



Wyoming Nonpoint Source Program

FY11 Annual Report

October 1, 2010 – September 30, 2011

Prepared by the Watershed Protection Program
Water Quality Division
Wyoming Department of Environmental Quality
Herschler Building, Cheyenne WY



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Wyoming Nonpoint Source Program Fact Sheet—Federal Fiscal Year 2011

Summary of FY11 Program Activity	
Date FY11 Section 319 Project Grant Awarded:	<i>June 7, 2011</i>
Amount of FY11 Section 319 Project Grant:	<i>\$967,755</i>
Amount FY11 Incremental Project Funds:	<i>\$730,100</i>
Amount FY11 Base Project Funds:	<i>\$237,655</i>
FY11 Third-Party Projects Awarded:	<i>Sheridan County Watershed Improvements #3—Sheridan County Conservation District Statewide NPS Information/Education —WY Natural Resources Foundation Grass, Enos, and Lefthand Creeks NPS Reduction Phase II—The Nature Conservancy</i>
FY11 Statewide Projects:	<i>TMDL Development—WDEQ</i>
Total # Active 319 Projects in FY11	<i>24</i>
FY11 Total Load Reduction Estimates:	<i>Sediment: 1,398.8 tons/year Phosphorus: 1,305.9 lbs/year Nitrogen: 6,320.7 lbs/year E. coli: 1.4E+13 MPN E. coli/year</i>
Summary of BMPs implemented in FY11:	<i>3 septic systems; 2 riparian projects; 2 irrigation diversion restorations; 1 bank rehabilitation project and three stream restoration projects (4,904 ft streambank stabilized total); 13 mi decommissioned roads; 6 acres wetland created; 2 acres wetland restored; 1 rain garden installed; 5 off-creek water tanks; 4 spring protection fencings; 1 revised grazing management plan</i>
Summary of Program Activity From FY99-FY11	
Total Number of third-party projects:	<i>119</i>
Total grant funds expended/obligated on third-party projects:	<i>\$13,595,518</i>
Total number of project sponsors:	<i>51</i>
Top 3 project sponsors by # of projects:	<i>Sheridan County Conservation District (11), Teton Science School (8), Natrona County Conservation District (6),</i>
Project Sponsor type with highest percentage of projects sponsored:	<i>Conservation Districts (55%)</i>
Funds spent/obligated on BMP Implementation projects:	<i>\$8,792,153</i>
Funds spent/obligated on Planning/Assessment projects:	<i>\$1,843,099</i>
Funds spent/obligated on Information/Education projects:	<i>\$1,793,187</i>
Funds spent/obligated on Groundwater projects:	<i>\$1,133,179</i>
Funds spent/obligated on TMDL projects:	<i>\$2,263,967</i>
Funds spent/obligated on WDEQ staffing and support projects:	<i>\$1,217,389</i>
Number of EPA Approved Stream Restoration Success Stories To-Date (http://www.epa.gov/owow/NPS/success/)	<i>7 stories for 9 restored stream segments (plus two stories for two segments pending)</i>

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What is Nonpoint Source Pollution?

Unlike point source pollution, which can be traced back to a single defined source, nonpoint source pollution is caused by surface water runoff that is diffuse in nature and often widespread, making it difficult to assess the source of the problem. Nonpoint source pollution occurs when runoff from rainfall or snowmelt travels over and/or percolates through the ground and picks up contaminants. These contaminants are deposited into streams, lakes, rivers, and ground water. Nonpoint source pollution is generally associated with human land-disturbing activities such as urban development, construction, agriculture, recreation, silviculture, and mineral exploration. Common nonpoint source contaminants include fertilizers and pesticides from agricultural and residential activity; oil, grease, and toxic chemicals from urban runoff; sediment from construction activity or stream bank erosion; and bacteria and nutrients from livestock and pet waste or failing septic systems.



Section 1. Nonpoint Source Pollution

1.1. Purpose of this Report

The purpose of this report is to provide a summary of the activities and accomplishments of the Wyoming Nonpoint Source Program for federal fiscal year 2011 (FY11, October 1st, 2010 through September 30th, 2011). This report is also prepared to meet requirements of Section 319(h)(11) of the Clean Water Act (CWA) of 1987 which requires that States report annually on the following:

- progress in meeting the schedule of milestones contained in their nonpoint source management programs, and,
- to the extent that appropriate information is available, report reductions in nonpoint source pollutant loadings and improvements in water quality resulting from program implementation.

Finally, this report is prepared to educate the public about nonpoint source pollution in Wyoming and actions being taken by local, state, and federal agencies to address nonpoint source pollution.

1.2. Nonpoint Source Pollution and Wyoming

Nonpoint sources of pollution (see sidebar this page) continue to be recognized as the nation's largest remaining cause of surface water quality impairments. The effects of nonpoint source pollution can be seen within the lakes, streams, and rivers of Wyoming. The three nonpoint source pollutants causing the majority of Wyoming's surface water quality impairments are:

- Bacterial Pathogens,
- Sediment, and
- Selenium.

1.2.1 Bacterial Pathogens

Nonpoint sources of pathogenic bacteria such as *Escherichia coli* commonly include faulty or inadequate septic systems, livestock operations, pet waste, and wildlife. The draft 2012

Wyoming Water Quality Assessment and Impaired Waters List ([draft 2012 Integrated 305\(b\) and 303\(d\) Report](#)) lists pathogens (*E. coli*/fecal coliforms) as the cause of 40% of stream impairments within the state (see Figure 1). Exposure to elevated levels of pathogenic bacteria can be a public health safety concern if contaminated water was accidentally ingested during recreation uses of the waterbody.

1.2.2 Sediment

Eroding stream banks and surface runoff over bare land contribute sediment to Wyoming’s waters. Human land-disturbing activities that can contribute to erosion and sediment transport include crop production, construction, roads, over-grazing by livestock or wildlife, timber harvesting, urban development, and mining. Sediment loading increases turbidity which limits the amount of sunlight reaching aquatic plants and also affects fish spawning grounds and macroinvertebrate communities. In addition, sediment often transports other pollutants, such as phosphorus, nitrogen, pathogens, and heavy metals, which can attach to the sediment particles. The draft 2012 Wyoming Water Quality Assessment and Impaired Waters List ([draft 2012 Integrated 305\(b\) and 303\(d\) Report](#)) shows sediment as the major cause of lake and reservoir impairments within the state (see Figure 2). In addition, the report shows sediment as the cause of 11% of current stream impairments (see Figure 1).

1.2.3 Selenium

The draft 2012 Wyoming Water Quality Assessment and Impaired Waters List ([draft 2012 Integrated 305\(b\) and 303\(d\) Report](#)) shows selenium as the cause of 15% of current stream impairments and 2% of current lake and reservoir impairments (see Figures 1 and 2). Selenium is an essential trace element to humans and animals, but in higher concentrations can be toxic. Selenium bioaccumulates and can negatively impact fish and waterfowl reproduction. Selenium naturally occurs in the soils of several areas of Wyoming, particularly in areas derived from marine shales. Precipitation and irrigation of selenium rich soils can dissolve and mobilize selenium to surface and ground waters. Thus, while some sources of selenium occur naturally, anthropogenic activities that can increase selenium loading to surface waters include irrigated agriculture return flow, mining, and oil and gas production.

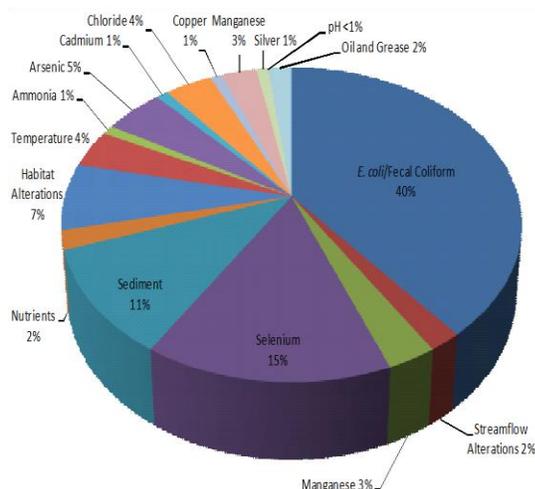


Figure 1. Chart showing the percentage of each cause for Wyoming’s impaired streams on the draft 2012 303(d) List.

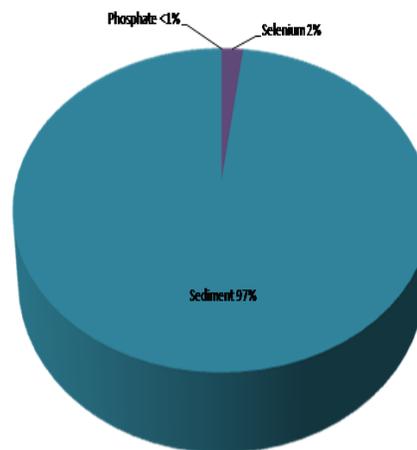


Figure 2. Chart showing the percentage of each cause for Wyoming’s impaired lakes and reservoirs on the draft 2012 303(d)

Managing Watersheds through the Wyoming DEQ

The Water Quality Division is one of seven divisions of the Wyoming Department of Environmental Quality. Within the Water Quality Division, the Watershed Protection Program is responsible for a variety of planning and water quality project implementation activities. The Nonpoint Source Program is one of the programs under the Watershed Protection Program. The vision of the Nonpoint Source Program is to work through voluntary and incentive methods to preserve and restore the quality of Wyoming’s surface water and ground water so designated uses are attained.

The NPS Program works with other programs within the Watershed Protection Program to address nonpoint source pollution. Other programs include Water Quality Standards, Water Quality Assessment (305(b) and 303(d)), 401 Certifications, National Environmental Protection Act (NEPA), TMDLs, Surface Water Monitoring, and Data Quality Assurance. Additional information on these programs can be found on the [Watershed Protection Program website](http://deq.state.wy.us/wqd/watershed/index.asp) at <http://deq.state.wy.us/wqd/watershed/index.asp>.



Section 2. The Wyoming Nonpoint Source Program

2.1 The Wyoming Nonpoint Source Program

Due to the recognition that nonpoint source pollution is a serious impediment to meeting the goals of the CWA, Congress amended the CWA in 1987 to include Section 319 Nonpoint Source Management Programs, thus providing the legal basis for the implementation of the Wyoming Nonpoint Source Program. As part of the Watershed Protection Program of the Wyoming Department of Environmental Quality (WDEQ), Water Quality Division (WQD) (see sidebar this page), the Wyoming Nonpoint Source Program works through voluntary and incentive methods to preserve and restore the quality of Wyoming’s surface and ground water resources such that designated uses are attained. To do this, the Nonpoint Source Program relies largely on local voluntary implementation of nonpoint source reduction projects by individual landowners and local groups in a cooperative effort to address water quality improvements on a watershed scale.

The Wyoming Nonpoint Source Program is overseen by the Nonpoint Source Task Force, a board of 13 citizens appointed by the Governor that represent various industries and interest groups across the state (see sidebar next page). During FY11, Governor Mead signed an executive order authorizing the Nonpoint Source Task Force for another four years (until January 1, 2016).

2.2 Wyoming’s Nonpoint Source Management Plan

Section 319(b) of the CWA requires state programs to have a Nonpoint Source Management Plan in order to receive grant funding assistance. Wyoming’s current Nonpoint Source Management Plan was last updated by WDEQ and approved by the EPA in March 2000. The Plan provides the department with an instrument to measure success in meeting federal and state water quality goals while utilizing the efforts and input of local citizens in addressing water quality concerns. The Plan also serves the department as a monitoring tool in distinguishing effectiveness and efficiency of program activities

The Nonpoint Source Task Force

The NPS Task Force is a 13 member board of Governor-appointed citizens representing various industries and other public interest groups across the state. The Task Force provides oversight for the NPS program by contributing valuable input for the program. Specifically, the Task Force contributes to the amendment of the Wyoming Nonpoint Source Management Plan, the revision and adoption of Best Management Practices, and the review, prioritization, and recommendation of funding for nonpoint source water quality improvement projects. Current members of the Task Force and their represented interest are as follows:

Bill Alldredge—Wildlife

Bob Baumgartner—Conservation Districts

Robert Brug—Conservation Districts

Kathy Buchner—Environment

Bob Dundas—Oil and Gas Industry

Carson Engelskirger—Timber Industry

Linda Hamilton—Sheep Industry

VACANT—Environment

Renee Penton-Jones—Recreation and Travel

Donald Tranas—Public at Large

Lisa Kimsey—Cattle Industry

VACANT—Local Government

VACANT—Cropland

For more information about appointment to the Task Force, please contact the NPS Program at 307-777-6080 or the Governor's Office at 307-777-5461.

and making adjustments to maximize the success of the Nonpoint Source Program.

The Nonpoint Source Management Plan was scheduled for revision in FY05. Staffing limitations prevented the plan from being updated until FY10 when the Nonpoint Source Program began the revision process. It was anticipated that revisions would be complete during FY11; however, completion of the updated Plan has been postponed due to two national Section 319 programmatic evaluations that were conducted in FY11. One evaluation was conducted by EPA for the Office of Management and Budget and the other by the Governmental Accountability Office. It is likely that recommendations included in these two studies will result in major revisions to national Section 319 programmatic guidelines and consequently, information that should be included in state management plans. Therefore, the Nonpoint Source Program will continue to revise the draft Nonpoint Source Management Plan Update during FY12 to incorporate changing programmatic guidance as this information becomes available.

Due to the tracking measures and milestones in the 2000 plan being significantly out-of-date, this annual report presents information to summarize milestones, tracking measures, and progress towards meeting objectives presented in the draft Nonpoint Source Management Plan Update. Questions about the draft Nonpoint Source Management Plan Update can be directed to the Nonpoint Source Program at 307-777-6080 or jennifer.zygmunt@wyo.gov.

2.3 Goals and Objectives of the Nonpoint Source Program

The draft Nonpoint Source Management Plan Update states that the goal of the Nonpoint Source Program is: *To prevent and reduce nonpoint source pollution to the surface water and ground water of the State of Wyoming such that water quality standards are achieved and maintained.*

What kind of funding is available through the Section 319 Program?

Through the NPS Program, Section 319 funds can be made available to state and local agencies, nonprofit organizations, and private individuals meeting CWA requirements. Those who can deliver a product having outcomes and targets that reduce the impacts of nonpoint source pollution and improve water quality are eligible. Nonpoint source pollution control funds are available each year on a competitive basis. Funds are awarded as reimbursement grants, meaning funds can be issued to the recipient only after proof of expenditure on eligible costs. All proposals submitted must identify at least 40 percent of the total project cost as non-federal cash or in-kind services match. The goal for the Wyoming Nonpoint Source Program is to prevent and reduce nonpoint source pollution to the surface water and ground water of the State of Wyoming such that water quality standards are achieved and maintained. An annual Request for Proposals is usually issued in the spring or early summer of each year. Additional information can be obtained on the program's website at: <http://deq.state.wy.us/wqd/watershed/nps/NPS.htm> or by contacting the NPS Program at 307-777-6080.



The Wyoming Nonpoint Source Program will operate on several overarching principles to guide the program in achieving this goal. The overarching principles of the Wyoming Nonpoint Source Program are as follows:

- The program will work through voluntary and incentive methods to prevent and reduce nonpoint source pollution.
- The program recognizes that the most successful nonpoint source pollution control projects are those that are locally led. The program will work with local agencies, communities, watershed groups, and individuals to promote locally-led projects.
- The program recognizes that addressing nonpoint source pollution is a collaborative effort of many groups across the state. Therefore, the program will seek to build new partnerships and to maintain and improve existing partnerships with other state, local and federal agencies, watershed groups, non-profit organizations, and other parties or individuals also seeking to reduce nonpoint sources of pollution and improve water quality.
- The program will be structured and implemented such that there is a focus on realizing and documenting measurable improvements in water quality.
- The Wyoming Nonpoint Source Program will administer its program as effectively and efficiently as possible.

The Nonpoint Source Program has established nine objectives that specifically identify the strategies by which the program will achieve its programmatic goal in accordance with these overarching principles. The nine objectives and FY11 accomplishments for each objective are presented in Section 3 of this report.

2.4 FY11 Section 319 Grant Summary

The majority of water quality improvement work accomplished through the Nonpoint Source Program is funded through CWA Section 319 grants awarded to the State by EPA (see sidebar this page). Section 319 grants provide funds to the State to implement projects that will reduce or eliminate nonpoint source pollution within the

state. The State received \$967,755 in the FY11 Section 319 grant for project implementation; note that budget cuts to the national Section 319 budget during FY11 decreased Wyoming's project budget by approximately \$300,000 (FY10 project budget was approximately \$1.2 million).

Of the total FY11 project grant amount, approximately 75% were incremental funds and 25% were base funds. Based on EPA's national programmatic guidelines and grant requirements, incremental funds are reserved for 1) developing Total Maximum Daily Loads (TMDLs), 2) developing watershed-based plans, and 3) funding projects that implement the TMDLs/watershed-based plans. Base funds, in contrast, can be used for all types of nonpoint source reduction projects, including information/education, groundwater, and planning/assessment projects, as well as implementation projects on unimpaired waters.

2.5 FY11 Project Management

The Nonpoint Source Program continued to fund water quality improvement projects during FY11. The FY11 Request for Proposals emphasized that implementation projects in support of watershed-based plans on impaired streams would be considered top priority for funding. Watershed-based planning and watershed assessment monitoring projects in support of watershed-based planning on impaired stream segments were also considered top priorities for funding. In addition, the Request for Proposals emphasized the importance of product-oriented projects that focused on measurable outcomes. Proposals were reviewed by the Nonpoint Source Program and the Nonpoint Source Task Force. A total of five proposals were received; the Task Force recommended three projects for FY11 funding:

- Sheridan County Conservation District: *Sheridan County Watershed Improvements #3* (see Section 3.4)
- The Nature Conservancy: *Grass, Enos, and Lefthand Creeks Nonpoint Source Reduction Phase II* (see Section 3.6)
- Wyoming Natural Resources Foundation: *Statewide Nonpoint Source Information/Education* (see Section 3.8)

In addition to the three new projects recommended for FY11 Section 319 funds, there were a total of 21 Section 319 projects that were already on-going during FY11. A total of eight projects closed in FY11. All closed projects were completed successfully with a final report submission. Appendix A provides a table that summarizes FY11 project activity and indicates which projects closed during FY11. Appendix B provides detailed project summaries for the eight closed projects. Additional information on individual 319 projects can be found in the EPA Grant Reporting and Tracking System (GRTS) for Wyoming.

