee. Plans will be developed and 310 and Corps of Engineers permits, etc., will be applied for. Techniques to be used on the Elk Creek project include channel shaping, bank stabilization, installation of brush bars on point bars, fish habitat enhancement and riparian revegetation. The Pilgrim Creek project will involve channel and floodplain reconstruction, riparian revegetation, installation of log grade control structures and fish habitat enhancement structures.
This project will maintain, or where needed, restore the chemical, biological and physical integrity of two lower Clark Fork River tributaries by reducing non-point pollution, stabilizing stream banks, and improving stream habitat and riparian vegetation. The objective is to restore native fish populations and improve water quality in order to remove Elk Creek and Pilgrim Creek from Montana’s 303(d) list. This project will implement and support Montana’s Nonpoint Source (NPS) Management Plan.

**DEQ Information and Education Program Implementation**
Montana State University - Montana Watercourse
Carole Mackin – DEQ PM
E&O
$75,000

**Goals:** Improve basic understanding of water quality and NPS pollution. Support local and statewide watershed efforts.

**Project Description:** Tasks related to improving K-12 teacher ability to convey water quality and watershed education to students; improved ability for MWCC and local watershed efforts to provide water education and support that will improve ability to manage water.

**Haskill Basin TMDL**
Flathead Conservation District
Jim Bond – DEQ PM
TMDL Planning
$27,975

**Goals:** Goal 1: The overall goal of the project is to perform necessary additional assessments on Haskill Creek and it’s tributaries through existing assessment information, new supplementary assessments, aerial photo analysis, etc., and preparation of preliminary TMDL plans in order to meet the target deadline for final plan submittal as established by DEQ. These TMDL plans will address target, allocation and monitoring strategies focused on the identified impairments of each of the waterbodies.

Goal 2: Preparation of a final TMDL report.

Objective 1: Provide a final TMDL document that addresses all EPA and DEQ requirements. This document will include targets, source load allocations, TMDLs (or surrogates, as the case will be), and a conceptual water quality restoration plan. Targets, allocations and a TMDL will be developed for all 303 (d) listed waterbodies to address all 303 (d) listed impairment conditions. As needed, the data from earlier phases of this project will also be used to develop targets, load allocations and surrogate TMDLs for all 303 (d) listed waterbodies.

**Project Description:** This project will provide all technical information and all data needed for TMDL plan development to DEQ, who will have the primary role of incorporating this information and authoring the final TMDL plan document. This will be accomplished by a consultant via the following tasks.

The first task would include water quality sampling and assessment within the Haskill Creek watershed. Included in the total costs are nine sampling events at seven strategically located sites, laboratory processing, personnel hours in the field, mileage and various equipment costs.
Sampling events are scheduled to capture fluctuating flow regimes related to the runoff period, starting in late May and continuing through base flow 2005, and the rising, peak and falling limbs of the hydrograph in 2006. Low flow sampling events will occur in September/October.

It is anticipated that sampling and/or monitoring stations will be established in areas to isolate and capture impacts to water quality resulting from different management activities within the watershed. They include: West Fork 1st Creek (Big Mountain Resort Area), East Fork 1st Creek (Big Mountain Ski Area), 3rd Creek (undeveloped watershed), Haskill Creek downstream from 5th creek confluence (boundary of Stoltze land), Haskill Creek road (upstream from agricultural lands), Voermans Road (downstream from straightened reach), and Monegan Road (upstream from confluence with Whitefish River). Monitoring is the event that will assist in computing total loads (nutrient and sediment) contributed from each ‘land use area’ and total loads into the Whitefish River. All water quality samples will be collected using established USGS, EPA and DEQ methods. Constituents sampled will include: Total Phosphorus, Orthophosphorus, Nitrate plus Nitrite, Total Kjeldahl Nitrogen and Total Suspended Solids. Discharge measurements, obtained to calculate total loads, will also follow USGS guidelines.

Field parameters, measured on-site using RDG equipment include: Salinity, pH, Conductivity, Specific Conductance, Temperature and Dissolved Oxygen. These are primary water quality/habitat indices and together with the laboratory results provide a complete assessment of variable water quality and aquatic habitat throughout the sampling season. Thermographs will be launched for one year at Haskill Basin Road and Monegan Road to evaluate thermal changes in water quality through the agricultural reaches of the watershed.

The second task will facilitate impairment determination for the main stem Haskill Creek and primary tributaries. Consultant, in consultation with DEQ, would research/compile reference and existing condition metrics, evaluate existing physical, chemical, and biological conditions of the watershed, and assist DEQ with impairment determination. Consultant would provide reference and existing data (including departure analysis) and assist DEQ with target development, accordingly. It is assumed that Consultant would work in close cooperation with DEQ on this task to ensure compliance with EPA and DEQ methods.

This task also includes estimating the natural/background erosion rates for the watershed using DEQ accepted methodologies, and updating the sediment source investigation completed for Haskill Creek by River Design Group, Inc. in 2003.

Finally, the Consultant would assist DEQ with the allocation phase of the TMDL under the third task. The total nutrient and sediment loads derived from the first task (described above) would be bracketed into natural and human caused sources. This task would also include a conceptual water quality restoration plan that would the activities necessary to reduce loading to Haskill Creek and the Whitefish River. Ultimately, the percent reduction in the particular load will be used to develop the TMDL for Haskill Creek. At this point, since the causes of impairment are only suspected and not confirmed, this task assumes development of both sediment and nutrient TMDLs for the basin.

**Swift Creek TMDL**
Whitefish County Water & Sewer District
Jim Bond – DEQ PM
TMDL Planning
$25,234
**Goals:** Goal 1: The overall goal of the project is to perform necessary additional assessments on 303 (d) listed waterbodies in the Swift Creek drainage through existing DEQ, USFS and DNRC data, existing assessment review, new supplementary assessments, aerial photo analysis, etc., and preparation of preliminary TMDL plans in order to meet the target deadline for final plan submittal as established by DEQ. These TMDL plans will address target, allocation and monitoring strategies focused on the identified impairments of each of the waterbodies.

Goal 2: Preparation of a final TMDL report.

Objective 1: Provide a final TMDL document that addresses all EPA and DEQ requirements. This document will include targets, source load allocations, TMDLs (or surrogates, as the case will be), and a conceptual water quality restoration plan. Targets, allocations and a TMDL will be developed for all 303 (d) listed waterbodies to address all 303 (d) listed impairment conditions. As needed, the data from earlier phases of this project will also be used to develop targets, load allocations and surrogate TMDLs for all 303 (d) listed waterbodies.

**Project Description:** This project will provide all technical information and all data needed for TMDL plan development to DEQ, who will have the primary role of incorporating this information and authoring the final TMDL plan document. This will be accomplished by a consultant via the following tasks.

- **Compile Source Assessment Information**
  Sediment source data will be compiled and put into a format that can be easily cross-referenced with available reference or literature values. Water quality data was compiled in Phase 1. This task includes one trip to Kalispell to gather documents and meet with DNRC. (It is assumed that DNRC has collected all of the necessary sediment source information for completion of this TMDL. No field work is anticipated).

- **Analyze and Report Differences between Reference and Source Assessment Data**
  This task will require an analysis of data from many sources (reference, literature, and existing Swift Creek information). This analysis will result in a detailed technical memo presenting all sources of information that were evaluated. The level of detail will depend on the actual amount and usefulness of data gathered. The technical memo will discuss which sources are most applicable and why and will present actual data from those sources that most can be most reliably applied to development of targets. These data will be compared to existing data available for the Swift Creek watershed.

- **Develop Targets**
  Draft targets will be proposed. The technical memo from this task will be used to determine how well substantiated the targets will be with just the data available. Additional data analysis is presumed to be necessary as target discussions proceed. Targets for sediment in Swift Creek will be based on reference values if possible. If reference values are not available or reliable, professional judgment may be utilized with support from scientific literature, Phase 1 results, or other sources of information. The end product will be final targets to be used in the TMDL.

- **Develop Implementation Plan**
  Assuming that water quality targets are not currently being met, watershed conditions must be adjusted. How and where to make changes in the watershed will be determined by work under this task.

**Middle Blackfoot / Nevada Creek & Lower Blackfoot TMDL Planning**
Blackfoot Challenge
Dean Yashan – DEQ PM
TMDL Planning
$209,243

Goals: Summarization of Major Goals/Objectives. We have three major goals and they are to 1) Implement Sediment and Metal TMDLs/Water Quality and Habitat Restoration Plans in the Blackfoot Headwaters in order to improve water quality to meet beneficial uses in the Blackfoot Headwaters; 2) Monitor program improvements in the Headwaters by documenting conditions and water quality improvements from restoration activities through environmental loading estimates; and 3) Improve public involvement in water quality restoration in the Headwaters by raising public awareness of water quality issues through information and outreach.

Project Description: Restoration projects, planning and monitoring activities are needed to implement the WQRP/TMDLs, restore water quality, and achieve water quality standards/targets.
• The project on Arrastra Creek will improve fisheries beneficial uses along 6 miles of the Creek
• Working with partners and landowners in the Poorman Creek drainage will result in a prioritized action plan for restoration projects on Poorman Creek;
• The project on Lower Mike Horse Creek will meet targets by removing 100% of identified metals contamination sources;
• The project on the mainstem of the Blackfoot will save instream flows and improve water efficiencies;
• Working with partners and private landowners will result in completion of the existing projects and development of at least six new voluntary projects with willing landowners to implement the Headwaters TMDL and achieve Plan objectives/targets;
• The monitoring project will document conditions in the Blackfoot Headwaters and will measure pre-post project conditions related to impairments, allocations and targets, showing effectiveness of restoration or other measures towards meeting water quality goals in individual drainages as well as throughout the planning area.
• The public outreach project will reach all landowners in the Blackfoot through local newspapers and targeted 303(d) listed landowners through direct mailings and raise awareness of existing problems and the importance of proactive management.

Upper Gallatin
Blue Water Task Force (non-profit)
Pete Schade – DEQ PM
TMDL Planning
$80,000

Goals: In conjunction with the DEQ, our goals are to build on the Phase I Watershed Characterization and Water Quality Concerns & Status Report commissioned by the EPA for the Upper Gallatin TMDL Planning Area (TPA) by conducting source assessments, sampling and assessing water quality, and by analyzing data in order to set preliminary restoration targets.

