

# Wyoming Nonpoint Source Program 2015 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.*



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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 2015

<b>Summary of FY15 Program Activity</b>	
Date FY15 Section 319 Project Grant Award:	<i>March 18, 2015</i>
Amount of FY15 Section 319 Project Grant:	<i>\$797,670</i>
Amount FY15 Project Funds:	<i>\$797,670</i>
Amount FY15 Program Funds:	<i>\$0</i>
Amount NPS SEP Funds Used:	<i>\$105,757</i>
FY15 Third-Party Projects Awarded:	<i>Natrona County Conservation District—North Platte River Watershed Project Segment II</i>
	<i>Crook County Natural Resource District—Belle Fourche River Watershed Plan Phase IV</i>
	<i>Popo Agie Conservation District—Middle Fork of the Popo Agie River Monitoring and Implementation Project</i>
	<i>City of Sheridan—Storm Sewer Maintenance and E. coli Detection Project</i>
	<i>Trout Unlimited—Encampment River Riparian and Channel Restoration</i>
Total # Active 319 Projects in FY15:	<i>22</i>
FY15 Total Pollutant Load Reduction Estimates:	<i>Sediment: 1,403.4 tons/yr.</i>
	<i>Phosphorus: 340.5 lbs./yr.</i>
	<i>Nitrogen: 1,490.2 lbs./yr.</i>
	<i>E. coli: 4.56E+15 MPN/yr.</i>
Summary of BMPs implemented in FY15:	<i>4 spring protection fences; 9 off-channel watering tanks; 1 irrigation diversion rehabilitation; 3 stormwater interceptors; 338 acres flood to sprinkler irrigation; 3.78 mi open ditch to pipeline; 1.73 mi open ditch removed; 64 acres invasive species treated; 11 septic systems remediated; 27,826' storm drain cleaned and inspected; 450' streambank stabilization; 176 acres Russian olive removed; 65 acres conifer encroachment treated</i>
<b>Summary of Program Activity From FY99-FY15</b>	
Total number of third-party projects:	<i>143</i>
Total grant funds expended/obligated on third-party projects:	<i>\$17,781,988</i>
Total non-federal match expended/obligated on third-party projects:	<i>\$16,438,548</i>
Total number of project sponsors:	<i>53</i>
Project Sponsor type with highest percentage of projects sponsored:	<i>Conservation Districts (54%)</i>
Funds spent/obligated on BMP Implementation projects:	<i>\$12,741,757 (60%)</i>
Funds spent/obligated on Planning/Assessment projects:	<i>\$2,036,314 (10%)</i>
Funds spent/obligated on Information/Education projects:	<i>\$1,841,238 (9%)</i>
Funds spent/obligated on Groundwater projects:	<i>\$1,162,679 (5%)</i>
Funds spent/obligated on TMDL development projects:	<i>\$1,941,955 (9%)</i>
Funds spent/obligated on WDEQ staffing and support projects:	<i>\$1,422,821 (7%)</i>
Number of EPA Approved Stream Restoration Success Stories To-Date ( <a href="http://www.epa.gov/polluted-runoff-nonpoint-source-pollution/nonpoint-source-success-stories">http://www.epa.gov/polluted-runoff-nonpoint-source-pollution/nonpoint-source-success-stories</a> )	<i>11 Full Restoration Success Stories for 14 stream segments plus 1 Ecological Restoration success story for 1 segment (final numbers pending approval of Wyoming 2014 Integrated Report)</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 2015 (FY15), which began October 1, 2014 and ended September 30, 2015. This report is 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 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?**

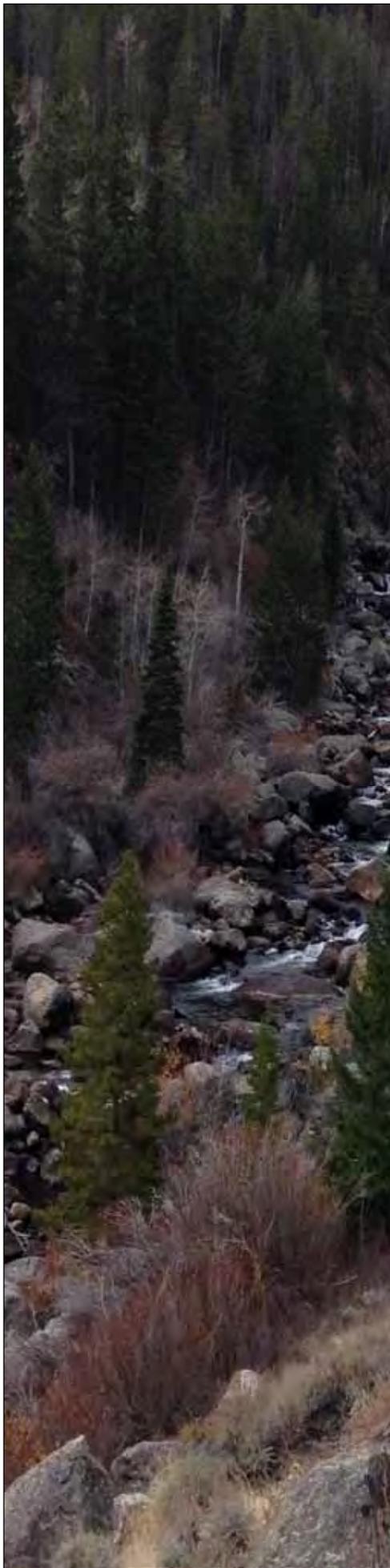
Through the NPS Program, CWA Section 319 grant funds can be made available to agencies and organizations to implement projects that prevent or reduce nonpoint source pollution and improve water quality. Section 319 grant funds are available each year on a competitive basis. Funds are awarded as reimbursement 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, including information about eligibility, program priorities, and the application process, can be obtained on the program's website at: <http://deq.wyoming.gov/wqd/non-point-source/> 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  
**Paula Hunker**—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  
**Corey Forman**—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.*



## **FY15 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). Wyoming received \$807,370 of Section 319 funds in the FY15 allocation for project implementation. In addition, the WDEQ originally provided \$96,057 of state Supplemental Environmental Project (SEP) funds for nonpoint source pollution reduction projects in FY15. The Section 319 and SEP funds were passed through to third-parties to implement water quality improvement projects. Projects were selected through a competitive proposal process. Project proposals were reviewed by the Nonpoint Source Program and the Nonpoint Source Task Force. A total of five proposals were received; the Nonpoint Source Task Force recommended funding to all five projects:

- Natrona County Conservation District—***North Platte River Watershed Project—Segment II***
- Popo Agie Conservation District— ***Middle Fork of the Popo Agie River Monitoring and Implementation Project***
- Crook County Natural Resource District— ***Belle Fourche River Watershed Plan, Phase IV***
- City of Sheridan—***Storm Sewer Maintenance and E. coli Detection Project***
- Trout Unlimited— ***Encampment River Riparian and Channel Restoration Project***

All of the five projects recommended for FY15 funding received a signed cooperative agreement and began project implementation in FY15. In the summer of 2015, a federal rescission removed \$9,700 from the FY15 allocation, reducing the final Section 319 award amount to \$797,670. SEP funds were used to cover the deficit and kept project budgets whole, bringing the total FY15 SEP contribution to \$105,757. Summaries of each of FY15's new projects are provided throughout this report. In addition to the new projects in FY15, there were a total of 17 Section 319 projects that were already ongoing during FY15. Appendix A provides a summary of FY15 project activity and notes the two third-party projects that closed in FY15. 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 FY15**

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 FY15 to make progress towards meeting each of the nine objectives.

## **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 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 2015 monitoring season was outlined in the [2015 Water Quality Monitoring Annual Work Plan](#). Monitoring objectives for the 2015 field season included completing the probabilistic survey of the Green River Basin, continuing large reservoir trend monitoring, verifying and resampling reference sites, monitoring the condition of currently impaired streams, and monitoring lakes, reservoirs and streams in support of nutrient criteria development.
- The WQD Monitoring and Standards Programs completed a third year of collecting nutrient and associated response variable data on lakes and reservoirs within the Wyoming Basin. Data from this study will be used to develop numeric nutrient criteria for lakes and reservoirs within this ecoregion. While this objective was largely accomplished in 2013-14, additional data were needed to further understand temporal variability in nutrient and response variables, better represent a size class and geographic area of the Wyoming Basin not well represented in the original random selection of sites, and collect data on larger reservoirs where site-specific nutrient criteria will likely be established. A total of 4 lakes/reservoirs in the Wyoming Basin ecoregion were sampled in 2015. In addition, 8 small reservoirs in the northern Bighorn Basin were sampled for the first time, and a second year of data were collected on 6 reservoirs in the northern Bighorn Basin that were sampled in 2014. The Monitoring and Standards Program continued analyzing available lake/reservoir nutrient data for development of numeric nutrient criteria in 2015.
- The WQD Standards Program held the second Wyoming Nutrient Work Group meeting in 2015 to continue facilitation of stakeholder participation in the development of numeric nutrient criteria and a nutrient reduction strategy.
- The WQD Monitoring Program completed assessment reports on Brooks Lake, South Fork Fish Creek, Medicine Lodge Creek, and the Laramie River in 2015. These reports are or will be posted on the [Monitoring Program Reports website](#).
- WQD Watershed Protection Program staff worked on revisions to “Wyoming’s Methods for Determining Surface Water Quality Condition and TMDL Prioritization,” including addition of quality assurance/quality control requirements for data used for designated use support determinations. It is anticipated these revisions will be finalized and submitted to public notice in FY16.
- Wyoming’s 2014 303(d)/305(b) Integrated Report was submitted to public notice in November 2014. Revisions to the Integrated Report based on comments received during this public notice necessitated a second public notice in July 2015. The WQD Watershed Protection Program worked during the remainder of FY15 to address comments received on the second public notice.
- During FY15, the Nonpoint Source Program continued to work on the development of the Impaired Waters Index (IWI) database and mapping tool. The database was updated with best management practice information for select projects.
- The Nonpoint Source Program worked with the TMDL Program and other Watershed Protection Program staff to prioritize waterbodies for TMDL development under the Prioritization Goal of the 303(d) Long-Term Vision Strategy.
- Standards/Assessment, Monitoring, TMDL, Lab, and Nonpoint Source Program managers met throughout FY15 to discuss Watershed Protection Program priorities and better ways to integrate programs.



## 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 FY15 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 nonpoint source 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 Salt River TMDL project was completed in 2015. *E. coli* TMDLs were developed for a 7.5 mile reach of the main stem of the Salt River near Etna, Wyoming and a 5.6 mile reach of Stump Creek extending from the Idaho/Wyoming border to its confluence with the Salt River. Although the TMDLs were prepared to address specific water body reaches, the geographic scope of the analysis and sources of the water quality problem extend throughout the entire Salt River watershed. An implementation plan meeting watershed-based planning requirements was completed as part of the project.
- The Tongue River TMDL Project was initiated in 2015. This project will develop *E. coli* TMDLs for seven impaired segments on the Tongue River, North Tongue River, Columbus Creek, Smith Creek, Little Tongue River, Fivemile Creek, and Wolf Creek. TMDL development will build upon watershed-based planning efforts completed by Sheridan County Conservation District for this watershed.
- The Middle Fork Crow Creek TMDL Project was initiated and significant work on the project completed in 2015. The TMDL is in its second draft and will be public noticed in March 2016. This project will develop one *E. coli* TMDL and an Implementation Plan for a segment of the Middle Fork of Crow Creek (South Platte River Basin).
- The Nonpoint Source Program continues to support development of watershed-based plans that local watershed groups choose to write in advance of TMDL development. Table 2 provides a current summary of watershed-based plan development in Wyoming.
- TMDL Program staff continued development of *E. coli* TMDLs for Bitter and Killpecker Creeks using HSPF/BASINS.
- The Nonpoint Source Task Force recommended one water quality management planning project for funding in FY15 (see page 25). Teton Conservation District was awarded CWA 205(j) grant funding to conduct monitoring and facilitate stakeholder involvement in voluntary nutrient reduction efforts in Fish Creek watershed near Wilson, Wyoming.
- One planning and assessment Section 319 project was active in FY15 (see Appendix A).
- TMDL, Standards, and Nonpoint Source Program staff met with EPA Region 8 staff in 2015 to better understand tenets of the 303(d) Long-Term Vision Strategy.
- As needed, Conservation Districts updated existing watershed plans to develop new goals aligned with recommendations from TMDL Implementation Plans and initiated Level I watershed studies and Small Water Project developments through the Wyoming Water Development Commission.



