

# Colorado Nonpoint Source Program 2012 Annual Report



Colorado Department of Public Health  
and Environment  
Water Quality Control Division  
4300 Cherry Creek Drive South  
Denver, Colorado 80246-1530

## Executive Summary

This report fulfills the requirements of Section 319(m)(1) of the federal Clean Water Act of 1987. The Colorado Department of Public Health and Environment's (CDPHE) Water Quality Control Division (Division) annually prepares this report to inform the public, the U.S. Congress and the U.S. Environmental Protection Agency (EPA) on the state's progress in the area of nonpoint source water pollution abatement. Although this report should not be considered a complete enumeration of all nonpoint source activities, it describes the most important features and accomplishments of Colorado's nonpoint source program for the Federal Fiscal Year 2012.

Colorado DPHE WQCD continues to implement the NPS program and direct funding into basins impaired by NPS pollution. In addition, the Division is continuing to work toward implementation of the watershed approach, which incorporates the use of EPA's key watershed planning components with NPS implementation using the nine elements of watershed-based planning. The Division is also committed to a continual improvement in coordination among the Water Quality Programs including NPS, Total Maximum Daily Loads (TMDLs), Water Quality Assessment and Integrated Reporting, Source Water Protection, Groundwater and Clean Water State Revolving Loan Fund.

The two-fold goal of Colorado's nonpoint source program is to *restore* to full designated beneficial use those waters impaired by nonpoint sources of pollution and to *protect* existing water quality from future impairments by using an open process that fully involves the public.

Through Fiscal Year 2012, the Division started administering the updated *Colorado Nonpoint Source Management Program*, which EPA approved in June 2012. The document is available upon request or online at: <http://www.npscolorado.com> In addition, Regulation № 93 – Section 303(d) List of Water Quality Limited Segments Requiring TMDLs and the *2012 Status of Water Quality in Colorado* 305(b) report were also used to guide program implementation activities. Nonpoint source assessment is integrated in the Status of Water Quality in Colorado 305(b) report and is periodically updated.

The Division has been able to secure funding from the Colorado Water Resources and Power Development Authority, the entity that administers the State Revolving Funds, for nonpoint source activities. These funds are being leveraged with NPS program funds, with the Division of Reclamation, Mining and Safety Severance Fees and with private funds to restore water quality in areas impacted by "legacy" mining.

Any comments or questions on this report or on Colorado's nonpoint source program may be directed via e-mail to [lucia.machado@state.co.us](mailto:lucia.machado@state.co.us).

**Summary of Open and Active Colorado NPS projects during FFY12  
(October 1<sup>st</sup> 2011 to September 30<sup>th</sup> 2012)**

	<b>Project Title (and Federal Funding Fiscal Year)</b>	<b>Project Sponsor</b>	<b>Basin</b>	<b>Project Type</b>	<b>NPS Award</b>	<b>(Expected) Completion Date</b>	<b>Estimated % Complete</b>
<b>1</b>	Dolores River Watershed Plan (FFY07)	Dolores Water Conservancy District	Colorado River Basin	Watershed Plan	\$26,750	(March 2013)	90%
<b>2</b>	Watershed Restoration Planning - Lake Fork Gunnison River (FFY09)	Hinsdale County	Gunnison River Basin	Watershed Plan	\$235,475	(December 2013)	75%
<b>3</b>	North Park Watershed Plan (FFY10)	Owl Mountain Partnership	North Platte River Basin	Watershed Plan	\$69,360	(October 2014)	50%
<b>4</b>	Upper Kerber Creek Watershed Plan(FY10)	Trout Unlimited	Rio Grande River Basin	Watershed Plan	\$25,000	(August 2013)	40%
<b>5</b>	Slate River Watershed Plan (FY11)	Coal Creek Watershed Coalition	Gunnison River Basin	Watershed Plan	\$51,390	(May 2014)	20%
<b>6</b>	Lower Bear Creek Watershed Planning and Assessment (FY11)	Groundwork Denver	South Platte River Basin	Watershed Plan	\$60,000	(June 2014)	5%
<b>7</b>	Watershed Planning Support (FFY09 and 10)	Colorado Watershed Assembly	Statewide	Information Dissemination	\$158,400	(June 2013)	85%
<b>8</b>	Colorado Clean Marinas (FFY09)	Colorado Marinas Association	Statewide	Information Dissemination	\$243,260	(July 2013)	80%
<b>9</b>	Nonpoint Source Outreach Education (FFY10)	Colorado Foundation for Agriculture	Statewide	Information Dissemination	\$193,940	(June 2014)	45%
<b>10</b>	Greenway PURE Trash Reduction Campaign (FY10 & 11)	The Greenway Foundation	South Platte River Basin	Information Dissemination	\$85,000	(April 2014)	40%
<b>11</b>	Data Sharing Network (FY11)	GeoMountainGeek, LLC	Statewide	Information Dissemination	\$114,167	(March 2015)	30%
<b>12</b>	Statewide I & E Dissemination (FY12)	Colorado State University	Statewide	Information Dissemination	\$88,508	(September 2013)	10%

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<b>13</b>	Lefthand Canyon OHV Area Rest. II (FFY08)	James Creek Watershed Initiative	South Platte River Basin	Stream Restoration BMPs	\$150,000	(December 2012)	100%
<b>14</b>	Rio Grande Riparian Stabilization III (FFY08)	CO Rio Grande Restoration Foundation	Rio Grande Basin	Stream Restoration BMPs	\$250,000	(December 2012)	100%
<b>15</b>	Hecla Wash Restoration and Sedimentation (FFY08)	CO Dept of Natural Resources	Upper Arkansas River Basin	Stream Restoration BMPs	\$425,000	(December 2012)	100%
<b>16</b>	Edwards - Eagle River Restoration (FFY09)	Eagle County	Colorado River Basin	Stream Restoration BMPs	\$600,000	(December 2012)	100%
<b>17</b>	South Platte Habitat Restoration at Happy Meadows (FFY06 and 07)	Coalition for the Upper South Plate	South Platte River Basin	Stream Restoration BMPs	\$265,000	(June 2013)	90%
<b>18</b>	Alamosa River Restoration (FFY07)	Alamosa River Watershed Restoration Foundation	Alamosa River Basin	Stream Restoration BMPs	\$384,725	(March 2013)	70%
<b>19</b>	Rio Grande Riparian Stabilization IV (FFY09)	CO Rio Grande Restoration Foundation	Rio Grande Basin	Stream Restoration BMPs	\$250,000	(March 2014)	20%
<b>20</b>	Upper South Platte Nonpoint Source Initiative (FY10 &08)	Coalition for the Upper South Plate	South Platte River Basin	Stream Restoration BMPs	\$727,800	(March 2015)	30%
<b>21</b>	Midway Stabilization and Riparian Improvement (FY10)	North Fork River Improvement Association	Gunnison River	Stream Restoration BMPs	\$40,000	July 2012	100%
<b>22</b>	Lower Willow Creek Restoration (FY08 &10)	City of Creede	Rio Grande Basin	Stream Restoration BMPs	\$408,770	(November 2014)	70%

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<b>23</b>	Selenium Control: Loutzenhizer Lateral Piping (FFY02,03,04 and 07)	Uncompahgre Valley Water Users Association	Gunnison River Basin	Agriculture BMPs	\$800,000	(March 2013)	100%
<b>24</b>	Data and Models for Planning Nonpoint Source Selenium Management in Lower Arkansas (FFY06 and 07)	Colorado State University	Lower Arkansas River Basin	Agriculture BMPs	\$501,735	September 2012	100%
<b>25</b>	Upper Trail Creek Orphanage Remediation (FFY07)	Clear Creek Watershed Foundation	Clear Creek	Legacy Mine Reclamation BMPs	\$305,700	(March 2013)	90%
<b>26</b>	Little Frying Pan WQ Improvement (FFY08)	Colorado Mountain College Natural Resource Management	Lower Arkansas River Basin	Legacy Mine Reclamation BMPs	\$172,500	(December 2014)	75%
<b>27</b>	Upper Animas Mine Drainage Control (FFY06 and 07)	San Juan Resource Conservation & Development Council	San Juan River Basin	Legacy Mine Reclamation BMPs	\$187,440	(March 2013)	85%
<b>28</b>	Peru Creek Water Quality Improvement (FFY09)	Northwest CO Council of Governments	Snake River Basin	Legacy Mine Reclamation BMPs	\$170,250	(January 2014)	60%
<b>29</b>	Mine-related TMDL Implementation (FFY10 & 11)	Division of Reclamation, Mining and Safety	Statewide	Legacy Mine Reclamation BMPs	\$779,278	(March 2015)	30%
<b>30</b>	Coal Creek Restoration (FY10)	Coal Creek Watershed Coalition	Gunnison River Basin	Legacy Mine Reclamation BMPs	\$166,583	(February 2015)	50%

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<b>31</b>	Sugarloaf Mountain Mining District BMP Performance Monitoring (FFY09)	CO Mountain College - Natural Resources Management	Arkansas River Basin	Water Quality / Results Assessment	\$163,953	(December 2013)	80%
<b>32</b>	Characterizing Bioaccumulation of Mercury in Sport Fish (FY10)	Colorado State University	Statewide	Water Quality / Results Assessment	\$286,353	(March 2015)	25%
<b>33</b>	Supporting Selenium Control Efforts (FY10)	North Fork River Improvement Association	Gunnison River Basin	Water Quality / Results Assessment	\$26,171	(April 2013)	90%
<b>34</b>	Measurable Results (FY11)	Colorado Watershed Assembly	Statewide	Water Quality / Results Assessment	\$60,979	(March 2013)	85%

**Summary of Colorado NPS projects that closed during FFY12  
(October 1<sup>st</sup> 2011 to September 30<sup>th</sup> 2012)**

	<b>Project Title (and Federal Funding Fiscal Year)</b>	<b>Project Sponsor</b>	<b>Basin</b>	<b>Project Type</b>
<b>1</b>	Mancos River Watershed Plan (FFY06)	Mancos Conservation District	San Juan River Basin	Watershed Plan
<b>2</b>	Lower Gunnison River Watershed Plan (FFY03 and 06)	Colorado River Water Conservation District	Gunnison River Basin	Watershed Plan
<b>3</b>	Lower South Platte Watershed Planning (FFY10)	Colorado Department of Agriculture	South Platte River Basin	Watershed Plan
<b>4</b>	Lower Animas Watershed Plan (FFY04 and 07)	San Juan Resource Conservation and Development Council	Animas River Basin	Watershed Plan
<b>5</b>	Lake Fork Watershed Plan Development (FFY06)	Colorado Mountain College Natural Resources Management	Arkansas River Basin	Watershed Plan
<b>6</b>	Uncompahgre Basin Watershed Plan (FFY08)	Shavano Conservation District	Gunnison River Basin	Watershed Plan
<b>7</b>	Colorado Silviculture BMPs Evaluation (FFY07)	Colorado State University	Statewide	Information Dissemination
<b>8</b>	Data Sharing Network (FFY07)	South Platte CURE	Statewide	Information Dissemination
<b>9</b>	Outreach Coordinator (FFY06 and 08)	Colorado State University	Statewide	Information Dissemination
<b>10</b>	West Creek Water Quality Improvement (FFY06)	Douglas County	South Platte River	Stream Restoration BMPs
<b>11</b>	Kerber Creek Restoration (FFY07)	Trout Unlimited	Rio Grande Basin	Stream Restoration BMPs

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<b>12</b>	Coal Creek Watershed Plan Implementation (FFY07)	Town of Crested Butte	Gunnison River Basin	Legacy Mine Reclamation BMPs
<b>13</b>	Porphyry Mountain Mine Waste Restoration (FFY07)	Lefthand Watershed Oversight Group	St. Vrain River Basin	Legacy Mine Reclamation BMPs
<b>14</b>	Gilson Gulch Orphan Mine Remediation (FFY06)	Division of Reclamation, Mining and Safety	Clear Creek	Legacy Mine Reclamation BMPs
<b>15</b>	Technical Assistance (FFY04 and 08)	Division of Reclamation, Mining and Safety	Statewide	Legacy Mine Reclamation BMPs
<b>16</b>	I-70 High-Priority Structural BMPs above Straight Creek (FFY 06)	Town of Silverthorne	Colorado River Basin	Urban / Stormwater BMPs
<b>17</b>	Fountain Creek Water Quality Improvement (FFY08)	City of Pueblo	Arkansas River Basin	Urban / Stormwater BMPs
<b>18</b>	Measurable Results (FFY05 and 07)	Colorado Watershed Assembly	Statewide	Water Quality / Results Assessment



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*“When we try to pick out anything by itself,  
we find it hitched to everything else in the Universe.”*

**John Muir**



## Programmatic Achievements

### Strategic Approach

Colorado Department of Public Health and Environment's (CDPHE) Water Quality Control Division (Division) continues to implement the Nonpoint Source (NPS) program and direct funding into basins impaired by NPS pollution. In addition, the Division is continuing to work toward implementation of the watershed approach, which incorporates the use of U.S. Environmental Protection Agency's (EPA) key watershed planning components with NPS implementation using the nine elements of watershed-based planning. The Division is also committed to a continual improvement in coordination among the Water Quality Programs including NPS, Total Maximum Daily Loads (TMDL), Water Quality Assessment and Integrated Reporting, Source Water Protection, Groundwater and Clean Water State Revolving Loan Fund.

The two-fold goal of Colorado's nonpoint source program is to *restore* to full designated beneficial use those waters impaired by nonpoint sources of pollution and to *protect* existing water quality from future impairments by using an open process that fully involves the public.

Although it is the leading cause of water quality problems in Colorado, controlling NPS pollution remains a challenge. Sources are difficult to characterize and the effects of NPS pollutants on specific waters vary spatially and temporally, and may not always be fully assessed. However, these pollutants can impact water supply, recreation, aquatic life, and agriculture classified uses. Below is a description of the approach the Division takes to characterize and control nonpoint sources of pollution.

The program is implemented at two tiers: 1) The program level identifies and prioritizes NPS issues, coordinating resources and partners to address these issues, and tracking progress in water quality improvement and 2) The project level addresses state program priorities through on-the-ground watershed restoration efforts and information/educational campaigns to broaden public awareness of NPS issues.

The first tier is specific to the NPS program's ongoing commitment to address the national performance expectations established by EPA, which are established annually between the EPA and Division, in the Performance Partnership Agreement (PPA). The PPA includes several NPS-specific Program Activity Measures (PAMs) related to the Division's implementation of the NPS program. These PAMs relate to two broad requirements related to overall water quality improvement. These include reporting on the annual reduction of NPS related phosphorus, nitrogen and sediment loads as well as the restoration of impaired waterbodies<sup>1</sup>.

Tier two activities represent the implementation of the tier one goals. These activities include outreach, technical assistance, and funding for local groups to plan, design and implement various efforts to address NPS issues that are causing or contributing to degraded water quality. In most cases, the NPS program's annual project solicitation process is directed toward fostering and developing tier two activities. By

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<sup>1</sup> - For more information about the PPA and PAMs, please consult the EPA's National Water Program Guidance at [http://water.epa.gov/resource\\_performance/planning/FY-2012-National-Water-Program-Guidance.cfm](http://water.epa.gov/resource_performance/planning/FY-2012-National-Water-Program-Guidance.cfm)

establishing priorities based on the Division's identification of impaired waterbodies, the NPS program is actively pursuing local support and development of projects that will address the tier one objectives.