Project Description: Continue progress towards completion of the Upper Gallatin TMDL by performing the following tasks: Develop a Quality Assurance Project Plan (QAPP) for the TMDL planning process; assess the physical and riparian attributes of the Upper Gallatin River and its tributaries; conduct water quality sampling and assessment as defined in the QAPP; develop reference conditions and preliminary water quality targets; and assess the water quality impairment status of streams in the Upper Gallatin TMDL Planning Area. Throughout the entire project, the Blue Water Task Force (BWTF) will coordinate all TMDL activities; involve and engage all parties involved; provide review and oversight on all
components of the project; and facilitate communication between all partners, stakeholders and the community.

**Middle & Lower Big Hole**  
Beaverhead Conservation District  
Darrin Kron – DEQ PM  
TMDL Planning  
$15,000

**Upper Jefferson**  
Jefferson Valley Conservation District  
Darrin Kron – DEQ PM  
TMDL Planning  
$110,000

**Goals:** 1) Assess chemical, physical and biological components of the watershed to determine sources of impairment and establish baseline conditions and 2) Facilitate development of WQRP to set water quality targets and design demonstration projects to effectively manage non-point sources of pollution.

**Project Description:** Phase III of the watershed project is to collect sediment, temperature, flow and shading data on 303(d) listed streams in the upper watershed (headwaters to Cardwell). Additional water chemistry data collection efforts may be warranted depending on the results of the Phase II aerial photo and preliminary source assessment being completed (Dec. 2004/Jan. 2005).

**Beaverhead**  
Beaverhead Conservation District  
Pete Schade – DEQ PM  
TMDL Planning  
$100,000

**Goals:** 1. Complete All Necessary TMDLs for the Beaverhead TMDL Planning Area  
2. Identify, Prioritize & Implement projects on Potential Restoration and Implementation Sites

**Project Description:** Complete the Beaverhead TMDL by performing the following TMDL tasks: source assessments, develop TMDLs and load allocations, develop a monitoring and assessment strategy, develop an implementation and restoration strategy, compile TMDL chapters into a draft document for stakeholder and public review, and respond to comment and prepare the final draft for DEQ and EPA submission. In conjunction with TMDL planning, identification and prioritization of potential implementation projects will be conducted through outreach activities coordinated by the Beaverhead Watershed Council. Outreach activities will include meeting with local landowners to discuss restoration options and conducting a tour of potential and existing water quality improvement projects in the watershed.

**Shields**  
Park Conservation District  
Pete Schade – DEQ PM  
TMDL Planning  
$30,000
Goals: The major Goal addressed in this proposal is the final coordination and preparation of the Shields River Water Quality restoration Plan and TMDLs.

Project Description: Project will result in the completion and EPA-approval of the Shields River Water Quality Restoration Plan and TMDLs by providing funds necessary to complete final writing, assembly, technical, stakeholder and public review.

Tobacco
Kootenai River Network
Dean Yashan – DEQ PM
TMDL Planning
$100,000

Project Description: This project will provide technical information and data needed for TMDL plan development to MT DEQ, who will have the primary role of incorporating this information and completing the final TMDL document. The project will be accomplished by a consultant via the following tasks:

The initial task will include an introductory meeting(s) between MT DEQ and the Contractor to develop contract details for Task 2 and refine contract details for Task 3 as necessary. The Task 2 and 3 details will be based on progress to date from existing efforts funded under several existing Section 319 contracts that are expected to fund TMDL development work through all of the planning and most of the stream and source assessment phases of the work.

The second task includes water quality sampling, assessment, and documentation in support of TMDL development for streams within the Tobacco Planning Area. This work is to be accomplished via subcontract with one or more consulting firms and possibly via a Memorandum of Understanding (MOU) with the United States Forest Service (USFS), Kootenai National Forests. All assessment and TMDL document development work under this task will be further defined via contract modification and a Notice to Proceed as defined under Task 1. This work will be an extension of assessment work funded and defined under existing 319 contracts.

The third task will include development of a TMDL document to include targets, source load allocations, TMDLs (or surrogates as the case will be), and a conceptual water quality restoration plan for the Tobacco Planning Area. The TMDL document will follow MT DEQ format guidelines and will incorporate information from completion of other contracts for this purpose. The work is to be performed via a subcontract between the Contractor (KRN) and a consulting firm approved by both KRN and MT DEQ. All subcontract scope of work development will involve MT DEQ and the final subcontract will need both MT DEQ and KRN approval. The document will meet all MT DEQ and EPA TMDL and water quality plan development requirement for sediment and other pollutants as identified during assessment and water quality impairment update activities. The document will include: summary of watershed characterization and other regulatory framework and introductory material; appropriate maps, photos and figures; assessment results, including assessment work toward impairment determinations and source assessment work toward land use impacts, including load quantifications as required by overall project planning goals; targets or use support objectives for all impairments based on MT DEQ requirements for these document components; restoration objectives including TMDLs and allocations for all impairments associated with pollutants based on MT DEQ requirements and input for these
document components; a water quality implementation plan and monitoring plan. The TMDL document will follow MT DEQ format guidelines.

The fourth task includes project coordination and public outreach activities. This task will require coordination between cooperating entities and agencies for assessments, budgets, agreements and public involvement associated with the Tobacco TMDL.

Finally, assistance will be provided to KRN for contract administration.

**Bitterroot Lolo**
Montana Trout
Pete Schade – DEQ PM
TMDL Planning
$20,000

**Goals:** Continue source assessments and sampling to verify impairment condition and beneficial use support as it relates to TMDL Activity.

**Project Description:** This project will implement the Sampling and Analysis Plan (SAP) developed under DEQ contract #204062 to verify impairment condition on Lolo Creek, will develop a GIS based assessment of Lolo Creek Tributaries and continue to support coordination of the Lolo Watershed Group and Technical Committee.

**Upper Gallatin**
Montana State University
Pete Schade – DEQ PM
TMDL Planning
$60,000

**Goals:** In conjunction with the DEQ, our goals are to build on the Phase I Watershed Characterization and Water Quality Concerns & Status Report commissioned by the EPA for the Upper Gallatin TMDL Planning Area (TPA) by conducting source assessments, sampling and assessing water quality, and by analyzing data in order to set preliminary restoration targets.

**Project Description:** Continue progress towards completion of the Upper Gallatin TMDL by performing the following tasks: Develop a Quality Assurance Project Plan (QAPP) for the TMDL planning process; assess the physical and riparian attributes of the Upper Gallatin River and its tributaries; conduct water quality sampling and assessment as defined in the QAPP; develop reference conditions and preliminary water quality targets; and assess the water quality impairment status of streams in the Upper Gallatin TMDL Planning Area. Throughout the entire project, the Blue Water Task Force (BWTF) will coordinate all TMDL activities; involve and engage all parties involved; provide review and oversight on all components of the project; and facilitate communication between all partners, stakeholders and the community.

**Lower Clark Tributaries**
Green Mountain Conservation District
Dean Yashan – DEQ PM
TMDL Planning
$15,000

**Goals/Description N/A**

**Paradise**
Park Conservation District
Heidi Lindgren – DEQ PM
TMDL Planning
$48,888
8.0 FISCAL YEAR 2004

Big / Little Dry Creek TMDL Planning
Garfield County CD
TMDL Planning
$10,525

Goals: 1) Organize a forum for addressing land & water quality issues in the Big & Little Dry Creek (BLD) Watershed. 2) Assess the condition & function of riparian zones within the BLD watershed in conjunction with the TMDL process. 3) Develop & implement a long-term plan to monitor the water quality, aquatic biology, & riparian condition within the BLD watershed; and distribute monitoring results to landowners and the public. Pursuit of these goals will allow BLD to complete its watershed restoration plan & provide direction for future watershed improvement projects & funding initiatives.

Project Description: Develop a position description outlining the coordinator’s responsibilities & fill the position through the 2006 fiscal year. Compile existing water quality assessment data relevant to determining beneficial use support status of the BLD creeks, and identify data gaps. Contact & describe for BLD landowners the assessment process & consult with stream corridor landowners, and local natural resource professional within the BLD watershed & distribute monitoring results to landowners & the public. Interpret, format, distribute monitoring data, and watershed improvement recommendations to landowners & the public.
Collect water quality data by chemical sampling/monitoring. Prepare QAPP for chemistry testing. Gather samples for low level nutrient sampling, common ions (TDS & TSS), and Chlorophyll A.

Create a landowner-agency-operator contact. Compile a list of on-going & planned water quality restoration activities, and a prepared written description of restoration activities.

**Lolo Watershed TMDL-Phase I**
Montana Trout  
TMDL Planning  
$30,001  

**Goals:** 1) Improve the health & condition of the Lolo Creek watershed, and 2) Develop a strong base of local support for restoration of the Lolo Creek watershed.

**Project Description:** 1) Assess specific stream reaches & components that are not functioning properly, 2) Begin development of a long-term watershed restoration & monitoring plan, 3) Conduct a stream walk of the South Fork of Lolo Creek, and 4) Further develop the Lolo Watershed Group.

**Beaverhead River Watershed Monitoring Phase II**
Beaverhead County CD  
TMDL Planning  
$78,600  

**Goals/Description N/A**

**Bitterroot Mainstem TMDL Planning**
TriState Water Quality Council  
TMDL Planning  
$39,878  

**Goals:** 1) Provide water quality data, nutrient model, the Bitterroot River mainstem, & impaired tributaries which will be used in developing a Bitterroot Water Quality Restoration Plan; and 2) develop a public participation process for the Bitterroot TMDL planning area that will lead to successful development & implementation of a Bitterroot Water Quality Restoration Plan.

**Project Description:** 1) to do field collection of water quality data for nutrients & related parameters to help establish the actual water quality status of all listed waterbodies; 2) construct, calibrate, & operate a numerical nutrient model for the mainstem Bitterroot River; 3) garner the support of key stakeholder agencies, community leaders, & the general public for water quality planning in the Bitterroot watershed.