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>	<b>1</b>	<b>Completed; EPA approved 12/09</b>
<i>Goose Creek Watershed</i>	<b>13</b>	<b>Completed; EPA approved 9/10</b>
<i>Belle Fourche River Watershed</i>	<b>7</b>	<b>Completed; EPA approved 12/13</b>
<i>North Platte River Selenium</i>	<b>11</b>	<b>Completed</b>
<i>Crow Creek</i>	<b>10</b>	<b>Completed; EPA approved selenium TMDL 8/13; EPA approved E. coli TMDLs 2/14</b>
<i>Big Horn River</i>	<b>20</b>	<b>Completed; EPA approved 16 TMDLs 4/14</b>
<i>Gillette Fishing Lake</i>	<b>2</b>	<b>Completed; EPA approved 7/13</b>
Hams Fork	1	Data collection and analysis prior to TMDL development
Bitter/Killpecker Creek	3	TMDL development in process
<i>Bear River</i>	<b>1</b>	<b>Completed</b>
<i>Shoshone River</i>	<b>8</b>	<b>Completed; EPA approved 7/14</b>
<i>Blacks Fork/Smiths Fork</i>	<b>4</b>	<b>Completed</b>
<i>Salt River</i>	<b>2</b>	<b>Completed</b>
Middle Fork Crow Creek	1	TMDL development in process
Tongue River	7	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>	<b>1</b>	<i>Flat Creek Watershed Steering Committee/Teton Conservation District</i>	<b>WDEQ Approved</b>
<i>Prairie Dog Creek Watershed-Based Plan</i>	<b>5</b>	<i>Sheridan County Conservation District</i>	<b>WDEQ Approved</b>
<i>Tongue River Watershed Based Plan</i>	<b>7</b>	<i>Sheridan County Conservation District</i>	<b>WDEQ Approved</b>
Little Sandy River Watershed-Based Plan	1	Sublette County Conservation District	Development In-Process

**New FY15 Project: Belle Fourche River Watershed Plan Phase IV**

This project, sponsored by the **Crook County Natural Resource District**, was awarded \$375,000 to continue implementing livestock, riparian, and septic system BMPs to reduce bacterial loading to the Belle Fourche River and Donkey Creek. This project will implement action items of the Belle Fourche River TMDLs Implementation Plan, conduct public outreach to raise awareness of water quality issues, and conduct monitoring to further identify pollutant sources and evaluate project effectiveness. This project will build upon past successful phases of watershed plan implementation.

Photo credit: Crook County Natural Resource District





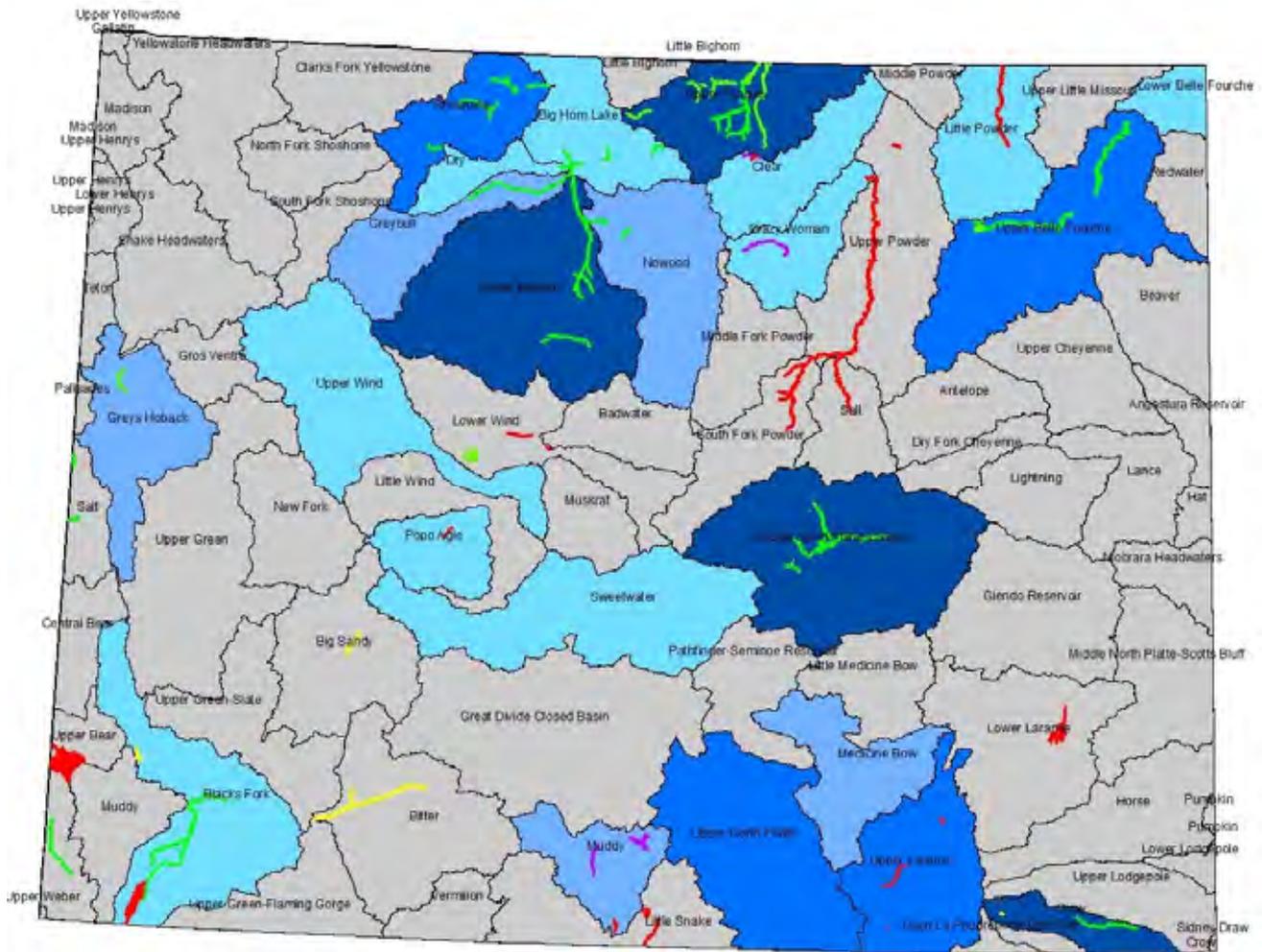
### Objective #3: Implementation

*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.*

- Four new projects were recommended for funding in FY15 that will implement best management practices (BMPs) to address impaired waterbodies. Natrona County Conservation District, Crook County Natural Resource District, Popo Agie Conservation District, and the City of Sheridan all received funding to address pathogen or selenium impairments in their respective watersheds. Ninety-four percent (94%) of the FY15 project budget went to projects to restore impaired waterbodies. Three of these projects (Natrona County Conservation District, Crook County Natural Resource District, and the City of Sheridan) represent continued efforts to implement action items established in respective TMDL Implementation Plans.
- In addition to the four new projects recommended in FY15, eight projects were active in FY15 under previous grants that implemented BMPs to address impaired waters (see Appendix A). One of these projects was successfully completed in FY15 (see Appendix B).
- The Nonpoint Source Program continues to focus on providing funding to implementation projects that address water quality impairments. Since 1999, 60% of Section 319 project funds have been awarded to BMP implementation projects. Since 2010, the Nonpoint Source Program has consistently used greater than 80% of its annual project budget towards implementation projects.
- 10 of the 14 completed nonpoint source TMDLs/Watershed-Based Plans (WSBPs) have received Section 319 funding to begin BMP implementation: 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, Tongue River WSBP, Big Horn River TMDLs, and Shoshone River TMDLs. A 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 WSBPs. Figure 1 shows a map of restoration projects relative to water quality impairments and the status of planning efforts for those impairments.

#### Partner Highlight: Conservation District BMP Implementation

The Wyoming Association of Conservation Districts (WACD), with assistance from Section 319 funding, published the **2015 Wyoming Watersheds Progress Report**. This report generally covered the reporting period of summer 2011 through summer 2014. The report provides information on activities led by conservation districts and partners to address impaired waters in the state. Based on best available data, that report indicates that nearly **1,110 BMPs** were implemented during the reporting period, including **15 Animal Waste BMPs, 358 Cropland/Pasture/Hayland BMPs, 283 Grazing/Rangeland BMPs, 275 Hydrologic Modification/Stream Restoration BMPs, 113 Septic System BMPs, 6 Forestry BMPs, and 56 Urban BMPs.**



since 1999. The darker blue the HUC8 color, the more projects have been funded in the watershed. Red lines indicate impaired waterbodies without a nine element watershed based plan; yellow lines indicate impaired waterbodies with a nine element watershed based plan in development; green lines indicate impaired waterbodies with a completed nine element watershed based plan; purple lines represent impaired waterbodies that are now determined to be fully restored per past Integrated Reports and as proposed in the draft 2014 Integrated Report (pending approval).

**New FY15 Project: Middle Fork of the Popo Agie River Monitoring and Implementation Project**

This project, sponsored by **Popo Agie Conservation District**, was awarded \$57,133 to reduce bacterial loading in the impaired segment of the Middle Fork of the Popo Agie River, the adjacent upstream reach, and its main tributary Hornecker Creek. The project will implement targeted BMPs for livestock management and failing septic systems, use microbial source tracking methods to test for source animal genetic markers, and determine effectiveness of BMP implementation with monitoring data.



