WYOMING WATERSHEDS PROGRESS 2009

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EXECUTIVE SUMMARY

"That area of land, a bounded hydrologic system, within which all living things are inextricably linked by their common water course and where, as humans settled, simple logic demanded that they become part of the community." John Wesley Powell

The Wyoming Association of Conservation Districts is pleased to present this sequel to the Watersheds Progress Report published in 2005 and again in 2007. These reports serve to document and synthesize the local grassroots efforts to restore the water quality on Wyoming's impaired and threatened waters as identified by the Department of Environmental Quality.

As one reads this report, it will become very apparent that these efforts would not be possible without strong partnerships with many different individuals, entities, and levels of government. No one entity can carry the full weight for the extensive planning, monitoring and implementation that are being directed at our precious water resources. These partnerships are key to our success in meeting the spirit and the requirements of the Clean Water Act.

The 2007 report included all monitoring and implementation that had occurred from the date a waterbody was listed to the date of publication. This report, due to space limitations, reports on the additional activities that occurred from the fall of 2007 to the fall of 2009. For a complete summary of all activities please refer to the 2007 report which can be found at http://www.conservewy.com/docs/07_rpt.htm.

In 2007, we reported a total of 10 waterbodies had been delisted since 1998. This report includes another four waterbodies that have been either restored or additional data demonstrated they were attaining their designated uses and those too have been delisted. We believe these successes are indicative of the success that can be achieved through voluntary incentive based efforts and where a local community is aware, educated and engaged in helping to protect, enhance and improve its watershed.

The last two years also brought some significant changes in the water quality program. Section 303(d) of the Clean Water Act requires the state to identify waters within the state that are not attaining their uses and prepare a list of those waterbodies that require a Total Maximum Daily Load (TMDL). Not all waters identified as impaired require a TMDL but for those that do, the state then is to calculate a TMDL. This list is to be prioritized and a TMDL is to be developed within a "reasonable" timeframe. The "reasonable" timeframe has been defined by EPA as 8-13 years.

Wyoming chose to take the opportunity afforded by the 8-13 year time frame and initiate local watershed efforts address these impairments locally before a TMDL is established. That has been the process used in the past 10 years or so. However, for those waters that are not yet attaining standards, the time has come for TMDLs to be established; hence DEQ has initiated that process in a number of watersheds. Due to the logistics and need for efficiency, TMDLs will be developed on a watershed basis. The districts are working with DEQ as they proceed. The Association believes that existing monitoring efforts, watershed plans and documented implementation will be integral to the TMDL process.

As well, a number of district's efforts were put "on hold" due to EPA's requirements that watershed plans contain certain elements. The watershed plans developed by districts were ongoing prior to these elements being required. As a result, these districts no longer qualified for federal Clean Water Act section 319 funding. Despite these challenges, the districts, along with their partners, continued to implement with the resources they had available. There are two districts in Wyoming who have modified their plans to meet EPA's requirements and these are pending review and approval. Many other districts are waiting for those plans to be completed before embarking on revisions of their own so they are clear on required revisions.

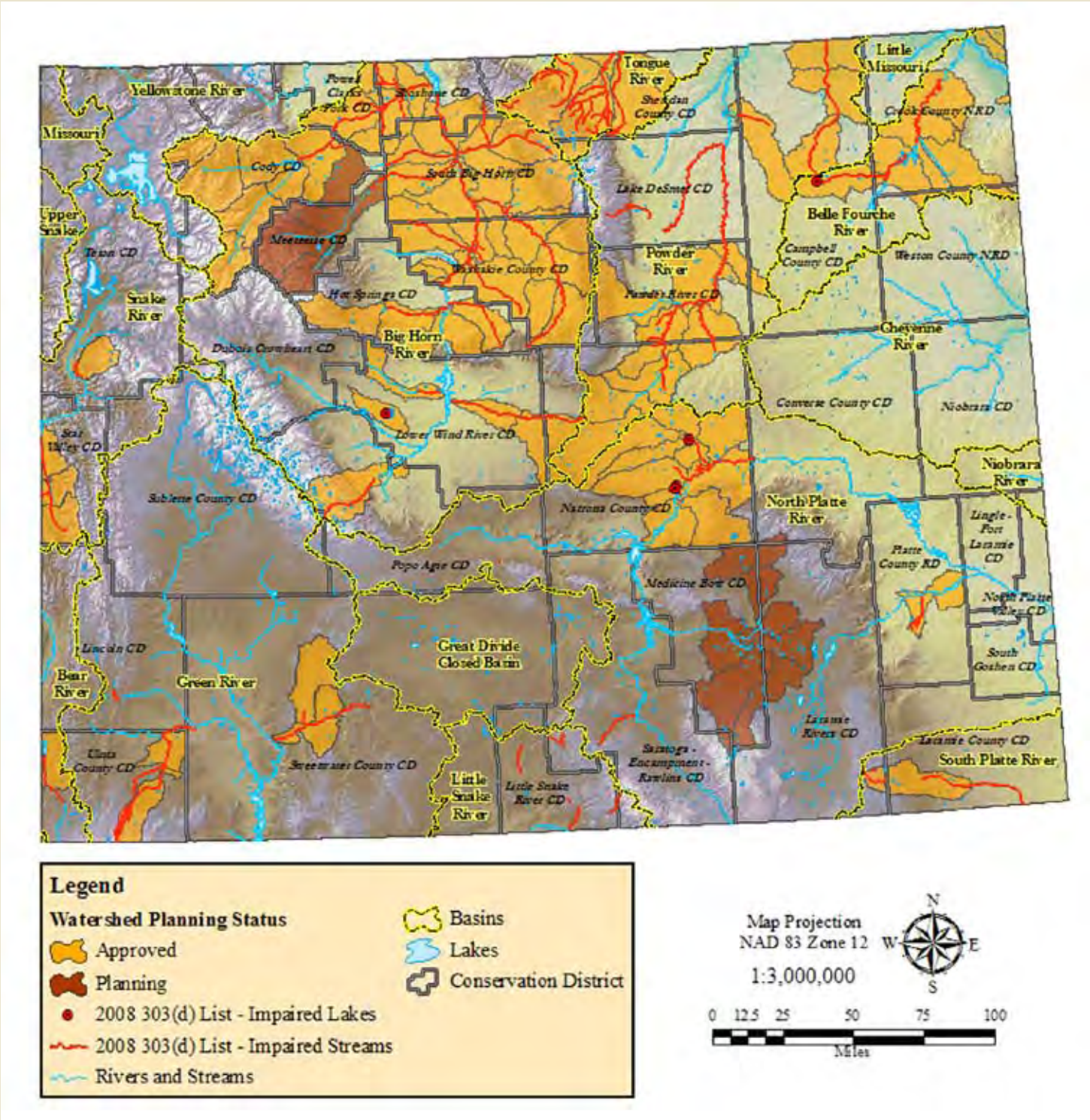
A number of districts who will have TMDLs developed will be revising their plans once that process is complete to incorporate the pollutant loads identified in the TMDLs.

We applaud the local districts and their watershed steering committees for completing 25 watershed plans covering 73 listed streams. Approximately 15,000 hours were dedicated to these efforts by local landowners, community leaders, state and federal agency, and private organizations. A special thanks goes to Doug Miyamoto and Nephi Cole, NRCS Watershed Coordinators for their dedication to assisting with these watershed improvement efforts. The technical expertise and tireless dedication to locally led conservation was paramount to these efforts. WACD also welcomes Cathy Cooper who, in October 2009, filled the watershed coordinator position left as Doug Miyamoto moved on to new endeavors.

The Wyoming Association of Conservation Districts would again like to extend our appreciation to the Wyoming Nonpoint Source Task Force, Wyoming Department of Environmental Quality and the Environmental Protection Agency, Region 8 for providing funding to publish this report. Also thanks the Wyoming State Legislature and Wyoming Department of Agriculture for supporting funding specifically for water quality efforts.

WACD has also created a web based Watershed Report which includes additional information on these water quality activities. To view this report and additional watershed information please visit www.conservewy.com.

WATERSHED PLANNING STATUS

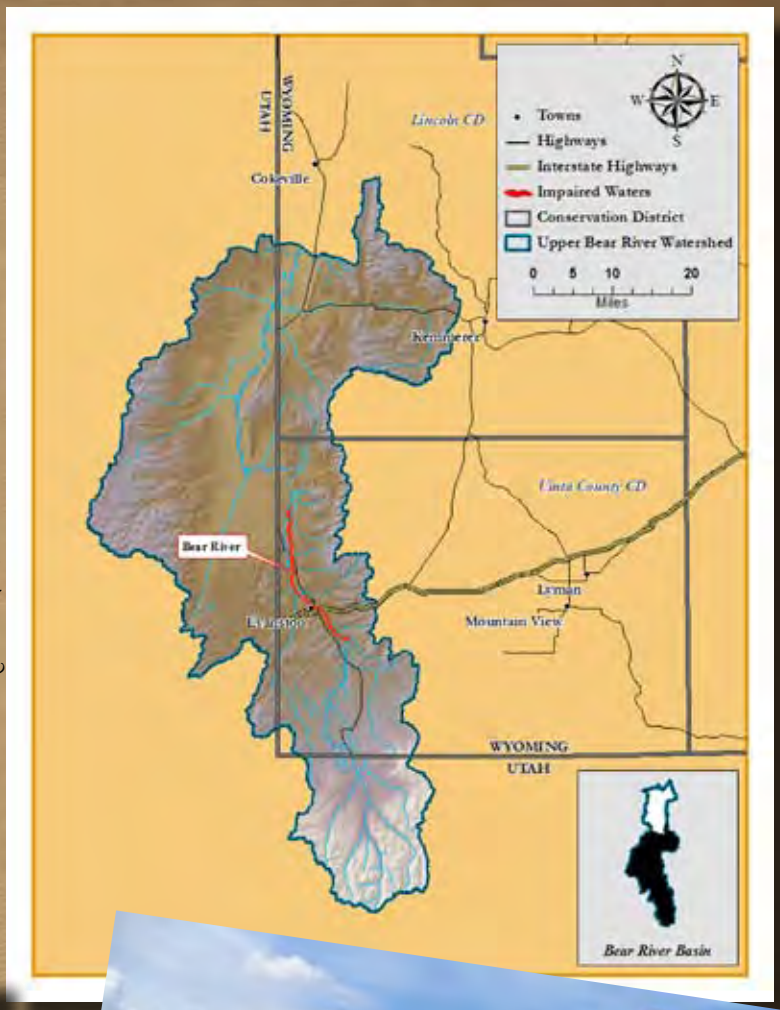


Uinta County Conservation District

BEAR RIVER BASIN

"There is much to be said about protecting the watershed in our region of the country. We rely heavily on Mother Nature for our supplies of water; depend upon her natural filtration processes to help us in our preparation of the water for culinary and other uses; and we impact the streambeds heavily with our recreational uses. It is only in our best interest that we take an active role in making certain that the watersheds, and the water itself, are as healthy as we can help make them. Even seemingly small projects such as marking the drains in our community help serve as reminders to all of us just how much clean water, both up and down stream of our particular usage area, there is. Water is our most valuable renewable resource. Taking care of it is of utmost importance to our livelihoods."

Will Davis, Mayor, Evanston



Activities and Progress

The district monitors five sites on the Bear River, one on LaChapelle Creek and two on Sulphur Creek. Sampling is conducted twice per year, once in the spring during high flow and once in the fall during low flow.

The district is in the fourth year of watershed plan implementation. Additional projects that have been implemented include one irrigation improvement project and one grazing management plan that covered over 22,000 acres in 2008. The district also implemented a storm drain marking project and marked over 100 storm drains with the help of Eagle Scout and Cub Scout groups. The markers read, "No dumping, leads to Bear River."

The district continually provides information about watershed planning through quarterly newsletters, newspaper articles, workshops and education outreach with students and adults. Both district staff members attended a "Tread Lightly" training course and became "Tread Trainers" to teach about the importance of using resources responsibly. The district also gave a presentation to the Upper Bear River Trout Unlimited Group and discussed possible partnerships on future projects and planning. A presentation about UCCD's watershed planning efforts was also given to the Bear River Water Quality Task Force.

The district participates on the BEAR Project, Inc. (Better Environment and River Project) Board of Directors whose mission is to, "Develop the Bear River as a natural and cultural focal point of the community." The project has received funding through State grants, the City of Evanston, and corporate and private donations. Early in the master planning of the BEAR Project a detailed Bear River Rehabilitation project was completed that was designed to clean up the banks of Bear River; enhance the river environment; improve fish habitat, erosion and flood control; stabilize the river banks; and eventually improve recreation in and along the river. Recently, projects that have been completed through the BEAR Project Board to improve the area include construction of the BEAR River Greenway Entryway and trail head projects, the design and purchase of interpretive and informational signs and kiosks, landscaping the trailhead projects, repairing the main trail, coordinating a river access area, and the development of a BEAR River Greenway color brochure. The BEAR Project also coordinates and holds a Bear River Fest annually to showcase the area and provide education and activities that benefit the community.

The district participated in World Water Monitoring Day activities with two high school groups and one scout group teaching about water quality and the watershed planning efforts taking place on the Bear River.

The district contracted with a consulting firm to complete data analysis, quality assurance/quality control, and reporting on data collected in 2007 and 2008. A brochure and memorandum of the data that was collected those two years is available on the district's website.

Monitoring Results

The Bear River and Sulfur Creek exhibited chemistry typical of mountain streams. LaChapelle Creek showed a mix of dominant cations and anions when compared to the others. In-field measurements of temperature, dissolved oxygen and pH indicated that the streams met the aquatic life standard. Conductivity, temperature, and dissolved solids increased moving down the watershed on the Bear River, whereas these factors remained fairly constant on Sulphur Creek even as discharge increased. Nutrient concentrations, potential indicators of pollution, were measured at all sites and found at the low limits of detection.

Partners

The BEAR Project, Upper Bear River Trout Unlimited, Uinta County Conservation District, scout troops, Evanston Parks and Recreation Department, the Upper Bear River Water Quality Steering Committee- which consists of 35 members representing landowners, local citizens, the City of Evanston, County Commissioners, County Planning and Zoning, and the NRCS.

Watershed Investment

Local	$ 5,492
State	$ 1,700
Federal	$ 7,071
BEAR Project, Inc	$ 842,250
Total	$ 856,513

Contributors

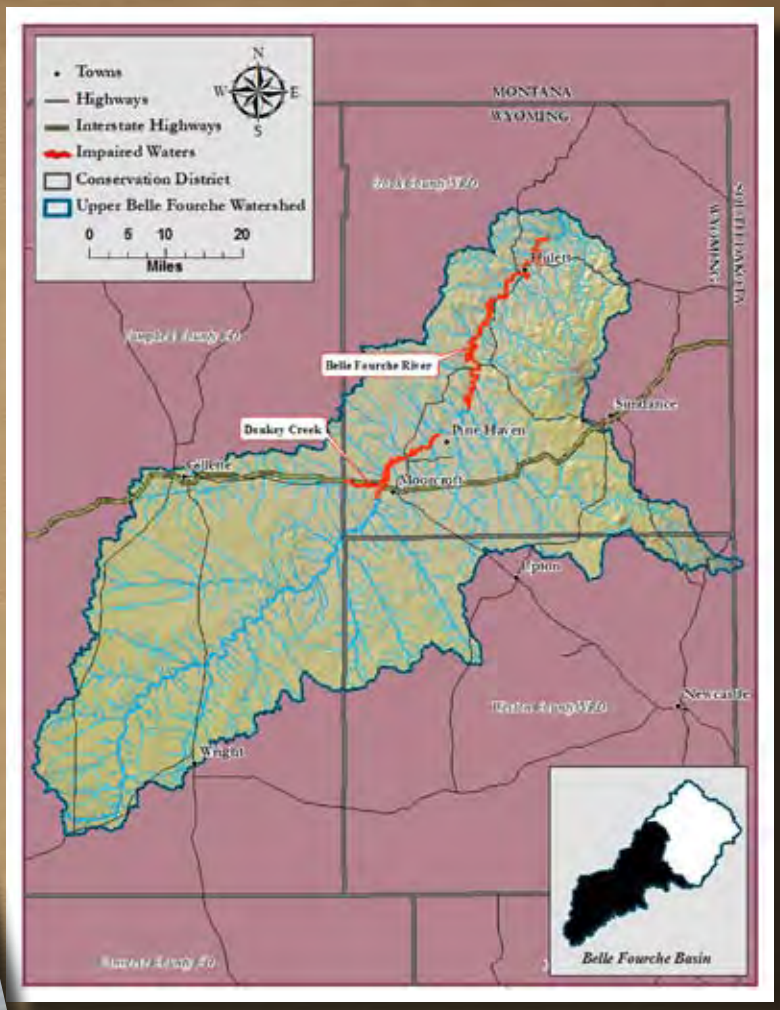
Uinta County Conservation District
Department of Agriculture
USDA Natural Resources Conservation Service
BEAR Project, Inc *(including corporate and private sponsors and State grants)*
City of Evanston

Crook County Natural Resource District

BELLE FOURCHE BASIN

" We were very pleased with the CCNRD Board and staff during our septic system remediation project. We appreciate their expertise".

Nadine Wolf, Landowner



Activities and Progress

The District completed its 8th year of sampling in 2008. Samples were collected every week throughout the recreation season (May – September) on 11 sites. All sites were monitored for the following parameters: temperature, pH, conductivity, Total Dissolved Solids (TDS), turbidity, and stream flow. The pollutant of concern, E. coli, was monitored at all sites. Also, at four sites, ammonia and chloride were monitored.

In 2009, monitoring began in June. Weekly monitoring has been conducted on 8 sites. E. coli continues to be monitored at all sites, along with a number of other parameters.

The Belle Fourche River Watershed Plan, approved in 2004, will need to be updated in 2010. The development of the TMDL is underway and should be completed by 2011. Data from the districts monitoring program along with the implementation activities will be considered during the development of the TMDL.

Through the districts cost-share program, 23 septic system rehabilitation projects and three agricultural projects, including fencing and off-site water management practices, have been implemented. The USDA Natural Resources Conservation Service Farm Bill program implementation resulted in an additional nine grazing management and riparian area management projects.

In addition to the on the ground implementation efforts a number of education/outreach efforts were conducted within the watershed as well. These included seven workshops, including a workshop specifically related to septic systems and water conservation practices with Karen Farley, DEQ presenting.

Working in conjunction with the local schools in May 2008, the district presented to 30 Moorcroft 7th graders on watershed function and a demonstration on using the Colilert method (equipment for testing E.coli). In May 2008, 23 5th graders and 24 6th graders participated in activities and discussions related to environmental issues at a two-day event at Ranch A. In 2009, World Water Monitoring Day activities were conducted with 31 students from Sundance 5th Grade on September 18, with 12 students from the Sundance Kindergarten on September 30, with 52 students from Moorcroft High School (various grades) on October 22, and with 30 students from the Sundance 7th grade on October 27.

As well the district coordinated and hosted a number of meetings and mailings to landowners on watershed issues which reached a combined 2,000 people. These include an October 2007 meeting held to address the TMDL issue, a mailing was sent to landowners in November 2007 concerning the TMDL and the CCNRD Cost-Share Program.

A meeting was held in March 2008 to discuss the 2007 monitoring season and the CCNRD Cost-Share Program and again in January 2009 another meeting was held to discuss the 2008 monitoring season, the TMDL, and non-point source pollution. A follow-up letter to this meeting was sent to landowners in March 2009.

A letter about CCNRD's Cost-Share Program and the TMDL was sent to landowners in April 2009. In December 2009 the annual meeting was held to discuss the 2009 monitoring season and update residents on the re-writing of the watershed plan slated to begin in 2010.

The districts assisted DEQ in facilitating the TMDL public information meeting hosted by the Wyoming DEQ and Tetra Tech, a consulting firm, in December 2009, mailing invitations to stakeholders, calling landowners to remind them about the meeting, hanging flyers, and placing ads in local papers and on the radio and TV. Two watershed tours were also held. In May 2008, the district hosted the Wyoming Non Point Source Task Force. The tour included four sites where best management practices had been implemented. In August 2009, CCNRD hosted a tour of the watershed for Tetra Tech, DEQ, and represenatives from the Campbell County CD.

The district also continued to publish its newsletters (mailing list of about 800) and maintain a website. The May, August and November of 2009 editions of the newsletter focused primarily on water quality. In addition, newspaper articles on water quality were published weekly for most of 2008 & 2009.

Monitoring Results

For three consecutive years, geometric mean data collected on the Belle Fourche met the state of Wyoming E. coli standard. However, during a period of high precipitation and large volumes of rain and snowmelt runoff, in May, 2008 a geometric mean collected exceeded the standard. All data collected after May fell below the standard.

In 2009, the month of June was especially rainy, and again, the District found high levels of E. coli which seem to correlate directly with the rainfall. The data collected so far indicates that the Belle Fourche River above Keyhole Reservoir remains impaired for E. coli. However, samples collected on the Belle Fourche River below Keyhole show levels of bacteria well below state standards.

