

Wyoming

Nonpoint Source Program

2013 Annual Report

The goal of the Wyoming Nonpoint Source Program is: To identify sources of nonpoint source pollution to surface water and ground water of the State of Wyoming and to prevent and reduce nonpoint source pollution such that water quality standards are achieved and maintained. The program works through a set of overarching principles that emphasize voluntary and incentive-based participation, locally-led projects, partnerships, measurable water quality improvement, and effective and efficient program administration.



Prepared By

Watershed Protection Program
Water Quality Division
Wyoming Department of Environmental Quality
122 W. 25th Street, Cheyenne, WY 82002

Contact

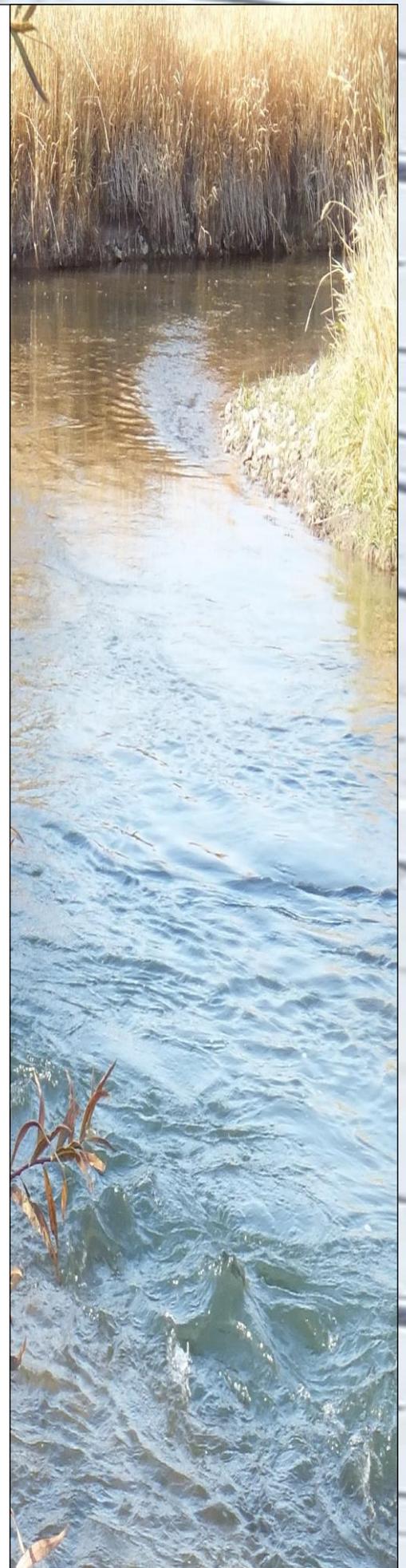
Jennifer Zygmunt, NPS Program Coordinator
307-777-6080
jennifer.zygmunt@wyo.gov

Table of Contents

FY13 Fact Sheet	ii
Purpose of this Report	1
Nonpoint Source Pollution and Wyoming	1
About the Wyoming Nonpoint Source Program	2
FY13 Section 319 Project Summary	3
Accomplishments of the NPS Program During FY13	3
Objective #1: Identification and Prioritization	4
Objective #2: Planning	5
Objective #3: Implementation	7
Objective #4: Documenting Environmental Improvement	9
Objective #5: Protection and Prevention	12
Objective #6: Ground Water Protection	13
Objective #7: Information and Education	14
Objective #8: Partnerships and Interagency Coordination	17
Highlighted Partner Project: AML Lionkol Drainage	18
Selected Highlights from Program Partner Activities	19
Whitelaw Creek Ecological Restoration Success Story	21
FY13 Water Quality Management Planning Projects	22
Objective #9: Efficient and Effective Program Administration	23
Looking Forward: FY14 Goals	24
Appendix A: FY13 Project Summary	25
Appendix B: Summary of FY13 Completed Projects	27

Acknowledgements

This report was prepared by Jennifer Zygmunt, Nonpoint Source Program Coordinator with the Water Quality Division (WQD) of the Wyoming Department of Environmental Quality (WDEQ). Input and review were provided by other WQD personnel, primarily Watershed Protection Program staff, as well as partnering agencies and organizations. Keith Guille, Public Information Officer for the WDEQ, provided assistance with formatting and publishing this report. Photos, maps, and graphics used in this report were provided by WDEQ staff unless otherwise noted.



Wyoming Nonpoint Source Program Fact Sheet—Federal Fiscal Year 2013

Summary of FY13 Program Activity	
Date FY13 Section 319 Project Grant Award:	<i>June 10th, 2013</i>
Amount of FY13 Section 319 Project Grant:	<i>\$774,000</i>
Amount FY13 Project Funds:	<i>\$724,500</i>
Amount FY13 Program Funds:	<i>\$49,500</i>
FY13 Third-Party Projects Awarded:	<i>Wyoming State Forestry Division—2013 Wildfire Rehabilitation</i>
	<i>The Nature Conservancy—Grass, Enos, and Lefthand Creeks NPS Reduction Phase III</i>
	<i>WDEQ Groundwater Program—Ambient Groundwater Monitoring</i>
	<i>City of Cheyenne—Lower Capitol Basin Sediment Trap/Wetlands</i>
	<i>Wyoming Natural Resource Foundation—Pathway to Water Quality 2013 Improvements</i>
Total # Active 319 Projects in FY13:	<i>25</i>
FY13 Total Pollutant Load Reduction Estimates:	<i>Sediment: 432 ton/yr</i>
	<i>Phosphorus: 1,303 lb/yr</i>
	<i>Nitrogen: 11,053 lb/yr</i>
	<i>E. coli: 2.41E+13 MPN/yr</i>
Summary of BMPs implemented in FY13:	<i>14 off-channel stockwater tanks; 20,710' fencing; 305 ac invasive species control; 175+ trees/shrubs planted; 1 animal feeding operation; 4 septic system rehabilitations; 283 ac flood to sprinkler irrigation; 7.17 mi open ditch to pipeline or removed</i>
Summary of Program Activity From FY99-FY13	
Total number of third-party projects:	<i>134</i>
Total grant funds expended/obligated on third-party projects:	<i>\$15,871,287</i>
Total non-federal match expended/obligated on third-party projects:	<i>\$14,976,827</i>
Total number of project sponsors:	<i>51</i>
Project Sponsor type with highest percentage of projects sponsored:	<i>Conservation Districts (53%)</i>
Funds spent/obligated on BMP Implementation projects:	<i>\$10,833,963</i>
Funds spent/obligated on Planning/Assessment projects:	<i>\$1,915,099</i>
Funds spent/obligated on Information/Education projects:	<i>\$1,917,781</i>
Funds spent/obligated on Groundwater projects:	<i>\$1,162,679</i>
Funds spent/obligated on TMDL development projects:	<i>\$2,035,663</i>
Funds spent/obligated on WDEQ staffing and support projects:	<i>\$1,382,194</i>
Number of EPA Approved Stream Restoration Success Stories To-Date (http://www.epa.gov/owow/NPS/success/)	<i>8 stories for 11 restored stream segments plus 1 Ecological Restoration success story for 1 segment</i>

Purpose of this Report

The purpose of this report is to provide a summary of the activities and accomplishments of the Wyoming Nonpoint Source (NPS) Program for federal fiscal year 2013 (FY13), which began October 1, 2012 and ended September 30, 2013. This report is also prepared to meet requirements of Section 319(h)(11) of the Clean Water Act (CWA) which requires that States report annually on (1) progress in meeting the schedule of milestones contained in their nonpoint source management programs, and (2) reductions in nonpoint source pollutant loadings and improvements in water quality resulting from program implementation. This report is also prepared to educate the public about nonpoint source pollution in Wyoming and actions being taken to address it at local, state, and federal levels.



Nonpoint Source Pollution and Wyoming

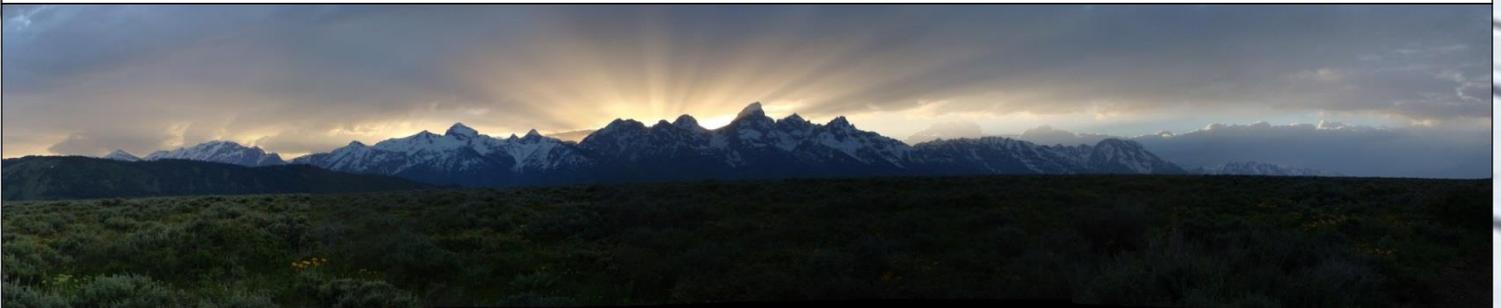
Nonpoint sources of pollution continue to be recognized as the nation's largest remaining cause of surface water quality impairments. The effects of nonpoint source pollution can be seen within the lakes, streams, and rivers of Wyoming. The three nonpoint source pollutants causing the majority of Wyoming's surface water quality impairments are bacterial pathogens, sediment, and selenium.

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, timber harvesting, and mineral exploration. Common nonpoint source pollutants 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.

About the Wyoming Nonpoint Source Program

As part of the Watershed Protection Program of the Wyoming Department of Environmental Quality (WDEQ), Water Quality Division (WQD), the goal of the Wyoming Nonpoint Source Program is: ***To identify sources of nonpoint source pollution to surface water and ground water of the State of Wyoming and to prevent and reduce nonpoint source pollution such that water quality standards are achieved and maintained.*** The program works through a set of overarching principles that emphasize voluntary and incentive-based participation, locally-led projects, partnerships, measurable water quality improvement, and effective and efficient program administration. Detailed information about Nonpoint Source Program management is available in the Wyoming Nonpoint Source Management Plan (2013 Update) which can be accessed on the [Nonpoint Source Program website](#). This report provides information about how the Nonpoint Source Program is making progress according to the objectives established in the updated Nonpoint Source Management Plan.