**Jefferson River Watershed Project Phase II**
Jefferson Valley CD  
TMDL Planning  
$35,000
**Goals:** Continue to assess physical, chemical, & biological components of the watershed in order to guide future data collection & develop a water quality restoration plan. Develop a water quality restoration plan to fill in data gaps for the Jefferson River and its tributaries. Determine sources of impairments & establish baseline conditions for measuring of future restoration activities.

**Strategic Assessment and Planning in the Big Hole Watershed for TMDL Development**

Big Hole River Foundation

TMDL Planning

$48,000

Goals/Description N/A

**Prospect and Lower Clark Fork TMDL Plan Development**

Green Mountain CD

TMDL Planning

$84,700

**Goals:** The overall goal of the project is to maintain, or where needed, restore the chemical, biological, & physical integrity of a number of lower Clark Fork River tributaries by reducing non-point pollution, stabilizing stream banks, & improving stream habitat & riparian vegetation in order to restore native fish populations & improve water quality in order to listed water bodies from Montana’s 303(d) list. Over the past several years there have been seven 319 grants awarded for watershed work on Lower Clark Fork tributaries (Elk Creek, Prospect Creek, Whitepine Creek, Rock Creek, Bull River, Trout & Prospect Creek/Lower Clark Fork Work Group). This grant will provide funding for preparation of the final TMDL Plan for Prospect Creek, including Dry & Clear Creeks, with a TMDL scheduled for 2004, & continued TMDL related assessments & planning efforts on a number of the remaining 303(d) listed waterbodies in the lower Clark Fork (see Goal 3).

Goal 2: Preparation of the Prospect Creek final TMDL report. Goal 3: Perform necessary additional assessments of at least six other 303(d) listed waterbodies in the lower Clark Fork (Rock, Whitepine, Bull River/Dry, Pilgrim, Elk & Graves Creek) through existing USFS data review, existing assessment review, new supplementary assessments, aerial photo analysis & preparation of preliminary TMDL plans in order to meet the target deadline of 2007 for final plan submittal as established by DEQ. These TMDL Plans will address target, allocation & monitoring strategies focused on the identified impairments of each of the waterbodies.

**Project Description:** Provide a final TMDL document that addresses all EPA & DEQ requirements. This document will include targets, source load allocations, TMDLs (or surrogates, as the case will be), & a conceptual water quality restoration plan. Targets, allocations and a TMDL will be developed for Prospect Creek to address all 303(d) listed impairment conditions. As needed, the data from earlier phases of this project will also be used to develop temperature targets, load allocations and surrogate TMDLs for three streams (Prospect, Dry, Clear, and/or Wilkes) and sediment TMDLs for up to two additional streams (Dry, Clear, and/or one other problem tributary. The previous work has been designed such that sediment targets, allocations, and TMDLs will be substantially linked to temperature targets, TMDLs, and allocations.

**Tobacco Watershed TMDL Development**

Kootenai River Network

TMDL Planning

$90,432
Goals: 1) To conduct a basin-wide characterization or assessment of the Tobacco River watershed for the purpose of defining existing physical, chemical, and biological conditions, as well as the potential conditions for the watershed within the context of a developed landscape; 2) To complete a basin-wide pollutant source assessment that will identify the major sources of pollution, determine water quality limiting factors, and semi-quantify land use impacts and pollutant loads to the Tobacco River; 3) To develop water quality targets, load allocations, and TMDLs for the impaired waterbodies that will address all impairment conditions associated with sediment, temperature, flow, and habitat alterations with emphasis on sediment TMDL development; and 4) To prepare a Water Quality Restoration Plan (WQRP) that would ultimately provide a “road map” to watershed recovery, with emphasis on the identified causes and sources of water quality impairment identified during work tasks associated with Goals 1-3.

Project Description: Integral to all project goals will be an education component to increase public awareness of water quality and fishery values in the Upper Kootenai Drainage and to build continued community based support of restoration projects.

Nevada/Lower Blackfoot TMDL Planning
Blackfoot Challenge
TMDL Planning
$105,500

Southern Crazy Mountain Watershed Group Water Quality Restoration Plan
Park County CD
TMDL Planning
$75,000

Goals: 1) Improve the health and condition of the Southern Crazy Mountain Watershed. 2) Conduct initial steps needed to ultimately develop a basin wide monitoring/water quality restoration plan. 3) Provide assistance to the Southern Crazy Mountain Watershed to carry out their Water Quality Restoration Plan/TMDL and treatment activities.

Project Description: Develop and implement Best Management Practices to improve riparian habitat condition and bank stability.

Redwater River Education Project
McConne County CD
E&O
$9,680

Goals: To educate the local citizens, school students and the public in general about the importance of water quality and protecting Redwater River Watershed. To educate local citizens and schools about the TMDL process, to better help make local decisions on the TMDL plan for the Redwater (RW) River in the Circle vicinity. To promote and disseminate water quality issues and State standards that affects the Redwater River Watershed.
Project Description: The Circle High School (CHS) students, along with the help of the McConcve Conservation Watershed Coordinator will collect water, macro invertebrate, algae, and sediment samples on sites RW-2, below the lagoon and RW-4 above the lagoon on the Redwater River, in the Circle vicinity. The CHS students will be collecting samples once a month during the months of September thru May. Water chemistry samples will be analyzed for ammonia, total nitrogen, nitrate+nitrite, total phosphorus, and total nitrogen. Conductivity, pH, and water temperature measurements will be collected with a field meter. Flow measurements will also be taken. Water quality samples will be collected according to standard operating procedures of the Monitoring and Data Management Bureau of Montana Department of Environmental Quality (DEQ). CHS students will collect data on non-point sources and water quality issues of a prairie stream in accordance with the monitoring that the Redwater River Watershed Group is collecting during the months of May thru August. Also to coordinate with DEQ basic educational needs to help the local citizens, students, and the local watershed group understand the TMDL planning process for the Redwater River which have a completion date of 2005.

**Marias/Bullhead TDS Ground-Water Assessment Project**

Liberty County CD  
Groundwater  
$100,000

**Goals:** Collect water-quality discharge, and stream corridor assessment data necessary to fill existing gaps in available watershed data to assist in determining TMDL planning goals, to evaluate 2002, 303(d) list impaired status, and to develop watershed improvement projects and BMP’s.

**Project Description:** The monitoring plan will include a mix of corridor assessments and water-quality and discharge monitoring as needed to complete the data collection required to develop an accurate TMDL plan for the Marias-Willow watersheds. The project data will assist the DEQ and EPA in determining water-quality criteria for developing an appropriate watershed TMDL plan. Evaluation of the collected watershed information will assist MRW in identifying sources of water-quality degradation, in developing regional restoration plans and methods, and in developing Best Management Practices (BMP’s) specifically designed to reduce contamination of surface and ground water within the watershed.

**FPIP Watershed Restoration, Phase 1**

Fort Peck Water Users Association  
Restoration  
$20,000

**Goals:** To identify potential sources of Missouri River pollutants and to assist land users with the applications of Irrigation Water Management/Conservation Plans that are composed of BMP’s for irrigated land.

**Project Description:** This project is intended to inventory the watershed planning area, collecting water quantity and water quality information to be used as part of the area wide planning efforts.

**Phase 1 Hydrogeologic Evaluation of the Alluvial Valleys of Stillwater County**

Stillwater County CD  
Groundwater
$130,000

**Goals:** The purpose of this project will be to collect the data that is needed to evaluate impacts to ground-water and surface water systems from development and land-use changes that are occurring along the major alluvial valleys in Stillwater County. Without this information it is very difficult to understand how this growth will affect the water resources and how to best manage this growth. The alluvial valleys will be evaluated in two phases: Phase 1 (this proposal) will include the Yellowstone River valley and Phase II (a future funding cycle) will include the Stillwater Rosebud valley. The data collected will be used to construct a set of useful interpretive maps. Specifically the distribution of nutrient concentrations will be mapped to evaluate potential NPS impacts. Ground-water and baseflow sample analyses will be used to evaluate loading rates to streams and the Yellowstone River. The data from this investigation will provide a framework of understanding to allow for scientific based land use and water resources decisions. These data will be useful to current and future land owners, local watershed groups, Stillwater County, and to the DEQ.

**Project Description:** Between 1990-2000 the population of Stillwater County grew by over 25 percent. Nearly all of this growth occurred within the Yellowstone & Stillwater valleys. Many of the new homes and subdivisions are being built in rural and urban fringe areas beyond municipal water and sewer facilities. These residences are dependant upon ground water for a source of potable water and rely on on-site drainfields for sanitary disposal. Most of the wells in the alluvial valleys are less than 100 ft as so are vulnerable to contamination from surface sources. The most common ground-water contaminant in rural areas is nitrate, which can be derived from sources such as drainfield effluent, fertilizers, and animal manure. Subdivision developments of previously flood irrigated agricultural areas have also been show to adversely impact the quantity of recharge received by the aquifer. Consequently, the new growth in rural areas is placing both an increased demand on ground water and posing additional threats to its future quality and quantity. Ground water provides baseflow to the Yellowstone River and its tributaries and supports wetlands in the area. Consequently, NPS impacts to ground water can also adversely affect water quality in surface water bodies. This project will collect surface-water and ground-water data to develop an integrated understanding of the hydrologic and water quality linkages between the surface and subsurface water systems.

**Lower Missouri Information & Education Project**
Roosevelt County CD
E&O
$33,760

**Goals:** To insure that current water quality impairments of the Lower Missouri River system are not exacerbated and that ultimately water quality can be improved. To assist all parties involved in implementing a successful Pallid Sturgeon recovery effort. To provide a library of information and education to the public and government agencies.

**Project Description:** The Lower Missouri River Coordinated Research Management Council (LoMoCRM) will gather existing data into a LoMoCRM library, assist with information on the Pallid Sturgeon recovery effort, assist with TMDL development process, and coordinate educational efforts.