Partners

Local landowners, USDA Natural Resource Conservation Service, USDA Resource Conservation & Development, Crook County Commissioners, Crook County Growth & Development, Crook County Land Use & Planning, Cooperative Extension Service, the National Park Service, US Forest Service, Belle Fourche River Watershed Partnership, University of Wyoming

Watershed Investment

Private	$165,612
Local	$ 17,673
State	$ 33,919
Federal	$183,043
Total	$400,247

Contributors

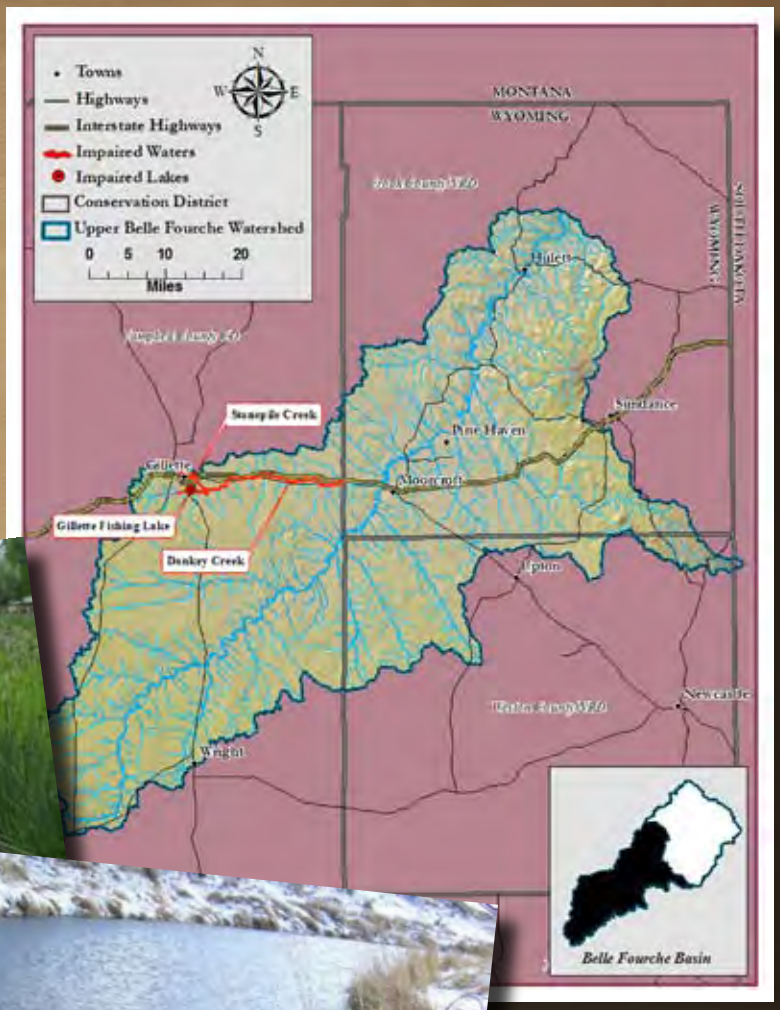
Crook County Homeowners and Landowners
Wyoming Community Foundation Grant
Kenney Foundation
Crook County Commissioners
Crook County Natural Resource District
WDA Water Quality Grant
EPA/DEQ Section 319 Grant
USDA Natural Resources Conservation Service

Campbell County Conservation District

BELLE FOURCHE BASIN

"Healthy watersheds are a valuable resource for wildlife habitat, local economies, and recreation opportunities. Protecting healthy watersheds through planning, local coordination, and outreach is key to avoiding challenging and costly restoration efforts."

Levi Jensen, City of Gillette Civil Engineer



Watershed Investment

Private	$ 15,996
Local	$810,994
State	$ 20,739
Federal	$580,229
Total	$1,427,958

Contributors

Landowners and Homeowners
Campbell Cnty Conservation District
Campbell County
City of Gillette
Department of Agriculture
USDA NRCS
Department of Transportation
DEQ/EPA

Activities and Progress

Monitoring Gillette Fishing Lake was conducted in the fall of 2008 through the fall of 2009. The City of Gillette monitored the Lake at the inlet, outlet, and 3 in-lake samples for impairment of sediment and phosphorous. The City is maintaining the stormceptors and their effluent. The City of Gillette is developing a TMDL in partnership with the CD and DEQ for Gillette Fishing Lake. The draft TMDL is being reviewed by stakeholders with an expectation that a final draft will be submitted to DEQ in January 2010. The Gillette Fishing Lake water quality improvement plan continues to be implemented. The plan will be updated in 2010 after the TMDL is completed.

The district continued to monitor Donkey Creek & Stonepile Creek in the fall of 2008 through fall 2009. Monitoring was conducted on Donkey Creek at five stations and Stonepile Creek at seven stations.

The district continues to implement the Donkey Creek/Stonepile Creek water quality improvement plan. In 2009, DEQ initiated TMDL development on the Belle Fourche River watershed. This TMDL is slated to be completed June 2011. Both the district and the City of Gillette are participating in the TMDL development process.

Fishing Lake: To continue to address the impairment of Gillette Fishing Lake, the City of Gillette has initiated engineering to construct a wetland to filter sediment, install bank stabilization, and conduct dredging projects with anticipated completion in 2011. In addition, the City is updating its Stormwater Master Plan with anticipated completion of 2010 and the district is participating in that planning effort.

The district has worked with the Gillette News-Record to publish a series of articles on water quality and non-point source pollution to help educate citizens on how to reduce and prevent non-point source pollution. The city of Gillette has hosted one public meeting and one stakeholder meeting in conjunction with the TMDL kickoff.

Donkey Creek & Stonepile Creek: The district presented the Enviroscape model demonstrating non-point and point source pollution and how it occurs within a watershed approximately 30 times. With help from volunteers they applied 900 storm drain stickers, provided by the City, to the storm drains in the City of Gillette where water flows into Donkey Creek and the Gillette Fishing Lake. A district employee and six boy scouts from Troop 51 applied 400 stickers. They also distributed approximately 400 copies of the publications: "A Guide for Proper RV/Camp Waste Disposal," "A Guide for Proper Pet Waste Disposal," "Wyoming Homeowner's Guide to Septic Systems," "Did You Know?," and "Grazing Livestock on Small Acreages" brochures. Distribution occurred through direct mailing, workshops, fairs, school education programs, and placement at City and County offices.

In addition the district distributed 1,200 complimentary copies of the "Barnyards & Backyards – Rural Living in Wyoming" publication to residents of the County. Over 20 water quality presentations were delivered during workshops, fairs, radio interviews, and newspaper stories to approximately 2,500 people. Updates on water quality issues and announcements of cost-share opportunities were published in the district newsletter, distribution 1,100, on a bi-monthly basis.

The district hosted the World Water Monitoring Day at Gillette Fishing Lake in 2008. A total of 143 students, teachers and residents participated. CCCD hosted World Water Monitoring Day on October 16, 2009 and over 60 students participated. They also hosted two Agriculture and Natural Resources Expos for 3rd grade classes in Campbell County. There were a total of 997 participants in the Expos.

There have been one prescribed grazing system, four stock water wells, four tanks, and a solar pump implemented with cost-share funding provided by NRCS in the past two years

Monitoring Results

The 2006-2007 monitoring project results on Donkey and Stonepile Creeks, showed an increase in bacteria, while general water quality parameters remained constant with 2002-2003 results. Spring 2006 had the highest bacteria concentrations with results exceeding the limit of 126 col./100 mL at nine of the twelve sites. Stream temperature may have had a significant impact on spring sampling results. The average stream temperature in spring 2006 was 7.7 °C higher than spring 2007.

Overall the total project had 37 single sample exceedences, which significantly exceeds the 11 exceedences reported in the 2002-2003 CCCD Monitoring Report. Fourteen of the single sample exceedences occurred at the SC1 and DSCP sites, located downstream of the Gillette WWTP. Flow results confirm that the water at SC1 and DSCP sampling sites are compromised of flow predominantly from the Gillette WWTP effluent stream. The Gillette WWTP, issued by the WDEQ on July 30, 2007, permits a maximum monthly E. coli concentration of 126 col./100 mL during the summer recreation season and a monthly concentration of 630 col./100 mL during the winter recreation season. Based on results obtained during the study and the WDEQ permitted concentrations it may be difficult for the streams to remain below the primary contact water quality standard during the summer months.

While E. coli and fecal coliform concentrations had excellent correlation, bacteria concentrations lacked correlation with additional water parameters, including flow, TDS, turbidity, and sulfates. Field parameters and inorganic analyses results were comparable to those reported in the 2002-2003 CCCD Monitoring Report.

2008-2009 data is currently being analyzed and a report with water quality conclusions will be available in April 2010.

Partners

The Gillette Fishing Lake plan was developed by the Engineer for City of Gillette and the Conservation District with input from the public through the comment period. The fourteen member Donkey Creek/Stonepile Creek Watershed steering committee is comprised of landowners, City, County, DEQ, NRCS and District representatives. Partners include City of Gillette, Campbell County, WDEQ, NRCS, landowners, WDA, and WYDOT.

Popo Agie Conservation District

BIG HORN RIVER BASIN

"The leach field was moved above the water table and replaced with a state-of-the-art system. It worked out really well, the cost-share program prompted me to undertake the project and it was a very good thing"

Tony Hoyt

Activities and Progress

The district collects water quality samples for E.coli on the Middle Fork of the Popo Agie. The sites are located upstream and downstream from the city of Lander. Sampling is conducted during the recreation season to track and monitor the effectiveness of the septic rehabilitation projects and best management practice implementation.

Monitoring Results

Early water quality monitoring data for 2008 indicated a reduction in bacteria contributions downstream of a septic rehabilitation project that was installed in the fall of 2007. Bacteria contributions elevated during late summer and the monitoring data identified an additional source of bacteria contribution. In 2009, early monitoring confirmed lower bacteria contributions but late summer monitoring validated a second source of bacterial contribution.

Implementation

Through a Wyoming Department of Environmental Quality Section 319 grant the district has provided planning and cost-share assistance to replace four failing septic systems on the Middle Fork of the Popo Agie River. District and NRCS personnel are participating with a rural landowner upstream of Lander to implement best management practices to mitigate potential agricultural waste contributions to the Middle Fork. Practices include off site stock water facilities and irrigation pipelines.

To reduce erosion, improve efficiency and water conservation, twelve irrigation improvement projects have been implemented. Those practices include the installation of buried pipelines, siphons, and diversions.

The district partnered with South Elementary Students in 2008 and 2009 to develop two advertising campaigns. The 2008 campaign was to promote water conservation in our local community. The students adopted the district's "Wise Water Use" logo. They researched, designed, and recorded radio ads that provided tips for water users to conserve water. The radio ads were aired throughout the summer. In 2009, the advertising campaign was developed to help pet owners be more mindful and responsible for collecting and disposing of pet waste along Lander's greenways, parks, and schools. The student's action plan included writing and recording radio ads that aired on the local radio station. They also created posters that were distributed and displayed throughout Lander.

Over 100 videos of the Squaw Creek Bioengineering Demonstration Project highlighting innovative techniques for streambank stability, soil erosion control, habitat enhancement and improved water quality have been distributed to students, adults, and organizations.

A full-color poster of the Popo Agie Watershed was developed to use as an educational tool for students and adults. The poster, an excellent educational tool, highlights water resources in the watershed. Approximately 1,700 posters have been distributed.

To raise awareness of local water quality issues approximately 150 students from Lander schools participated in the World Water Monitoring Day activities. Students collected, analyzed, and reported their monitoring results.

District personnel presented an activity that highlighted the importance of watersheds, riparian areas, and water quality with students from the Wind River Reservation at the Wind River Alliance Youth Camp.

Partners

Natural Resources Conservation Service, Bureau of Land Management, U.S. Forest Service, U.S. Fish and Wildlife Service, WY Game & Fish Department, DEQ, State Engineers Office, Fremont County Commissioners, City of Lander, Fremont Broadcasting, Lander Journal , The Nature Conservancy, State Forestry, State Grazing Board, Wyo. Department of Transportation, Fremont County Weed and Pest, Museum of the American West, Fremont County School Districts 1, 14, and 21

Watershed Investment

Local	$79,475
Private	$72,858
State	$303,060
Federal	$208,744
Total	$664,137

Contributors

Landowners
Popo Agie Conservation District
Wyoming Department of Agriculture
Natural Resources Conservation Service
DEQ/EPA
Wyoming Water Development Commission

Lower Wind River Conservation District

BIG HORN RIVER BASIN

"There have been a lot of efforts related to reducing the sediment going into the lake over the years. Although I am not confident that this isn't just a natural, inevitable process and that eventually the lake will fill in, if there is something we can do within economic reason to help extend the life of the lake, we are willing to explore those options."

Bryon Wilczewski,
Lower Wind River Conservation District

Activities and Progress

Monitoring on Muddy Creek was conducted in 2008 and 2009. Four samples have been taken at each of three sites which include upper Muddy Creek, where Wyoming Canal enters Muddy Creek, east and west of the bridge on North Portal Road, and east and west of the bridge on Bass Lake Road. The watershed plan for Muddy Creek was completed in 2007. The plan for Poison Creek was also completed in 2007 and a Use Attainability Analysis was completed on Poison Creek and will be submitted to DEQ in 2010.

A steering committee met monthly to formulate a watershed plan for Ocean Lake. The plan was approved by the District in February of 2009. The Wyoming Department of Environmental Quality completed a TMDL for sediment in 2009. In the past two years, four additional projects were implemented in the Ocean Lake Watershed. Those projects consisted of three of irrigation ditch conversions to gated pipe and one conversion to a pivot. One additional, landowner funded, pivot project was also implemented. Local landowners have continued to implement various management practices such as bank sloping and burms. Local citizens continue to annually put christmas trees in the lake to enhance fish habitat. The Wyoming Game and Fish stocks the lake with fish and monitors the lake for fish types, Secchi depth (transparency) and Total Dissolved Solids.

Muddy Creek and Poison Creek each had steering committees who wrote and completed, in 2007, a watershed plan for each of these watersheds. Over the past 15 years, many projects have been implemented on these creeks. In the last two years, one pivot project was implemented in the Muddy Creek watershed. The reduction in the number of projects is partly due to reduction in cost-share funding available. Additionally, nearly all of the irrigated acres along Muddy Creek are currently under center pivot irrigation.

For Poison Creek, landowners have installed off-creek water for livestock over the last 10 years. There are a limited number of landowners and thus a limited number of water development projects that can be implemented. Additionally, there has been no flow in Poison Creek to monitor the water quality. The Town of Shoshoni regularly monitors its discharge into Poison Creek. WDEQ has recently determined that the Town of Shoshoni will have to build an evaporative system for its sewage system and will no longer be able to discharge into Poison Creek once the system is completed.

Educational programs about best management practices have been presented to citizens in the District during two small acreage workshops (91 participants) and the annual Farm and Ranch Days (250 attendees each of two years). Topics have included maintenance and repair of septic systems, pasture management, proper selection and planting of wind break trees, weed management, water delivery, amount of water needed for irrigation and soils and soil types.

Monitoring Results

The Wyoming Game and Fish Department monitors Ocean Lake and their personnel have indicated that they are starting to see some evidence of fish spawning in the lake. This fact is significant since the natural cycling of the waters and nutrients in lakes, especially those with limited outflow such as Ocean Lake, can run in time scales from years to decades.

The District continues to monitor Muddy Creek. Trends in the results show that the upper two sites have lower E. coli counts than the lower sites. An example would be the geometric means for June 2009 where the upper site results were 20 and 85, while the lower sites were 481 and 652. There has not been sufficient flow to monitor Poison Creek except in large rain events. In those cases, the flow is rapid for short periods of time creating conditions not conducive to safe collection of samples.

Partners

Twenty-two people participated in steering committee meetings including local landowners, Lower Wind River Conservation District supervisors, and representatives of the Natural Resources Conservation Service, Wyoming Game and Fish, the town of Shoshoni, and interested citizens.

Watershed Investment

Private	$220,000
Local	$ 40,000
State	$ 29,980
Federal	$220,000
Total	$509,980

Contributors

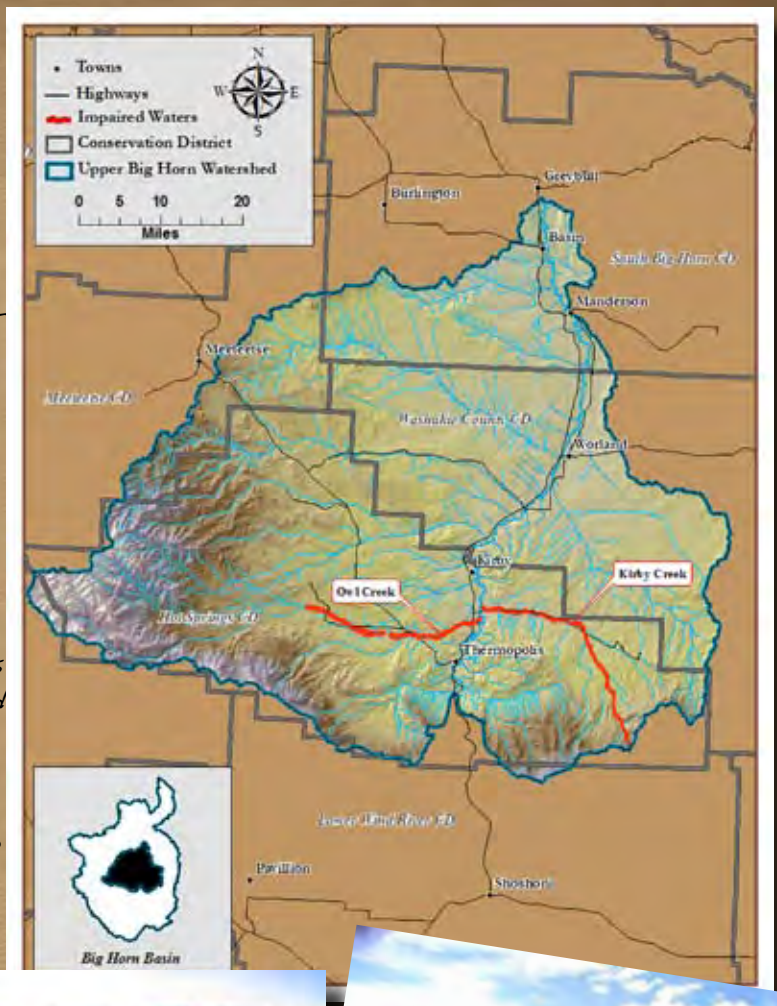
Local Landowners
Fremont County Commissioners
Department of Agriculture
USDA Natural Resources Conservation Service

Hot Springs Conservation District

BIG HORN RIVER BASIN

" My husband and I have owned our farm on Owl Creek since 1975. With help from the Hot Springs Conservation District and NRCS over the years we have done a number of projects that directly apply to water management, runoff, erosion control, and other measures we could take to improve the water quality in our watershed. Nephi Cole, the WACD Watershed Coordinator helped our landowners work on our watershed plan for Owl Creek. We identified the many ways to implement best management practices and even found ways to help landowners with funding. I think off stream corral relocations are probably the biggest improvement we could ever do. Besides ours, there are more that have been done on Owl Creek. We personally feel that leveling the land and controlling the runoff is also a big help. We will continue to be aware and work on these things for generations to come."

Barbara Daniels, Landowner



" It's been exciting and rewarding to be part of the Kirby Creek CRM and the Kirby Creek/ Buffalo Creek Watershed Planning efforts. For the first time, in 2009, we have results from our water testing that has shown a drastic improvement in E. coli numbers in the watershed. There have been over thirty BMP's put into practice in the watershed, which tells us that the proof is in the pudding."

James Wilson, Kirby Creek Landowner

Watershed Investment

Private	$ 56,882
State	$127,765
Federal	$141,060
Total	$325,707

Contributors

Landowners
Wyo. Department of Agriculture
Wyo. Water Development Comm.
Wyo. DEQ / EPA
USDA NRCS

Activities and Progress

The Conservation District continues to conduct monitoring within the Owl Creek watershed, with the assistance of a Department of Agriculture water quality grant. Sampling was conducted September-October 2007, May-June 2008 and May-June 2009. Eight sites were tested for e-coli and physical parameters, and samples were sent to the WDA Analytical Lab for chemical testing.

District monitoring included fourteen (14) sites tested for e-coli, water chemistry, and other physical parameters in the Kirby Creek watershed. Sampling was conducted September-October 2007, May-June 2008, September-October 2008 and May-June 2009.

The Owl Creek steering committee continues to meet biannually at the least and quarterly at the most. Progress continues to be made by landowners along Owl Creek towards the goals and objectives of the watershed plan. Progress has been slow due to funding problems and NRCS applications for EQIP projects not ranking high enough. There have been three AFO's completed and two others that are partially completed in the watershed. Many other aspects of the plan have been implemented; educational workshops, tours of the watershed, noxious weed controls, a district quarterly newsletter and a district website.

In 2007, watershed planning aimed at addressing the water quality impairment was initiated on Kirby Creek. In September 2008, the landowners on Buffalo Creek, an adjacent drainage to Kirby Creek joined the process. While Buffalo Creek does not flow into Kirby Creek it shares many of the same landowners and is a tributary of the Big Horn River. The Kirby Creek / Buffalo Creek Watershed Plan was adopted and completed in June 2009. Kirby Creek landowners continue to install projects in the watershed and the water monitoring shows a significant amount of progress. Various projects have been installed in the Kirby Creek watershed; a streambank restoration project which installed 19 rock drop structures, 10 reservoir structures were built, 112,930 feet pipeline and 58 stock and storage tanks installed, two solar pumping units and 12 watering tanks, and noxious weed treatments continue through the Hot Springs County Weed and Pest for the Kirby Creek Special Weed Management Zone.

In early 2008, the Kirby Creek landowners applied to the Wyoming Water Development Commission (WWDC) for a revised Level I Study (a Level I study was completed by WWDC on September 2005) of the Kirby Creek watershed area. The Commission approved the request and an engineering firm was chosen in May 2009. The Kirby Creek Watershed Revised Level I Study began with a scoping meeting in June 2009. The goal of this new study is to provide an update on watershed conditions, with particular emphasis given to evaluating projects implemented since the previous study and their relationship to current watershed function. Information collected during the study will be used to develop a watershed management and rehabilitation plan.

Monitoring Results

There has been some improvement in the water quality (E. coli and turbidity) in the Owl Creek watershed. Typically the upper reach of Owl Creek will show E. coli numbers well below the primary contact recreation standard of 126 cfu's (colony forming units). The middle and lower reaches will have counts above that standard, but will be below the secondary contact recreation maximum of 630 cfu. In 2009, the E. coli counts trended lower at all sites due to management changes by landowners and increased flow in the creek. 2009 was the first year in a decade that saw water flowing at all test sites during the year.

In the Kirby Creek watershed two recent changes have been documented through the water quality monitoring. The first was on a three mile reach of Kirby Creek that had been totally fenced as a Conservation Reserve Program project. Monitoring sites were selected above, midway and below the project area. During the 2009 spring, 5 tests in 30 days testing, the E. coli counts actually increased in this exclusion. The increased willow production has allowed beavers to construct approximately 30 small dams which attracted other birds and animals. In addition to the beavers, there were dozens of white tail and mule deer, raccoons, mink, skunks, badgers, and a number of species of ducks, shorebirds and song birds. Although a positive genetic identification of the collected E. coli is not possible due to budget constraints, the HSCD is convinced that due to the absence of livestock and human factors (i.e. septic systems) the increase in E. coli numbers is a result of wildlife use of the area.