What Kind of Funding is Available through the Nonpoint Source Program?

Through the NPS Program, CWA 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. 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 Nonpoint Source Task Force

The NPS Task Force is a 13 member board of Governor-appointed citizens representing various industries and 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 assists with amendments to 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 interests are as follows:

Bill Alldredge—Wildlife

Bob Baumgartner—Conservation Districts

Robert Brug—Conservation Districts

Kathy Buchner—Environment

Bob Dundas—Oil and Gas Industry

Ben Wudtke—Timber Industry

Linda Hamilton—Sheep Industry

Brenda Schladweiler—Environment

Carson Engelskirger—Recreation and Travel

Mark Lindstrom—Public at Large

Lisa Kimsey—Cattle Industry

Mark Pepper—Local Government

Tyler Anderson—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.

FY13 Section 319 Project Summary

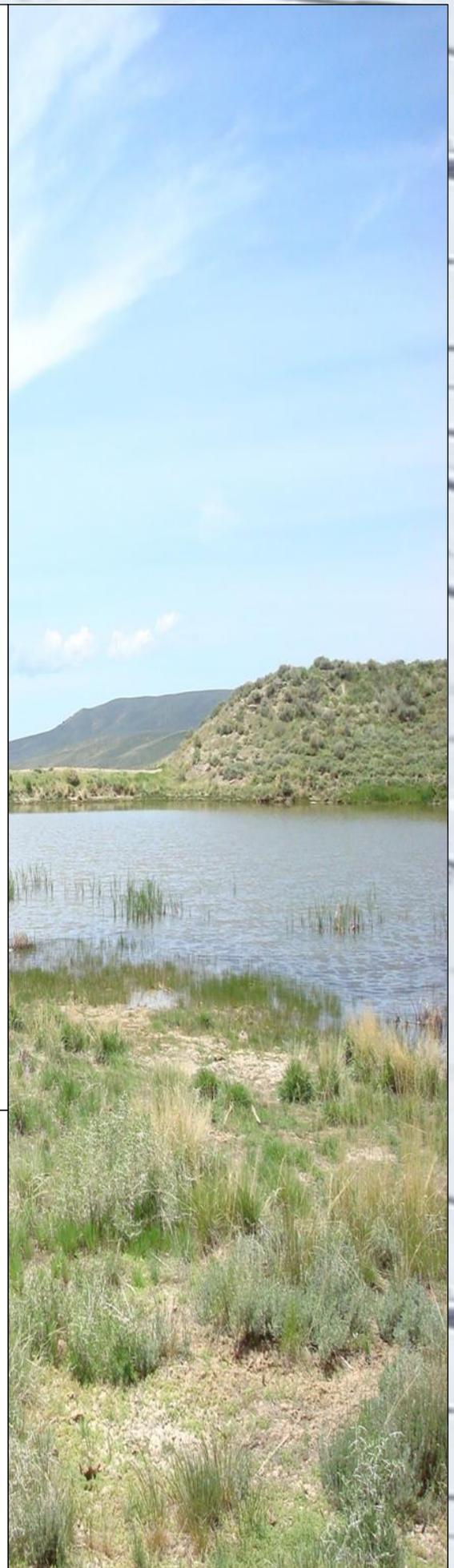
The majority of water quality improvement work accomplished by the Nonpoint Source Program is funded through CWA Section 319 grants awarded to the State by the Environmental Protection Agency (EPA). The State received \$774,000 of Section 319 funds in the FY13 allocation for project implementation. These funds were passed through to third-parties to implement water quality improvement projects. Project proposals were reviewed by the Nonpoint Source Program and the Nonpoint Source Task Force. A total of six proposals were received; the Nonpoint Source Task Force recommended five projects for funding:

- Wyoming State Forestry Division—***2013 Post Wildfire Rehabilitation Project***
- The Nature Conservancy— ***Grass, Enos and Left Hand Creek Non-Point Source Reduction - III***
- WDEQ Groundwater Program— ***WY Groundwater-Quality Monitoring Network - Phase II***
- City of Cheyenne—***Lower Capitol Basin Sediment Trap/Wetland***
- Wyoming Natural Resource Foundation— ***Pathway to Water Quality—2013 Improvements***

All of the five projects recommended for FY13 funding received a signed cooperative agreement and began project implementation in FY13 or early FY14. Summaries of each of FY13's new projects are provided throughout this report. In addition to the new projects in FY13, there were a total of 20 Section 319 projects that were already ongoing during FY13. Appendix A provides a summary of FY13 Section 319 project activity and notes the six third-party projects that closed in FY13. All closed third-party projects were completed successfully with a final report submission. Summaries of closed third-party projects are provided in Appendix B. Additional information on individual Section 319 projects can be found in the EPA [Grant Reporting and Tracking System](#) (GRTS).

Accomplishments of the NPS Program during FY13

In the Wyoming Nonpoint Source Management Plan, the Nonpoint Source Program 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 accomplishments highlighted in the following sections, the Nonpoint Source Program worked during FY13 to make progress towards meeting each of the nine objectives. Detailed information on tracking measures established in the Nonpoint Source Management Plan for each objective is available on the [NPS Program website](#).



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.

- Revisions to Chapter 1 (Surface Water Quality Standards) of the Wyoming Water Quality Rules and Regulations became effective September 24th, 2013.
- The WQD Monitoring Program continued to gather surface water quality data in accordance with the established [2010-2019 Monitoring Strategy](#). Information about work conducted during the 2013 monitoring season was outlined in the 2013 Water Quality Monitoring Annual Work Plan.
- In May 2013, the Standards and Assessment Program issued a public notice soliciting credible surface water quality data and other information for inclusion in the 2014 305(b)/303(d) Integrated Report.
- During FY13, the Nonpoint Source Program continued to work on the development of the Impaired Waters Index (IWI) database and mapping tool. Improvements were made to the mapping tool and report formats and database reports were updated. A summary of IWI information is available on the [NPS Program website](#).

New FY13 Project: 2013 Post Wildfire Rehabilitation Project

This project, sponsored by the **Wyoming State Forestry Division (WSFD)**, was awarded \$204,900 to implement post-wildfire rehabilitation efforts on Wyoming forest lands to mitigate nonpoint source pollution (primarily sediment) to surface waters in those watersheds. WSFD will accomplish this goal through the use of its personnel, conservation crews and professional service contracts to (1) mitigate the extensive resource damage incurred during the 2012 wildfire season and (2) enhance natural regenerative processes in order to minimize erosion, sedimentation and degradation of water quality. WSFD will also work with adjacent landowners and jurisdictional entities to enable similar mitigation and rehabilitation strategies on impacted ownerships outside of WSFD jurisdiction. This will be accomplished through the dissemination of resource advice and sub-granting of funds to accomplish work on lands outside WSFD's jurisdiction.



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.

- The Nonpoint Source Program continued to support TMDL development during FY13 with Section 319 funding and technical assistance. TMDLs help provide the nine key planning elements required by EPA before the majority of Section 319 funds can be allocated to restoration projects. The WQD continued to require that TMDLs funded through Section 319 grants include an implementation plan that incorporates these nine planning elements. The TMDL Program continued to facilitate significant public involvement throughout TMDL development and to outreach to local organizations and agencies to encourage participation in the process. Table 1 provides the current status of nonpoint source TMDL development in Wyoming. Additional information about TMDL development is available on the [TMDL Program Website](#).
- The Blacks Fork/Smiths Fork TMDL Project was initiated in FY13. This TMDL project addresses two bacterial impairments on the Blacks Fork River, two bacterial impairments on the Smiths Fork River, and one habitat alteration (sediment) impairment on the Smiths Fork River.
- The Nonpoint Source Program also continued to support development of watershed-based plans that local watershed groups chose to write in advance of TMDL development. Table 2 provides a current summary of watershed-based plan development in Wyoming.
- Nonpoint Source, TMDL, and Monitoring Program staff assisted the Wyoming Association of Conservation Districts (WACD) and Sublette County Conservation District with the development of the Little Sandy River Watershed-Based Plan. This included providing input on watershed plan content and assistance with data analysis, modeling, and monitoring.
- Watershed Protection Program staff continued intensive training on the Hydrologic Simulation Program Fortran/Better Assessment Science Integrating Point and Nonpoint Sources (HSPF/BASINS) modeling system for TMDL development.
- Monitoring Program staff continued gathering water quality data on the Hams Fork River in preparation for TMDL development. Flow, chlorophyll, nutrient, pH, and biological data were obtained.
- TMDL Program staff assisted the Sweetwater County Conservation District with the installation and use of automated sampling equipment to obtain data for TMDL development on Bitter and Killpecker Creeks.
- TMDL Program staff assisted the Star Valley Conservation District with the installation and use of flow monitoring equipment to assist with data collection prior to TMDL development on the Salt River and Stump Creek.
- In addition to the FY13 Section 319 projects noted in this report, the NPS Task Force recommended two water quality management planning projects for funding in FY13 (see page 21). Sheridan County Conservation District was awarded CWA 205(j) grant funding to conduct a stream channel assessment on a portion of the Tongue River to guide future stream restoration efforts. The City of Sheridan was awarded state Supplemental Environmental Project (SEP) funding to develop a Watershed Control Plan to address threats to the City's drinking water supply.
- Two planning and assessment Section 319 projects were active in FY13 (see Appendix A). One of these projects was successfully completed in FY13 (see Appendix B).

Table 1. Current status of TMDL development in Wyoming (only TMDLs involving nonpoint source pollution are shown).

TMDL Project	# TMDLs	Status
<i>Ocean Lake</i>	1	Approved 12/09
<i>Goose Creek Watershed</i>	13	Approved 9/10
<i>Belle Fourche River Watershed</i>	7	Approved 12/13
North Platte River Selenium	11	Draft TMDLs under review
Crow Creek	10	Selenium TMDL approved 8/13 ; Remaining Draft TMDLs under review
Big Horn River	20	Draft TMDLs under review; four new TMDLs under development
<i>Gillette Fishing Lake</i>	2	Approved 7/13
Hams Fork	1	Data collection prior to TMDL development
Bitter/Killpecker Creek	3	Data collection prior to TMDL development
Bear River	1	TMDL development in-process
Shoshone River	8	Draft TMDLs under review
Blacks Fork/Smiths Fork	5	TMDL development in-process

Table 2. Current status of watershed-based plan development in Wyoming.

