

# Colorado Nonpoint Source Program 2015 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 2015.

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.

Starting in Fiscal Year 2013, 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 Colorado NPS projects Open and Active at the end of FFY15  
(October 1<sup>st</sup> 2014 to September 30<sup>th</sup> 2015)**

	<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>	Fountain Creek Watershed Plan (FFY14)	Pike Peak Area Council of Government	Arkansas River	Watershed Plan	\$40,000	June 2017	5%
<b>2</b>	St. Vrain Watershed Plan (FFY14)	City of Boulder	South Platte	Watershed Plan	\$45,000	June 2017	15%
<b>3</b>	Upper Cache la Poudre Watershed Plan (FFY15)	Coalition for the Poudre River Watershed	South Platte	Watershed Plan	\$5,000	June 2017	5%
<b>4</b>	Evans Gulch Watershed Plan (FFY12)	Trout Unlimited, Inc.	Arkansas River	Watershed Plan	\$30,000	June 2015	90%
<b>5</b>	Upper Yampa River Watershed Plan (FFY12)	Routt County Conservation District	Yampa River	Watershed Plan	\$59,000	July 2016	80%
<b>6</b>	Middle Colorado River Watershed Plan (FFY11)	Colorado River Water Conservation District	Colorado River	Watershed Plan	\$64,610	December 2014	90%
<b>7</b>	Program Outreach and Education (FFY15)	Colorado Watershed Assembly	Statewide	Outreach and Education	\$173,189	June 2016	25%
<b>8</b>	Animas and Florida River Water Quality and Habitat Improvement Project (FFY11)	San Juan Resource Conservation and Development	Animas River Basin	Stream Restoration BMPs	\$159,245	February 2016	70%
<b>9</b>	Implementing Drainage Best Management Practices in the Lower Arkansas River Valley, Colorado (FFY10/11)	Otero County	Lower Arkansas River Basin	Agriculture BMPs	\$48,624	March 2016	50%
<b>10</b>	Identifying Arkansas River Selenium and Nitrogen Best Management Practices (FFY12)	Colorado State University	Lower Arkansas River Basin	Agriculture BMPs	\$256,620	June 2016	80%

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<b>11</b>	Uncompahgre Selenium Control (FFY13)	Uncompahgre Valley Water Users Association	Gunnison River Basin	Agriculture BMPs	\$19,620	December 2016	10%
<b>12</b>	Tools to Address Agriculture Nutrient Nonpoint Source Contamination (FFY11)	Colorado State University	Statewide	Agriculture BMPs	\$219,026	February 2016	30%
<b>13</b>	Evans Gulch Restoration (FFY14)	Trout Unlimited	Arkansas River Basin	Legacy Mine Reclamation BMPs	\$253,000	June 2018	10%
<b>14</b>	Sugarloaf Mountain Mine Waste Erosion Mitigation (FFY14)	CO Mountain College - Natural Resources Management	Arkansas River Basin	Legacy Mine Reclamation BMPs	\$461,476	June 2018	10%
<b>15</b>	Kerber Creek Restoration Project Phase 2 (FFY12)	Trout Unlimited	Kerber Creek Closed Basin	Legacy Mine Reclamation BMPs	\$413,000	June 2016	80%
<b>16</b>	Mine-related TMDL Implementation (FFY13,14&15)	Division of Reclamation, Mining and Safety	Statewide	Legacy Mine Reclamation BMPs	\$407,388	July 2018	10%
<b>17</b>	Coal Creek Restoration (FY10,12)	Coal Creek Watershed Coalition	Gunnison River Basin	Legacy Mine Reclamation BMPs	\$166,583	February 2016	85%
<b>18</b>	Bullion King Mine Waste Remediation (FFY13,14)	San Juan Resource Conservation & Development Council	San Juan Basin	Legacy Mine Reclamation BMPs	\$221,355	February 2018	80%
<b>19</b>	Upper Uncompahgre Watershed Mine Remediation (FFY13)	Uncompahgre Watershed Partnership	Gunnison River Basin	Legacy Mine Reclamation BMPs	\$263,124	February 2018	45%

**Summary of Colorado NPS projects Open and Active at the end of FFY15  
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<b>20</b>	High Park Burn Area Reclamation (FFY13)	Trout Unlimited – Flycasters Chapters	South Platte Basin	Burn Area Reclamation	\$200,000	February 2018	20%
<b>21</b>	Waldo Canyon Burn Area Reclamation (FFY13)	Coalition for the Upper South Platte	Arkansas River Basin	Burn Area Reclamation	\$200,000	February 2018	80%

**Summary of Colorado NPS projects that closed during FFY15  
(October 1<sup>st</sup> 2014 to September 30<sup>th</sup> 2015)**