Clean Water Act (CWA) Section 319(h) funding sources are allocated under two categories: 1) incremental allocation: for projects that address impaired waters requiring TMDL development, including watershed-based plans; and 2) base allocation: all other activities, including education and information dissemination. The first category, nonpoint source activities addressing impaired waters requiring a TMDL, is now being implemented in tandem with the Triennial Review Regulatory Basin rotation schedule, as adopted by the Water Quality Control Commission (WQCC).

For SFY2010 and 2011, the WQCC adopted a revised schedule for the Triennial Review: both years addressed Rule Making Hearings for Regulation № 31 – The Basic Standards and Methodologies for Surface Water. The regular Triennial Review Regulatory Basin rotation schedule resumed for SFY2012 and beyond. This required an adjustment in the NPS Target Basin rotation as well: 2011 and 2012 both addressed statewide projects, watershed plans, implementation projects anywhere in the state. There was not a Target Basin for those years. Below is the updated Colorado Target Basin Rotation Schedule.

## Nonpoint Source program - Target Basin Rotation Plan

**Legend:**

- = Arkansas and Rio Grande Basins
- = Upper and Lower Colorado Basins
- = San Juan and Gunnison Basins
- = South Platte and Republican Basins
- = Statewide / Flexible

State Fiscal  
Years  
(from July 1st  
to June 30th)

19/20	SJ / Gunni	So PI / Rep	STW	Up / Lo CO
18/19	STW	Up / Lo CO	STW	Ark / RG
17/18	So PI / Rep	Ark / RG	STW	SJ / Gunni
16/17	Up / Lo CO	SJ / Gunni	STW	STW
15/16	Ark / RG	STW	STW	So PI / Rep
14/15	SJ / Gunni	So PI / Rep	STW	Up / Lo CO
13/14	STW	Up / Lo CO	STW	Ark / RG
12/13	So PI / Rep	SJ / Gunni & Ark / RG	STW	SJ / Gunni
11/12	Up / Lo CO	STW	STW	STW
10/11	Ark / RG	STW	STW	STW

**Monitoring (WQCD)      Rule Making (WQCC)      Base Funds      Incremental Funds**

*NPS Priorities*

**Activities**

### Primary Nonpoint Source Pollutants of Concern affecting Water Quality in Colorado

Stream segments that are not fully supporting their classified uses are defined as impaired and placed on the state 303(d) List of Impaired Waters. The 2012 Section 303(d) List identified over 178 impaired waterbodies, with approximately 292 individual pollutants on those segments requiring the development of TMDLs. This was an increase in the number of listed segments from the 2010 list, due mainly to changes in the 303(d) Listing Methodology, changes to table value standards in the Basic Standards, Regulation No. 31, and increased monitoring.

The table excerpted below from the 2012 Integrated Report summarizes the *sources of impairments* in Colorado.

<b>Summary of Sources Affecting Water Bodies Not Fully Supporting Classified Uses</b>		
Source Categories	Colorado Rivers (miles affected)	Colorado Lakes (acres affected)
Agriculture Related Sources	1,793.98	0
Contaminated Groundwater	29.90	5.49
Highway/Roads/Bridge Runoff (non-construction related)	16.30	0
Mining Related Sources	565.26	141.60
Natural Sources	19.08	141.60
Sources Unknown	5,595.17	48,309.08
Upstream Sources	47.17	0
Notes: 1) Source means the activities, facilities or conditions that contribute pollutants or stressors 2) Sum of acres or miles affected does not equal the total non-attained acres or miles since non-attainment may have more than one cause.		

The suspected causes and sources of the impairment, if known, have also been identified in the 2012 Integrated Report. For 303(d) listed waterbodies, the leading causes of impairment (pollutant) are selenium in rivers and mercury in lakes. A natural source of selenium in Colorado is marine shales; when irrigated, this type of soil leaches excessive amounts of selenium into the groundwater and/or into rivers and streams. Deposition of airborne mercury comes from diverse sources. The major source or contributor of these pollutants in Colorado is still unknown in most cases. Where the source of metals has been identified, it is mostly resource extraction. The majority of the classified uses not being attained are aquatic life warm and aquatic life cold, followed by recreational uses, agriculture and water supply.

A summary of the causes of impairments indicates that the main pollutant causing water quality impairment in Colorado rivers and streams is selenium, followed by metals (if adding all metals impairments, with copper, iron, zinc and cadmium the highest) and followed by pathogens. In lakes, the causes are mercury, selenium and low levels of dissolved oxygen.

Dissolved metals and acidity (pH) from legacy abandoned mining lands (AML) and background sources comprise 89% of the total number of impaired stream segments where a TMDL has been written in Colorado. These impairments are considered nonpoint sources because they are related to runoff and drainage from AML sites for which there are no remaining financially viable responsible party.

### **Integrating TMDLs and NPS Activities: Priority Watersheds**

The NPS program prioritizes watersheds in the state based on the water quality standards segmentation of waterbodies as approved by the Water Quality Control Commission. The criteria for selecting *Priority Watersheds* are: 1) identification of segments listed in Regulation № 93 – Section 303(d) List of Water Quality Limited Segments Requiring TMDLs and 2) identification of watersheds containing those segments that are or have in the past used CWA 319 funds for nonpoint source activities. Priority Watersheds are defined at the 12-digit Hydrologic Unit Code basin map. The current list of priority watersheds is presented below, under each river basin sub-chapter.

The NPS program supports the development of TMDLs by supporting local organizations such as watershed groups involved in collecting data and characterizing watersheds with impaired segments. These efforts are supported mostly via the development of watershed plans. The program also implements TMDLs, especially in watersheds dominated by nonpoint sources of pollutions (Load Allocations) and in areas dominated by impacts from legacy mines.

### **Implementing TMDLs with NPS activities: Mine-related priority**

Colorado's 2012 Nonpoint Source Management Program (the Plan) defines a new strategy for the program, one that moves the program from the Unified Watershed Assessment framework to one that implements the priorities linked specifically to a state's List of Waters Still Needing Total Maximum Daily Loads (TMDLs), also known as the 303(d) list. More than half of the funds allocated to Colorado in the past three years has been used to implement watershed-based plans in watersheds where streams are identified on the 303(d) list.

Due to the preponderance of mining related impairments and to the limited resources available to the TMDL program, the NPS program has started to focus efforts toward addressing these issues. Since the majority of completed TMDLs addresses legacy mining impairments, the focus of the NPS program efforts are now and will continue to be for the next 4 years directed toward implementing activities that address the NPS-related load (load allocation) reductions. To accomplish this, the NPS program continues to work closely with the Inactive Mine Reclamation Program of the DRMS to identify priorities regarding restoration and implementation activities. The NPS program also works with local watershed groups that have identified legacy mining impacts in approved watershed plans, with extra emphasis toward priority basins and watersheds.

### **Colorado Nonpoint Source Alliance**

The Colorado NPS Alliance (Alliance) continues in its role of providing advice and support to Nonpoint Source Management Area staff in the technical aspects of implementing the NPS program. The Alliance also supports the NPS program staff in preparing and maintaining the state's Nonpoint Management Area program documents and in encouraging the public to become involved in nonpoint source activities. Members of the Alliance, in coordination with the NPS program staff, also work with interested project sponsors to help prepare projects for funding consideration under Section 319(h) of the Clean Water Act.

The goal of the NPS Alliance is to provide support and technical advice in nonpoint source activities designed to preserve and restore water quality in Colorado. Each Alliance representative's primary duties and responsibilities include the following: provide technical and area-of-expertise advice on nonpoint source issues and activities; serve as a liaison from member organization/agency to the Alliance; serve as a liaison from the Alliance to member organization/agency; actively represent nonpoint source water quality issues and provide input from member organization/agency for the benefit of Colorado water quality; promote the nonpoint source program within the member organization/agency; participate in the technical evaluation of nonpoint source project proposals submitted each year; participate in NPS Alliance policy development; work with a multitude of agencies and organizations to build cooperation and collaboration; approach resolution of challenges through teamwork; stay informed and inform others about nonpoint issues and water quality concerns; and participate in statewide meetings and seminars on nonpoint source pollution.



## **2012 Organizational Membership of the Colorado NPS Alliance**

U.S. Bureau of Land Management  
Colorado Association Stormwater and Flood Plain Managers  
Colorado Department of Transportation  
Chatfield Watershed Authority  
Colorado Cattlemen's Association  
Colorado Livestock Association  
Colorado Farm Bureau  
Colorado Lake & Reservoir Management Association  
Colorado Mining Association  
Colorado River Water Conservation District  
Colorado Parks and Wildlife  
Colorado Division of Reclamation, Mining and Safety  
Colorado State Conservation Board/Colorado Department of Agriculture  
Colorado State University Cooperative Extension  
Colorado Water Quality Control Division  
Colorado Water Conservation Board  
U.S. Department of Agriculture (USDA) Natural Resources Conservation Service  
U.S. Geological Survey  
Northern Colorado Water Conservancy District  
North Front Range Water Quality Planning Association  
Pikes Peak Area Council of Governments  
Sierra Club  
USDA Forest Service  
Lefthand Watershed Oversight Group  
Colorado Water Quality Control Commission  
U.S. Environmental Protection Agency, Region VIII  
Colorado Watershed Assembly

## **Load Reduction Reporting**

Colorado regularly reports on load reductions associated with the regulations that govern loading of nutrients (total phosphorus and total nitrogen) into lakes and reservoirs. Colorado also reports on sediment loads into rivers and streams that are reduced or minimized based on BMPs implemented by the Colorado Department of Transportation (CDOT).

In order to enhance and expand on current load reduction reporting, the NPS program has established a new task force to develop protocols to capture load reduction data and meet the required GRTS reporting minimum elements in a more comprehensive manner. This task force is made up of NPS program staff and members of the Alliance. The objectives of the task force are 1) to develop protocols to capture sediment and nutrients load reduction data associated with NPS BMPs implemented with Section 319(h) funds; and 2) to develop a simple system that allows project sponsors and other users to capture and submit those data to the NPS program. These data will be used to fulfill the minimum reporting requirements in GRTS and to help the NPS program evaluate success, through measurable results. Colorado has started using the enhanced load reduction reporting for a few selected projects for this reporting cycle and will continue to expand the reporting capability.

## Wetlands

Colorado's Division of Parks and Wildlife (CDPW) undertakes a number of activities aimed at conserving the state's wetlands. One program, the Wetlands Wildlife Conservation Program (WWCP), focuses on preserving, restoring, enhancing, and creating wetlands throughout the state. This program particularly focuses on (1) protecting the role of wetlands in Colorado as important feeding, breeding, migratory, and brooding habitat for water birds, and (2) providing recreational uses, such as hunting, fishing, and bird watching, through wetlands (CDPW 2008). The CDPW has created 11 focus area committees under the WWCP, 8 of which are currently active (CDPW 2010a). The committees provide a mechanism through which conservationists can share information on local wetlands, discuss wetland needs, and generate ideas for wetland protection and restoration projects. The CDPW reports that since WWCP's implementation in 1997, the program has enhanced or created 220,000 acres of wetlands and adjacent habitat (CDPW 2010c). (Statewide Water Quality Management Plan Current Statewide Water Quality Final Draft – June 1, 2011)

## 2012 Progress and Milestones to Implement the Colorado NPS program

Tasks	Tactics	Indicators of Success	Outputs	Percent Complete (an approximation)
1 - Ensure that funds are awarded and spent appropriately within EPA and State guidelines. <i>(MP Matrices Appendix D Table 4, Task 1)</i>	Develop and maintain spreadsheets to keep track of project and grant expenditures and match accrual; develop and maintain an internal process to submit complete invoices to the Fiscal Unit.	Colorado is implementing the NPS program on a 5-year cycle; FFY2006 closed with a zero balance and exceed grant matching fund requirements by 58% (overmatched); project implementation plans are being developed and approved approximately within the 1st year following the grant award with a few exceptions; reimbursement requests from projects are approved and submitted for processing within 10 days of receipt from the project sponsor.	No funds are left un-spent; grants are over-matched.	Ongoing effort; grants are closed on the end dates; every year one grant closes and one grant opens – 100%. PIP approval and negotiation within timeframe – 80%. Reimbursements submittal – 90%.
2 - Ensure the Grant Reporting and Tracking System (GRTS) is up-to-date for all NPS projects. <i>(MP Matrices Appendix D Table 4, Task 2)</i>	a - Pre-award information is entered; b - fully contracted project information is entered; c - semi-annual reports are loaded into GRTS by NPS project; d - load reduction information is entered.	EPA Dashboard has no identified errors in end-of-year evaluation.	GRTS is complete and up-to-date by all EPA required due dates.	Ongoing effort; GRTS had zero errors in December; not all projects were being entered within the 90 days; Load reduction information in February; pre-award information in GRTS – 90%.

Tasks	Tactics	Indicators of Success	Outputs	Percent Complete (an approximation)
<p>3 – Utilize GRTS enhanced functions to develop analytical and reporting documents. <i>(MP Matrices Appendix D Table 4, Task 3)</i></p>	<p>Attend annual GRTS training; ensure quality and completeness of data entered in GRTS; request assistance from Headquarters to develop Colorado-specific reports as needed; generate analyses and reports.</p>	<p>Reports are utilized in Annual Reports to EPA; also in updates to the IR and in updates to WQCC, unit workplans and NPS Management Plan; other status reports as appropriate.</p>	<p>Status and Analytical Reports as appropriate.</p>	<p>Ongoing effort; no GRTS training this year but anticipate at least 2 staff attending next year; not fully doing this yet, but fully compliant – 50%.</p>
<p>4 - Provide educational and information materials to interested entities and project partners on a variety of water quality issues. <i>(MP Matrices Appendix D Table 4, Task 4)</i></p>	<p>a - Maintain website with educational materials; b – Maintain information dissemination efforts; maintain distribution list; conduct annual workshop.</p>	<p>Citizens and/or project partners have easy access to educational materials of water quality issues.</p>	<p>a - Updated website; b - Updated educational materials and information; annual workshop trainings.</p>	<p>On-going updates; still need to redesign the website (but current version is fully functional); NPS staff conducted the Annual NPS Workshop during the Sustaining Colorado Watersheds Conference – 90%</p>
<p>5 - Communicate Nonpoint Source program successes and lessons learned. <i>(MP Matrices Appendix D Table 4, Task 5)</i></p>	<p>Document “success stories” or “lessons learned”; project sponsors provide information and graphics in their final reports for these stories; project sponsors provide project summaries: “Fact Sheets”; project and TMDL effectiveness documented and communicated to the public.</p>	<p>Success stories increase public awareness of these programs; final PIPs and associated BMPs reflect past successes and lessons learned. Potential delisting of segments.</p>	<p>Success stories per PPA measure WQ10 published at the epa.gov site. Project Fact Sheets.</p>	<p>Ongoing effort and and PPA commitment; 2 draft success stories submitted during FFY 13/14 (an extension was requested and approved); no Fact Sheets – 70%.</p>
<p>6 - Address NPS legislative mandate regarding the Integrated Report. <i>(MP Matrices Appendix D Table 4, Task 6)</i></p>	<p>Include NPS data needs and considerations in basin-wide synoptic sampling and WQCD monitoring plans; include NPS data and assessments in the Integrated Report.</p>	<p>NPS data are available for the Integrated Report, Statewide Water Quality Assessments and TMDL development.</p>	<p>Legislative mandate addressing NPS Assessments is met.</p>	<p>Every year during Environmental Data Unit data calls and every other year during IR preparation – progressing in this reporting. NPS Data were incorporated in the 2012 IR – 70%.</p>