Watershed-Based Plan	# Impaired Segments Addressed	Sponsor	Status
<i>Flat Creek Watershed-Based Plan</i>	1	<i>Flat Creek Watershed Steering Committee/Teton Conservation District</i>	Approved
<i>Prairie Dog Creek Watershed-Based Plan</i>	5	<i>Sheridan County Conservation District</i>	Approved
<i>Tongue River Watershed Based Plan</i>	7	<i>Sheridan County Conservation District</i>	Approved
Little Sandy River Watershed-Based Plan	1	Sublette County Conservation District	Development In-Process

New FY13 Project: Lower Capitol Basin Sediment Trap/Wetland

This project, sponsored by the **City of Cheyenne**, was awarded \$419,600 to reduce excess sediment loading to Crow Creek through the construction of a stormwater wetlands complex that will capture and treat urban runoff from the Lower Capitol Basin in Cheyenne. This project is anticipated to achieve a significant portion of the sediment load reduction identified in the Crow Creek TMDL as being necessary for Crow Creek to meet water quality standards. A secondary water quality benefit of the wetlands will be reduced loading of other pollutants (e.g. *E. coli*, nutrients, and heavy metals) into Crow Creek. This project was also awarded \$1 million in Clean Water State Revolving Fund loans.



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.

- One new project was recommended for funding in FY13 that will implement best management practices (BMPs) to address impaired waterbodies. The City of Cheyenne will address sediment and *E. coli* impairments on Crow Creek by reducing nonpoint source pollution from urban stormwater runoff (see page 6).
- In addition to the one new project recommended in FY13, eight projects were active in FY13 under previous grants that implemented BMPs to address impaired waters (see Appendix A). Three of these projects were successfully completed in FY13 (see Appendix B).
- The Nonpoint Source Program continues to focus funding to implementation projects that address water quality impairments. Since 1999, 56% of Section 319 funds have been awarded to BMP implementation projects.
- Eight of the nine completed nonpoint source TMDLs/Watershed-Based Plans (WSBPs) have received Section 319 funding to begin implementation of BMPs (Belle Fourche River TMDLs, Goose Creek TMDLs, Gillette Fishing Lake TMDLs, North Platte River TMDLs, Crow Creek TMDLs, Flat Creek WSBP, Prairie Dog Creek WSBP, and Tongue River WSBP). The ninth completed nonpoint source TMDL (Ocean Lake TMDL) received funding for implementation under the FY12 National Water Quality Initiative through the Natural Resources Conservation Service (NRCS). Thus, Wyoming has had significant success in being able to implement its TMDLs and Watershed-Based Plans. Figure 1 shows a map of restoration projects relative to water quality impairments and the status of planning efforts for those impairments.
- The Nonpoint Source Program worked to spend returned funds from closed projects towards additional BMPs. Funds were used for two implementation projects. Popo Agie Conservation District and The Nature Conservancy received funding to implement a key agricultural BMP on a tributary to the Middle Fork of the Popo Agie River to address bacterial impairments. Laramie County Conservation District also received funding to implement fencing BMPs in the upper Crow Creek watershed to address bacterial impairments.



Objective #4: Documenting Environmental Improvement

The WDEQ will develop and implement methods to accurately and efficiently monitor and/or evaluate project effectiveness in terms of water quality improvements realized from watershed restoration project implementation.

- Third party project sponsors continued to collect water quality data to evaluate project effectiveness and/or gather baseline data (see Table 3).
- Monitoring and Assessment Program staff assisted with WACD Water Quality Module Training, providing information about and demonstrations of WDEQ monitoring and assessment protocols.
- Monitoring Program staff continued to provide oversight for the Grass, Enos, and Lefthand Creeks Nonpoint Source Reduction projects (The Nature Conservancy) and assisted with monitoring protocols.
- Monitoring Program staff continued project management responsibilities for the North Platte River Watershed Segment I Project, Natrona County Conservation District, including assistance with monitoring protocols.
- Monitoring Program staff continued project management responsibilities for the Belle Fourche Watershed Plan Phase III Project, Crook County Natural Resource District. Assistance was provided to plan and implement the 2013 monitoring season and staff conducted a field audit for the District.
- Monitoring and Nonpoint Source Program staff assisted Teton Conservation District with the collection of physical and biological data at sites on Flat Creek to begin evaluating water quality trends following restoration efforts.
- Monitoring Program staff assisted the City of Gillette with the collection of water quality samples from Gillette Fishing Lake to evaluate the effectiveness of BMPs implemented in recent years.
- Monitoring Program staff continued to oversee project management for the Laramie River Restoration project and collected some additional physical data that will help evaluate project effectiveness.
- Monitoring Program staff assisted Popo Agie Conservation District in collecting duplicate and split samples on the Middle Fork of the Popo Agie River and provided general technical assistance on monitoring protocols.
- Monitoring and Nonpoint Source Program staff collected biological, chemical, and physical data on Whitelaw Creek to evaluate the effectiveness of BMPs implemented over the past two decades. Monitoring Program staff analyzed the data and concluded that water quality had improved to meeting reference conditions. An Ecological Restoration Success Story was prepared by WDEQ and approved by EPA (see page 21). This represents an excellent example of private landowners and agencies working together to implement a watershed restoration project and to document improvement with data.
- Restoration work led by Little Snake River Conservation District has improved the water quality of Muddy Creek. The repair of a major wetland complex in the watershed has decreased peak stream flows in a threatened segment of Muddy Creek, greatly reducing the occurrence, magnitude and duration of scouring streamflows that can cause accelerated erosion, and allowing streambanks to stabilize and re-vegetate. A success story has been submitted to EPA for this restoration project and is pending publication.
- Data included in the final report for the Town of Jackson, Karns Meadow Stormwater Wetlands project indicate highly effective pollutant removal by the wetlands—99.6% removal of sediment, 85.4% removal of nitrate, 100% removal of nitrite, and 88.1% removal of phosphorus. Such pollutant removal will greatly benefit the receiving water, Flat Creek, currently listed as impaired for habitat alterations.
- Popo Agie Conservation District pursued innovative monitoring approaches in the Middle Fork Popo Agie River watershed in FY13. They partnered with The Nature Conservancy in a monitoring experiment to evaluate ranch management practices that minimize bacterial contributions to impaired waterbodies. TMDL Program staff assisted District staff with the installation and use of monitoring equipment to help with this effort. In addition, the District experimented with methods of optical brightener detection to help identify sources of bacterial contamination.
- Crook County Natural Resource District is pursuing innovative microbial source tracking methods to assist with identification of bacteria sources in their watershed. Samples were taken and submitted for analysis in FY13.
- Table 4 provides a summary of BMPs implemented for watershed restoration projects active in FY13 and estimated pollutant load reductions for BMPs implemented in FY13.

Table 3. Surface water monitoring conducted by Section 319 projects active in FY13.

Project No.	Project Title	Water Bodies	Monitoring Effort
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.
ON802	Belle Fourche Watershed Phase II—Crook County Natural Resource District	Belle Fourche River Donkey Creek	Pathogens (<i>E. coli</i>), chloride and ammonia, Field Parameters
ON806	Snowy Range Sediment—USFS	Laramie River	Sediment, site visits to confirm successful closures, physical habitat, field parameters
ON904	Karns Meadow Stormwater Wetlands—Town of Jackson	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 Rivers Conservation District	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—Teton Science Schools	Flat Creek	Sediment (total suspended sediment and bedload), macroinvertebrates, riffle embeddedness, channel cross-sections and profile, WGFD, fisheries monitoring, vegetation surveys
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, The Nature Conservancy	Grass Creek Enos Creek Lefthand Creek	Sediment (Bank Erosion Hazard Index and Near Bank Stress), macroinvertebrates, habitat assessments, Field Parameters
NPS2010D	Goose Creek Watershed TMDL Implementation—City of Sheridan	Goose Creek Little Goose Creek Big Goose Creek	<i>E. coli</i> , Sediment (TSS and turbidity), dry period flow detection, optical brighteners
NPS2010E/ 2012E	North Platte River Watershed TMDL Implementation Segment I—Natrona County Conservation District	North Platte River Casper Creek Poison Spider Creek Oregon Trail Drain Johnson Reservoir Drain Poison Spring Creek Six Mile Drain	Selenium, field parameters, discharge
NPS2011D/ NPS2012B	Belle Fourche River Watershed Plan, Phase III—Crook County Natural Resource District	Belle Fourche River Donkey Creek	<i>E. coli</i> , Field Parameters, Pilot Microbial Source Tracking
NPS2012A/ ON70I	Bitter Creek Sampling and Analysis—Sweetwater County Conservation District	Bitter Creek Killpecker Creek	<i>E. coli</i> , Field Parameters, flow
NPS2013B	Grass Creek/Enos/Lefthand Creek Nonpoint Source Reductions Phase III—The Nature Conservancy	Grass Creek Enos Creek Lefthand Creek	Sediment (Bank Erosion Hazard Index and Near Bank Stress), macroinvertebrates, habitat assessments, Field Parameters
NPS2013C	Lower Capitol Basin Sediment Trap/Wetland—The Nature Conservancy	Crow Creek	Sediment evaluation through annual surveys of accumulated sediment <i>E. coli</i> monitoring in Crow Creek



Table 4. Summary of BMPs implemented under projects active in FY13 and estimated pollutant load reductions for BMPs implemented in FY13 (for select pollutants only).