*Photo credit: Popo Agie Conservation District*

## **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 in FY15 (see Table 3).
- Data collected by the WQD Monitoring Program has resulted in demonstrating that a previously impaired segment of North Fork Crazy Woman Creek is now supporting aquatic life uses. Restoration efforts led by Lake DeSmet Conservation District in the 1990s have resulted in decreased sediment and nutrient loads and improved biological conditions. See page 24.
- Data collected by the WQD Monitoring Program has demonstrated that a previously impaired segment of North Piney Creek is now supporting recreation uses. Sheridan County undertook proactive septic system planning and education efforts and replaced or rehabilitated multiple septic systems in the area, resulting in reduced bacterial loading and attainment of the *E. coli* water quality criterion for primary contact recreation. See page 17.
- Monitoring Program staff continued to provide oversight for numerous Section 319 projects, including the Grass Creek Watershed projects (The Nature Conservancy), the North Platte River Watershed projects (Natrona County Conservation District), Belle Fourche River Watershed projects (Crook County Natural Resource District), Middle Fork of the Popo Agie River project (Popo Agie Conservation District), Encampment River Restoration project (Trout Unlimited), and the Goose Creek project (City of Sheridan). Technical support included assisting with monitoring protocols and data analysis, providing QA/QC audits, collecting split samples, and general project management oversight.
- Monitoring Program staff assisted Teton Conservation District with analysis of macroinvertebrate data collected on Flat Creek.
- The Nonpoint Source Program worked with NRCS and Washakie County Conservation District to plan and implement a monitoring program for National Water Quality Initiative projects in the Sage Creek/Slick Creek watershed in 2015.
- Preliminary water quality monitoring data collected under the first and second phases of The Nature Conservancy's Grass, Enos, and Lefthand Creek Nonpoint Source Reduction project are showing improving trends in riparian vegetation, improving trends in streambanks condition (reduced erosion), increased substrate size, and improved macroinvertebrate biological conditions. More data analysis and reporting on this project will be completed in FY16.
- Preliminary data collected by Natrona County Conservation District on impaired segments of the North Platte River and several tributaries indicate statistically significant reductions in selenium levels at three monitoring sites. Additional data analysis and reporting on this project will be completed in FY16.
- Table 4 provides a summary of BMPs implemented for watershed restoration projects active in FY15 and estimated pollutant load reductions for BMPs implemented in FY15. The table shows a significant number of BMPs were implemented in FY15.

### **New FY15 Project: North Platte River Watershed Project Segment II**

This project, sponsored by the **Natrona County Conservation District** (NCCD), was awarded \$375,000 to continue efforts to restore designated uses on the North Platte River and tributaries. Irrigation conveyance and application BMPs will be implemented in cooperation with irrigators, Casper Alcova Irrigation District, and the Natural Resources Conservation Service on irrigated lands to achieve selenium reductions outlined in the North Platte River TMDLs Implementation Plan. This project will also monitor water quality to evaluate BMP effectiveness and TMDL implementation progress.



**Table 3.** Surface water monitoring planned, conducted, or completed by Section 319 projects active in FY15.

<b>Project No.</b>	<b>Project Title</b>	<b>Waterbodies</b>	<b>Monitoring Effort</b>
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
NPS2014A	PCFCD Water Quality Improvement—Powell Clarks Fork Conservation District	Shoshone River Bitter Creek	<i>E. coli</i> , field parameters, velocity, inorganic chemistry
NPS2014B	Sheridan County Watershed Improvements #4—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.
NPS2015A	North Platte River Watershed Project Segment II—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
NPSSEP04/ 2010J	Middle Fork of the Popo Agie River Monitoring and Implementation—Popo Agie Conservation District	Middle Fork of the Popo Agie River Hornecker Creek	<i>E. coli</i> , field parameters, flow, pilot Microbial Source Tracking
NPS2015D/ 2014D	Belle Fourche River Watershed Plan, Phase IV—Crook County Natural Resource District	Belle Fourche River Donkey Creek	<i>E. coli</i> , ammonia, chloride, field parameters, pilot Microbial Source Tracking
NPS2015I/ 2010I/SEP06	Storm Sewer Maintenance and <i>E. coli</i> Detection Project—City of Sheridan	Goose Creek Little Goose Creek Big Goose Creek	<i>E. coli</i> , sediment (TSS and turbidity), optical brighteners
NPSSEP05	Encampment River Riparian and Channel Restoration—Trout Unlimited	Encampment River	As-built surveys, photo points, channel cross sections, fish population estimates

**Table 4.** Summary of BMPs implemented under projects active in FY15 and estimated pollutant load reductions for BMPs implemented in FY15 (for select pollutants only). For projects that have closed to-date, project totals are provided.

Project Name	Proj. #	BMPs Implemented Prior to FY15	Additional BMPs Implemented in FY15	Estimated Annual Load Reductions	Load Reduction Method
Grass/Enos Creek Phase II	NPS 2011B	<p><b>Project totals:</b> Nine off-channel water systems developed (including 6 new springs developed, 3 springs rehabilitated, 12 miles pipeline, 2 solar pumping systems, 2 storage tanks, and 19 off-channel water tanks affecting 64,448' stream; 5 riparian enclosures affecting 52.7 acres, using 15,778' fence and protecting 10,470' stream; 15 acre enclosure for aspen stand regeneration using 4300' fencing; 4 spring protection enclosures using 4470' fencing on 7.5 acres; ~350 acres treated for conifer encroachment; 64 acres treated for invasive species; &gt;3,800 willows planted along ~2.25 miles streambank</p> <p><b>FY15 BMPs:</b> 4 off-channel watering tanks; 4 spring protection fences; 64 acres invasive species treated</p>		Water quality monitoring data for project will be submitted in FY16; load reduction estimates will be provided in FY16 after data are analyzed	N/A
Sheridan County Watershed Improvements #3	NPS 2011A	<p><b>Project totals:</b> 1 corral relocation, 10 septic system remediations, 6 livestock fence/water improvements (9,374' stream fenced or protected), 3 irrigation diversion replacements, 2 streambank/channel stabilizations (1114' streambank/channel stabilized), 14 sites willow/cutting plantings (3,060' streambank); assistance provided to USDA NRCS EQIP projects included 345 acres flood to sprinkler irrigation, 33 acre stockwater development project, 1500' streambank stabilization/revegetation/fencing project</p> <p><b>FY15 BMPs:</b> 3 fencing/stockwater projects; 1 irrigation diversion project</p>		<p><b>Project Totals:</b> 716 lb./yr. nitrogen 156 lb./yr. phosphorus 896 ton/yr. sediment 3.81E+15 MPN/yr. <i>E. coli</i></p> <p><b>Reported for FY15:</b> 10 lb./yr. nitrogen 2 lb./yr. phosphorus 781 ton/yr. sediment 3.78E+15 MPN/yr. <i>E. coli</i></p>	STEPL, WY Septic model, NRCS runoff equations
Goose Creek Watershed TMDL Implementation	NPS 2010D	None	3 Stormwater Interceptors installed	19.8 ton/yr. sediment	Estimates based on interceptor clean-out information
Belle Fourche Watershed Plan Implementation Phase III	NPS 2012B	<p><b>Project Totals:</b> 14 off-channel water projects treating 16,997 acres and affecting 4,705 cattle (61,242' pipeline, 4,215' fencing, 33 storage/stock tanks, 3 wells, 11 pumps, 3 spring developments, 192' heavy use protection); 4 septic system remediations</p> <p><b>FY15 BMPs:</b> 1 septic system remediation, 1 off-channel water project (1 tank, 2 solar pumps)</p>		<p><b>Project Totals:</b> 6085.8 lb./yr. nitrogen 739.04 lb./yr. phosphorus 274.8 ton/yr. sediment 7.278E+14 MPN/yr. <i>E. coli</i></p> <p><b>Reported for FY15:</b> 180.8 lb./yr. nitrogen 105.54 lb./yr. phosphorus 81.8 ton/yr. sediment 7.28E+14 MPN/yr. <i>E. coli</i></p>	STEPL, NRCS runoff equations, WY Septic Model, WDEQ spreadsheet model
North Platte River Watershed Segment I	NPS 2012E	283 acres flood to sprinkler irrigation, 2.59 mi open ditch to pipeline, 4.58 mi open ditch replaced	338 acres flood to sprinkler irrigation, 2.37 mi open ditch to pipeline, 1.73 mi open ditch replaced	Load reductions for selenium will be estimated after the project is closed and water quality data submitted and analyzed in FY16	N/A
2013 Post Wildfire Rehabilitation	NPS 2013A	None	Erosion control BMP work is ongoing and will be completed in future fiscal years	N/A	N/A

**Table 4 Cont'd.** Summary of BMPs implemented under projects active in FY15 and estimated pollutant load reductions for BMPs implemented in FY15 (for select pollutants only). For projects that have closed to-date, project totals are provided.

Project Name	Proj. #	BMPs Implemented Prior to FY15	Additional BMPs Implemented in FY15	Estimated Annual Load Reductions	Load Reduction Method
Grass/Enos Creek Phase III	NPS 2013B	4 off-channel water projects (4 springs developed and 4 tanks)	65 acres conifer encroachment treated	N/A	N/A
Lower Capitol Basin Sediment Trap/Wetland	NPS 2013C	None	None, planning and design work in FY15	N/A	N/A
PCFCD Water Quality Improvements	NPS 2014A	1 septic system rehabilitation	3 septic system remediations	2.78E+12 MPN/yr. <i>E. coli</i> 25.59 lbs/yr. nitrogen 7.3 lbs/yr phosphorus	WY Septic Model
Sheridan County WS Improvements #4	NPS 2014B	None	7 septic system remediations	6.29E+12 MPN/yr. <i>E. coli</i> 87.59 lbs/yr. nitrogen 25.02 lbs/yr phosphorus	WY Septic Model
Bighorn-Slick Creek WS Improvement	NPS 2014C	None	7,441' dirt ditch or drains converted to pipeline; direct access to ~400 animals eliminated	2.61E+13 MPN/yr. <i>E. coli</i> 464.3 lb/yr. nitrogen 125.4 lb/yr. phosphorus 150.5 tons/yr. sediment	STEPL, WDEQ spreadsheet model
Belle Fourche River Watershed Plan Phase IV	NPS 2014D 2015D	None	1 off-channel watering project (2,144 acres treated and 130 cattle affected)	1.98E+13 MPN/yr. <i>E. coli</i> 721.9 lb/yr. nitrogen 84.2 lb/yr. phosphorus 30.3 tons/yr. sediment	NRCS equations and WDEQ spreadsheet model, STEPL
Sheridan Storm Sewer Maintenance and <i>E. coli</i> Detection	NPS 2015I 2010I	None	6 priority storm drain segments (27,826') cleaned and televised inspection completed	N/A	N/A
Middle Fork Popo Agie River M&I	NPS 2010J SEP04	None	None; work to-date has focused on monitoring and assessment	N/A	N/A
Encampment River Riparian and Channel Restoration	NPS SEP05	None	450' streambank stabilization (including recontouring, reconstruction, toewood, riparian vegetation and plantings, bed feature construction, log j-hooks)	340 tons/yr. sediment	Engineering estimates
North Platte River Watershed Segment II	NPS 2015A	None	None to-date	N/A	N/A
Additional BMPs implemented by other project types	176 acres Russian olive removal along the Shoshone River under NPSSEP03, 2 <sup>nd</sup> Annual Cody Wild West River Fest, The Nature Conservancy				

**New FY15 Project: Storm Sewer Maintenance and *E. coli* Detection Project**



This project, sponsored by the City of Sheridan, was awarded \$119,469 to maintain and restore water quality in the Goose Creek Watershed by reducing bacterial pollution. The project will identify illicit discharges to the City of Sheridan's storm sewer system where elevated levels of *E. coli* have been detected from stormwater outfalls. The project will also enhance the City of Sheridan's stormwater system maintenance program and continue and expand on education efforts. Prioritized segments of the storm sewer system will be cleaned and a televised inspection will be conducted to look for damaged, deteriorated, and obstructed portions of the storm sewer system as well as any indicators of illegal cross connections to the storm sewer system. Monitoring will be conducted to evaluate project effectiveness.