Section 3. Accomplishments of the Nonpoint Source Program During FY11

3.1 Introduction

As stated previously, the Nonpoint Source Program has established nine objectives that specifically identify the strategies by which the program will achieve its goal of reducing nonpoint source pollution within the state. Through the actions and strategies described in the following sections, the Nonpoint Source Program worked during FY11 to make progress towards meeting these objectives. In addition to the following information, a summary of milestones and tracking measures for each objective is presented in Appendix C.

3.2 OBJECTIVE #1: IDENTIFICATION AND PRIORITIZATION

The WDEQ will continue to gather and use credible data to accurately and efficiently identify those surface waters of the state whose designated uses are determined to be threatened or impaired due to nonpoint source pollution. Those waters determined to be impaired or threatened by nonpoint source pollution will then be prioritized by the Nonpoint Source Program for restoration efforts.

The foundation of the Nonpoint Source Program is the accurate and efficient identification of surface waters of the state that are impaired due to nonpoint source pollution and subsequent prioritization of those impairments for restoration efforts. A thorough identification and prioritization process helps maximize the effectiveness of grant funds available for restoration projects. Identification and prioritization includes the combined efforts of several programs of the Watershed Protection Program. The following highlights achievements for this objective during FY11:

- The Standards Program initiated the triennial review process for [Chapter 1 of the Wyoming Water Quality Rules and Regulations](#) (water quality standards). The public notice for changes to Chapter 1 was issued in September 2011.
- The Monitoring Program continued to gather surface water quality data in accordance with the established [2010-2019 Monitoring Strategy](#). Information about work conducted during the 2011 monitoring season can be found in the [2011 Water Quality Monitoring Annual Work Plan](#).
- The cut-off date for submission of data to be considered for inclusion in the 2012 Integrated Report was July 15th, 2011. The Assessment Program reviewed and analyzed data submitted. Data used for listing and de-listing decisions were reviewed under standard quality assurance/quality control procedures. The [draft 2012 Integrated Report](#) was released for public comment in December 2011. Waters listed as being impaired or threatened due to nonpoint source pollution will be considered “priority waters” by the Nonpoint Source Program for restoration efforts.
- During FY11, the Nonpoint Source Program continued to work on the development of the Impaired Waters Index (IWI) database and mapping tool; by the end of FY11, a prototype for

What is a TMDL?

A Total Maximum Daily Load (TMDL) is the amount of pollutant which a stream can accept and still meet its designated uses. TMDLs must be established for each pollutant that is a source of a stream impairment. They must be measurable and must consider both point and nonpoint source pollutant loads, natural background conditions, and a margin of safety. Section 303(d) of the Clean Water Act requires states to:

- 1) Identify all waters of the state which are impaired--i.e. they contain pollutants which adversely affect the designated use of the water.*
- 2) Prioritize all impaired waterbodies for development of TMDLs. Prioritization is to take into consideration public health and environmental risk.*
- 3) Establish and adopt TMDLs for all impaired waterbodies or for waterbodies which would be impaired if a TMDL was not established.*

Additional information on WDEQ TMDL development can be found at <http://deq.state.wy.us/wqd/watershed/index.asp#TMDL>



each had been developed. The Nonpoint Source Program anticipates completion of the IWI in FY12 and will use this tool to track planning and restoration efforts by HUC8 watershed and by impaired segment in order to help prioritize impaired waters for restoration efforts.

3.3 OBJECTIVE #2: PLANNING

The WDEQ will continue to work with local stakeholders to develop and promote the development of tools that provide an accurate, efficient, and comprehensive plan on how the impairments to priority waters identified in Objective #1 will be addressed. This includes the development of EPA-approved Total Maximum Daily Loads (TMDLs) and the development of watershed-based plans that meet all of EPA’s Nine Key Elements for Watershed-Based Planning.

3.3.1 TMDL Development

TMDLs (see sidebar this page) can be a foundation for effective and efficient watershed-based planning, best management practice (BMP) implementation, effectiveness monitoring, and public information and education on impaired waterbodies. The Nonpoint Source Program continued to support TMDL development during FY11. TMDLs and/or watershed-based plans (see Section 3.3.2) are needed prior to allocating incremental Section 319 funds towards BMP implementation projects per current national guidelines for state nonpoint source programs and conditions established in active Section 319 grants.

Progress continued in the TMDL Program during FY11. A total of four TMDLs were approved in FY11 (Haggarty Creek and West Fork Battle Creek), in addition to the initiation of 3 new TMDLs (Bitter and Killpecker Creek TMDLs). Table 1 summarizes TMDL progress to-date in the state and indicates those TMDLs funded by the Nonpoint Source Program. The Nonpoint Source Program has requested and received approval from EPA to use a portion of incremental Section 319 funds from active grants to develop TMDLs for impaired waterbodies within the state.

EPA’s Nine Key Elements for a Watershed-Based Plan

Beginning in FY04, the EPA established nine key elements which must be contained in a watershed plan to be considered a “watershed-based plan” eligible for incremental funds. These nine key elements are as follows:

Element 1: Causes and sources of the impairment are identified

Element 2: Load Reduction Estimates for each management measure or BMP implemented

Element 3: Management Measures and BMPs (and associated costs) needed to achieve load reductions and identification of critical areas

Element 4: Technical and Financial Assistance that are estimated to be needed to implement the plan

Element 5: Information/Education Component to enhance public understanding and encourage public participation

Element 6: Schedule for implementing management measures

Element 7: Measurable Milestones—schedule of interim, measurable milestones to evaluate if management measures are being implemented.

Element 8: Evaluation of Progress—criteria for determining if load reductions are being achieved and progress is being made.

Element 9: Effectiveness Monitoring to determine effectiveness of management measures.

Detailed information on the nine key element requirements can be found on EPA’s website at:

<http://www.epa.gov/fedrqstr/EPA-WATER/2003/October/Day-23/w26755.htm>

TMDLs funded by Section 319 grants will include an implementation plan that incorporates the nine-key elements of watershed-based planning as established by EPA in current grant conditions (see sidebar this page). Because of the importance of public stakeholder involvement in TMDL development, the WDEQ also requires the TMDL development process to include a significant amount of public involvement, including multiple public meetings for each TMDL project to inform the public, garner assistance, and receive feedback from stakeholders. The WDEQ worked in FY11 to promote public participation in TMDL development and to assist local agencies and watershed groups during the process.

Table 1. Summary of approved and in-progress TMDL projects.

TMDL Project	# TMDLs	Status	Funding Source(s)
Ocean Lake	1	Approved 12/09	N/A—WDEQ staff
Goose Creek Watershed	13	Approved 9/10	319 grant
Belle Fourche River Watershed	7	Draft TMDLs under review	ARRA* 604(b) grant and 319 grant
North Platte River Selenium	11	Draft TMDLs under review	ARRA* 604(b) and 319 grants
Crow Creek	10	In-Progress	319 and 604(b) grants, SEP** funds
Haggarty Ck and West Fork Battle Ck	4	Approved 9/11	N/A—WDEQ staff
Gillette Fishing Lake	2	Draft TMDLs under review	319 grant, City of Gillette funding
Big Horn River	16	In-Progress	319 grants
Hams Fork	1	In-Progress	WDEQ staff, 319 grants
Bitter/Killpecker Creek	3	Data collection prior to TMDL development	TBD

* ARRA (American Recovery and Reinvestment Act)

**SEP (Supplemental Environmental Protection Funds)

3.3.2 Watershed-Based Planning

The Nonpoint Source Program also supported the development of watershed-based plans during FY11. Wyoming has many locally-

written watershed plans developed to address impaired waterbodies throughout the state. While these watershed plans have been instrumental in addressing nonpoint source pollution, they do not necessarily meet EPA requirements to qualify them as “watershed-based plans” that incorporate EPA’s nine-key elements of watershed-based planning (see sidebar previous page).

Wyoming currently has two approved watershed-based plans. The Flat Creek Watershed Management Plan, originally drafted in 2006, was updated in FY09 to meet EPA’s requirements for a watershed-based plan. In addition, Sheridan County Conservation District was awarded a Section 319 project with FY07 funds to develop a watershed-based plan for the Prairie Dog Creek watershed. During FY11, the Prairie Dog Creek Watershed Based Plan was approved by WDEQ. The District has also received Section 319 funds to complete a watershed-based plan for the Tongue River Watershed. The District began work on the Tongue River Watershed-Based Plan during FY11.

3.3.3 Planning and Assessment Projects

No planning and assessment projects were recommended for FY11 funding. However, there were two planning and assessment projects already active at the start of FY11 that the Nonpoint Source Program managed during FY11. One project closed during FY11. Please see Appendices A and B.

3.3.4 Other Planning Activity Highlights

The following highlights some additional activities conducted with the use of 319 funds during FY11 to support planning efforts within the state:

- **Bitter/Killpecker Creek Monitoring:** Bitter Creek and Killpecker Creek (Green River Basin) are listed on the 303(d) list for chloride and/or bacteria impairments. During FY11, WDEQ worked with the Bitter/Killpecker Watershed Advisory Group to discuss monitoring needs for upcoming TMDL development. It was determined that there was a significant lack of flow data needed for TMDL development. WDEQ purchased four levelloggers and two barologgers to assist with collection of flow data on Bitter and Killpecker Creeks in preparation for TMDL development. WDEQ staff worked with the Sweetwater County Conservation District to install and utilize this equipment during FY11.
- **Hams Fork Monitoring:** With the assistance of monitoring equipment purchased with 319 funds, WDEQ staff continued to monitor the Hams Fork River in preparation for TMDL development. During FY11, pH data loggers were installed at the beginning of the monitoring season and cleaned approximately once every 2-3 weeks during the monitoring season. During these cleaning visits, pH probes were re-calibrated, nutrient grab samples were taken, and the field sampler used a multi-probe to collect instantaneous measurements of pH, temperature, dissolved oxygen, and specific conductivity. Nutrient grab samples were analyzed for total phosphorus, orthophosphate, nitrate-nitrite as nitrogen, total kjeldahl nitrogen, and ammonia as nitrogen. Monitoring was conducted to obtain data needed for TMDL development which is scheduled to begin in FY12.

FY11 NEW PROJECT—Sheridan County Watersheds

Improvement #3

This project, sponsored by the Sheridan County Conservation District (SCCD), was awarded \$454,780 in FY11 incremental funds. This is a watershed project, the goals of which are to 1) reduce bacteria and sediment loads through watershed improvement projects that address contributions from domestic animals, septic systems, irrigation diversions, unstable streambanks, and other nonpoint sources and 2) to encourage future participation in the local watershed improvements program through education. Multiple waterbodies within the Tongue River, Goose Creek, and Prairie Dog Creek watersheds are listed on Wyoming's 303(d) list for pathogenic bacteria and/or sediment. This project will improve water quality through the implementation of TMDLs and watershed-based plans with the continued support of the existing water resource improvement program that includes implementation of BMPs, education, and water quality monitoring.



- **HSPF/BASINS TMDL Model Training:** During FY11, the WDEQ hosted a four-day training session on the use of the Hydrologic Simulation Program Fortran/Better Assessment Science Integrating Point and Nonpoint Sources (HSPF/BASINS) modeling system for TMDL development. The HSPF/BASINS modeling system is being used extensively for TMDL development in Wyoming. Section 319 funds were used to pay for tuition for six Watershed Protection Program staff and two Wyoming Association of Conservation Districts (WACD) staff to attend the training.

3.4 OBJECTIVE #3: IMPLEMENTATION

The WDEQ will provide financial and technical assistance to implement efficient and effective watershed restoration projects in accordance with the watershed planning tools established in Objective #2 above. The purpose of the restoration projects will be to implement best management practices that reduce or eliminate nonpoint sources of pollution such that surface water quality standards are achieved and maintained.

3.4.1 Projects

The Nonpoint Source Program awarded FY11 incremental funds to one new watershed restoration project to address water quality impairments. Sheridan County Conservation District was awarded \$454,780 to implement the Sheridan County Watershed Improvements #3 Project (see sidebar this page). In addition, during FY11, the Nonpoint Source Program managed five other watershed restoration projects that address water quality impairments (see Appendix A). All five projects remained active at the end of FY11.

The Nonpoint Source Program continues to focus its efforts on implementation projects that will achieve or contribute to watershed restoration. As stated earlier, the Request for Proposals for FY11 funding emphasized that implementation projects in support of watershed-based plans on impaired streams would be considered the top priority for funding. In addition, updated program evaluation numbers show that BMP implementation projects continue to comprise the greatest number of funded projects from FY99-FY11 (see Section 3.10.5). Finally, Figure 3 below summarizes the HUC8 watersheds where

3.5.1 Water Quality Monitoring

Documenting the environmental benefits of Section 319 projects is an important part of the Nonpoint Source Program. Environmental monitoring is one tool that helps the Nonpoint Source Program evaluate whether its activities are resulting in water quality improvement. However, due to the nature of nonpoint source pollution, measuring water quality improvement from BMPs is not always a straightforward task. Causes of nonpoint source pollution typically occur over large areas and may be diffuse in nature. Furthermore, multiple BMPs may be needed to address one cause and it may take many years before a BMP reaches full effectiveness and the cause is mitigated. Nonetheless, the Nonpoint Source Program incorporates water quality monitoring and other methods of measuring environmental benefit into its activities. The two major strategies for obtaining water quality monitoring data for funded projects are 1) water quality monitoring conducted by third-party project sponsors and 2) coordination with the WDEQ/WQD Monitoring Program based on available resources in that program. Where water quality monitoring data are not available, the Nonpoint Source Program will use load reduction estimates from predictive modeling for BMP implementation to help evaluate the environmental impact of funded projects. Approaches to water quality monitoring and load reduction estimation are described in the following sections.

3.5.1.1 Summary of Third-Party Project Monitoring

All watershed BMP implementation Section 319 projects are required to include a monitoring component to help evaluate project effectiveness. In some respects, this approach has had limited effectiveness due to factors such as the project sponsor not having enough resources to monitor at an appropriate spatial scale as well as having insufficient time on the grant to conduct monitoring for several years after BMP implementation. However, project sponsor monitoring has provided valuable information to the Nonpoint Source Program and the program plans to continue this requirement into the future with an effort to find ways to better assist project sponsors with effectiveness monitoring. Table 2 shows monitoring activities conducted under Section 319 projects active in FY11.

Table 2. Surface water monitoring conducted by Section 319 projects active in FY11.

Project No.	Project Title	<u>Water Bodies</u>	<u>Monitoring Effort</u>
		Primary Water Body Tributaries	Primary Effort Constituent(s) Supporting Constituents
ON603	Middle Fk Popo Agie Septic and AFO Rehabilitation— Popo Agie Conservation District	Middle Fk Popo Agie River Hornecker Creek	Pathogens (<i>E. coli</i>) Field Parameters
ON801	Sheridan County Watershed Improvements #2— Sheridan County Conservation District	Tongue River Goose Creek Big Goose Creek Little Goose Creek Prairie Dog Creek	Temperature, pH, conductivity, dissolved oxygen, discharge, turbidity, and <i>E. coli</i> . Macroinvertebrates and habitat assessments at select sites.

Project No.	Project Title	<u>Water Bodies</u> Primary Water Body Tributaries	<u>Monitoring Effort</u> Primary Effort Constituent(s) Supporting Constituents
ON802	Belle Fourche Watershed Phase II—Crook County Natural Resource District	Belle Fourche River Donkey Cr.	Pathogens (<i>E. coli</i>) Chloride and ammonia Field Parameters
ON806	Snowy Range Sediment	Laramie River	Sediment Physical habitat Field Parameters
ON804	Grass Creek/Enos/Lefthand Creek Nonpoint Source Reductions Phase I	Grass Creek Enos Creek Lefthand Creek	Sediment (Bank Erosion Hazard Index and Near Bank Stress), macroinvertebrates, habitat assessments Field Parameters
ON904	Karns Meadow Stormwater Wetlands	Flat Creek	Sediment (total suspended solids, total settleable solids and flow using flow-triggered stormwater auto-samplers) BURP Field Parameters
NPS2010A	Laramie River Restoration Phase 2 and 3	Laramie River	Sediment (Bank Erosion Hazard Index and Near Bank Stress) Cross Sectional Data Riffle Stability Index Photopoint monitoring WGFD fisheries monitoring
NPS2010B	Flat Creek Restoration	Flat Creek	Sediment (total suspended sediment and bedload) Macroinvertebrates Riffle embeddedness Channel cross-sections and profile WGFD fisheries monitoring Vegetation surveys
NPS2010C	Lower Dry Creek Wetlands	Dry Creek	Sediment (total suspended solids)
NPS2011A	Sheridan County Watershed Improvements #3—Sheridan County Conservation District	Tongue River Goose Creek Big Goose Creek Little Goose Creek Prairie Dog Creek	Temperature, pH, conductivity, dissolved oxygen, discharge, turbidity, and <i>E. coli</i> . Macroinvertebrates and habitat assessments at select sites.
NPS2011B	Grass Creek/Enos/Lefthand Creek Nonpoint Source Reductions Phase II	Grass Creek Enos Creek Lefthand Creek	Sediment (Bank Erosion Hazard Index and Near Bank Stress), macroinvertebrates, habitat assessments Field Parameters

3.5.1.2 Summary of WDEQ Monitoring Program Assistance

The WDEQ/WQD Monitoring Program (Monitoring Program) is responsible for collecting scientifically valid water quality monitoring data using established data collection methods and assessing those data

in a consistent manner. The Monitoring Program operates on a set of five principles, six primary objectives, and four secondary objectives outlined in the [Surface Water Monitoring Strategy 2010-2019](#). One of the program's secondary objectives is to, as resources allow, provide data and technical support towards implementation and evaluation of nonpoint source restoration projects. The [Manual for Standard Operating Procedures for Sample Collection and Analysis](#) describes the data collection methods used by the Watershed Monitoring Program. In addition to monitoring strategies, WDEQ also provides Water Quality Monitoring Annual Work Plans to inform the public as well as other state and federal agencies about which streams are scheduled to be monitored by WDEQ for a given year.

Monitoring Program staff have routinely assisted project sponsors with sampling design, monitoring protocol, and quality assurance/quality control procedures. The Nonpoint Source Program will work with the Monitoring Program to evaluate on an annual basis what staff resources are available to assist with project effectiveness monitoring.