In addition, a 19,000 foot pipeline and stock water tanks allowed livestock to winter off of the riparian area of Kirby Creek, reducing the pathogens and turbidity. Another set of projects that yielded better than anticipated results consisted of an animal feeding operation relocation and pipeline. This Agriculture Management Assistance funded project, moved a set of corrals off of the riparian area of Kirby Creek to an upland bench above the creek. Further down the stream a 19,000 foot pipeline was installed to place water in upland areas above the creek where there had not been a water source before. The projects minimized the impact of livestock on the creek by moving cattle upcountry and reducing cattle concentration. In previous years the cattle had spent the winter and early spring on the creek bottom, but as a result of the new water source, in 2009, the cattle stayed in the uplands. The spring water testing in past years has typically been above the primary contact recreation standard of 126 cfu's. The comparative E. coli values from early spring testing in 2007, 2008, and 2009 at the above, midway, and below test sites were as follows: KC-2 (above) 2007- 90.8 cfu, 2008- 290.9 cfu, 2009- 13.0 cfu; KC-3 (midway) 2007- 160.7 cfu, 2008- 272.3 cfu, 2009- 0 cfu; KC-4 (below) 2007- 185.0 cfu, 2008- 1203.3 cfu, 2009- 15.0 cfu

While the later runoff waters increased the E. coli numbers on Kirby Creek due to overland flow contributions from upstream, these early numbers show the state of this area of the creek in a true time setting, which allows the landowners to assess the impact of their conservation efforts.

Partners

Owl Creek: Landowners, Hot Springs Conservation District, Hot Springs County Weed and Pest, the Arapahoe Ranch, and the Owl Creek Irrigation District.

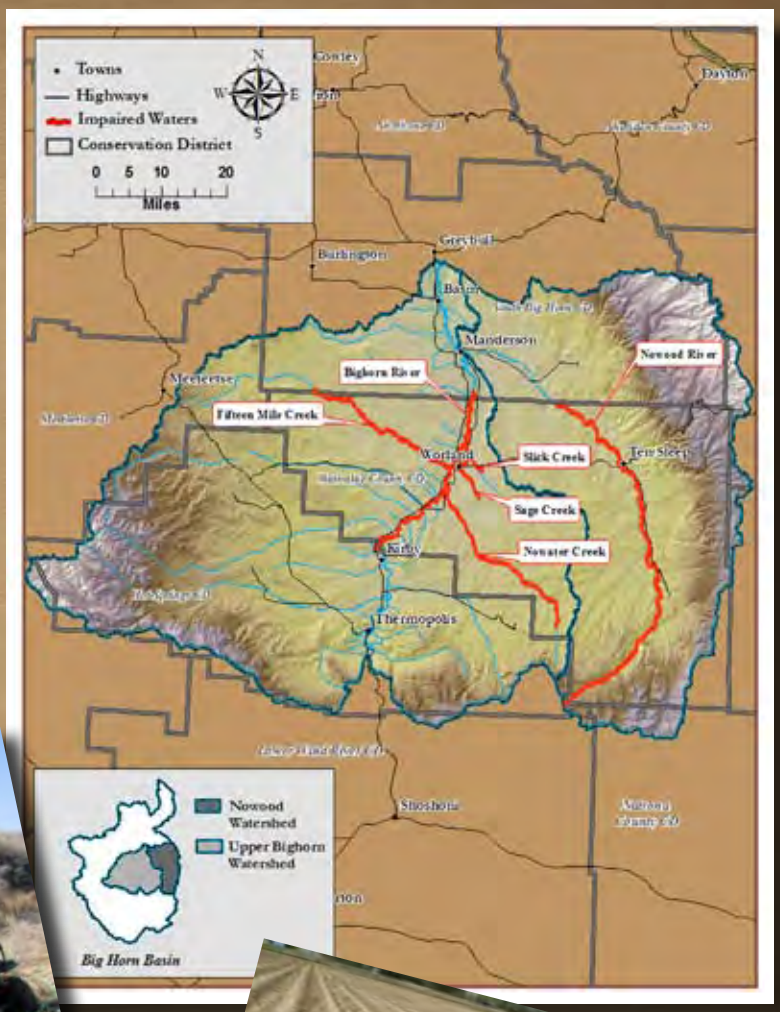
Kirby Creek/Buffalo: Landowners, Hot Springs Conservation District, Hot Springs County Weed and Pest, Kirby Creek Coordinated Resource Management group.

Washakie County Conservation District

BIG HORN RIVER BASIN

" I predict that in 50 years the water will be cleaner due to the better management practices that have been put into place over the past few years, such as moving our feedlots off of streams and fixing inadequate septic systems.... human influence has helped the resource due to better management."

Tom Brewster, Ten Sleep Rancher



Activities and Progress

The district continued to conduct monitoring on one site on each of the six listed waters in five different months each year, with the exception of the Nowood River. The Nowood River site was monitored every month during the recreation season in 2008.

Since 2007, the District has assisted landowners with seven livestock waste management/range practices, 94 irrigation water management practices, 36 septic rehabilitation projects, one windbreak project, one PV Solar project, and also treated 5,722 acres of riparian corridor for Salt Cedar and Russian olive, increasing the riparian health condition to capture runoff.

In early 2007, the district teamed up with Wyoming Sugar and local producers to purchase (using a grant obtained by the district from Western Sustainable Agriculture Research and Education) and install monitoring stations. Each station included three soils moisture probes, a precipitation, air temperature, humidity sensor and a radio data logger. The information collected will help producers increase their profitability and help to improve water quality by using irrigation water more efficiently, using fertilizers more effectively, saving electricity costs, and helping to control disease in crops.

The District cost-shared with the National Wild Turkey Federation and others, to purchase a Waterjet Stinger that is being used to plant cottonwood and willow pole plantings behind Russian olive and tamarisk removal.

Since 2007, to reach the homeowners within the watershed, the district has published three newspaper articles and eight newsletters with articles regarding septic issues and awareness of inadequate systems, published and distributed "Homeowners Guide to Septic" flyers to 2,000 watershed residents on three different occasions, had a watershed information booth at three functions each year with an estimated 20,100 visitors. In addition, district representative participated in two radio interviews on watershed issues and progress.

The district also reviewed 15 subdivision plats for soils suitability.

Several workshops were held and included one on irrigation water management workshop featuring information about new soil moisture measuring technology, one drought workshop was conducted, two workshops to showcase implementation activities were held in two separate years, a "Living on a Few Acres" workshop was held to teach small acreage owners about responsible weed control, pesticide use and grazing and to also teach about composting and Xeriscape plants, and four range monitoring workshops were provided. In addition, one tour was held to highlight BMP activities for animal feeding operation and septic projects and sagebrush management methods.

The publications, "Living on a Few Acres in Washakie County" and also "A Washakie County Homeowner's Manual for Septic Systems" were published and distributed by the District. The publication "Living on a Few Acres in Washakie County" was distributed to all local banks, realtors, the Extension office, Weed & Pest, Assessor's office, County Planning office, Chamber of Commerce, and County Library. The septic manuals were distributed to all local plumbers and contractors and the County Planning office for distribution to homeowners with individual septic systems.

Over 400 students have participated, over the course of the past three years, in the annual Day of Monitoring celebration, water quality monitoring was taught to High School Advanced Biology classes during 32 classroom days to approximately 60 students.

Monitoring Results

The data indicated chemical and physical parameters are not problematic but there may be indications of sedimentation and hardness. Nutrients (N and P) are also generally low in concentration. Bacteria continues to be the most persistent water quality challenge within the District. In general, it appears that bacteria concentrations increased from 2005 to 2007 and decreased in 2008. It is the hope of the District that BMP implementation is beginning to reap benefits to water quality. It is also apparent that there may be a need to focus efforts on Sage Creek as it is the only waterbody tested that doesn't appear to be responding to best management practice implementation efforts at this point in time.

Partners

The Washakie Watersheds Steering Committee is made up of local landowners, representatives from Wyoming Sugar Company, Natural Resources Conservation Service, Wyoming Game & Fish Department, and Bureau of Land Management. Other partners include Washakie County Cooperative Extension Service, Farm Service Agency, Big Horn Forest Service, Washakie County School Districts, Washakie County 4-H Clubs, Worland Garden Club, Washakie County Commissioners & Planner, Department of Environmental Quality, Wyoming Department of Agriculture, and Washakie County Weed & Pest District.

Watershed Investment

Private	$ 198,236
Local	$ 53,496
State	$ 356,959
Federal	$ 946,396
Total	$ 1,555,087

Contributors

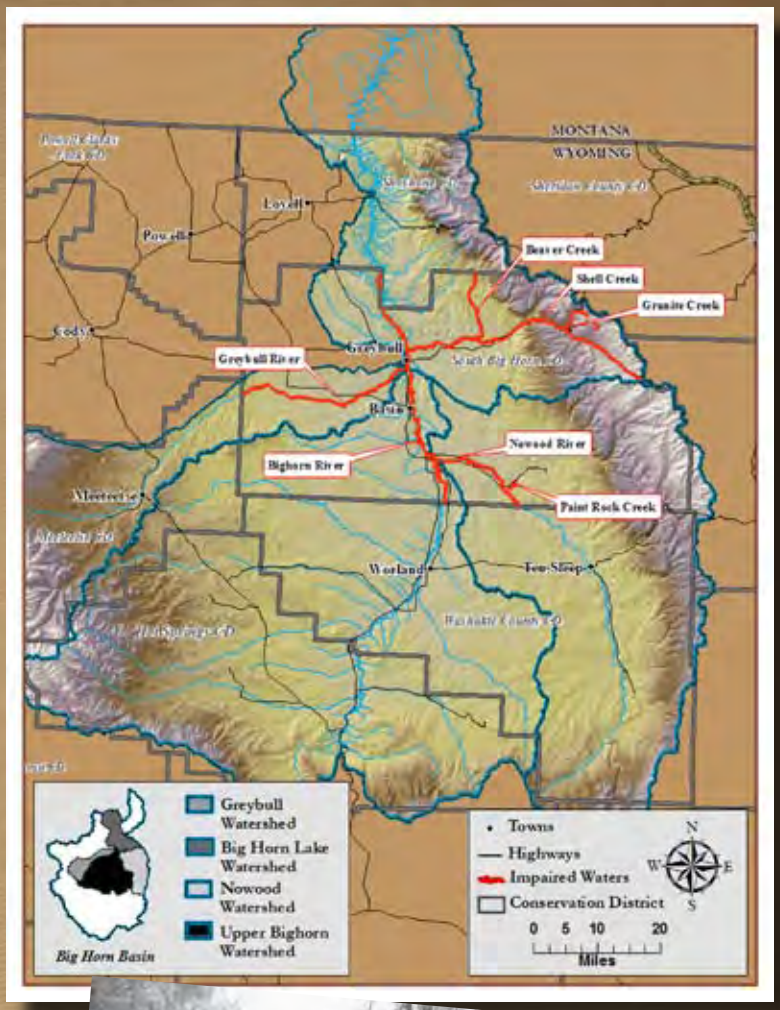
Landowners and Homeowners
Washakie County Conservation District
Wyoming Dept. Of Agriculture
Wyoming Game & Fish Department
Wyoming DEQ
Natural Resources Conservation Service
Washakie County Weed & Pest District
Hot Springs Weed & Pest District
Wyoming Wildlife & Natural Resource Trust
Western Sustainable Ag Research & Education
Hot Springs Conservation District
South Big Horn Conservation District
Bureau of Land Management
Wyoming State Lands and Investments
National Turkey Federation
Farm Service Agency
Wyoming Big Game License Coalition

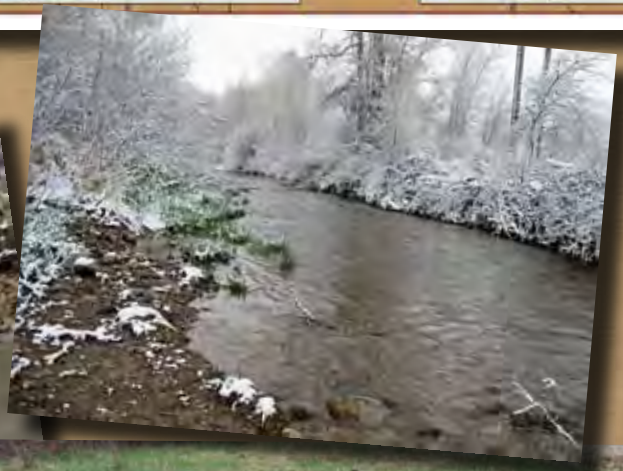
South Big Horn Conservation District

BIG HORN RIVER BASIN

"Our Watershed Plan in the Big Horn River Watershed was completed after a great deal of effort and collaboration in 2007. Local landowners, the public nurse, the District Board, NRCS personnel, and other interested parties worked together to draft a plan that would benefit conservation and address the water quality issues in our county. At the time, the District had several grants to initiate, on the ground implementation efforts, and education. Public participation was increasing and several dozen projects completed. Since completion of the Watershed Plan, a large 3" binder has been filled with documentation of the action items of the plan and other related conservation efforts and collaborations. I am proud of the work our local landowners and community have done to address these water quality issues."

Jennifer Mercer, Chair of the Big Horn River Watershed Steering Committee





Activities and Progress

Nineteen sites total were monitored and included three sites on Dry Creek, three on the Greybull River, five on Shell Creek, two on Beaver Creek, one site on Big Horn River, two on the Nowood River, and two sites on Paintrock Creek. Sampling is conducted twice per year, once in the spring during high flow and once in the fall during low flow.

In the past two years, three septic system rehabilitation projects have been installed and two feedlots have been relocated. The District also completed nine subdivision reviews and efforts are under way to install storm drain markers. The district also hosted two small acreage workshops to help all types of landowners recognize management issues that can affect water quality and other resource values.

In addition, on-the-ground implementation included four septic systems that were replaced and one new installation through the county planner. These were in addition to the 19 septic rehabilitation projects the district implemented.

In addition to the water quality related implementation, the district has been working with NRCS and the Game & Fish Department on a project to remove the Russian olive/salt cedar on the Nowood River, Shell Creek and Greybull River.

Monitoring Results

On Shell Creek and Beaver Creek conductivity levels, and therefore likely salts, seem to be increasing going from upstream to downstream. Bacteria in both these streams don't appear to demonstrate a correlation to temperature, turbidity or discharge. Although single samples exceeded the standard for a one time sample (410cfu/100ml) on both streams, spring geometric mean samples indicated no exceedences on Shell Creek. In contrast, all but one geometric mean sample on Beaver Creek exceeded the standard (126cfu/100ml). Fall samples on Beaver Creek continued to show exceedences in the geometric mean. Some additional data indicates that the fall exceedences may be related to increased sediments and return flows from irrigation.

The district collected 45 measurements on the Greybull River in 2008. The most downstream sites, especially the last two, showed elevated temperatures (above 20 degrees Celsius) nine times during the summer months. Conductivity measurements also went up moving downstream, and there is an indication that these factors are related to irrigation return flows. All spring geometric mean samples for E. coli were below the 126cfu/100ml standard. Significant correlations were identified that indicated a potential correlation of E. coli and increased turbidity associated with irrigation return flows.

Dry Creek showed seasonal trends in turbidity and temperature. Temperature and turbidity tended to increase going downstream and going from spring to summer and fall. Irrigation returns appear to play a role in the increased turbidity in later months. E. coli exceedences of the geometric mean standard occurred 5 times, with spring samples on all sites being below the standard, while exceedences occurred during the summer. Moderate correlation was noted with E. coli and turbidity, and numbers increased moving downstream.

Seventy five measurements were taken on the Big Horn, Nowood, and Paint Rock Creek. The Big Horn showed E. coli exceedences of the geometric mean standard during the summer and fall. The Nowood also showed exceedence in the summer, though none was evident in the spring or fall. On Paint Rock Creek the standard was also exceeded three times, with one observed in the fall an upstream location, and two earlier exceedences reported downstream in the spring and summer.

Partners

Private landowners, ranchers, farmers, local businesses, conservation district supervisors, NRCS personnel, and the county planning office.

Watershed Investment

Private	$1,161,059
Local	$ 18,592
State	$ 53,097
Federal	$2,004,694
Total	$3,237,442

Contributors

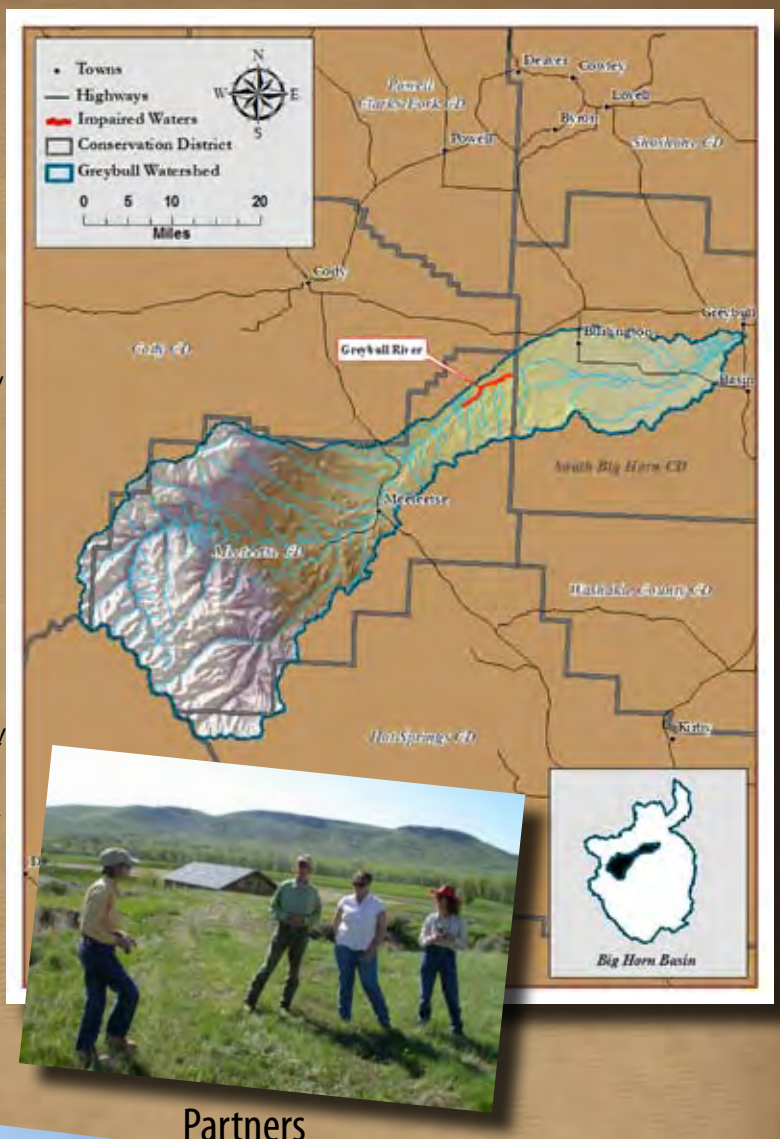
Landowners and Homeowners
South Big Horn Conservation District
Wyoming Department of Agriculture
USDA Natural Resources Conservation Service

Meeteetse Conservation District

BIG HORN RIVER BASIN

"The work our Watershed Planning group has done is impressive. From the beginning the group was successful in bringing a wide range of perspectives to the table, and the facilitation of the group by local Conservation District staff and NRCS was tactful and constructive. Personally, I learned a great deal from participating: history of the drainage concerning cultural or community impact, soils, wildlife, weather, forages, habitat, crop production and animal agriculture; specific concerns of different groups and the reasons for them; current environmental and legislative aspects impacting our watershed; and the work our Conservation District has done, is now doing, and has planned. I've attended field days and workshops concerning the watershed, its health, and its future, and each time I came away armed with useful information, at least one tool or practice that could be quickly put into use, and a greater understanding of the importance of our watershed and the watershed plan as a document."

Tracy Smith, Red Wall Ranch, Meeteetse



Partners

Approximately 67 representatives of US Forest Service, Bureau of Land Management, Natural Resources Conservation Service, DEQ, County Commissioners, local landowners and community members, Game & Fish, Park County Weed & Pest, Trout Unlimited, Greybull Valley Irrigation District, The Nature Conservancy, Wyoming RC&D Council, and UW Cooperative Extension.

Watershed Investment

Private	$145,000
Local Funds	$ 51,574
State	$ 13,206
Federal	$155,413
Total	$365,193

Contributors

Landowners
Meeteetse Conservation District
Wyoming Department of Agriculture
USDA NRCS

Activities and Progress

The district conducts intensive E. coli sampling (collecting multiple samples at each site) and evaluates a number of other parameters (pH, conductivity, dissolved oxygen, turbidity, and temperature) on the Greybull River watershed at a minimum of 5 sites within the District. Occasional reconnaissance monitoring has occurred on other water bodies and other locations in the watershed.

In cooperation with the Greybull Valley Irrigation District (GVID) and landowners, the district set up three continuous water quality monitoring devices at GVID diversions on the Greybull River watershed and protocols were developed and continuous monitoring was approved for the Sampling and Analysis Plan (SAP). Parameters measured are temperature, pH, conductivity, oxidation-reduction potential, and turbidity. Beginning in of June, 2008, GVID was collecting hydrograph data all three sites.

The district worked in collaboration with UW Cooperative Extension, Park County Weed and Pest, NRCS, and the Wyoming Game & Fish Department to host a Riparian Workshop on May 30, 2009 that featured the Greybull River and discussed the fecal coliform impairment.

The MCD has and will continue to disseminate pertinent information through the Trail News, the MCD's weekly newsletter which is distributed to approximately 370 residents, as well as post relevant educational and informational items on the MCD website.

The district has participated in educational activities, such as presenting the "enviroscape" watershed model to elementary students. In addition, in 2008 district obtained a formal proclamation from the Town of Meeteetse and the Park County Commission for Stewardship Week and the "Water is Life" display was at the Meeteetse Library. The "Water is Life" materials were distributed to local entities during stewardship week and the local TV Channel 54 also helped with publicity.