Tasks	Tactics	Indicators of Success	Outputs	Percent Complete (an approximation)
7 – Implement program efficiently and consistently. <i>(MP Matrices Appendix D Table 4, Task 7)</i>	Develop and formalize the NPS program Procedures Manual; revise and update program documents and process.	Training tool for new employees; consistent and efficient implementation of the program.	Documents are revised and updated according to program priorities.	Ongoing phased effort; started a procedures manual; several internal controls and other measures to ensure consistency – 50%.
8 - Broaden the impact of the Colorado NPS program goals and objectives. <i>(MP Matrices Appendix D Table 4, Task 8)</i>	Leverage partner’s resources to address quality concerns at the local level; increase communication with Alliance partners to capture broad participation via the Annual Report.	Greater accrual of match applied to NPS; water quality restoration/protection projects funded outside of NPS funds.	Track Federal contribution to NPS projects; increased matching funds from partners above the 40% required; update information in Annual Report regarding projects funded by partners and not necessarily with 319 funds.	Ongoing effort WQIF, PDA, Private – 70%.
9 - Implement appropriate strategy regarding stormwater-related projects. <i>(MP Matrices Appendix D Table 4, Task 9)</i>	The NPS program will continue to consider eligible: a) stormwater-related projects that do not require a permit and b) watershed-based plans that might include stormwater permitted areas (for example urban areas under an MS4 permit).	Incorporation of a LID/GI strategy as described in the SWQMP.	Additional NPS funding and project solicitation guidance; specific activities in urbanized/developed areas that qualify for NPS funding are described in a document that is posted electronically at npscolorado site.	Ongoing effort; 2013 Municipal Separate Storm Sewer System Permit Fact Sheet posted on the npscolorado.com website – 50%
10 - Continued Participation on CDPHE Multi-media Pollutants Task Forces. <i>(MP Matrices Appendix D Table 4, Task 10)</i>	Attend Department meetings and participate in discussions regarding development of strategies to address multi- media pollutants.	Consistent participation and contribution in the meetings and discussions.	Meeting agenda, minutes and reports capturing development of multi-media strategy.	Ongoing effort – 100% of what is required and necessary.

Tasks	Tactics	Indicators of Success	Outputs	Percent Complete (an approximation)
11 – Meet EPA program reporting. ( <i>MP Matrices Appendix D Table 4, Task 11</i> )	Develop and update the Annual Report template to reflect updated tasks; write and submit the annual report according to EPA 319 Program Guidelines.	Annual Reports submitted to EPA on due date and available electronically on the npscolorado site.	Updated Annual Reports reflecting all tasks and information.	100% complete.

## Project Level Achievements in Water Quality Protection

Water quality protection activities include outreach, technical assistance and funding for local groups to plan, design and develop watershed plans.



### Progress and Milestones to Implement Water Quality Protection

Tasks	Tactics	Indicators of Success	Outputs	Percent Complete (an estimation)
1 - Provide financial and technical support to watershed groups to develop / update watershed-based plans. (MP Matrices Appendix D Table 1, Task 1)	Continue to implement strategy to encourage partners to develop / update watershed-based plans.	All relevant stakeholders are involved; watershed is characterized and water quality issues are identified and prioritized; potential implementation projects and funding are identified.	Watershed Plans that are not older than 10 years (and preferably 5 years).	Ongoing effort. Six new and completed watershed plans (see Summary of Completed Projects table)
2 - Provide technical assistance, education and training at the local level. (MP Matrices Appendix D Table 1, Task 2)	Education and training opportunities on water quality protection and watershed project planning; project effectiveness monitoring. This is achieved primarily via the PIP and SAPP development process.	Proposals and projects that more clearly align with the strategic goals of the WQCD and NPS program; projects are implemented correctly.	Increased technical knowledge; EPA grant requirements are met; measurable results are gathered.	Ongoing effort.
3 – Fund and implement projects that protect water quality, aquatic life and habitat integrity. (MP Matrices Appendix D Table 1, Task 3)	Continue to implement strategy to engage partners to address protection of water quality, aquatic life and habitat integrity.	Water quality, aquatic life and habitat integrity are maintained or improved in project area. Number of projects accomplishing protection goals. Load reduction accomplished with the implementation of the BMPs.	BMPs implemented correctly and as designed.	Every year as approved via the project solicitation process.

## **Education and Outreach Activities**

### **Watershed Planning Support**

This project continues to work in partnership with the Nonpoint Source Program to prioritize watersheds and to lead efforts to develop watershed plans by expanding collaborative efforts between the Colorado Watershed Assembly (CWA), the NPS program and citizen stakeholder groups through improved and focused outreach capabilities. The intended outputs are new and revised watershed plans, the inclusion of Total Maximum Daily Loads (TMDLs) work into watershed plans, implementation project proposals and improved information dissemination to local watershed groups. The anticipated outcomes are implementation projects that address water quality impairment.

### **Colorado Clean Marinas**

The Program is a voluntary recognition program targeted at marinas, boatyards and individual boaters - with the goal of ensuring compliance with federal, state and local environmental laws and a comprehensive set of recommended BMPs designed specifically for this Program. It begins with a review of each marina to determine what BMPs are / are not currently in use. BMPs include "all activities and products that help prevent or reduce water pollution" - including good boat-keeping practices, education, signs, notices, marina rules and regulations, waste receptacles, spill prevention and rapid clean-up plans - all focused on clean and healthy boating waters.

### **Colorado Foundation for Agriculture**

The Colorado Foundation for Agriculture continues its outreach efforts to reach Colorado school children through a multifaceted approach. Key to the program is the Colorado Reader that reaches over 1,500 schools in the state. An electronic newsletter exists and an online watershed game. More information can be found at <http://www.growingyourfuture.com>

### **Information and Education Outreach Grant Program**

For several years, the nonpoint source program has set aside a small percentage of funds from the regular Section 319(h) allocation for small, highly focused educational efforts. These small-scale projects typically leverage the modest amounts of money into major community-outreach efforts with statewide applications. Fund availability is marketed to schools, nonprofit organizations and local watershed groups and is typically a maximum award of \$5,000.

### **Watershed Conference: Sustaining Colorado's Watersheds**

About 250 people from all parts of Colorado, representing many different interests attended this conference in October 2011. Attendance included individuals representing local watershed groups, scientists from many disciplines, federal, state and local agencies, several water conservation districts, water user associations, water education audience, private industry, and environment groups.

### **Data Sharing Network**

The Colorado Data Sharing Network provides a mechanism to integrate data from many different sources, in a geo-spatial manner. Those data can either be shared directly or information is provided on how to access selected data. It can be used by watershed groups or any entity that is collecting water quality data. DSN conducts basins outreach activities for the dissemination of data, monitoring and assessment information and training. DSN also provides the ability to share data with other monitoring entities. This statewide data-sharing network allows all interested parties to manage their data for a minimal cost and with the ability to share the data with other monitoring entities, state agencies and the EPA.

<http://www.coloradowaterdata.org/aboutcdsn.html>

## [NPSCOLORADO.COM](http://npscolorado.com)

The Nonpoint Source Program web page has several sections devoted to outreach activities materials and guidance. There are specific outreach materials for Colorado found at <http://npscolorado.com/ColoradoI&Eresource.htm>; Community Based Social Marketing information for Colorado at <http://npscolorado.com/cbsm.html>; National educational links and resources at <http://npscolorado.com/nationalresources.htm> and links to other programs and educational resources about water within Colorado at <http://npscolorado.com/otherco.htm>. The website also has information regarding the Colorado Water Protection Project which eventually grew into AWARE and the NPS Connection. During its life, it produced a number of brochures and tool kits, a prize-winning Public Service Announcement, and a radio advertisement. There is also information regarding a NPS logo that can be used for free – the H2O JO and his companion, Flo. They can be used in outreach campaigns, for illustrating educational materials, in water festivals, and for printing on hand-outs. They are available in Spanish also. All of the above information and more is available for use at <http://npscolorado.com/ourwater.htm>.

## **Watershed Plans concluded during or before 2012**

Alamosa River Master Plan (active implementation project)  
Animas River above Silverton (active implementation project)  
Barr-Milton Watershed Plan  
Big Dry Creek (South Platte River) (prior to EPA 9 Elements, update in progress)  
Big Thompson (prior to EPA 9 Elements)  
Black Gore Creek, Upper Colorado River Basin (abbreviated EPA 9 Elements)  
Cherry Creek (South Platte River Basin)  
Clear Creek (above mouth of canyon) (active implementation project)  
Coal Creek (Upper Gunnison River) (active implementation project)  
Eagle River (active implementation project)  
East Fork of the Dolores River  
Fountain Creek (active implementation project)  
Kerber Creek Phase I (active implementation project)  
Lake Fork of Arkansas (active implementation project)  
Lefthand Creek (includes James and Little James Creeks)  
Lower Animas River  
Lower Arkansas River  
Lower Gunnison (active implementation projects)  
Lower South Platte River  
Mancos River  
North Fork of the Gunnison (active implementation project)  
North Fork of the Republican River  
Roaring Fork (Upper Colorado)  
San Miguel River (prior to EPA 9 Elements)  
Snake River (Upper Colorado River Basin) (active implementation project)  
Stollsteimer, Upper San Juan Rivers (prior to EPA 9 Elements)  
Straight Creek (Upper Colorado River Basin)  
Uncompahgre Basin  
Upper Pine, Upper San Juan Rivers (prior to EPA 9 Elements)  
Upper Rio Grande to Alamosa County Line (active implementation projects)  
Upper South Platte River (prior to EPA 9 Elements) (active implementation projects)



Upper Yampa River (prior to EPA 9 Elements) (will be updated in near future)  
Willow Creek Master Plan (active implementation projects)

**The following watershed plans are currently being developed:**

Dolores River (below McPhee Reservoir)

Kerber Creek – Phase II

Lake Fork of the Gunnison River (this is an update of an older plan)

Middle Colorado River

Slate River

Lower Bear Creek

North Park Watershed

## Project Level Achievements in Water Quality Restoration

Implementation Projects restore impaired waters by the implementation of TMDLs and/or by addressing impaired segments identified on the 303(d) list. The NPS program intent is to focus on larger projects within target basins and priority watersheds to support measurable improvements in water quality.



### PROGRESS AND MILESTONES TO IMPLEMENT WATER QUALITY RESTORATION

Tasks	Tactics	Indicators of Success	Outputs	Percent Complete (an estimation)
<p>1 – Prioritize restoration activities to meet NPS program priorities and WQCD strategy to address impaired waters. <i>(MP Matrices Appendix D Table 2, Task 1)</i></p>	<p>Identify pollution loading sources; utilize TMDLs when available; utilize watershed models and assessment tools to characterize watershed; identify and engage potential local partners.</p>	<p>Readily available information on where investment of limited resources will likely achieve water quality improvements; information accessible to potential local partners.</p>	<p>Prioritized list of impaired waters, restoration sites and potential local partners; data sets and data assessment reports.</p>	<p>GIS cover with TMDLs/Impaired Segments/Watershed Plans complete – at HUC-12. Coordinating priorities with TMDL program and EDU. Draft list ready – 85%</p>
<p>2 - Provide financial and technical support to watershed groups to develop / update watershed-based plans. <i>(MP Matrices Appendix D Table 2, Task 2)</i></p>	<p>Develop and launch strategy to encourage partners to develop / update WS-based plans that include EPA Nine Elements for a Watershed Plan to fully address impaired waters.</p>	<p>Every implementation project addressing impaired segments is identified in a complete and recently updated watershed plan.</p>	<p>Watershed Plans that address, at a minimum, all EPA Nine Elements for a Watershed Plan and that are not older than 10 years.</p>	<p>Ongoing effort.</p>
<p>3 – Fund and implement projects that address impaired waters, and improve aquatic life and habitat. <i>(MP Matrices Appendix D Table 2, Task 3)</i></p>	<p>Develop and launch strategy to engage partners to address prioritized list of impaired waters.</p>	<p>Meet targets agreed upon with EPA in the Performance Partnership Agreement.</p>	<p>Majority of incremental funds is applied to projects in priority watersheds; successfully implemented restoration projects, including targeted outreach and education tasks.</p>	<p>Every year as approved via the project solicitation process. 86% of total project funds applied to impaired segments, in 8 projects.</p>

## PROGRESS AND MILESTONES TO IMPLEMENT WATER QUALITY RESTORATION

Tasks	Tactics	Indicators of Success	Outputs	Percent Complete (an estimation)
4 - Encourage land and resource management agencies, NGOs and others to identify and mitigate nonpoint source pollution impacts in the context of their program plans. <i>(MP Matrices Appendix D Table 2, Task 4)</i>	Strengthen working relationships with alliance, agencies, NGOs and tribes to encourage collaborative decision making and watershed-scale implementation of Best Management Practices. Emphasis placed on projects within priority impaired watersheds and to implement priority projects identified in a locally-driven Watershed Plans.	New strategies identified and implemented resulting in maintenance of water quality or reduced pollutant loadings.	Participation in planning efforts of federal and state agencies (e.g., planning, federal action reviews); leveraging of funding opportunities with other funding sources.	Ongoing effort.
5 - Implement BMPs that restore water quality and aquatic life and habitat. <i>(MP Matrices Appendix D Table 2, Task 5)</i>	Proactively fund projects to maintain beneficial uses.	Pollutant load reduction; trends that indicate water quality and aquatic life and habitat improvement.	BMPs implemented correctly and as designed.	Ongoing effort.

### Implementation Activities per Basin

The following describes basin and water quality information per WQCC regulatory basin. Each sub-section contains a short description of each basin, any Endangered Species Act concerns and any special water quality designation (from the Statewide Water Quality Management Plan, WQCC, 2011). A complete list of the Threatened and Endangered Species list for each basin can be found in the SWQMP. Also included is a summary of water quality information: program-designated Priority Watersheds, completed TMDLs and any other water quality concern.

### Colorado River Basin

According to the regulations structure of the Water Quality Control Commission, the regulations that apply for this basin are covered under Regulation #33 (Upper Colorado, which includes the Green River Basin) and Regulation #37 (Lower Colorado).

The Colorado River Basin encompasses approximately 17,830 square miles and includes drainages for the Colorado and the Gunnison Rivers (Note: the WQCC address the Gunnison River regulations in conjunction with the San Juan/Dolores River Basins, so information related to the Gunnison River is found below, in the San Juan/Dolores sub-section). The Colorado River's headwaters are within the Rocky Mountain National Park and from there the river flows southwest for approximately 230 miles through Grand, Eagle, Garfield, and Mesa Counties before exiting the state into Utah. Major tributaries to the Colorado River include the Fraser, Blue, Eagle, and Roaring Fork Rivers.

Elevations in the Colorado River Basin range dramatically from 13,000 feet at the headwaters to approximately 4,300 feet where the Colorado River exits the state. The Gunnison River alone has

elevation changes greater than 9,500 feet from the headwaters to the Uncompahgre Plateau in the southwest portion of the basin (CWCB 2006a, 2006b).