Project Name	Project No.	BMPs Implemented Prior to FY13	Additional BMPs Implemented in FY13	Estimated Annual Load Reductions	Load Reduction Method
Karns Meadow Stormwater Wetlands	ON904	3 ac wetland created, 2 ac wetland habitat enhancement, 6 ac native vegetation seeded, 30 trees planted, 850 shrubs planted, 30,000 wetland plants, 1 ac wetland sod	None	Load reductions for this project were reported in previous years.	N/A
Sheridan County Watershed Improvements #2	ON801	2 corral relocations, 5 septic systems, 1 riparian fence/water improvement, 3 irrigation diversion replacements, 6 streambank/channel stabilization, 12,520' streambank restoration, 752 acres reduced irrigation runoff	None	Load reductions for this project were reported in previous years	N/A
Medicine Bow Forest Sediment Reduction	ON806	337 miles of road decommissioned; 202 stream crossings restored or protected, 169 wetland areas restored or protected	None	Load reductions for this project were reported in previous years	N/A
Sunrise Building Rain Gardens	ON902	2 rain gardens implemented	None	Load reductions for this project were reported in previous years	N/A
Flat Creek Restoration	NPS2010B	1300' bank stabilization, 0.5 acre wetland	None	Load reductions for this project were reported in previous years	N/A
Laramie River Restoration	NPS2010A	26 treatment sites installed providing 6,000' of stabilized stream bank	None	Load reductions for this project were reported in previous years	N/A
Grass/Enos Creek Phase II	NPS2011B	5 off-channel water tanks, 10,498' fence, 17 ac noxious weed control	10 off-channel water tanks, 15,000' fencing, 305 ac conifer control, 175 willows planted	8,390 lb/yr nitrogen 777 lb/yr phosphorus 150 ton/yr sediment	STEPL
Sheridan County Watershed Improvements #3	NPS2011A	1 irrigation diversion	1 fencing/stockwater project (710' fence), 4 septic system rehabilitations, 1 animal feeding operation modification, willow planting	465 lb/yr nitrogen 104 lb/yr phosphorus 1 ton/yr sediment 2.41E+13 MPN/yr <i>E. coli</i>	STEPL, WY Septic model
Goose Creek Watershed TMDL Implementation	NPS2010D	None	None; work done to-date has been baseline monitoring	N/A	N/A
Belle Fourche Watershed Plan Implementation Phase III	NPS2012B	None	5,000' fence; 3 off-channel water tanks	1,526 lb/yr nitrogen 194 lb/yr phosphorus 81 ton/yr sediment	STEPL
North Platte River TMDL Implementation	NPS2012E	None	283 acres flood to sprinkler irrigation, 2.59 mi open ditch to pipeline, 4.58 mi open ditch replaced	672 lb/yr nitrogen 228 lb/yr phosphorus 201 ton/yr sediment	STEPL
2013 Post Wildfire Rehabilitation	NPS2013A	None	None, implementation will begin in 2014	N/A	N/A
Grass/Enos Creek Phase III	NPS2013B	None	None, implementation will begin in 2014	N/A	N/A
Lower Capitol Basin Sediment	NPS2013C	None	None, design work will begin in 2014	N/A	N/A



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.

- Wyoming experienced an extreme wildfire season in the summer/fall of 2012 due to drought conditions, with some additional wildfires occurring in 2013. One of the new FY13 Section 319 projects provided funding to Wyoming State Forestry Division to continue support for their emergency rehabilitation efforts (see page 4). Rehabilitation efforts will be important in preventing sediment loading to surface waterbodies in burned areas.
- A second FY13 project was recommended for funding to prevent further water quality degradation on unimpaired waterbodies. Funding was provided to The Nature Conservancy to implement Phase III of their nonpoint source pollution reduction work in the Grass, Enos, and Lefthand Creek watersheds (see page 8).
- In addition to the new FY13 319 projects, four other 319 projects were active in FY13 that implemented conservation practices to protect unimpaired waters (see Appendix A). One of these projects was successfully completed in FY13 (see Appendix B).
- 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 45 individual 401 certifications in 2013.
- The WDEQ issued 34 individual turbidity waivers to authorize activities that would cause short term turbidity increases determined to have minimal effect on water use. The WDEQ also re-issued a general authorization to the United States Forest Service (USFS) for temporary turbidity increases during routine maintenance projects meeting certain criteria or those resulting from *force majeure* circumstances.
- Monitoring Program staff participated on one BMP audit with the USFS in the Bighorn National Forest.
- Nonpoint Source Program staff reviewed BMP implementation and effectiveness monitoring information submitted by the USFS per the Memorandum of Understanding between USFS and WDEQ.
- Watershed Program staff continued to participate as a cooperator in the National Environmental Policy Act (NEPA) process as part of federal consistency efforts. This included, but is not limited to, reviewing NEPA documents, submitting comments, participating in alternative development, participating in monitoring planning, conducting field reviews, and participating on stakeholder committees.



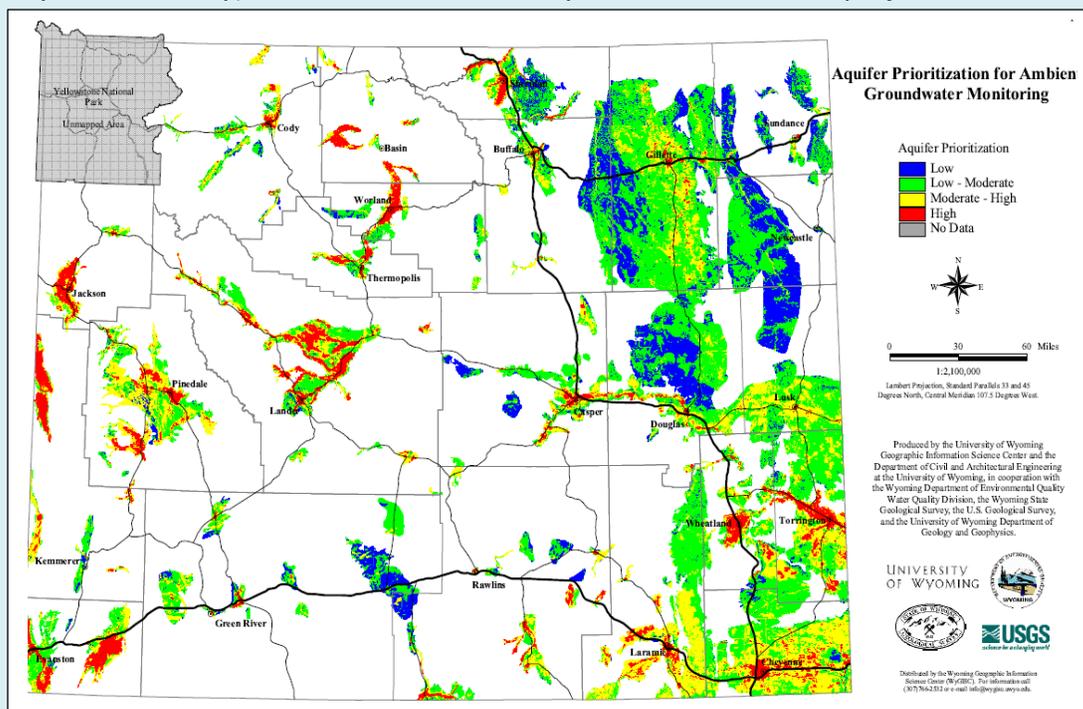
Objective #6: Ground Water Protection

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.

- In FY13, funding was recommended to continue groundwater baseline monitoring efforts under the Wyoming Groundwater-Quality Monitoring Network - Phase II project (see below). This project will be sponsored by the WDEQ Groundwater Program in coordination with the United States Geological Survey (USGS). In FY13, ground water samples were collected from an additional 56 water wells.
- WDEQ staff continued to participate on the Groundwater and Pesticide Strategy Committee. Eight groundwater and five surface water samples were collected in 2013 to evaluate levels of pesticides present either for baseline or trend monitoring.
- Ground water protection outreach information continued to be provided through the WDEQ "[Know Your Well](#)" Program.

New FY13 Project: Wyoming Groundwater-Quality Monitoring Network Phase II

The purpose of this project, sponsored by the **WDEQ Groundwater Program** in cooperation with the United States Geological Survey, is to collect baseline groundwater quality data from multiple areas around the state. Contamination of groundwater resources from human activities is a concern. Having statewide baseline data on groundwater resources is important to be able to analyze water quality trends over time and better understand impacts from human activities. Such information is an important tool for protection of groundwater resources that are critical for drinking water and other uses. Baseline monitoring will be done at 20-30 wells in priority areas. Priority areas are where groundwater has been identified as an important source of drinking water to public and private water supplies, is susceptible (i.e. sensitive) to contamination, and is overlain by one or more land-use activities that could negatively impact groundwater resources. Baseline groundwater samples will be analyzed for field parameters (temperature, pH, oxidation reduction potential, specific conductance, dissolved oxygen, alkalinity, and turbidity) as well as a suite of analytes of concern. This project was awarded \$29,500.



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.

- One new information/education project was recommended for funding in FY13. The Wyoming Natural Resource Foundation (WNRF) was awarded funding to finish improvements to the Pathway to Water Quality Project at the Wyoming State Fairgrounds (see page 15).
- Three other information/education projects were active in FY13 (see Appendix A). One of these projects was successfully completed in FY13 (see Appendix B).
- The Nature Conservancy successfully held the first annual Cody Wild West River Fest, an innovative information/education project that helped educate the community about water quality and nonpoint source pollution. The event succeeded in attracting over 1,000 participants and real strides were made in partnership-building and raising awareness of water issues along important streams in northwest Wyoming.
- The WNRF produced four high quality videos as part of their Statewide Nonpoint Source Information and Education project. These videos highlight successful implementation of BMPs around the state, including animal waste management in Platte County, small acreage management practices in Sheridan County, grazing management practices in Hot Springs County, and septic system practices in Teton County. The videos are posted on the Foundation's YouTube channel at <http://www.youtube.com/user/ConserveWY/videos>.
- Approximately 1,186 Wyoming students and 56 volunteers attended Worldwide Day of Monitoring activities in 2012, coordinated by local conservation districts and the Wyoming Association of Conservation Districts (WACD).
- One Wyoming Stream Team summer workshop provided water quality monitoring training to 10 Wyoming teachers at Teton Science Schools. Additional workshops and outreach visits were made under this project to schools and communities across Wyoming.
- The WACD hosted another BMP Workshop Training in October 2013. The training was well attended and the Nonpoint Source Program assisted with the training.
- The Nonpoint Source Program worked to improve its website by posting information about currently active Section 319 projects within Wyoming.
- The Nonpoint Source Program issued four electronic newsletters that were distributed through the WDEQ Nonpoint Source List Serve. Currently, a total of 241 members are registered on the Nonpoint Source List Serve.
- Nonpoint Source Program staff collaborated with University of Wyoming faculty to prepare an educational article regarding impacts to water quality from wildfires and BMPs that can be used to mitigate impacts. This article was published by the University of Wyoming Cooperative Extension Service in a special wildfire publication in FY13.
- Monitoring Program staff also attended the Campbell County Ag Expo in 2013. A table was manned at this event to teach participants about aquatic insects and stream health.
- The Nonpoint Source Program finalized edits to the updated Stream and Lakeshore Restoration BMP Manual. The updated manual was approved by the Nonpoint Source Task Force and submitted to public notice in FY13.