The district hosted "Range Water & Facilities Roundtable Feb. 23, 2008 in Meeteetse. Jim Mischke, Hot Springs County, NRCS District Conservationist, gave a slide presentation showing various water developments, pipelines, and tank installations. The roundtable discussion format worked very well to facilitate a good discussion and the exchange of information between producers and NRCS, BLM, State Engineer's Office, Game & Fish Department, Water Development Commission, UW-CES, and the Department of Agriculture.

The district supports the Spatial Decision Support System for Rangeland Watershed Assessment Project (SDSS), which is intended to provide a stakeholder driven approach to conduct watershed assessments on rangeland watersheds using the internet version of Automated Geographic Watershed Assessment tool (AGWA). SDSS will be led by Dr. Ginger Paige, UW Department of Renewable Resources. It is believed that AGWA will provide a method to evaluate BMPs before and after implementation. The district believes that the results of SDSS will provide direct benefit to the Greybull River Watershed Steering Committee and the District in their joint efforts in watershed management.

NRCS assisted with 5 Grazing Plans (including water development) within the Greybull River Watershed. NRCS has also helped implement 5 irrigation systems with gated pipe within the watershed and will be doing fencing along the riparian corridor of the Greybull River to benefit wildlife. The District will continue to work with NRCS, and local landowners to identify projects and tools for the protection and/or improvement of riparian areas on streams in the Greybull watershed. The District will also work with the NRCS, Trout Unlimited, and interested landowners, to identify opportunities for developing irrigation management plans that benefit producers and wildlife. The District will also work with NRCS and private landowners on grazing and nutrient management plans, off site water/small reservoir development and maintenance, fish friendly irrigation structures, weed management, as well as other watershed related projects.

The Greybull River Watershed Plan was completed and published in late 2009 early 2010. Implementation activities and tasks contained within the Greybull River Watershed Plan include: a Greybull River Systems Geomorphology/Rosgen Study, a Wildlife Education Day and Tour, Canal Salvage, Youth Fishing Day, Youth Hunter Group, Little Venus Burn Tour, Watershed Management Workshop, and an Irrigation Technology Transfer Workshop. The recognition of one cooperator per year as an Outstanding Conservationist within the Greybull River watershed will also take place annually.

Besides the Steering Committee and the MCD, the Big Horn Basin RC&D, the Greybull Valley Irrigation District, landowners and land managers, the Meeteetse FFA, the Meeteetse Local Planning Area Advisory Committee, NRCS, Park County Weed and Pest, Trout Unlimited, the University of Wyoming, USDA Forest Service, USDI-BLM, the Wyoming Department of Agriculture, Wyoming DEQ, and Wyoming Game and Fish, are anticipated to be active participants as appropriate for implementing the Greybull River Watershed Plan.

Monitoring Results

MCD continued an intensive E. coli sampling program to provide data from two complete and sequential "Contact Recreation" seasons (May-September), in 2007 and 2008 (plus September and October, 2006) in the Greybull River watershed with the help of grant funding from WDA.

The principal activities were obtaining and analyzing samples for E. coli and turbidity in multiple samples taken from a minimum of three sites in a minimum of three separate 1-hour periods (morning, midday, and afternoon) monthly through the contact recreation season. Variability between times of day was significantly different, typically with morning samples of E. coli being higher than midday and afternoon samples.

On January 30, 2009, the Final Grant Report for this project was completed. The E. coli MPN (most probable number) with Upper and Lower 95% Confidence Limits were analyzed. In addition, a statistical analysis of the E. coli water quality data was completed for the report using Jmp software. MCD gave a presentation of their findings to the Greybull River Watershed Steering Committee.

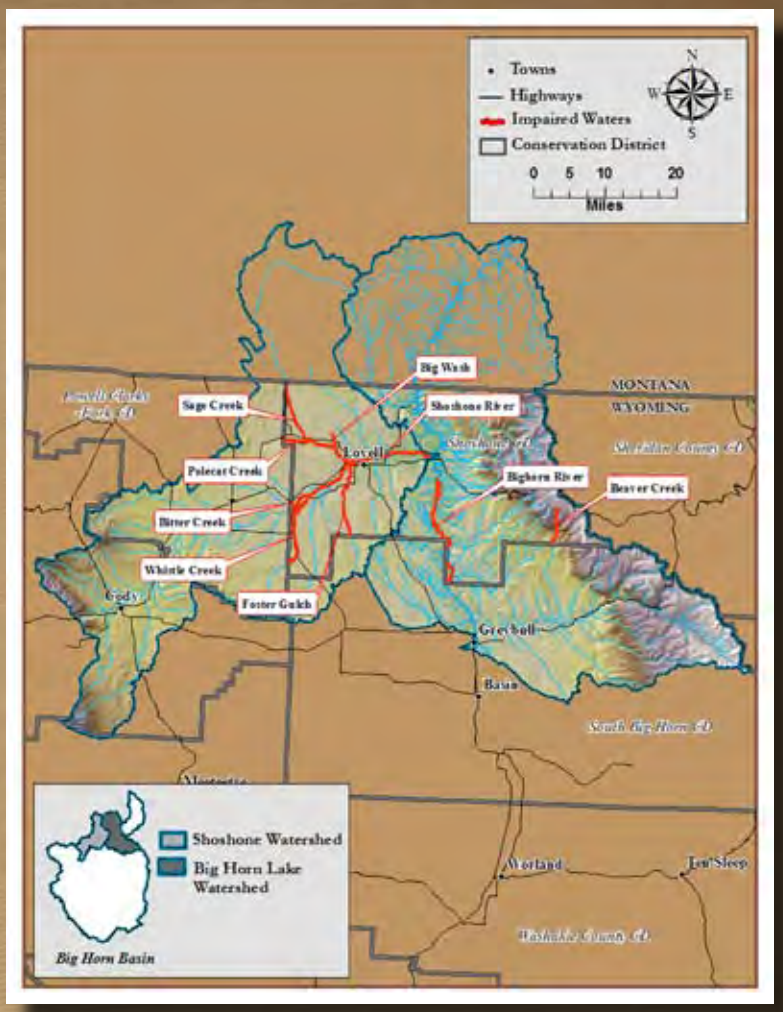
The District also supports a UW graduate student studying Greybull River streambed processes and E. coli distribution. Grant funds from the Wyoming Department of Agriculture, MCD local funds, and the UW Department of Renewable Resources support this project. Sediment samples have been taken since June of 2009, and numbers are being compared to surface water samples. Data is in the very early stages of analysis, but preliminary findings suggest that, in agreement with published literature, the number of E. coli colonies is generally higher in sediment than in the surface water.

Shoshone County Conservation District

BIG HORN RIVER BASIN

" We depend on water for life, our livelihoods, and our recreation. I am proud of the work we are doing locally to protect that water."

Russ Boardman, Farmer/Rancher and Shoshone Conservation District Chairman



Activities and Progress

In 2008 and 2009, E. coli monitoring continued on seven sites that correspond to the impaired/threatened waterbodies listed.

The watershed plan was completed in 2006. Implementation in the past two years includes two septic system rehabilitations completions and initiated three additional septic rehabilitations projects. Additional implementation projects in the watershed also include a Coordinated Resource Management (CRM) effort for invasive species removal and desired species restoration, A "CRM in the Classroom" class with 24 high school students, small acreage education, and watershed improvements through tree plantings, wildlife habitat enhancements, and closing open drains. The district conducted six subdivision reviews for the county that emphasize water quality concerns and remediation.

As well, since October of 2007, there have been 30 separate cooperative projects with NRCS in the district. Within those projects, two center pivot irrigation systems were delivered, 45,180 feet of open ditches were converted to gated pipe irrigation, 45,724 feet of irrigation delivery pipe was installed to replace open air delivery systems, 5,027 feet of earthen ditch was concrete lined, and 45 acres of ground were leveled for more efficient irrigation delivery. As part of the irrigation efficiency projects 27 hardened water control structures were installed. In all, 2,760 acres had improved irrigation efficiency practices installed to promote water conservation and reduce non point source pollution, 600 feet of stock water pipeline was installed along with four livestock offsite watering locations to promote better grazing management and sediment control along streams. There was 5,280 feet of fence installed in riparian areas to enhance grazing management, along with an associated 3,294 feet of fencing to promote better grazing management in adjacent uplands. One conservation crop rotation plan was developed and implemented on 108 acres to conserve soil and reduce rain and irrigation induced erosion. A forage harvest management plan was also developed on 410 acres to manage vegetation cover on irrigated hay land.

The district has also established an in-house bacteriological sampling analysis lab.

Monitoring Results

The district continues to conduct E.coli monitoring on seven different waterbodies in the watershed covering the Shoshone and Big Horn Rivers and their tributaries. Results analyzed as geometric means indicate these streams continue to exceed the standard of 126 cfu/100 ml for E.coli uniformly across all sampling events with numbers indicating a continuing level of impairment.

Partners

The watershed committee included 13 representatives of non-ag rural landowners, agricultural producers, urban residents, municipalities, the conservation district, and NRCS. In addition, watershed implementation has included WY Game and Fish, BLM, Big Horn County Weed & Pest, and Lovell High School.

Watershed Investment

Private	$ 360,682
Local	$ 88,034
State	$ 223,271
Federal	$ 323,339
Total	$ 995,326

Contributors

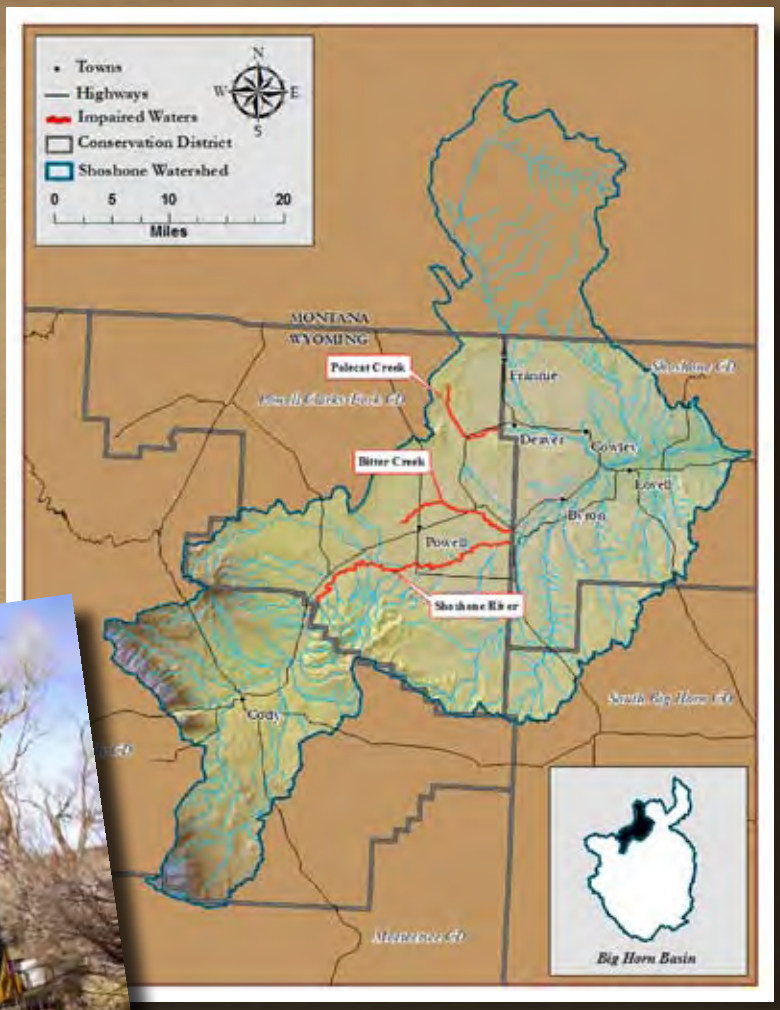
Land Owners
Wyoming Department of Ag
WY Game & Fish
Big Horn County Weed & Pest
Big Horn County
Wild Turkey Federation
WY Wildlife & Natural Resources Trust
National Fish & Wildlife Foundation
WY Governor's Big Game License Coalition
Hunt Canal Company
US Park Service
USDA Natural Resource Conservation Service

Powell/Clarks-Fork Conservation District

BIG HORN RIVER BASIN

"Thanks for the help Watershed Steering Committee! We are thankful for the various perspectives, experience, and persistence of participants."

Merlyn Ballinger, Landowner



Activities and Progress

Monitoring continues at five stations on Bitter Creek and six stations on the Shoshone River for E.coli, turbidity, dissolved oxygen, conductivity, and pH.

The Bitter Creek Watershed plan is complete and continues to be implemented. A 319 project aimed towards addressing inadequate septic systems was also completed. In addition to the previously implemented projects, an additional 20 septic systems were rehabilitated in the past two years. The Bitter Creek watershed plan is scheduled to be updated in 2010. The DEQ is currently in the process of developing a TMDL for the Big Horn Basin and the watershed plan update will occur once the TMDL is completed. In addition, six irrigation projects, one animal waste project, and four sediment control ponds have been implemented within the watershed.

The Shoshone River Watershed plan was completed in 2009 and implementation is in progress. A major Russian Olive removal project was initiated on the Shoshone in 2009. To date, there have been 467 acres in seven projects funded. In addition, there were 41 irrigation projects affecting 1,862 acres. Irrigation projects include gated and buried pipe and installation of surge valves. There were also six projects to convert flood irrigation to sprinklers. One wind erosion control project was implemented.

In addition to the on-the-ground implementation, the district has held three small acreage workshops addressing irrigation, septic system care and maintenance, animal waste, grazing, tree plantings. The district also hosted a large producer workshop covering topics such as animal health, rangeland monitoring, and animal feeding operations.

Monitoring Results

Monitoring on the Shoshone River is showing where the E.coli impairment begins. The furthest upstream point that is monitored is at the Corbett Dam public access area. Monitoring results at this site were all within normal range. There are slightly higher but very clean E. coli values further downstream at the Willwood dam public access area, 90% of the tests on this site were within normal range. The first point of seeing marginal impairment is at the Willwood public fishing access. This area does have heavy public use and is a favorite spot for people and pets. Similar impairment levels are also seen downstream at the Penrose public fishing area.

Bitter Creek monitoring has shown very mixed results over the last two years. Bitter Creek 2 was a focus monitoring point because it was downstream and in the area of most of the septic remediation projects. Test results for 2008 looked very good at this site with the majority of the tests in the normal range. However ,2009 tests were not favorable. All of the tests at the Bitter Creek 2 site taken in 2009 showed very high to near maximum readings. It is suspected that there are small mammals living in the drain just upstream of the site. The district is working to find an alternate site on the same drain for comparison purposes to be used in 2010.

Partners

The Shoshone River watershed effort includes representatives of the irrigation district members and supervisors, local land owners, Game and Fish, Trout Unlimited, and Park County Weed and Pest.

Watershed Investment

Private	$ 905,936
Local	$ 16,897
State	$ 46,800
Federal	$1,090,219
Total	$2,059,852

Contributors

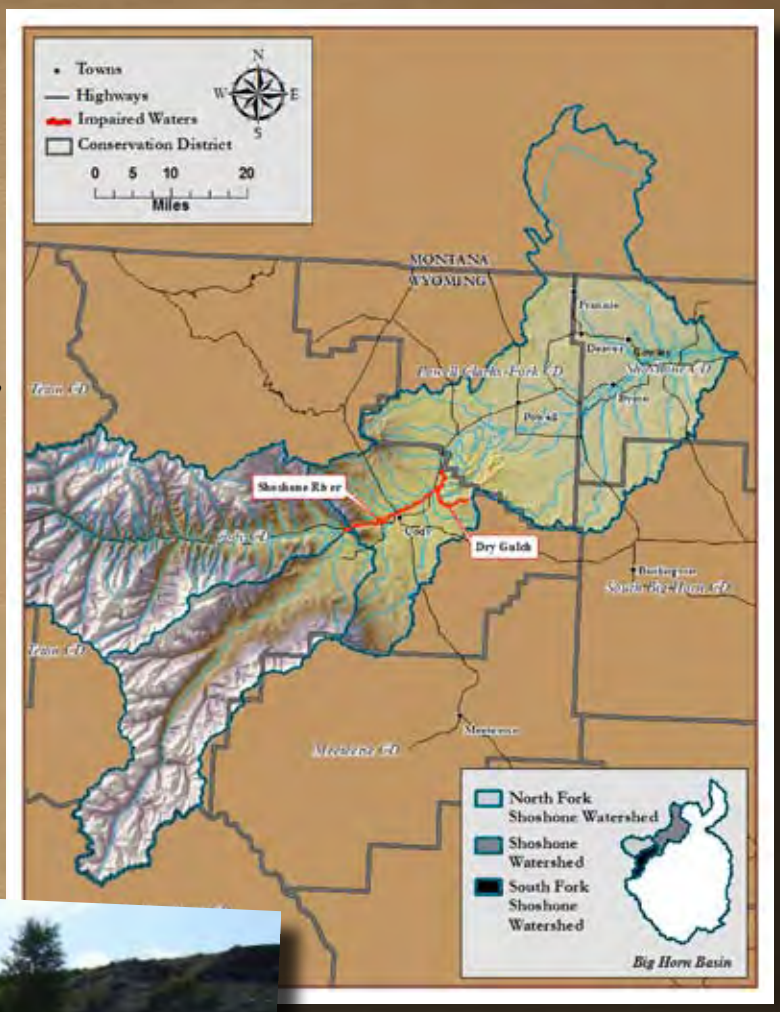
Landowners and homeowners
Powell Clarks Fork Conservation District
Department of Agriculture
USDA Natural Resources Conservation Service
DEQ/EPA
University of Wyoming Barnyards and Backyards
Park County Weed and Pest
Park County Master Gardeners
University of Wyoming Experiment Station
University of Wyoming Extension

Cody Conservation District

BIG HORN RIVER BASIN

"The district is limited on what we are able to provide in terms of watershed support and water quality improvement funding given we have no local funding, but we have worked closely with our neighbors in Powell Clarks-Fork Conservation District and our partners in NRCS to ensure we have a seat at the table in addressing the impaired waters in our district"

Pete Jachowski, Cody Conservation District



Activities and Progress

The Cody Conservation District and its partners have been working on water quality and watershed improvements within the Shoshone watershed. As a result of a listing for an E. coli impairment on the Shoshone River, the Cody Conservation District developed a memorandum of understanding to work with the Powell-Clarks Fork Conservation District on the development of a watershed plan to address the impairment. As part of the planning process, community members from both conservation districts met in Cody and Powell over the space of two years and worked together to develop a comprehensive resource management plan to address possible causes of the impairment.

The Cody Conservation District depends on the support of partners and cooperators to assist in implementation activities. The USDA Natural Resources Conservation Service and local land owners have cooperated to implement management practices including a spring development that improved 1,500 acres of rangeland. The project created off-site water which reduced grazing pressure on riparian areas and increased distribution of wildlife and livestock across the range. Another project developed off-site water on an additional 563 acres, and another developed wells and water tanks on 4,607 acres. Finally, more spring developments in a fourth project brought off-site water to another 350 acres. The total amount of rangeland improved with water development and distribution was 7,020 acres.

Within the district six irrigation efficiency projects were completed that affected 265 acres. In addition, a wildlife project was developed to improve riparian habitat on 16 acres.

The Cody Conservation District continues to support community education activities within the watershed. The district has held small acreage workshops in Cody annually. During these workshops covered topics such as Soils and Septic Systems, Animal Feeding Operations, Pasture Management, Proper Pesticide Use and Calibration, and others.

Monitoring Results

In response to the listing of the Shoshone River, Cody Conservation District monitored the main stem of the Shoshone and several small tributaries. Monitoring indicated that the impairment on the Shoshone River itself extends only upstream as far as Corbett Dam. That location is fairly close to the boundary with the Powell-Clarks Fork Conservation District. As a result of that data the listing was changed by DEQ in 2008 to reflect the extent of the impairment. As a result of district sampling efforts, a new impaired stream was identified, Dry Gulch, that was a tributary to the Shoshone River. Dry Gulch was added to the 2008 303(d) list by DEQ as being impaired by E. coli.

Partners

The primary partners for the implementation activities and the members of the watershed planning process included private land owners, Park County Weed and Pest, Wyoming Game and Fish, US Forest Service, members of the Wyoming chapter of Trout Unlimited, Powell-Clarks Fork Conservation District, and the USDA Natural Resources Conservation District.

Watershed Investment

Private	$229,118.00
Federal	$270,700.00
Total	$499,818.00

Contributors

Landowners
USDA Natural Resources Conservation Service

Lincoln Conservation District

GREEN RIVER BASIN

" I enjoyed the opportunity to work on projects to improve water quality within the district and the watersheds. We were faced with some serious questions, and we feel like we did a good job collecting data on the problems we found. We really saw people in our community become aware of the potential problems. The people in town took real interest in understanding the storm water and runoff impacts to water quality. Our city government got involved, and that added to a great core group. Even though we didn't have any impairment from animal waste we saw a lot more interest from the ranching community and we were able to do some great Animal Feeding Operation projects on other streams as a result of the community interest in water quality on the Hams Fork."

DeMont Grandy, District Conservationist, NRCS

Activities and Progress

A Hams Fork Watershed Assessment study, along with a supplemental assessment which was completed in July 2009, was done on the Hams Fork River to try and better understand the pH impairment on the Hams Fork.

There were several large projects done by private land owners in cooperation with partners to improve the overall quality of the watershed. A large 160 acre irrigation efficiency project was completed within the watershed by land owners in cooperation with the USDA Natural Resources Conservation Service. This project will provide significant protection to water quality by minimizing the impacts of agriculture related non-point source flow. A large fish friendly diversion project was also completed on the Hams Fork with the cooperation of local land owners, the NRCS, and the Chevron Corporation.

Monitoring Results

Results of the monitoring of the Hams Fork indicated that the pH impairment on the Hams Fork has no known source. Studying the increases in chemicals in the water such as nitrate, total phosphorus, and orthophosphate below the Kemmerer Waste Water Treatment Plant indicated no relationship changes in pH. The pH levels were found to correlate well with oxygen levels, indicating a link to plant life and photosynthesis. Studies during night-time and daylight hours seemed to indicate a significant change "diurnal flux" that that also leads towards a link with in stream vegetation. The study also indicates that low water levels, due to drought, play a key role in the pH levels within the stream.