The following highlights assistance provided to 319 projects by Monitoring Program staff in FY11:

- **ON603, Middle Fork Popo Agie River Septic and AFO Project (Popo Agie Conservation District):** Monitoring Program staff provided oversight for the project. Monitoring Program staff sampled with Popo Agie Conservation District to collect duplicates and split samples annually for a quality check. Staff attended the Water Quality Technical Advisory Group meetings, provided advice and guidance throughout the project, edited annual monitoring reports, and conducted field and lab audits. The WDEQ/WQD Quality Assurance/Quality Control Officer provided an audit of original field data notebooks during FY11. Assistance from Monitoring Program staff was important in helping produce a more efficient and effective monitoring plan for this project that has detected improving water quality trends within the watershed (see Section 3.5.4).
- **ON804, Grass/Enos/Lefthand Creeks Nonpoint Source Reduction Phase I (The Nature Conservancy):** Monitoring Program staff provided oversight for entire project. The Nature Conservancy worked with Monitoring Program staff to re-evaluate the original project monitoring plan and draft a new, revised plan that would be significantly more effective at evaluating the project. Monitoring Program staff spent one week in FY10 training The Nature Conservancy staff in the field on sampling procedures including Near Bank Stress (NBS), Bank Erosion Hazard Index (BEHI), habitat assessments, and macroinvertebrate sampling methods; based on this training, The Nature Conservancy staff was able to continue monitoring using these methods in FY11 on their own. During FY11, Monitoring Program staff continued to provide assistance as needed to The Nature Conservancy; in particular, assistance with data evaluation and analysis was provided. Monitoring Program staff also helped review and edit the final report submitted for this project. Monitoring Program staff will continue to provide oversight and monitoring assistance to The Nature Conservancy during Phase II of this project which was awarded FY11 319 funds. Monitoring program staff assistance has been integral to the success of this project's monitoring program.
- **NPS2010C, Lower Dry Creek Wetlands (Laramie County):** Monitoring Program staff provided input on wetland design, monitoring methods, and methods for estimating load reductions for

the project. Staff provided project oversight and helped edit and revise the final report submitted for this project.

- **NPS2010A, Laramie River Restoration Phase II and III (Laramie Rivers Conservation District):** Monitoring Program staff provided input on original monitoring plan and sampling methods. During FY11, staff assisted with data collection in the field at several sites, including BEHI and NBS data collection.
- **ON806, Medicine Bow Sediment Reduction (United States Forest Service):** Monitoring Program staff helped project sponsor develop a more effective monitoring plan.
- Monitoring Program staff helped review and evaluate data collected on the North Platte River and tributaries for selenium impairments as part of the final report for **ON601, Kendrick Watershed Plan Implementation (Natrona County Conservation District)**. Monitoring Program staff also provided oversight for this project.
- In addition to helping document environmental results, Monitoring Program staff routinely contribute to planning efforts by assisting with TMDL and/or watershed-based plan development. Five of the 18 approved TMDLs in Wyoming have been written by Monitoring Program staff (Ocean Lake and Haggarty/West Fork Battle Creek).

3.5.2 Summary of BMPs Implemented During FY11 and Associated Load Reductions

National Section 319 program guidelines require that estimates of pollutant load reductions from BMPs implemented under Section 319 watershed-based plans be included within the state’s annual report. Currently, load reduction estimates for sediment, nitrogen, and phosphorus are a reporting requirement in GRTS. The Project Implementation Plans for active projects with BMP implementation contain a commitment to calculate load reduction estimates for the BMPs implemented. It is the goal of the Nonpoint Source Program to use actual water quality data when possible to determine load reductions and quantify water quality improvement.

However, the use of monitoring data to estimate load reductions might be of limited confidence because of sample variability and the corresponding sample adequacy problems associated with such variability. Establishing effective monitoring plans and obtaining sufficient data to demonstrate improvements in sediment or bacterial pathogen loadings (two of the most common causes of water quality impairment in Wyoming) are often difficult due to the nature of these pollutants, the diffuse nature of their sources, limited resources available to project sponsors, and the length of time often needed to realize water quality improvement following BMP implementation. Thus, the Nonpoint Source Program will also use approved modeling tools, such as the Spreadsheet Tool for Estimating Pollutant Loads (STEPL) and the EPA Region 5 Model to estimate load reductions from completed BMPs. The Nonpoint Source Program will continue to provide technical assistance to project sponsors to estimate load reductions using such modeling tools.

Table 3 provides a summary of BMPs implemented by Section 319 projects in FY11 and their associated load reduction estimates. Load reduction estimates have been entered into GRTS. All new FY11 watershed restoration projects involving implementation of BMPs contain the commitment to calculate load reductions, either through use of an accepted predictive model or through pre- and post-project

water quality monitoring data. To assist with compiling BMP and load reduction data in the future, the Nonpoint Source Program worked during FY11 to create a database system that can be used by project sponsors to track BMP implementation. The Nonpoint Source Program will continue to work on finalizing the database during FY12 and releasing it to project sponsors.

Table 3. Summary of BMPs completed during FY11 by Section 319 projects and estimated pollutant load reductions associated with those BMPs.

Project Name	Project No.	BMPs Implemented During FY11	Load Reduction Method	Estimated Load Reductions
Middle Fork Popo Agie Septic and AFO	ON603	No new BMPs implemented in FY11.	N/A	N/A
Sheridan County Watershed Improvements #2	ON801	Two riparian improvement projects, two irrigation diversion/restoration projects, one bank rehabilitation project, two stream restoration projects, 3 septic replacements; includes 264 feet of streambank stabilization	STEPL, Wyoming Septic Model	1.4E+13 MPN <i>E. coli</i> /year 8.8 lbs/year N 3.4 lbs/year P 6.5 tons/year sediment
Medicine Bow Forest Sediment Reduction	ON806	13 miles of road decommissioned	Water Erosion Prediction Project (USFS)	13 tons/year sediment
Laramie River Restoration	NPS2010A	An additional 19 treatment sites that stabilized 4,640 ft of bank (total 45 sites stabilizing 10,000 ft streambank for life of project)	Monitoring	139 tons/year sediment for 2011. 1080 tons/year sediment from 2010 work. (1219 tons/year sediment total)
Lower Dry Creek Wetlands	NPS2010C	3 acre of wetlands constructed	Monitoring	22 tons/year sediment
Grass/Enos Creek Phase I	ON804	5 off-creek water tanks, 4 spring protection fence enclosures, 1 revised grazing management plan	Monitoring, STEPL	948.3 tons/year sediment 1,311.9 lbs/year N 502.5 lbs/year P
Sunrise Building Rain Gardens	ON902	One of three rain gardens completed	N/A	N/A
Karns Meadow Stormwater Wetland	ON904	2 acres of wetland restored, 3 acres of wetland created, 669 trees and shrubs planted, weed control, 12,000 wetland plants planted	STEPL, TMDL estimates	270 tons/year sediment 5000 lbs/year N 800 lbs/year P

Project Name	Project No.	BMPs Implemented During FY11	Load Reduction Method	Estimated Load Reductions
Grass Enos Creek Phase II	NPS2011B	None implemented to-date.	N/A	N/A
Sheridan County Watershed Improvements #3	NPS2011A	None implemented to-date.	N/A	N/A

It is important to recognize that the above information represents *estimated* environmental improvement only. The Nonpoint Source Program will continually evaluate available data to better document water quality improvement from Section 319 projects and evaluate successful restoration on a case-by-case basis.

3.5.3 Successful Watershed Restoration

Two segments of Muddy Creek and one segment of McKinney Creek within the Little Snake River Basin were added to the 303(d) List in 1996 because aquatic life other than fish and cold water fisheries uses were threatened due to habitat alterations caused by livestock grazing. The Little Snake River Conservation District and other partners within the watershed have implemented a tremendous number of BMPs within the watershed over the past three decades, partially funded through 319 grants. While a significant amount of data and information associated with the restoration work had been submitted in final reports for 319 projects, WDEQ determined that a comprehensive evaluation of the data was needed to evaluate restoration success. Due to the amount of data and its unorganized format, the WDEQ contracted analysis of available Muddy Creek Watershed data to a professional consultant with experience in macroinvertebrate analysis. Section 319 funds were used to pay for the contracted work. The contractor provided a final report to the WDEQ in FY11.

Based on the report findings, the WDEQ has determined that credible data indicate that designated uses are now being met on two of the three segments; consequently, the WDEQ has proposed to de-list one segment of Muddy Creek (WYLS140500040103_01) and the segment on McKinney Creek (WYLS140500040101_01) with the [draft 2012 Integrated Report](#). The WDEQ will work with the Little Snake River Conservation District in FY12 to evaluate de-listing potential for the second segment of Muddy Creek, as evaluation of the report findings for this segment were inconclusive and it was determined that additional data were needed. The Nonpoint Source Program will work during FY12 to prepare success stories for the two de-listed segments noted above and will submit them to EPA for approval.

3.5.4 Other Documented Water Quality Improvement

The Nonpoint Source Program works with the Assessment Program to identify watersheds where improving water quality trends may be documented, but full watershed restoration has not yet been

**FY11 NEW PROJECT—
Grass/Enos/Lefthand Creek NPS
Reduction Phase II**

This project, sponsored by The Nature Conservancy, was awarded \$214,305 in FY11 base funds and \$22,307 of unobligated FY06 base funds. The total Section 319 award for this project is \$236,612. This is a watershed project whose goals are to measurably reduce sediment contributions from agricultural sources and reduce temperatures in streams in the project area by 1) developing 12 new off-creek sources, 2) fencing 3 miles of riparian area, 3) treating 275 acres of encroaching juniper/conifer in riparian areas and aspen stands, 4) planting 3,000 native pole cuttings in riparian areas, and 5) expanding on range and water quality monitoring begun in Phase I of this project. Phase I of this project was funded with the FY08 Section 319 grant. Phase II funding will allow The Nature Conservancy to continue their important BMP implementation and monitoring work in this watershed. This work is supported by a significant amount of landowner and agency participation that The Nature Conservancy was instrumental in securing.



achieved. The following describes two projects where improving water quality trends were documented due to restoration work done in FY11.

- **ON603 Middle Fork of the Popo Agie River Septic Rehabilitation Project (Popo Agie Conservation District):** Monitoring conducted from 2006-2011 under this project documented a decrease in the number of *E. coli* geometric mean data sets that exceeded the water quality standard from 33 to 8 between 2009 and 2011 on the Middle Fork. The project also documented a decrease in the number of monitoring sites that exceeded the water quality standard from five out of six sites to two out of six sites from 2009 to 2011 on the Middle Fork. Besides detecting improving water quality trends, the monitoring program also accomplished the following: documented that environmental conditions such as temperature and discharge were a factor as to whether the Middle Fork met water quality criteria; identified likely sources of *E. coli* loading to be from livestock waste and septic systems; and collected credible data that will enable an accurate delineation of the upstream reach of the impairment on the Middle Fork (reflected in the [draft 2012 Integrated Report](#)).

3.6 OBJECTIVE #5: PROTECTION AND PREVENTION

In addition to restoring impaired waters, the WDEQ will seek to protect those waters that are not listed as impaired or threatened, but may nonetheless be adversely affected by nonpoint source pollution or may be high quality, unique waters that warrant special protection. The quality of these surface waters will be maintained and improved through coordinated regulatory and non-regulatory methods, including nonpoint source pollution reduction and control, permitting of point sources, the National Environmental Policy Act (NEPA) review process, Clean Water Act Section 401 certifications, and providing technical assistance and public education. Where possible, the WDEQ will seek to be proactive and prevent new water quality impairments from arising.

3.6.1 Projects

One protection/prevention project was recommended for FY11 Section funding. The Nature Conservancy was awarded \$236,612 of 319 funding to continue watershed restoration work in the Grass, Enos, and Lefthand Creek watersheds of the Big Horn River Basin (Grass, Enos, and Lefthand Creeks Nonpoint Source Reduction Phase II, see sidebar previous page). While not currently listed as impaired or threatened on the 303(d) list, these waterbodies have documented water quality problems due to excess sediment loads. During FY11, The Nature Conservancy completed Phase I of the project and received funding for Phase II. Preliminary results from the monitoring associated with Phase I shows that bank erosion decreased at the two of the three sites where BMPs were implemented. Additional water quality and range monitoring data will be collected during Phase II to better evaluate BMP effectiveness in both phases of this project. The Nature Conservancy has obtained a significant amount of cooperation from landowners and agencies who are stakeholders in the watershed to implement a comprehensive, coordinated approach to watershed restoration.

In addition, there were three other projects active at the start of FY11 that also qualify as protection/prevention projects. Similar to the project noted above, the Laramie River Restoration Project (NPS2010A) continued work during FY11 to address sediment loading to the Laramie River which is currently not listed on the 303(d) list. The Lower Dry Creek Wetlands Project (NPS2010C) worked during FY11 to construct a wetland on Dry Creek that is proactively trying to address sediment from an upstream urban area currently under development. Finally, the Medicine Bow Sediment Reduction Project (ON806) is working to reduce sediment loading to multiple streams on and downstream of national forest lands by decommissioning roads and rehabilitating stream crossings and wetland areas.

3.6.2 401 Certifications, Turbidity Waivers, and BMP Audits

Section 401 of the CWA requires that anyone desiring to obtain a federal permit for any activity that may result in a discharge into waters of the United States must first obtain a state Section 401 water quality certification. This certification ensures that state water quality standards and other state regulations will be met and provides opportunity for states to have input into federally approved projects that may affect surface waters of the state. The WDEQ issued 35 individual 401 certifications in 2011.

In addition, the WDEQ issued 35 individual turbidity waivers to authorize activities that would cause short term turbidity increases determined to have minimal effect on water use. In addition, the WDEQ worked in FY11 with the United States Forest Service (USFS) to develop and issue a general authorization for temporary turbidity increases during routine maintenance projects or those resulting from force majeure circumstances. In addition to outlining what USFS activities are covered under the authorization, the authorization established notification, reporting, and monitoring requirements that must be met under the authorization. The purpose of the general authorization was to provide a mechanism that would reduce workloads for both parties associated with the turbidity waiver application, review, and approval process while still ensuring that conditions in Chapter 1 of the Wyoming Water Quality Rules and Regulations were met.

Finally, Wyoming State Forestry hosted a BMP audit of forest timber harvesting sites in several areas of Wyoming. Watershed Protection Program staff participated in the BMP audit. The audit is described in Section 4.5.

3.7 OBJECTIVE #6: GROUND WATER PROTECTION

The WDEQ will work to understand current ground water quality conditions, improve ground water quality, protect drinking water supplies from nonpoint sources of pollution, protect the public health, and increase public awareness of the potential for nonpoint sources to contribute to ground water contamination and public health concerns.

Nonpoint source pollution has the potential to affect ground water in addition to surface water. With the majority of Wyoming residents dependent on ground water for their source of drinking water, protecting Wyoming's aquifers is critical. Nonpoint sources of contaminants include, to name just a few, fertilizer and pesticide runoff from agricultural lands, bacteria from failing septic tanks, and toxic substances from industrial sites or underground storage tanks. Ground water monitoring is an important part of ground water protection and ground water restoration. Recent efforts have been undertaken to characterize and map shallow aquifers in the state, determine shallow aquifer vulnerability to pollution, establish baseline aquifer conditions, and determine the presence of pesticides within ground water. The [WDEQ-Water Quality Division Ground Water Program](#) is the state agency responsible for ground water protection. Appendix C provides information about milestones the Ground Water Program worked to achieve in FY11.

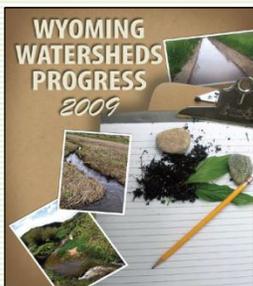
3.7.1 Ground Water Projects

In FY11, there were two active Section 319 projects whose focus was ground water protection:

- **ON604, Evaluation of BMPs to Protect Ground Water Quality in Goshen County, WY (University of Wyoming):** The major goal of this project was to evaluate effectiveness of BMPs in protecting ground water quality in Goshen County. This goal included monitoring the quality of ground water for nitrate, evaluating the effectiveness of BMPs, and educating the local community through a network of working partners. In FY11, the project sponsor continued to work to transfer technology to the local community. This project closed during FY11. A complete project summary is provided in Appendix B.
- **ON903, Ambient Ground Water Monitoring (WDEQ Ground Water Program and United States Geological Survey):** The purpose of this project is to establish baseline ground water conditions in order to fulfill performance measures established in WDEQ's 2009-2010 Strategic Plan. Ground water quality data will be used to 1) establish ambient ground water quality conditions to serve as a reference to which future ground water quality data can be compared, 2) determine appropriate response strategies to protect existing and potential use of ground water resources, 3) target resources for future ground water monitoring, and 4) identify areas where current ground water management plans should be modified to prevent further degradation of ground water quality. During FY11, the ground water monitoring network was expanded to priority areas in Laramie and Goshen Counties. Over

FY11 NEW PROJECT—Statewide NPS Information/Education

This project, sponsored by the Wyoming Natural Resources Foundation (WNRF), was awarded \$23,350 in FY11 base funds. This is an information/education project whose goals are to 1) coordinate a statewide Day of Monitoring event to provide youth and adults the opportunity to participate in water quality monitoring activities, 2) document and inform decision makers and general public of activities and efforts being undertaken to improve water quality in Wyoming, and 3) reach more of the public with nonpoint source outreach materials utilizing technology and social media. Specifically, the project will coordinate a statewide Day of Monitoring in coordination with the International Day of Monitoring. The project will also publish and distribute an updated statewide watersheds success and progress report to an estimated 600 individuals and entities at local, state and federal level. This will include production of a web-based report that is interactive and includes video from on-the-ground watershed activities and the development of outreach materials to promote reduction in nonpoint source pollution via use of social media.



110 existing wells were sampled in this calendar year in order to establish a ground water monitoring network. Samples were analyzed for an extensive suite of analytes, including metals, VOCs, SVOCs, tritium, various isotopes, and wastewater compounds.