**Muddy Creek Water Quality Improvement Project**
Cascade County Conservation District
Restoration
$80,000

Goals: 1) Implement the comprehensive TMDL and watershed plan developed by DEQ and Muddy Creek Task Force to meet all beneficial uses of the water in the Muddy Creek basin. The Cascade County Conservation District and Muddy Creek Task Force (MCTF) will collaborate with all players to make tangible improvements to the water quality. Meetings, progressive review, project evaluations, and data review will be used by all players to ensure progress is being made. 2) Improve water quality and quantity by rejuvenating riparian corridor, improving stream dynamics and improving farm practices to have a positive impact on all beneficial uses. The project will continue to reduce return flows and erosion in Muddy creek to improve overall water quality. Water management improvements implemented by the irrigation district. The farm bill EQIP program will be utilized to work with producers on land and irrigation management improvements. 3) Monitoring program to document improvements. Water quality and quantity monitoring, photo documentation, and GIS mapping will be utilized to gage effectiveness BMP implementation and Water quality/TMDL Plan. This data will be used to modify the plan where appropriate.

Project Description: Approximately 10 yrs ago the Muddy Creek Task Force was formed to address the major sediment issue this area contributed to the Sun and Missouri Rivers. It has been an effective but strenuous time met with successes through hard work from many people and organizations. The funds to get this far did not come easy and were frequently met with the idea this was a bottomless pit with the inability to truly get anything done on the ground. But the group proved everyone wrong. The MCTF is here again to show everyone that there is still major potential to make further great strides in improving the water quality of the basin and those it impacts. This project will take basic teamwork that has worked in the past and continue to make further progress. This project will help reduce the sediment loads over the 10 years from the current 40,000 tons per year less than 20,000 tons. How? With the same technology that has worked in the past with new ones that are more costly but bring long term benefits. Through continued steam and riparian projects the banks of additional 20 miles of Muddy Creek and its tributaries will be stabilized. Through irrigation water management or irrigators and the irrigation district return flows will be reduced by 25%. End result is sediment and return flow numbers that allow all water users needs.

**Grave - Therriault Creeks Restoration Project**
Kootenai River Network
Restoration
$70,800

Goals: 1) Implement Therriault Creek Phase 1 Restoration Project; 2) Implement Grave Creek Phase II Restoration Project; 3) Implement Therriault Creek Phase II Restoration Project; 4) Incorporate Monitoring Results in Tobacco River, Grave Creek, and Therriault Creek TMDL and WQRP; 5) Improve Public Awareness of Water Quality Issues

**Dupuyer Creek Watershed Project**
Pondera County CD
Restoration
$45,600

Goals: The goals of this project are to: 1) implement channel restoration projects on the main stem of Dupuyer Creek; 2) monitor surface water and stream flows in the Dupuyer Creek watershed to establish
Project Description: The Pondera County Conservation District (PCCD), along with Dupuyer Watershed Council, is working in cooperation with state and federal agencies to improve water quality in the Dupuyer Creek watershed. This project was developed to assess the condition of creek and riparian areas in the watershed, to collect baseline water-quality data and to begin implementation of watershed improvement projects that will address 303(d) listed impairments and fish habitat concerns expressed by U.S. Fish and Wildlife Service (USFWS) and Montana Fish Wildlife and Parks (FWP). The assessment, monitoring, and restoration goals of this project in Dupuyer Creek will support TMDL efforts in the Cut Bank-Two Medicine TMDL Planning Unit, as well as the Marias Watershed. Demonstration project sites selected for this proposal are representative of conditions over a large portion of the watershed. Landowners throughout the watershed have expressed a strong interest in a larger-scale watershed restoration program. This project will emphasize innovative bioengineered stabilization methods, promote the acceptance of practical and affordable BMPs, and educate and unify landowners in a long-term watershed water-quality protection and improvement program. Funding for this project will support the assessment of surface-water conditions, riparian area health, and creek bank stability in the Dupuyer Creek watershed. Proposed tasks include monitoring, photo documentation of restoration efforts, engineering design, implementation, and material purchase for riparian and bank stabilization projects. Project funds will provide the watershed council and landowner the ability to accomplish these goals. The demonstration projects will include implementation of BMP’s, including the restoration of degraded reaches of channel, removal of livestock from the creeks to generate healthy riparian areas and address water temperature and fish habitat impairments. This grant is intended to serve as the first step of a comprehensive initiative to restore Dupuyer Creek to its full potential, and support beneficial uses. The Dupuyer Watershed Council will coordinate proposed restoration activities, landowner education, coordination of watershed activities, and will provide a forum to discuss watershed issues related to water-quality.

Dry Creek Water Quality Improvements – Phase II
Broadwater County CD
Restoration
$10,000

Goals: The primary goal of this project is to initiate evaluation of sediment loading from eroding stream banks throughout the project study reach. Approximately 24 representative banks will be selected within the watershed (will be complimented by the six already selected) to quantify erosive rates or low, moderate, and severely eroding banks. Measured erosion will be correlated with suspended load sampling during both high and low flow events over the year to form the basis for a sediment allocation within the watershed. Additionally, particle gradation will be documented to determine sediment size fraction of receding materials. If significant evidence suggests bank erosion is the primary process of sediment delivery within the watershed, future restoration efforts will be geared toward a reduction in these areas. The second goal of this project is to continue to coordinate watershed activities including funding procurement, administer meetings, and perpetuate stakeholder involvement. Conduct effectiveness monitoring, document project success, and promote additional interest by providing
educational outreach to watershed stakeholders, the community, and local school system. These goals and objectives will aid in determining appropriate measures and activities for restoring the health and function of Dry Creek and the surrounding watershed as part of the TMDL planning process.

**Project Description:** This project is a continuation of physical, chemical, and biological monitoring for TMDL related activities within the Dry Creek Watershed for water quality planning and improvement within the drainage. Section 319 Grant related activities during 2003 included gathering sufficient and credible data for 3030(d) status of Dry Creek, implementing small-scale demonstration projects within the watershed aimed at sediment reduction, coordinating watershed activities, and providing information and education to landowners and the Broadwater School District. The conservation district wishes to continue work within the watershed by gathering additional physical, chemical, and biological data, completing effectiveness monitoring of completed demonstration projects, and initiating a bank erosion study to support MTDEQ in TMDL planning.

**Marias River Watershed Project – Phase 1IA**
Toole County CD
Restoration
$32,600

**Goals:** The ultimate goal of this grant will be to improve the quality of surface water through watershed improvements and modification of agricultural practices and the disseminations of appropriate BMP implementation guidelines. To achieve these goals this project will provide for the design construction of a river restoration project appropriate for the watershed and long-term monitoring of the project. The Marias River Watershed-Phase IIA Project is presented in conjunction with watershed efforts being conducted by the Marias River Watershed (MRW) organization which includes seven Conservation Districts in six counties: Big Sandy, Chouteau, Glacier, Liberty, Pondera, Hill and Toole. MRW is comprised of watershed landowners, representatives from Bureau of Reclamation (BOR), Bureau of Land Management (BLM), United States Forest Service (USFS), Marias River Basin Weed Control Board, county extension service agents, Montana Bureau of Mines and Geology (MBMG), Montana Department of Environmental Quality (DEQ) and the Environmental Protection Agency (EPA). The products produced from this project will assist in developing regional restoration plans and methods and develop BMPs specifically designed to reduce contamination of surface and ground water and improve water quality.

**Project Description:** 1) Stabilize a failing river bank and restore riparian vegetation as a demonstration project to provide long-term bank stability on the Marias River. The project will reduce sediment load washed into the river, reduce erosion loss of valuable agricultural land, provide riparian habitat for wildlife. 2) Use this demonstration project as an educational tool to illustrate proper construction techniques to local landowners and introduce BMPs to better manage water resources and to reduce the level of pollutants entering the river.

**Water Quality Education and Monitoring**
Montana Watercourse
E&O
$146,574

**Goals:** 1) Support, improve, and enhance ability for citizens to undertake credible volunteer monitoring, learn about volunteer monitoring, and be able to disseminate results locally, statewide, and in the region. 2) Provide information and educational capacity to improve watershed and water quality
understanding and ability to access options and resources to make local decisions. 3) Statewide support and dissemination of water quality and watershed information through multiple media outlets.

Project Description: Non-point Source pollution is going to be solved using voluntary means. Therefore, information, education, and a full understanding of the options available are essential to the success of this approach. In Montana 85-90% of all pollution is NPS, and it comes from a wide variety of sources. Lack of information and investment in local water quality hampers some efforts, and efforts to improve water quality information through local monitoring is one approach. Other target audiences, including citizens, landowners, realtors, urban dwellers, and educators need specific messaged and approaches that address their specific needs and impacts and are produced and disseminated in ways that are useful to the specific audience. Additionally, these information much be tied to more specific information about options to alleviate the impacts of their actions or to suggest BMP approaches that are viable alternatives to current behavior.

**Critical Lands Project**
Flathead Lakers
E&O
$30,350.00

**Goals:** 1) Identify and promote protection and restoration of lands and waters critical to the quality of Flathead Lake and its tributaries. 2) Gain grassroots support for protecting and restoring critical lands. 3) Strengthen the Flathead Lakers’ internal capacity to manage and continue the Critical Lands project.

**Project Description:** 1) improving outreach and communications to inform the public and target audiences about water quality protection activities and practices; 2) promoting successful land conservation and stream restoration projects and techniques; 3) promoting and developing incentives for landowners for protection and restoration projects; 4) developing positive public outreach and conservation messages; and 5) providing recommendations to incorporate critical lands protection measures in land use policies and regulations.

**DEQ/EPA Contracted Services Project**
Montana DEQ
TMDL Planning
$538,000
9.0 Fiscal Year 2003

**Figure 9-1: TMDL Planning Areas with 319 Projects – Fiscal Year 2003**

**Blackfoot Watershed**
Blackfoot Challenge
Restoration
$246,990

**Goals:** 1) Coordinate Blackfoot Watershed Monitoring Implementation Project, Blackfoot Headwaters, HWQR Committee, and Blackfoot Watershed Monitoring Committee. 2) Begin implementation and monitoring the Blackfoot Headwaters HWQR Plan/TMDL for sediments and metals that meets Blackfoot Challenge and DEQ/EPA TMDL monitoring requirements.

**Project Description:** Administer and organize all functions related to the implementation of the tasks discussed in this proposal. Provide the necessary coordination between participating agencies, organizations, producers, and communities to achieve the stated goals.