Partners

Natural Resources Conservation Service, Lincoln Conservation District, local land owners, DEQ and Town of Kemmerer and Diamondville, Hams Fork Water Users Association.

Watershed Investment

Private	$ 140,001
Local	$ 3,127
State	$ 20,000
Federal	$ 70,000
Total	$ 233,128

Contributors

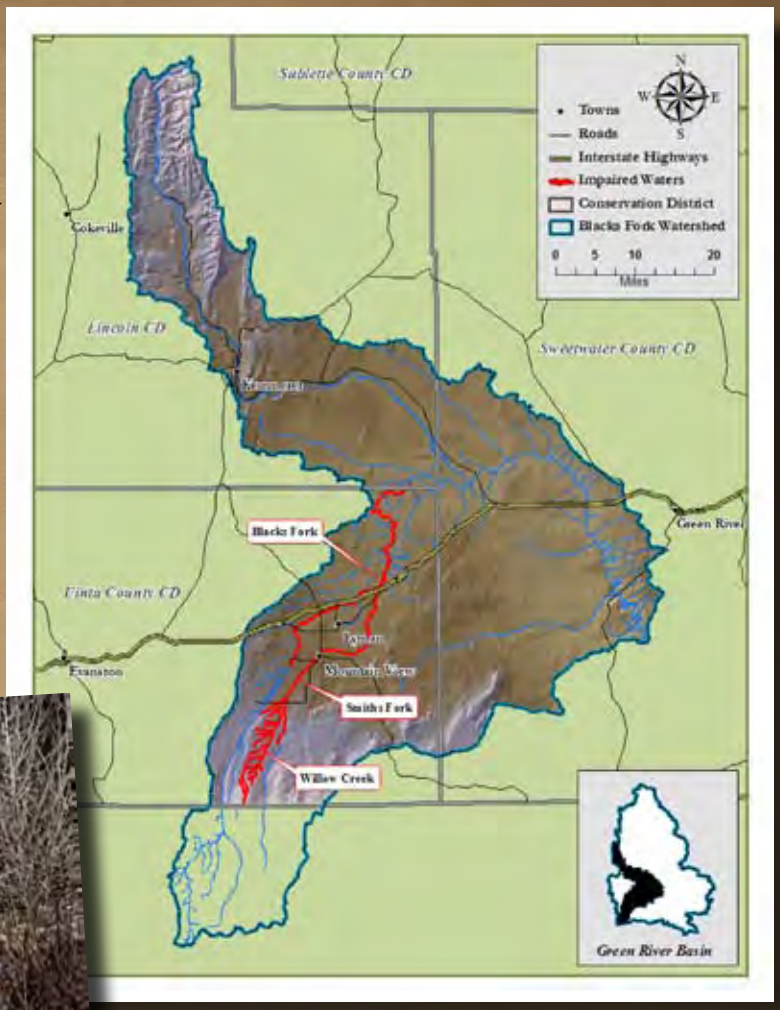
Chevron Corporation and their subsidiaries
Land owners
Wyoming Department of Ag
USDA Natural Resources Conservation Service

Uinta County Conservation District

GREEN RIVER BASIN

" We put a lot of time, effort, and resources into watershed planning. We are working in a large area, but have accomplished some great things that we hope will have a positive impact on the water quality and the watershed."

Marty Watkins,
Watershed Steering Committee Chairman



Activities and Progress

The district conducted chemical, physical and biological monitoring, including total coliform and E.coli bacteria monitoring in the Blacks Fork and Smiths Fork Watersheds on 12 sites. The district uses the "5 in 30" protocol for E.coli monitoring and collects samples from the end of April through May and from the end of August through September each year. The district also collects chemistry samples two times per year. In 2009, the district collected chemistry and bacteria samples at the same time to allow the inorganic chemistry and nutrient concentrations to be compared to pathogen levels and possibly delineate potential sources.

The district is in the fourth year of implementing the watershed plan. In the past two years, additional on-the-ground implementation included three septic system remediation projects, two on the Blacks Fork and one on the Smiths Fork. The district also completed two animal feeding operation projects, one on the Blacks Fork and one on the Smiths Fork. The district provided technical and financial assistance for the completion of these projects. The district also worked with the Uinta County Weed & Pest District, BLM, Wyoming Landscape Conservation Initiative and private landowners to control salt cedar and other noxious weeds in the Blacks Fork Watershed. The district provided funding to help with the cost of labor to spray the noxious weeds. The Natural Resources Conservation Service completed three irrigation improvement projects converting from flood irrigation to sprinkler and gated pipe and one grazing management plan covering 1,621 acres.

The district provides information about watershed planning in each of the quarterly newsletters and in newspaper articles, including information about cost-share programs and technical assistance. The district held a fertilizer workshop and Range Management School. The district continues to distribute brochures about irrigation technology, urban runoff and the Homeowners Guide to Septic Systems. A presentation was given to the Green River Basin Advisory Group about the watershed planning efforts on the Blacks Fork and Smiths Fork Rivers. Youth education included World Water Monitoring Day with 65 students and volunteers participating.

The district has contracted with a consulting firm to complete data analysis, quality assurance/quality control and reporting on data collected by the district in 2007 and 2008. The district wanted the data to be put into a summary that could be easily understood by the public so they would know the results of the monitoring and get a better understanding of trends and influences on water quality. The consultants produced a brochure and memorandum of the data that was collected those two years which is available on the district's website.

Monitoring Results

Using chemical indicators, the district was able to identify the reach of the Blacks Fork where it transitions from a mountain to prairie stream near the confluence with Three Mile Creek. The concentrations of total dissolved solids increased moving down the watershed. All temperature and pH data met criteria for aquatic life, although dissolved oxygen levels fell below the standard during the fall sampling season. During the past two sampling seasons the geometric means were below the 126cfu/100ml standard. During 2008, a decrease in bacteria was observed at all sample sites when compared to previous years.

Using similar methods to those employed on Blacks Fork, the mountain to prairie stream transition was also located on the Smiths Fork. Like the Blacks Fork, concentrations of dissolved solids increased moving downstream. Turbidity also increased moving downstream, with the highest observed number being 2,554 NTU. The streams temperature and dissolved oxygen levels met aquatic life criteria. Although no geometric means for E. coli were recorded that exceeded the standard in 2007 or 2008, single samples exceeded 410 cfu/100ml 31% of the time.

Partners

The Blacks Fork/Smiths Fork Water Quality Steering Committee consists of 33 members representing landowners, municipalities, Water and Sewer Districts, Conservancy District and the Uinta County Conservation District. Other participants include Uinta County Weed & Pest, Natural Resources Conservation Service, County Commissioners, Legislators

Watershed Investment

Private	$49,014
Local	$39,480
State	$8,800
Federal	$215,644
Total	$312,938

Contributors

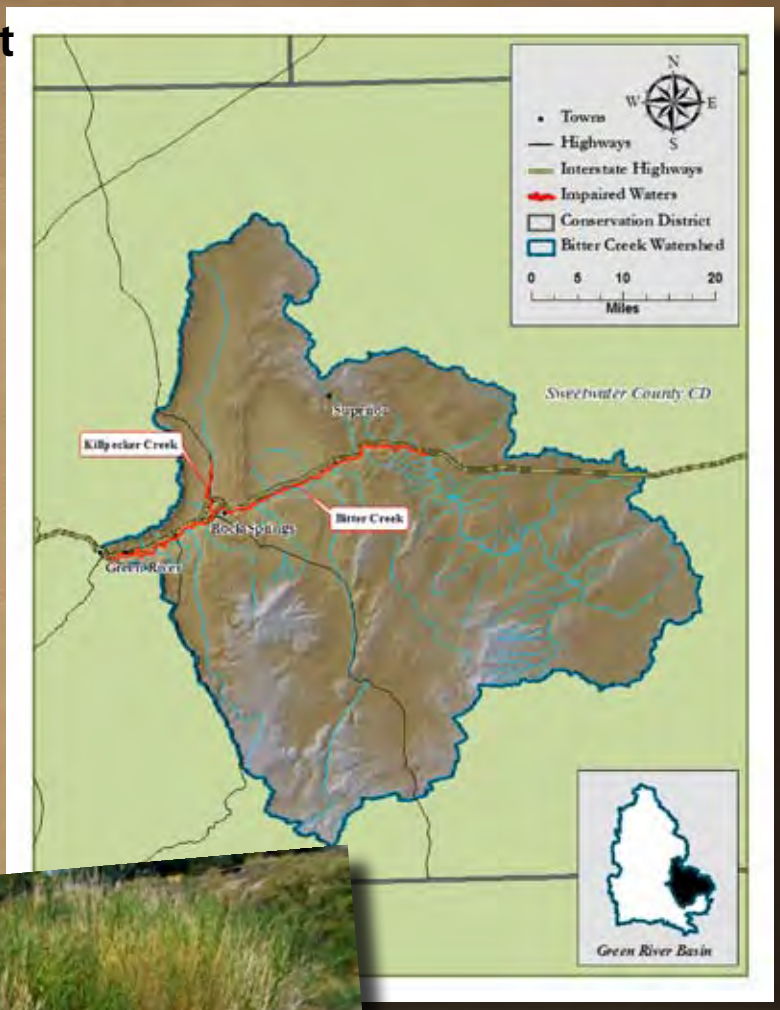
Landowners and homeowners
Uinta County Conservation District
Bureau of Land Management
Uinta County Weed & Pest
USDA Natural Resources Conservation Service

Sweetwater County Conservation District

GREEN RIVER BASIN

"The work of the SWCCD has allowed projects to be considered on a watershed basis. By working with private land owners and the BLM, issues associated with ownership boundaries are addressed with regard to the private landowner's perspective. The head cut in Bitter Creek at Pierotto Ditch is on private land and may not have been addressed as energetically were it not for SWCCD efforts. The issues associated with Bitter and Killpecker Creeks being placed on Wyoming State's list of impaired waters (303d) are primarily associated with private lands that are in close proximity to federal and state managed lands. The SWCCD is providing a communication point with all parties to assure that they work in one accord."

Dennis Doncaster - BLM Hydrologist



Activities and Progress

The district continues to contract for extensive water quality monitoring. In 2008, sampling was conducted on 14 inorganic surface water sites in the spring and fall. There were six bacteria surface water sites, and four inorganic soil sample sites. In 2009, monitoring continued and was increased with 21 inorganic surface water sites in the spring and fall, 20 bacteria surface water sites also spring and fall, and 22 inorganic soil sample sites. In 2009, sampling was increased to investigate/confirm the expansion of the impairment in Bitter Creek from Rock Springs upstream to Point of Rocks. Specific attention was also directed at refining perceived areas of high bacteria concentrations within Rock Springs. A third area that received specific attention was the chloride content of soils near the headcut approximately 12 miles east of Rock Springs and near the confluence of Bitter Creek with Deadman Wash by Point of Rocks.

Monitoring Results

Determination of trends within the study data is tenuous given minimal repeat sampling at sites and a three year gap in some of the data which resulted from narrowing the focus of sampling due to budget constraints. In addition, stream flow levels as observed during the sampling timeframe of this project have varied and may not yet give an adequate understanding of normal flow levels and water quality. The City of Rock Springs has continued its efforts to upgrade and repair sewage infrastructure during the time of this study. Sewer systems improvement has been, and is, occurring within the areas of the Killpecker Creek industrial park, Smith and Muir Street suspension crossings, old Bitter Creek Channel, and the South Beltway crossing. These improvements should provide some mitigation of E. coli sources within the city and future sampling will be tailored to assess if this occurs. Lower E. coli concentrations seen in lower Killpecker Creek in 2009 may be a result of the improvements near the Killpecker Creek industrial park. No other significant BMPs have been implemented for E. coli bacteria or chloride mitigation.

E. coli concentrations were monitored at three sites on Killpecker Creek and one site on Bitter Creek prior to their confluence, and concentrations were again monitored downstream after Killpecker Creek joins Bitter Creek. On the lowest point of Killpecker Creek, just upstream of the confluence of Killpecker and Bitter Creeks, concentrations appeared significantly lower in 2009 compared to 2004-2005. Despite this, E. coli levels just upstream of that location were higher in 2009 than in some past years. Caution needs to be exercised when drawing conclusions, given the three year gap in E. coli sampling on Killpecker Creek when the project focus was on Bitter Creek within Rock Springs. A third and uppermost sampling point in the watershed on Killpecker Creek showed significant elevated E. coli concentrations (consistently exceeding the E. coli criteria in 2009) at the beginning of perennial flow in the channel.

Chloride concentrations at the lowest Killpecker site appeared to increase during 2009 compared to 2004-2005. It is uncertain what may have caused this increase. Variations in surface water runoff areas and volumes may act to affect chloride concentrations within Killpecker Creek. Road construction disturbance has occurred and is currently ongoing in the main area of known high chloride input (south of Yellowstone Ave, east of Foothills Blvd, west of Elk St.) along Killpecker Creek. Runoff drainage (none observed) or dust from these construction areas may be affecting the Killpecker Creek water quality. Chloride concentrations at the middle site on Killpecker and upstream appear to be in decline, but this may be due to the lack of flow seen in this reach during 2009.

Partners

Approximately 200 people representing industry, municipalities, landowners, local government, state government and concerned public have participated in the Bitter Creek and Killpecker Creek watershed planning process.

Watershed Investment

Local	$79,995
State	$40,000
Total	$119,995

Contributors

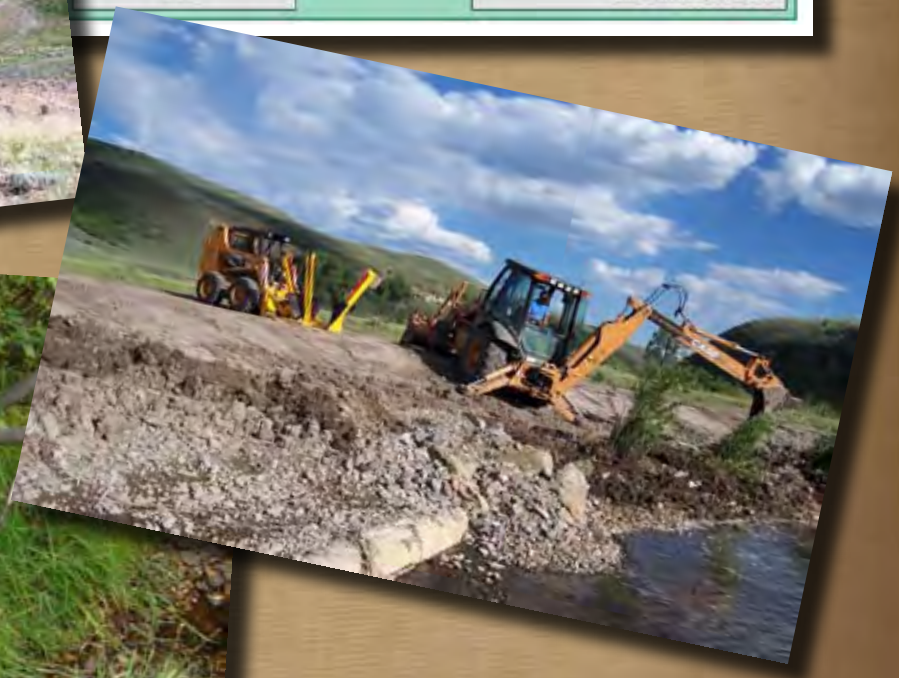
Sweetwater County Conservation District
Sweetwater County Commission
Department of Agriculture

Little Snake River Conservation District

LITTLE SNAKE RIVER BASIN

" For close to 10 years LSRCD and USFWS have worked together on several watershed scale projects. The USFWS Partners for Fish and Wildlife Program would like to commend the LSRCD district staff for their unique set of abilities to put a host of fish and wildlife habitat projects on-the-ground, including landowner and partner relations, project planning, designing, permitting, implementation, and follow-up monitoring."

Mark Hogan with US Fish and Wildlife



Activities and Progress

The district has continued with their extensive monitoring program which was started in 1994. Two permanent stations are on Muddy Creek West of Highway 789. These two stations monitor stream discharge, Ph, Dissolved Oxygen, Turbidity, Conductivity, and Temperature. Lab samples are sent to the lab on a sampling rotation and flow are taken at that time. Five grab sample sites are set on Muddy Creek and its tributaries. The district has ten macro invertebrate sites in the Muddy Creek watershed. One permanent station is placed along Savery Creek monitoring the same parameters. Three grab sample sites are along Savery Creek and 14 macroinvertebrate sites along Savery Creek and its tributaries.

The Little Snake River Conservation District and Wyoming Water Development Commission jointly participated in the evaluation of five Level II studies and received funding for three Level III studies.

The district continues to implement activities which include 15 upland water developments for livestock and wildlife, removal of five fish barriers, 400 acres of prescribed burning, 800 acres of brush control, 35 acres developed for beneficial wetlands, eight miles of stream restoration, 800 acres of aspen enhancement, 200 acres of hazardous tree removal along the State Highway 70, 1,100 acres of fuels reduction in the Medicine Bow National Forest and private lands consisting of beetle tree removal. Implemented projects include one new reservoir, wetlands projects, and the Savery Creek project to control bank erosion and provide fish habitat, and fish passage projects. Brush management using herbicides and mechanical and prescribed burning has also been conducted to reduce fuels on BLM lands.

Monitoring Results

Results of the data on Savery Creek were complicated by extended drought, which likely altered stream habitat and caused spatial and temporal shifts toward pollution tolerant species during the past five years. Improvements from implemented BMP's countered some of the drought's adverse affects by allowing stream banks to stabilize and riparian areas to recover, which lead to improved multimetric scores at the macro invertebrate sites during the last three years of the study period. The strong clustering structure and statistically significant differences in the HACA (Hierarchical Agglomerative Cluster Analysis) indicate that the current monitoring program should continue in order to meet the objective of linking improvements in the water quality to BMPs.

Despite the onset of severe drought midway through the study period on Muddy Creek, overall reductions of 13% for TDS and a 30% increase in macro invertebrate total taxa occurred across years, strongly suggesting that improvements in water quality were correlated to BMPs that stabilized stream channels and improved the condition of riparian areas. Temporal discriminate analysis identified positive trends in TDS and total taxa during the study period despite the onset of drought, suggesting that improved riparian zones, channel morphology, and stabilized stream banks from incorporated BMPs enhanced the nonpoint buffering capacity in the upper watershed. Cross-section data provided valuable information related to how changes in riparian zone condition and grazing management influence channel morphology. These data demonstrated positive trends in width to depth ratios and stream depths following BMP implementation. Flow analyses identified reductions in percents of flow duration intervals between the impaired stream's upper and lower boundary monitoring sites and in hydrograph peaks between pre- and post-BMP implementation. Following BMP implementation, reductions in specific conductivity, total dissolved solids, and turbidity among years were observed in the impaired stream section. Results strongly suggest the positive trends are correlated to BMPs that stabilized stream channels and improved the condition of riparian areas.

Partners

Participants representing Wyoming Water Development Commission, LSRCD, Natural Resources Conservation Service, Bureau of Land Management, Private Landowners, Game and Fish Department, DEQ, US Fish and Wildlife - Partners, Wildlife and Natural Resource Trust Fund, and Ducks Unlimited.

Watershed Investment

Private	8,500
Local	65,500
State	833,250
Federal	753,000
Total:	1,660,250

Contributors

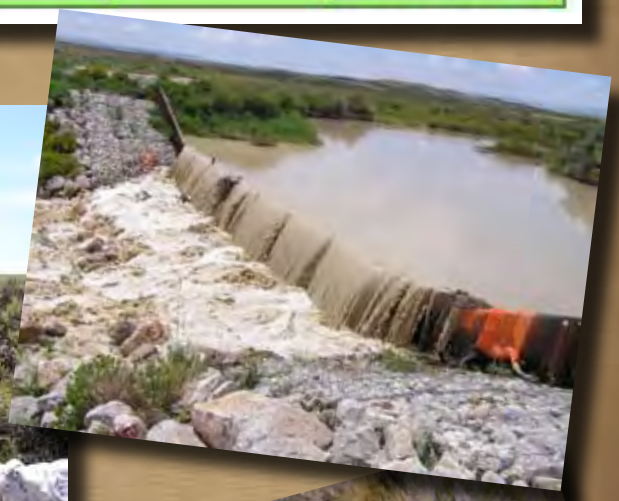
Wyoming Water Development Commission
Wyoming Wildlife and Natural Resource Trust Fund
Bureau of Land Management
US Fish and Wildlife Service
Rocky Mountain Elk Foundation
Medicine Bow National Forest
WY Department of Transportation
Wyoming Land Conservation Initiative
US Fish and Wildlife - Partners
USDA Natural Resources Conservation Service
Little Snake River Conservation District

Saratoga/Encampment/Rawlins Conservation District

NORTH PLATTE RIVER BASIN

The Sage Creek 319 project resulted in widespread riparian improvement throughout the watershed. Especially notable for BLM was the effect of properly managing livestock along these riparian areas which greatly increased the willow habitat along these important riparian areas.

Cheryl Newberry, BLM, Rawlins



Activities and Progress

After 10 years of implementation and follow-up monitoring, Sage Creek was de-listed from the 2008 303(d) list of impaired/threatened waters. This project speaks to the success of the local grassroots watershed efforts.

The district collected data in 1996 indicating that excessive sediment degraded habitat and threatened the coldwater fishery and aquatic life designated uses along a 14-mile section of lower Sage Creek. The sediment traveled downstream, accumulating in reservoirs and requiring increased processing time and expense to municipal water treatment facilities. DEQ considered the sediment load to also be a potential threat to the health of the North Platte River's coldwater game fishery. Therefore, DEQ added Sage Creek to the state's 1996 CWA section 303(d) list for impairment to its coldwater fish and aquatic life (other than fish) designated uses.