## 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 State Forestry Division continued post-wildfire rehabilitation efforts through one Section 319 project and other funding sources. In 2015, erosion control and rehabilitation efforts were implemented in the Oil Creek area in Weston County, Sinks Canyon in Fremont County, and the Arapaho area in Albany and Platte counties. Practices implemented in 2015 included straw wattles, shrub and tree plantings, contour felling, broadcast seeding, sediment traps, stream crossing repairs, culvert replacements, and road improvements.
- The Nature Conservancy continued efforts to reduce watershed degradation in the Grass, Enos, and Lefthand Creek watersheds of the Bighorn Basin. As noted previously, water quality monitoring data collected under the first and second phases of the project are showing improving trends in riparian vegetation, improving trends in streambanks condition (reduced erosion), increased substrate size, and improved macroinvertebrate biological conditions. Additional information will be provided in FY16.
- Four Section 319 projects were active in FY15 that implemented BMPs to protect unimpaired waters (see Appendix A). One of these projects, the Encampment River Restoration project sponsored by Trout Unlimited, was recommended for funding in FY15. See page 16 for featured story on the Encampment River.
- 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 44 individual 401 certifications in 2015.
- The WDEQ issued 41 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.
- WQD Watershed Protection Program staff continued to participate as a cooperater 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 FY15, the WDEQ/WQD Groundwater Program and United States Geological Survey continued groundwater baseline monitoring efforts under the Wyoming Groundwater-Quality Monitoring Network - Phase II Section 319 project. From May 2012 to December 2015, groundwater samples were collected from 195 wells in 12 different priority areas. 36 water wells were sampled in FY15. Water quality measurements and concentrations in some samples exceeded EPA drinking water standards and/or WDEQ groundwater standards – most frequently arsenic, nitrate, total dissolved solids, uranium, and total coliform bacteria. Concentrations of organic compounds did not exceed any State or Federal water quality standards. Few organic compounds were detected in samples, with gasoline range organics, diesel range organics, and methane detected most frequently. Concentrations of wastewater compounds did not exceed any State or Federal water quality standards.

### New FY15 Project: Encampment River Riparian and Channel Restoration

This project, sponsored by **Trout Unlimited**, was awarded \$50,000 to restore channel stability in the lower Encampment River. At specific locations along the Encampment River, objectives of this project include 1) establishing a stable river course to allow the channel to adequately route sediment and improve stream connectivity and water quality, 2) improving streambank stability by decreasing the channel width/depth ratio, 3) designing a stable channel pattern, 4) decreasing adjacent land loss from excessive lateral erosion, 5) implementing riparian fencing and deferred livestock grazing where applicable, 6) increasing aquatic/wildlife habitats for fish, mammals, birds, and amphibians, 7) improving public safety by establishing a single-channel watercourse, and 8) fostering pride and ownership of the Encampment River through collaboration, education and multi-media. This project builds on efforts already underway by Trout Unlimited, Wyoming Game and Fish Department, the Saratoga Encampment Rawlins Conservation District, and many other partners to restore the Encampment River. See featured waterbody story on page 16.



*Pre- (above) and post- (below) construction photos of 2015 bank stabilization project on the Encampment River.*

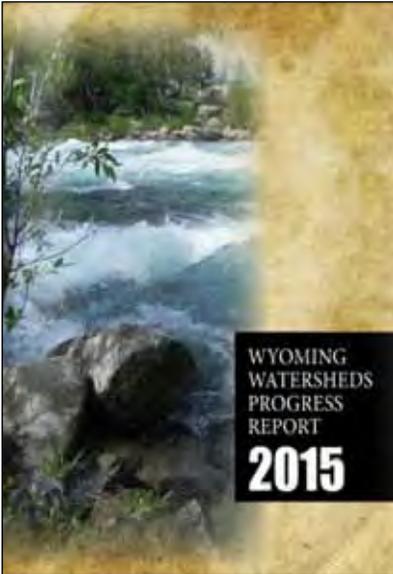


*Photo credits: Trout Unlimited*

## **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.***

- Three information/education projects were active in FY15 (see Appendix A). One of these projects was successfully completed in FY15 (see Appendix B).
- Approximately 1,223 Wyoming students and 127 teachers/volunteers attended Worldwide Day of Monitoring activities in 2015, coordinated by 10 local conservation districts and the Wyoming Association of Conservation Districts (WACD).
- The *2015 Wyoming Watersheds Progress Report* authored by WACD was published in 2015, providing updated information on efforts by landowners, local conservation districts, and state and federal partners to address impaired waterbodies in Wyoming. The report is available through the WACD website. See highlight on page 7 for additional information.
- Teton Science Schools continued Wyoming Stream Team programs in 2015, including an annual workshop to train teachers and other professionals about water quality monitoring. Although Section 319 funds were not able to support this effort, Teton Science Schools has been proactive and successful in finding other funding sources to continue this important education program.
- WQD Monitoring Program staff participated in the World Water Quality Challenge in Campbell County, provided aquatic macroinvertebrate education at the Campbell County Ag Expo, and participated in an *E. coli* education event with Tongue River High School. Staff also assisted with two education events in conjunction with Wyoming Game and Fish Department to demonstrate how WQD uses macroinvertebrates to evaluate water quality.
- WQD Monitoring Program staff assisted with educational outreach regarding the City of Cheyenne's water, stream, and ecological systems. See below.
- At the 2015 WACD Convention, a session was held to help educate conservation district staff and other participants about Microbial Source Tracking (MST) methods, current MST research, and MST laboratory resources.



*Photo credit: Teton Science Schools*

### **Featured Education Event: Crow Creek Watershed Student Education**

The City of Cheyenne Board of Public Utilities (BOPU), the Laramie County Conservation District (LCCD), the WDEQ/WQD, and the Wyoming Game and Fish Department collaborated in providing education and outreach regarding Cheyenne's water, stream, and ecological systems. Around 400 students from local schools participated by venturing to multiple locations within the Crow Creek watershed in the Cheyenne area. This education/outreach event provided a valuable opportunity to share with students the value of the area's water resources and how important clean water is for the community. Students from 4<sup>th</sup>, 5<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> grades rotated through multiple stations including water quality, macroinvertebrates, and stream velocity and quantity. "We've been trying for the past several years to get more students outdoors to make a connection, and gain a deeper appreciation for healthy surface waters, and how we as humans have an impact, either positive or negative. In addition, it's a great way to celebrate World Water Monitoring Challenge with the great student turnout this year, and all the help from cooperating agencies, this was a great success" said Duane Loyd, LCCD Education Specialist. (adapted from media release issued by BOPU).

## **Featured Waterbody: Encampment River**

The Encampment River in southeast Wyoming is one of relatively few streams having the national significance and productivity to be classified as a blue-ribbon trout stream. However, due to a variety of factors (e.g., sudden decrease in stream gradient at the mouth of the Encampment River Canyon, land use activities, historical tie drives, dredging and channelization), the river in some areas is highly unstable with long stretches of bank erosion, extensive mid-channel and transverse bar development, channel degradation and deposition. The channel degradation is lowering the water table and leading to a decrease in deep-rooted native riparian vegetation. The unstable channel and stream banks have led to degraded riverine habitat for aquatic species and diminished riparian habitat for both amphibious and terrestrial species. Additionally, several irrigation structures are limiting fish passage throughout the river.

The Encampment River has been the focus of joint efforts by the Wyoming Game and Fish Department (WGFD) Trout Unlimited (TU), the Saratoga-Encampment-Rawlins Conservation District (SERCD), and local landowners to address this channel degradation. Since 2010, there has been over \$1,000,000 applied to on-the-ground restoration projects on the Encampment River and the East Fork of the Encampment River. A cobble push up dam at the Grand Valley Diversion was removed and replaced with a stable cross-vane structure, delivering irrigation water to users. The bed and banks below the cross-vane structure were improved with constructed riffle structures, bankfull benches, and toewood, stabilizing 1,150 feet of the river. A second cobble push-up dam downstream was also removed and replaced with a cross-vane structure, and 1,600 feet of river was improved. Restoration and reclamation work along a 4,300' reach of the river included establishing a bankfull bench with toewood bank stabilization, rock vanes, pool enhancements, riffle shaping, and improved grazing management. In 2015, a bank stabilization project was completed that re-contoured and reconstructed 450' of eroded vertical stream bank to reduce erosion potential and prevent landowner property damage. The slope of the opposing point bar was reduced to accommodate bankfull flows. Toewood, sod, willow clumps and willow stakes were installed along 350' of the re-constructed meander bend to help stabilize the channel, protect the banks, and encourage revegetation. Additionally, a variety of bed features were constructed to improve channel stability and fish habitat. Three relic hydrology weirs were removed from the East Fork of the Encampment River and Coon Creek, tributaries to the Encampment River. These structures represented barriers to fish and sediment transport. Funding sources (cash and in-kind) have been numerous, including Wyoming Wildlife Natural Resource Trust Fund, WGFD, SERCD, TU, WDEQ, Wyoming Landscape Conservation Initiative, landowners, U.S. Forest Service, U.S. Fish and Wildlife Service, Wyoming Wildlife-The Foundation, The George B. Storer Foundation, The Trout and Salmon Foundation, and EPA.

Educational tours and presentations have supported restoration efforts throughout this project's duration. The Encampment Elementary School has supported restoration work by cutting and planting willows and studying aquatic macroinvertebrate populations. Local media coverage by newspapers and radio encourages local project endorsement and helps identify additional river restorations while providing positive recognition for project contributors. In 2015, the Nonpoint Source Task Force toured Encampment River restoration projects along with representatives from the U.S. Forest Service, Bureau of Land Management, Nature Conservancy, WGFD, EPA, TU, SERCD, and a Wyoming State Legislator. TU and WGFD continue to lead this ambitious, multi-year restoration effort to restore the Encampment River. As work has proceeded since 2010, the importance of a comprehensive, watershed-scale approach has been realized and is guiding current and future restoration efforts.

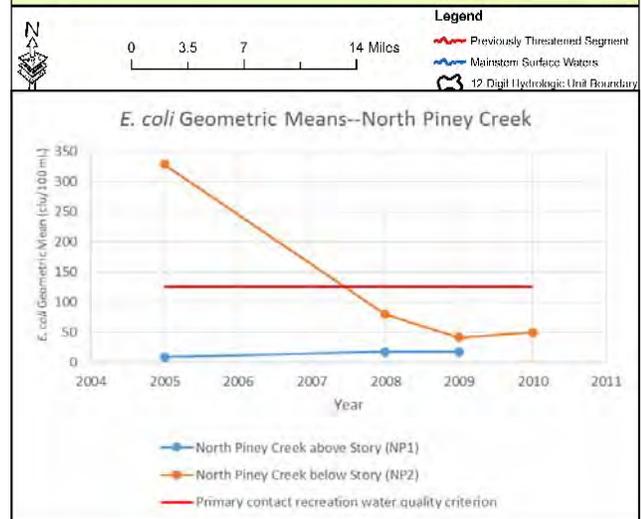
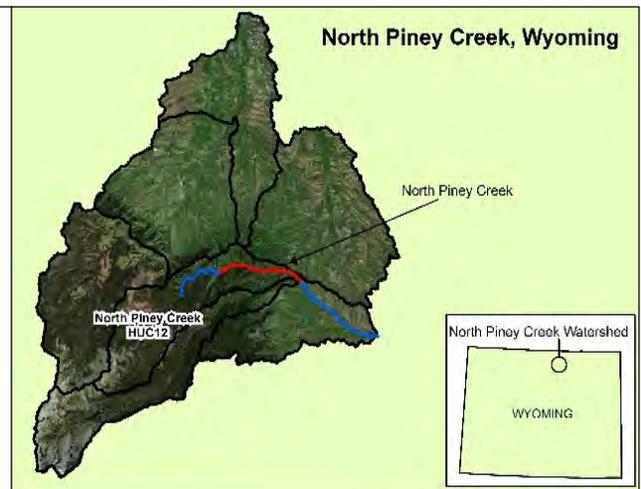