New FY13 Project: *Pathway to Water Quality—2013 Improvements*

The Pathway to Water Quality project, sponsored by the **Wyoming Natural Resource Foundation**, implements innovative management practices to protect water quality, reduce erosion, eradicate invasive species, enhance a wetland, and establish native grasses and tree species while serving as an educational demonstration project on the Wyoming State Fairgrounds. The project was implemented over 3-4 years. In 2011, a permeable patio was installed in front of the Ag & Natural Resource Building and an EcoGrid™ material was installed under the livestock tie out area. In 2012, a French drain system and a permeable pathway along the North Platte River were installed and the initial work was done on the constructed wetland area, including increasing the holding capacity, creation of a stream system and interpretative area, and establishment of wetland vegetation, trees and shrubs. This project has resulted in approximately 75-80% of the runoff from the Wyoming State Fair Park being captured and diverted to the wetland area to be filtered prior to entering the North Platte River. The project partners and volunteers have invested nearly \$500,000 in enhancing the Wyoming State Fair Park and protecting water quality, while providing an educational opportunity to more than 40,000 State Fair Park users. The purpose of the 2013 phase of the project was to complete the Wetland Interpretative Park. This final phase of the project was completed in August 2013 and the Pathway to Water Quality project was showcased in an opening ceremony at the 2013 Wyoming State Fair. The ceremony was attended by the agencies, private companies, and organizations involved in the Pathway's development, as well as state legislators, representatives from congressional delegation offices, and representatives of the Governor's Office.



Left: Photo credit
Leather-N-Lace
Photography, Evanston



Teachers and students learning about aquatic macroinvertebrate identification and water quality through the Wyoming Stream Team Program, Teton Science Schools. Photo credit: Teton Science Schools.



Left: Wyoming Association of Conservation District and Platte County Resource District showcasing agricultural BMPs through a YouTube video. Photo credit: WACD



Left: Attendees of the first annual Cody Wild West River Fest learn about runoff through the NRCS rainfall simulator. Photo credit: Richard Garrett

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 assisted Wyoming NRCS with watershed selection for FY13 National Water Quality Initiative funding. The Program also worked with NRCS and local partners to begin evaluating monitoring strategies for the selected watershed.
- Nonpoint Source, Standards, and TMDL Program staff presented at the 2012 WACD annual convention.
- WACD and Nonpoint Source Program staff worked to outreach to local conservation districts to encourage proposal submission for FY14 Section 319 funding.
- The Nonpoint Source Program Coordinator participated on NRCS State Technical Committee meetings and provided input to encourage use of Farm Bill funding for water quality-related projects.
- The Nonpoint Source Program Coordinator participated in State Engineer Office Water Forum meetings.
- The Nonpoint Source Program Coordinator participated on the Pathway to Water Quality Steering Committee and assisted with volunteer work days.
- Watershed Protection Program staff continued to participate in interstate water quality committees, including the Colorado River Basin Salinity Control Forum and the Bear River Commission.
- Nonpoint Source Program funds were used to support the NRCS in efforts to implement irrigation projects in the Henry's Fork drainage of the Green River Basin to reduce salinity contributions to the Colorado River Basin.
- The Nonpoint Source Program Coordinator presented at the 2013 Wyoming State Forestry Division staff meeting about water quality considerations for post-wildfire rehabilitation efforts.
- The Nonpoint Source Program continued discussions with the Clean Water State Revolving Fund Program to evaluate options to encourage the use of SRF loans for nonpoint source pollution reduction projects.
- The Nonpoint Source Program Coordinator presented at the 2013 Wyoming Water Association meeting and promoted the success of the Whitelaw Creek watershed restoration efforts.
- The Nonpoint Source Program Coordinator presented about nonpoint source pollution, watershed based planning, and TMDL development at the 2013 Wyoming Association of Rural Water Systems convention.
- The Nonpoint Source Program and USFS-Bridger Teton National Forest met to evaluate restoration options for Clarks Draw, listed as impaired due to high levels of bacteria.
- Nonpoint Source and TMDL Program staff participated in a Region 8 EPA/States meeting for these two programs. NRCS staff from the Region 8 states also participated in this meeting.
- The TMDL Program has worked with the Wyoming Water Development Office to improve coordination and information-sharing for TMDL and Level I/II study development.



Highlighted Partner Project: Lionkol Drainage Reclamation Project

WDEQ Abandoned Mine Land Division

The Abandoned Mine Land Division (AML) Lionkol Drainage Reclamation Project is located in a historic coal mining district in Sweetwater County, Wyoming, approximately one mile northeast of Rock Springs along Lionkol Road. The overall purpose of this project was to establish stable drainage channels to restore channel that had been disturbed by historic mining activity. Historic mining activity had restricted the channel, resulting in downward and headward erosion. The Lionkol channel had vertical to near vertical channel banks averaging approximately ten feet in height creating a hazard to people who use the area recreationally. Over the course of the project, the over-steepened banks of the channel were removed. This was accomplished by establishing a new channel alignment. Re-grading of the channel was completed using Natural Regrade™ software to achieve a naturally appearing, geomorphically stable surface. The new channel alignment allows the channel to develop an initial steep grade that slowly shallows out as it progresses downslope. It also develops naturally appearing beds in the channels. In the lowlands of the channel, the grade of the channel flattens and the design shifts to a meandering channel. This is a channel that continually bends from one corner to the next. These meanders are a way to add more length to the channel which decreases the shear stresses and increases channel stability.



Above: BLM Wild Horse Facility viewing area, prior to construction.

In addition, this project addressed runoff from the Bureau of Land Management (BLM) Wild Horse Facility, located adjacent to Lionkol channel. The BLM Wild Horse Facility is considered a confined animal feeding operation for water quality regulations. Because of this, a waste water retention system needed to be designed and constructed. Included in this design was an increase to the size of the earthen berm that retains the effluent from the manure stockpile. To control runoff from the facility, a retention pond was designed and built to capture and retain the water. Following the completion of the site grading and coversoil replacement, the site was re-vegetated. Re-vegetation activities included spreading horse manure from the Wild Horse Facility, soil amendments, drill seeding, and mulching and crimping. BRS Engineering, Riverton WY, was the design and construction management firm for the project.

Above: Viewing area during construction.

Right: Post-construction channel re-alignment in viewing area following storm event.

Photo credits: BRS Engineering



Selected Highlights from Program Partner Activities

- **Wyoming Natural Resources Conservation Service (NRCS)** continued to provide conservation planning, technical assistance, and financial assistance to landowners to conserve soil, water, and other natural resources on private property.
 - In FY13, the NRCS awarded \$691,128 to the Big Horn River-Slick Creek Watershed in Washakie County as part of the National Water Quality Initiative. The main focus of treatment in this watershed will be to reduce bacteria loading from cropland and irrigated acres. Nine applications were funded, treating 1,089 acres.
 - Three applications totaling \$67,706 were funded to address livestock waste under the State Livestock Waste Management program.
 - A State Wildfire Initiative was offered again in FY13 to provide an opportunity for interested landowners to defer burned areas for two years. Two applications were funded, treating 16,615 acres.
 - Five applications treating 660 acres were funded in FY13 under the Wetland/Wildlife Account, used for projects that restore wetland hydrology, improve upland habitat to benefit wildlife, or address resource concerns in riparian areas.
 - A State Forestry account was created in FY13 to address the growing interest in Forest Health, commercial thinning, aspen regeneration, and removal of Russian olive and/or Salt Cedar infestations in riparian areas. Nineteen applications were funded, treating 1,217 acres.
 - FY13 State-Level Conservation Innovation Grant funds were awarded to a project that utilizes a series of *Barnyards & Backyards* Rural Living in Wyoming magazine articles, video clips, and workshops to educate small acreage landowners about NRCS programs and at the same time raise awareness of the natural resource conservation needs and interests of small acreage landowners.
 - Agricultural Management Assistance funds continued to be used for control of invasive species, primarily Russian olive and Salt Cedar in the Big Horn Basin. A total of 4,728.7 acres have been treated since 2008.
- In an effort to ensure that BMPs are being effectively applied during forestry and silviculture operations, **Wyoming State Forestry Division (WSFD)** facilitated the organization of the 2013 Wyoming Forestry BMP Audits. The 2013 Audit Team consisted of representatives from the USDA Forest Service, the Bureau of Land Management, Devil's Tower Forest Products, Black Hills Forest Resource Association, and WSFD. Six newly harvested sites and one previously audited site were selected from federal, state, and private land with live or active water courses. The sites selected for the 2013 Audit were located in Hot Springs, Johnson, and Crook counties. Each site was evaluated on the application and effectiveness of seventy BMPs using the field audit rating guide criteria. Overall, the timber sales chosen for audit met or exceeded BMP standards 95 percent of the time.
- The **Wyoming Wildlife and Natural Resource Trust (WWNRT)** continues to be an important program to enhance and conserve wildlife habitat and natural resource values throughout the state. WWNRT projects fund a wide range of activities, including many that directly or indirectly improve water quality. Many WWNRT projects have addressed waterbodies listed as impaired by the WDEQ, have worked in conjunction with Section 319 funding to restore or protect waterbodies, or are notable examples of watershed restoration efforts. Information about WWNRT projects can be found on that program's website (<http://wwnrt.state.wy.us/index.htm>).