In 1997, the district in cooperation with land owners, BLM, NRCS, and WGFD, began the Sage Creek Watershed project, which included the entire watershed. Resulting BMPs consist of short duration grazing, riparian and drift fencing, off channel water development, improved road management, grade control structures, and water diversion and vegetation filtering to reduce sediment loading from Sage Creek to the North Platte, and to improve water quality within Sage Creek. In 2007, the district submitted a Use Attainability Analysis for Sage Creek to DEQ. The UAA indicates that the current classification for the lower basin portion of Sage Creek should be changed to a non-game fishery because it is an intermittent stream that does not have the natural capacity to support a cold water fishery. The UAA has been submitted to EPA and is currently in review.

Monitoring Results

Data collected as part of the project showed reduced sediment loading to the North Platte River and improved riparian and range condition. Data indicate there are no longer impairments or threats to aquatic life or coldwater fisheries uses on Sage Creek. Measurements of suspended sediment in Sage Creek show a trend of decreasing concentration after implementing BMPs. Mean total suspended solids went from 529 milligrams per liter (mg/L) in 1998 to 80 mg/L in 2004. In addition, scientists collected post-project macroinvertebrate samples on the North Platte River above and below its confluence with Sage Creek using the Wyoming Stream Integrity Index and River Invertebrate Prediction and Classification System. Those data indicate that both locations are fully supporting their aquatic life (other than fish) designated use, and that the sampling location below the confluence has a trend of a slightly higher biological condition. That data prompted WDEQ to remove Sage Creek from the CWA section 303(d) list in 2008.

Partners

Five private landowners, BLM, Wyoming Game and Fish, University of Wyoming Extension and Range and Watershed Departments, NRCS, Carbon County Road and Bridge, Wyoming Water Development Commission, Cowboy Three Shot, Wyoming Outdoor Council, Rocky Mountain Elk Foundation, Wyoming DEQ, Wyoming Non-point Task Force and the City of Rawlins have participated in the Sage Creek project.

Watershed Investment

Given the delisting of Sage Creek in 2008, no additional resources were spent in this time frame.

Contributors

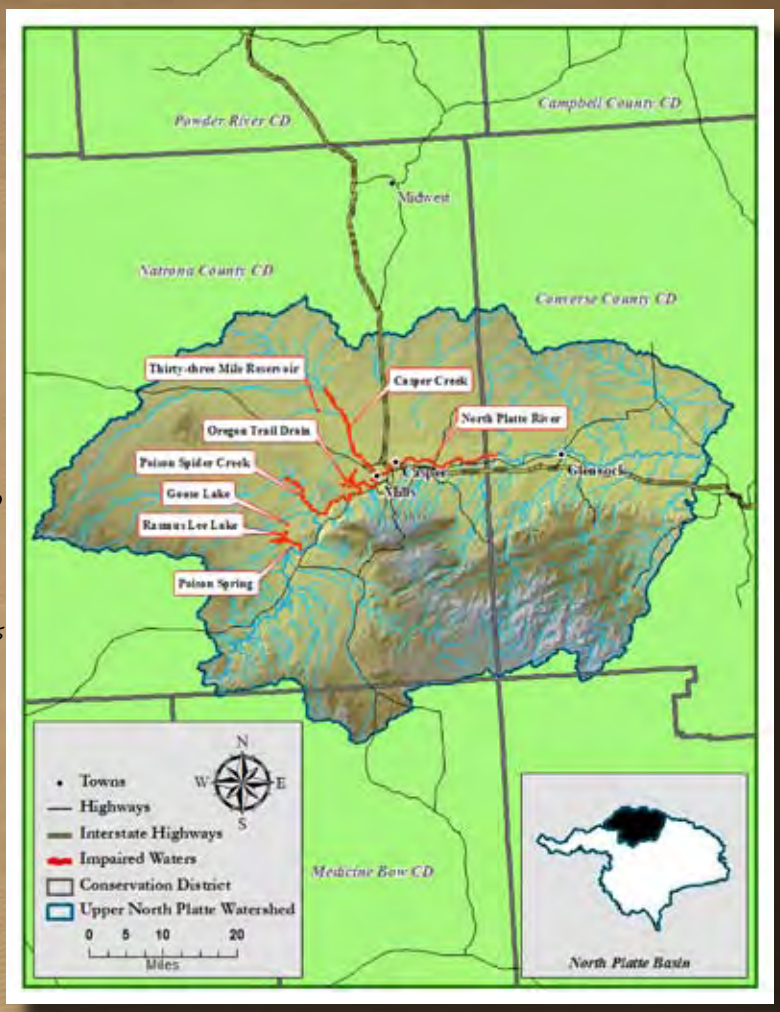
Private Landowners & Permittees
SER Conservation District
Wyoming Game & Fish
DEQ/EPA
Bureau of Land Management
Anadarko Petroleum Corp

Natrona County Conservation District

NORTH PLATTE RIVER BASIN

" Water is the single most important factor when it comes to survival. Our testing, conservation, and irrigation efficiency efforts help insure this valuable resource's availability for both humans and animals. Central Wyoming has dealt with high selenium issues for this area for quite some time. That is why monitoring is so important to help us identify trends in natural, seasonal, irrigation, and run-off trends for selenium concentrations. All these things influence selenium levels in the North Platte and are thus essential to monitor to identify methods for improvement. From a health aspect, forage crops can uptake these high selenium levels and if the concentration in irrigation water is over the limit, it can kill plants and animals. These are end results we want to avoid, and so we need to continue to implement best management practices and planning efforts.

Kelly Burch, Landowner



Activities and Progress

Monitoring activities continue for all selenium impaired streams (approximately 20 sampling sites) on a bi-monthly basis testing for selenium. Since 2007, there have been over 250 Natrona County students participate each year in annual monitoring.

In addition, in 2007 to May 2009 monitoring began on a third North Platte River sampling site, near the confluence of Garden Creek and the North Platte. This new site, as part of the Central Wyoming Fairgrounds Animal Waste Management Improvement grant (made possible through 319 Water Quality grant monies) was monitored for nitrates, phosphates, and E. coli. A new Sampling and Analysis Plan was also approved and completed as a part of this grant. The Central Wyoming Fairgrounds staff will continue to monitor this site on a quarterly basis as a part of the grant's proactive approach to monitoring storm water run-off.

In 2008, the Kendrick Technical Assistance Grant Project was completed and included implementation of 11 side rolls, 33 center pivots, and 60,817 linear feet of irrigation pipeline was installed. Early improvements, done in conjunction with the Casper Alcova Irrigation District and the City of Casper in the 1970's, included irrigation efficiency improvements and enhanced irrigation water delivery through completion of 12 miles of canal and lateral lining. Work completed in 2005 included construction of the main lateral and two sub laterals. This pipeline project totaled over five miles of pipe laid to enclose an open ditch system. In 2005, a Conservation Engineer was retained for planning, design, and oversight of irrigation project installation through the Kendrick Technical Assistance Grant. By project end, BMP's such as side rolls and center pivots were installed as a part of cost-share with landowner's treating nearly 1,454 acres. Best Management Practices continue to be implemented by participating landowners promoting greater irrigation efficiency.

Despite the best management practices that have been implemented, selenium continues to be a concern. Subsequently, a TMDL for selenium on the North Platte River was scheduled to begin in October 2009. This development will be on-going through 2011 by a consulting firm selected by DEQ.

Monitoring Results

In 2009, water samples were obtained on a bi-monthly basis from 17 surface water quality monitoring sites within the Kendrick Watershed. A number of items stood out during this year's evaluation of the data. Over the time period covered by this study, the annual total selenium mean has declined in the Poison Spider Creek watershed. Over the time period covered by this study, the annual total selenium mean has increased in the Casper Creek watershed.

The natural (background) concentration of selenium in the North Platte River fluctuates seasonally at the uppermost monitoring site. That seasonal fluctuation is mirrored at the lower site. Based upon the available data and comparative regression analysis, the mean estimate of the natural background contribution of total selenium at the lower monitoring station on the North Platte River averages approximately +50%. The total annual mean selenium concentration at Bates Creek continues to rise significantly. The total annual mean selenium concentration at Oregon Trail Drain was the second highest during the period covered by this study.

Overall the monitoring locations showing a decrease in total selenium concentration long-term trend include Poison Spring Creek, Lone Tree Gulch, Midway Poison Spider Creek, Johnson Reservoir Drain and Upper Casper Creek. The monitoring locations with an increasing total selenium concentration long-term trend include Oregon Trail Drain, Lower Casper Creek and Bates Creek.

Those monitoring locations with a constant total selenium concentration long-term trend include Garden Creek, Upper Poison Spider Creek, Lower Poison Spider Creek, Upper South Fork Casper Creek, Lower South Fork Casper Creek, Six Mile Drain and Upper and Lower North Platte River.

Partners

Local landowners, Casper Alcova Irrigation District (CAID), Kendrick Watershed Steering Committee, Powder River Conservation District, Natural Resources Conservation Service, Wyoming Department of Agriculture, Wyoming Association of Conservation Districts, Wyoming Department of Environmental Quality, U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, and U.S. Geological Survey

Watershed Investment

Private	$100,925
Local	$100,000
State	$17,064
Federal	$17,444
Total	$235,433

Contributors

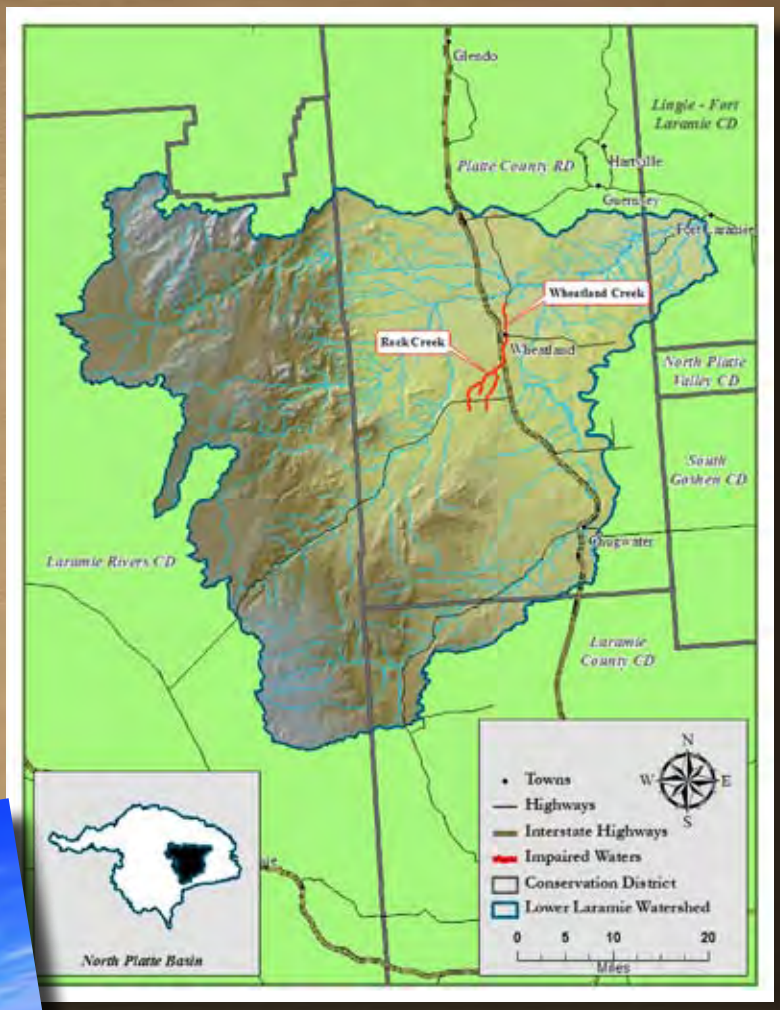
Wyoming Department of Environmental Quality
Wyoming Department of Agriculture
Private landowners
Natrona County Commissioners
City of Casper
USDA Natural Resources Conservation Service.

Platte County Resource District

NORTH PLATTE RIVER BASIN

"There have been quality BMP's implemented throughout the Rock Creek Watershed having a very positive effect. Although the source of the creek's listing has not been identified these practices have given landowners and citizens in Platte County a greater prospective concerning water quality and management. I feel the watershed is in better shape now and the only comments that I've heard from the public have been positive since the Rock Creek Watershed planning and implementation was started."

John Bunker, Local Landowner and
Rock Creek Steering Committee



Activities and Progress

In 2008 Chugwater Creek was delisted from the Wyoming Department of Environment Quality 303(d) list because it met state water quality standards.

The district will continue to monitor all sites on Chugwater Creek and Rock Creek. Monitoring is conducted at 12 sites on Rock Creek and 5 sites on Chug Creek sampling for E-coli and total coliform.

The Rock Creek landowners implemented 26 irrigation efficiency practices, 15 water quality practices, seven grazing management practices, and eight wildlife habitat enhancement practices.

The Platte County Resource District continues to provide information to landowners concerning septic system information and cost-share funding for any best management practices available through the district to all landowners. The district publishes a newsletter "Conservation Quarterly" which is distributed throughout Platte County every three months as well as being distributed to walk-in customers at the district office. The district has held two Small Acre Workshops in the spring of 2007 and 2008 also trying to deliver the message on the importance of the water quality issues. The district held four monitoring days at Festo Lake and one monitoring day in the school, due to weather conditions. Approximately 180 students between 2nd and 3rd grade participated in the event. The district will also be involved in a Project Learning Committee geared at the high school level which will lead to many variables associated with conservation in Platte County. The Project Learning Committee is a new program started by science teachers within the school system and gives the district more opportunity and involvement in the schools at the high school level. The school will concentrate on county resources and conservation. The district has had attended eight classes teaching about point and non-point source pollution using our Enviroscape and other information and supplies from the Wyoming Department of Ag and Ag in the Classroom.

Monitoring Results

Rock/Wheatland Creek has shown no change in water quality. There is an extremely short window for testing within this watershed due to modified irrigation practices and lack of rain, the district is unable to collect samples due to no flow generally after the 1st of June. Data is collected starting April 1st until there is no flow reported within the primary sampling season, the district has not seen differences in E. coli counts during this time.

Partners

There were approximately 15 residents involved in the development of the Rock/Wheatland Creek Watershed Plan. Throughout the development of the Chugwater Creek assessment and petition to delist, there were 20 individuals who participated in the investigation process and the development of the final document. Throughout, the district, landowners, citizens, Natural Resources Conservation Service, University of Wyoming and Game & Fish Department were involved.

Watershed Investment

Private	$ 399,858
Local	$ 5,000
State	$ 30,000
Federal	$ 556,941
Total	$ 991,799

Contributors

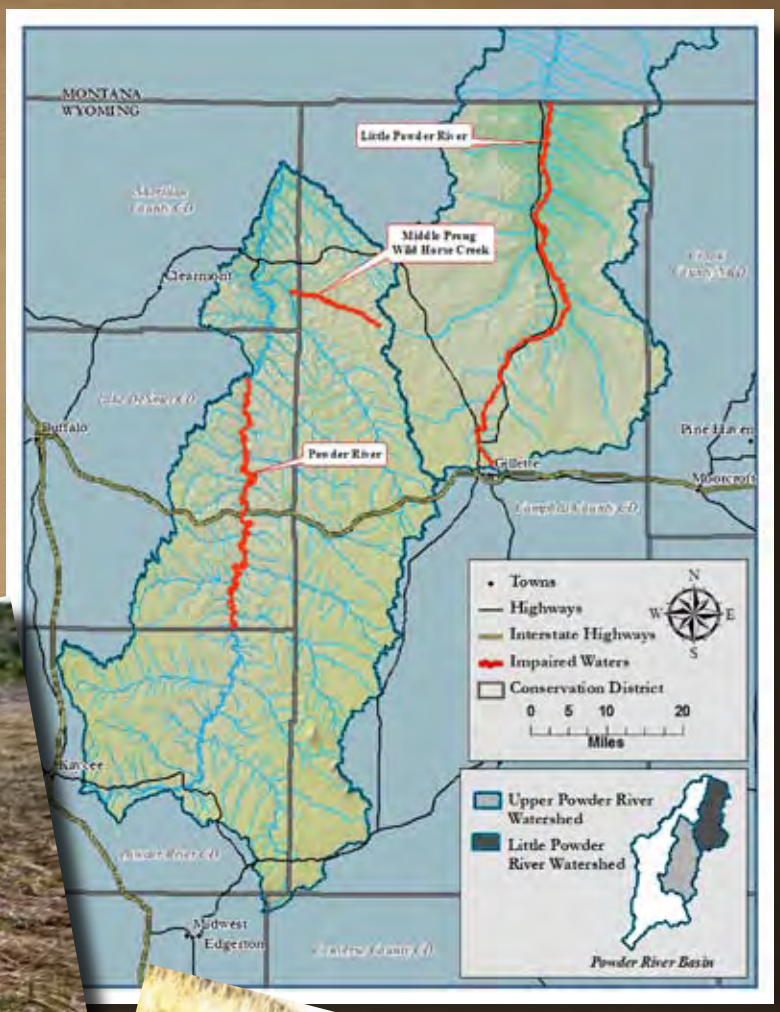
Landowners
Platte County Resource District
Natural Resources Conservation Service
Wyoming Wildlife Natural Resource Trust

Campbell County Conservation District

POWDER RIVER BASIN

"It was my pleasure to serve on the Little Powder River Steering Committee for two years. The district staff did a wonderful job and I became informed of water quality issues. Water quality should be important to everyone in Wyoming."

Earl Boardman, Landowner



Activities and Progress

The district monitored the Little Powder River and the Middle Prong Wild Horse Creek at two sites.

The Little Powder River watershed plan continues to be implemented. Efforts towards planning on the Middle Prong Wild Horse Creek will be focused on ensuring that the water is accurately classified based on its ability to support uses. This is an effluent dominated system that relies on discharges for flows.

There have been four prescribed grazing systems, one animal feeding operation project (moving corrals and providing off-stream water), one stock water well, fencing, and tank project, and one solar well, seeding project, two pipeline and tank projects, implemented with cost-share funding provided by NRCS in the past two years.

Since 2007, outreach activities have included, in coordination with efforts on the Belle Fourche watershed, distribution of pet waste, RV waste, septic maintenance and grazing livestock on small acreage brochures to the public. There have been around 400 of each brochure distributed. They were distributed through direct mailing, workshops, fairs, school education programs, and placed at City and County offices.

The district offered for rent to agriculture producers an Aer-way Aerator and a No-till drill to increase filtration and vegetative cover while reducing soil erosion.

In 2008 and 2009 the district presented the Enviroscape model, demonstrating non-point and point source pollution, approximately 30 times.

Updates of water quality issues and announcements of cost-share opportunities were published in the district newsletter on a bi-monthly basis. The newsletter is mailed to 1,100 district residents. In addition, 1,200 complimentary publications of "Barnyards & Backyards – Rural Living in Wyoming" were provided to residents. Information on water quality in Campbell County was presented over 20 times during workshops, fairs, radio interviews, and newspaper stories to approximately 2,500 people.

In 2008, the district hosted the World Water Monitoring Day for Gillette residents and school children. The monitoring day was held at Gillette Fishing Lake. There were a total of 143 participants in the activity. The district again hosted World Water Monitoring Day on October 16, 2009 with over 60 participants. In 2008 and 2009, the district hosted two Agriculture and Natural Resources Expos for 3rd grade classes in Campbell County. There have been a total of 997 participants in the Expos.

Monitoring Results

Results from the 2005-2007 monitoring project on the Little Powder River found little improvement in water quality, specifically bacteria. During the monitoring project exceedences of the E. coli geometric mean were found at both the monitoring sites. In the fall of 2006, there were exceedences at both sites, while spring 2006 and spring 2007 had exceedences at the upper and lower sites respectively. An analysis of the data concludes a slight correlation between bacteria concentrations and turbidity (Spearman's Rho = 0.78).

The increase in chloride at the lower site was originally detected during the 2002-2003 monitoring project and may be related to oil well water discharge in the area. Further research is needed to specifically identify the cause. Overall, the water quality in the Little Powder River watershed was similar to 2002-2003 monitoring results.

The 2008 and 2009 data is currently being analyzed and a report with water quality conclusions will be available in April 2010.

Monitoring on the Middle Prong of Wild Horse Creek in 2006, confirmed the presence of bacteria, however, 2007 results showed a decrease in bacteria. Sampling completed in the spring and fall of 2007 resulted in only one single sample exceedence. An analysis of the data shows an increase in TDS, specific conductance, and sulfates in spring 2007. Fall data for both years, with the exception of bacteria, was comparable to 2002-2003 monitoring results. Project monitoring at the WH5 site did not include inorganic analyses, however, the specific conductance and TDS results conclude a distinct change in water quality between spring and fall. Further monitoring may be needed to fully understand the impacts of coalbed methane natural gas development on water quality.

The stream has been listed for primary contact recreation, however, due to the rural setting and effluent dominated flow, the stream should be reclassified to secondary contact recreation. The 2008 and 2009 data is currently being analyzed and a report with water quality conclusions will be available in April 2010.