**Redwater**
McConne CD
Restoration
$81,882
**Goals:** Maintain and improve the condition of the stream corridor and native range uplands and to cooperate with DEQ to develop TMDL plans for all impaired streams by 2005 throughout the Redwater River Watershed. Direct benefits include increased forage production and livestock distribution, improved fishery/wildlife habitat and water quality.

**Project Description:** To assess and monitor the impaired streams, Redwater River, Horse Creek, Sand Creek, Prairie Elk, Nelson and Timber Creek. Improve riparian areas and creek crossings, conduct educational meetings on non-point sources and water quality issues and coordinate with DEQ in the development of TMDL plans for the impaired streams which have a completion date of 2005. Assess specific sites for re-establishing cottonwood regeneration and other riparian vegetation. Plan and implement BMPs to protect and improve water quality. To work with a watershed group, watershed coordinator and resource agencies. The data collected, source assessment, water quality data and summary will be reported on the STORET database and used to establish nutrient targets.

**Beaverhead**
Beaverhead CD
Restoration
$78,190

**Goals:** Continue the preparation of the Beaverhead Watershed Water Quality Restoration Plan in accordance with DEQ guidelines by implementing the monitoring program that will lead to a specific definition of the sources of impairment for the listed 303(d) waterbodies. **Programmatic Goals:** 1) Perform monitoring and limited sediment modeling as specified in the Phase I assessment; 2) Update problem definition using new information to describe cause and effect and conduct public outreach and education on stream and watershed status; 3) Where appropriate, TMDL target setting, load allocation, and preparation of an overall Water Quality Restoration Plan. This will include development of a detailed conservation/restoration plan to achieve desired conditions on three streams to begin the TMDL implementation effort.

**Lower Musselshell / Treasure County**
Lower Musselshell CD
E&O
$25,000

**Goals:** 1) educate landowners in Treasure, Musselshell, Petroleum, and Garfield counties regarding the impacts of salt cedar in a watershed. The tools will be a literature search to identify best eradication methodologies, news articles in newsletters and newspapers in respective counties and the state, a salt cedar web site, specimen tree replacements in Musselshell, Petroleum and Garfield counties, collection of landowner reports, an expansion of the current Power Point presentation and; 2) create a protocol for cost effective control of salt cedar based on information gathered from demo control sites, monitoring sites, soil testing, and sand point well where appropriate. Project duration will be one year, beginning with the availability of funds.

**Project Description:** The intent of the Middle Yellowstone and Middle/Lower Musselshell watershed groups is to combine to establish a watershed management group to educate the public regarding the impacts of salt cedar in eastern Montana watersheds. This combination of resources is a critical component and will dovetail the larger individual watershed groups in Treasure, Musselshell, Petroleum, and Garfield counties.
**Tobacco TMDL**
Kootenai River Network
Restoration
$136,000

**Goals:** 1) Continue water quality planning and TMDL development efforts within the Tobacco watershed in order to fully support coldwater fish, aquatic life and other beneficial uses associated with Montana’s water quality standards; and 2) Improve public awareness of native fisheries issues (especially bull trout)

**Project Description:** The intent of this project is three-fold: 1) to collect and compile baseline and other data to be used to develop TMDLs and associated restoration plans for Grave Creek; 2) develop a Phase I Tobacco Planning Area document that lays out a water quality planning and TMDL development strategy; and 3) to improve public awareness of wildlife and fishery values in the Upper Kootenai drainage and build continued community support for restoration projects. These projects are integral to the development and implementation of a comprehensive watershed recovery plan for the Tobacco. Previous work has included a sediment reduction and channel stabilization program in the upper Grave Creek watershed on U.S. Forest Service (USFS) property and the private property adjacent to the project site near the confluence with the Tobacco River, the removal of the failing Glen Lake Irrigation District (GLID) log diversion dam in Grave Creek, and installation of a new dam with a fish screen. An irrigation diversion replacement and fish screen installation was also implemented on private land. A water conservation plan is also under development in cooperation with GLID to maximize irrigation efficiency and ensure adequate baseflows be maintained in the Grave and adjacent Therriault drainages during low flow periods.

**Montana Water Education & Monitoring**
Montana State University - Montana Watercourse
E&O
$132,888

**Goals:** 1) Enhance the ability of citizen groups to collect and manage quality-assured water quality data needed for local decision-making; 2) Educate local communities and schools on local watershed activity and water quality stewardship; 3) Promote, and disseminate water quality information, services, and support of state and regional water quality educational efforts.

**Project Description:** This proposal focuses on providing support and assistance to local citizen, school, and watershed organizations so that they may meet their water quality monitoring, data management, and education needs in order to foster stakeholder involvement and engage local citizens and watershed groups in working to understand and protect their watershed. Approaches employed will lead to greater knowledge and involvement immediately, through adult and school-based water quality monitoring trainings and Know-Your-Watershed workshops, and in the long-term, through educational development tours and training for Montana teachers. Technical trainings that will result in information needed to make wise watershed decisions and educational experience that will result in behavioral changes necessary to sustain the quality of Montana’s watersheds are goals of this proposal.

**Upper Shields**
Park CD
Restoration
$142,970

**Goals:** 1) Improve the health and condition of the Upper Shields River Watershed; 2) Optimize stream flows within the watershed to maximize benefits for fish, wildlife, and agricultural users; 3) Provide assistance to the Upper Shields Watershed Association to carry out their resource assessment and treatment activities; and 4) Conduct the initial steps needed to ultimately develop a basin-wide monitoring/water quality restoration plan.

**Big Hole**
Big Hole River Foundation (BHRF)
Restoration
$72,000

**Goals:** 1) The Big Hole Watershed Committee (BHWC) will coordinate public outreach/landowner involvement activities. All outreach activities will support the characterization of the physical, chemical and biological conditions of the Upper and North Fork Big Hole planning areas. 2) Assemble existing information and provide appropriate data sets to MT DEQ and summaries/analysis to local groups and landowners for the Upper and North Fork TMDL planning areas.

**Project Description:** The goals of this proposal will be accomplished through local watershed-based organizations (BHWC, BHRF). An outreach coordinator will be contracted to serve as a direct link to local landowners, providing information and education and facilitating cooperation with inventory, monitoring and restoration needs. A private contractor will be hired to review and synthesize existing data related to 303(d) listings and TMDL development. Local groups will base priorities on data reviews.

**Boulder River**
Sweet Grass CD
Restoration
$166,230

**Goals/Description N/A**

**Haskill Basin**
Flathead CD
Restoration
$34,000

**Goals:** The goal of this project is to restore the chemical, biological and physical integrity of Haskill Creek by reducing non-point pollution, stabilizing stream banks, and improving stream habitat and riparian vegetation in order to restore native fish populations and improve water quality through the development and implementation of a comprehensive watershed management plan. The pollutant load from Haskill Creek will be developed which is expected to be incorporated in the Whitefish River TMDL plan in order to meet the current TMDL schedule.

**Project Description:** Prior to commencing any work involved with this contract, a “kick-off” meeting between DEQ, EPA, HBWC and/or Flathead CD, designated subcontractor(s), and any other interested stakeholders, must be conducted. Any work conducted prior to this meeting will not be considered an
allowable or authorized expenditure under the terms and conditions of this contract, At the conclusion of the “kick-off” meeting, DEQ will provide in written form, a “Notice to Proceed.”

**Swift Creek**  
Whitefish County Water & Sewer Dist.  
Restoration  
$60,000

**Goals:** The goal of this project is to maintain, or where needed, restore the chemical, biological & physical integrity of Swift Creek by reducing non-point pollution, stabilizing stream banks, and improving stream habitat and riparian vegetation in order to restore native fish populations and improve water quality and remove Swift Creek from Montana’s impaired water body list. This project will conduct the initial steps needed to develop a basin-wide Water Quality Restoration Plan and ultimately a TMDL.

**Project Description:** Prior to commencing any work involved with this contract, a “kick-off” meeting between DEQ, EPA, Swift Creek Coalition and or Whitefish County Water & Sewer District, designated subcontractor(s), and any other interested stakeholders, must be conducted. Any work conducted prior to this meeting will not be considered an allowable or authorized expenditure under the terms and conditions of this contract, At the conclusion of the “kick-off” meeting, DEQ will provide in written form, a “Notice to Proceed.”

**Lower Clark Fork**  
Green Mountain CD  
Restoration  
$103,000

**Goals:** 1) the overall goal of the project is to maintain, or where needed, restore the chemical, biological and physical integrity of a number of lower Clark Fork River tributaries by reducing non-point pollution, stabilizing stream banks, and improving stream habitat and riparian vegetation in order to restore native fish populations and improve water quality in order to listed water bodies from Montana’s 303(d) list. Over the past several year there have been six 319 grants awarded for watershed work on lower Clark Fork tributaries (Elk Creek, Prospect Creek, Whitepine Creek, Rock Creek, Bull River and Trout Creek). This grant will provide funding for continued assessment efforts on Prospect Creek, with a TMDL scheduled for 2004. 2) To develop the TMDL Plan for Prospect Creek, Clear Creek and Dry Creek in order to meet the target deadline of 2004 for final plan submittal as established my MTDEQ. The Prospect Creek Watershed TMDL Plan will address target, allocation and monitoring strategies focused on the identified impairments of sediments/habitat alterations and temperature. 3) To maintain completed restoration projects in a functioning manner in the Prospect Creek watershed.

**Flathead-Stillwater, Whitefish & Ashley**  
Flathead Basin Commission - Montana Governor's Office  
Restoration  
$172,370

**Goals:** 1) assessment of the chemical, physical, and biological conditions within Ashley Creek, Stillwater River, and Whitefish River watersheds, 2) assessment of storm water contributions to these systems from densely urbanized areas within the Flathead Valley, and 3) TMDL preparation for these three major Flathead Basin watersheds. As appropriate, chemical, physical and biological data generated during this
Project will be provided to MTDEQ in a mutually agreeable electronic format allowing for the data to be made publicly available.