Selected Highlights from Program Partner Activities, Continued

- In FY13, the **United States Forest Service (USFS)** began the BMP monitoring component of the National BMP Program on all administrative units in Wyoming. Draft national monitoring protocols were used to monitor BMP implementation and effectiveness on a variety of projects on National Forest System (NFS) lands in Wyoming, including grazing management, mechanical vegetation treatments, suction dredging and prescribed fire.
- In addition, the USFS continued efforts under a number of program areas to restore watersheds and reduce or prevent nonpoint source pollution.
 - *Burned Area Emergency Response (BAER) Program:* In FY13, approximately 1,000 acres of land and 24 miles of trails on NFS lands in Wyoming received BAER treatments 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.
 - *Healthy Forests and Rangelands—Hazardous Fuels Reduction and Landscape Restoration:* In FY13, Wyoming National Forests completed fuel treatment projects on 9,084 acres inside the wildland urban interface (WUI) and another 25,703 acres outside the WUI for a total of 34,787 acres. These projects 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.
 - *Watershed Restoration:* Wyoming National Forests reported accomplishments of approximately 5,200 acres of soil and water improvements in FY13 to improve watershed conditions using upland and instream treatments such as correction of cut or fill slope failures, scarification of compaction on upland areas (e.g. old skid trails), and reclamation of old gravel quarries.
 - *Road maintenance:* Wyoming National Forests reported accomplishments of about 1,150 miles of road maintenance in FY13 to provide 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.
 - *Legacy Road and Trail Program:* In FY13, there were three road rehabilitation projects, three culverts replaced, three road drainage improvement projects, six road decommissioning projects, and eight miles of trail reconstructed to reduce erosion. The purpose of this program is the repair, restoration, rehabilitation, and decommissioning of both system and unauthorized roads and trails where the conditions are causing water quality issues in water bodies; adversely affecting threatened, endangered, or sensitive species; or impacting community water systems.
- \$1 million in **Clean Water State Revolving Fund (CWSRF)** loans were awarded to the City of Cheyenne for their Lower Capitol Basin Sediment Trap/Wetland project (see page 6). This represents an example of the Section 319 and CWSRF Programs working together to address an impaired waterbody.
- The **WDEQ Abandoned Mine Land Division (AML)** completed a channel restoration and animal feeding operation project on Lionkol Draw near Rock Springs (see page 18).
- The **United States Geological Survey (USGS)** completed a study on water quality and biological communities in Fish Creek, Teton County. The report (USGS Scientific Investigations Report 2013-5117) is available at: <http://pubs.er.usgs.gov/publication/sir20135117>.



Whitelaw Creek Ecological Restoration Success Story: Coordinated Resource Management Restores Riparian Areas and Water Quality in Wyoming Mountain Stream

Whitelaw Creek is a 2.4 mile-long tributary to Beaver Creek in the Belle Fourche River Basin of northeast Wyoming. Season-long historical livestock grazing practices in the mid to late 20th century resulted in damaged upland and riparian areas and degraded stream banks, which consequently led to increased sediment loading, elevated water temperatures, and reduced dissolved oxygen in Whitelaw Creek. Biological information collected in the 1980s indicated the cold-water game fishery consisted entirely of brook trout in low densities. In 1988, the United States Forest Service (USFS) implemented a two-pasture, deferred-rotation livestock grazing system along Whitelaw Creek. Unfortunately, poor water distribution and a lack of late-season water limited the opportunities to implement the new grazing system; thus, the resource received minimal benefits. In 1992, local landowners and grazing permittees, USFS, the Natural Resources Conservation Service, the Wyoming Riparian Association, the Wyoming Game and Fish Department, the Crook County Natural Resource District, the Wyoming Department of Agriculture, and WDEQ initiated Coordinated Resource Management (CRM) in the Whitelaw Creek watershed to address the known water quality issues. As part of the CRM, the collaborators managed a Clean Water Act section 319 project, known as the Whitelaw Riparian Improvement Project, in the early to mid-1990s. The partners implemented numerous agricultural best management practices (BMPs) that focused on improving riparian conditions, stabilizing stream banks, and enhancing water quality through short-duration, multi-pasture rotational grazing, the development of off-channel water sources, and cross-fencing. Project partners installed signs and conducted tours of the project area to offer opportunities for the public to learn about time-controlled grazing management and improvements in the resource that benefit multiple uses. Project partners monitored the effectiveness of the BMPs from 1992 to 2012 by periodically collecting fish and macroinvertebrate data, conducting vegetative surveys, and gathering chemical and physical water quality data. These data show that the combination of improved water distribution and short-duration rotational grazing has improved riparian conditions and water quality. Increased density and diversity of riparian vegetation have stabilized segments of streambanks by allowing the channel to narrow and deepen and to become more sinuous. Nearly all stream banks are now at optimal stability and cover conditions. These enhancements have significantly reduced the sediment loading to the stream. Data show that mean embeddedness declined and that fine sediment levels were reduced, corresponding with increases in gravel composition. Cooler water temperatures were recorded and dissolved oxygen concentrations increased. Multiple aquatic macroinvertebrate metrics indicate improvement in the biological community, and the two models used by WDEQ to evaluate these metrics show that the current biological conditions throughout Whitelaw Creek are comparable to reference expectations.

For the full success story, please visit: <http://water.epa.gov/polwaste/nps/success319/>



FY13 Water Quality Management Planning Projects

In addition to the Section 319 projects discussed in this report, the Nonpoint Source Task Force recommended two water quality management planning projects for CWA 205(j) funding or state Supplemental Environmental Project (SEP) funds. CWA 205(j) funds are available to cities, towns, counties, and conservation districts on a competitive basis each year to address water quality planning and assessment needs. SEP funds provided to the NPS Program are used to supplement Section 319 and 205(j) budgets. In FY13, two projects applied for 205(j) funding. One project was funded with the FY13 205(j) allocation and the second was supported with SEP funds. These two projects are discussed below.

Tongue River Canyon Stream Channel Assessment

Sheridan County Conservation District was awarded \$40,000 of 205(j) funding to develop a stream improvement plan that identifies specific areas of concern and improvement alternatives on approximately five miles of the Tongue River through Tongue River Canyon. The improvement plan will be used to prioritize future requests for assistance and enable improvements to be applied in a way that considers impacts and benefits to the entire stream reach. The Tongue River Watershed is a significant water resource for Sheridan County and provides numerous recreational opportunities in addition to other agricultural and municipal uses.

Goose Creek Watershed Control Plan

The **City of Sheridan** was awarded \$20,000 of SEP funds to develop a watershed control plan to address *Cryptosporidium*, *E. coli*, and sediment pollution in the Big Goose Creek watershed above the community's water treatment plant. Once implemented, the Big Goose Creek Watershed Control Plan will preserve and protect water quality as well as protect the health of citizens within the watershed. This project will control pollution above a segment of Big Goose Creek listed on the 303(d) list and will help achieve compliance with the Safe Drinking Water Act and the Clean Water Act. As part of this project, the City held multiple meetings with stakeholders in FY13, including the USFS, Sheridan County, Sheridan County Conservation District, Wyoming Game and Fish, and grazing lessees.

This project was one of three selected nationwide to be part of the Source Water Collaborative's 2013 Pilot Program. The work that the City is doing represents a collaboration of CWA and Safe Drinking Water Act programs. Work done to address *Cryptosporidium* for drinking water protection will also improve *E. coli* impairments in the Goose Creek watershed. This represents an opportunity to better understand how TMDLs and Watershed Control Plans can work together as planning documents, and how BMP implementation can work to address both surface water impairments and drinking water protection.

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 updated Wyoming Nonpoint Source Management Plan, Cropland BMP Manual, Livestock/Wildlife BMP Manual, and Urban BMP manual were certified by the Governor's Office and approved by EPA in the spring of 2013. These documents can be accessed on the [Nonpoint Source Program website](#).
- The FY08 Section 319 grant expired on September 30th, 2013. All funds on this grant were expended prior to expiration. A close-out report detailing the use of funds on the FY08 grant was submitted to EPA on December 23rd, 2013.
- The Nonpoint Source Program continues to obligate and expend funds on active Section 319 grants in a timely manner.
- The Nonpoint Source Program continued the use of a Project Management Database to assist project sponsors with project management. This database facilitates submission of reimbursement requests, annual reporting, progress reporting, and BMP tracking and reporting.
- The Nonpoint Source Program continued to update and maintain its electronic library and expanded the library to include grant files and Requests for Proposals.
- The Nonpoint Source Program worked with other programs within WDEQ to encourage the use of Supplemental Environmental Project (SEP) funds collected as part of permit violation enforcements to go towards nonpoint source pollution reduction projects.

WDEQ Watershed Protection Program

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 water quality planning and project implementation activities, including nonpoint source pollution management. The Water Quality Division can be reached by calling 307-777-7781. Additional information on the Watershed Protection Program can be found at: <http://deq.state.wy.us/wqd/watershed/index.asp>.