Partners

Landowners, DEQ, Campbell County, and the Natural Resources Conservation Service

Watershed Investment

Local	$59,249
Landowner	$36,677
State	$8,888
Federal	$163,364
Total	$268,178

Contributors

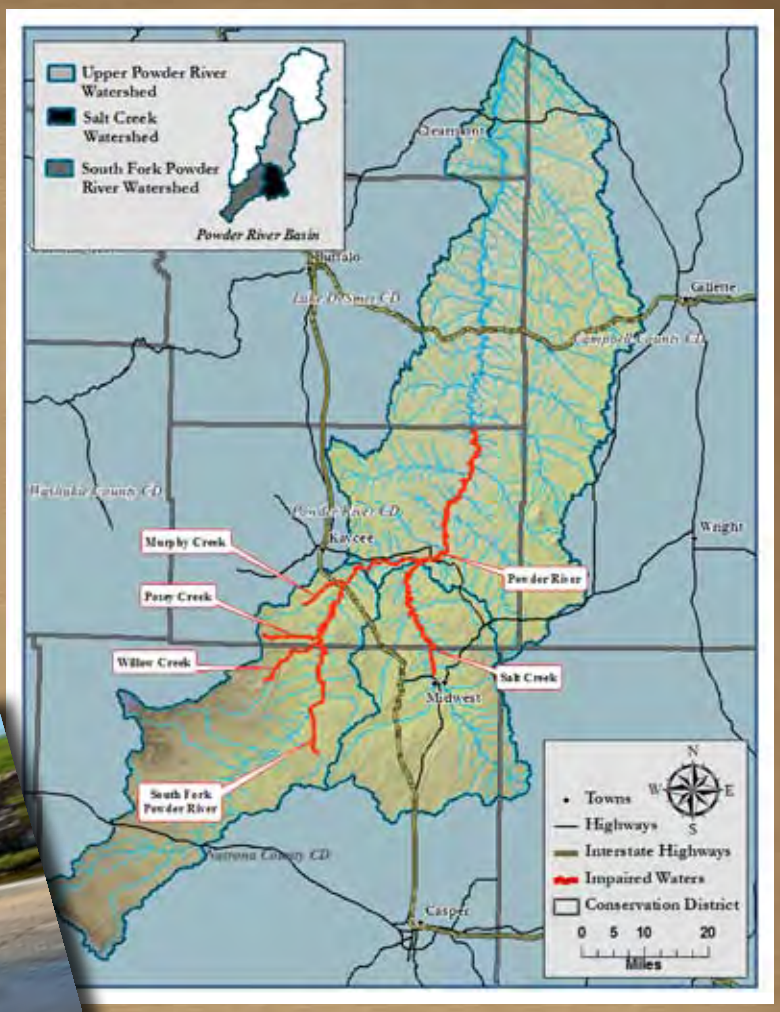
Landowners & Homeowners
Campbell County Conservation District
Department of Agriculture
Department of Environmental Quality / EPA
Natural Resources Conservation Service

Powder River Conservation District

POWDER RIVER BASIN

"The people involved with the Powder River Conservation District, their water quality consultants, WWC Engineering and the NRCS do a fine job of planning, implementing, and explaining water quality and monitoring projects, conservation practices and water enhancement. Their efforts and shared knowledge are very much appreciated."

Clayton and Cindy McGuire,
Managers of the TTT Ranch



Activities and Progress

May through November 2008 and January through September 2009 monthly stream monitoring was completed on three streams. These streams included South Fork of Powder River, Murphy Creek, and Willow Creek.

The district developed the Powder River Watershed Water Quality Management Plan for the portion of the Powder River Watershed that lies within Southern Johnson County and Northern Natrona County. This process began in July 2007 and was approved by the PRCD in October 2008 and Natrona County Conservation District in November 2008.

Since October 2007, there have been four irrigation delivery systems, three pivots and one set of side rolls installed. Along with these irrigation improvements an estimated eight wells, 100,374 feet of stock water pipeline, 28 stock tanks, and five storage tanks have been installed to promote off site water use for better grazing management and sediment control along stream banks.

In 2008, the Use Attainability Analysis for site specific criteria on Salt Creek was approved by EPA. Thus, Salt Creek (from the Powder River to an undetermined distance upstream) was delisted for its Chloride impairment.

The Powder River Conservation District (PRCD) works with the Natrona County Conservation District (NCCD) to monitor shared streams (South Fork of Powder River and Willow Creek) that are impaired within the two districts. The water quality information that the PRCD collects from these streams is provided to the NCCD.

Monitoring Results

The South Fork Powder River and Murphy Creek sampling sites have measured elevated concentrations of selenium during the monitoring period. Concentrations have varied from 7 to 18 μg/L at the South Fork Powder River site and non-detect to 20 μg/L at the Murphy Creek site. On February 5, 2009 a sample was collected at the Murphy Creek-1 site (near the I-25 bridge), approximately 8 miles upstream of the current monitoring site. The sample measured 20 μg/L of selenium, the highest concentration measured since monitoring began in May 2008. The Willow Creek site has measured non-detect for selenium for all but one sample collected February 5, 2009 (selenium measured 8 μg/L). No correlations between selenium and field measurements or additional water chemistry have been found to exist. However, similar water quality trends have been observed at near the Kendrick Reclamation Project in Casper, Wyoming (Naftz et. al. 20031).

Partners

Local landowners, Powder River Watersheds Steering Committee (32), Natrona County Conservation District, Powder River Conservation District, Natural Resources Conservation Services, Wyoming Department of Agriculture, Wyoming Association of Conservation Districts, Bill Barrett Corporation, Anadarko Petroleum Corp., Department of Energy-Naval Petroleum Reserve, Wyoming Department of Environmental Quality, US Fish & Wildlife Service

Watershed Investment

Private	$133,080
Local	$5,880
State	$20,452
Federal	$462,592
Total	$622,004

Contributors

Private landowners
Powder River Conservation District
Wyoming Department of Agriculture
Anadarko Petroleum Corporation
Natural Resources Conservation Service

Lake DeSmet Conservation District

POWDER RIVER BASIN

"Remember that soil and water conservation practices are ranch improvements first, and need to be business decisions that work for the ranch - not for chasing dollars."

Don Hall, Rancher, French Creek

Activities and Progress

In 2006, the district had submitted a historical review that recommended site specific standards for the area due to natural high manganese concentrations being common in streams in the Powder River Basin. In 2008, the segment of Lower Crazy Woman Creek, was delisted based on the natural levels, and DEQ further concluded much of the basin does not have a human health criterion for manganese in the state's water quality rules. There are no sources of anthropogenic manganese in Lower Crazy Woman Creek, and the creek is not used, nor is it likely to ever be used, for a drinking water source due to its intermittent flows.

The implementation efforts on North Fork Crazy Woman took place from 1991 to 1998, data collected post implementation was inconclusive and subsequent monitoring has been conducted by DEQ with the assistance of the district. Data collected in 2008 is being analyzed and an assessment report is expected in the spring of 2010.

In 2008, North Fork and South Fork Shell were removed from the 303(d) list. The district and landowners implemented best management practices (BMPs), including updating irrigation techniques, improving water conveyance and constructing sediment detention wetlands. The district monitored the macroinvertebrate community, water quality, and in-stream habitat in both waterbodies to assess how effectively the BMPs mitigated sedimentation. Subsequent DEQ monitoring confirmed that the activities improved irrigation efficiency and diminished sediment input to the creeks. As a result, WDEQ removed the two streams from the Wyoming 2008 CWA section 303(d) list of impaired waters.

Monitoring Results

The macroinvertebrate and in-stream habitat surveys on North and South Fork Shell Creeks showed a positive change in silt depth that corresponds to BMP implementation. LDCD also collected water quality data that show total suspended solids, turbidity and temperature levels decreased. However, the district had to classify the data as inconclusive because it believes that a severe drought in 2000 and 2001 might have confounded study results. In 2005 and 2006 DEQ conducted an additional field assessment, which indicated that the BMPs had mitigated irrigation and water conveyance issues. DEQ found that macroinvertebrate samples from both forks were comparable to the reference stream and therefore assigned a rating of full support of aquatic life using the Wyoming Stream Integrity Index and the River Invertebrate Prediction and Classification System.

Partners

Private Landowners, Natural Resources Conservation Service, Lake DeSmet Conservation District, Coalbed Methane Coordination Coalition, DEQ, Department of Agriculture

Watershed Investment

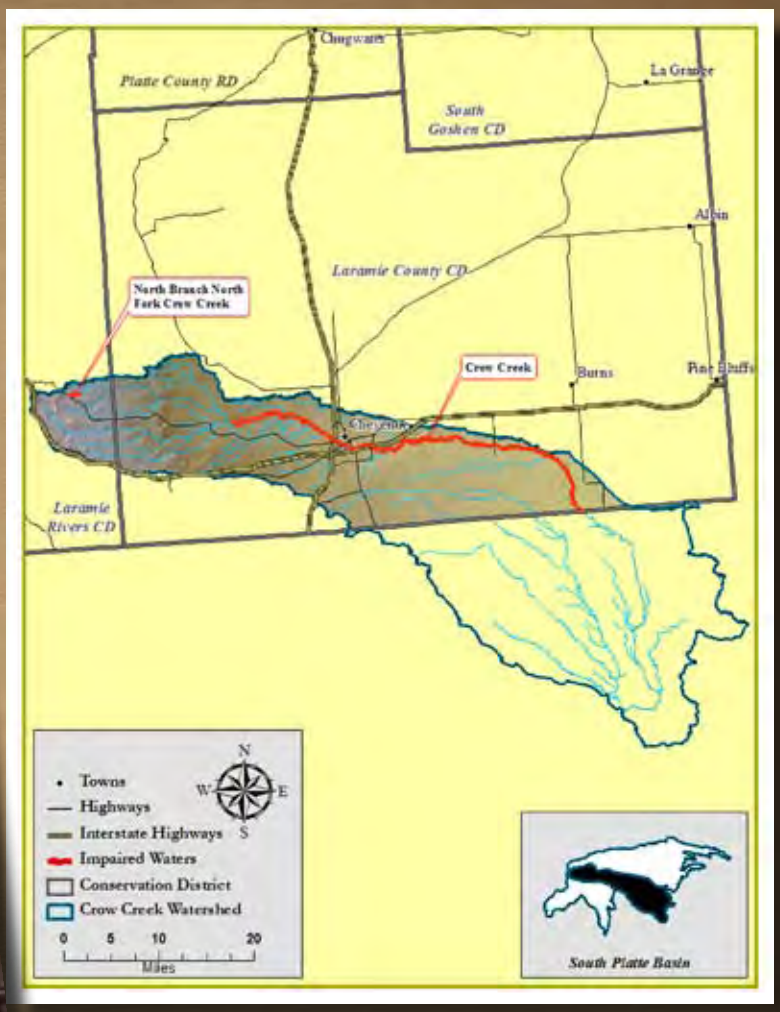
No additional funds were expended in this time period due to the status of pending data analysis on North Fork Crazy Woman and the delisting of Lower Crazy Woman and North Fork and South Fork Shell Creeks.

Laramie County Conservation District

SOUTH PLATTE RIVER BASIN

" Working with the conservation district has benefited our ranching operation by raising awareness of water quality objectives in addition to developing alternative water resources which help to distribute grazing and provide water for both livestock and wildlife on our forest allotment."

Brenda Johnson, Rancher



Partners

The Crow Creek Steering Committee included 14 members representing Laramie County government, City of Cheyenne, Cheyenne Board of Public Utilities, F.E. Warren Air Force Base, Town of Carpenter, farming, ranching, water quality, water quantity, recreation, urban, wildlife, industry and public lands. Six members served on the technical team and eight other volunteers assisted throughout the planning process.

The Crow Creek Watershed Plan Amendment include eight representatives from private landowners, recreation, Pole Mountain Grazing Association, Cheyenne Board of Public Utilities and an original member of the Crow Creek Watershed Steering Committee. The district, Laramie Rivers Conservation District, NRCS, US Forest Serive, State Parks and Game & Fish served as advisors to the committee.

Watershed Investment

Private	$ 2,900
Local	$11,284
State	$49,993
Federal	$54,062
Total	$118,239

Contributors

Volunteers: Boy Scouts, Wal-Mart, Audubon Society
Landowners
Department of Agriculture
Wyoming Game & Fish Department
Wildlife & Natural Resource Trust
Wyoming Department of Environmental Quality / EPA
Rocky Mountain Elk Foundation

Activities and Progress

The district took 297 bacteria samples at 11 sites in 2008 and 305 bacteria samples at 11 sites in the watershed. The following projects, which represent both on-the-ground and public outreach, were implemented in 2008 and 2009: Ten pet waste stations were installed along Crow and Dry Creek. There were seven pet waste informational signs, pet waste stations and pet waste signs installed along the Greater Cheyenne Greenway and throughout the City parks (Optimists Park, South Cheyenne Dave Romero Park, MLK Park, Dry Creek Parkway, Sun Valley Park, Sun Valley Open Space, Lions Park, Holliday Park, Cahill Park, etc.)

The district purchased 1,700 water poetry magnets in March 2009, and distributed those at public events such as Cheyenne SuperDay, Laramie County Fair and Earth Day.

In addition, non point source educational materials were distributed at Cheyenne SuperDay (15,000), Wyoming Home and Garden Show (12,000), Laramie County Fair (6,000), Cheyenne Arbor Day (200), Earth Day (3,000), Wyoming Hunting and Fishing Expo (17,000), and the Curt Gowdy State Park Summer Slam (500).

Examples of materials distributed included, Alternative Turf Grass Brochure, Grazing Livestock on Small Acreages, Drip Irrigation Design Guide, Water is Life Activity Book, Water Poetry Magnets, After the Storm Brochure, The Solution to Stormwater Pollution Brochure, A Septic Guide for Laramie County Residents, The Dirt on Sediment, Hazardous Waste from the Home, Barnyards and Backyards Magazine, District Newsletter, Wetlands Brochure, and Leave No Trace Brochures/Cards.

In addition to the outreach and education efforts, construction of nine rock weirs, riparian tree and shrub plantings (84 large trees and ~1 acre seedling size), 1.5 miles riparian fencing, off-site water development and leafy spurge control for stream restoration project at the WY Hereford ranch. The district also assisted with the installation of three spring developments and riparian fencing at Curt Gowdy State Park and nearby state lands in cooperation with the grazing leasee. One additional spring development and riparian fencing was installed on private land in the Upper Crow Creek Watershed in cooperation with Rocky Mountain Elk Foundation.

The CD purchased "Leave No Trace Front Country" brochures, banners and ethics cards for disbursement at Medicine Bow National Forest, Curt Gowdy State Park and public events. The district provided 38 banners to the US Forest Service which are posted at 10 locations in the Pole Mountain Area. An additional supply was purchased to replace vandalized banners over the next five years; 2,000 brochures were purchased and 1,000 were distributed to USFS to give out at fee stations and education events. In addition, the district has distributed 350 at public events such as Hunting & Fishing Expo, Super Day and County Fair; 3,000 ethics cards were purchased and 1,500 were given to USFS for distribution, LCCD has distributed 1,000 at classrooms, youth events, SuperDay, Earth Day, County Fair, Curt Gowdy State Park Summer Slam, etc.

In September and October 2009, the district installed aquatic habitat signs. One set is along Clear Creek in the Dave Romero South Cheyenne Community Park and one set is along the Greenway and Dry Creek in the Dry Creek Parkway (between College Drive and US Hwy 30).

Monitoring Results

Cheyenne area: Bacteria levels in Crow Creek continue to exceed DEQ standards in the urban area of Cheyenne and the stream remains on the 2008 303(d) list (WDEQ, 2008). Urban bacteria levels are most likely the result of stormwater runoff and are considered the highest priority for monitoring and implementing Best Management Practices (BMP) due to an increased human health risk in these public areas. The district has worked cooperatively with Cheyenne and Laramie County Governments to implement urban BMPs to treat stormwater runoff including wetlands, dry creek channels and rain gardens. Bacteria levels near the WY/CO border also appear to be storm related because high levels occur following storm events, but bacteria is not consistently high throughout the season. Possible contributors to fecal coliform in the rural areas include septic systems, livestock waste and wildlife waste.

A total of 192 bacteria samples were collected and analyzed from eight sites along Crow Creek in the Cheyenne area of the watershed. The 2008 water quality data continues to show higher bacteria levels in the urban area of Cheyenne, especially near Deming Drive. This trend has been consistent for several years. Elevated bacteria levels are commonly observed after or during rain events and are generally higher during the warmer summer months than the spring and fall. The LCCD is currently focused on public outreach in the urban area of Cheyenne and will continue efforts in pet waste removal and stormwater runoff management. The DEQ plans to develop a TMDL for Crow Creek in the Cheyenne area within the next few years. The district anticipates being involved in this process and is not planning any large BMP construction projects until the TMDL is developed.

Water quality monitoring in the upper portion of the Crow Creek watershed, Pole Mountain Area, was conducted almost weekly from May 14 through September 30, 2008. This monitoring design is consistent with the 2006 and 2007 sampling seasons in an attempt to collect the most representative data possible without added administrative costs. Weekly sample collection seems to have provided a better picture of bacteria levels throughout the recreation season with approximately equivalent staff time and laboratory fees as in previous years.

Middle Fork Crow Creek exceeded Wyoming's primary contact recreation standard in 2008 after 4 years of attaining the standard. According to information provided by the grazing permit holder, this pasture was grazed June 24 – 30 and July 11 – 18. The highest bacteria levels appear to occur before and after livestock grazing and do not seem to be directly influenced by the presence of cattle for this year.

On the North Branch North Fork Crow Creek, elevated bacteria levels continue to occur at the upstream sampling site (NBNF – Above Willows) while the designated site at NFSR 701 is approaching the primary contact recreation standard. The area between these two sites is a healthy riparian area that seems to function as an on-channel BMP to filter and settle sediment and bacteria. E. coli bacteria and turbidity levels are generally higher at the upstream site and much lower as the stream reaches NFSR 701. This riparian area historically was part of the Crow Creek Allotment #2-West pasture. Prior to the 2006 sampling season, this riparian area that includes the two sampling sites was separated from the pasture. This separated area is now a new holding pasture that is grazed for 1-2 days each year when the herd is turned out in the spring and gathered in the fall. Since this change in livestock management, bacteria levels have declined and fluctuations in bacteria data do not appear to be as directly linked to the presence (or absence) of cattle as in the past.

In 2003, the Middle Fork of Crow Creek had a high geometric mean of 215 measuring fecal coliform bacteria. Those numbers declined in the following years, having high geometric means of 94 in 2004, 37 in 2005, and finally 54 in 2006. E. coli was also sampled during this time frame. In 2003, the highest E. coli geometric mean was 220. The following year E. coli numbers were not collected using an EPA approved method. In 2005, the high E. coli geometric mean was 66, in 2006 it was 86, in 2007 it was 125.7, and in 2008 it climbed to 254.51cfu/100ml.

Samples were also taken on the North Branch North Fork of Crow Creek over the same time period as those taken on the Middle Fork. Like the sampling on the Middle Fork, the first 4 years data are for fecal coliform and E. coli, with the final years being centered on E. coli. In 2003 the highest geometric mean for fecal coliform was 1262, with the numbers tending to decline over a four year time period to 307 in 2004, 332 in 2005, and 80 in 2006 for fecal coliform. The E. coli high geometric means for the same time period began with 915 in 2003, again no data was collected using approved methods in 2004, 674 was found in 2005, 186 in 2006, 380.7 in 2007, and finally a mean of 199.52 in the 2008 sampling season.

While exceedences were noted, it should also be mentioned that each stream also registered low geometric means in every year that were well below the standard for either fecal coliform or E. coli.

Star Valley Conservation District

SNAKE RIVER BASIN

" Lincoln County has one of the most advanced enhanced septic system programs in the state due in part to the concerns brought out in the Salt River watershed planning process."

John Woodard, Lincoln County Planning Director

Activities and Progress

The district monitored 10 sites within the Salt River watershed during the 2008 and 2007 sampling season. Sampling locations include nine sites on the Salt River and one site on Stump Creek. A total of 200 samples were collected and analyzed in 2008 and 194 samples were collected and analyzed in 2009. Water samples were analyzed for total coliform and E. coli using the Colilert® method.

The Salt River Watershed plan was adopted in June 2005 and expires in June 2010. The SVCD did not engage in any additional planning activities during this time frame.

The district, with consultants from Millennium Science and Engineering, developed a guidance document for land development professionals that outlined stormwater Best Management Practices (BMPs) to address potential impacts to the Salt River from rural subdivision stormwater. The guidance document provides solutions for short-term construction BMPs and establishes BMP guidelines to incorporate long-term stormwater solutions into rural subdivision. The BMPs focus on low cost features that will be effective in rural areas with no existing stormwater infrastructure and a challenging climate. This project was completed as part of a 319 grant from the Department of Environmental Quality and Environmental Protection Agency. In addition, an E. Coli brochure was developed and distributed on E. Coli in the Salt River Watershed. As well, EPA's Homeowners Guide to Septic Systems was distributed, in partnership with the Lincoln County Office of Planning and Zoning, to homeowners with permitted septic system.

The district and University Cooperative Extension Service conducted a Barnyards and Backyards workshop series consisting of six mini-workshop 'After-Work' classes. The workshops were held as a series in order to allow those who attend all workshops to have a well-rounded knowledge of land management practices.

Adopt-the-Salt River is a volunteer-driven, river clean-up program sponsored by the Star Valley Conservation District in partnership with Lincoln County, Wyoming Game and Fish, and Sportsman for Fish and Wildlife. The purpose of this program is to increase awareness about water quality issues that threaten the health of the Salt River, and to promote action towards its improvement and protection.

As part of the districts on-going community education efforts, the district held two Storm Water classes; had a informational booth at the Star Valley Farmers Market; gave two presentation to the Star Valley Rotary Club; participated in six field trips for water quality sampling on the Salt River with Star Valley High School; conducted one field trip for water quality sampling on the Salt River with a local home school group; sponsored four science fairs for local elementary schools, conducted three demonstrations using the Enviroscape Model with a local Girl Scout Troop, home school group and Osmond Elementary; Conducted 20 after school enrichment programs for local elementary schools during the 2008-2009 school year and participated in one Earth Day celebration with Thayne Elementary School students.

In addition to the education and outreach there were was one stream protection and water quality project which included fencing the creek bank and a willow planting, three irrigation system conversions and a wildlife friendly fencing project implemented in the valley.

Monitoring Results

The district conducted bacteria monitoring from 10 locations on the Salt River and its tributaries from 2005 to 2009. Samples have been collected for analysis of E. coli and total coliform using the Colilert® method. Analytical data collected from April 26, 2005 to October 7, 2009 show geometric means for E. Coli range from 7 to 850 organisms per 100 milliliters, with 29 instances of the geometric mean exceeding the standard for E. coli of 126 organisms per 100 milliliters.

Elevated levels of E. Coli in the Salt River correspond with spring run-off and years where water levels in the river remain high. Typically, the Lower Valley section of the Salt River shows elevated levels of E.Coli during April, May and June with instances of isolated elevated e.coli levels during the summer and fall months. The Upper Valley section of the Salt River shows isolated instances of elevated E. Coli levels during the year with no recognizable trend. With consideration given to individual samples and geometric mean data that did not exceed the standard, the distribution of elevated E. coli levels do not appear to be confined to either the Upper Valley or Lower Valley.

Stump Creek typically shows E.coli levels below the standard during the spring with consistently elevated levels of E.coli during the summer and fall.