**Project Description:** Prior to commencing any work involved with this contract, a “kick-off” meeting between DEQ, EPA, FBC, designated subcontractor(s), and any other interested stakeholders, must be conducted. Any work conducted prior to this meeting will not be considered an allowable or authorized expenditure under the terms and conditions of this contract. At the conclusion of the “kick-off” meeting, DEQ will provide, in written form, a “Notice to Proceed.”

**Gold Creek**

Deer Lodge Valley CD
Restoration
$15,115

**Goals:** The primary goal of this project is to compile existing data into a phase I report and collect missing chemical data for TMDL development and identification of performance based end points. Selected data are needed for detailed restoration planning and TMDL preparation. *Future efforts will include biological and physical assessments.* Restoration plans *will be prepared in the future* to identify limiting factors, outline water quality targets, propose BMPs and prescribed practices, and request funding to implement the recommended BMPs and practices. Also, the goal of this project is to gauge the importance of non-point loading from the tributaries into the Clark Fork River.

**Project Description:** The Gold Creek Watershed Project was developed by the Watershed Restoration Coalition of the Upper Clark Fork (WRC). The project area is off I-90 about 60 miles of east of Missoula and flows directly into the Clark Fork River. Gold Creek represents a significant load of soluble reactive phosphorus (SRP) to the Clark Fork River (9.4%), only falling behind the Flathead, Bitterroot, and Blackfoot Rivers (Ingman & Kerr, 1990). In addition to being a significant source of SRP, Gold Creek also has relatively high nitrogen concentrations and is a relatively significant nitrogen load to the Clark Fork River (2.3%). Both anthropogenic and natural non-point sources of nutrients are suspected in the Gold Creek watershed according to Carey (1991) and Lhotak and Watson (2000). In addition to nutrient issues, Gold Creek also has other issues including metals, flow alternation (temperature), habitat alternation, and siltation. The WRC proposes to cost share this project with the Tristate Water Quality Council mini-grant program and WRC to realize four critical outcomes: 1) establish a partnership within the watershed to implement conservation and restoration plans, 2) prepare an MTDEQ phase I report, 3) collect missing *chemical data* and eventually prepare a TMDL for impaired reaches and pollutants, and 4) *establish a database to aid in a future request for* funding to implement restoration/conservation measure outlined in the TMDL. This project is critical to support implementation of the Clark Fork River Voluntary Nutrient Reduction Plan, which serves as the TMDL for the Clark Fork River.

**Big Muddy**

Sheridan CD
Restoration
$100,000

**Goals:** The goal of this project is to gather water-quality data and stream-flow data needed to evaluate the water-quality variations and to help determine TMDL for Big Muddy Creek (Figure 1). Base flow (ground-water input) to Big Muddy Creek appears to be a significant component of stream flow
maintaining perennial conditions over the project area; therefore, documenting the importance of ground water to surface water flow in the Big Muddy.

**Project Description:** The proposed project represents a continuation of a previous evaluation of Big Muddy Creek that was conducted by the Sheridan County Conservation District (SCCD) and Roosevelt County Conservation District to assess the general conditions of the Big Muddy in Sheridan and Roosevelt Counties (Lacey, 2001). This report provided baseline data based on a one time sampling and assessment along the entire U.S. reach during June of 2000.

The focus of the proposed work will be to determine measurable TMDL parameters through extensive analyses of inorganic constituents at a network of sites sampled at differing flow conditions along the Sheridan County as part of the Big Muddy. The full inorganic data suite includes lab analyses of major ions, trace metals, nutrients, salinity, total dissolved solids (TDS), suspended solids (TSS), plus field parameters including Specific Conductance, biologicals, Dissolved Oxygen (DO), temperature, pH, nitrate, and chloride; many of these are listed TMDL parameters for Big Muddy Creek. Flow measurements will be performed at sampling sites to evaluate loading rates and water-quality conditions where tributaries discharge. Probable causes of water-quality degradation according to the latest 303(d) list are agriculture, crop production, rangeland, and flow modification of receiving streams due to surface-water discharges. The discharges of ground water in the Big Muddy probably exert significant controls on water quality of the creek at most times other than during episodes of run-off. These ground-water discharges are largely natural background conditions that do not appear to be influence by the probable causes listed above. Degradation of these ground-water resources by oil-field development and agricultural practices may significantly impact the surface water resources and will be evaluated during the project through land-use assessments.

The Big Muddy is listed as a water body in need of TMDL development. Information gathered as part of this proposed project is essential to TMDL development for the Big Muddy. The ground-water/surface-water connection will be described based on ground-water flow mapping, synoptic flow measurements (seepage run) along the Big Muddy, and water-quality data from both surface and ground water. A systematic sampling and analysis plan developed and conducted by MBMG and SCCD staff will be implemented to evaluate surface-water impairment. Data will be compiled into databases compatible with STORET and other formats as determined by DEQ. Interpretations will be developed into an interim report including ARCGIS based maps, data tables, photographs of riparian areas and steam. A technical committee, directed by SCCD, will oversee education outreach and other activities of this project. Information and Education activities will incorporate the results of this project in demonstration tour(s), training workshops, and SCCD newsletters.

**Teton Phase III**
Teton CD Restoration
$81,000

**Goals:** 1) Implement TMDL and watershed plan for the Teton River; 2) Improve water quality and quantity by rejuvenating riparian corridor, improving stream dynamics and improving farming practices to have a positive impact on all beneficial uses; 3) Continue an education program to benefit all uses on Teton River including agriculture, drinking water, fisheries, aquatic life and recreation; 4) Watershed monitoring activities that assist in evaluating the status and trends of water quality, water quantity, and all beneficial uses.
**Deep Creek**
Broadwater CD
Restoration
$24,515

**Goals:** 1) Continue to promote the recovery of channel stability and the improvement of riparian vegetation to reduce bank erosion and sediment delivery to the system; and 2) Continue evaluating project restoration efforts and provide information to interested parties regarding the success of the project in stabilizing stream banks and channel, reducing sediment and decreasing dewatering and thermal impacts in Deep Creek.

**Project Description:** The Broadwater Conservation District is sponsoring phase IV of the Deep Creek Restoration Project to: 1) protect past project investments through the repair of eight existing restoration sites that are subject to failure, 2) facilitate the five-year TMDL review/revision and evaluate monitoring and restoration activities in the watershed, 3) complete project monitoring and reporting for 2003, and 4) provide accurate documentation of all project monitoring sites.

**Riparian Education**
Montana Association of Conservation Districts
E&O
$23,850

**Goals:** The Riparian Education Program (REP) will promote good riparian management and improve water quality through the improved delivery of existing riparian Information & Education materials and programs.

**Project Description:** REP will focus on delivering riparian education using existing materials/programs in existing local venues. This will lead to improved riparian education and management. The project objectives are: 1) to partially fund the Rolling Rivers Trailer Program for two years. This includes expanding the program from three trailers to four trailers, providing operation and maintenance costs, and developing educational displays to enhance programs delivery; 2) to update the Montana Stream Management Guide. Funds for a 5,000-copy reprint will be sought later; and 3) to incorporate the Rolling Rivers Trailers, the Montana Stream Management Guide, and other existing riparian education materials into local educational activities involving riparian management.

**Dupuyer Creek**
Pondera CD
Restoration
$120,000

**Goals:** 1) organize watershed management and planning; 2) evaluate watershed conditions; 3) develop watershed restoration methods that will improve surface water quality; and 4) evaluate the success and outcome of the applied restoration methods.

**Project Description:** The PCCD along with the Dupuyer Watershed Council is working in cooperation with state and federal agencies to improve water quality in the Dupuyer Creek watershed. This project was developed to assess the condition of creek and riparian areas in the watershed, to collect baseline...
Willow Creek
Montana Fish, Wildlife & Parks
Restoration
$84,000

**Goals:** The overall goal of the Upper Willow Creek Restoration Project is to collect basin data and implement a restoration project for a watershed-based approach plan to improve fish and wildlife habitat in Upper Willow Creek and Rock Creek through nutrient and sediment reductions, habitat improvement, increased spawning opportunities, reduction of basin fragmentation and improved water quality. MFWP will use existing baseline information to identify impairments, prioritize restoration needs and develop and implementation plan to improve water quality and habitat concerns. This restoration plan, when implemented, will improve water quality, allow Upper Willow Creek to provide its designated beneficial uses and lead toward its removal from the 303(d) list of impaired water bodies.

**Project Description:** The condition of a 13,700-foot (2.6 mile) reach of Upper Willow Creek shows poor in-stream and riparian habitat and contributes sediment and nutrients to Rock Creek. A restoration effort is necessary to improve the degraded channel conditions of this reach. The project will include the design and implementation of natural habitat improvement structure, salmonid spawning areas, natural bank stabilization structures, channel re-vegetation, stream crossings, fish passage and riparian management. Upper Willow Creek contains genetically pure populations of bull trout (federally listed as a threatened species) and westslope cutthroat trout (state species of special concern). Upper Willow Creek is a spawning and rearing tributary for Rock Creek population of fluvial and resident bull trout and westslope cutthroat trout. This project will reduce excessive nutrient and sediment inputs, improve fish and wildlife habitat, remove one partial fish passage barrier and restore Upper Willow Creek’s natural channel patterns in this degraded reach. Several channelized reaches exist within the project area that are not technically or financially feasible to restore. In these reaches, the stream will be relocated to a
newly built floodplain and channel. The project’s riparian area will be fenced and livestock excluded until the channel recovers (minimum of 15 years). MFWP is working with the Five Valleys Land Trust and Rock Creek Trust to develop a conservation easement to protect the project reach.
10.0 Fiscal Year 2002

Sun River Watershed TMDL and Restoration Projects
Cascade County Conservation District
TMDL Planning
$99,800

Goals: This is a continuation of the Sun River Watershed Project that primary project components are to complete a Water Quality/TMDL Plan and continue the water quality and quantity monitoring program. The primary goals of this Sun River Watershed TMDL project are to: 1) Produce and implement the Water Quality/TMDL Plan; 2) Improve land and irrigation water management through BMPs to improve water quality and quantity; and 3) Monitoring program to document project improvements.