In addition, the Nonpoint Source Program assisted with the following ground water activity during FY11:

- The Nonpoint Source Program assisted WACD with coordinating a ground water training session at their Level III Water Quality Module Training in July 2011. EPA Region 8 personnel gave a one-day training course entitled “Basic Hydrogeology, Agricultural Chemicals in Groundwater, and Groundwater Sampling” to conservation district staff and attendees from other organizations.

3.8 OBJECTIVE #7: INFORMATION AND EDUCATION

The WDEQ will work to increase and maintain general public awareness of water quality and nonpoint source pollution through an effective education and outreach program.

3.8.1 Information/Education Projects

Informing and educating the public is an important part of reducing and preventing nonpoint source pollution. During FY11, the Nonpoint Source Program continued to require watershed restoration projects to include an information/education component. Project sponsors worked to outreach to their communities during FY11 through newsletters, social networking media, project tours, newspaper articles, radio advertisements, pet waste campaigns, and many other venues.

One information/education project was recommended for FY11 319 funding. The Wyoming Natural Resource Foundation (WNRF) was awarded \$23,350 to implement a statewide nonpoint source information/education project (see sidebar this page). In addition, four information/education projects were active at the beginning of FY11; three of these projects closed during FY11 (see Appendices A and B).

Significant information/education accomplishments during FY11 under these projects or through staffing and support workplans include the following:

- Approximately 1,500 Wyoming students attended **Worldwide Day of Monitoring** activities coordinated by 12 conservation districts and the WNRF. (NPS2011C, WNRF)
- An important educational resource for the state is the **Wyoming Watersheds Progress Report**. The WACD worked during FY11 to compile information to be used for the 2011 report which will be published in the spring of 2012. The report was not available at the time this document was prepared; however, the Watersheds Progress Report will be available on the [WACD website](#) following publication. (NPS2011C, WNRF)
- Worked progressed at the **Pathway to Water Quality** project (ON50A, Southeast Wyoming Resource Conservation and Development Council) at the State Fairgrounds in Douglas. Work during FY11 included installation of permeable patio and stabilization grid demonstration areas in the livestock tie-out area as well as installation of three interpretative signs. In addition, WACD employees provided daily demonstrations of watershed health and land management practice impacts through the use of a stream trailer.
- Project ON707 (**Rural Living in Wyoming: Small Acreage Conservation Education and Outreach Project**, University of Wyoming Cooperative Extension Service) closed during FY11. At the close of this project, a total of 109 workshops had been held across the state with 2,406 participants. In addition, 15 issues of a quarterly magazine were distributed (average 4,000 copies per quarter) and internet based resources were developed to disseminate the same type of information. Evaluation tools used as part of the project indicate that these methods were effective in increasing landowners knowledge (30% increase from workshop participants) and in influencing management practices used on their properties.
- One **Wyoming Stream Team (ON901)** workshop providing water quality monitoring training to Wyoming teachers was held in June 2011 by Teton Science Schools. Nonpoint Source Program and Assessment Program staff contributed to the workshop by teaching about the CWA process and macroinvertebrates as indicators of stream health.
- **Crow Creek Public Outreach Project (ON803)**: The Laramie County Conservation District (LCCD) implemented a focused public outreach and education project to improve watershed health in the Crow Creek watershed. Outreach and education included information about general water quality, pet waste cleanup, stormwater, and recreation. Outreach and education were conducted through children's activity books, water poetry magnets, newspaper inserts, aquatic habitat signs, public events, pet waste stations, informational signs, decals, pet waste surveys, sediment and erosion control workshops, fact sheets for urban BMPs, Leave No Trace materials, and a recreation guide for the Pole Mountain area of the Medicine Bow National Forest.
- **Wyoming Stream Team Monitoring Kits**: Section 319 funds were used to purchase three Wyoming Stream Team Monitoring Kits (Teton Science Schools) for a teacher at

the Fort Washakie schools on the Wind River Indian Reservation. The teacher and students will use the kits to determine the current health of the Wind River on the Wind River Indian Reservation and monitor its ongoing health.

- **WACD BMP Workshop:** The WACD hosted their second BMP Workshop in August 2011. Section 319 funds were used for materials, supplies, and handouts for the workshop. The workshop covered a variety of topics, including agricultural BMPs, urban BMPs, water quality monitoring, basic stream geomorphology, macroinvertebrates, and other BMP-related topics. The workshop was well-attended by conservation district staff and met the goal of improving district staff's knowledge of the use and proper implementation of BMPs.

3.8.2 BMP Manuals

The Nonpoint Source Program has five BMP Manuals issued as part of the Nonpoint Source Management Plan. These manuals are important to not only document which BMPs will be considered eligible for Section 319 funds, but also as educational tools to the public. Several of the manuals have not been updated since the late 1990s; the rest were updated in the early 2000s. Because the manuals are supposed to be updated every five years, the Nonpoint Source Program recognized the importance of updating these programmatic documents. Staffing limitations have prevented the Nonpoint Source Program from updating the manuals in recent years. In FY11, an intern was hired through Teton Science Schools to revise and update the BMP manuals. By the end of September 2011, the intern provided updated drafts of the Urban, Cropland, and Grazing BMP manuals. Without the help of the intern, the WDEQ would not have been able to update these important programmatic documents. The WDEQ will work during FY12 to update remaining manuals and initiate the approval process for the updated manuals.

3.9 OBJECTIVE #8: PARTNERSHIPS AND INTERAGENCY COOPERATION

The WDEQ will work to maintain and improve existing partnerships and develop new partnerships with other agencies, non-profit organizations, local watershed groups, and individuals who also seek to reduce nonpoint source pollution and improve water quality. Partnerships and coordination will allow watershed restoration and protection efforts to occur more efficiently and effectively.

The Nonpoint Source Program worked during FY11 to meet this objective. The following highlights some of the major accomplishments for this objective in FY11. Detailed descriptions of nonpoint source pollution reduction activities undertaken by several partner agencies are included in Section 4.

- The WDEQ and United States Forest Service (USFS) signed an updated Memorandum of Understanding in July 2011.
- The WDEQ worked with the USFS to issue a general turbidity waiver authorization that will increase the efficiency of the turbidity waiver process for some specific USFS conservation activities.

- The Nonpoint Source Program and WACD promoted Section 319 funding opportunities to local watershed groups resulting in increased proposal submittals for the FY12 funding cycle.
- WQD Monitoring Program staff assisted with Level II and III WACD Water Quality Module trainings.
- Watershed Protection Program staff participated in the 2011 State Forestry Audit.
- The Nonpoint Source Program Coordinator participated on the Natural Resources Conservation Service (NRCS) State Technical Committee meetings.
- The Nonpoint Source Program Coordinator participated in State Engineer Office Water Forum meetings.
- The Nonpoint Source Program participated on Pathway to Water Quality Steering Committee.
- The Nonpoint Source Program provided input to WACD on the content of the 2011 Watersheds Progress Report.
- The WDEQ outreached to appropriate agencies and stakeholders in advance of and during TMDL development in applicable watersheds.
- The Nonpoint Source Program outreached to partner agencies for input on the draft Nonpoint Source Management Plan Update.

3.10 OBJECTIVE #9: EFFICIENT AND EFFECTIVE PROGRAM ADMINISTRATION

The WDEQ will administer its Nonpoint Source Program as effectively and efficiently as possible, with a focus on integration of Watershed Protection Program programs, demonstration of accountability, and continual program evaluation.

The following sections highlight program administration activities during FY11:

3.10.1 Grant Closures

The FY05 Section 319 grant closed on September 30th, 2011. The close-out of this grant involved the turn-back of \$2,477 in unspent funds to the EPA. This turn-back represents projects being closed without full expenditure of allocated funds, generally without sufficient time to redirect these funds to other uses. While this represents a minimal amount of funding being returned, the Nonpoint Source Program will continue to work towards expending the full grant award amounts prior to grant expiration. Mechanisms to help meet this goal include: 1) making certain project sponsors are adhering to time lines, and if not, looking at initiating an amendment to reduce project funds at an early enough date to allow for those funds to be reallocated; 2) making certain that all projects close with a minimum of six months remaining in the EPA grant; and 3) having project sponsors with a history of trouble utilizing all of their 319 funds request less-intensive projects in future requests.

3.10.2 Grant Expenditure Rates

The Nonpoint Source Program works with project sponsors to allocate and expend project funds in a timely manner. As such, the program recognizes the importance of expending grant funds at a reasonable rate; however, expenditure rates can vary based on the timing of the EPA grant award, timing of construction seasons, weather-related contingencies, timing of the availability of local

resources, staff turnover, and other factors that can influence project progress. Table 4 summarizes, for each active grant, the percentage of funds that are obligated to a cooperative agreement or contract (but not yet expended), the percentage of funds currently expended, and the percentage of projects that are either on-schedule or ahead of schedule.

Table 4. Rate of expenditures, obligations, and project schedules by grant year (as of 12/31/11).

Grant Year	% Funds Expended	% Funds Obligated (but not yet expended)	TOTAL (% Funds Expended + Obligated)	% Projects On-Schedule or Ahead of Schedule	Comments
FY06	Grant closed 12/31/11; final numbers are being processed.				
FY07	60%	33%	93%	83% (10/12)	TMDL development has slowed grant expenditures and two projects. WDEQ will work to expend remaining funds prior to grant closure.
FY08	43%	14%	57%	100% (11/11)	Unobligated funds represent TMDL development reservation that has not yet been allocated to a contract. WDEQ will work to expend remaining funds prior to grant closure.
FY09	64%	20%	84%	100% (4/4)	Unobligated funds represent TMDL development reservation that has not yet been allocated to a contract.
FY10	19%	65%	84%	100% (3/3)	Unobligated funds represent TMDL development reservation that has not yet been allocated to a contract.
FY11	0%	85%	85%	100% (3/3)	Grant signed June 2011, projects are in early phases of implementation and have not yet submitted requests for reimbursement. Unobligated funds represent TMDL development reservation that has not yet been allocated to a contract.

3.10.3 Project Amendments

Sixteen of the 24 open projects (67%) have required a term extension, budget, or scope of work amendment (see Appendix B). Thus, only 33% of the projects active in FY11 have had no amendments to date. Eight of the 24 projects (33%) have needed more than one type of amendment. These percentages are over the milestone of having 50% or less of the projects require any amendment and 25% of the projects needing more than one amendment by 2014. The major reason for a project amendment was to obtain a term extension. The primary needs for a term extension were to allow time for the completion of tasks not yet finished, to add additional implementation projects or monitoring due to task cost under-runs during the original project life, or to provide additional time due to delays from unanticipated factors. Staff turnover in project sponsor organizations contributes significantly to the need to extend projects. To reduce the number of amendments needed, the Nonpoint Source

Program will more closely evaluate the expected project timelines and consider adding extra time as appropriate to cover unanticipated delays. The Nonpoint Source Program will also closely monitor project progress to make sure that timelines are being met. Section 319 projects are assigned a project officer within the WQD Watershed Protection Program or the Ground Water Program once the projects have been approved by the Nonpoint Source Task Force and WDEQ for funding. It is the responsibility of each project officer to track the progress of each project assigned.

3.10.4 Staffing and Support Funds

In addition to the Section 319 project budget received for FY11, the WDEQ received \$675,000 of FY11 Section 319 staffing and support funds under the Performance Partnership Grant (PPG). Section 319 staffing and support funds that are incorporated into the PPG are used to support staff that conduct the following types of nonpoint source program-related activities: Nonpoint Source Program administration, grant management, project management, TMDL development and implementation, watershed-based planning, GRTS data entry, website development, federal consistency review, National Environmental Policy Act (NEPA) review, Section 401 certifications, monitoring and assessment activities related to nonpoint source pollution, GIS support, and general administrative support. Additional information about staffing activities can be found in the State/EPA Performance Partnership Agreement for FY11.

3.10.5 Program Evaluation

During FY09, the Nonpoint Source Program conducted a program evaluation to better understand program strengths and weaknesses as well as to evaluate future directions for the program. A complete description of that evaluation process and its findings were provided in the FY09 Section 319 Annual Program Report. During FY11, the NPS Program updated the information used in the program evaluation to maintain current program information. While a complete program evaluation will only be done once every several years, information presented in the Fact Sheet at the beginning of this report provides summary statistics of the updated information. In addition, Figures 4-6 provide an updated picture of the activities of the NPS Program since FY99.

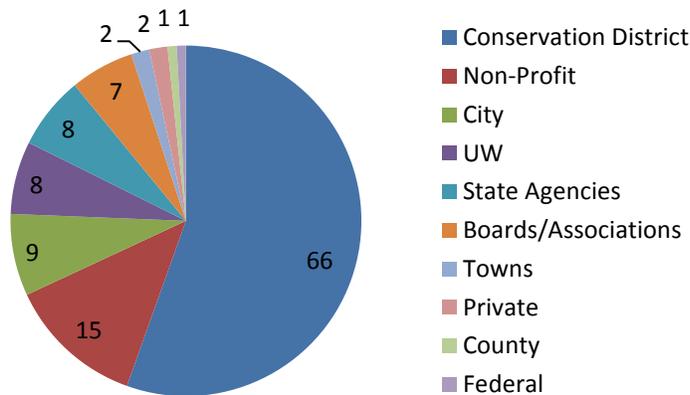


Figure 4. Third-Party (non-WDEQ) Project sponsor categories and the number of projects each category has sponsored from FY99 to FY11.

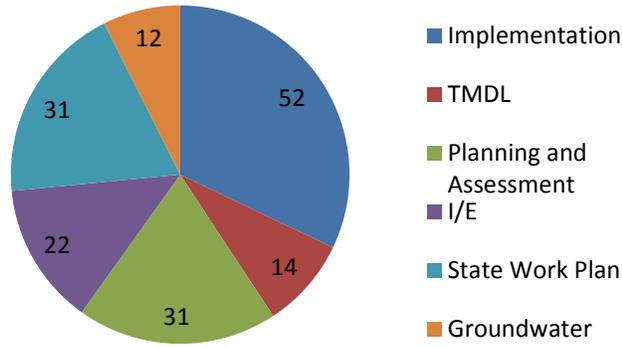


Figure 5. Number of projects by Project Type F99-FY11, including WDEQ state work plan projects.

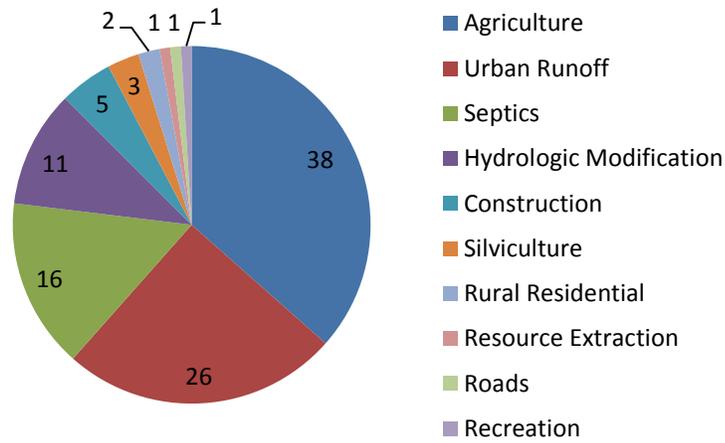


Figure 6. Number of BMP implementation projects by NPS pollution source category addressed FY99-FY11.

Section 4. Nonpoint Source Reduction Activities Outside of the WDEQ-WQD Nonpoint Source Program

4.1 Introduction

The Wyoming Nonpoint Source Program is just one of many programs within Wyoming that work to directly or indirectly reduce nonpoint source pollution. The Wyoming Nonpoint Source Program seeks to cooperate with other state, federal, and local agencies; non-profit organizations; and other local watershed groups to reduce nonpoint source pollution.

Due to the amount of public lands owned by the federal government in Wyoming, cooperation with the major federal land management agencies in Wyoming is important. Water Quality Division documents, such as Chapter 1 Water Quality Standards and Implementation Policies, the Nonpoint Source Management Plan and BMP Manuals, and the 303(d)/305(b) Integrated Report are recognized and cited by federal agencies in documents such as Environmental Impact Statements and Management Plans. The Nonpoint Source Program currently has an ongoing Section 319 watershed improvement project that involves implementation efforts on federal lands (ON806). Federal agencies have also been active cooperators in the steering committees for Section 319 projects, in providing technical support to project sponsors, and in participating on WDEQ work groups.

The following section provides information about nonpoint source reduction activities conducted by entities outside of the Nonpoint Source Program. This is not intended to be a comprehensive list of all other activities within the state, but instead highlights major activities known to the WDEQ at the time this report was prepared. Links are provided to websites for each agency where contact information and further information can be found for those agencies or programs. Because individual projects typically have multiple funding sources and multiple partners, the same project may be noted for more than one agency/program.

4.2. [United States Forest Service](#)

The general approach to nonpoint source pollution management for the USDA Forest Service (USFS) is to: 1) apply BMPs or Watershed Conservation Practices (WCPs) when implementing all land management projects, 2) monitor implementation and effectiveness of those practices, and 3) adjust those practices where monitoring shows concerns about the effectiveness of the practice. National Forests in Wyoming use BMPs and WCPs as well as Forest Plan standards and guidelines to ensure that State water quality standards are met and that existing and designated uses of water are protected when projects are designed and implemented on the ground. National Forest staff conduct formal and informal monitoring of these practices and adjust them as necessary, per the nonpoint source management strategy.

The USFS also has direction in a number of program areas to restore watersheds to reduce or prevent additional nonpoint source pollution. These program areas are described below based on information provided by USFS:

- **Burned Area Emergency Rehabilitation (BAER)**

The purpose of this program is to alleviate emergency conditions following wildfire to help stabilize soil; to control water, sediment and debris movement; to prevent permanent impairment of ecosystem structure and function; and to mitigate significant threats to health, safety, life, property or downstream values. In FY11, no BAER treatments were needed on National Forest lands in Wyoming.

- **Healthy Forests and Rangelands – Hazardous Fuels Reduction and Landscape Restoration**

The purpose of this program is to treat the excessive accumulation of hazardous or unusually flammable fuels in the forests and rangelands that are the root cause of an unprecedented fire risk on national forest lands. Fuels treatments occur both inside and outside the wildland urban interface (WUI). Treatments inside the WUI are designed to reduce fuels around homes, communities and other resources, such as municipal water supplies and infrastructure, to slow or stop wildland fires from threatening these high-value areas. Treatments outside the WUI help protect communities by creating conditions that enable firefighters to more successfully suppress fires before they enter the WUI and reduce fire severity and impacts on valued landscapes and natural resources. In FY11 in Wyoming, the Forest Service completed fuel treatment projects on 14,775 acres inside the WUI and another 7,255 acres outside the WUI for a total of 22,030 acres.