The Green River Basin covers roughly 10,500 square miles in northwest Colorado and south Central Wyoming. The Yampa River collects water from roughly 8,000 square miles with the headwaters located west of the Continental Divide in the White River Plateau. In the state of Colorado, the Yampa River flows through the town of Yampa, past Steamboat Springs, and then heads west past Craig. The Little Snake River joins the Yampa River 5 miles before entering Dinosaur National Monument. Within the Dinosaur National Monument area, the Yampa River flows into the Green River about 5 miles from the Colorado-Utah state line (CWCB 2004).

The White River, which is part of the Green River Basin, flows from its headwaters in the Flat Tops Wilderness Area west to the town of Buford. It then flows past Meeker and parallels Highway 64 to the Utah state line. Elevations in the Green River Basin range from 12,200 feet in the Sierra Madre range to 5,100 feet at the confluence of the Yampa and Green Rivers at Echo Park within Dinosaur National Monument (CWCB 2004).

The Colorado River Basin contains several endangered and threatened species and several species of state concern. There are 14 federally and/or state-listed endangered species (four fish, three bird, four mammalian, and three plant species) and nine federally and/or state-listed threatened species (two fish, three birds, two mammalian, and two plant species). An additional plant species is a federal candidate for listing. Finally, Colorado has 21 species of concern in the Colorado River Basin (five fish, two amphibians, two reptiles, nine birds, and three mammalian species) (CDOW 2010; CWCB 2004).

The Green River Basin contains several endangered and threatened species and several species of state concern. There are 10 federal- and/or state-listed endangered species (four fish, two bird, and four mammalian species) and nine federal- and/or state-listed threatened species (two fish, two bird, one mammalian and four plant species). An additional two plant species are federal candidates for listing. Finally, Colorado has 15 species of concern in the Green River Basin (two fish, one amphibian, two reptilian, eight bird, and two mammalian species) (CDOW 2010; CWCB 2004).

The Colorado Division of Parks and Wildlife (CDPW) has designated the following waterbody segments as gold medal fisheries and areas of high recreational value: the Blue River from Dillon Reservoir Dam to the Colorado River, Gore Creek from Red Sandstone Creek to Eagle River, Colorado River from Windy Gap to Toublesome Creek, Fryingpan River from Ruedi Reservoir Dam to Roaring Fork River, Roaring Fork River from the Crystal River to the Colorado River, and Gunnison River from Black Canyon to the North Fork of the Gunnison River. In addition, the 15-Mile Reach, the stretch of the Colorado River from the Grand Valley Diversion Dam to the Gunnison River, is an area of environmental concern because of its valuable habitat for endangered and threatened fish species (CWCB 2004).

### **Water Quality Concerns**

The CWA at Section 101(a)(2) requires that all waters be suitable for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the water unless it is demonstrated that the use is not attainable. Classified use classifications are assigned to waterbodies based upon the actual uses occurring in the waterbody. Water quality standards are in place to ensure that the waterbody is attaining the classified uses assigned. Colorado's water quality is assessed periodically in conjunction with the triennial review of water quality standards, the development of discharge permits, 303(d) Lists, Total Maximum Daily Loads (TMDLs), and the completion of special studies.

In Colorado, when a narrative or numeric standard is exceeded, the associated use is determined to be in non-attainment and the cause and source affecting the waterbody is determined. The cause is the pollutant that contributes to the non-attainment. For example, if the aquatic life standard for zinc is exceeded, then the aquatic life use would be in non-attainment and the cause would be zinc. The source is the activity or facility that contributes the pollutant. An example of a source is resource extraction if metal exceedances are found in a historic mining district. Colorado's section 303(d) list of impaired waters tabulates all those segments that require a TMDL, and can be found at the WQCC page, in Regulation #93.

**The following is a Table of Approved TMDLs for the Colorado River Basin, as of January 2012**

<b>Water Body ID</b>	<b>Waterbody</b>	<b>Parameters/ Uses</b>	<b>Sources/Causes</b>
COUCBL06	Snake River, source to Dillon Reservoir – above Peru Creek	Cd, Cu, Pb, Zn, pH / Aquatic Life	Legacy mining, natural
COUCBL06	Snake River, source to Dillon Reservoir – below Peru Creek	Cd, Cu, Pb, Zn, pH, / Aquatic Life	Legacy mining, natural
COUCBL06	Snake River, source to Dillon Reservoir – above N. Fork	Cd, Cu, Pb, Zn, pH, / Aquatic Life	Legacy mining, natural
COUCBL06	Snake River, source to Dillon Reservoir – below N. Fork	Cd, Cu, Pb, Zn, pH, / Aquatic Life	Legacy mining, natural
COUCBL07	Peru Creek	Cd, Cu, Pb, Mn, Zn, pH, / Aquatic Life	Legacy mining, natural
COUCBL12	Illinois Gulch	Zn / Aquatic Life	Legacy mining, natural
COUCBL12	Iron Springs Gulch	Cd / Aquatic Life	Legacy mining, natural
COUCBL12	Illinois Gulch below Iron Springs Gulch	Cd / Aquatic Life	Legacy mining, natural
COUCBL18	Straight Creek	Sediment / Aquatic Life	
COUCEA05a	Eagle River, Belden to Gore Creek	Cu, Zn / Aquatic Life	Legacy mining, natural, point source discharge
COUCEA05b	Eagle River, Belden to Gore Creek	Cu, Zn / Aquatic Life	Legacy mining, natural, point source discharge
COUCEA05c	Eagle River, Belden to Gore Creek	Cu, Zn / Aquatic Life	Legacy mining, natural, point source discharge
COUCEA07b	Cross Creek, source to Eagle River	Cu, Zn / Aquatic Life	Legacy mining, natural, point source discharge
COUCUC06c	Un-named tributary to Willow Creek	NH <sub>3</sub> /AL	

**Priority Watersheds**

The following segments have been chosen by the NPS and the TMDL programs as restoration priorities. They are defined based on Regulation #93 - Colorado's Section 303(d) List of Impaired Waters and Monitoring and Evaluation List and on the level of NPS past or current presence in the basin. There is

also a short description of the NPS program potential or current contribution to the restoration of the impairment.

### Upper Colorado River

*Peru Creek:* NPs program contribution: this is an area with potential for restoration projects; existing watershed restoration plan. This segment is the Peru Creek to the Snake River

303(d) listed segment: COUCBL07 (metals)

### **Activities Addressing the Peru Creek Priority Watershed:**

Project Being Implemented with the Department of Natural Resources, Division of Reclamation, Mining and Safety (DRMS)

Project Title: Pennsylvania Mine Level F Portal Rehabilitation

Estimate Cost: \$433,334 (\$260,000 from the NPS program and \$173,334 from DRMS)

*Eagle River:* NPS program contribution: this is an area with potential for restoration projects, but there is a need to update the watershed restoration plan. This segment is from Belden to Lake Creek and some tributaries.

303(d) listed segment: COUCEA06 (sediment)

### **Watershed Plans:**

Black Gore Creek

Eagle River

Roaring Fork

Snake River

Straight Creek

Upper Yampa

### **Current Implementation Projects:**

Peru Creek / Cinnamon Gulch

Pennsylvania Mine

Saints John Mine

### **South Platte and Republican River Basins**

According to the regulations structure of the Water Quality Control Commission, the regulations that apply for this basin are covered under Regulation #38 (South Platte and Republican).

The Platte River Basin encompasses approximately 20,306 square miles and includes drainages for the North Platte River and the South Platte River covering the northeastern part of Colorado. The North Platte River drains the area bounded on the west by the Park Mountain Range and on the south by the Rabbit Ears Mountain Range. The Front Range divides the North Platte River and the South Platte River drainages. The South Platte River originates southwest of Denver and flows through the Denver metropolitan area and into the high plains region of Colorado. Tributaries to the North Platte River include the Laramie River and Sand Creek. Tributaries to the South Platte River include the North, Middle, and South Forks of the South Platte River, Bear Creek, Clear Creek, St. Vrain Creek, Big Thompson River, and Cache La Poudre River (CWCB 2004).

Elevations in the Platte River Basin range from 14,000 feet in the headwater regions to approximately 3,400 feet in the high plains region (CWCB 2006a, 2006b).

The Platte River Basin contains several endangered and threatened species and several species of state concern. There are 12 federally and/or state-listed endangered species (four fish, four bird, three mammalian, and one plant species) and 14 federally and/or state-listed threatened species (three fish, five bird, three mammalian, and three plant species). Finally, Colorado has 21 species of concern in the Platte River Basin (two fish, three amphibian, two reptile, one gastropod, one bivalve, eight birds, and four mammalian species) (CDOW 2010; CWCB 2004).

The Colorado Division of Parks and Wildlife (DPW) has designated the following areas in the Platte River Basin as gold medal fisheries and, thus, areas of high recreational value (CWCB 2004): North Platte River from Routt National Forest to the Colorado-Wyoming border, North Delaney Butte Lake, South Fork from Highway 285 to Antero Reservoir, Middle Fork from Highway 9 to the confluence of the Middle and South Forks and the South Platte River, Middle and South Forks to Elevenmile Reservoir (including Spinney Mountain Reservoir), and Chessman Reservoir Dam to the North Fork (CWCB 2004).

The Republican River Basin, which encompasses approximately 9,404 square miles, is on the eastern plains of Colorado. The Republican River flows eastward toward Colorado's borders with Nebraska and Kansas. The major tributaries to the Republican River are the Arikaree River, the North Fork of the Republican River, and the South Fork of the Republican River (WQCD 2002). The South Fork of the Republican River originates in Lincoln County and flows east and north, meeting Landsman Creek at Bonny Reservoir before exiting the state into Kansas. The Arikaree River also originates in Lincoln County and flows east and north parallel to the South Fork of the Republican River before exiting the state into Kansas south of the Nebraska state line. The North Fork of the Republican River originates in Yuma County and flows eastward, passing through Wray, Colorado, into Nebraska north of the Kansas state line. The Republican River Basin has the smallest population of all the river basins in Colorado (CGS 2003, CWCB 2006).

The Republican River Basin is the only river basin in Colorado that does not have its headwaters in the mountains. As a result, elevations in the basin do not vary dramatically and stay between 5,000 and 3,500 feet where the Republican River leaves the state (CGS 2003).

The Republican River Basin contains several endangered and threatened species and several species of state concern. There are four federally and/or state-listed endangered species (two fish and two bird species) and five federally and/or state-listed threatened species (one fish and four bird species). Finally, Colorado has 19 species of concern in the Republican River Basin (two fish, three amphibian, four reptile, seven birds, and three mammalian species) (CDOW 2010; CWCB 2004).

### **Water Quality Concerns**

The CWA at Section 101(a)(2) requires that all waters be suitable for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the water unless it is demonstrated that the use is not attainable. Classified use classifications are assigned to waterbodies based upon the actual uses occurring in the waterbody. Water quality standards are in place to ensure that the waterbody is attaining the classified uses assigned. Colorado's water quality is assessed periodically in conjunction with the triennial review of water quality standards, the development of discharge permits, 303(d) Lists, Total Maximum Daily Loads (TMDLs), and the completion of special studies.

In Colorado, when a narrative or numeric standard is exceeded, the associated use is determined to be in non-attainment and the cause and source affecting the waterbody is determined. The cause is the pollutant that contributes to the non-attainment. For example, if the aquatic life standard for zinc is exceeded, then the aquatic life use would be in non-attainment and the cause would be zinc. The source is the activity or facility that contributes the pollutant. An example of a source is resource extraction if metal exceedances are found in a historic mining district. Colorado's section 303(d) list of impaired waters tabulates all those segments that require a TMDL, and can be found at the WQCC page, in Regulation #93.

**The following is a Table of Approved TMDLs for the South Platte and the Republican River Basins, as of January 2012**

<b>Water Body ID</b>	<b>Waterbody</b>	<b>Parameters/ Uses</b>	<b>Sources/Causes</b>
COSPBO02b	Boulder Creek	<i>E. coli</i> / Recreation	infrastructure, allocated by catchment
COSPBO04a	Gamble Gulch	Cd, Cu, Zn, pH / Aquatic Life, Recreation	Legacy mining
COSPBO09	Boulder Creek, South Boulder Creek to Coal Creek	Ammonia	(TMDL not approved yet)
COSPBO10	Boulder Creek, Coal Creek to St. Vrain Creek	Ammonia	(TMDL not approved yet)
COSPCL02	Clear Creek, Silver Plume to Argo Tunnel	Cu, Pb, Zn / Aquatic Life	Legacy mining, natural, point source discharges
COSPCL03a	South Clear Creek	Zn / Aquatic Life	Legacy mining, natural
COSPCL03b	Leavenworth Creek	Pb, Zn / Aquatic Life	Legacy mining, natural
COSPCL06	Mad Creek	Zinc	Legacy mining, natural (TMDL not approved yet)
COSPCL09a	Fall River	Cu / Aquatic Life	Legacy mining, natural, point source discharges
COSPCL09b	Trail Creek	Cd, Cu, Pb, Zn / Aquatic Life	Legacy mining, natural
COSPCL11	Clear Creek, Argo Tunnel to Farmers Highline Canal	Cd, Pb, Zn / Aquatic Life	Legacy mining, natural, point source discharges
COSPCL13	North Fork Clear Creek	Cd, Fe, Mn, Zn / Aquatic Life	Legacy mining, natural, point source discharges
COSPMS04	Barr Lake and Milton Reservoir	Dissolved Oxygen and pH	(TMDL not approved yet)
COSPSV03	St. Vrain Creek, Hygiene Road to South Platte River	Ammonia	(TMDL not approved yet)
COSPCL07	North Fork Cache la Poudre River, Hall Reservoir to Cache la Poudre River	Sediment/AL	release from Halligan Res
COSPSV04	Little James Creek	Mn, Zn, pH / Aquatic Life	Legacy mining, natural



Water Body ID	Waterbody	Parameters/ Uses	Sources/Causes
COSPSV04a	Lefthand Creek above James Creek	Cu, Zn / Aquatic Life	Legacy mining, natural (TMDL not approved yet)
COSPSV04b	James Creek above Little James Creek	Cu / Aquatic Life	Legacy mining, natural (TMDL not approved yet)
COSPSV04b	Little James Creek above James Creek	Cd, Cu, Pb, Zn / Aquatic Life	Legacy mining, natural (TMDL not approved yet)
COSPSV04b	James Creek above Lefthand Creek	Cd, Cu, Pb, Zn / Aquatic Life	Legacy mining, natural (TMDL not approved yet)
COSPSV04c	Lefthand Creek below James Creek	Cu / Aquatic Life	(Legacy mining, natural (TMDL not approved yet)
COSPUS01a	South Platte River, source to North Fork South Platte River	Sediment / Aquatic Life	roads, natural
COSPUS02b	Mosquito Creek	Cd, Pb, Zn / Aquatic Life	Legacy mining, point source discharges
COSPUS02c	South Mosquito Creek	Cd, Fe(trec),Mn. Zn / Aquatic Life	Legacy mining, point source discharges
COSPUS04	Hall Valley to Geneva Creek	Cu / Aquatic Life	Legacy mining, natural
COSPUS05a	Geneva Creek, source to Scott Gomer Ck	Cd, Cu, Mn, Zn / Aquatic Life	Legacy mining, natural
COSPUS05b	Geneva Creek, Scott Gomer Creek to N. Fork S. Platte River	Cu, Zn / Aquatic Life	Legacy mining, natural
COSPUS14	South Platte River, Bowles Avenue to Burlington Ditch	NO <sub>3</sub> / Water Supply	
COSPUS14	S. Platte River, Bowles Ave. to Burlington Ditch	<i>E. coli</i> / Recreation	
COSPUS15	South Platte, Burlington Ditch to Big Dry Creek	DO, Cd / Aquatic Life	

### Priority Watersheds

The following segments have been chosen by the NPS and the TMDL programs as restoration priorities. They are defined based on Regulation #93 - Colorado's Section 303(d) List of Impaired Waters and Monitoring and Evaluation List and on the level of NPS past or current presence in the basin. There is also a short description of the NPS program potential or current contribution to the restoration of the impairment.