Project Description: The Cascade, Lewis & Clark, and Teton County Conservation Districts in cooperation with state & federal agencies are working together to improve the water quality and quantity on the entire Sun River Watershed. This proposal will continue to pull together these efforts and be the tool to accomplish the project goals. Producing, implementing, and evaluating the Water Quality/TMDL Plan, reducing irrigation return flows, improved agriculture practices, erosion control measures and information & education will be the key emphasis to accomplish this project.

Belt Creek Hydrocharacterization
Town of Belt
Groundwater
$108,461

Goals/Description N/A

**Jefferson River Watershed Project**
Jefferson Valley Conservation District
TMDL Planning
$158,000

**Goals:**
1) assess physical and biological components of the watershed in order to guide future data collection and identify TMDL targets; 2) identify irrigation conveyance inefficiencies & initiated seepage loss mitigation demonstration project; 3) identify riparian vegetation project needs and implement up to three restoration projects to demonstrate the multiple benefits of riparian health

**Project Description:** After analyzing existing water quality and quantity data, work with project partners to address impairments sources such as dewatering and poor riparian health, while implementing data collection necessary to develop a baseline research & monitoring project.

**Marias River Watershed Phase I**
Liberty County Conservation District
Groundwater
$53,250

**Goals:** The goal of this project is to protect and improve the quality of land & water resources within the Marias River Watershed. Existing data will be compiled and evaluated to establish baseline conditions, characterize ground water/surface water interaction, and focus efforts for subsequent data collection and planning. Water quality and riparian areas throughout the watershed will be assessed to determine the degree of impairment from non-point sources. Surface water monitoring sites will be established for water-quality and flow measurement. A regional monitoring network will be developed using established surface water monitoring sites and existing wells.

**Project Description:** The Marias Submajor Basin is comprised of 5 separate hydrologic units (HUC 10030201-5). Of these, the Teton (HUC 10030205) has an existing watershed group, so it will not be addressed as part of this project. The Cut Bank (10030201) and Two Medicine (10030202) basins have a TMDL completion date of 2003, while the completion date for the Marias (10030203) and Willow (10030204) basins is 2006. In the Cut Bank and Two Medicine basins, the project will not be addressing Blackfeet Reservation lands, but will include privately owned lands within the Reservation. However, the project does not exclude the opportunity to work with tribal entities involved in the watershed. Due to the size of the watershed (3,294,259 acres), the high percentage of private land ownership (91.3%), and effort required to coordinate six counties and numerous rural and urban landowners, a watershed characterization project has been developed to assess and evaluate the watershed using a phased approach to accomplish a scientifically valid and practical TMDL plan. The watershed characterization will include the collection of information pertinent to not only the 303(d) listed impairments, but will also provide data needed to develop BMPs for watershed restoration. The Phase I goal of the characterization effort is the compilation and evaluation of existing watershed water-quality/quantity and non-point source data to characterize baseline conditions. The results of the Phase I effort will be
compiled in an interpretive report format that presents the results of data compilations to date and provides recommendations for subsequent data collection and the development of adaptive management strategies. The data collection and TMDL development phases are not currently budgeted, but will commence after completion of Phase I. In subsequent phases, the ultimate source(s) of water-quality degradation will be assessed and a TMDL plan will be developed.

**Middle Blackfoot Watershed Habitat and Water Quality Restoration Plan**
Blackfoot Challenge, Inc.
TMDL Planning
$274,280

**Goals:** The goals of the 2-year Middle Blackfoot Watershed Project are to: 1) create, coordinate, and integrate a HWQR Process in the Middle Blackfoot; 2) develop a HWQR Plan that meets DEQ/EPA TMDL requirements; 3) Tie Blackfoot Watershed Projects to the TMDL Process and Plan; and 4) provide education and outreach to Basin residents and to ensure stakeholder and public involvement in the HWQR process.

**Project Description:** The Blackfoot Challenge, in cooperation with its partners, is working to protect and restore the natural resources and rural lifestyle of the Blackfoot Valley including its water resources. This 2-year project will pull together stakeholder interests in the Middle Blackfoot TMDL Planning area to develop a HWQR Process and Plan to meet DEQ/EPA requirements. We will use demonstration projects to tie ongoing Blackfoot watershed projects to the TMDL process and plan in a way that links restoration and conservation activities with TMDL goals and monitoring requirements. We will provide education and outreach to compliment this effort and ensure stakeholder and public involvement in the HWQR process. We will build on the Blackfoot Headwaters HWQR process as a way to coordinate and integrate scientific and stakeholder involvement in addressing TMDL water quality issues in the Blackfoot Watershed.

**St Regis Watershed TMDL**
Mineral County Conservation District
TMDL Planning
$66,500

**Goals:** Coordinate and develop a comprehensive a TMDL water quality restoration plan for the St. Regis TMDL planning unit, including the main stem St. Regis River and Silver, Big, Deer, Twelvemile, Ward, Little Joe, and North Fork Little Joe Creeks.

**Project Description:** Mineral County Conservation District and its contractor(s) will administer and lead the TMDL development project described above, including 1) stakeholder involvement, 2) public education, 3) project coordination, 4) water quality problem verification, 5) pollution source assessment, 6) water quality goal setting, 7) pollution loading allocation, 8) implementation planning, 9) effectiveness monitoring, and 10) TMDL reporting.

**Governor’s Upper Yellowstone River Task Force II**
Park County Conservation District
E&O
$122,200
Goals: The primary goal of the Task Force is to develop a set of publicly-supported river corridor management recommendations that address potential cumulative effects of channel modification on the human community, water quality, riparian habitat, and flood plain extent, along an 85-mile reach of the Upper Yellowstone River from Gardiner to Springdale, Montana. Central to recommendation development is a proactive effort to educate the public, landowners, and regulators on management options available, and the effect of those options on the long-term health of the river (water quality, river function) and the human community that depends on it.

Project Description: Development of river management recommendations will involve identification and evaluation of the upper Yellowstone River’s natural and economic resources, and ultimately result in a modified regulatory process for channel and flood-plain modification proposals. The overall project involves five major steps: resource identification and mapping, resource condition assessment, development and evaluation of management options, selection of preferred option to achieve goals and objectives, and preparation of management recommendations. Although developing river management recommendations is the final goal, this grant funding (see objectives 1 to 4) will also be used to help coordinate technical studies that directly address water quality and river channel modification, and to educate the community as to the results of those studies. The Task Force coordinator functions as the project and research study manager. The research study focuses on: 1) channel modification (past, present, and future) and individual and combined impacts on water quality and river health; 2) watershed-level land use and its impacts on water quality; 3) past and present riparian vegetation conditions with link to hydraulics and geomorphology driving the system; 4) assessing existing fish and wildlife populations and habitat as indicators of riparian health and function; and 5) the social and economic make up of the community and area.

Funding as proposed within this Fiscal Year 2002 application would provide for an additional year and a half of Task Force coordinator services, which are necessary to carry out the Cumulative Effects Investigation. In addition, funding would help cover outreach/education activities and secretarial services. The Task Force has received previous 319 Grant funding in Fiscal Years 99-01. These funds have provided the Task Force and our project partners with essential and invaluable project coordination and administrative services. During the past two years, the coordinator has performed the following crucial functions: 1) communications link between and amongst the Task Force, TAC, researchers, agencies, and the public; 2) data depository; 3) publications writer/editor; 4) grant writer/administrator; and 5) public educator and outreach organizer/facilitator. See Project Description, Task Force Coordinator section for further details. This is our fourth 319 Grant funding request. It would secure administrative operations and services through 2003, the proposed completion date for Task Force recommendations to Montana’s Governor.

Upper Shield Water Quality Association Water Quality Restoration Development Plan
Park Count Conservation District
TMDL Planning
$81,400

Goals/Description N/A

Southern Crazy Mountain Watershed Assessment of Rock Creek
Park County Conservation District
Restoration
$80,850
Goals: 1) Improve & maintain riparian areas, wetlands, and adjacent lands, and 2) Optimize streamflows within the watershed to maximize benefits for agricultural users, fish, and wildlife.

Project Description: The Southern Crazy Mountain Watershed, in cooperation with state and federal agencies are working together to improve water quality. The Association is completing two riparian enhancement/stabilization projects. In addition, the Southern Crazy Mountain Watershed is conducting a Stream Assessment of Rock Creek.

Ambrose-Three Mile Project
Tri-State Water Quality Council
TMDL Planning
$38,500

Goals: Improve water quality, and riparian and aquatic habitat for native fish & aquatic life in Ambrose/Threemile Creeks by stabilizing stream morphology, reducing bank erosion, and removing nutrient sources.

Project Description: Fund the initial stages of TMDL development over an 18-month period including completing watershed assessments, quantifying pollutant loads and determining their sources, setting targets for water quality, instituting public education efforts, developing a restoration/implementation plan, and evaluating these efforts.

Haskill Basin Watershed Project
Flathead County Conservation District
TMDL Planning
$50,000

Goals: The mission of the Haskill Basin Watershed Council is to maintain and enhance the chemical, biological, and physical integrity of Haskill Creek by a voluntary and cooperative effort. Agreed upon goals for attaining the purpose of the mission statement include the completion of a detailed watershed assessment as a basis for setting priorities and measuring progress against objectives over time; maintaining, or where needed, restoring the chemical, biological and physical integrity of Haskill Creek by stabilizing stream banks, improving stream habitat and riparian vegetation; improving water quality and native fish populations; and protecting the watershed by developing a comprehensive water quality plan based on objective, scientific input from all stakeholders, among other goals.

Project Description: Haskill Creek, a major tributary to the Whitefish River, in northwestern Montana, was not listed as a water quality limited water body by Montana DEQ 2000 303(d) list, but is considered as the highest priority watershed in the Flathead Conservation District (FCD) for planning and restoration work by the District. In addition, Haskill Creek is a tributary to the Whitefish River, what has numerous pollutants or conditions identified as causes of impairment. Part of the effort to characterize the Whitefish River should involve consideration of pollutant contributions from Haskill Basin. The City of Whitefish obtains most of its drinking water from upper Haskill Creek. The drainage is impacted to various degrees by residential and recreational development, silviculture and agricultural practices. The 319 grant would fund a comprehensive watershed assessment in Haskill Basin by a professional hydrological consulting firm. The purpose of this assessment is to provide an overall picture of the entire watershed and stream health by performing stream surveys, fish habitat surveys, sediment source surveys, etc., and provide the Council with recommendations for potential watershed and stream and
habitat restoration activities. Additionally, this grant would fund stream restoration work, public education, monitoring, coordination/administration and development of a comprehensive watershed management plan for the drainage.