*Photos showing before (left) and after (right) removal of relic hydrology weir on Coon Creek, tributary to the Encampment River.*

*Photo credits: Trout Unlimited*

## Restoration Success Story: Educating Homeowners and Fixing Failed Septic Systems Restores Recreation Use in North Piney Creek

In 2005, allegations of surfacing sewage within a subdivision prompted WDEQ to conduct a study to evaluate *E. coli* contamination on several surface waters in the Story area, including North Piney Creek. Samples collected in 2005 indicated that above Story, the *E. coli* criterion protective of primary contact recreation (geometric mean of 126 colony-forming units (cfu) per 100 milliliters (mL)) was being achieved in North Piney Creek. However, samples from the site below Story indicated the *E. coli* criterion was being exceeded, as samples resulted in a geometric mean of 329 cfu/100 mL. This led to a 6.4-mile segment of North Piney Creek being added to Wyoming's 2006 CWA section 303(d) list of impaired waters for nonsupport of primary contact recreation. The 303(d) listing, along with concerns of septic system effluent contaminating the shallow alluvial aquifers used for Story's domestic water supply, prompted Sheridan County to undertake proactive efforts to address the impairment. Work included the county's sponsorship of a CWA section 205(j) project, one of the goals of which was to educate the public on water quality issues and the need for proper design and installation of septic systems. The county asked residents on a voluntary basis to allow county personnel access to private properties to inspect existing septic systems for a conditions assessment. Mapping of groundwater depths and depth fluctuations were accomplished, helping to better understand the hydrogeology of the area and to identify the areas most prone to problems. The project also provided information on recommended well construction standards. The county completed a review of septic system permitting records within Story, finding that roughly half of the 700 housing units did not have septic system permits and some of the permitted systems were out of date or inadequate. This effort culminated in Sheridan County working with Story residents to replace or rehabilitate multiple septic systems and the development of the Story Area Septic System Supplemental Regulations. The supplemental regulations to Sheridan County Small Wastewater Regulations required additional design and construction requirements for septic systems placed in the alluvial material in the Story area. WDEQ completed follow up sampling on North Piney Creek from 2008 to 2010 to determine if the impairment had been mitigated. WDEQ collected samples from North Piney Creek in months corresponding to when samples were collected in 2005. The geometric mean *E. coli* concentrations obtained in 2008–2010 indicated that *E. coli* concentrations at both North Piney Creek sites (above and below Story) attained the criterion protective of primary contact recreation. Specifically, the geometric mean concentration at the site below Story, which had been 329 cfu/100 mL in 2005, dropped to 80 cfu/100 mL in 2008, which met the water quality criterion. Data showed that concentrations dropped even lower in 2009 (42 cfu/100 mL) and 2010 (50 cfu/100 mL). Geometric mean concentrations at the North Piney Creek site above Story attained the water quality criterion in all years it was sampled. Therefore, the WDEQ has proposed removal of North Piney Creek from the 2014 CWA section 303(d) list of impaired waters.



## **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 continued working with the Wyoming Natural Resources Conservation Service (NRCS), Wyoming Association of Conservation Districts (WACD), and Washakie County Conservation District (WCCD) to implement the National Water Quality Initiative in the Bighorn River-Slick Creek Watershed. The WDEQ and WCCD developed a Sampling and Analysis Plan in 2015 and began implementing a monitoring program in May 2015. WCCD has conducted the monitoring; WQD provided technical and financial assistance.
- Nonpoint Source Program staff worked to outreach to local government agencies and organizations to encourage proposal submission for FY16 grant funding. One new conservation district who has not yet sponsored a project through the Nonpoint Source Program applied for FY16 205(j) funding.
- The Nonpoint Source Program Coordinator participated in NRCS State Technical Advisory Committee meetings and provided input to encourage use of Farm Bill funding for water quality-related projects.
- Nonpoint Source Program, Wyoming NRCS, and WACD staff attended a Region 8 EPA-sponsored nonpoint source pollution conference in Rapid City, South Dakota. At this conference, staff from all agencies discussed opportunities for better coordination amongst programs and better ways to achieve watershed restoration. Discussions have continued between the Nonpoint Source Program and Wyoming NRCS on better coordination opportunities. The Nonpoint Source and TMDL Programs presented at an NRCS Leadership Team meeting on its CWA programs and goals.
- The Nonpoint Source Program worked with Wyoming Game and Fish Department to meet sage grouse protection reporting requirements and to ensure proposed projects complied with the Governor's Executive Order on Greater Sage Grouse Core Area Protection.
- WQD 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.
- WQD Watershed Protection Program staff and the U.S. Forest Service (USFS) held an annual coordination meeting in April 2015. The meeting helped provide education on each agency's programs and there was discussion on current and future coordination activities.
- Nonpoint Source Program and Monitoring Program staff participated on a USFS BMP monitoring site visit to better understand the USFS' new national BMP monitoring program and protocols (see page 22).
- The WQD Quality Assurance/Quality Control Program assisted with WACD Monitoring Refresher Training and coordinated Conservation District Sampling and Analysis Plan updates with WACD.
- The WQD Watershed Protection Program worked with other agencies to begin implementing activities to meet initiatives established in the *2015 Wyoming Water Strategy* (Office of the Governor). This includes Initiative #8 (Water Quality Data Integrity Initiative), for which WDEQ will be the lead agency. WDEQ is also a cooperating agency for Initiative #7 (Collaborative Planning and Authorization Process), Initiative #9 (River Restoration), and Initiative #10 (Collaborative Fish Passage Restoration).

## **Featured Watershed: Bighorn-Slick Creek Watershed and National Water Quality Initiative**

Launched in FY12, the National Water Quality Initiative (NWQI) is a joint NRCS/EPA initiative that targets small (12 digit HUC) watersheds to improve water quality, with a focus on waterbodies that are listed as impaired or threatened due to nonpoint source pollution from agricultural sources. By targeting NRCS EQIP funding in small watersheds, the goal is to restore impaired or threatened waterbodies. NWQI addresses agricultural sources of pollution that NRCS can effectively address through voluntary conservation practices implemented by producers. Nutrients, sediment, and pathogens are the primary pollutants of concern. Selecting watersheds for NWQI funding in Wyoming is a collaborative effort between NRCS, WDEQ/WQD, and other key stakeholders. In addition to targeted funding, this initiative emphasizes evaluation of the effectiveness of implemented practices through modeling, edge-of-field monitoring, and/or in-stream monitoring. As part of the initiative, EPA requires state water quality agencies, through Section 319 grant programs, to select at least one NWQI watershed in which to conduct in-stream monitoring to help gauge effectiveness of NWQI restoration efforts.

In FY13, Wyoming NRCS initiated a Call for Proposals for NWQI funding. NRCS, WDEQ, and other partners on a subcommittee of the NRCS State Technical Advisory Committee recommended that NWQI funding be invested in the Bighorn River-Slick Creek watershed to reduce bacterial and sediment pollution to Sage Creek and Slick Creek (both waterbodies are currently impaired for primary contact recreation use due to high *E. coli* levels). Washakie County Conservation District (WCCD), the local NRCS District Conservationist, and landowners worked diligently to implement an impressive number of conservation practices in this watershed using FY13, FY14, and FY15 NWQI funding. A total of 1,676 acres were treated through 28 contracts over this three year period using a total of \$1,960,423 of NWQI funding. Conservation practices implemented included converting flood irrigated acres to sprinkler irrigation and installing pipeline projects. Outreach was conducted by WCCD and NRCS and landowner interest in the program was high.

WCCD and WQD worked to conduct the first of a three year water quality monitoring program on Sage Creek and Slick Creek in 2015. This included the development and approval of a Sampling and Analysis Plan to collect data on these streams to determine if an association between water quality changes in Sage and Slick Creeks and conservation practices implemented in the watershed can be documented. Water quality monitoring was conducted by WCCD with technical and financial assistance from WQD. Water quality data from 2015 is preliminary and does not yet indicate any water quality trends within the watershed. WQD will continue to work with WCCD to complete the monitoring program and analyze data as they become available.

NWQI conservation practices have helped implement action items of the Bighorn River-Slick Creek Watershed Plan, developed by the Washakie Watersheds Steering committee with WCCD's leadership. This watershed plan incorporates recommendations from the Big Horn River TMDLs Implementation Plan. WCCD continues to work with landowners, NRCS, and other partners to implement additional conservation practices in the watershed through other funding sources, including Section 319 grant funds.



*Washakie County Conservation District staff monitoring in Slick Creek.*

*Photo credit: Washakie County Conservation District*

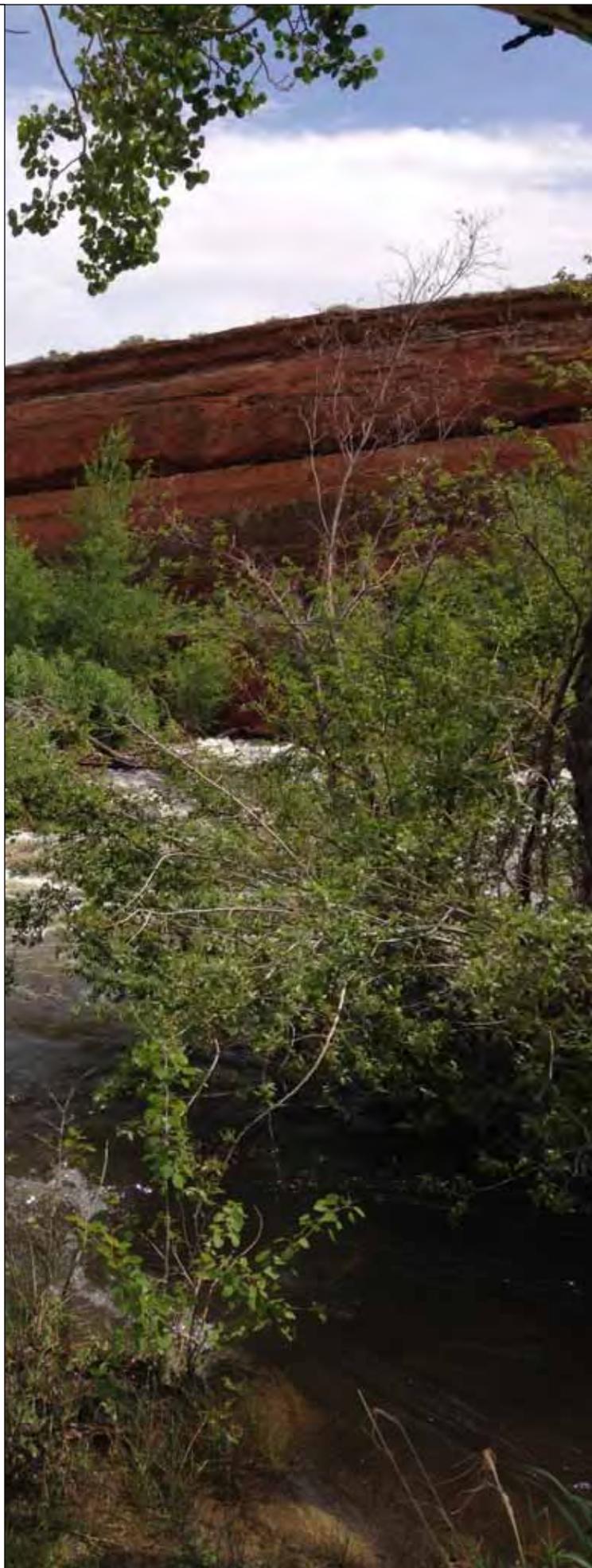
## Selected Highlights from Program Partner Activities