- **Watershed Restoration**

The purpose of this program is to improve watershed conditions using upland and instream treatments. Possible projects include road improvements such as correction of cut or fill slope failures, scarification of compaction on upland areas (old skid trails, for example), reclamation of old gravel quarries, etc. National Forests in Wyoming reported accomplishments of about 480 acres of soil and water improvements in FY11.

- **Road Maintenance**

The regular road maintenance program provides for the upkeep of roads and trails including the surface and shoulders, parking and side areas, drainage structures and signs necessary for the safe and efficient operation of the transportation system. Road maintenance provides access to the National Forests while reducing resource damage. National Forests in Wyoming reported accomplishments of about 1,393 miles of road maintenance in FY11.

- **Legacy Road and Trail Remediation Initiative**

This activity funds the repair, restoration, rehabilitation, and decommissioning of both system and unauthorized roads and trails where the conditions are causing water quality issues in streams and other waterbodies, adversely affecting threatened, endangered, or sensitive species or impacting community water systems. Road decommissioning activities encompass a

range from posting a sign or installing a gate to close a road to public use, to “storm-proofing” a road by pulling drainage structures, to road obliteration including scarification and seeding of the road surface or actually re-contouring the slope to eliminate the road prism. In FY11 in Wyoming, there were two road rehabilitation projects, five culverts replacements, one road drainage improvement, two bridge replacement/reconstruction projects, six road decommissioning projects and two stream restoration developments completed with Legacy Road and Trail Program funds.

4.3. [Bureau of Land Management](#)

The Bureau of Land Management (BLM) works to protect water quality as part of its administration of federal lands under its jurisdiction. The BLM is required to comply with provisions of the CWA and is required to meet the water quality standards established by the WDEQ. The BLM works to address current water quality issues as well as to prevent future issues from occurring due to land management decisions. Their preventative approach includes the use of BMPs. BLM continues to work to manage grazing, energy development, and other surface disturbing activities according to appropriate federal regulations. These actions have a cumulative effect of reducing nonpoint pollution by reducing impacts to the vegetative community and keeping water on the land longer. The BLM also works regularly with Wyoming Game and Fish to improve fish passage through culverts at key road crossings. This helps to reduce nonpoint pollution by controlling stream energies and sediment contributions at road crossings.

The BLM also conducts or partners with other agencies to conduct watershed restoration activities. The following information, provided by BLM, highlights just some of the BLM watershed restoration projects or other related activities that were active during FY11:

- **Bolton Creek Culvert Replacement, Bolton Creek Watershed (North Platte River Basin):** This project is in conjunction with the Bolton Creek Restoration project. This project was to replace an old 48” culvert which most of the time was at least 80 percent blocked by debris causing headcutting and erosion downstream. BLM, along with Natrona County, tore out the culvert and replaced it with a 16’ arched bottomless culvert on a county road. The goal of the project was to help facilitate flow through the culvert and eliminate erosion downstream from that culvert. The BLM purchased the culvert and Natrona County has nearly finished completion of the culvert. Construction was done in late fall when there was no flow in the creek. Wyoming Game and Fish also has a beaver reintroduction project on this creek. The goal is to help the beavers establish dams to stabilize and reduce the amount of sediment carried by the creek into the North Platte River. Beavers have been reintroduced into the creek and aspen trees have been placed along the creek to provide food and building materials.
- **Dirty Shirts Spring Enclosure and Spring Box Watershed, Bates Creek Watershed (North Platte River Basin):** This project was designed to restore a spring and associated riparian zone. Historic livestock grazing had severely eroded the area surrounding the spring. A large sized area was fenced off near the spring to keep livestock out. A spring box supplies water to two tire troughs to provide water for the livestock.

- **Muddy Creek Fish Barrier Removal and Stream Restoration Project, Upper Muddy Creek Watershed (Little Snake River Basin):** In 2010, a fish barrier (a perched culvert on the main-stem of Muddy Creek) was removed and 0.70 miles of new stream channel was constructed to improve hydrologic function and allow for BLM sensitive fish passage. In 2011, a total of 40 lbs of native seed mix, and 778 (cuttings and potted) native plants (e.g., Redosier dogwood, willow spp., Baltic rush, basin wildrye, and snowberry) were planted within the project area. The goal of this project was to expedite reclamation success and improve overall stream condition. Monitoring efforts included a longitudinal profile of the entire reconstruction site, eight channel cross sections, stream flow, water temperature, and 37 photo-points.
- **Renewal of the Red Rim-Grizzly Wildlife Habitat Management Area (WHMA) Memorandum of Understanding (MOU), Upper Muddy Creek Watershed (Little Snake River Basin):** This MOU was established between the BLM, Wyoming Game and Fish Department, and the Little Snake River Conservation District concerning the Management of the Red Rim Daley and Wildlife Habitat Management Areas. This MOU outlines a management process and provides guidance for the responsibilities of each agency. One of the goals of the Red Rim-Grizzly WHMA is to improve riparian health and overall watershed condition through multiple use land management. This includes using a “grass-bank” grazing plan to allow high resource value pastures longer resting periods.
- **Cumberland/Uinta Allotment Cooperative Management Plan, developed through a Coordinated Resource Management (CRM) Strategy encompassing almost 500,000 acres in the Upper Bear River and the Upper Green River watersheds:** As representatives of diverse interests, the Bear River Divide Steering Committee will develop and implement, through consensus, quality natural resource management on the Cumberland/Uinta allotment for present and future generations (total acreage of these allotments is 383,187 acres). Goals of the project include to improve watershed functions within the CRM area, maintain sustainable wildlife populations within the CRM area, maintain economic viability of interests/enterprises and communities, and provide for public involvement in public land natural resource management decisions. Greenline composition, end-of-season stubble heights on greenlines and wet meadows, utilization of wet meadows and willow use (plants bitten) were measured routinely, along with animal numbers and time-in-pasture. Results of the project include that all greenlines on the allotment have shown increases in late-seral riparian species.

4.4. Natural Resources Conservation Service

Through conservation planning, technical assistance, and financial assistance, the Natural Resources Conservation Service (NRCS) works with landowners to conserve soil, water, and other natural resources on private property. A significant number of Section 319 projects have utilized NRCS resources for technical assistance and/or additional financial assistance through the Environmental Quality Incentives Program (EQIP) or other NRCS Programs. Through EQIP, the NRCS provides technical and financial assistance to producers to implement conservation practices on agricultural land. Nationally, the reduction of nonpoint source pollution is a priority for EQIP. Water quality is one of NRCS-Wyoming’s

priorities for EQIP funds as based on recommendations from the Wyoming State Technical Committee, of which the Wyoming Nonpoint Source Program Coordinator is a participating member. The majority of EQIP funds are allocated to the county level so that applications are evaluated and selected based on local priorities.

The following highlights some of the FY11 NRCS-Wyoming programs/initiatives related to water quality:

- As in previous years, NRCS-Wyoming used targeted funds to assist producers with Livestock Waste Management resource concerns. A total of 15 contracts were funded in FY11, with total obligations at \$905,183. Six Conservation Activity Plans were funded which will be developed by Technical Service Providers.
- The Ogallala Initiative was a new initiative in FY11 that provided financial assistance to landowners interested in converting irrigated land to dryland cropland or pasture.
- The Agricultural Management Assistance program continued to prioritize the control of invasive species, primarily Russian Olive and Salt Cedar in the Big Horn Basin. A total of 3,456 acres have been treated since 2008.
- Under the Wetland Reserve program, Wyoming is participating in a Reserved Grazing Rights Pilot in the Bear River area. This will allow some grazing use of the land under easement while maintaining wetland and wildlife values. Four WRP workshops were held around the state to train NRCS field staff in wetland restoration.
- FY11 was the first year that Wyoming offered a state level Conservation Innovation Grant (CIG) Program. CIG offers an opportunity for eligible applicants to submit proposals for projects that focus on innovative conservation practices and technologies. The three projects selected for funding in FY11 include 1) demonstrating and evaluating a Written Pole Motor as a cost-effective and energy efficient alternative to three-phase power, 2) developing and demonstrating new methods in biomass digestion technologies for handling of agricultural wastes and animal mortality disposal by using portable digesters on-farm, and 3) implementing a pilot Payment for Ecosystem Services program in the Green River Basin of southwestern Wyoming to develop methods to maintain or improve wildlife habitat and riparian condition in the basin.

Through NRCS' numerous Farm Bill programs, many BMPs or other conservation practices are realized each year in Wyoming, a good portion of which either directly or indirectly reduce nonpoint source pollution. The NRCS has provided the following information to highlight some of the "on-the-ground" accomplishments during FY11:

- 12 nutrient management plans developed (2 in Fremont County, 6 in Goshen County, 1 in Laramie County, 3 in Platte County)
- 6,235 acres where nutrient management practices were applied. Nutrient management practices reduce runoff or leaching of nutrients into surface or ground water from agricultural lands.

- 11,278 feet and 242 acres of conservation buffers installed (includes riparian buffers, stream bank and shoreline protection, windbreaks, and shelterbelts). Conservation buffers reduce erosion and sediment loading into surface waters.
- 27,732 acres where irrigation practices were applied. Efficient irrigation practices reduce runoff carrying sediment and nutrients.
- 628,557 acres where prescribed grazing practices were applied. Improved grazing practices can reduce erosion and provide protection for riparian areas.
- 10,660 acres of cropland where residue management practices were applied. Residue management practices include no-till, mulch-till, crop rotation, and cover crops, as a few examples, and help to prevent erosion and sedimentation.
- 145,191 acres incorporated into conservation easements.

4.5. [Wyoming State Forestry Division](#)

The Wyoming State Forestry Division is charged with managing forest resources under the jurisdiction of the State. Their mission is “To utilize science-based, professional forestry practices to establish, enhance, protect, and utilize Wyoming’s forests, trees, and associated resources to contribute to the socio-economic well-being of Wyoming.” The Division works to directly manage timber resources on state lands, including harvesting, fire protection, and fire suppression. The Division also works to promote good forest management and protection throughout the state. The Wyoming Forestry Best Management Practices publication was revised in 2006 and provides a good reference for silviculture practices that reduce nonpoint source pollution. In 2000, 2001, 2004, and 2007, audits of silviculture BMPs were conducted by a multi-disciplinary team of forestry professionals on state, federal, and private timber harvest areas. The audits were followed by statewide training sessions to increase BMP knowledge. Audit and training activities were partially funded by past Section 319 grants.

In 2011, State Forestry again hosted a silviculture BMP audit. While 319 funds did not contribute to this effort, WDEQ Watershed Protection Program staff participated in the audit. A summary of the audit as provided by State Forestry is shown below:

- In an effort to be proactive in protecting water quality, Wyoming in 2000 began implementing BMPs; voluntary measures and guidelines for forestry and silviculture activities to prevent nonpoint source (NPS) pollution. Prior to beginning the audit process for 2011, the BMP Steering Committee decided to broaden the scope of projects that could be included in the audit process. With suppressed timber markets and a limited number of active timber harvest sites, the Committee elected to include fuels mitigation, aspen restoration, and hazard tree reduction efforts as possible entries into the BMP Audit process. In 2011 five harvested sites were selected from federal, state, and private land with live or active water courses. Each site was evaluated on the application and effectiveness of 70 BMPs using the field audit rating guide criteria. For application, in 2011, the timber sale operators met or exceeded the BMPs 85 percent of the time for all ownership groups, with state timber sales scoring the highest. The applied BMPs were effective 86 percent of the time. In 2011, state timber sales also had the

highest effectiveness rating. As a result of this audit, the BMP Audit Committee's recommendations included:

- conduct training sessions to landowners, contractors, and state and federal employees on the proper use of the BMP Guidelines,
- clearly define criteria for stream classification on future audits,
- review the BMP Field Audit Ranking Sheet and developing clearer language for several categories, and
- consider the possibility of conducting BMP Audits biannually to better evaluate our BMP effectiveness.

4.6. [Wyoming Wildlife Natural Resource Trust](#)

The Wyoming Legislature created the Wyoming Wildlife and Natural Resource Trust (WWNRT) in 2005. Funded by interest earned on a permanent account, donations, and legislative appropriation, the purpose of the program is to enhance and conserve wildlife habitat and natural resource values throughout the state. Any project designed to improve wildlife habitat or natural resource values is eligible for funding. The WWNRT is a popular and important source of funding for natural resource projects throughout the state, a notable number of which directly or indirectly improve water quality. Section 319 projects often use WWNRT funds as a source of non-federal match.

The following information provided by WWNRT highlights just some of the water-quality related activities that began in FY11 under WWNRT-funded projects. Additional project information, as well as information about applying for WWNRT funding, can be found on that program's website.

- **Green River Greenbelt II:** Continuation of efforts to restore natural flow regimes and vegetation within the City of Green River. Sponsored by the City of Green River.
- **Goshen County Weed IV:** Continued efforts to eradicate Russian olive and saltcedar on tributaries of the North Platte River. Working in conjunction with landowners in local cooperative programs, this effort has restored hundreds of acres of habitat for waterfowl, game birds, grassland birds and deer. Sponsored by Goshen County Weed and Pest District.
- **Horse Creek Fish Passage:** Modification of an existing irrigation structure and instream enhancements to allow spawning fish and others access to approximately 20 miles of headwater streams currently inaccessible. Sponsored by Trout Unlimited.
- **Dirtyman Fish Passage:** Removal of barriers to fish movement on Dirtyman Creek south of Rawlins. This project, along with others, will open habitat to more than 100 miles of historic range for native fish species. Sponsored by Trout Unlimited.
- **Sanger Retrofit:** Modification of an old stream habitat improvement to allow spawning fish to access upper portions of the stream. Sponsored by Trout Unlimited.
- **Eastside Fish Ladder:** Modification of stream diversion to allow fish access up- and downstream on the Salt River in Star Valley. Sponsored by Trout Unlimited.

- **Upper Sunshine Fish Ladder:** Major modification of stream diversion will improve irrigation and allow native fish species access to hundreds of miles of historic spawning and fish rearing areas on the Greybull River west of Meeteetse. Sponsored by Trout Unlimited.
- **Spring Creek Fish Passage:** Modification of irrigation diversion on Spring Creek near Cokeville to improve water use efficiency and allow Bonneville cutthroat spawning access to upper reaches of several spawning streams. Sponsored by Trout Unlimited.
- **North Laramie VI:** Continuation of conifer removal, mechanical treatment of sagebrush, and chemical treatment of invasive species to enhance and increase forage for mule deer, elk and Sage-grouse south of Casper. Sponsored by Wyoming Game and Fish Commission.
- **South Park Wetlands II:** Retrofit and enhancement of ponds used extensively by trumpeter swans and other waterfowl south of Jackson. These habitats are particularly important as nesting and transitional ranges for swans. Sponsored by Wyoming Game and Fish Commission.
- **Ferris Mountain Rx:** Ongoing program of prescribed fire, mechanical treatment and re-seeding to enhance decadent aspen, sagebrush and grassland habitats in the Ferris Mountains north of Rawlins. Primary species targeted are elk, Sage-grouse, mule deer, and bighorn sheep. Sponsored by BLM-Rawlins.
- **South Park Open Space:** Continuation of efforts to restore natural flow regimes and vegetation within the City of Sheridan. This project will remove Russian olive and saltcedar, and replace invasives with native trees and shrubs. Sponsored by City of Sheridan.
- **Kemmerer Backcountry:** Aggressive removal of invasive species in backcountry areas of the Wyoming Range north of Kemmerer. Sponsored by U.S. Forest Service.
- **Pine Creek Fish Passage II:** Modification of a stream channel and removal of existing barrier to fish movement within the town of Pinedale. Sponsored by Upper Green River Trout Unlimited.
- **Flaming Gorge Invasives:** Removal of invasive species along Flaming Gorge Reservoir. Sponsored by U.S. Forest Service.
- **SE Wyoming Wetlands:** Removal of invasive species, primarily Russian olive, to enhance water cycle and maintain shallow water habitat for waterfowl north of Wheatland. Sponsored by Pheasants Forever - Chug Creek Chapter.

4.7. [Wyoming State Revolving Fund](#)

The Wyoming State Revolving Funds Program (SRF) of the WDEQ Water Quality Division consists of two separate but similar funds. Both funds make loans to public entities for infrastructure improvements. SRF loans are at 2.5% interest rate and up to a 20 year term. The Drinking Water State Revolving Fund (DWSRF) is for drinking water systems, including source, treatment plant, storage tank, and transmission and distribution line projects. The Clean Water State Revolving Fund (CWSRF) is for sanitary sewer treatment and collection, storm water control, landfill water pollution control, and other water pollution control projects, including projects that reduce nonpoint source pollution. CWSRF provides funding to the Wyoming Storage Tank Program, which works to reduce the threat of water pollution caused by storage tanks through environmental remediation, leak prevention, and leak detection. SRF loans are administered by the Office of State Lands and Investment with assistance from the WDEQ Water and Wastewater Program.

One application was received for a CWSRF loan in FY11 for a project that will address nonpoint source pollution; the application has been recommended for funding and is pending final approval:

- **Mavrakis Recreational Pond Porous Pavement Project:** The City of Sheridan applied for a \$156,465 CWSRF loan. This project will utilize porous asphalt pavement to cover the access road and parking area at the Mavrakis Recreational Pond in the City of Sheridan. Porous pavement allows water to drain through the pavement surface into a stone recharge bed and infiltrate into the soils below the pavement. Available data indicate a very high removal rate for total suspended solids, metals, and oil and grease. This project applied for the Green Project Reserve (0% interest loan). While there is a waterbody impaired for sediment adjacent to the project area, this project will not impact the impairment. However, it represents another effort within the City and County of Sheridan to improve watershed conditions by addressing nonpoint source pollution.