Partners

There are representatives from WY Game & Fish, USDA Forest Service, Town of Afton, Lincoln County Planning Office, Star Valley Conservation District, USDA NRCS Afton Field Office and ten landowners on the Salt River Watershed Plan Steering Committee.

Watershed Investment

Private	$57,714
Local	$60,000
State	$51,200
Federal	$88,500
Total	$257,414

Contributors

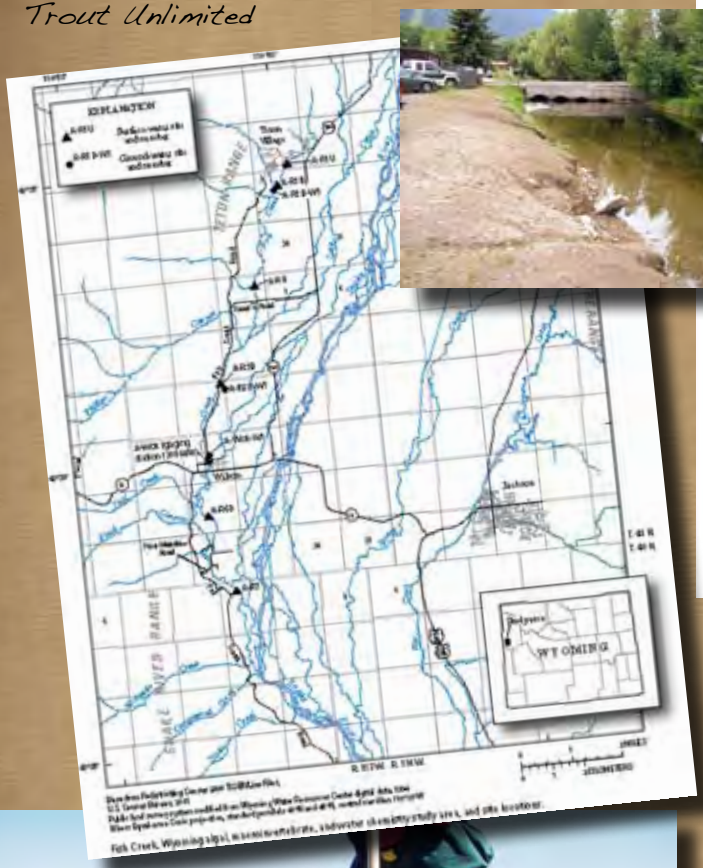
Star Valley Conservation District
Lincoln County Commission
Department of Agriculture
UW Cooperative Extension Service
Department of Environmental Quality/EPA

Teton Conservation District

SNAKE RIVER BASIN

"It's very gratifying to see a collaborative effort by a diverse group of stake holders produce such positive results for Jackson's cold water fisheries."

Jim Broderick - Vice-chair WY State Council, Trout Unlimited



Partners

Teton Conservation District – Board of Supervisors, Water Resource Specialist, and Executive Director, Town of Jackson – Director of Public Works, Town Engineer, Town Council, and Mayor, Teton County – County Commissioners, Planning Department, and County Engineer, Wyoming Department of Transportation – District Engineer, United States Forest Service – Supervisor, Staff Hydrologist, Wyoming Game and Fish Department – Director, Aquatic Habitat Specialist, Fisheries Biologist, Flat Creek Stakeholders – Property owners along Flat Creek, Teton County Residents – Concerned residents throughout Teton County (more than 100 people attended public meetings concerning the Flat Creek Watershed Management Plan), Jackson Hole Trout Unlimited – Board and members, Jackson Hole OneFly – Board and members.

Watershed Investment

Private	$25,000
Local	$530,000
Federal	$770,154
Total	$1,325,154

Contributors

Teton Conservation District
Town of Jackson
Jackson Hole OneFly
National Fish & Wildlife Foundation
Jackson Hole Trout Unlimited
Department of Environmental Quality / EPA

Activities and Progress

Collection of long-term water quality data from Teton County streams, including Flat Creek, continued during 2008 and 2009 marking the 13th year of credible data collection. Initial data collection provided important baseline data and continued monitoring helps the district to better understand the general health of area streams. The district continues to collect chemical, physical, and biological data, following protocols described in the Wyoming Department of Environmental Quality's (WYDEQ) Manual of Standard Operating Procedures for Sample Collection and Analysis, for these important area streams within the Flat Creek Watershed: six sites on Flat Creek, three sites on Cache Creek and one site on Nowlin Creek.

The Flat Creek Watershed Management Plan was approved in February, 2008. The TCD has been implementing tasks to achieve water quality improvement, protection and restoration of riparian habitat, and improvements to aquatic habitat.

The district, Town of Jackson, and Intermountain Aquatics Inc. partnered to complete a construction design for a stormwater wetland designed to significantly reduce stormwater sediment from entering Flat Creek. The group then completed a DEQ Section 319 proposal for funding assistance. The Environmental Protection Agency (EPA) requires all watershed-based plans to include an estimate of pollutant loads from watershed sources to target future management efforts. At the time of submittal of the Flat Creek Watershed Management Plan the estimates of pollutant loads, specifically sediment, were not available. During planning for the Karns Meadow Stormwater Treatment Wetland approximate sediment loads and event runoff volumes were estimated for rainfall and snowmelt runoff using (1) Rational Method rainfall-runoff estimates calibrated to spring 2008 stormwater flow data, (2) winter-spring 2008 snowmelt runoff data, (3) sediment concentrations for samples collected from 2005-2008, which were compared to sediment data from previous water quality studies in Jackson and stormwater literature. This information was used to create Amendment A- Pollutant Load Estimates for the Flat Creek Watershed Management Plan and is currently being reviewed by DEQ.

Additional on-the-ground management practices that have been installed include the Karns Meadow Stormwater Treatment Wetland. The purpose of the Karns Meadow Stormwater Wetland is to significantly improve the physical and chemical quality of stormwater runoff entering Flat Creek. The project also aims to enhance habitat quality in this important open space in the Town of Jackson. The partners have completed the preliminary design and implementation plan and have secured a 319 grant. The partners anticipate construction to begin in 2010.

The TCD and Town of Jackson public works department have partnered to make improvements to the stormwater collection system through these best management practices; Regular cleaning and maintenance of the stormwater collection system; the installation of stormwater treatment vaults as part of stormwater infrastructure capital improvement projects; installation of stormwater drain and vault "no dumping" plaques; and enhanced street sweeping operations on highways including year round operations.

The Flat Creek Enhancement Projects aims to improve and restore riparian and aquatic habitat while reducing the effects of frazil and anchor ice in Flat Creek. In 2006, the partners completed restoration of more than 3,500' of Flat Creek in the Town of Jackson. Improvements included the installation of more than 40 in-stream control structures, bank cover deflector trout habitat structures, and the planting of more than 500 willows. During 2007 the Teton Conservation District and Habitech Inc. maintained and repaired previous enhancement structures. The partners are currently collecting data and planning for the completion of the remaining 4,000' of stream enhancements. The Town of Jackson has secured American Recovery and Reinvestment funding to complete the remaining stream section and anticipate construction in the fall 2010. Monitoring of past enhancement work has shown a significant reduction in the formation of frazil and anchor ice due to the formation of surface ice, restricting the ability of frazil ice to form anchor ice that has caused localized flooding and damage to the native Snake River Cutthroat Trout populations.

The TCD and Teton Science School have partnered with schools to perform riparian area enhancements to more than 4,000' of Flat Creek in Jackson. Students have replanted willow poles harvested within the watershed, reseeded upland areas, and replaced riparian vegetation using wetland sod mats.

The US Forest Service has begun restoration of Cache Creek riparian areas along Cache Creek Road and on eroding trails within the Flat Creek watershed. Cache Creek is an important tributary of Flat Creek.

During 2008, two private landowners on the north side of Flat Creek in the Town of Jackson have initiated stream restoration efforts on 1,000' of Flat Creek. The landowners have secured experienced private stream restoration consultants in order to improve aquatic habitat on their properties. In both cases the landowner has consulted the Teton Conservation District in order to insure that their restoration efforts are consistent with the goals of the Flat Creek Enhancement Project and the Flat Creek Watershed Management Plan.

Monitoring Results

The district's long term monitoring data is compiled yearly and reviewed for trend analysis. Assessments of the data have identified non-point source pollutants in the Flat Creek watershed as the primary reason Flat Creek does not support its designated uses or its designated uses are threatened. Flat Creek and its associated tributaries within the watershed have historically shown consistent water quality. The only exceedances of DEQ water quality standards have been total suspended solids (TSS) and turbidity. Trends in lab and field pH, temperature, dissolved oxygen, along with major cations and anions have shown to be optimal to support Flat Creeks designated uses as a cold water fishery and its protection as a drinking water source.

The primary source of the exceedances in TSS and turbidity continues to be sediment resulting from urban stormwater runoff in the Town of Jackson. The district's water quality data has shown that besides exceedances in TSS and turbidity, elevated levels of dissolved solids, petroleum hydrocarbons, heavy metals, and sodium/chloride have been noted but have not exceeded DEQ water quality standards. Completion of the Karns Meadow Stormwater Wetland should significantly improve these water quality issues. Extensive monitoring and reporting will be conducted, after completion of the stormwater wetland, in order to determine water quality improvements to Flat Creek in Jackson.

Sheridan County Conservation District

TONGUE RIVER BASIN

"The corral relocation project has been great. I'm able to keep my cows close during calving without having the slop go into the creek. The fencing projects have been successful in maintaining a grass buffer for water quality. It also benefits me because it keeps cows away from dangerous areas. The voluntary programs and watershed plan encourage people to come forward-all of us would like to do the right thing."

Mike Connell, Landowner

Activities and Progress

Goose Creek Watershed interim monitoring for 2008 was delayed because of problems with funding. Interim monitoring was conducted in 2009 for bacteria, turbidity, and other parameters on 19 stations in May and August. Macroinvertebrate sampling was done in September. Quality control/assurance of data and the monitoring report not been completed yet.

The Goose Creek Watershed Plan (2004) update has not been initiated. The SCCD decided to wait until after the Goose Creek TMDL process is completed to avoid duplication of effort. That update will be initiated upon completion of the TMDL which is planned for 2010.

In addition to the previous 11 animal feeding operation projects, an additional project has been implemented in the past two years. As well, two additional septic rehabilitation projects were implemented in the past two years bringing the total in the watershed to 10. In addition, one stream restoration, two water conservation and one riparian/wildlife improvement projects have been implemented.

An irrigation diversion/fish passage project was implemented on Goose Creek in the fall of 2009.

Monitoring Results

In the Goose Creek watershed, bacteria levels were generally higher in 2005 than in 2001-2002 (SCCD, 2006). Increased bacteria concentrations during May 2005 were likely attributable to an above-average spring run-off condition. This was partly the result of 5.5 inches of precipitation during a six day period in early May. This event resulted in local streamflows at or above the bankfull stage for an extended period. Water temperatures were generally cooler in 2005 than in 2001-2002. Cooler temperatures may have been due to increased streamflows in 2005. Data collected in 2009 has not been validated through the internal Quality Assurance/Quality Control procedures. Preliminary review of the data suggests an overall decrease (~58%) in bacteria concentrations from 2005-2009 throughout the watershed, with a slight increase (~8%) observed on the main stems (Big Goose, Little Goose, and Goose Creek) and a more pronounced decrease (~158%) on the tributaries.

Partners

City of Sheridan, Sheridan County, landowners, and residents.

Watershed Investment

Private	$42,306
State	$16,086
Federal	$145,493
Total	$203,885

Contributors

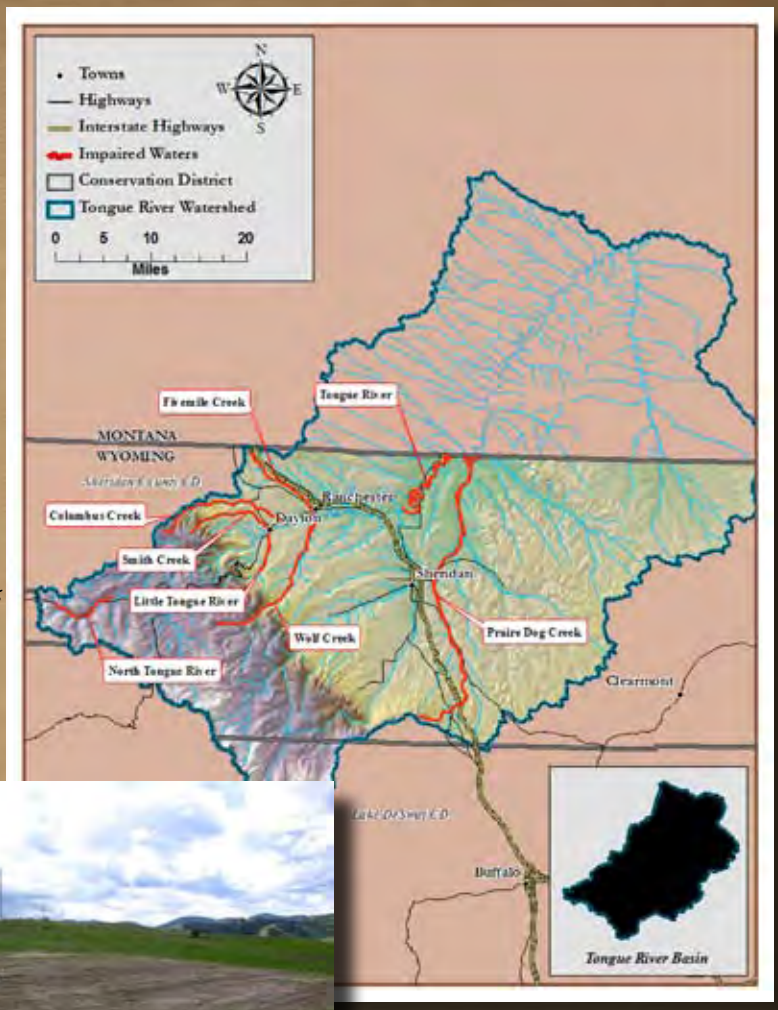
Landowners/Homeowners
Sheridan County Commission
Sheridan County Conservation District
Wildlife & Natural Resource Trust
Department of Agriculture
USDA Natural Resources Conservation Service

Sheridan County Conservation District

TONGUE RIVER BASIN

"Thank you for the help in assessing, planning, and implementing our new septic system. We had no idea what a huge job it was going to be, but it went very smoothly and we are very pleased with the outcome. The financial assistance made the project feasible much earlier than it otherwise would have been. We feel a great deal of reassurance that the project was done correctly and that the health of the Tongue River will be improved."

Stephanie Blevins & Clint Krumm, Homeowners



Activities and Progress

The Prairie Dog Creek Watershed Assessment and Planning effort was initiated in 2007. This assessment includes monitoring at 11 stations in 2007, for bacteria, turbidity, manganes, and other parameters. Monitoring was conducted from May through September. In 2008, three sites were added. Monitoring began in April, prior to the irrigation season, and ended in early October. Quality control and assurance are being completed and a monitoring report will be submitted to DEQ with a final grant report.

The Prairie Dog Creek Watershed Plan is in draft form. It was opened for 45 day public comment period in July. The district and DEQ are working together on load reduction information for potential sources. The plan is completed and is currently undergoing DEQ review. If approved, this plan will meet the requirements of an EPA Watershed Based Plan.

There have been three additional projects implemented in the Prairie Dog Creek watershed in the past two years for a total of eight projects. These include animal feeding operations, septic rehabilitations, in-stream diversion and riparian restoration.

The Tongue River Watershed Interim monitoring report for bacteria, turbidity, and field parameters on 12 stations is scheduled for 2010.

The Tongue River Watershed Plan (2000) was updated in 2007, prior to the discussions on EPA Watershed Based Plan requirements. The document was subject to a 45 public comment period and was submitted to WDEQ in May 2007. The district is now in the process of updating this plan, again, to meet the requirements of EPA "Watershed Based Plans." Some of the work has been completed, but the district is waiting to see how the Prairie Dog Plan progresses.

Since 2007, in the Tongue River watershed there have been two Animal Feeding Operation projects, one septic, one in-stream diversion, one riparian, and two stream restoration projects, with one additional in progress implemented for a total of 23 projects being implemented in the Tongue River watershed since the listing in 2001.

Monitoring Results

In the Tongue River watershed, most sites had a 25% or more decrease in bacteria concentrations from 2003-2006, with decreases being greater in the tributary stations (SCCD, 2007.) However, even with the decreases, data collected during 2006 continued to show elevated bacteria levels. Water quality data were generally obtained during normal flow conditions during 1996, above normal flow conditions during 1997 and 1999, and below normal flow conditions in 1998, 2003, and 2006. During 2003, the Tongue River experienced peak flows higher than normal, which may have had the ability to "flush" streambed sediment that had accumulated during the several previous drought years (SCCD, 2004.) Daily water temperatures in 2006 were higher on the Tongue River than in the same period in 2003. Lower than normal streamflows and warmer than normal summer air temperatures may have contributed to the higher water temperatures.

Results from the Prairie Dog Creek Watershed Assessment (2007-2008) indicate bacteria levels that exceed state standards at all of the mainstem and tributary sites (SCCD, 2009). E. coli bacteria concentrations were generally highest in the middle portions of the watershed. Despite this, lower reaches of Prairie Dog Creek as well as reaches in the upper portion of the watershed also exceeded water quality standards on multiple occasions. Daily water temperatures in 2007 and 2008 exceeded water quality standards in the lower and middle portion of the watershed for extended periods. SCCD will use future monitoring results to evaluate water quality changes over time.

Partners

Town of Ranchester, Padlock Ranch, & residents of both the Tongue and Prairie Dog Creek Watersheds

Watershed Investment

Private	$183,658
Local	$ 4,500*
State	$186,192
Federal	$397,842
Total	$772,192

*does not include in-kind contributions

Contributors

Landowners/Homeowners
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Wildlife & Natural Resource Trust
Department of Agriculture
USDA Natural Resources Conservation Service

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Notes...

Acronyms in this publication:

BLM - Bureau of Land Management
BMP - Best Management Practices
CD - Conservation District
CRM - Coordinated Resource Management
DEQ - Department of Environmental Quality
EPA - Environmental Protection Agency
FFA - Future Farmers of America
NRCS - Natural Resources Conservation Service
TDS - Total Dissolved Solids
TMDL - Total Maximum Daily Load
USDA - United States Department of Agriculture
USFWS - United States Fish and Wildlife Service
UW - University of Wyoming
WACD - Wyoming Association of Conservation Districts
WDA - Wyoming Department of Agriculture
WRC&D - Wyoming Resource Conservation and Development
WWDC - Wyoming Water Development Commission
WWTP - Waste Water Treatment Plant
WYDOT - Wyoming Department of Transportation
WYDEQ - Wyoming Department of Environmental Quality

Special Thanks...
Watershed maps: Cathy Cooper, Watershed Coordinator*
Layout and design: Kosha Olsen
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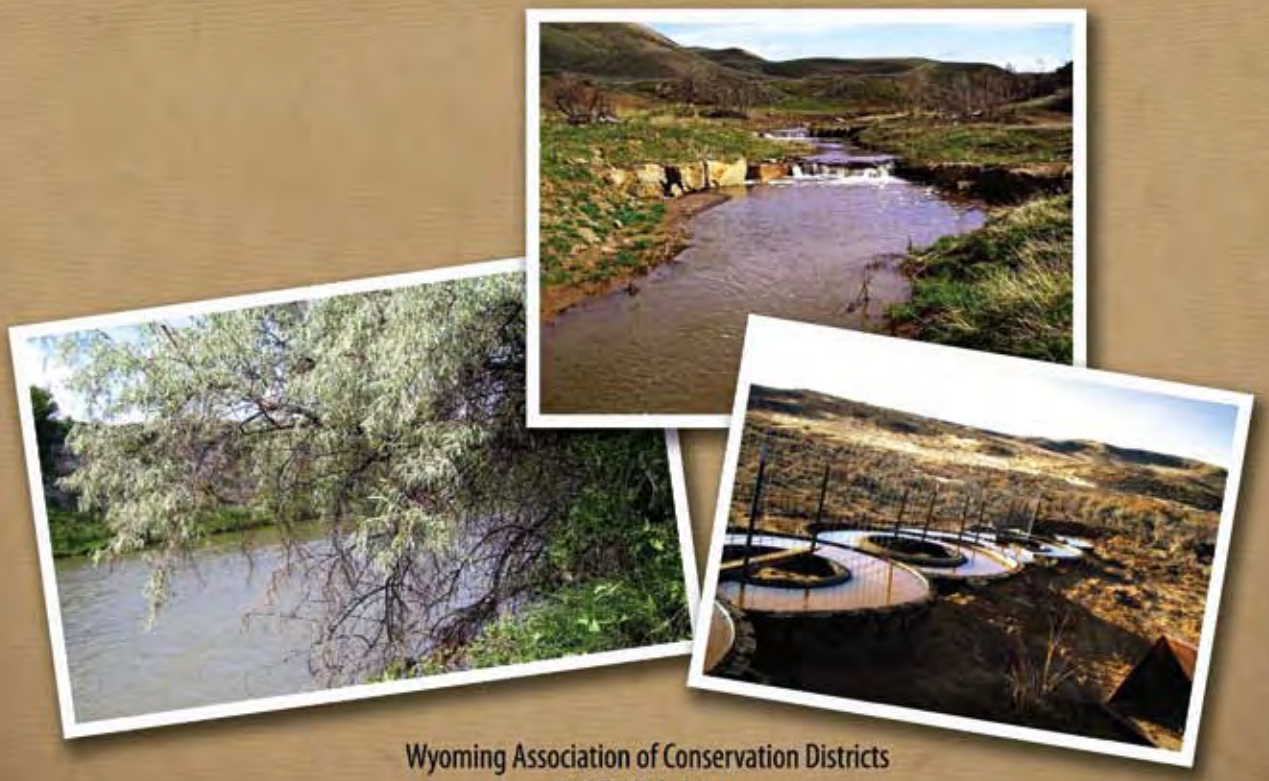
**Maps are based on current WDEQ and Conservation District information. Impairments are shown by location as listed on WDEQ's List of Impaired Waters. Maps are subject to change and should be used for reference only.*



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