#### South Platte River Basin

*Boulder Creek:* NPS program contribution: this is an area with potential for restoration projects, with a need to first develop a watershed restoration plan. These segments are Coal Creek and Gamble Gulch.

303(d) listed segments: COSPBO07b (*E. coli*), COSPBO04a ((Cu, Zn, pH)

*Clear Creek:* NPS program contribution: the watershed restoration plan has been developed. The watershed plan has a high potential for identifying priorities that would support restoration work throughout this part of this watershed.

303(d) listed segments: COSPCL02, COSPCL03a, COSPCL03b, COSPCL06, COSPCL09a, COSPCL09b, COSPCL11 (metals)

## **Activities Addressing the Clear Creek Watershed**

Cutting through the Colorado Mineral Belt, the upper portion of the Clear Creek Watershed is a “target-rich” environment full of inactive mines and naturally-occurring mineral sites. As a “Good Samaritan” entity authorized in a 2003 EPA Action Memo, CCWF has been conducting, facilitating and expediting cleanup of the 1,600 or so remaining inactive mine/mill sites not listed as priorities in the Clear Creek/Central City Superfund Operating Units Record of Decision (ROD). This work supports remediation efforts in the Clear Creek/Central City Superfund Study Area. CCWF has also been working under a United States Forest Service (USFS) Administrative Order on Consent.

While CCWF is sometimes the project lead, much of this work is being accomplished through innovative partnerships, both public and private. Project partners have included: the Colorado Division of Reclamation, Mining and Safety (DRMS), Environmental Protection Agency (EPA), Phelps-Dodge/Henderson Operations, Coors, Clear Creek County, US Forest Service, Silver Plume, Idaho Springs, and numerous individuals. Innovative techniques to promote sustainable remediation include “orphanage” remediation strategies and the continued development/promotion of a “trading for credit” cleanup and maintenance program. By remediating mining-related water quality problems and addressing associated public health, safety and welfare issues, CCWF and its partners are providing on-the-ground revitalization construction for the Clear Creek Watershed communities

*Saint Vrain River:* NPS program contribution: past work with a local entity; existing watershed restoration plan for the Lefthand Creek. This segment is for Lefthand Creek.

303(d) listed segment: COSPSV04a (metals and pH)

*Upper South Platte:* NPS program contribution: this is an area with potential for restoration projects; existing watershed restoration plan.

303(d) listed segments: COSPUS02a (sediment)

## **Watershed Plans:**

Big Thompson River

Big Dry Creek

Cherry Creek

Lefthand Creek (including James and Little James Creeks)

Lower South Platte

Republican River Basin

Upper South Platte

Lower Bear Creek

## **Current Implementation Projects:**

Porphyry Mountain Mine Waste Restoration

South Platte Habitat Restoration at Happy Meadows

Upper Trail Creek Orphanage Remediation

Upper South Platte Nonpoint Source Initiative

## **Education and Outreach Project:**

Greenway PURE Trash Reduction Project

## **Arkansas and Rio Grande River Basins**

According to the regulations structure of the Water Quality Control Commission, the regulations that apply for this basin are covered under Regulation #32 (Arkansas) and Regulation #36 (Rio Grande).

The Arkansas River is the sixth-longest river in the United States at approximately 1,460 miles (Kammerer 1990). It is a major tributary to the Mississippi-Missouri system. It begins in Colorado's central Rocky Mountains and flows generally to the east and southeast through the Great Plains of northern Oklahoma and Kansas and, finally, through Arkansas to the Mississippi River. The mouth of the river is near the town of Napoleon in southeastern Arkansas.

The river is spatially the largest river in Colorado, covering 27% of the state's surface area, an area of 28,268 square miles. The river begins at Mt. Elbert, which is at 14,433 feet, and its tributaries begin near Leadville, Colorado (Lake County). The river drops to 3,340 feet at the Colorado-Kansas state line, near the town of Holly in Prowers County (CWCB N.d). The altitude change is more than 11,000 feet.

The Arkansas River Basin contains several endangered and threatened species and several species of state concern. There are 9 federally and/or state-listed endangered species (three fish, three bird, and three mammalian species) and 11 federally and/or state-listed threatened species (three fish, six bird, and two mammalian species, and one plant). An additional plant species is a federal candidate for listing. Finally, Colorado has 27 species of concern in the Arkansas River Basin (three fish, four amphibian, eight reptilian, seven bird, and five mammalian species) (CDOW 2010; CWCB 2004).

The Rio Grande River Basin encompasses approximately 7,500 square miles, including the San Luis Valley. The river's headwaters are in the San Juan Mountains near the Continental Divide, from which it flows southeasterly. The river's south fork and mainstem join on the west side of the valley at the town of South Fork, Colorado. The river then flows to the east through the town of Del Norte and continues southeasterly across the valley through the cities of Monte Vista and Alamosa, Colorado. At Alamosa, the river turns south and runs nearly 40 miles, passing through a break in the San Luis Hills and then entering a deep canyon above the New Mexico state line (CWCB 2009b).

The San Luis Valley is an open, nearly treeless, intermontaine valley. It is the predominant feature of the Rio Grande River Basin (CGS 2003). In size, the San Luis Valley extends approximately 90 miles from north to south and 50 miles from east to west. The valley floor ranges in elevation from 7,512 feet to about 8,000 feet, and it is ringed by mountains between 10,000 feet to 14,390 feet in elevation (CWCB 2009b).

An area known as the Closed Basin occupies the northern part of the San Luis Valley. Kerber Creek is located in this closed basin. A low topographic divide and a hydrologic divide separate groundwater in the Closed Basin from that in the rest of the Valley. The divide extends southeast from near Del Norte, Colorado, to a few miles north of Alamosa, Colorado, and then easterly to the east side of the San Luis Valley. The principal tributary to the Rio Grande River in Colorado is the Conejos River. It rises in the southwestern portion of the San Juan Mountains of Colorado, is augmented by the San Antonio and Los Pinos Rivers, and flows northeast to join the Rio Grande at Los Sauces, Colorado. Other major streams in the basin include Saguache, San Luis, Trinchera, Culebra, and Costilla creeks, along with many dozen lesser streams that contribute to the system (CWCB 2009b).

The Rio Grande River Basin contains several endangered and threatened species and several species of state concern). There are six federally and/or state-listed endangered species (one fish, two bird, and three mammalian species) and four federally and/or state-listed threatened species (three bird and one mammal species). Finally, Colorado has 12 species of concern in the Rio Grande River Basin (two fish, one amphibian, one reptile, seven birds, and one mammalian species) (CDOW 2010; CWCB 2004).

The Colorado Division of Parks and Wildlife (DPW) has designated the reach of the Rio Grande River from the Highway 149 Bridge at South Fork downstream to the Rio Grande Canal diversion structure at Del Norte as a gold medal fishery and considers it an area of high recreational value. Other high value recreational areas in the Rio Grande River Basin include the Great Sand Dunes National Park and the Weminuche Wilderness (CWCB 2004).

### Water Quality Concerns

The CWA at Section 101(a)(2) requires that all waters be suitable for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the water unless it is demonstrated that the use is not attainable. Classified use classifications are assigned to waterbodies based upon the actual uses occurring in the waterbody. Water quality standards are in place to ensure that the waterbody is attaining the classified uses assigned. Colorado’s water quality is assessed periodically in conjunction with the triennial review of water quality standards, the development of discharge permits, 303(d) Lists, Total Maximum Daily Loads (TMDLs), and the completion of special studies.

In Colorado, when a narrative or numeric standard is exceeded, the associated use is determined to be in non-attainment and the cause and source affecting the waterbody is determined. The cause is the pollutant that contributes to the non-attainment. For example, if the aquatic life standard for zinc is exceeded, then the aquatic life use would be in non-attainment and the cause would be zinc. The source is the activity or facility that contributes the pollutant. An example of a source is resource extraction if metal exceedances are found in a historic mining district. Colorado’s section 303(d) list of impaired waters tabulates all those segments that require a TMDL, and can be found at the WQCC page, in Regulation #93.

**The following is a Table of Approved TMDLs for the Arkansas and the Rio Grande River Basins, as of January 2012**

<b>Water Body ID</b>	<b>Waterbody</b>	<b>Parameters/ Uses</b>	<b>Sources/Causes</b>
COARUA01b	E. Fork Arkansas River above Birdseye Gulch	Pb, Zn / Aquatic Life	Legacy mining
COARUA02a	Arkansas River, Birdseye Gulch to California Gulch	Zn / Aquatic Life	Legacy mining
COARUA02b	Arkansas River above Lake Fork	Cd, Zn / Aquatic Life	Legacy mining, some minor point source
COARUA02c	Arkansas River, Lake Fork to Lake Creek	Cd, Zn / Aquatic Life	Legacy mining, some minor point source
COARUA03	Arkansas River, Lake Creek to Pueblo Reservoir	Cd, Pb, Zn / Aquatic Life	Legacy mining, some minor point source
COARUA05	Halfmoon Creek	Cd, Pb / Aquatic Life	Legacy mining, some minor point source
COARUA07	Evans Gulch	Zn / Aquatic Life	Legacy mining, some minor point source
COARUA10	Lake Creek	Cu / Aquatic Life	Legacy mining, some minor point source

Water Body ID	Waterbody	Parameters/ Uses	Sources/Causes
COARUA11	Sayres Gulch, & South Fork Lake Creek, Sayres Gulch to Lake Creek	Al, Cd, Cu, Zn, pH / Aquatic Life	Legacy mining, some minor point source
COARUA12a	Chalk Creek	Pb, Zn / Aquatic Life	Legacy mining
CORGAL03a	Alamosa River, Alum Creek to Wightman Fork	Al, Cu, Zn, pH / Aquatic Life	Legacy mining
CORGAL03b	Alamosa River, Wightman Fork to Fern Creek	Al, Cu, Zn / Aquatic Life	Legacy mining
CORGAL03c	Alamosa River, Fern Creek to Ranger Creek	pH / Aquatic Life	Legacy mining
CORGAL03d	Alamosa River, Ranger Creek to Terrace Reservoir	Cu, Zn, pH / Aquatic Life	Legacy mining
CORGAL05	Wightman Fork above Summitville	pH / Aquatic Life	Legacy mining
CORGAL09	Alamosa River, Terrace Reservoir to Hwy 15	Cu / Aquatic Life	Legacy mining
CORGCB09a	Kerber Creek above Brewery Creek	Ag / Water Supply	Legacy mining
CORGCB09a	Kerber Creek above Brewery Creek - mainstem	Cd, Pb / Water Supply	Legacy mining
CORGCB09a	Kerber Creek above Brewery Creek – Squirrel Creek	Cd, Pb / Water Supply	Legacy mining
CORGCB09a	Kerber Creek above Brewery Creek – Rawley Gulch	Cd, Pb / Water Supply	Legacy mining
CORGCB09a	Kerber Creek above Brewery Creek – Copper Gulch	Cd / Water Supply	Legacy mining
CORGCB09b	Kerber Creek, Brewery Creek to San Luis Creek	Cd, Cu, Zn / Aquatic Life	Legacy mining
CORGRG04	Rio Grande River below Willow Creek	Cd, Zn / Aquatic Life	Legacy mining
CORGRG30	Sanchez Reservoir	Hg / Aquatic Life	

### Priority Watersheds

The following segments have been chosen by the NPS and the TMDL programs as restoration priorities. They are defined based on Regulation #93 - Colorado's Section 303(d) List of Impaired Waters and Monitoring and Evaluation List and on the level of NPS past or current presence in the basin. There is also a short description of the NPS program potential or current contribution to the restoration of the impairment.

### Arkansas River Basin

*Upper Arkansas R.:* NPS program contribution: there is a watershed restoration plan being developed for this area, with an anticipated outcome being a prioritization of potential restoration projects. The following segments will be incorporated as priorities in the watershed plan. This could potentially result in incremental money supporting future restoration work. These segments are the California Gulch

to Lake Fork (excluding the area designated under Superfund), Lake Fork to Lake Creek and Lake Creek to Pueblo Reservoir.

303(d) listed segments: COARUA02b (Cd and Zn), COARUA02c (Zn), COARUA03 (Zn)

*Lower Arkansas R.:* NPS program contribution: a large project focused on source identification and quantification study and model development with the collaboration of Colorado State University and projects in conjunction with the Southeast Conservation District. This segment extends from John Martin Reservoir to the Kansas stateline.

303(d) listed segment: COARLA01c (Se)

*Purgatoire River:* NPS program contribution: this is an area with potential for restoration projects, but there is a need to develop a watershed restoration plan. This segment is from I-25 near Trinidad to the confluence with the Arkansas River.

303(d) listed segment: COARLA07 (Se)

### Rio Grande Basin

*Kerber Creek:* NPS program contribution: there is a watershed restoration plan for this watershed, but it needs updating. The Kerber Creek watershed plan has a high potential to identify and implement appropriate reclamation activities. These segments include Kerber Creek and almost all tributaries.

303(d) listed segments: CORGCB09a (Ag, Cd, Pb, pH), CORGCB09b (Cd, Cu, Zn)

### **Watershed Plans:**

Alamosa River

Data & Models for Planning Nonpoint Source Selenium Management in Lower Arkansas River Basin

Kerber Creek and Upper Kerber Creek

Lake Fork of the Arkansas

Lower Arkansas River

Upper Rio Grande to Alamosa County Line

Willow Creek

### **Current Implementation Projects:**

Alamosa River Restoration - Phase III

Kerber Creek Restoration - II

Little Frying Pan Water Quality Improvement

Rio Grande Riparian Area Stabilization Project – Phases III and IV

Lower Willow Creek Restoration

Projects

### **Projects funded with Colorado Water Resources and Power Development Authority money, with DRMS Severance Fees and Private money:**

Rawley Mine Complex Reclamation

Venture Mine Reclamation

Champion Mine Reclamation

East Fork Arkansas River above Birdseye Gulch

### **Assessment Projects:**

Sugarloaf Mountain Mining District BMP Performance Monitoring

## **San Juan / Dolores Rivers Basins and Gunnison River Basin**

According to the regulations structure of the Water Quality Control Commission, the regulations that apply for this basin are covered under Reg. #34 (San Juan /Dolores) and Regulation #35 (Gunnison).

The San Juan River Basin is in the southwest corner of Colorado and covers an area of approximately 10,169 square miles. The flow of the San Juan River is generally to the west, flowing into the Colorado River in southeast Utah. Major tributaries to the San Juan River include the Piedra, Los Piños, Animas, Florida, La Plata, and Mancos Rivers and McElmo Creek. In the southern portion of the basin, the Upper San Juan River and its tributaries flow through two Native American reservations, the Ute Mountain Ute Reservation and the Southern Ute Indian Reservation (CWCB 2004).