- **Wyoming Natural Resources Conservation Service (NRCS)** continued to provide conservation planning, technical assistance, and financial assistance in FY15 to landowners to conserve soil, water, and other natural resources on private property.
  - NRCS awarded \$614,813 to the Bighorn River-Slick Creek Watershed in Washakie County as part of the National Water Quality Initiative. The main focus of treatment in this watershed is to reduce bacteria and sediment loading from cropland and irrigated acres. Nine applications were funded, treating 355 acres in FY15. See page 19 for featured story on this NWQI watershed.
  - Two contracts treating 413 acres were funded to implement livestock management projects under the Livestock Protection account. This account allows participants to install fabricated windbreak structures to protect riparian areas from grazing and improve water quality.
  - A State Forestry account was continued in FY15 to address the growing interest in forest health, commercial thinning, and aspen regeneration. 13 applications were funded, treating 813 acres.
  - A Streambank/Riparian Account was continued to address growing interest in treating streambank erosion and improving riparian habitat. Three applications were funded treating 242 acres.
  - Three contracts treating 4,631 acres were funded to implement projects under the Water Quality account to assist producers with improvements to livestock waste management systems.
  - 104 applications treating 606,373 acres were funded in FY15 under the Conservation Stewardship Program (includes general and renewal).
  - A total of \$8,638,735 of Environmental Quality Incentives Program (EQIP) funding was distributed to the local level through county allocations, implementing 183 contracts and treating 449,872 acres. Local Work Groups (LWG) continue to rank water quality as a high priority resource concern, with most LWGs ranking it as the first or second priority resource concern. The State Technical Advisory Committee continues to rank water quality as the #2 priority resource concern statewide.
- 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.wyo.gov/>).
- In 2015, EPA selected the Laramie Rivers Conservation District for a **Brownfields** cleanup grant. Hazardous substances grant funds will be used to clean up the Laramie Former Yttrium Plant. The site was formerly used as a refinery and an yttrium processing plant. Soils and groundwater at the site are contaminated with metals, semi-volatile organic compounds, and inorganic contaminants. Grant funds will also be used to conduct community involvement activities and redevelopment planning.



## Selected Highlights from Program Partner Activities, Continued

- In FY15, national monitoring protocols were used by the **United States Forest Service (USFS)** to monitor BMP implementation and effectiveness on a variety of projects on National Forest System (NFS) lands in Wyoming, including grazing management, recreation activities, road management, mechanical vegetation treatments, and water uses. See page 22 for more information.
- In addition, the USFS continued efforts under a number of program areas to restore watersheds and reduce or prevent nonpoint source pollution.
  - *Healthy Forests and Rangelands—Hazardous Fuels Reduction and Landscape Restoration:* In FY15, WY National Forests completed fuel treatment projects on 5,400 acres inside the wildland urban interface (WUI) and another 4,500 acres outside the WUI for a total of 9,900 acres. These projects treat the excessive accumulation of hazardous or unusually flammable fuels that are the root cause of unprecedented fire risk on NFS lands.
  - *Watershed Restoration:* WY National Forests reported accomplishments of ~3,200 acres of soil and water improvements in FY15 to improve watershed conditions using upland and instream treatments such as correction of cut or fill slope failures, surface scarification of compacted upland areas (e.g. old skid trails), and reclamation of old gravel quarries.
  - *Road maintenance:* WY National Forests reported accomplishments of about 2,100 miles of road maintenance in FY15 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 FY15, there were 23 miles of road drainage improvement projects and 169 miles of road decommissioning with Legacy Road and Trail program funds. 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.



## Partner Highlight: USFS National BMP Monitoring Protocols

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

In FY15, 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, recreation activities, road management, mechanical vegetation treatments, and water uses.

Each evaluation of BMP implementation and BMP effectiveness is given a rating based on observations made in the field. Implementation is rated based on the question: “Were the site-specific BMP prescriptions developed for the project at that site fully implemented?” An implementation rating of “implemented” means that the site-specific BMP prescription was substantially implemented in the field as designed or planned. Effectiveness is rated based on the question: “Is there evidence of pollutants attributable to the project or activity in or near a waterbody?” An effectiveness rating of “effective” means that there is no evidence of pollutants entering a waterbody or that the observable evidence suggests the project or activity resulted in minor and temporary impacts to water quality.

For those projects where both implementation and effectiveness are monitored, the project is given a composite rating that combines the individual implementation and effectiveness ratings, with greater weight given to the effectiveness rating. A composite rating of “acceptable” means that the effectiveness rating was “effective” and the BMPs were substantially implemented. If the effectiveness rating is “not effective”, the composite rating for that evaluation is “unacceptable”.

Forest Service administrative units in Wyoming completed both BMP implementation and effectiveness evaluations on a total of 19 projects in FY15. As shown in Figure 1, over 60% of the evaluations received a composite rating of “acceptable”, which is similar to the FY14 results.

Most of the BMP evaluations completed in FY14 and FY15 were in the Rangeland, Recreation, Road, Vegetation, and Water Uses Management Resource Categories. These were the first two years of BMP monitoring using the national program and the sample size of evaluated projects is small, but some patterns are evident. The highest rate of BMP implementation in FY14 and FY15 were in the Roads and Vegetation Management resource categories, which are resource areas where the Forest Service has traditionally placed the greatest emphasis on BMPs. Some of the recreation and road projects had an implementation rating of “No BMPs Rx”. These evaluations were of on-going operation and maintenance of recreation sites and existing roads which, unlike vegetation management projects, likely have not been recently subjected to a planning analysis where site-specific BMP prescriptions would be developed. While the effectiveness of BMPs used in vegetation management projects was high, the effectiveness of the BMPs in road projects was not.

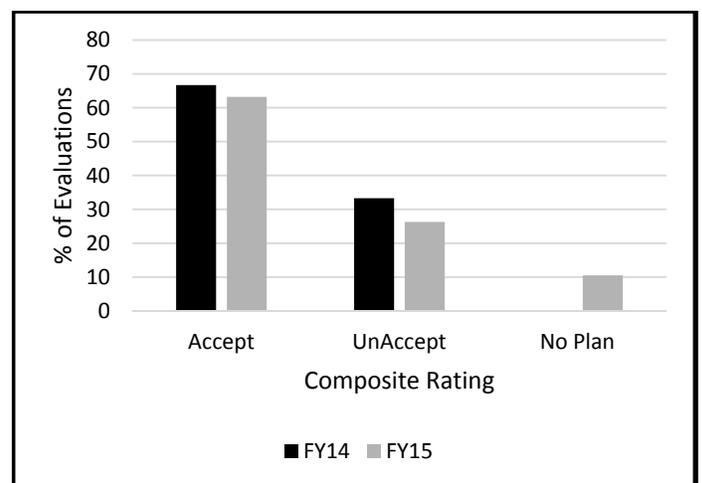


Figure 1. Composite ratings for Wyoming BMP evaluations for all resource categories: FY14 vs. FY15.

## **Partner Highlight: NRCS Regional Conservation Partnership Program**

In January 2015, NRCS announced projects selected for the first round of funding through the Regional Conservation Partnership Program (RCPP). RCPP focuses on public-private partnerships and emphasizes locally led solutions. Over \$370 million was awarded in the first round of RCPP applications to 115 projects. It is estimated these projects will leverage an additional \$400 million in partner contributions. Two of the selected projects are located in Wyoming, with Wyoming and Utah also cooperating on a national RCPP project. Section 319 funds represent partner funds in both the Upper North Platte and Tongue River Watershed projects.

### **Upper North Platte Watershed Restoration, Saratoga-Encampment-Rawlins Conservation District (SERCD)**

The primary resource concern for the Upper North Platte River Watershed Restoration is surface water quality while balancing agricultural production, maintaining stable river channels, encouraging healthy riparian communities, and promoting sustainable fish and wildlife habitat. Collaboration between landowners, State and Federal agencies, and non-governmental conservation organizations in the Upper North Platte Watershed has enjoyed numerous successes. With regards to agricultural production, this watershed-wide restoration will minimize land loss from river bank erosion, assure irrigation water delivery, provide off-channel watering as applicable, establish riparian fencing, and seek deferred riparian grazing agreements with producers while native riparian plants re-establish. Reconnecting main stem water courses and tributaries with their floodplains helps raise the water table, promote vibrant deep-rooted woody plant production including cottonwood galleries, and enhance and diversify wildlife habitats including wetlands for migrating waterfowl.

### **Water Quality and Habitat Improvements: Tongue River Watershed, The Nature Conservancy - Wyoming Chapter**

Under the Tongue River Initiative (TRI) framework, this project is a result of a partnership between the Sheridan County Conservation District (SCCD), Sheridan Community Land Trust (SCLT), and NE Wyoming office of The Nature Conservancy (TNC). The Tongue River, Goose Creek and Prairie Dog Creek watersheds in Sheridan County and Johnson County all contain water bodies considered impaired for bacteria. The SCCD with the NRCS has been working with residents to address concerns for over 18 years. An EPA Watershed-Based Plan was completed for the Prairie Dog Creek in 2007, an update to the Tongue River EPA Watershed Plan was completed in 2013, and an Implementation Strategy to address recommendations included in the Goose Creek Watershed TMDL was completed in 2012. This project will further efforts of the partners to accelerate project planning, completion and evaluation. Projects to be planned and implemented include grazing management, range improvement, irrigation diversion restoration (with fish passage), irrigation infrastructure, stream bank and/or channel stabilization, riparian fencing/stock water developments, septic system replacements, invasive species treatment and easements to prevent fragmentation from residential development within the watersheds. Water quality monitoring has been underway for several years, and will continue along stream stretches where impairments have been noted. New remote sensing analysis will be conducted to allow mapping of existing and future Russian olive densities, with a model developed that will be transferable to other Russian olive infestation areas. Range monitoring will assess effects of riparian fencing and other restoration projects and fish passage will be monitored by fish surveys conducted within the watershed.

### **Wyoming and Utah NRCS Collaborative Project: Upper Bear River Stream Restoration and Irrigation Efficiency**

Trout Unlimited in Utah will lead a collaborative partnership of 14 organizations that will continue and expand upon conservation work on the East Fork and Upper Bear River in Utah and Wyoming. This project will improve irrigation water management and efficiency, fish passage, and stream flows to benefit native fishes and other aquatic and riparian-dependent species as the primary resource concerns. Project work will be focused on five irrigation diversions and canals. Key practices to be implemented include installing permanently improved irrigation diversion structures with fish screening capabilities, pipelines to replace open irrigation canals, riparian buffers and improved on-farm irrigation systems. Water quality and fish habitat will be improved at two highly altered diversion sites that are erosion sources.