	<b>Project Title (and Federal Funding Fiscal Year)</b>	<b>Project Sponsor</b>	<b>Basin</b>	<b>Project Type</b>
<b>1</b>	Slate River Watershed Plan (FY11)	Coal Creek Watershed Coalition	Gunnison River Basin	Watershed Plan
<b>2</b>	Boulder Creek Watershed Plan (FFY12)	City of Boulder	South Platte Basin	Watershed Plan
<b>3</b>	Chatfield Watershed Plan (FFY11)	Town of Castle Rock	South Platte Basin	Watershed Plan
<b>4</b>	Lower Bear Creek Watershed Planning and Assessment (FY11)	Groundwork Denver	South Platte River Basin	Watershed Plan
<b>5</b>	Watershed Planning Support (FFY09,10,11,12)	Colorado Watershed Assembly	Statewide	Information Dissemination
<b>6</b>	Nonpoint Source Outreach Education (FFY10)	Colorado Foundation for Agriculture	Statewide	Information Dissemination

**Summary of Colorado NPS projects that closed during FFY15  
(October 1<sup>st</sup> 2014 to September 30<sup>th</sup> 2015)**

	<b>Project Title (and Federal Funding Fiscal Year)</b>	<b>Project Sponsor</b>	<b>Basin</b>	<b>Project Type</b>
<b>7</b>	Data Sharing Network (FY11)	MntGeoGeek, LLC	Statewide	Information Dissemination
<b>8</b>	Lower Willow Creek Restoration (FY08 &10)	City of Creede	Rio Grande Basin	Stream Restoration BMPs
<b>9</b>	Upper South Platte Nonpoint Source Initiative (FY10 &08)	Coalition for the Upper South Platte	South Platte River Basin	Stream Restoration BMPs
<b>10</b>	Uncompahgre Project Agricultural Efficiency and System Optimization Plan	Uncompahgre Valley Water Users Association	Gunnison River Basin	Agriculture BMPs
<b>11</b>	Clear Creek Tributary Sediment Control and Metal Removal Project (FFY12)	Clear Creek Watershed Foundation	Clear Creek Basin	Legacy Mine Reclamation BMPs
<b>12</b>	Mine-related TMDL Implementation (FFY10, 11 & 12)	Division of Reclamation, Mining and Safety	Statewide	Legacy Mine Reclamation BMPs
<b>13</b>	Characterizing Bioaccumulation of Mercury in Sport Fish (FY10)	Colorado State University	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 Management Area (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 (SWPP), 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 implements program priorities through on-the-ground watershed restoration efforts and through information/educational campaigns that 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 the Division, in the Performance Partnership Agreement (PPA). The agreement includes several NPS-specific Program Activity Measures (PAMs) related to the Division's implementation of the NPS program. These measures 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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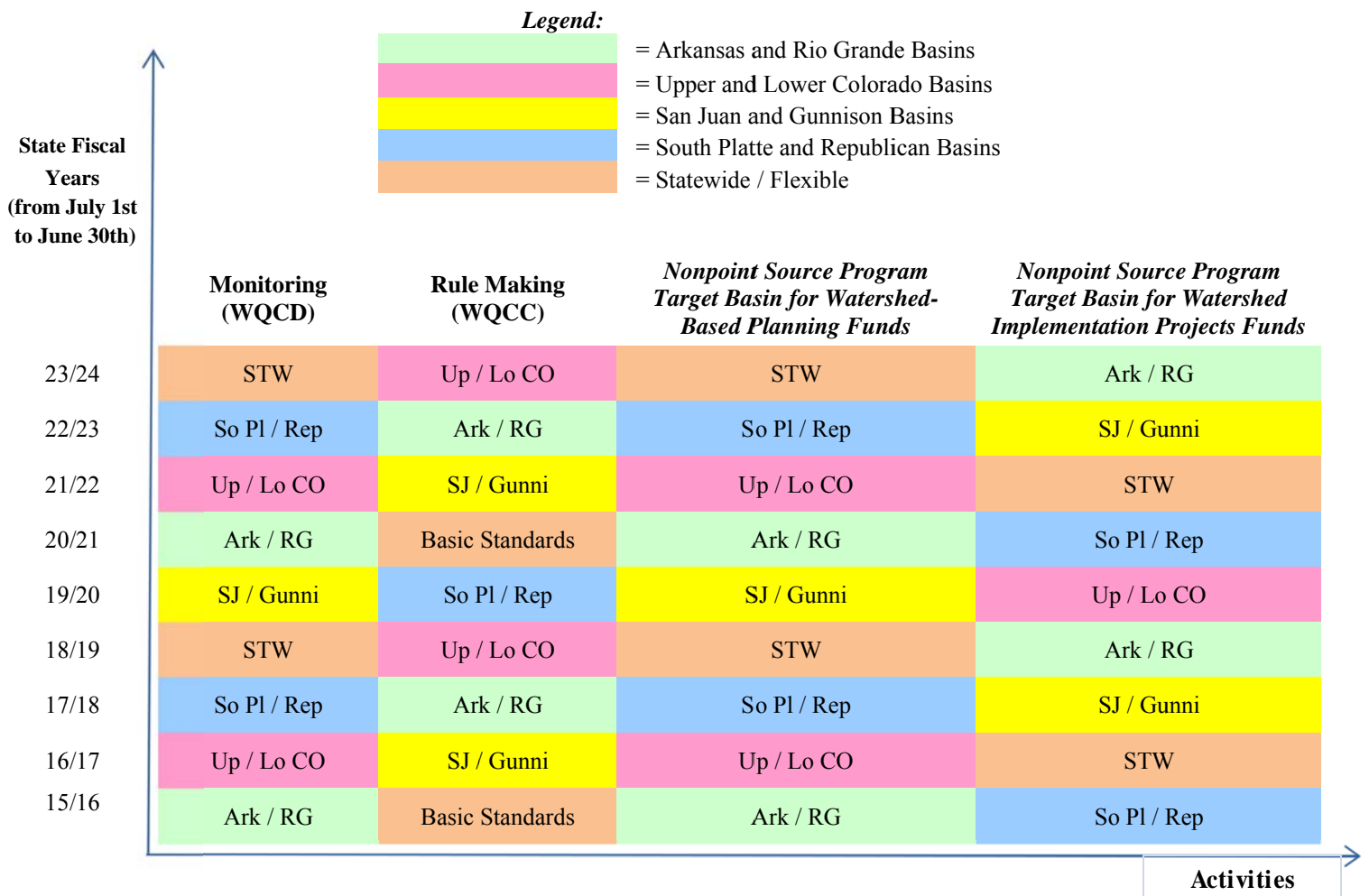
<sup>1</sup> - For more information about the PPA and PAMs, please consult the EPA's National Water Program Guidance at [http://water.epa.gov/resource\\_performance/planning/FY-2012-National-Water-Program-Guidance.cfm](http://water.epa.gov/resource_performance/planning/FY-2012-National-Water-Program-Guidance.cfm)