4.8 [Abandoned Mine Land Division](#)

The Abandoned Mine Land Division (AML) of the WDEQ works to eliminate safety hazards, repair environmental damage, and assist communities impacted from past mining activities. The AML traditional reclamation program has reclaimed thousands of acres of abandoned coal, bentonite, and uranium open pit mines. New projects are initiated each year; many of which impact surface and/or ground water quality. Most AML reclamation projects are performed on currently disturbed, unvegetated lands that have unstabilized mine waste piles and other soil materials where plants are unable to grow. AML reclamation buries unsuitable soils, stabilizes landforms using a “natural regrade” topographic grading system to reduce erosion, and ultimately re-establishes native vegetation on barren areas. Often, at larger sites, the reconnection and re-establishment of through-flowing drainage channels is part of the abandoned mine restoration project. This reclamation generally reduces potential sediment loads reporting to drainages, and decreases the potential for mine waste to become airborne or to degrade surface waters.

During FY11, there were several active AML projects that had positive impacts on surface water quality. The following projects were selected to highlight in this report:

- **Kemmerer Coal Reclamation:** AML project removed a coal slack pile from the **Hams Fork River** in the town of Kemmerer. The pile had created a new meander in the river. The pile included scoria, coal fines, and other material. The project was completed in September 2011. The Hams Fork River is listed as impaired on Wyoming’s 303(d) list due to pH levels impairing fish and aquatic life uses.
- **Phase I of the Big Ditch Restoration Project and associated projects near Hanna, WY:** The purpose of Phase I of the Big Ditch Restoration Project was to rebuild the Big Ditch drainage (approximately 1.5 miles) upstream of Hanna so that the stream channel will flow back in the location of the natural channel to the extent possible. At present, this channel restoration is not reconnected to Big Ditch pending completion of the second phase of the Big Ditch stream drainage restoration which is downstream. Phase II will repair about two

miles of stream drainage from Hanna downstream to Stevies Lake. In addition to removing sediment and re-establishing sinuosity, the channel has been enlarged to convey a larger volume of water to help protect Hanna from common flood events. Re-establishment of surface water flows in the Big Ditch Creek drainage will help alleviate stagnation and reduce concentrations of natural contaminants in surface water. Additionally, the work of AML Project 7F-4, also completed in 2011, remediated a significant number of subsidence sinkholes that were capturing surface water and directing it into abandoned mine workings where it can pick up contaminants by running through exposed underground coal. This work helped restore the upper Big Ditch drainage basin and re-established part of the original stream channel. AML Project 7F-4's work will be connected to the Big Ditch project work by removing a temporary coffer dam after the downstream work is completed in 2012.

Further work around Hanna will be the restoration of Standpipe Draw so that surface water in that drainage is no longer captured by subsided mine workings, but instead remains as surface water and reports to Big Ditch. Presently, almost all the water from the upper Standpipe Draw drainage is captured by mine workings, and it flows through exposed coal in underground workings, picking up contaminants from the coal. Ultimately, this water re-surfaces far downstream in Big Ditch where the groundwater seepage degrades the surface water there.

One additional project at Hanna will address captured surface water drainage at the Rosebud Pit, an abandoned coal strip mine. The water in the Rosebud pit presently commingles with ground water, and is prevented from reporting, as it naturally would, to the Big Ditch drainage. Once the Rosebud Pit has been reclaimed, it should become a flow-through drainage that allows surface water to continue to downstream areas.

4.9 Brownfields Grants

Many communities in the nation have properties that are abandoned or underutilized because of known or suspected environmental contamination. These properties, known as "brownfields," may require cleanup before they are safe for reuse or redevelopment. In 2002, the Small Business Liability Relief and Brownfields Revitalization Act was passed to help states and communities around the country clean up and revitalize brownfields sites. Under this law, EPA provides financial assistance to eligible applications through four competitive grant programs: assessment grants, revolving loan fund grants, cleanup grants, and job training grants.

In the fall of 2010, the Cheyenne Metropolitan Planning organization, the City of Cheyenne, Laramie County, and the Cheyenne Downtown Development Authority partnered to submit a brownfields assessment grant application for the Cheyenne community. The application was selected to receive a brownfields assessment coalition grant, which will be sponsored by the City of Cheyenne who will partner with the Downtown Development Authority and Laramie County. A total of \$1 million was awarded under this grant. Funds will be used to conduct Phase I and II environmental site assessments,

a site inventory, cleanup planning, and community outreach activities. The focus of the assessments will be the Lower Capital Drainage basin in the City's downtown area. The project will continue existing momentum to redevelop the downtown area and will help identify sites and strategies to mitigate stormwater runoff while outlining specific development opportunities. Crow Creek through the City of Cheyenne is listed as impaired for selenium, fecal coliform, and sediment. Projects that help address stormwater runoff have the potential to help improve conditions in Crow Creek.

Appendix A

FY11 Project Summary

Table A1. Section 319 projects active during part or all of FY11. Projects in bold italics closed during FY11.

State ID	Project Title	Project Sponsor	EPA Section 319 Grant #(s)	Ending Date	Amendment Types*	Project Type
<i>ON50A</i>	<i>Pathway to Water Quality</i>	<i>Southeast WY RC&D Council</i>	<i>008630-05</i>	<i>9/30/11</i>	<i>2</i>	<i>Information/Education</i>
<i>ON601</i>	<i>Kendrick Watershed Plan Implementation—Phase I</i>	<i>Natrona County Conservation District</i>	<i>008630-06</i>	<i>7/31/11</i>	<i>1</i>	<i>Planning/Assessment</i>
ON603	Middle Fork Popo Agie River Septic and AFO Project	Popo Agie Conservation District	008630-06	10/31/11	1, 2, 3	Implementation—Impaired
<i>ON604</i>	<i>Evaluation of BMPs to Protect Groundwater in Goshen County</i>	<i>University of Wyoming</i>	<i>008630-06</i>	<i>7/31/11</i>	<i>1, 2</i>	<i>Groundwater</i>
<i>ON60F</i>	<i>North Platte River Watershed Selenium TMDLs</i>	<i>WDEQ</i>	<i>008630-06, 08</i>	<i>7/31/11</i>	<i>1, 2, 3</i>	<i>TMDL</i>
ON60G	Crow Creek TMDLs	WDEQ	008630-06, 07	9/30/12	2, 3	TMDL
ON60J	Big Horn River TMDLs	WDEQ	008630-06, 07, 08	7/31/12	N/A	TMDL
<i>ON707</i>	<i>Rural Living in Wyoming: Small Acreage Conservation Education and Outreach Project</i>	<i>University of Wyoming Cooperative Extension Service</i>	<i>008630-07</i>	<i>7/31/11</i>	<i>1, 2</i>	<i>Information/Education</i>
ON801	Sheridan County Watershed Plan Implementation #2	Sheridan County Conservation District	008630-08	10/31/12	3	Implementation—Impaired
ON802	Belle Fourche Watershed Plan Implementation—Phase II	Crook County Natural Resource District	008630-08	1/31/13	1, 2	Planning/Assessment
<i>ON803</i>	<i>Crow Creek Public Outreach</i>	<i>Laramie County Conservation District</i>	<i>008630-08</i>	<i>3/31/11</i>	<i>1</i>	<i>Information/Education</i>
<i>ON804</i>	<i>Grass Creek/Enos Creek NPS Reduction Phase I</i>	<i>The Nature Conservancy</i>	<i>008630-08, 06</i>	<i>9/30/11</i>	<i>1, 2, 3</i>	<i>Implementation—Prevention</i>

State ID	Project Title	Project Sponsor	EPA Section 319 Grant #(s)	Ending Date	Amendment Types*	Project Type
ON806	Medicine Bow Sediment Reduction	US Forest Service	008630-08	3/31/13	1	Implementation—Prevention
ON808	<i>Belle Fourche River TMDLs Amendment</i>	<i>WDEQ</i>	<i>008630-08</i>	<i>9/30/11</i>	<i>2, 3</i>	<i>TMDL</i>
ON901	Wyoming Stream Team	Teton Science Schools	008630-09	9/30/12	N/A	Information/Education
ON902	Sunrise Rain Gardens	Historic Sunrise Creamery	008630-09	12/31/12	N/A	Implementation—Impaired
ON903	Groundwater Ambient Monitoring	WDEQ-Groundwater	008630-09, 06	6/30/12	1, 2, 3	Groundwater
ON904	Karns Meadow Stormwater Wetlands	Town of Jackson	008630-09	9/30/13	N/A	Implementation—Impaired
NPS2010A	Laramie River Restoration Phase II and III	Laramie Rivers Conservation District	008630-10	6/30/14	N/A	Implementation—Prevention
NPS2010B	Flat Creek Restoration	Teton Science Schools	008630-10	12/31/12	N/A	Implementation—Impaired
NPS2010C	Lower Dry Creek Wetlands	Laramie County	008630-10, 06	12/31/11	2	Implementation—Prevention
NPS2011A	Sheridan County Watershed Improvements #3	Sheridan County Conservation District	008630-11	12/31/15	N/A	Implementation—Impaired
NPS2011B	Grass, Enos, Lefthand Creeks NPS Reduction Phase II	The Nature Conservancy	008630-11, 06	12/31/13	4	Implementation—Prevention
NPS2011C	Statewide NPS Information/Education	Wyoming Natural Resources Foundation	008630-11	12/31/12	N/A	Information/Education

*Amendment Types:

1 = Term Extension: ending date of project extended beyond original expiration date

2 = Budget Modification: modifications were made to the 319 funding amount or non-federal match amount and/or individual task budgets were adjusted

3 = Scope of Work: the project scope of work was amended to modify the tasks to be accomplished by the project

4 = Minor or typographical correction to cooperative agreement/contract language

N/A = no amendments to-date

APPENDIX B

Summary of Accomplishments of Section 319 Projects Completed in FY2011

Project Name: Pathway to Water Quality

Project Sponsor: Southeast Wyoming Resource Conservation and Development Council (RC&D)

State Project Number: ON50A

EPA Grant: C9008630-05

Project Accomplishments: The purpose of this project was to develop a Pathway to Water Quality at the Wyoming State Fairgrounds to promote effective and innovative water quality management practices, to showcase the excellent stewardship legacy that already exists in Wyoming, and to educate the public about water quality and nonpoint sources of pollution. The Pathway to Water Quality exhibit is a demonstration model to show effective and innovative management practices to people who make decisions about land use in Wyoming, and to show how land use decisions can impact surface and ground water.

The Pathway to Water Quality project progressed with two phases of implementation of the demonstration areas being completed as well as education and outreach activities being conducted during the 2010 and 2011 Wyoming State Fairs. Under the leadership of the Pathway to Water Quality Committee, which was led by members of Southeast Wyoming RC&D, the project was brought from conceptual to the implementation phase. The project was and continues to be a unique partnership between local government, nonprofit, and private industry joining together to promote effective and innovative water quality management practices all the while serving as an excellent outreach and educational opportunity. The State Fairgrounds hosts over 40,000 visitors throughout the year which provides a unique opportunity to demonstrate, in a true working environment, the applicability and function of water quality protection through management practices.

The project resulted in a number of significant strides, including the establishment of a Pathway to Water Quality informative sign being installed in front of the Agriculture and Natural Resource Building prior to the 2010 State Fair, distribution of educational brochures, the demonstration of rain barrels and compost units, the development of a Pathway to Water Quality logo, the installation of a permeable patio demonstration area, and the installation of a demonstration stabilization grid area in the livestock tie-out area. This included the installation of 9,020 square feet of permeable pavers/drivable grass and 11,726 square feet of grid stabilization materials. In addition, three interpretative signs were established between the two demonstration areas describing the demonstrated best management practices. During the 2010 State Fair, Wyoming Association of Conservation District (WACD) employees provided hands-on demonstrations of water quality monitoring techniques. During the 2011 State Fair, WACD employees provided daily demonstrations of watershed health and land management practice impacts to watershed health through the use of a stream trailer. The project was highlighted in the 2011 Wyoming State Fair opening ceremonies as well as the Wyoming Department of Agriculture Director's reception. Through other funding sources, additional phases of the project will be implemented and the Pathway to Water Quality Steering Committee will continue to provide leadership for future phases of the project.

The project began in April 2010 and closed in September 2011. There was one amendment to this project which adjusted task budgets. Financial information for the project is summarized below. This project was funded with base funds.

Summary of Section 319 Funding for Project

Grant	Awarded	Amended	Total 319	Expended	Balance
2005	\$20,000.00	\$0.00	\$20,000.00	\$20,000.00	\$0.00

Summary of Non-federal Match for Project

Grant	Match	Amended	Total Match	Accrued	Balance
2005	\$15,347.02	\$0.00	\$15,347.02	\$15,830.81*	(\$483.79)

*non-federal match accrued represents 44% of the total project cost

Project Name: Kendrick Watershed Plan Implementation—Phase I

Project Sponsor: Natrona County Conservation District

State Project Number: ON601

EPA Grant: C9008630-06

Project Accomplishments: The overall goal of this project was to begin implementation of the completed Kendrick Watershed Plan with an emphasis on Information/Education and Monitoring Action items. The project continued the watershed plan’s goal to improve water quality in the Kendrick Watershed through 1) accelerated public education and outreach, and 2) continued water quality monitoring to evaluate post-project implementation. The actual work on the project was begun in the fall of 2009, with the board hiring CBM Associates (dba InterTech) to take over water sampling duties from the previous contractor. InterTech began water sampling duties in January 2010 after acquiring the previously collected data and instructions on sampling locations, sampling protocol and bi-monthly schedule.

Sampling was conducted bi-monthly beginning in January 2010, with a final yearly report completed and presented to the Board of Supervisors in March 2011. Data presented in the final monitoring report show what appears to be a significant temporal decline in selenium concentrations at four locations within the project area during the 2001 to 2010 period. However, as InterTech notes in the report, the validity of the 2001-2009 data (collected by the previous contractor) is questionable and the results should be used with caution. InterTech did a vast amount of non-billed work for NCCD in order to assess the previous data and set up a logical and expandable data storage system for the water quality data. Their unpaid contributions to the project were approved by WDEQ in the fall of 2010 to be utilized as in-kind contributions toward the project. Data collected will be instrumental in determining effectiveness of future BMPs implemented within the watershed. NCCD planned to update their Sampling and Analysis Plan (SAP) as part of this project. However, the WDEQ is nearing completion of TMDL development for the watershed, and NCCD and the WDEQ agreed it would be most efficient to wait until TMDL development was complete before updating the SAP.

The information and education portion of this project was contracted to Business Resource Group, LLC (BRG) in May of 2010. The delay was due to another change in personnel at NCCD.

BRG produced six newsletters that were each sent to a mailing list of 420 – 500 residents of Natrona County. Along with the newsletters, a pre- and post-survey was conducted to determine the knowledge level of constituents in the county regarding the selenium issue in the local tributaries. BRG also wrote a public service announcement which was published in the Wyoming Livestock Roundup magazine. BRG contributed several hours of unpaid service to NCCD for the project which were utilized for in-kind contributions.

Due to the staff changes and length of time taken to complete this project, many of the original steering committee members were no longer available to serve on the steering committee. NCCD board members served as the steering committee with technical assistance from both RESPEC (WDEQ contractor for the North Platte River Watershed Selenium TMDLs), and InterTech. The implementation of the grant was discussed at each NCCD board meeting from fall of 2009 through July 2011, with RESPEC and InterTech attending and assisting at two of the board meetings. NCCD also obtained assistance on the project from Nephi Cole and Cathy Rosenthal, watershed coordinators for the NRCS and WACD, respectively.

This project was initiated in February 2007 and completed in July 2011. There was one amendment to this project which provided a term agreement end-date extension from September 30th, 2010 to July 31st, 2011. Staffing issues within NCCD delayed completion of the project. Financial information for the project is summarized below. This project was funded with incremental funds.

Summary of Section 319 Funding for Project

Grant	Awarded	Amended	Total 319	Expended	Balance
2006	\$52,736.00	\$0.00	\$52,736.00	\$47,408.83	\$5,327.17

Summary of Non-federal Match for Project

Grant	Match	Amended	Total Match	Accrued	Balance
2006	\$38,199.00	\$0.00	\$38,199.00	\$34,788.83*	\$3,410.17

*non-federal match accrued represents 42% of total project cost

Project Name: Evaluation of BMPs to Protect Groundwater in Goshen County, Wyoming

Project Sponsor: University of Wyoming (UW)

State Project Number: ON604

EPA Grant: C9008630-06

Project Accomplishments: The major targets of this project were to 1) evaluate the effectiveness of current BMPs being used on irrigated cropland in Goshen County, 2) to share and update information with local stakeholders and network participants as it became available, 3) to continue to implement an effective monitoring program including soil, lysimeter and groundwater sampling and analysis for nitrate, and 4) to conduct educational meetings with network participants to transfer technology learned from this project.

A steering committee was established to complete the sampling design and analysis and to serve as a liaison for the network of working partners. A total of 22 groundwater sampling sites continued to be monitored for nitrate. A total of 200 groundwater samples were collected and

analyzed for nitrate between May 2007 and August 2009. A total of 16 lysimeters were established at four different farm sites north of Torrington. During the summers of 2007, 2008, and 2009 a total of 172 soils pore water samples from lysimeters were collected and analyzed. Soil sampling was conducted on two occasions between 2007 and 2009. A total of 184 soil samples have been collected and analyzed. Soil NO₃⁻ as N data suggest that sprinkler-irrigated sites decreased nitrate leaching from the upper soil profile into lower depths when compared with flood irrigated sites. The lysimeter data for NO₃⁻ as N were highly variable and showed no consistent trend in leaching of NO₃⁻ as N between sprinkler irrigated versus flood irrigated sites. Results of groundwater NO₃⁻ as N monitoring data indicated a significant trend (alpha = 0.05) in 9 of the 16 sites for which data were sufficient for statistical analysis. Four sites had nitrate trends which were increasing while three sites had nitrate trends that were decreasing. Overall, the groundwater monitoring data based on mean NO₃⁻ concentrations from 1994-2009 suggest that 7 of 22 monitoring wells exceeded the NO₃⁻ as N primary drinking standard of 10 mg/L established by the U.S. Environmental Protection Agency.

A meeting of network landowners and other stakeholders was held at Eastern Wyoming College (EWC) in Torrington in February 2009, and at a Rotary club meeting in Torrington in May 2009. Project progress and available data and analysis were presented at a joint meeting between the Western Society of Soil Science and the Western Society of Crop Science in Fort Collins, Colorado in June 2009. Also, a presentation of research results was provided at a gardening symposium at EWC in March 2010. Information was shared with attendees and a discussion on alternative fertilizer uses was held as a means of reducing nitrates in groundwater.