*For more information on RCPP, please visit the following RCPP website:*

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/farmland/rcpp/>

## Restoration Success Story: Implementing Agricultural Best Management Practices Restores Aquatic Life Uses in a Segment of North Fork Crazy Woman Creek

Livestock grazing and irrigation practices dating back to the 1880s contributed to high sediment and nutrient loads that degraded biological conditions in Wyoming's North Fork Crazy Woman Creek (NFCWC). Baseline monitoring was conducted by WDEQ in 1991 and 1992. Data indicated a general trend of decreasing water quality in a downstream direction when transitioning from the mostly forested mountains/foothills of the upper watershed to areas of high agricultural development in the plains of the lower watershed. Nutrients, as evidenced by the relative occurrence of periphyton and filamentous algae, increased from foothills locations to plains locations, as did conductivity levels, while habitat assessment scores decreased. The shift from a fish community dominated by trout at foothills locations to a fish community dominated by suckers and other nongame species at lower plains locations further indicated that water quality and habitat degraded with distance downstream. As a result, in 1996 the WDEQ added a segment of NFCWC to the state's Clean Water Act (CWA) section 303(d) list of impaired and threatened waters for threats to aquatic life uses due to habitat degradation (sediment) and nutrient enrichment. The Lake DeSmet Conservation District (LDCD) led watershed restoration efforts and worked with private landowners to proactively implement agricultural best management practices (BMPs). Critical areas were stabilized through a re-seeding project to mitigate erosion and over 1 mile of riparian fence was installed to protect the sensitive riparian zone from livestock grazing. In addition, a livestock corral was relocated away from the riparian zone and the former site was revegetated. Irrigation pipeline projects eliminated ditch and canal erosion and reduced seepage losses. More efficient sprinkler systems further decreased erosion caused by irrigation return flows. Lastly, an irrigation diversion was stabilized to also reduce erosion. LDCD continued monitoring water quality in NFCWC until 1997. WDEQ completed additional BMP effectiveness monitoring in 2003 and 2008. Results of the 2008 monitoring indicated that aquatic life uses in NFCWC were no longer threatened by habitat degradation (sediment) and nutrient enrichment. Concentrations of total nitrogen, total phosphorus and chlorophyll *a* were low at sites within the threatened segment, and no manifestation of excess periphyton or aquatic macrophytes was observed at any site. Stream banks, including those affected by past incision, were moderately to highly stable and covered with riparian vegetation. Temperature, dissolved oxygen, pH and chloride levels all met water quality criteria. Macroinvertebrate samples at sites within the threatened segment indicated that aquatic life uses were fully supported. Based on the evidence summarized above, WDEQ anticipates this segment of NFCWC will be removed from the 2014 CWA section 303(d) list of impaired waters. A total of \$578,933 of CWA section 319 funds supported watershed restoration efforts. Nonfederal matching funds totaling \$1,867,344 were also invested into watershed restoration, along with approximately \$220,000 of U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) program funding. Numerous state and federal resource management agencies supported the project by providing guidance and technical assistance. LDCD's major partners included numerous private landowners, Crazy Woman Improvement District, U.S. Forest Service, Bureau of Land Management, NRCS, Wyoming State Forestry Division, Farm Service Agency, University of Wyoming Cooperative Extension Service, Wyoming Land Commission, State Board of Water Control, WGFD, North Fork Crazy Woman Irrigation District, Farm Loan Board, Wyoming Water Development Commission and county commissioners.



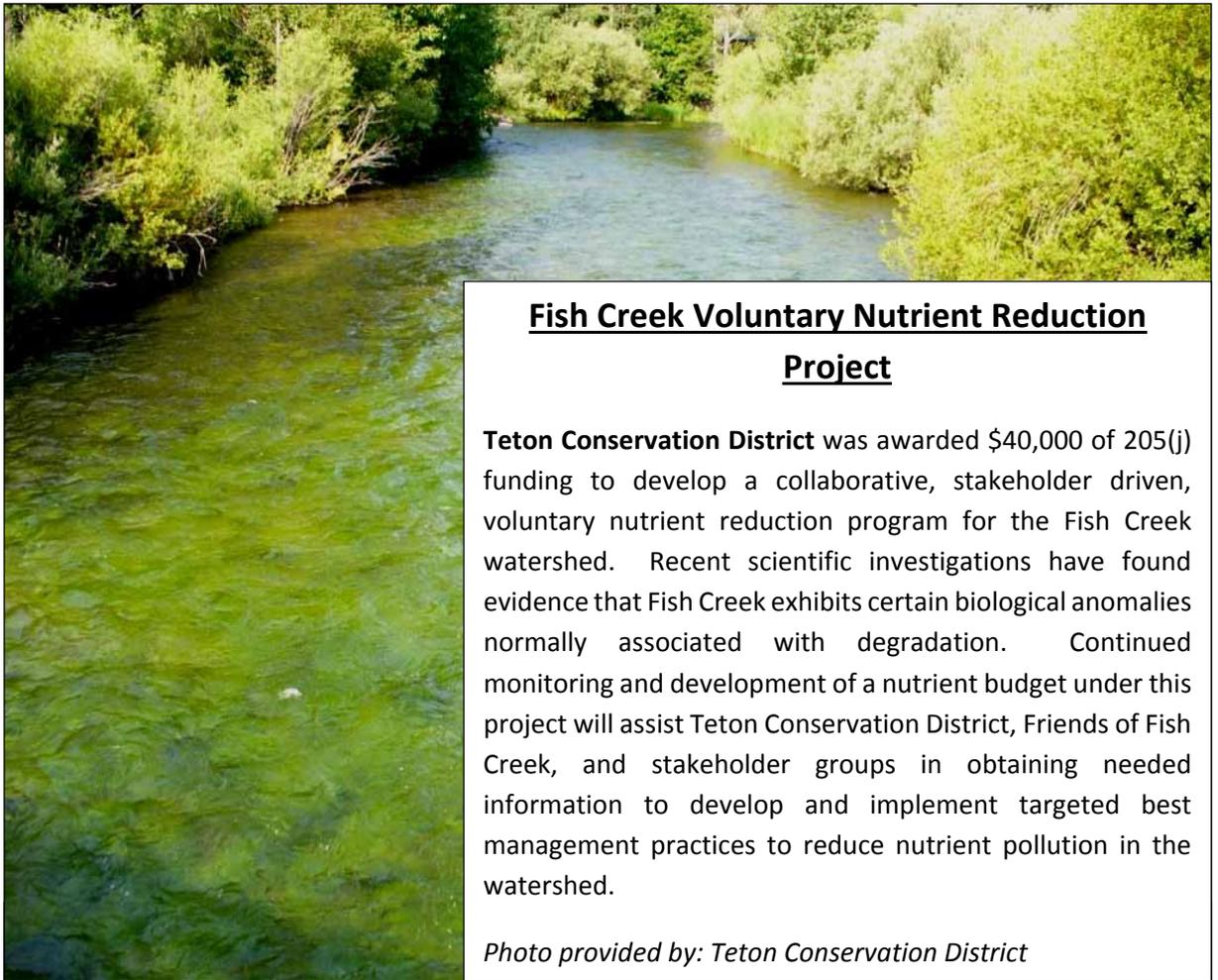
*(Left) Map of the North Fork Crazy Woman Creek Watershed.*

*(Right) WDEQ monitoring site on North Fork Crazy Woman Creek.*



**FY15 Water  
Quality  
Management  
Planning  
Projects**

In addition to the Section 319 projects discussed in this report, the Nonpoint Source Task Force recommended one water quality management planning project for CWA 205(j) funding in FY15. 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. In FY15, one project applied for and received 205(j) funding. This project is discussed to the above right (Teton Conservation District), along with one 205(j) project that closed in FY15 (Sheridan County Conservation District, right).



**Fish Creek Voluntary Nutrient Reduction  
Project**

**Teton Conservation District** was awarded \$40,000 of 205(j) funding to develop a collaborative, stakeholder driven, voluntary nutrient reduction program for the Fish Creek watershed. Recent scientific investigations have found evidence that Fish Creek exhibits certain biological anomalies normally associated with degradation. Continued monitoring and development of a nutrient budget under this project will assist Teton Conservation District, Friends of Fish Creek, and stakeholder groups in obtaining needed information to develop and implement targeted best management practices to reduce nutrient pollution in the watershed.

*Photo provided by: Teton Conservation District*



**Tongue River Canyon Stream Channel  
Assessment**

**Sheridan County Conservation District (SCCD)** and Sheridan County Public Works Department (SCPWD), in partnership with USDA Natural Resources Conservation Service (NRCS) and Wyoming Game and Fish Department (WGFD), worked together to complete a stream improvement plan for approximately 5 miles of the Tongue River as it passes through Tongue River Canyon. The Improvement Plan was developed by Barr Engineering in consultation with SCCD, NRCS, SCPWD, WGFD and local residents. As part of the plan development and field surveys, the consultant team and SCCD met with each landowner along the stream within the project area. These meetings provided valuable information on landowner perceptions, goals, and objectives that were used to complete NRCS Stream Visual Assessment Protocol (SVAP) worksheets. The improvement plan will be used to prioritize future requests for assistance and enable improvements to be applied in a way that considers impacts/benefits to the entire stream reach.

*Photo Credit: Sheridan County Conservation District*

## **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 Programs, demonstration of accountability, and continual program evaluation.***

- The FY10 Section 319 grant expired on September 30<sup>th</sup>, 2015. 99.3% of the funds on this grant were expended prior to expiration. A close-out report detailing the use of funds on the FY10 grant was submitted to EPA.
- The Nonpoint Source Program continues to obligate and expend funds on active Section 319 grants in a timely manner. All FY15 projects were issued a cooperative agreement in FY15 and all FY15 funds were obligated.
- 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 worked in 2015 to begin updating this system to enhance archival and document retention capabilities.
- Updated final report guidance was provided to project sponsors.
- Data reporting templates and instructions were provided to project sponsors to facilitate upload of electronic Section 319 project data into the WDEQ Surface Water Monitoring database.
- A scoring matrix was developed to facilitate Nonpoint Source Task Force review of Section 319 proposals. The Task Force began using this scoring matrix in FY15. Proposal review guidelines were also prepared and distributed to the Nonpoint Source Task Force to assist with proposal reviews.
- Request for Proposal (RFP) application forms and guidance information continued to be streamlined and improved. Application content was updated based on feedback from the Nonpoint Source Task Force. Application instructions were updated to specify information that must be included in the proposal if Microbial Source Tracking monitoring methods are to be used.
- A Program Evaluation was conducted, updating information since the last evaluation was done in FY09. Evaluation results are available upon request.
- WQD staff attended webinars to learn about ways to better integrate Safe Drinking Water Act and Clean Water Act programs.

### **Project Highlight: Upper Big Goose Creek Watershed Management Plan Integrates Clean Water Act and Safe Drinking Water Act Goals**

The City of Sheridan has completed the Upper Big Goose Creek Watershed Management Plan. The purpose of this plan is to address *Cryptosporidium* pollution in the Big Goose Creek watershed above Sheridan's drinking water intake. Once implemented, the Upper Big Goose Creek Watershed Management Plan will guide preservation of the watershed and protect water quality, as well as protect the health of citizens within the watershed. Implementing this plan will help achieve compliance with the Safe Drinking Water Act and maintain current compliance with the Clean Water Act above the source water intake. Implementation of this plan may help reduce bacterial pollution potentially contributing to downstream impairments on Big Goose Creek for *E. coli*. The Upper Big Goose Creek Watershed Management Plan is meant to provide a framework for managing efforts to protect overall watershed health and decrease the likelihood for pollutants to enter the watershed. The goals of the Watershed Control Plan are to 1) locate where and how *Cryptosporidium* is entering the watershed and identify sources, 2) act to minimize potential contributions from all sources of pollutant contributors in the Upper Big Goose Creek Watershed, and 3) increase public outreach, involvement, and education concerning the Big Goose Creek Watershed. Because this project integrated both Safe Drinking Water Act and Clean Water Act goals, it was selected as a national 2013 Source Water Collaborative pilot project.