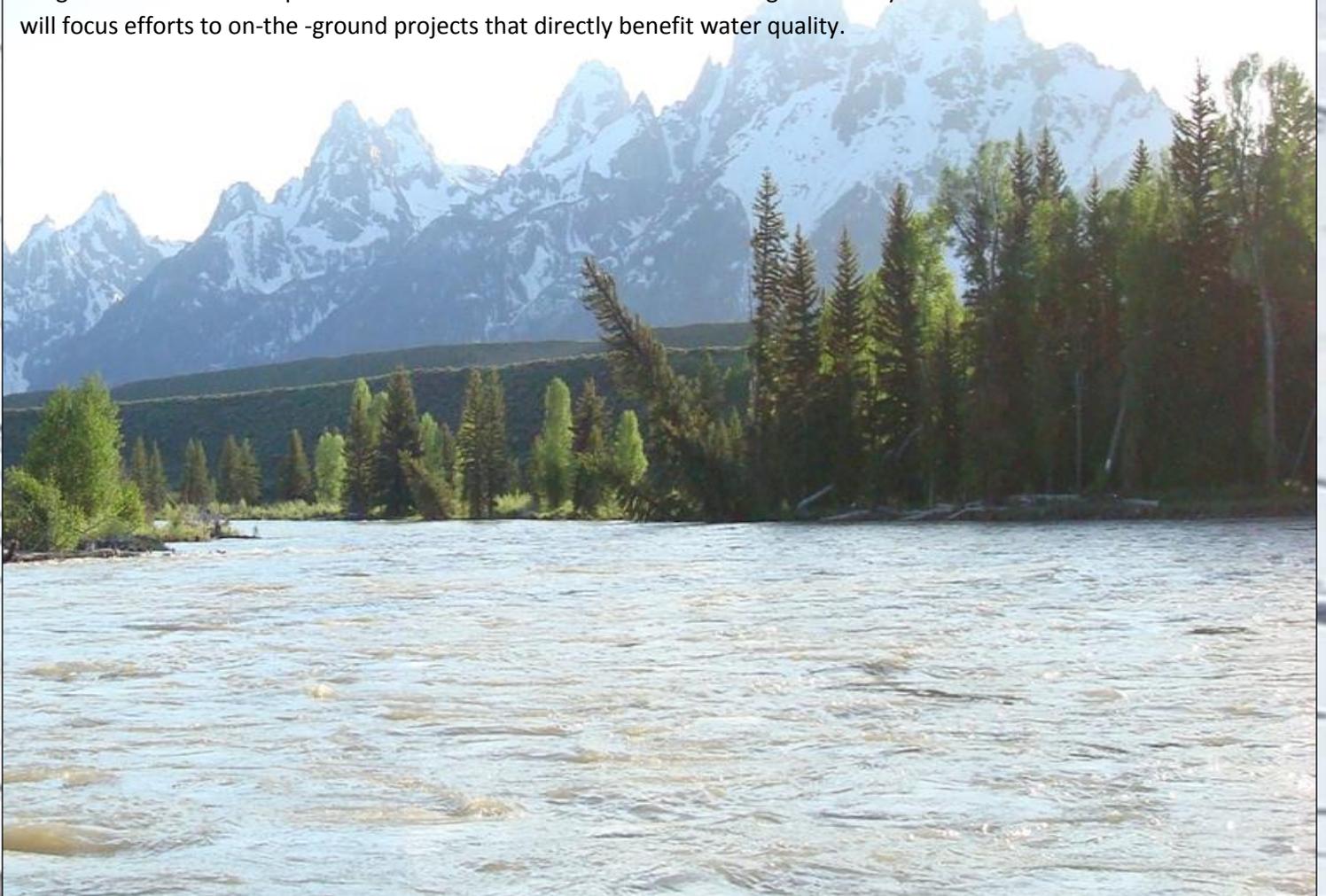


Looking Forward: Goals for FY14

The Wyoming Nonpoint Source Program is committed to achieving its mission. Information provided in this report demonstrates that commitment and the progress the program is making towards achieving its goals and objectives. Many partnerships with local, state, and federal agencies and organizations have been a critical part of the progress the Program has made. These partnerships and the progress made to date demonstrate that a voluntary and incentive-based approach to nonpoint source pollution management is effective in Wyoming and that a strong sense of responsible stewardship is present. The program is committed to continuing to make progress in FY14 and has set the following annual goals and priority areas:

- Work with NRCS and local partners to establish a monitoring strategy for the FY13 National Water Quality Initiative watershed.
- Continue efforts to update outdated program documents, including Request for Proposal and Final Report guidance.
- Work with local stakeholders and WACD to complete the Little Sandy River Watershed-Based Plan.
- Obtain Governor certification and EPA approval of the Stream and Lakeshore Restoration BMP manual.
- Continue working with the State Revolving Fund Program to encourage innovative ways to make loans available to nonpoint source pollution projects.
- Successfully close the FY09 Section 319 grant with the goal of having all funds expended on that grant.

The Nonpoint Source Program has worked to make progress despite significant federal budget cuts to Section 319 grants. FY13 funding levels were nearly 25% less than FY10 funding levels. The Nonpoint Source Program will continue to work to maximize the effective use of funds despite budget cuts to protect and restore water quality in Wyoming. The Program will continue to provide assistance to local stakeholders through voluntary and incentive-based methods and will focus efforts to on-the-ground projects that directly benefit water quality.



Appendix A: Summary of FY13 Section 319 Projects

Table A1. Section 319 projects active during part or all of FY13. Projects in *bold italics* closed during FY13.

State ID	Project Title	Project Sponsor	Grant #(s)	Ending Date	Project Type
<i>ON801</i>	<i>Sheridan County Watershed Plan Implementation #2</i>	<i>Sheridan County Conservation District</i>	<i>008630-08</i>	<i>10/31/12</i>	<i>Implementation—Impaired</i>
<i>ON802</i>	<i>Belle Fourche Watershed Plan Implementation—Phase II</i>	<i>Crook County Natural Resource District</i>	<i>008630-08</i>	<i>1/31/13</i>	<i>Planning/Assessment</i>
<i>ON806</i>	<i>Medicine Bow Sediment Reduction</i>	<i>US Forest Service</i>	<i>008630-08</i>	<i>3/31/13</i>	<i>Implementation—Prevention</i>
<i>ON902</i>	<i>Sunrise Rain Gardens</i>	<i>Historic Sunrise Creamery</i>	<i>008630-09</i>	<i>12/31/12</i>	<i>Implementation—Impaired</i>
<i>ON904</i>	<i>Karns Meadow Stormwater Wetlands</i>	<i>Town of Jackson</i>	<i>008630-09</i>	<i>9/30/13</i>	<i>Implementation—Impaired</i>
NPS2010A	Laramie River Restoration Phase II and III	Laramie Rivers Conservation District	008630-10	6/30/14	Implementation—Prevention
NPS2010B	Flat Creek Restoration	Teton Science Schools	008630-10	12/31/13	Implementation—Impaired
NPS2011A	Sheridan County Watershed Improvements #3	Sheridan County Conservation District	008630-11	12/31/15	Implementation—Impaired
NPS2011B	Grass, Enos, Lefthand Creeks NPS Reduction Phase II	The Nature Conservancy	008630-11, 06	12/31/14	Implementation—Prevention
<i>NPS2011C</i>	<i>Statewide NPS Information/Education</i>	<i>Wyoming Natural Resources Foundation</i>	<i>008630-11</i>	<i>7/30/13</i>	<i>Information/Education</i>
NPS2010D	Goose Creek Watershed TMDL Implementation	City of Sheridan	008630-10	3/31/15	Implementation—Impaired
NPS2010E/ 2012E	North Platte River Watershed—Segment I	Natrona County Conservation District	008630-10, 12	12/31/15	Implementation—Impaired
NPS2012D/ ON70J	Wyoming Stream Team 2012	Teton Science Schools	008630-07, 12	12/31/14	Information/Education
NPS2012C	Cody River Days	The Nature Conservancy	008630-12	12/31/13	Information/Education

Appendix A Continued: Summary of FY13 Section 319 Projects

Table A1 continued. Section 319 projects active during part or all of FY13. Projects in *bold italics* closed during FY13.

State ID	Project Title	Project Sponsor	Grant #(s)	Ending Date	Project Type
NPS2012A/ ON70I	Bitter Creek Sampling and Analysis	Sweetwater County Conservation District	008630-07, 12	12/31/15	Planning/Assessment
NPS2011D/ 2012B	Belle Fourche Watershed Plan, Phase III	Crook County Natural Resource District	008630-11, 12	12/31/15	Implementation—Impaired
NPS2010F	2012 Wildfire Rehabilitation	Wyoming State Forestry	008630-10	9/30/14	Implementation—Prevention
NPS2010G	Pathway to Water Quality	Wyoming Natural Resource Foundation	008630-10	12/31/13	Information/Education
ON70K/80K	Shoshone River TMDLs	WDEQ	008630-07, 08	9/30/13	TMDL
ON80L/905	Bear River TMDLs	WDEQ	008630-08, 09	05/30/14	TMDL
ON808/909	Blacks Fork/Smiths Fork TMDLs	WDEQ	008630-08, 09	11/01/14	TMDL
NPS2013A	2013 Post Wildfire Rehabilitation	Wyoming State Forestry Division	008630-13	09/30/15	Implementation—Prevention
NPS2013B	Grass, Enos, Lefthand Creeks NPS Reduction Phase III	The Nature Conservancy	008630-13	12/31/15	Implementation—Prevention
NPS2013C	Lower Capitol Basin Sediment Trap/Wetlands	City of Cheyenne	008630-13	12/31/17	Implementation—Impaired
USGS Contract	Wyoming Groundwater-Quality Monitoring Network - Phase II	WDEQ—Groundwater Program	008630-13	06/30/15	Groundwater

Appendix B: Summaries of Third-Party Section 319 Projects Completed in FY13

Sheridan County Watershed Improvements #2 (ON801): The Sheridan County Conservation District (SCCD), in partnership with USDA Natural Resources Conservation Service (NRCS), worked with local watershed residents to address water quality concerns in the Tongue River, Goose Creek, and Prairie Dog Creek watersheds, which contain waterbodies considered impaired for bacteria. This grant included development of the Prairie Dog Creek Watershed-Based Plan, the update of the Tongue River Watershed Plan to meet the requirements of an EPA Watershed-Based Plan, and development of an implementation strategy to address recommendations included in the Goose Creek Watershed TMDL (developed by WDEQ in 2010). This grant also provided funds needed to install water quality improvement projects on the Tongue River, Goose Creek, and Prairie Dog Creek watersheds and to conduct information and education activities. SCCD provided technical and/or financial assistance on 39 water resource projects using funds from this grant. Since 2001, 71 water resource improvement projects have been completed in Sheridan County using funds from 319 grants combined with other sources. This includes 25 projects on livestock facilities, 24 septic systems, nine irrigation diversions, 10 streambank and/or channel stabilization projects, and three riparian fencing/stockwater developments. There were 27 projects on the Tongue River watershed, 31 projects on the Goose Creek Watershed, ten projects on the Prairie Dog Creek watershed, and three projects on other watersheds in Sheridan County. These changes will have a significant impact on water quality and watershed health in the long-term. This project was initiated in November 2008 and was completed in October 2012. The project expended \$449,310 in Section 319 funds and \$642,963 in non-federal match.



Appendix B—Continued: Summaries of Third-Party Section 319 Projects Completed in FY13

Snowy Range Sediment Reduction and Wetland/Riparian Restoration (ON806): The U. S. Forest Service completed an extensive travel management planning effort which resulted in the decision to decommission 292 miles of unauthorized travel routes. The project covers 519 square miles of National Forest System lands on the eastern portion of the Snowy Range Mountains, approximately 30 miles west of Laramie, Wyoming. Implementation of the project has resulted in 337 miles of unnecessary and undesirable travel routes being decommissioned in the project area from 2007 to 2012. In addition, 169 wetlands have been protected or rehabilitated; and 202 stream crossings have been protected or restored. Monitoring indicates that 98% of the decommissioned routes are returning to a natural state and not receiving motorized use. There has been an estimated long-term reduction of 22 percent of the chronic sediment loading into project area streams, wetlands, lakes and reservoirs coming from roads and trails. Decommissioning 337 miles of roads and trails over a five year period eliminated unnecessary routes and reduced the overall transportation system by over 20 percent in the project. Support and funding for the road decommissioning has come from a variety of sources. In addition to National Forest System funds and resources, significant grant funding from the Wyoming Wildlife Natural Resources Trust, Rocky Mountain Elk Foundation and Wyoming Department of Environmental Quality/Environmental Protection Agency and in-kind contributions have been used to accomplish the project. This project was initiated in July 2009 and was completed in March 2013. The project expended \$59,004 in Section 319 funds and \$100,734 in non-federal match.