A portion of the Dolores River is also located within the San Juan River Basin; it flows to the west and northwest, where it eventually joins the Colorado River in eastern Utah. The major tributary to the Dolores River within the San Juan River Basin is the San Miguel River, located downstream of McPhee Reservoir.

Elevations in the San Juan River system range from greater than 14,000 feet in headwater areas of the Animas and Los Piños rivers down to 4,500 feet, where the Mancos River exits the state just east of the Four Corners into New Mexico (CWCB 2004). The largest cities within the San Juan River Basin are Durango and Cortez. The river basin is also home to five ski areas: Telluride, Wolf Creek, Ski Hesperus, Silverton Mountain and Durango Mountain Resort.

The Gunnison River originates at Almont, Colorado, at the confluence of the Taylor and East Rivers. It then flows past the city of Gunnison and passes through three reservoirs: Blue Mesa, Morrow Point and Crystal Reservoirs. The Gunnison River then meets the North Fork of the Gunnison River west of the town of Hotchkiss. The Uncompahgre River is a major tributary to the Gunnison River; it joins the Gunnison near the town of Delta (CWCB 2004). The Gunnison River has elevation changes greater than 9,500 feet from the headwaters to the Uncompahgre Plateau in the southwest portion of the basin (CWCB 2006a, 2006b).

The San Juan River Basin contains several endangered and threatened species, several species of state concern, and one federal candidate species. There are 10 federal and/or state-listed endangered species (one fish, three bird, four mammalian, and two plant species) and seven federal and/or state-listed threatened species (one fish, three birds, two mammalian, and one plant species). An additional plant species is a federal candidate for listing. Finally, Colorado has 16 species of concern in the San Juan River Basin (one fish, one amphibian, three reptilian, eight bird, and three mammalian species) (CDOW 2010c; CWCB 2004).

A portion of the Animas River south of Durango is designated as a gold medal fishery and is considered an area of high recreational value. Other high value recreational areas in the San Juan River Basin include numerous reaches for whitewater rafting (CWCB 2004). The Gunnison River from the Black Canyon of the Gunnison National Park to the North Fork of the Gunnison River has been designated by the Colorado Division of Parks and Wildlife (CDPW) as a gold medal fishery and an area of high recreational value.

### **Water Quality Concerns**

The CWA at Section 101(a)(2) requires that all waters be suitable for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the water unless it is demonstrated that the use is not attainable. Classified use classifications are assigned to waterbodies based upon the actual uses

occurring in the waterbody. Water quality standards are in place to ensure that the waterbody is attaining the classified uses assigned. Colorado's water quality is assessed periodically in conjunction with the triennial review of water quality standards, the development of discharge permits, 303(d) Lists, Total Maximum Daily Loads (TMDLs), and the completion of special studies.

In Colorado, when a narrative or numeric standard is exceeded, the associated use is determined to be in non-attainment and the cause and source affecting the waterbody is determined. The cause is the pollutant that contributes to the non-attainment. For example, if the aquatic life standard for zinc is exceeded, then the aquatic life use would be in non-attainment and the cause would be zinc. The source is the activity or facility that contributes the pollutant. An example of a source is resource extraction if metal exceedances are found in a historic mining district. Colorado's section 303(d) list of impaired waters tabulates all those segments that require a TMDL, and can be found at the WQCC page, in Regulation #93.

**The following is a Table of Approved TMDLs for the San Juan / Dolores Rivers Basins and Gunnison River Basins, as of January 2012**

<b>Water Body ID</b>	<b>Waterbody</b>	<b>Parameters/ Uses</b>	<b>Sources/Causes</b>
COGULG01	Gunnison River, N. Fork to Uncompahgre	Se / Aquatic Life	Agriculture, natural, minor point source
COGULG02	Gunnison River, Uncompahgre to Colorado	Se / Aquatic Life	Agriculture, natural, minor point source
COGULG04a	Gunnison River tributaries – Currant Creek	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGULG04a	Gunnison River tributaries – Callow Creek	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGULG04a	Gunnison River tributaries – Alkali Creek	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGULG04a	Gunnison River tributaries – Dry Creek	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGULG04a	Gunnison River tributaries – Peach Valley Arroyo	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGULG04a	Gunnison River tributaries – Alfalfa Run	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGULG04a	Gunnison River tributaries – Sulphur Gulch	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGULG04a	Gunnison River tributaries – Lawhead Gulch	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGULG04a	Gunnison River tributaries – Wells Gulch	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGULG04a	Gunnison River tributaries – Negro Creek	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGULG04a	Gunnison River tributaries – Deer Creek	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGULG04a	Gunnison River tributaries – North Fork Kannah Creek	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural



<b>Water Body ID</b>	<b>Waterbody</b>	<b>Parameters/ Uses</b>	<b>Sources/Causes</b>
COGULG04a	Gunnison River tributaries – upper Kannah Creek	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGULG04a	Gunnison River tributaries – Whitewater Creek	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGULG04a	Gunnison River tributaries – Cummings Gulch	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGULG04a	Gunnison River tributaries – Sunflower Drain	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGULG04b	Lower Kannah Creek	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGULG04c	Red Rock Creek	Se / Aquatic Life / Water Supply / Agriculture	Agriculture, natural
COGUNF03	Lower N. Fork Gunnison River	Se / Aquatic Life	Agriculture, natural, minor point source
COGUNF05	Leroux Creek	Se / Aquatic Life	Agriculture, natural
COGUNF05	Jay Creek	Se / Aquatic Life	Agriculture, natural
COGUNF06a	Short Draw	Se / Aquatic Life	Agriculture, natural
COGUNF06b	Big Gulch	Se / Aquatic Life	Agriculture, natural
COGUNF06b	Cottonwood Creek	Se / Aquatic Life	Agriculture, natural
COGUNF06b	Bell Creek	Se / Aquatic Life	Agriculture, natural
COGUSM03a	San Miguel River below Idarado	Zn, Cd, Sediment / Aquatic Life	Legacy mining
COGUSM03b	San Miguel River, Marshall Creek to South Fork San Miguel River	Cd, Zn / Aquatic Life	Legacy mining
COGUSM06a	Ingram Creek	Cd, Zn / Aquatic Life	Legacy mining
COGUSM06b	Marshall Creek	Cd, Zn / Aquatic Life	Legacy mining
COGUUG30	Henson Creek	Cd, Zn / Aquatic Life	Legacy mining
COGUUG31	Palmetto Gulch	Cd, Zn / Aquatic Life	Legacy mining
COGUUN04b	Uncompahgre River, HWY 550 to Delta	Se / Aquatic Life	Agriculture, natural, minor point source
COGUUN04c	Uncompahgre River, Delta to Colorado River	Se / Aquatic Life	Agriculture, natural, minor point source
COGUUN12	Uncompahgre River tributaries – Cedar Creek	Se / Aquatic Life / Agriculture	Agriculture, natural
COGUUN12	Uncompahgre River tributaries – Dry Cedar Creek	Se / Aquatic Life / Agriculture	Agriculture, natural
COGUUN12	Uncompahgre River tributaries – Loutzenhizer Arroyo	Se / Aquatic Life / Agriculture	Agriculture, natural
COGUUN12	Uncompahgre River tributaries – Montrose Arroyo	Se / Aquatic Life / Agriculture	Agriculture, natural
COGUUN12	Uncompahgre River tributaries – Dry Creek	Se / Aquatic Life / Agriculture	Agriculture, natural

Water Body ID	Waterbody	Parameters/ Uses	Sources/Causes
COGUUN12	Uncompahgre River tributaries	Se / Aquatic Life / Agriculture	Agriculture, natural
COGUUN02	Uncompahgre River, source to Red Mountain Creek	Cd, Cu, Zn / Aquatic Life	Legacy mining
COGUUN03a	Uncompahgre River, Red Mountain Creek to Montrose	Cd/AL	Legacy mining
COGUUN03a	Uncompahgre River, Red Mountain Creek to Montrose	Cu, Fe(trec) / Aquatic Life	Legacy mining
COGUUN06a	Red Mountain Creek, source to East Fork Red Mountain Creek	Zn(sc)/AL	Legacy mining
COSJAF02	Animas River & tributaries, Denver Lake to Maggie Gulch	Al, Cd, Cu, Fe(trec), Pb / Aquatic Life	Legacy mining
COSJAF03b	Animas River, Cement Creek to Mineral Creek	Al, Cd, Cu, Fe(trec), Pb / Aquatic Life	Legacy mining
COSJAF04a	Animas River, Mineral Creek to Elk Creek	pH, Cu, Fe(trec), Zn / Aquatic Life	Legacy mining
COSJAF04b	Animas River, Elk Creek to Junction Creek	Zn /AL	Legacy mining
COSJAF07	Cement Creek, source to Animas River	Al, Cd, Cu, Fe(trec), Pb / Aquatic Life	Legacy mining
COSJAF08	Mineral Creek, source to South Mineral Creek	Al, Cd, Cu, Fe(trec), Pb / Aquatic Life	Legacy mining
COSJAF09b	Mineral Creek, South Mineral Creek to Animas River	pH, Cu, Fe, Zn / Aquatic Life	Legacy mining
COSJDO04	McPhee Reservoir	Hg (Phase 1) / Aquatic Life	
COSJDO09	Silver Creek from Rico's diversion to Dolores River	Cd, Zn / Aquatic Life	Legacy mining
COSJLP04	Box Canyon Creek	Sediment/AL	roads, logging
COSJLP04a	East Mancos River	Cu, Mn / Aquatic Life / Water Supply	Legacy mining, natural
COSJLP08	Narraguinnepp Reservoir	Hg (Phase 1)/AL	

### Priority Watersheds

The following segments have been chosen by the NPS and the TMDL programs as restoration priorities. They are defined based on Regulation #93 - Colorado's Section 303(d) List of Impaired Waters and Monitoring and Evaluation List and on the level of NPS past or current presence in the basin. There is also a short description of the NPS program potential or current contribution to the restoration of the impairment.

#### San Juan River Basin

*Dolores River:* NPS program contribution: this is an area with potential for restoration projects. This segment includes Silver Creek below the town of Rico. (Note – there is a watershed plan for the upper Dolores in the Rico area completed using EPA funding).

303(d) listed segment: COSJDO09 (Zn)

*Mancos River:* NPS program contribution: there is a watershed restoration plan for this area, with a potential to prioritize restoration projects. The following segment will be incorporated as a priority in the watershed plan. This could potentially result in incremental money supporting implementation and restoration work. This segment includes the Mancos River and tributaries above Hwy 160.

303(d) listed segment: COSJLP04 (Cu)

### Gunnison River Basin

*Uncompahgre River:* NPS program contribution: currently, there is a 319 restoration project that is starting to address some of the Selenium loading into the Gunnison River. Selenium loading in surface waters is of concern throughout this area of the state and the solution will require coordinated efforts and a statewide strategy. These segments include the Uncompahgre Valley below Montrose. There is an existing Watershed Plan for the reach below Montrose to the confluence, and a Watershed Plan being developed for the reach above Montrose to headwaters.

303(d) listed segments: COGUUN04b, COGUUN04c (Se)

*Upper Gunnison River:* NPS program contribution: there is a watershed restoration plan being developed for this area, including prioritized restoration projects. Palmetto Gulch is a priority in the watershed plan; characterization and engineer design are complete.

303(d) listed segment: COGUUG31 (Cd, Zn)

### **Watershed Plans:**

Animas River above Silverton  
Coal Creek (Crested Butte)  
Dolores River below McPhee Reservoir  
East Fork of the Dolores River  
Lake Fork of the Gunnison  
Lower Animas River  
Lower Gunnison River  
Mancos River  
North Fork of the Gunnison  
San Miguel River  
Stollsteimer  
Uncompahgre River  
Upper Pine in Upper San Juan  
Slate River Watershed Plan

### **Current Implementation Projects:**

Coal Creek Restoration  
Upper Animas Mine Drainage and Mine Waste  
Midway Stabilization and Riparian Area Improvement – North Fork River  
Supporting Selenium Control Efforts – North Fork River  
Hough Mine Reclamation

### **Projects funded with Colorado Water Resources and Power Development Authority money, with DRMS Severance Fees and Private money:**

Red/Bonita Mines Reclamation  
Carbonero Mine Reclamation  
Lake Fork of the Gunnison River from the source to Blue Mesa – Reclamation  
Howard's Fork above Swamp Canyon

## Measuring Project Implementation Effectiveness

CWA Section 319 limits the amount of funds that may be used for monitoring and assessment.

Specifically, use of NPS funds is limited to:

- collecting data in direct support of calculating pollutant load reductions per project implementation activities;
- documenting water quality measurable benefits resulting from on-the-ground NPS projects;
- developing monitoring and assessment components in watershed plans.
- monitoring to assess the success of specific nonpoint source projects

### Sampling and Assessment Activities

In 2010, Colorado expanded the Sampling and Assessment activities associated with on-the-ground BMP implementation projects to emphasize documenting measurable results. This was accomplished with the creation of the Measurable Results project (MRP) and also with more emphasis placed on NPS project sponsors' requirements in conducting project-associated sampling, analyses and assessment.

Project sponsors are required to conduct, at a minimum, water quality sampling, analysis and assessment during the contract period. The MRP project supplements the minimum sampling requirements by also providing pre and post contracting data, sampling for aquatic macro-invertebrates and associated evaluation of physical and aquatic habitat, and preparation of Sampling and Analysis Project Plans (SAPPs). The NPS program follows the methodology described in the newly promulgated WQCD Methodology to Determine Aquatic Life Use Attainment for Streams and Rivers (2011).

All NPS water quality and aquatic macro-invertebrates data generated by the NPS program are uploaded to STORET; this includes data generated by project sponsors and data generated by the MRP. The Colorado Data Sharing Network provides data uploading and mapping support for project sponsors, if requested. Those data are incorporated in the State Water Quality data analysis and assessment conducted by the Environmental Data Unit and incorporated in the biennial Integrated Report (IR) and in the Standards Triennial Review process.