This original agreement for this project was in effect March 12, 2007 through December 31, 2009. During that time, the project sponsor completed Tasks #1-6 of the project scope of work. This agreement was renewed during July 2010 to allow the project sponsor to complete Task #7. A workshop was organized on April 16th, 2011 at EWC to transfer technology learned from BMP evaluation and monitoring data to stakeholders. A total of 13 landowners attended the workshop. The project sponsor discussed with working landowners potential trends in nitrate concentrations in the study area and management practices such as fertilizer application methods which have positive impacts on the quality of groundwater. A lengthy discussion on advantages and disadvantages of these methods with the landowners was continued until our conclusion at noon. Participants displayed a very positive response to this ongoing research. Data and a summary of data analysis were given to individual landowners to emphasize the effectiveness of BMPs in controlling groundwater quality with respect to nitrates.

This project was initiated in March 2007 and closed in July 2011. There was one amendment to this project which adjusted the task budgets. As described above, a second agreement was issued in July 2010 to allow the project sponsor to finish Task #7 of the project. Financial information for the project is summarized below. This project was funded with incremental funds.

Summary of Section 319 Funding for Project

Grant	Awarded	Amended	Total 319	Expended	Balance
2006	\$149,462.00	\$0.00	\$149,462.00	\$194,394.20	\$67.80

Summary of Non-federal Match for Project

Grant	Match	Amended	Total Match	Accrued	Balance
2006	\$100,000.00	\$0.00	\$100,000.00	\$104,302.93	(\$4,302.93)

*non-federal match accrued represents 41% of total project cost

Project Name: North Platte River Watershed Selenium TMDLs

Project Sponsor: Wyoming Department of Environmental Quality (contracted to RESPEC, Inc.)

State Project Number: ON60F

EPA Grant: C9008630-06, C9008630-08, C97879401 (ARRA)

Project Accomplishments: Approved TMDLs form the foundation for effective and efficient watershed-based planning, best management practice implementation, effectiveness monitoring, and public information and education on 303(d) listed waters with nonpoint source pollution impairments. Section 319 funds from the FY06 and FY08 grants and funds from the 2009 American Recovery and Reinvestment (ARRA) Act 604(b) grant were allocated to the North Platte River Watershed Selenium TMDLs project. One segment of the North Platte River, six segments of tributaries to the North Platte River (Poison Spider Creek, Oregon Trail Drain, Poison Spring Creek, and Casper Creek), and four ponds/reservoirs (Illco Pond, Rasmus Lee Lake, Goose Lake, and Thirty Three Mile Reservoir) are listed as not supporting fishery and/or aquatic life other than fish designated uses due to elevated levels of selenium (total 11 impaired segments).

The goal of this project was to develop 11 separate TMDLs within a single document that address the North Platte River Watershed selenium impairments. In addition to developing TMDLs, the impacts of sediment loading were to be evaluated. The contract, awarded to RESPEC, Inc., covered all aspects for TMDL development and the requirements necessary to attain approval of the document by the EPA. The implementation plan included as part of the final TMDL document would incorporate the nine-elements of watershed-based planning as established by EPA. Included in the project costs were several public meetings throughout the process to inform the community of progress and to garner assistance and information from the local community where possible. Specifically, the contract outlined that RESPEC, Inc. would complete the following four project phases: Phase 1—Data Acquisition and Analysis; Phase 2—TMDL Analysis; Phase 3—Monitoring and Implementation; and Phase 4—Final Report and Deliverables.

WDEQ provided oversight for contract management throughout the TMDL process and helped work with local stakeholders to coordinate participation in TMDL development. At the end of the contract and TMDL development process, the WDEQ worked with RESPEC to evaluate the need to pursue a phased TMDL approach for tributaries to the North Platte River and the four ponds/reservoirs due to levels of natural background selenium load contributions and the need to gather more data on natural sources. However, a draft TMDL document for the impaired

segment of the North Platte River was completed and provided to the WDEQ in October 2011. The fourth and final public meeting was held in October 2011. The WDEQ is working with RESPEC to finalize edits to the TMDL document before submitting it to public notice and forwarding to EPA for approval.

The contract with RESPEC was amended twice. The first amendment increased the total amount of the contract and amended the scope of work to include development of an implementation plan that incorporated the nine key elements of watershed-based planning. The second amendment extended the term of the agreement through August 31, 2011. Financial information is summarized below; project funds were expended by August 2011. This project was partially funded with 319 incremental funds reserved for TMDL development.

Summary of Section 319 and Other Grant Funding for Project

Grant	Awarded	Amended	Total 319/Other Federal Grant	Expended	Balance
2006	\$113,284.20	\$0.00	\$113,284.20	\$113,284.20	\$0.00
2008	\$0.00	\$12,088.80	\$12,088.80	\$12,088.80	\$0.00
ARRA 604(b)	\$56,417.00	\$0.00	\$56,417.00	\$56,417.00	\$0.00
TOTAL	\$169,701.20	\$12,088.80	\$181,790.00	\$181,790.00	\$0.00

Summary of Non-federal Match for Project

Grant	Match	Amended	Total Match	Accrued	Balance
The WDEQ is tracking nonpoint source activities conducted by Watershed Management Section staff, paid by state funds, to accrue match for TMDL development projects in order to ensure that the overall grant meets the 40% non-federal match requirement. Final match amounts for each grant will be reported in the close-out report for each grant.					

Project Name: Rural Living in Wyoming: Small Acreage Conservation Education and Outreach Project

Project Sponsor: University of Wyoming Cooperative Extension Service

State Project Number: ON707

EPA Grant: C9008630-07

Project Accomplishments: Like much of the western United States, Wyoming is undergoing a very rapid shift in land use. Thousands of acres of former ranch, farm or wildlands are being subdivided into small acreage parcels. As this shift in land use occurs, a relatively new source of nonpoint source pollution has developed and continues to grow. In the past, nonpoint source pollution education activities on these lands needed to target only a handful of land managers in order to effect changes in management on large areas of land. However, with the subdivision of these lands, the number of land managers has multiplied. The owners of these small acreage parcels are often new to the land and/or do not have the knowledge or skills to

responsibly manage their land. This lack of experience can lead to environmental issues such as overgrazing, where recreational livestock are confined on small areas of land which cannot provide sufficient feed in a sustainable manner. Issues such as this one can quickly lead to the environmental degradation of small acreage parcels and watersheds as a whole.

The focus of this project was to help existing and potential Wyoming small acreage (and other) landowners gain the information needed to be good stewards of the land, protecting resources such as clean water. To this end, the project sponsor carried out a variety of activities with the assistance of nine interns. Activities included workshops held across the state with a total of 2,406 participants, 15 issues of a quarterly magazine (average 4,000 copies distributed per quarter) targeted at small-acreage landowners, and development of internet-based resources to distribute the same kind of information. The project sponsor developed evaluation tools that provided them with feedback indicating that the methods used in the project are effective in increasing landowners' knowledge (30% increase from workshop participants) and in influencing the management practices on their properties. This project also provided data about Wyoming small acreage landowners (such as demographics) and the most effective ways to outreach to them. Challenges remain in tackling these issues in the future with an ever-changing group of people, fluid land ownership patterns, and quickly changing patterns of information searching and consumption.

This project was initiated in October 2007 and expired in July 2011. There were three approved amendments to this project which extended the term of the agreement twice, adjusted the project budget once, and corrected an administrative error once. Financial information for the project is summarized below. This project was funded with base funds.

Summary of Section 319 Funding for Project

Grant	Awarded	Amended	Total 319	Expended	Balance
2007	\$180,760.00	\$0.00	\$180,760.00	\$180,406.21	\$353.79

Summary of Non-federal Match for Project

Grant	Match	Amended	Total Match	Accrued	Balance
2007	\$131,707.00	\$9,627.00	\$141,334.00	\$179,817.00	(\$48,109.00)

*non-federal match accrued represents 50% of total project costs

Project Name: Crow Creek Public Outreach

Project Sponsor: Laramie County Conservation District

State Project Number: ON803

EPA Grant: C9008630-08

Project Accomplishments: The Laramie County Conservation District (LCCD) implemented public outreach and education activities as recommended in the Crow Creek Watershed Plan and the Amendment to the Crow Creek Watershed Plan. Actions in this grant project encompassed both urban water quality concerns in the Cheyenne area of Crow Creek as well as recreational outreach in the forested headwaters. Because a TMDL is currently being developed for the lower portion of the watershed near the City of Cheyenne, this project was

strictly outreach and education without any Best Management Practices (BMPs) or water quality monitoring included. It is anticipated that the TMDL will provide the sampling needed to recommend future BMPs for Crow Creek.

General water quality information was provided via children’s activity books, water poetry magnets, newspaper inserts, aquatic habitat signs and public events. Items focused on pet waste cleanup included pet waste stations, informational signs and continuation of decals in the parks and along the greenway. Pet waste surveys were conducted at two events (Cheyenne SuperDay and Laramie County Fair) to better understand the public perception of pet waste and efforts to keep it out of nearby streams. Water quality issues related to stormwater runoff were addressed through newspaper inserts, sediment and erosion control workshops, and fact sheets for urban BMPs. A number of educational items were directed toward recreation in the upper portion of the watershed and included various items purchased from Leave No Trace Frontcountry. Signs were created for Curt Gowdy State Park to inform guests of proper RV waste disposal and equine ethics. Finally, a recreation guide was created for the Pole Mountain Area of Medicine Bow National Forest in cooperation with the U.S. Forest Service and Laramie Rivers Conservation District.

This project was initiated in August 2008 and was completed in March 2011. There was one amendment to this project which extended the term agreement end date. Financial information for the project is summarized below. This project was funded with base funds.

Summary of Section 319 Funding for Project

Grant	Awarded	Amended	Total 319	Expended	Balance
2008	\$ 32,003.00	\$0.00	\$ 32,003.00	\$ 32,003.00	\$0.00

Summary of Non-federal Match for Project

Grant	Match	Amended	Total Match	Accrued	Balance
2008	\$ 52,420.67	\$0.00	\$ 52,420.67	\$ 24,148.93	\$28,271.74

*non-federal match accrued represents 43% of total project cost

Project Name: Grass Creek and Enos Creek NPS Reduction Phase I

Project Sponsor: The Nature Conservancy

State Project Number: ON804

EPA Grant: C9008630-08, C9008630-06

Project Accomplishments: In the late 1800’s, heavy grazing by domestic cattle and sheep caused significant degradation in the Grass Creek watershed. Continued use of riparian areas for livestock water combined with fire suppression has allowed the encroachment of conifers that has inhibited the recovery of this area. The objectives of the project were to reduce sediment loading and mean temperature in stream channels and to maintain or improve riparian and aquatic habitat by implementing best management practices (BMPs). The project was scheduled to begin at the end of 2008; however, due to staffing changes at The Nature Conservancy, a one year extension was allowed. BMP implementation and monitoring were

conducted in 2010 and 2011. The majority of the goals for the project were met; administration costs did not exceed the allotted 10%, the project stayed within budget; BMPs were implemented as planned, the planned outreach events were conducted, and range and water quality monitoring programs were developed. Additional outreach events were scheduled beyond the planned range monitoring workshop. A ranch workday was held, a student group from Round River Conservation Studies spent time on the LU Ranch to learn about the project, and a Wyoming Conservation Corps crew helped construct spring protection fences in 2011. A total of five off-creek water tanks and four spring protection fence enclosures were installed, in addition to LU Ranch staff herding cattle to the new tanks. Preliminary results from the project's monitoring program show that bank erosion decreased at two of the three sites where BMPs were implemented. The total estimated sediment load reduction for the project area is 1,896,600 lbs/yr (948.3 tons/yr). In addition, populations of listed noxious weeds in the project area were reduced by a minimum of 25%. The project sponsor will continue to monitor water quality and range conditions in a future phase of this project to better evaluate BMP effectiveness.

This project was initiated in October 2008 and was completed in September 2011. This project was amended once; this amendment extended the term of the agreement, modified the scope of work to reflect a revised monitoring plan, and increased the federal funding amount to facilitate the revised monitoring approach. Financial information for the project is summarized below. This project was funded with base funds.

Summary of Section 319 Funding for Project

Grant	Awarded	Amended	Total 319	Expended	Unspent Balance
2006	\$0.00	\$4,992.60	\$4,992.60	\$4,992.60	\$0.00
2008	\$56,980.30	\$0.00	\$56,980.30	\$56,973.47	\$6.83
TOTAL	\$56,980.30	\$4,992.60	\$61,972.90	\$61,966.07	\$6.83

Summary of Non-federal Match for Project

Grant	Match	Amended	Total Match	Accrued	Balance
2006	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2008	\$42,424.00	\$0.00	\$42,424.00	\$43,000.15	(\$576.15)
TOTAL	\$42,424.00	\$0.00	\$42,424.00	\$43,000.15	(\$576.15)

*non-federal match accrued represents 41% of total project cost

Project Name: Belle Fourche River TMDLs Amendment

Project Sponsor: Wyoming Department of Environmental Quality (WDEQ)

State Project Number: ON809

EPA Grant: C9008630-08, C97879401 (ARRA)

Project Description: Approved TMDLs form the foundation for effective and efficient watershed-based planning, best management practice implementation, effectiveness monitoring, and public information and education on 303(d) listed waters with nonpoint source pollution impairments. Section 319 funds from the FY08 grant and funds from the 2009

American Recovery and Reinvestment Act (ARRA) 604(b) grant were allocated to the Belle Fourche River Watershed TMDL project. Between the Belle Fourche River and two tributaries (Donkey Creek and Stonepile Creek), there are five 303(d) listed impairments for recreation use not being supported due to fecal coliform or *E. coli*, one impairment for warm water fishery and aquatic life other than fish uses not being supported due to chloride, and one impairment for warm water fishery and aquatic life other than fish uses not being supported due to ammonia. Thus, the goal of this project was to develop seven separate TMDLs for the above Belle Fourche River Watershed impairments and present those TMDLs within a single document. The contract, awarded to Tetra Tech, Inc., covered all aspects for TMDL development and the requirements necessary to attain approval of the document by the EPA. The implementation plan included as part of the final TMDL document would incorporate the nine-elements of watershed-based planning as established by EPA. Included in the project costs were several public meetings throughout the process to inform the community of progress and to garner assistance and information from the local community where possible. Specifically, the contract outlined that Tetra Tech, Inc. would complete the following tasks: 1) Kickoff Meeting with WDEQ, 2) Public Meetings, 3) Public Involvement Plan, 4) TMDL Development, 5) Follow-up Monitoring/Effectiveness Monitoring, and 6) Implementation Plan.

WDEQ provided oversight for contract management throughout the TMDL process and helped work with local stakeholders to coordinate participation in TMDL development. A draft TMDL document including TMDLs for all seven impairments was provided to the WDEQ in the spring of 2011. The draft TMDL went to public notice during June-July 2011. Comments received from EPA during the public notice have resulted in WDEQ working with Tetra Tech to re-evaluate data used for the chloride TMDL. WDEQ will work with Tetra Tech to finalize revisions to the document before submitting it to a second public notice and forwarding to EPA for approval. Final public meetings for the TMDL project were held in June 2011.

The contract with Tetra Tech was amended twice. The first amendment corrected an administrative error. The second amendment modified the scope of work to include the preparation of a nine-element implementation plan and added federal funding to facilitate this change in scope. Financial information is summarized below; project funds were expended by July 2011. This project was partially funded with 319 incremental funds reserved for TMDL development.

Summary of Section 319 and Other Grant Funding for Project

Grant	Awarded	Amended	Total 319/Other Federal Grant	Expended	Balance
2008	\$0.00	\$11,372.00	\$11,372.00	\$11,372.00	\$0.00
ARRA 604(b)	\$137,883.00	\$0.00	\$137,883.00	\$137,883.00	\$0.00
TOTAL	\$137,883.00	\$11,372.00	\$149,255.00	\$149,255.00	\$0.00

Summary of Non-federal Match for Project

Grant	Match	Amended	Total Match	Accrued	Balance
The WDEQ is tracking nonpoint source activities conducted by Watershed Management Section staff, paid by state funds, to accrue match for TMDL development projects in order to ensure that the overall grant meets the 40% non-federal match requirement. Final match amounts for each grant will be reported in the close-out report for each grant.					