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 tier one objectives.

Clean Water Act (CWA) Section 319(h) funding sources are allocated under two categories: 1) Watershed Funds: for projects that address impaired waters requiring TMDL development and that are identified in a watershed-based plan; and 2) Program Funds: all other activities, including education and information dissemination, development of watershed-based plans, assessing measurable results, etc. The categories are implemented following the Triennial Review Regulatory Basin rotation schedule, as adopted by the Water Quality Control Commission (WQCC).

Below is the Colorado Target Basin Rotation Schedule. To better understand this basin rotation, one can follow, for example, the SJ/Gunni basin: monitoring occurs 2 years prior to rule making and it becomes the target basin for Watershed Implementation Projects one year after rule making. Watershed-based plans are funded 3 years prior to the year that basin becomes the target for implementation so that there is enough time to conclude all planning activities.

### Target Basin Rotation Schedule



### 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.

(Note: because of understaffing issues, the Water Quality Control Division did not prepare a 2014 Integrated Report and this report is using the most current information which comes from the 2012 Integrated Report)

<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**

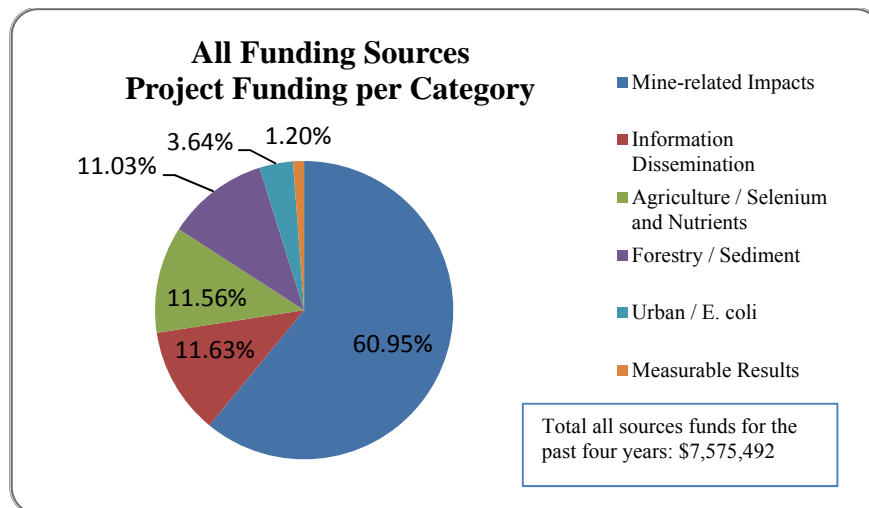
The NPS program prioritizes watersheds in the state based on the water quality standards segmentation of waterbodies as approved by the Water Quality Control Commission. The criteria for selecting *Priority Watersheds* are: 1) identification of segments listed in Regulation № 93 – Section 303(d) List 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 four years has been used to implement watershed-based plans in watersheds where streams are identified on the 303(d) list.