**East Deer Lodge Valley Watershed Project**  
Deer Lodge Valley Conservation District  
TMDL Planning  
$87,000

**Goals:** The primary goal of this project is to characterize the biological, chemical, and physical conditions of tributaries in the East Deer Lodge Valley Watershed Project (EDVWSP). These data are needed for detailed restoration planning and TMDL development. Detailed restoration plans will be used to identify limiting factors, develop water quality targets, proposed BMPs and prescribed practices, and request Natural Resource Damage Program (NRDP) funds to implement the BMPs/practices. Also, the goal of this project is gauge the importance of non-point loading from the tributaries into the Clark Fork River. Lastly, the project goals include providing ongoing coordination services needed for future BMP implementation.

**Project Description:** The EDVWSP was developed by the Watershed Restoration Coalition of the Upper Clark Fork (WRC) and is located east and south of Deer Lodge along I-15. The project area is 121,000 acres and includes 9 sub-watersheds that flow into the main stem of the Clark Fork River. The area support important fisheries, a host of recreation opportunities, wide variety of wildlife, a large agricultural economic base, and rural living for area residents. The WRC and NRCS are working with 44 landowners in the project area that are willing to participate in restoration efforts. The uplands have been surveyed as part of an NRCS EQIP project. However, the riparian corridors require detailed assessment in order to develop comprehensive restoration plans, maps, and water quality targets. Upon completing this assessment, the WRC would request NRDP funding to implement the planned BMPs/practices and eventually meet TMDL targets for the sub-watersheds, which is anticipated to also help restore the Clark Fork River.

**Swift Creek Watershed Project**  
Whitefish County Water and Sewer District  
TMDL Planning  
$45,000

**Goals:** The goal of the project is to maintain, or where needed, to restore the chemical, biological and physical integrity of the water quality of Swift Creek by reducing non-point source pollution, to stabilize stream banks, improve stream habitat and riparian vegetation in order to restore native fish populations and to specifically improve water quality in order to remove Swift Creek from the Montana impaired stream list [303(d)].

**Project Description:** Swift Creek, a tributary to the Whitefish Lake, in Northwestern Montana, is listed as a water quality limited water body by Montana DEQ 2000 303(d) list and is listed as having High Priority for TMDL development. The East and West Forks of Swift Creek are also listed on the 303(d) list, and are also ranked as High Priority water bodies. This 319 grant will fund the review of existing data and new assessment work, public education, monitoring, coordination/administration and development of an interim water quality management plan for the drainage.
**Middle Yellowstone Alluvial Valley Phase II**  
Yellowstone County Conservation District  
Groundwater  
$79,990

**Goals:** The primary goal of this project is to track hydrologic and water-quality changes due to urbanization of the Yellowstone River valley in Yellowstone County, Montana. A critical element identified as missing in previous studies of the regions is the lack of historical data necessary to assess trends in changes and project future impacts. This project will utilize the ground-water and surface-water network that was constructed from two previous Section 319 projects. Ground-water and surface water monitoring will be conducted for a period of three years. The data collected from this and previous projects will allow for evaluation of hydrologic and water quality trends over an extended (4-6 year) period. Data from this and previous projects will be used to calculate pollutant transported to surface-water via ground water. This additional data will be essential in assisting regulators, planners, and land owners in making informed land use and water resource choices.

**Project Description:** Surface-water monitoring will consist of measuring level, flow, temperature, specific conductance, pH, and turbidity 6 times per year. Additionally, in the spring of each year (during base flow conditions) samples will be collected from selected stream locations for analyses of nitrate, chloride, TDS, and stable-water isotopes. Ground-water monitoring consists of measuring ground-water levels, nitrate, TDS, temperature, specific conductance, and pH 6 times per year. Twice each year selected wells will be additionally sampled for stable water isotopes. The data will be disseminated to the public through public meetings, the MBMG’s Internet page (via GWIC), and an open-file summary report.

**Middle Milk Demonstration Project**  
Blaine County Conservation District  
E&O  
$24,820

**Goals:** 1) Increase implementation of agriculture BMPs; 2) Protect and restore healthy stream systems that support beneficial uses; 3) Mitigate and reduce impacts of existing hydrological modifications; and 4) Improve communication between DEQ and local landowners.

**Project Description:** 1) Demonstrate effective, affordable ways for farmers and ranchers to reduce or eliminate stream bank erosion and restore “proper functioning condition” to the stream and minimize bank erosion caused by watering stock; 2) Demonstrate effective, affordable methods for farmers to reduce discharge of livestock waste into stream (i.e. placement and design of corrals and winter feeding areas); 3) Raise local awareness of water quality issues to begin process to develop a water quality restoration plan for the watershed; and 4) Involve local community in water quality restoration.

**Watershed Education Project**  
Montana Association of Conservation Districts  
E&O  
$63,950
**Goals:** The project goal is to provide a structured watershed protection and pollution prevention education program for adults and school age youth using in part, guidelines and curricula developed by the Bridger Outdoor Science School, conservation districts, and other existing curricula. The project will advance adult & youth awareness, knowledge & abilities to take personal and community action to address the wide variety of natural resource issues affecting their watersheds, including non-point source (NPS) pollution prevention and TMDL development. Specific objectives include: 1) Expanding on established education delivery systems by providing financial & technical assistance to conservation districts, watershed groups, and other non-profit educational outreach organizations conducting a water quality and natural resource conservation youth field-day or adult workshop; and 2) Assisting applicants in the planning and implementation of educational events. The project activities target two general audiences: land users, land owners, land managers, and decision makers; and students grade K-12, their teachers, aides, and parents.

**Project Description:** “Watershed Education Project” workshop guidelines and curricula has been developed in partnership with the Bridger Outdoor Science School, and the Jefferson Valley Conservation District. The program is promoted, coordinated, and delivered by the Montana Association of Conservation Districts in cooperation with the Montana Department of Natural Resources and Conservation, local conservation districts, watershed groups, and other non-profit outreach programs. The Watershed Education Project will continue to support and strengthen the statewide network of watershed education programs, enabling them to raise awareness and foster communication and collaboration between local water and land managers, educators, students and the public with respect to natural resource conservation and NPS pollution prevention.

**Montana Volunteer Monitoring Project**
Montana State University - Montana Watercourse
E&O
$128,000

**Goals:** The general goal of the Volunteer Water Monitoring Project is to expand public understanding of water quality, how human activities affect it, and why it is important to individuals and society. More specifically, the aim of the projects is to increase public knowledge of the central role that scientific principles play in water quality assessment by providing training, equipment and support to individuals, school based monitors and citizen groups. In addition, the project also seeks to provide landowners, Conservation Districts, and local on-the-ground organizations with information and education to aid their understanding of the state’s TMDL process and to enable engagement by local organizations.

**Project Description:** The proposed Montana Volunteer Water Monitoring Project will directly address the foregoing needs and goals by continuing and expanding its program and training citizens to assess the water quality of water bodies (wadeable rivers and streams) in priority watersheds. Nine tasks will be fulfilled. 1) Support the Montana Volunteer Water Monitoring Project by providing salary, benefits, and operations; 2) Conduct five training workshops for volunteer groups; 3) Coordinate and facilitate a training/retreat for members of the Montana Water Monitoring Coalition; 4) Provide support for community-based and school-based monitoring groups in Montana via mini-grants and training; 5) Disseminate monitoring information state and region-wide; and 6) Publicly recognize and promote volunteer water monitoring projects in Montana.

The Volunteer Water Monitoring Project will provide training; coordination and guidance for community and school-based volunteer water monitoring projects in Montana. Instruction and technical support will help volunteer groups: acquire basic skills in water sampling, understand the importance of quality
assurance, define monitoring goals specific to their watershed, develop monitoring study design plans, address local TMDL development needs, and voluntarily share information with other data users. Furthermore, the Montana Volunteer Monitoring Project will provide continued support to established monitoring groups by providing issue-specific advance topic workshops. The Project is statewide in scope and targets interested citizens, middle school and high school teachers, landowners, local watershed groups, service clubs, and conservation districts. It is the only statewide volunteer monitoring organization.

**A Watershed Based Approach to Better Irrigation Management**
National Center for Appropriate Technology
E&O
$86,123

**Goals:** Reduce water quality problems cause by poor irrigation practices in Montana

**Project Description:** 1) Revise and reprint *The Montana Irrigator’s Pocket Guide*; and 2) Expand an innovative watershed-based approach to irrigation management.

**Water Monitoring and Community Education in the Middle Clark Fork**
Watershed Education Network
E&O
$86,430

**Goals:** 1) Expand WEN’s Water Monitoring Program in the Missoula Valley by: a) developing a more comprehensive training program for volunteers and teachers involved in our monitoring program, b) expanding WEN’s school water monitoring program to include pre- and post-field trip visits to participating classrooms, c) increasing support for current sites in our citizen monitoring program, and d) establishing new school and/or citizen monitoring sites, prioritizing creeks on the 303(d) list of impaired water bodies. 2) Develop our public education and outreach programs to increase people’s awareness and understanding of non-point source pollution and other water quality topics; increase public participation in activities that improve local watershed health and riparian habitats.

**Project Description:** The goal of WEN’s Water Monitoring and Community Education Program is to develop a community watershed education plan that increases people’s awareness and understanding of non-point source pollution and other water quality topics and increase public participation in activities that improve watershed health. These programs build a community of knowledgeable, caring and involved citizens, encourage leadership and lay a foundation for the development of a watershed group in the Middle Clark Fork watershed.

**Monitoring Program for Flathead Lake**
MT DNRC- Flathead Basin Commission
TMDL Planning
$125,000

**Goals/Description N/A**

**Stillwater River Basin TMDL Project**
MT DNRC- Flathead Basin Commission
TMDL Planning
$115,884

Goals/Description N/A

Montana Water Website Support
Montana Water Website Support
E&O
$20,080

Goals/Description N/A