Appendix C

Summary of Milestones and Tracking Measures

Objective #	Description	FY11 Response
<i>Objective #1: Identification and Prioritization</i>		
1	Track review and updates to Chapter 1, Wyoming's Surface Water Quality Standards. Milestone: Every three years, the WDEQ/WQD Standards Program will review existing water quality standards and propose revisions as necessary (Triennial Review).	<i>The Watershed Section, Water Quality Division (WQD), initiated the revision of Chapter 1, Wyoming's Surface Water Quality Standards, on September 12, 2011.</i>
1	Track WQD Monitoring Program activities. Milestone: The WQD Monitoring Program will conduct surface water quality monitoring to meet milestones and schedules established in the 2010 – 2019 Monitoring Strategy as well as annual monitoring work plans.	<i>See FY11 Water Quality Monitoring Workplan for a summary of Monitoring Program activities conducted in FY11.</i>
1	Track submission of biennial Integrated Report to EPA. Milestone: Every two years (even numbered years), the Assessment Program will prepare and submit to EPA for approval the State's Integrated 305(b) and 303(d) Report.	<i>The cut-off date for data to be submitted for consideration in the 2012 Integrated Report was July 15th, 2011. Assessment Program reviewed submitted data during remainder of FY11 and into FY12.</i>
1	Track progress towards the development of the Impaired Waters Index (IWI). Milestone: Following approval of the State's 2012 Integrated Report, the Nonpoint Source Program will publish a report from the Impaired Waters Index database to the Nonpoint Source Program website to document priority waters for each year. This information will be updated annually and will indicate eligibility for funding projects on each priority water. The Index will be published in conjunction with the Section 319 RFP that will identify any targeted watersheds where further priority ranking will be established for that fiscal year.	<i>NPS Program worked during FY11 on IWI database and mapping tool. Prototype of Microsoft Access database and GIS map were complete at the end of FY11. On-schedule to post version of IWI report on website following approval of 2012 Integrated Report.</i>
1	Track number of stream miles assessed and use support status determined.	<i>17,515 miles</i>
1	Track number of stream miles impaired/threatened due to nonpoint source pollution (includes Category 4 and 5).	<i>2,037.1 miles (11.6%)</i>
1	Track number of lake/reservoir/pond acres assessed and use support status determined.	<i>18,713 acres</i>

Objective #	Description	FY11 Response
1	Track number of lake/reservoir acres impaired/threatened due to nonpoint source pollution (includes Category 4 and 5).	6,253.2 acres (33.4%)
1	Track total number of impaired/threatened waterbodies (pollutant/segment combinations) due to nonpoint source pollution (includes Category 4 and 5).	138 segments impaired from nonpoint source pollution out of 157 total impaired segments (88%)
<i>Objective #2: Planning</i>		
2	Track TMDLs initiated (per fiscal year) and approved (total and per fiscal year). Milestones: TMDLs will be initiated and completed in accordance with the EPA Approved Pace of TMDL Development. Goal of 58 TMDLs completed by end of FY2012, 88 TMDLs completed by end of FY2015, and 107 TMDLs completed by end of FY2016.	3 TMDLs initiated in FY11. 4 TMDLs approved in FY11 Total 18 TMDLs approved at end of FY11
2	Track number of Watershed-Based Plans approved in absence of TMDL (total and per fiscal year).	Total 2 Watershed-Based Plans approved 1 Watershed-Based Plan approved in FY11
2	Track number of nonpoint source impaired segments addressed by an <u>approved</u> nine-element planning document (total and per fiscal year). Milestones: By the end of FY2012, have a total of 40 impaired segments addressed, with an average of 15 additional segments addressed per year through FY2020 (all 138 2012 Integrated Report nonpoint source impairments addressed by FY2020).	Total: 20 nonpoint source impaired segments addressed by nine-element planning document (TMDL or Watershed-Based Plan) Ocean Lake TMDL (1) Goose Creek TMDL (13) Flat Creek Watershed-Based Plan (1) Prairie Dog Creek Watershed-Based Plan (5) FY11: 5 segments were addressed by an approved nine-element planning document (Prairie Dog Creek Watershed Based Plan)
2	Track number of nonpoint source impaired segments with a TMDL or Watershed-Based Plan <u>under development</u> (per fiscal year).	54 nonpoint source impaired segments with TMDL/Watershed-Based Plan under development in FY11

Objective #	Description	FY11 Response
		<p><i>Belle Fourche River Watershed TMDLs (7)</i> <i>North Platte River Watershed TMDLs (11)</i> <i>Crow Creek TMDLs (10)</i> <i>Gillette Fishing Lake TMDLs (2)</i> <i>Big Horn River TMDLs (16)</i> <i>Hams Fork TMDL (1)</i> <i>Tongue River Watershed-Based Plan (7)</i></p>
2	Track number of nonpoint source impaired segments <u>without</u> a TMDL or Watershed-Based Plan initiated.	<i>64 nonpoint source impaired segments not yet under TMDL or Watershed-Based Plan development.</i>
2	Track progress of development of Impaired Waters Index. Milestones: By end of FY2012, develop Impaired Waters Index Mapping Tool to track priority watersheds and status of planning development. By end of FY2012, have an internal WDEQ version of the Impaired Waters Index Mapping Tool. By end of FY2015, have this mapping available to the public via the Nonpoint Source Program website.	<i>As of the end of FY11, a prototype for both the Microsoft Access database and the GIS mapping tool were completed for the IWI. On-schedule to complete internal version by end of FY12.</i>
2	Track number of third-party 319 planning/assessment projects active in each fiscal year.	<i>2 third-party planning and assessment projects were active in FY11 (ON601, ON802)</i>
2	Track amount and percentage of Section 319 funds reserved/used for TMDL or Watershed-Based Planning for each active grant.	<p><i>FY11-\$146,020 incremental (20% incremental)</i> <i>FY10-\$195,320 incremental (20% incremental)</i> <i>FY09-\$206,446 incremental (20% incremental)</i> <i>FY08-\$580,123 incremental (56% incremental)*</i> <i>FY07-\$483,174 incremental (49% incremental)*</i></p> <p><i>*For FY07 and FY08, approval was received from EPA to use greater than 20% of the incremental fund award for TMDL development.</i></p>

Objective #	Description	FY11 Response
<i>Objective #3: Implementation</i>		
3	Track watersheds targeted for funding. Milestones: Beginning with the Request for Proposals (RFP) for FY2013 funding, identify targeted watersheds if any are selected, in the annual Section 319 RFP. In the preceding fall Nonpoint Source Task Force meeting, obtain Task Force input on which, if any, targeted watersheds should be selected for the upcoming fiscal funding year and document this decision in meeting minutes.	<i>Watersheds were not targeted for FY11 funding.</i>
3	Track number of nonpoint source impaired segments with an approved TMDL/Watershed-Based Plan that are being or have been addressed by at least one BMP implementation project. Milestones: By the end of FY2020, have all 138 2012 Integrated Report impaired segments addressed by at least one project that implements BMPs in accordance with the TMDL/watershed-based plan, with an average of 14 impaired segments addressed per year in the interim.	<p><i>As of the end of FY11, a total of 19 nonpoint source impaired segments were being or had been addressed by BMP implementation projects in accordance with a TMDL or watershed-based plan.</i></p> <p><i>Goose Creek TMDLs (13)</i> <i>Prairie Dog Creek Watershed Based Plan (5)</i> <i>Flat Creek Watershed Based Plan (1)</i></p>
3	For each completed TMDL or watershed-based plan implemented, track <u>estimated</u> level of implementation (not implemented, less than 50% implemented, greater than 50% implemented, or fully implemented)	<p><i>Ocean Lake TMDL—not implemented</i> <i>Goose Creek TMDLs—less than 50% implemented</i> <i>Prairie Dog Creek Watershed-Based Plan—less than 50% implemented</i> <i>Flat Creek Watershed Based Plan—greater than 50% implemented</i></p>
3	Track amount of Section 319 funding allocated to BMP implementation tasks (addressing impaired segments) for FY11 and later grants.	<i>FY11-\$335,040</i>
<i>Objective #4: Documenting Environmental Results</i>		
4	Track successful nonpoint source impairment restoration (WQ-10) (total and per fiscal year) due to remediation efforts. Milestones: De-list one Category 4 or Category 5 waterbody from the draft 2012 Integrated Report, with an additional one waterbody de-listed from the Integrated Report every	<i>Two segments are proposed for de-listing in the draft 2012 Integrated Report due to nonpoint source remediation efforts. Credible data indicate that designated uses are now being supported on one segment of McKinney Creek</i>

Objective #	Description	FY11 Response
	<p>following biennium through FY2020. Only de-listings due to nonpoint source remediation efforts will be included.</p>	<p>(WYLS140500040101_01) and one segment of Muddy Creek (WYLS140500040103_01) in the Little Snake River Basin. WDEQ will work during FY12 to prepare and submit success stories to EPA for approval. In addition to the 2 pending success stories, a total of 9 success stories have been approved in Wyoming (11 segments total).</p>
4	<p>Track development of BMP database. Milestones: By end of FY2012, develop an Access-based BMP Tracking database. Copies of the database will be provided to FY2012 funded projects and beyond; project sponsors will need to use the database to facilitate BMP tracking and reporting to the WDEQ.</p>	<p>NPS Program worked during FY11 to create draft database. Work continued into FY12 to test and refine the database. On schedule to release database to project sponsors in FY12.</p>
4	<p>Track progress towards electronic data management system. Milestones: By end of FY2015, the Nonpoint Source Program will develop a method to electronically manage water quality data submitted by third parties as part of Section 319 or 205(j) project reporting requirements. Electronic management of this data will facilitate its use by the WDEQ, EPA, other agencies, and the public.</p>	<p>No progress made on this milestone during FY11 due to other program priorities.</p>
4	<p>Track submission of water quality monitoring data to evaluate project effectiveness. Milestones: By end of 2015, have 50% of BMP implementation projects that close each year provide pre- and post-BMP water quality data to evaluate water quality improvement. By 2020, have 90% of BMP implementation projects provide pre- and post-BMP water quality data to evaluate water quality improvement.</p>	<p>100% (1/1). Only one BMP implementation project closed during FY11 (ON804). This project collected water quality data to evaluate project effectiveness.</p>
4	<p>Track number of projects where effectiveness monitoring was conducted or assisted in field by WQD Monitoring Program staff.</p>	<p>3 projects had field monitoring assistance from WQD Monitoring Program staff (ON603, ON804, NPS2010A)</p>
4	<p>Track Number of projects whose monitoring programs were provided technical assistance by WQD Monitoring Program staff.</p>	<p>6 projects had technical assistance from WQD Monitoring Program staff (ON601, ON603, ON804, ON806, NPS2010A, NPS2010C)</p>

Objective #	Description	FY11 Response
4	Track estimated load reductions for sediment, nitrogen, and phosphorus per fiscal year.	<i>Sediment: 1,398.8 tons/year Phosphorus: 1,305.9 lbs/year Nitrogen: 6,320.7 lbs/year E. coli: 1.4E+13 MPN E. coli/year Load reductions have been entered into GRTS.</i>
4	Track acres of wetland created and feet of streambank stabilization accomplished by 319 projects for each fiscal year.	<i>4,904 feet streambank stabilized, 6 acres wetland created, 2 acres wetland restored in FY11.</i>
4	Track description of BMPs implemented per fiscal year through Section 319 funding.	<i>3 septic systems; 2 riparian projects; 2 irrigation diversion restorations; 1 bank rehabilitation project and three stream restoration projects (4,904 ft streambank stabilized total), 13 mi decommissioned roads, 6 acres wetland created, 2 acres wetland restored, 1 rain garden installed, 5 off-creek water tanks, 4 spring protection fencings, 1 new grazing management plan</i>
4	Track amount of annual Section 319 funding allocated to project effectiveness monitoring task activities for FY11 and later grants.	<i>FY11--\$86,745</i>
4	Number of third-party projects closed and number of final reports received per fiscal year.	<i>6 final reports received for 6 closed projects (100%)</i>
<i>Objective #5: Protection and Prevention</i>		
5	Track percentage of assessed stream miles designated as impaired due to nonpoint source pollution. Milestones: The 2014, 2016, 2018, and 2020 Integrated Reports will not show an increase in the percentage of assessed stream miles designated as impaired due to nonpoint source pollution.	<i>For draft 2012 Integrated Report, out of 17,515 miles assessed and use support determinations made, 2037.1 miles were impaired due to nonpoint source pollution (11.6%)</i>
5	Track number of individual 401 certifications issued.	<i>35</i>
5	Track number of turbidity waivers issued per fiscal year.	<i>35</i>
5	Track number of United States Forest Service BMP audits WQD participated in.	<i>No USFS BMP audits were attended in FY11.</i>
5	Track number of permitted CAFOs.	<i>45 (12 in-effect and 34 in-process)</i>

Objective #	Description	FY11 Response
5	Track number of Section 319 Protection/Prevention projects active in each fiscal year.	5 (ON804, ON806, NPS2010A, NPS2010C, NPS2011B)
5	Track amount of Section 319 funding allocated to BMP implementation tasks for protection/prevention projects for FY11 and later grants.	FY11--\$183,987
<i>Objective #6: Ground Water Protection</i>		
6	Track number of Groundwater 319 projects active in each fiscal year.	2 (ON604 and ON903)
6	Expand statewide ground water monitoring into priority ground water areas within five additional counties.	<i>A state-wide groundwater monitoring network has been expanded to include 31 priority areas distributed through every county in the state.</i>
6	Work with other divisions within WDEQ to design and develop a ground water data management and electronic data delivery system. Have data management system designed and operational within three years.	<i>A Work Group was formed in August 2011, composed of designees from Land, Water, and Solid and Hazardous Waste Divisions. An inventory was then conducted by Work Group members to survey Divisions' groundwater data, data storage method (in database, on paper, etc.), and, details about the database (if any) such as name, program, etc.</i>
6	Participate and support the State Ground Water Committee in development of measures and strategies to protect groundwater.	<i>WDEQ continues to participate and support the State Ground Water Committee.</i>
6	Track the number of priority ground water areas (and counties) that have been monitored under the statewide monitoring program.	<i>Groundwater Sampling has been conducted in 10 priority areas in three counties. Approximately 140 groundwater wells have been sampled.</i>
6	Track the progress and status of development of a ground water data management and electronic data delivery system.	<i>WDEQ continues to track the progress and status of development of a groundwater data management and electronic data delivery system. WDEQ plans to develop an RFP for a contractor to complete tasks including, to create/design a data management template with appropriate fields to standardize data submittals, to research, inventory, and describe existing data in detail, and to conduct a pilot study to take data from one program and</i>

Objective #	Description	FY11 Response
		<i>import it into the new System.</i>
6	Track the progress and status of development of ground water protection measures and/or strategies developed or endorsed by the State Ground Water Committee.	<i>WDEQ continues to track the progress and status of development of groundwater protection measures and strategies.</i>
<i>Objective #7: Information and Education</i>		
7	Track progress towards updating BMP Manuals. Milestones: By end of FY2012, have Urban, Cropland, Grazing, and Hydrologic Modification BMP Manuals updated. By end of 2014, have Silviculture BMP Manual updated. Review each manual every five years thereafter at a minimum. Post all current BMPs on Nonpoint Source Program website.	<i>Intern hired during FY11 to update manuals. By end of FY11, draft updates to the Cropland, Grazing, and Urban manuals were complete. Nonpoint Source Program will continue working in FY12 to finalize and approve updated manuals.</i>
7	Track progress towards improving Nonpoint Source Program Website. Milestones: By end of FY2012, have Nonpoint Source Program website updated with improved design and information. Continue to maintain and update website in following years.	<i>No progress was made on this milestone during FY11. This is a priority action item for FY12.</i>
7	Track distribution of Nonpoint Source Program Annual Report. Milestones: Beginning with the first annual report produced following approval of this plan, post annual Section 319 Program Report on NPS Program website.	<i>FY11 annual program report will be posted on NPS Program website by 2/29/12.</i>
7	Track progress towards increased distribution of nonpoint source educational material. Milestones: Beginning in FY2012, publish at least two articles in established newsletters each year. Beginning in FY2013, begin issuing electronic nonpoint source newsletter through Nonpoint Source Listserve. Issue two newsletters per year. Increase Nonpoint Source Program Listserve registration each year.	<i>No articles were published in FY11. This is a priority action item for FY12. No electronic newsletters were distributed in FY11. The NPS Program plans to start distributing newsletters in FY12. 139 people were registered for the NPS Listserve in FY11.</i>
7	Track number of Information/Education Section 319 projects active in fiscal year.	<i>5 information/education projects were active in FY11 (ON50A, ON707, ON803, ON901, NPS2011C)</i>
7	Track amount of annual Section 319 funding allocated to information/education tasks for FY11 and later grants.	<i>FY11-\$45,750</i>
7	Coordinate with WACD to track number of World Wide Day of Monitoring	<i>Approximately 1,500 students participated in Worldwide</i>

Objective #	Description	FY11 Response
	events held across the state, the number of students participating, and WDEQ involvement for each year.	<i>Day of Monitoring activities in 2011; events were coordinated by 12 conservation districts. WDEQ Monitoring Program staff provided assistance at the Gillette event.</i>
<i>Objective #8: Partnerships and Interagency Cooperation</i>		
8	Track progress towards completing Impaired Waters Index. Milestones: Finish compiling information about statewide nonpoint source reduction activities in the IWI by end of FY2014.	<i>IWI database and mapping tool prototypes were completed in FY11. Data entry, including data about non-319 restoration activities, began in FY12. The WDEQ will continue to work to outreach to other agencies to obtain this information.</i>
8	Track interaction with partner agencies. Milestone: On an annual basis, maintain communication with at least 10 partners identified in Section 5.	<i>During FY11, the Nonpoint Source Program communicated with all agency partners and several private/nonprofit organizations listed in Section 5 of the draft Nonpoint Source Management Plan update. Communication this year largely centered on updates to programmatic documents, but also included communication about BMPs, general program updates, opportunities for coordination, funding opportunities, TMDL development, and other topics. The Nonpoint Source Program will continue to communicate with partner agencies in FY12 to move program objectives forward.</i>
8	Track progress of updated MOU with USFS. Milestone: Update USFS MOU by end of FY12.	<i>Completed ahead of schedule. MOU with USFS was updated in July 2011.</i>
8	Track non-WDEQ nonpoint source pollution reduction activities.	<i>See Section 4 of FY11 Annual Program Report.</i>
<i>Objective #9: Effective and Efficient Program Administration</i>		
9	Track number of amendments needed for projects. Milestones: By the end of FY2014, have only 50% of projects closed during that year as having needed an amendment. No more than 25% of projects will need more than one amendment.	<i>67% projects had one amendment, 33% had more than one amendment.</i>

Objective #	Description	FY11 Response		
9	Beginning in FY12 hold one WDEQ staff training every two years for project oversight and management.	<i>No formal staff trainings were held in FY11. NPS Program Coordinator provided information to project officers on an as-needed basis.</i>		
9	Track progress towards electronic project file management. Milestones: By FY12 have closed project files in electronic SharePoint system.	<i>Completed ahead of schedule. During FY11, the NPS Program finished uploading all closed project files into an electronic library using a SharePoint system on the WDEQ Intranet.</i>		
9	Track program evaluation metrics. Milestones: Conduct program evaluation once every five years and document results in annual program reports for the years in which it's conducted. The first program evaluation was conducted in 2010. The next program evaluation is scheduled for 2015.	<i>A complete program evaluation was not conducted in FY11.</i>		
9	Track release date of Section 319 RFP, number of third-party proposals received, and number of third-party proposals funded with corresponding funding type (base vs. incremental).	<i>FY11 RFP released June 15th, 2010 Five proposals received 3 proposals funded 2 projects base funding 1 project incremental funding</i>		
9	Number of grants closed per year and total amount of funds returned to EPA on closed grants.	<i>1 (FY05 grant expired 9/30/11) \$2,477 returned to EPA on FY05 grant</i>		
9	Track rates of expenditures for active 319 grants.	FY07—60% FY08—43%	FY09—64% FY10—19%	FY11—0%
9	Track rates of obligation for active 319 grants (obligated but not expended).	FY07—33% FY08—14%	FY09—20% FY10—65%	FY11—85%
9	Track rates of total expenditure plus obligations for active 319 grants.	FY07—93% FY08—57%	FY09—84% FY10—84%	FY11—85%
9	Track percentage of projects on or ahead of schedule for active 319 grants.	FY07—83% FY08—100%	FY09—100% FY10—100%	FY11—100%