**PROGRESS AND MILESTONES TO EVALUATE ENVIRONMENTAL RESULTS**

<b>Tasks</b>	<b>Tactics</b>	<b>Indicators of Success</b>	<b>Outputs</b>	<b>Percent Complete (an estimation)</b>
1 - Establish monitoring tools to evaluate environmental measures and indicators of success. <i>(MP Matrices Appendix D Table 3, Task 1)</i>	Continue to develop and implement Measurable Result Project to assist project sponsors in SAPP development, provide for pre- and post- project monitoring outside the timeline of the contract with the sponsor as necessary.	Field verified BMP placement for the appropriate pollution source; sampling effort identified and implemented; long-term sustainable monitoring strategy.	Toolbox of standardized monitoring methods and assessment techniques, SAPPs developed using NPS program template, completed end of project monitoring reports; accurate reporting of load reductions. Long-term monitoring reports; load reductions reporting.	Finalizing implementation and application of monitoring tools; on-going field ground truthing and evaluation and updating - 80%.
2 - Develop or support a watershed assessment tool that identifies or helps identify water quality trends (DSN or e-RAMS). <i>(MP Matrices Appendix D Table 3, Task 2)</i>	Develop and gather shapefiles, develop and/or support a data repository (DSN can be an option), identify, support and /or develop a GIS, web-based site; generate assessment and analyses; prepare watershed-based reports.	Data are identified and readily available for use; the assessment tool is functional; the NPS program posts electronic analyses at the npscolorado site.	A user-friendly Website-based, GIS-based watershed assessment tool that is accessible and open to all users.	Started developing a framework for this, with project data and reports and some data layers – 20%. The recovery potential screening tool for impaired waters will also be evaluated: <a href="http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/recovery/index.cfm">http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/recovery/index.cfm</a>
3 – Update BMPs library and create field BMPs template. <i>(MP Matrices Appendix D Table 3, Task 3)</i>	Develop a BMP implementation template; complete a review of categorical BMPs and update following the programmatic priorities and using project data; make library available on the npscolorado site.	Field BMP template is easily available and is used by project sponsors; BMP library is systematically updated.	Field BMP template; updated BMP library.	Stated working on the BMP priority outline; not a lot of progress yet – 10%.
4 – Ensure that project data are uploaded to DSN / STORET <i>(MP Matrices Appendix D Table 3, Task 4)</i>	Develop procedures to upload project data; support and advise data tracking and uploading to DSN / STORET.	Data are uploaded and used in the watershed assessment tool; interested public accesses and uses the data.	Data are uploaded in DSN / STORET	Ongoing effort; procedure developed but not fully implemented yet; data are uploaded to STORET at the end of each project – 70%.

## Measurable Results Activities

**Completed Projects:** Town of Alma, Hecla Wash Restoration and Sediment Reduction.

**Ongoing Projects:** Alamosa River Restoration, Rio Grande Headwaters Restoration Project, Eagle River Restoration Project Phase 2, Evaluating Upper Arkansas Basin, several sites within2 HUC-12 watersheds, for potential Success Story.

**New Projects:** Kerber Creek Restoration-Phase I, Florida River Aquatic Habitat Improvement, Turkey Gulch Pollution Prevention, Lower Willow Creek Restoration.

## State Agencies and Nonpoint Sources of Pollution

During FFY 2012, the following activities were conducted to assess and implement land management practices and water quality protection with collaboration from several state programs and agencies.



## Source Water Assessment and Protection Program

The Source Water Assessment and Protection (SWAP) program works closely with public water systems and stakeholders to protect surface water and groundwater based sources of drinking water. A statewide grant funding program provides financial assistance to help facilitate the technical development of protection plans that result in Best Management Practice implementation. Approximately, one hundred and ninety four (194) drinking water systems have either completed a protection plan and/or have a strategy in place to complete a plan. The population served by these drinking water systems with developed protection plans is approximately 821,225 people.

The NPS and SWAP programs collaborate when developing both watershed and protection plans to engage local stakeholders regarding the importance of protecting the health of the watershed to benefit water quality. The top four categories of dispersed (non point source) contaminants to potentially impact drinking water sources in Colorado are roads, septic systems, evergreen and deciduous forest practices, and agricultural (pasture and hay) impacts. The SWAP and NPS programs are currently working together to develop strategies to leverage statewide planning efforts to minimize impacts to drinking water sources.

The two programs are engaged on a mutually beneficial “pilot” project in the Upper/Lower Arkansas Basin. The public water systems involved are Parkville Water District, Town of Buena Vista, Town of Poncha Springs, City of Canon City, and the City of Florence. This comprehensive planning effort is researching integration between the SWAP and NPS planning processes and creating implementable action plans.

The pilot project participants will complete source water protection plans, gain insight on mutual water quality benefits to integrating NPS watershed planning and SWAP planning, and investigate the local government and county’s role in planning collaboration. Some of the measurable outcomes are: a) a tabular spreadsheet of similarities and common interests for SWAP/NPS planning; b) spatial analysis of NPS projects in the four county (Lake, Chaffee, Custer and Fremont) area; c) potential for intergovernmental MOU’s/Agreements for NPS and SWAP planning between Council of Governments/Public Water Providers/County Health and Planning Departments; d) tabular spreadsheet of land use planning integration for NPS/SWAP with proposed business process improvements/models for the counties; and e) tabular spreadsheet of how to leverage public outreach and education for both programs.

The project aims to improve basin wide water quality, promote sustainable recreation resources, and preserve and restore wetlands and aquatic ecosystems for fish, wildlife and the enjoyment of future generations. The SWPP program is administered and implemented by CDPHE WQCD.

## Groundwater Protection Program

The Agricultural Chemicals and Groundwater Protection Act took effect on July 1, 1990 and established the Groundwater Protection Program. Its purpose is to reduce agricultural chemicals' negative impacts on groundwater and the environment. Agricultural chemicals covered under this legislation include commercial fertilizers and all pesticides. The goal is to prevent groundwater contamination before it occurs by improving agricultural chemical management. The Agricultural Chemicals and Groundwater Protection Program is administered as a joint effort between the Colorado Department of Agriculture (CDA), the Colorado Department of Public Health and Environment and Colorado State University Cooperative Extension (CSUCE).

The program employs three primary functions to protect groundwater in Colorado:

- a) Regulation and inspection of agricultural chemical bulk storage and mixing/loading areas;
- b) Groundwater monitoring; and
- c) Education and training.

The Groundwater Protection Program accomplished its 21<sup>th</sup> year of groundwater monitoring responsibilities in 2011; a summary of the 2011 results is shown below:

### 2011 Groundwater Monitoring Results for the Agricultural Chemicals and Groundwater Protection Program

<b>Sampling Network</b>	<b>Number of Samples Collected</b>	<b>Samples Exceeding Nitrate Standard</b>	<b>Pesticides Detected Above a Standard</b>
Weld County Long Term Monitoring Network	58	40	0
San Luis Valley	43	6	0
High Plains Aquifer	19	3	0
Morgan County	1	1	0

More information on the Groundwater Protection Plan can be found at:

<http://www.colorado.gov/cs/Satellite/Agriculture-Main/CDAG/1167928159328>

## Division of Reclamation, Mining and Safety

DRMS provides for the reclamation and restoration of land and water resources previously degraded by the adverse effects of past mining practices through the characterization of environmental problems associated with mine waste, mill tailings and acid mine drainage and provides reclamation options to address these environmental problems.

The NPS program and the DRMS have created a list of priority abandoned mine lands (AML) sites proposed for characterization and remediation designs and reclamation construction. Those sites are currently included in Colorado's Section 303(d) List of Impaired Waters for impacts from dissolved metals and acidity (pH). Mine-related impacted segments comprise 89% of the total number of Total Maximum Daily Loads (TMDLs) in Colorado.

The AML sites are being addressed and reclaimed with funds from the NPS program (CWA Section 319 funds), from the Colorado Water Resources Power Development Authority (SRF Administrative Fees



funds), with DRMS Severance Tax Funds, federal partners (BLM, EPA, USFS), private entities and watershed groups.

### **Department of Transportation**

CDOT works in partnership with the NPS program addressing sediment load reduction associated with roads maintenance and runoff. As stormwater becomes more regulated, the partnership has developed additional mutual support including, the exchange of technical information, data regarding BMP selection and implementation, and other forms of support. CDOT participates actively in the Alliance collaborating with document preparation and review, basin outreach activities and with review and advice on project implementation.

### **Division of Parks and Wildlife**

CDPW participates actively in the Alliance collaborating with document preparation and review, basin outreach activities and with review and advice on project implementation.

### **Water Conservation Board**

The CWCB supports watershed protection and restoration efforts through the administration of several grant programs:

- a) The Colorado Watershed Restoration Program, which provides grants for watershed/stream restoration and flood mitigation projects throughout the state
- b) The Colorado Healthy Rivers Fund, which helps support local watershed organizations in their efforts to provide clean water, protect habitat and improve recreation and accessibility.
- c) The Fish and Wildlife Resources Fund, which provides grant money to mitigate the impacts of existing water supply facilities and help preserve a balance between development of the state's resources and the protection of the state's fish and wildlife resources.

All of these grant programs include objectives that address similar goals as the NPS program.

### **Colorado Basin Roundtables**

To facilitate discussions on water management issues and encourage locally driven collaborative solutions, nine basin roundtables were established by the "Colorado Water for the 21st Century" Act. These roundtables represent each of the state's eight major river basins and the Denver metropolitan area.

The basin roundtables bring more than 300 citizens into water discussions across the state. The broad-based, collaborative nature of this process is reflected in the basin roundtable membership – a set of designated members, 10 at-large members, non-voting members, agency liaisons and the CWCB Board member from each basin. The roundtables currently are undertaking Phase II of the nonconsumptive needs assessment (NCNA) process, which seeks to identify projects or methods to address the basins' nonconsumptive (environmental and recreational) needs.

## **Federal Agencies and Nonpoint Sources of Pollution**

Colorado has a large amount of publicly owned lands and partnerships with federal, state and tribal land and resource management agencies are key to the program's success. Colorado achieves these partnerships through a variety of formal and informal agreements, cooperative projects, sharing and combining of funds, and meetings to share information and ideas. Through these partnerships, Colorado works with a variety of entities to incorporate other appropriate water quality controls and further the goals of the Nonpoint Source Program.



### **Federal Consistency**

Federal agencies manage or otherwise influence nearly 35 percent of Colorado's land area, largely in headwaters areas. Consequently, consultation with federal agencies regarding implementation of best management practices that are consistent with the state nonpoint source program is a critical effort to achieving water quality goals in all river basins in the state.

The division periodically conducts federal lands management reviews to determine the following: 1) Is water quality addressed in the planning stage? 2) What best management practices were to be implemented? 3) Were they implemented properly? 4) Were the best management practices effective in reducing erosion or protecting the stream from nonpoint source pollution? And 5) If not, what changes can be made to protect water quality?

The reviews for 2012 were conducted with the U. S. Forest Service during the Colorado State Forest Service (CSFS) Silviculture BMP audit tour on September 17 through 21, 2013. The tour addressed a review of forest management BMPs as applied to private, state and federal managed forests. In recent years, CSFS staff had joined NPS Staff on consistency reviews and wanted to assist in completing this year's consistency reviews during the audit process. Two review sites were located on two National Forests, namely the Rio Grande and the San Juan. In both cases, timber sales under challenging circumstances posed a special need for specific BMP management. Road location, development and closure, slash management, stream crossings and stream management zones were particular BMPs of common need and concern. The ratings from the audits placed the National Forests at the top for overall management. Personnel from both forest offices were involved and open to discussions on management decisions and alternatives.

### **National Water Quality Initiative**

Early in 2012, the Colorado state office of the Natural Resources Conservation Service (NRCS) contacted the WQCD regarding a new federal program, the "National Water Quality Initiative" (NWQI). The program utilizes at least five percent of the Environmental Quality Incentives Program (EQIP) funds to provide financial assistance to farmers and ranchers in undertaking conservation to improve water quality and aquatic habitats in impaired streams. Particular types of impacts targeted are those resulting from excessive nutrients, sediment/turbidity, pesticides, temperature, salinity and habitat alteration. Priority

watersheds were to be identified through the help of local partnerships including the state water quality agency.

NRCS sought WQCD's recommendation of impaired watersheds, specifically those that included waterbodies found in the CWA Section 303(d) List of Impaired Segments. The NPS and the TMDL programs staff reviewed the listing and screened potential waterbodies based on having a completed TMDL, the site meeting NWQI and EQIP criteria and the potential for achieving measurable results. Two listed water bodies were selected, Fruit Growers Reservoir in the Lower Gunnison River basin (HUC 140200050105), and DeWeese Reservoir in the Arkansas River Headwaters (HUC 110200011213). NRCS had some success in signing up farmers/ranchers. In subsequent meetings with the partnering agencies, NRCS decided to continue assistance for the same two watersheds and add a waterbody impacted by wildfire for the 2013 NWQI.

### **Endangered Species Act Biological Assessment**

Section 7 of the Endangered Species Act requires all federal agencies to consult with the National Marine Fisheries Service (NMFS) for marine and anadromous species, or the United States Fish and Wildlife Service (FWS) for fresh-water and wildlife, if they are proposing an "action" that may affect listed species or their designated habitat. *Action* is defined broadly to include funding, permitting and other regulatory actions. For local governments, any project that requires a federal permit or receives federal funding is subject to Section 7.

Each federal agency is to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. This is done through "consultation". If such species may be present, the local government must conduct a biological assessment (BA) for the purpose of analyzing the potential effects of the project on listed species and critical habitat in order to establish and justify an "effect determination" (assistance and coordination may be available from the state, especially with transportation projects). The federal agency reviews the BA and, if it concludes that the project may adversely affect a listed species or their habitat, it prepares a "biological opinion". The biological opinion may recommend "reasonable and prudent alternatives" to the proposed action to avoid jeopardizing or adversely modifying habitat. These so-called "RPAs" carry great weight with other federal agencies and are often treated as binding requirements.

### **Review and coordination of land management practices and water quality**

#### ***U.S. Bureau of Land Management (contributed by Ed Rumboldt, Colorado Office)***

##### **Collaboration with USGS**

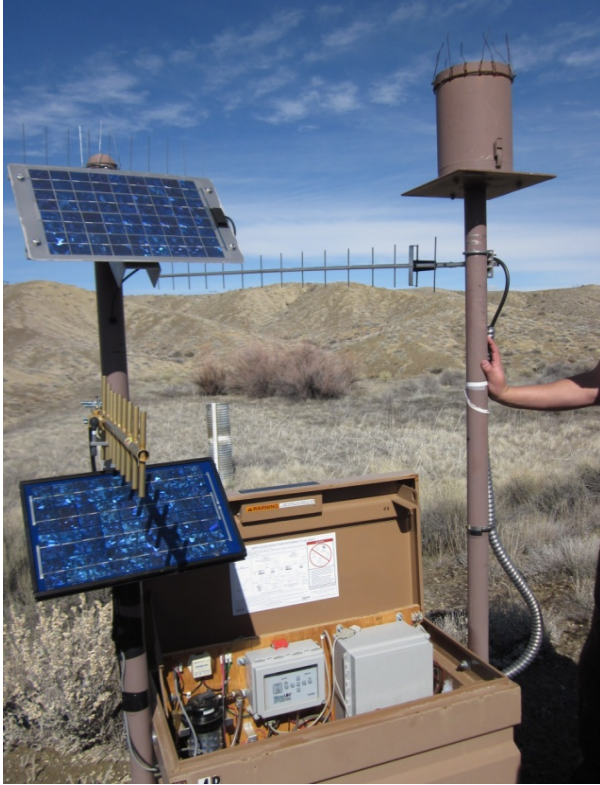
BLM is contracting with USGS to monitor streamflow and water quality in the Piceance Basin. BLM continues to fund a data repository and data can be accessed at <http://rmgsc.cr.usgs.gov/cwqdr/index.shtml> BLM continues to work with Shell and the USGS to collect groundwater data in the Piceance basin. Continuous pH, conductivity, dissolved oxygen, and temperature data are also being collected on the Roan Plateau. This is part of an overall regional monitoring strategy to collect baseline data and assess potential effects of oil and gas development on water resources.