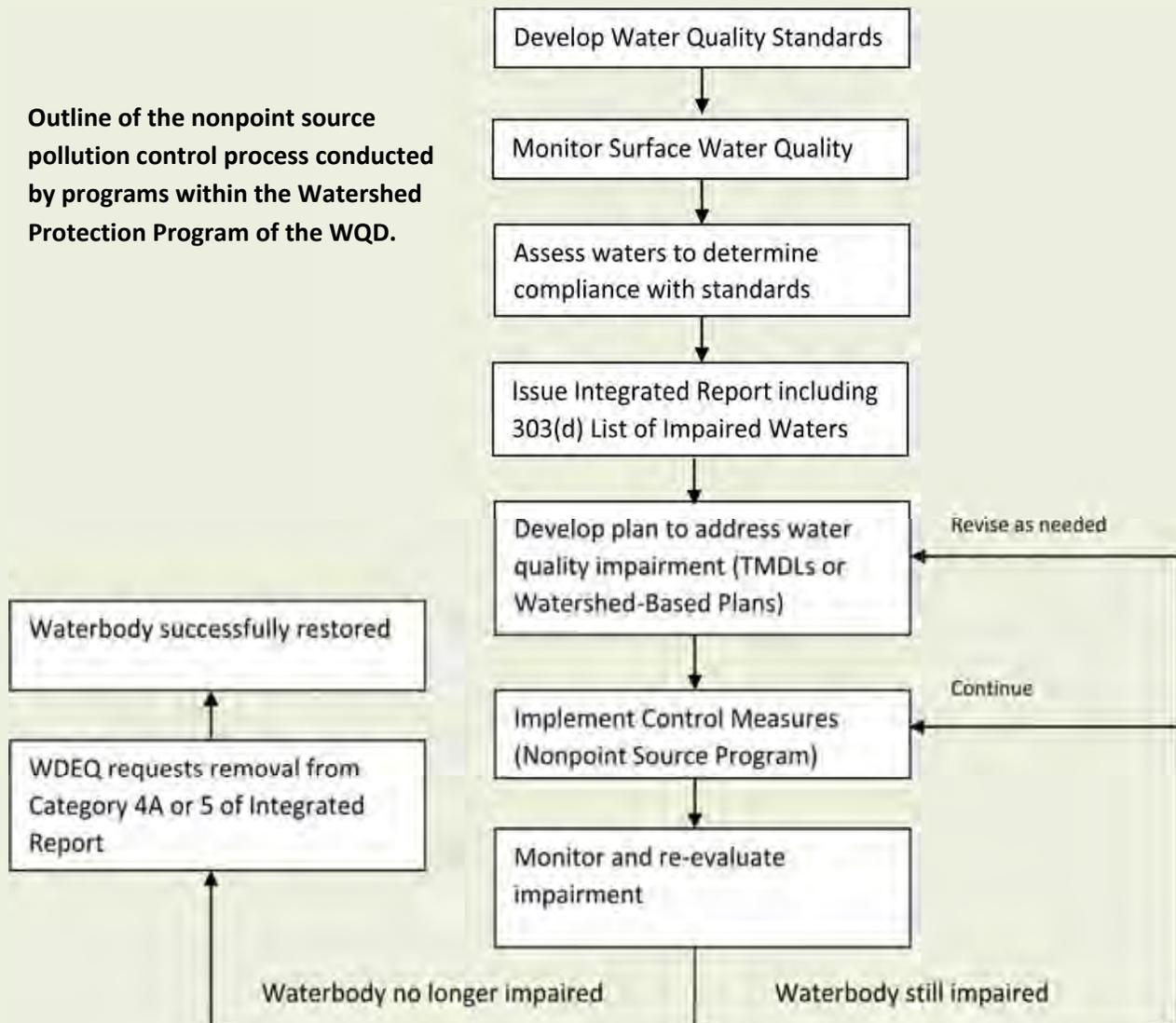
## WDEQ/WQD Watershed Protection Program

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.wyoming.gov/wqd/watershed-protection/>.



**Outline of the nonpoint source pollution control process conducted by programs within the Watershed Protection Program of the WQD.**





### **Looking Forward: Goals for FY16**

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 FY16 and has set the following annual goals and priority areas:

- Develop strategies for improved Nonpoint Source Program information/education and outreach.
- Continue efforts to improve coordination with NRCS.
- Close the FY11 Section 319 grant with the goal of having all grant funds expended.
- Continue working with other Watershed Protection Program staff to establish priorities and strategic planning goals.
- Consider better ways to incorporate follow-up BMP monitoring into the Nonpoint Source Program and continue improving documentation of BMP implementation and project effectiveness.

Despite federal cuts to the Section 319 budget, the Nonpoint Source Program will continue to work to maximize the effective use of funds 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 FY15 Section 319 Projects

**Table A1.** Section 319 projects active during part or all of FY15. Projects in *bold italics* closed during FY15.

State ID	Project Title	Project Sponsor	Grant #(s)	Ending Date	Project Type
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	12/31/15	Implementation—Prevention
<b><i>NPS2010D</i></b>	<b><i>Goose Creek Watershed TMDL Implementation</i></b>	<b><i>City of Sheridan</i></b>	<b><i>008630-10</i></b>	<b><i>3/31/15</i></b>	<b><i>Implementation—Impaired</i></b>
NPS2010E/ 2012E	North Platte River Watershed—Segment I	Natrona County Conservation District	008630-10, 12	3/31/16	Implementation—Impaired
<b><i>NPS2012D/ ON70J</i></b>	<b><i>Wyoming Stream Team 2012</i></b>	<b><i>Teton Science Schools</i></b>	<b><i>008630-07, 12</i></b>	<b><i>12/31/14</i></b>	<b><i>Information/Education</i></b>
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
NPS2013A	2013 Post Wildfire Rehabilitation	Wyoming State Forestry Division	008630-13	09/30/16	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
NPS2014A	PCFCD Water Quality Improvements	Powell Clarks Fork Conservation District	008630-14	9/30/16	Implementation—Impaired
NPS2014B	Sheridan County Watershed Improvements #4	Sheridan County Conservation District	008630-14	12/31/16	Implementation—Impaired
NPS2014C	Bighorn-Slick Creek Watershed Improvement Program	Washakie County Conservation District	008630-14	12/31/16	Implementation—Impaired

## Appendix A Continued: Summary of FY15 Section 319 Projects

**Table A1 continued.** Section 319 projects active during part or all of FY15. Projects in *bold italics* closed during FY15.

State ID	Project Title	Project Sponsor	Grant #(s)	Ending Date	Project Type
NPSSEP03	2 <sup>nd</sup> Annual Cody Wild West River Fest	The Nature Conservancy	SEP*	1/31/17	Information/Education
NPSSEP02	Statewide NPS Information/Education	Wyoming Natural Resource Foundation	SEP*, 008630-09	3/31/16	Information/Education
<b><i>NPS2010H</i></b>	<b><i>Salt River TMDL Development</i></b>	<b><i>WDEQ, contracted to Tetra Tech</i></b>	<b><i>008630-10</i></b>	<b><i>9/30/15</i></b>	<b><i>TMDL Development</i></b>
NPS2010I/ 2015I	Storm Sewer Maintenance and <i>E. coli</i> Detection	City of Sheridan	008630-10, 15	9/30/18	Implementation—Impaired
NPS2010J/ NPSSEP04	Middle Fork Popo Agie River Monitoring and Implementation	Popo Agie Conservation District	008630-10, 15; SEP*	12/31/19	Implementation—Impaired
NPS2014D/ 2015D	Belle Fourche River Watershed Plan Implementation—Phase IV	Crook County Natural Resource District	008630-14, 15	12/31/18	Implementation—Impaired
NPS2015A	North Platte River Watershed—Segment II	Natrona County Conservation District	008630-15	6/30/18	Implementation—Impaired
NPSSEP05	Encampment River Riparian and Channel Restoration	Trout Unlimited	SEP*	12/31/19	Implementation—Prevention

\*SEP = Supplemental Environmental Project funding (state funding)

## Appendix B: Summaries of Third-Party Section 319 Projects Completed in FY15

**Goose Creek Watershed TMDL Implementation (NPS2010D); City of Sheridan:** The purpose of this project was to reduce sediment loading to Big and Little Goose Creeks through the implementation of urban stormwater best management practices (BMPs). This project implemented BMPs recommended in the Goose Creek Watershed TMDLs. The City of Sheridan (City) contracted with SWCA, a local environmental consulting firm, to develop and implement a monitoring strategy prior to BMP implementation. SWCA developed a Sampling and Analysis Plan and conducted spring runoff, spring storm, and dry period sampling within City boundaries. SWCA began sampling in November 2012 and completed 10 collection events, with the final collection in June 2013. Results from spring runoff and storm sampling indicated there were several storm water outfalls that transported high sediment loads to Big and Little Goose Creeks. SWCA also collected storm water samples from outfalls that contained flowing water during dry periods and analyzed samples for *E. coli*. Dry period flows were also tested for optical brighteners. The *E. coli* and optical brightener information represents preliminary information that the City plans to use for future projects to address bacterial pollution. WDEQ and the City discussed sediment monitoring results and used the data to identify the outfall locations where stormwater interceptor installation would be most effective. Based on the water quality monitoring results and subsequent recommended locations, the City installed three stormwater interceptors within city limits with Section 319 funding. These stormwater interceptors are functioning successfully and reducing sediment loading to Big and Little Goose Creek. It is estimated these stormceptors are reducing sediment loading to Big and Little Goose Creeks by 19.8 tons/year. The City installed an additional three stormwater interceptors using other funding sources. This project was initiated in March 2012 and was completed in February 2015. Although recommended for funding in FY12, this project was funded with FY10 grant funds and spent a total of \$400,000 Section 319 funds and \$292,768 in nonfederal match.



## **Appendix B—Continued: Summaries of Third-Party Section 319 Projects Completed in FY15**

**Wyoming Stream Team 2012 (NPS2012D/ON70J); Teton Science Schools (TSS):** Wyoming Stream Team aims to educate Wyoming teachers, students, and community members on stream health, water quality and local water resource issues through trainings, education, implementation of volunteer monitoring programs and restoration activities. Wyoming Stream Team continues to build networks between Teton Science Schools, School Districts, independent schools, Conservation Districts, community members and the Wyoming DEQ with the long term goal of improving the health of Wyoming's water resources. Four hundred educators and administrators were educated about watersheds and threats to water quality and were trained in water quality monitoring methods. These educators provided watershed monitoring experiences to over 3,700 students. Riparian stewardship projects involved 2,563 participants (in TSS programs alone), who contributed 5,925 hours towards harvesting and planting willow poles, invasive plant removal, bird box building, installation and monitoring, and trail maintenance. Based on the number of participants reached, the quality of programs (based on participant feedback) and the formation and maintenance of community partnerships, the Wyoming Stream Team was a huge success. Furthermore, numerous out-of-state participants were inspired and encouraged to participate in watershed monitoring programs in their home communities. Wyoming Stream Team accomplished all of its major targets during this time period, including recruiting program participants, conducting trainings, supporting monitoring activities, facilitating outreach programs, maintaining the website and database, and performing program administration and collaboration. This project began in April 2012 and was completed in December 2014. The project spent a total of \$86,802 in Section 319 funds and \$84,619 in nonfederal match.



*Photo Credits:  
Teton Science Schools*



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<http://deq.wyoming.gov/wqd/non-point-source/>  
(Nonpoint Source Program website)