Appendix B—Continued: Summaries of Third-Party Section 319 Projects Completed in FY13

Historic Sunrise Creamery Rain Gardens (ON902): The goal of the Historic Sunrise Creamery Rain Gardens project was to create multiple rain gardens on the project site that would demonstrate rain gardens best management practices in Southeast Wyoming. Two rain gardens were excavated and planted to temporarily hold and infiltrate water run-off from approximately 1233 sq. ft. of roof area and 840 sq. ft. of associated land area. The gardens were designed to be a demonstration/educational site. All the plants growing at the project site were labeled and rain water harvesting information signs were placed throughout the gardens. Attached to one of the signs is a plastic pouch which holds a two page resource and plant informational handout. This handout was written to help local property owners design and plant their own rain gardens in Southeast Wyoming. Copies of the handout are easily accessible and can be taken by people visiting the garden site. The handout was also distributed to the Cheyenne Botanic Gardens, Laramie County Conservation District, the Laramie County Master Gardeners Program and individuals who expressed an interest in rain gardens during the course of the project. Requests were made to the Laramie County Library to order books the project leader found to provide the most useful information. These books are now a part of the library's holdings and are available to be used by Laramie County residents without charge. This project was initiated in August 2009 and was completed in December 2012. The project expended \$3,993 in Section 319 funds and \$11,935.01 in non-federal match.



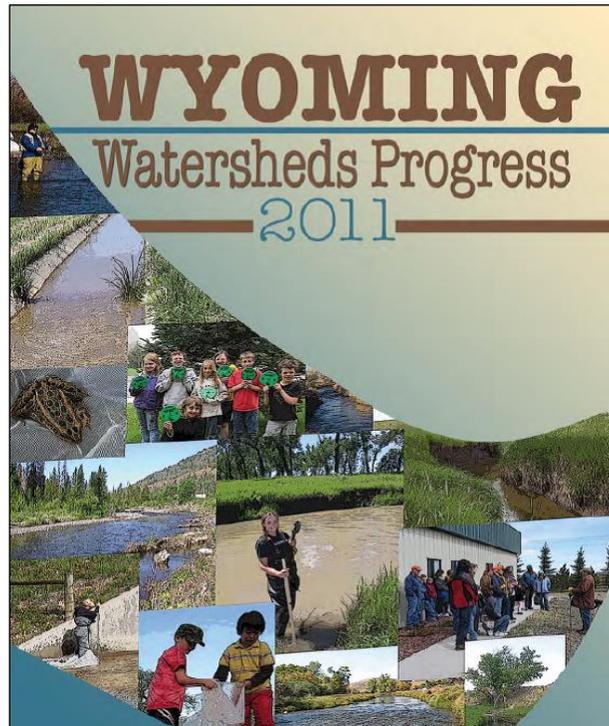
Appendix B—Continued: Summaries of Third-Party Section 319 Projects Completed in FY13

Karns Meadow Stormwater Treatment Wetland (ON904): The purpose of this project was to improve water quality and buffer flows of stormwater entering Flat Creek from Karns Meadow in the Town of Jackson and enhance wetland areas on the east side of Flat Creek on Karns Meadow. The primary goals of the project were to (1) significantly improve the chemical and physical quality of urban runoff entering Flat Creek at the Karns Meadow property, focusing on the most treatable types of runoff events – those with lower volumes and higher pollutant concentrations – and using credible design methods that would show convincing water quality benefits; (2) provide net enhancement of habitat quality on the Karns Meadow property east of Flat Creek; and (3) develop a naturalistic, aesthetically attractive design. In 2009, Treatment Wetland final design, engineering, and permitting were completed. In May 2010, three major stormwater basin outlets draining 725 acres and 42 miles of snow storage within the Town of Jackson were connected to the Treatment Wetland site. In September 2010, construction was completed on the 3 acre footprint of the Treatment Wetland basins and the 2 acre wetland habitat enhancements. In November 2010, 6 acres of disturbed ground were seeded with native grasses, shrubs, and forbs. Thirty (30) native riparian trees and 850 native riparian, wetland, and upland shrubs were planted in the Treatment Wetland area and wetland enhancements. A temporary perimeter fence was installed to exclude ungulates during this period. In June 2010, 30,000 native wetland herbaceous plugs and 1 acre of native wetland sod mats were planted in the Treatment Wetland basins. Temporary sprinkler irrigation was installed in the planted areas. In July 2011, stormwater outlets were diverted to the Treatment Wetland for the first time. In April 2013, water quality performance evaluation monitoring was completed. The average percent removal of total settleable solids (TSS) in the Treatment Wetland for all sampling events was 89%. Nitrate, nitrite, and ammonia decreased in concentration through the Treatment Wetland for all sampling events by 95%. *E.coli* bacteria decreased by 85% for all sample events. Education and outreach were included as part of this project, including numerous project tours. This project was initiated in July 2009 and completed in December 2012. The project expended \$595,617 in Section 319 funds and \$448,092 in non-federal match.



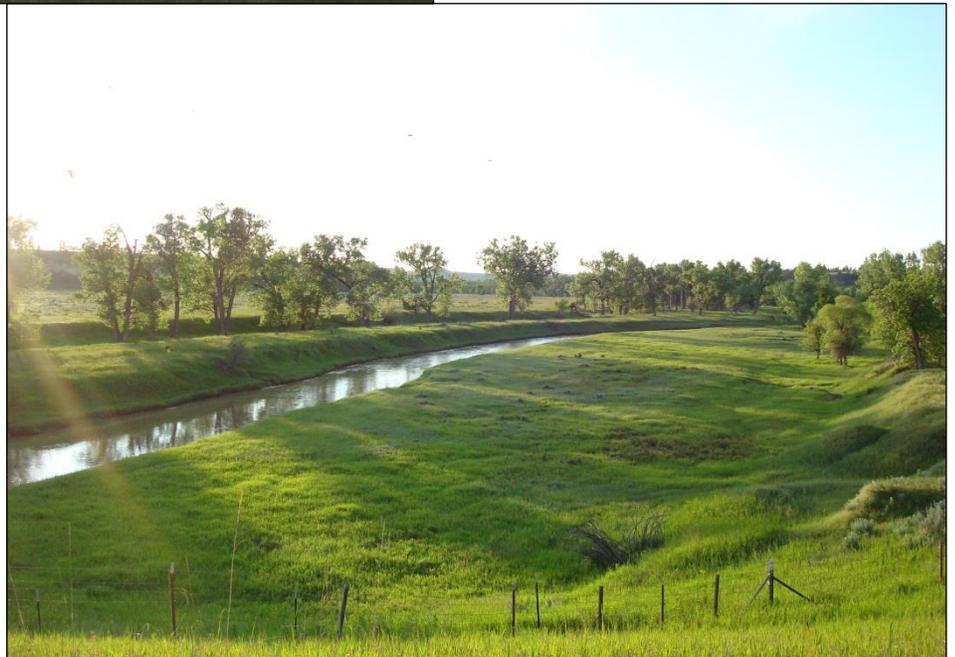
Appendix B—Continued: Summaries of Third-Party Section 319 Projects Completed in FY13

Statewide Nonpoint Source Information and Education (NPS2011C): The primary objectives of this project were to (1) involve and educate youth in water quality monitoring activities, (2) ensure that the public, specifically local government, state elected and government officials, are informed on the efforts in Wyoming to address the state’s 303(d) listed waters and (3) to capitalize on the use of social media to educate homeowners and landowners on potential best management practices aimed at reducing water quality impacts. World Wide Day of Monitoring activities in 2011 and 2012 resulted in over 2,000 youth and adults participating in monitoring Wyoming’s water. Several of the events held in local communities received excellent coverage from the media. Over 500 hard copies of the 2011 Watersheds Progress Report were distributed throughout the state and nationally. In addition, a new online publication was produced that included video footage from partners, landowners and watershed steering committee members from the various watersheds. This report was also utilized by a Conservation District representative during testimony at a Congressional hearing in the spring of 2013 and was entered into the record as an example of the locally led water quality work being completed in Wyoming. Four best management practice videos were completed. These videos were uploaded to the Foundation’s YouTube channel. To promote viewing of the videos, a statewide press release was developed and issued to all news media outlets in the state. In addition, these videos were debuted during the 2013 annual convention of the Wyoming Association of Conservation Districts. This project was initiated in July 2011 and completed in June 2013. The project expended \$23,350 in Section 319 funds and \$23,212 in non-federal match.



Appendix B—Continued: Summaries of Third-Party Section 319 Projects Completed in FY13

Belle Fourche Watershed Plan Implementation Phase II (ON802): The purpose of Phase II of the Belle Fourche River Watershed Plan Implementation Project was to continue the implementation of the Belle Fourche River Watershed Plan, emphasizing the information/education and water quality monitoring components of the plan, for the purpose of achieving state standards and addressing the bacteria impairments on the Belle Fourche River. This project allowed for the collection of water quality data in the Belle Fourche River Watershed; the continuation of information and education outreach programs via tours, workshops, and school programs; and the coordination of a landowner advisory committee for the purpose of seeking local citizen leadership and guidance. The monitoring efforts of this project enabled the Crook County Natural Resource District to evaluate the effectiveness of best management practices (BMPs) in the Belle Fourche River Watershed, facilitated implementation refocus for Phase III, and ultimately assisted in the determination of designated use support. This project was initiated in September 2008 and was completed in January 2013. The project expended \$44,845 in Section 319 funds and \$55,793 in non-federal match.



122 W. 25th Street
Cheyenne, WY 82002
Phone: 307-777-7937
Fax: 307-777-7682
<http://deq.state.wy.us/>

An electronic version of this report is available at:
<http://deq.state.wy.us/wqd/watershed/nps/NPS.htm>
(Nonpoint Source Program website)