BLM continues to work with the USGS in Utah to assess potential grazing impacts on salinity, biological soil crusts and sediment delivery in Badger Wash near Mack, CO. The Badger Wash study area in western Colorado provides a unique opportunity to assess contributions of domestic grazing on Mancos Shale to in-stream salinity. The study area has four paired grazed/un-grazed watersheds ranging from 5 to

40 ha in size that were established in the early 1960s. Badger Wash was the focus of intensive study in the 1960s and 1970s and results from those early studies indicate grazing greatly increases both sediment production and run-off from Mancos Shale.

To evaluate whether the observed differences in run-off and erosion have persisted, the USGS and BLM re-instrumented the ponds that were built at the bottom (to collect runoff and sediment) of the watersheds in 2006. However, due to changes in flow regimes and sedimentation of the ponds, very few flow events have reached the ponds during the six years of monitoring. As an alternative approach, the USGS has been monitoring hill-slope erosion using silt fences since 2008 and analyses of cumulative sediment production conducted through 2012 indicate grazing treatments differences are persisting but vary with topography. In 2012, the USGS initiated an expanded silt fence effort to confirm initial results, to further understand the effects of topography and to isolate the effects of historic versus current grazing activity. This silt fence effort includes the installation of 60 new fences distributed across soils and topographic settings. In the grazed watersheds, cattle will be excluded from half of the silt-fence watershed. Additionally, in 2012 the USGS has initiated efforts to monitor run-off in one sub-watershed in each larger experimental watershed. Silt fence locations and new weir locations have been selected and archeological clearances obtained with installation expected in October 2013.





**Figures 1 and 2:** Badger Wash Monitoring near Mack, CO

### **Slate River Restoration**

BLM is working closely with the Coal Creek watershed group and partners in the Slate River watershed near Crested Butte, CO. BLM is a major partner in implementing a WQCD nonpoint source project. The Slate River is a very dynamic watershed from a geomorphological perspective. Similar to most Colorado watersheds, it contains headwater areas with lakes and small streams draining cirque basins from previous periods of glaciations. However, the Slate is also somewhat different from many Colorado watersheds in that the main channel of the Slate is a narrow, steep, straight V-shaped valley for the upper 2 to 3 miles of the drainage. This high-elevation valley and channel are currently receiving massive amounts of coarse debris from barren, rocky hill-slopes that extend virtually uninterrupted from stream channel to watershed divide (i.e., with no slope breaks). Coarse rock is delivered to the stream from barren hillsides through a variety of mass wasting processes, most notably avalanches, debris torrents, and back wasting of the lower, stream-adjacent slopes. Annual peak runoff events from snowmelt and convective thunderstorms, coupled with large volume of sediment have caused erosion of stream banks, especially in the vicinity of Oh be Joyful campground. BLM and partners are assessing the watershed, and stabilizing stream banks near the campground.



**Figure 3: Slate River near Crested Butte, CO**

BLM is also an active participant in an EPA/WQCD nonpoint source project to develop a watershed plan in North Park near Walden, CO.

### **Dust Sampling**

BLM Colorado initiated, and is currently operating two dust samplers and signed an MOU with University of Colorado at Boulder to analyze the chemical constituents of the dust samplers. The dust samplers are located in Craig and Grand Junction, CO and are maintained by BLM. There is a concern in the SW US about the effects of dust events on the albedo of snowpack, associated changes in runoff and erosion.

### **Coal Mine Impact Study**

Coal mining in the Book Cliff area north of Fruita, CO is currently idle; however, BLM is in the process of collecting baseline water quality. In FY2012, the Grand Junction field office collected surface and groundwater quality data within the study area to maintain continuity with existing data sets and monitor any changes in surface or groundwater quality. Water year 2012 was abnormally dry and data collected will help highlight the natural variability in hydrologic variables within the study area. The BLM collected monthly precipitation, and monthly to semi-monthly stream discharge and field water quality parameters from 7 established surface water sites and 3 established groundwater monitoring wells in the study area. The BLM also collected a full suite of water quality parameters from the 7 established surface water sites during FY2012.

### **Abandoned Mine Land Clean-Up**

BLM continues its long relationship with the Division of Reclamation, Mining and Safety (DRMS) and EPA to remediate abandoned mine land (AML) sites in Colorado. Table 1 shows projects that are currently being implemented:

**Table 1: BLM projects to improve water quality at AML sites**

<b>Project Name</b>	<b>Amount</b>	<b>Project description</b>
Lackawanna Transfer	\$15,750	Additional Sampling for disposal
May Day Repair	\$82,113	Repair cover and retention wall
Animas O & M	\$80,850	O&M for various projects
Cement Creek Treatment Plant	\$51,600	Water treatment facility
Upper Animas Assessment	\$78,167	Basin-wide assessment of background
Dolores Mine Safety Closure Project	\$76,000	Close 20 unsafe mine openings
Uravan Mineral Belt Mine Safety Closure Project	\$6,416	Close unsafe mine openings and Monitor
Roy Pray	\$3,840	Water sampling, assessing plug
Wyoming Mine	\$25,600	Install underground plug to address AMD
Yellowstone Mill	\$56,820	Consolidate and cover mill tailings and monitor
Dinero Tunnel	\$56,840	O & M
Longfellow	\$40,000	Close 14 unsafe shafts and adits
Tiger Shaft	\$24,250	O&M of bioreactor
Querida	\$49,800	Mine dump cleanup
Venture Shaft	\$90,110	Mine dump cleanup
Upper Saguache	\$2,000	Inventory, monitoring and closure work
Uranium Mine Openings Closure Project	\$3,250	Close and monitor unsafe mine openings on the Uncompaghre Plateau

***U.S. Department of Agriculture Forest Service: (contributed by Joan Carlson, Colorado Office)***

In FY2012, the USDA Forest Service (Forest Service) established a national Best Management Practices (BMP) program with the publication of “National Best Management Practices for Water Quality Management on National Forest System Lands, Volume 1: National Core BMP Technical Guide”. The purpose of the national BMP program is to: a) establish uniform national direction for BMP implementation to control nonpoint source pollution, b) establish a consistent process to monitor and evaluate efforts to implement BMPs and the effectiveness of those BMPs at protecting water quality and c) establish a consistent and credible process to document and report Forest Service BMP implementation and effectiveness.

In FY2013 and FY2014, the agency will begin implementing the BMP monitoring component of the national program on all administrative units in Colorado.

In keeping with the national BMP program, the general approach to nonpoint source pollutant management for the Forest Service Rocky Mountain Region, which includes National Forest System (NFS) lands in Colorado, is found in Chapter 20 of the Watershed Conservation Practices Handbook (FSH 2509.25-2006-3). This chapter outlines a nonpoint source management strategy to apply Watershed Conservation Practices (i.e. BMPs) when implementing all land management projects, monitor implementation and effectiveness of those practices, and adjust those practices where monitoring shows concerns about the effectiveness of the practice. These BMPs and Forest Plan standards and guidelines are used to ensure that State water quality standards are met and classified uses of water are protected when projects are designed and implemented on the ground. National Forest personnel perform formal and informal monitoring of these practices and adjust them as necessary, per the nonpoint source management strategy.

USDA Forest Service also has direction in a number of program areas to restore watersheds to reduce or prevent additional nonpoint source pollution.

#### **Burned Area Emergency Response (BAER) Program**

The purpose of this program is to alleviate emergency conditions following wildfire to help stabilize soil; to control water, sediment and debris movement; to prevent permanent impairment of ecosystem structure and function; and to mitigate significant threats to health, safety, life, property or downstream values. In FY 2012, there were six fires on NFS lands in Colorado that qualified for BAER treatments. In total, approximately 4,655 acres of treatments were completed.

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

The purpose of this program is to treat the excessive accumulation of hazardous or unusually flammable fuels in the forests and rangelands that are the root cause of an unprecedented fire risk on national forest lands. Fuels treatments occur both inside and outside the wildland urban interface (WUI). Treatments inside the WUI are designed to reduce fuels around homes, communities and other resources, such as municipal water supplies and infrastructure, to slow or stop wildland fires from threatening these high-value areas. Treatments outside the WUI help protect communities by creating conditions that enable firefighters to more successfully suppress fires before they enter the WUI and reduce fire severity and impacts on valued landscapes and natural resources. In FY 2012, the Forest Service completed fuel treatment projects on 26 acres inside the WUI and another 320 acres outside the WUI for a total of 346 acres.

#### **Watershed Restoration**

The purpose of this program is to improve watershed conditions using upland and instream treatments. Possible projects include road improvements such as correction of cut or fill slope failures, scarification of compaction on upland areas (old skid trails, for example), reclamation of old gravel quarries, etc. National Forests in Colorado reported accomplishments of about 11,445 acres of soil and water improvements in FY 2012.

#### **Road Maintenance**

The regular road maintenance program provides for the upkeep of roads and trails including the surface and shoulders, parking and side areas, drainage structures and signs necessary for the safe and efficient operation of the transportation system. Road maintenance provides access to the National Forests while



reducing resource damage. National Forests in Colorado reported accomplishments of about 5,647 miles of road maintenance in FY 2012.

### **Legacy Road and Trail Program**

This activity funds the repair, restoration, rehabilitation, and decommissioning of both system and unauthorized roads and trails where the conditions are causing water quality issues in streams and other water bodies, adversely affecting threatened, endangered, or sensitive species or impacting community water systems. The road decommissioning activity encompasses a range from posting a sign or installing a gate to close a road to public use, to “storm-proofing” a road by pulling drainage structures, to road obliteration including scarification and seeding of the road surface or actually re-contouring the slope to eliminate the road prism. In FY 2012 in Colorado, there were 4 road rehabilitation projects, 6 culverts replaced, 4 road drainage improvement projects, 1 bridge replacement/reconstruction projects, 7 road decommissioning projects and 2 stream restoration projects.

### **Abandoned Mine Program**

In FY 2012, National Forests in Colorado did not complete any nonpoint source control projects specifically related to legacy mining such as mine dumps or tailings piles affecting water quality. However, the San Juan National Forest completed a fen restoration project where the fen was damaged by iron oxide mining. In addition, several site investigations were initiated, continued, or completed that will provide data and information for planning future projects to restore watersheds. The Forest Service continues to participate in the Colorado Abandoned Mine Mixed Ownership effort with state and federal agency partners to collaboratively prioritize and plan AML remediation throughout the state.

The Forest Service also completed a shooting range maintenance project resulting in the reduction of available lead within a watershed near Colorado Springs.

### ***U.S. Department of Agriculture NRCS (contributed by Jason Peel, Colorado Office)***

Typically, resource issues the NRCS assist landowners with have a positive impact on water quality, either directly or indirectly. For example, grazing land improvements promote improved rangeland condition, which reduces excess surface runoff, and provide a potential improvement to water quality due to the reduced loading of sediment and organics to surface waters. Improvements to wildlife habitat, riparian management, and forest management will often have a similar effect. Soil erosion control practices on cropland reduce water and wind borne sediment, which carry nutrients, organics, and other pollutants to surface waters. In addition to incentives for these types of conservation treatments, the NRCS Environmental Quality Incentives Program also offers incentive payments to irrigators that focus on reducing water application and use, which have a direct positive impact to water quality.

### ***U.S. Geological Survey: (contributed by Tracy Yager, Colorado Office)***

The U.S. Geological Survey (USGS) provides data and information that can help others protect water quality. The USGS provides reliable scientific information to describe and understand the Earth, which helps others manage water, energy, mineral and biological resources. Scientific information from the USGS could be used to identify impaired streams or groundwater resources and could be used to evaluate the success of nonpoint source projects. The following are three examples of USGS work that can be used to evaluate the success of nonpoint source projects or the Colorado Nonpoint Source Program:

- 1) USGS long-term data-collection sites downstream from on-the-ground nonpoint source projects. Site locations and site data are available online from the Directory of Project Information and Data Collection Sites at <http://co.water.usgs.gov>

- 2) USGS projects designed specifically to monitor and evaluate on-the-ground nonpoint source projects, such as the USGS Grand Valley projects (described in USGS Fact Sheet FS-159-97 by Butler and USGS WRIR 01-4204 by Butler). Project areas, site locations and site data are available online from the Directory of Project Information and Data Collection Sites at <http://co.water.usgs.gov>
- 3) National or regional USGS projects that include water-quality trend analyses, such as the USGS National Water Quality Assessment Program, South Platte Study Unit (e.g., USGS Fact Sheet FS-153-95 by Heiny).

USGS Activities Relevant to Nonpoint Source Pollution:

1. Design water-quality studies
2. Develop methods for water-resources investigations
3. Develop and refine analytical methods and sampling procedures
4. Develop and update water-quality models
5. Model hydrologic and water-quality responses of flow systems
6. Monitor water quality and changes in water quality
7. Compile and evaluate retrospective water-quality data sets
8. Provide water-quality and hydrologic data to interested parties
9. Provide water-quality expertise to organizations and groups
10. Characterize water quality of streams, lakes and groundwater
11. Characterize hydrologic conditions, including local or statewide trends
12. Determine water quantity in order to calculate constituent loads in streams
13. Evaluate stream morphology and sediment transport
14. Identify pollution sources
15. Study fate and transport of compounds and pollutants
16. Evaluate effects from events (such as wildfire) or change (such as urbanization) on water quality
17. Perform research related to water-quality issues

## Financial Summary

During FFY2012, Colorado NPS program received \$2,155,195.00 in federal section 319(h) grant funds under US EPA Grant # C9-99818612 and PPG allocations. The total amount for projects was \$1,293,117.00. Colorado continues to award the federal funds to local sponsors, which can be local government entities, watershed groups and others. Federal funds are used at the local level to implement projects that address water quality impairments, to develop watershed-based plans and for education and dissemination of information related to nonpoint sources of pollution.

In addition to the 2012 funds, Colorado continues to manage five other annual grant awards, which have been expended to a varied degree. The following table summarizes grant awards per year and the approximate percentage that has already been expended in each grant.

Report: Progress on Nonpoint Source Federal Grants - September 2012						
Federal Grant Year	Total Amount Awarded	Total Amount Contracted	% Contracted	Grant End Date	Total Amount Expended	% Expended
FFY07	\$2,182,827.00	\$2,182,827.00	100%	9/30/2013	\$1,805,331.00	83%
FFY08	\$1,869,850.00	\$1,869,850.00	100%	9/30/2013	\$1,482,997.00	79%
FFY09	\$1,754,218.00	\$1,754,218.00	100%	9/30/2014	\$1,157,726.00	66%
FFY10	\$2,033,603.00	\$1,996,103.00	98%	8/31/2015	\$323,021.00	16%
FFY11	\$1,433,118.00	\$936,808.00	65%	8/14/2016	\$172,334.00	12%
FFY12	\$1,293,117.00	\$10,000.00	1%	8/14/2017	\$0.00	0%
Total Current Grant Amount	\$10,566,733.00	\$8,749,806.00	83%		\$4,941,409.00	47%



## **Staffing and Support**

Funding for staffing and support is administered through the annual Performance Partnership Agreement and Grant. The 2012 staffing and support grant is \$688,883.00, which funds approximately 5.3 FTE. These FTEs include 4.2 FTE that directly deal with implementation of the NPS program. The remaining FTEs represent additional assistance from other units, such as monitoring and fiscal and contracting support. Starting in fiscal year 2013, the Measurable Results project will be implemented within the NPS program and not be contracted out anymore. This will be done so that monitoring staff and efforts can be optimized, allowing the program to collect more complete data sets.

### **NPS Program Staff**

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