Since the majority of completed TMDLs addresses legacy mining impairments, the focus of the NPS program efforts have been 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 Division of Reclamation, Mining and Safety (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 NPS program staff in the technical aspects of implementing the program. The Alliance also supports the NPS program staff in preparing and maintaining the state's NPS 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.

## **2015 Organizational Membership of the Colorado NPS Alliance**

U.S. Bureau of Land Management  
Colorado Association of 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 State University Water Institute  
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  
Trout Unlimited, Inc.  
USDA Forest Service  
Lefthand Watershed Oversight Group  
Colorado Water Quality Control Commission

### **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 project sponsors.

In order to enhance and expand on current load reduction reporting, the NPS program is developing a systematic approach: 1) developing protocols to capture load reduction data and to meet the required GRTS reporting minimum elements in a more comprehensive manner; 2) developing a simple system that allows project sponsors and other users to capture and submit those data to the NPS program; and 3) develop and adopt a load reduction model. This approach 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)

## 2015 Progress and Milestones to Implement the Colorado NPS program

Tasks	Tactics	Indicators of Success	Outputs	Percent Complete (an approximation)
<p>1 - Ensure that funds are awarded and spent appropriately within EPA and State guidelines. <i>(MP Matrices Appendix D Table 4, Task 1)</i></p>	<p>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.</p>	<p>Colorado implements the NPS program on a 5-year cycle; FFY10 closed with a zero balance and exceed grant matching fund requirements (overmatched); project implementation plans are being developed and approved within the 1st year following the grant award; reimbursement requests from projects are approved and submitted for processing typically within 10 days of receipt from the project sponsor.</p>	<p>No funds are left un-spent; grants are over-matched.</p>	<p>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 – 100%. Reimbursements submittal within time frame – 90%.</p>
<p>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></p>	<p>a - Pre-award information is entered within 90 days of grant award; b - fully contracted project information is entered within 90 days of contract execution; c - semi-annual reports are loaded into GRTS; d - load reduction information is entered by due date (February).</p>	<p>EPA Dashboard has no identified errors in end-of-year evaluation.</p>	<p>GRTS is complete and up-to-date by all EPA required due dates.</p>	<p>Ongoing effort; GRTS had zero errors in December; not all projects are being entered within the 90 days; Load reduction information in February; pre-award information in GRTS – 90%.</p>
<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 Meeting this year; not fully doing this yet – 50%.</p>



Tasks	Tactics	Indicators of Success	Outputs	Percent Complete (an approximation)
<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; new program website was launched and enhanced; launched an on-line newsletter; updated and enhanced email lists; coordinating Nutrient Regulation outreach to the NPS community; many educational and information documents were updated in the process of creating the new website; 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 PPA commitment; 1 draft Success Story submitted this year; 5 draft Fact Sheets developed – will be posted on the website once reviewed and approved – 80%.</p>

Tasks	Tactics	Indicators of Success	Outputs	Percent Complete (an approximation)
<p>6 - Address NPS CWA 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>CWA mandate addressing NPS Assessments is met.</p>	<p>Every year during Environmental Data Unit data calls and every other year during IR preparation the NPS program does the required reporting. NPS Data were incorporated in the 2012 IR but the Division did not produce the 2014 IR – 80%.</p>
<p>7 – Implement program efficiently and consistently. <i>(MP Matrices Appendix D Table 4, Task 7)</i></p>	<p>Develop and formalize the NPS program Procedures Manual; revise and update program documents and process.</p>	<p>Training tool for new employees; consistent and efficient implementation of the program.</p>	<p>Documents are revised and updated according to program priorities.</p>	<p>Ongoing phased effort to develop programmatic documents; continue working on procedures manual; several internal controls and other measures to ensure consistency – 80%.</p>
<p>8 - Broaden the impact of the Colorado NPS program goals and objectives. <i>(MP Matrices Appendix D Table 4, Task 8)</i></p>	<p>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.</p>	<p>Greater accrual of match applied to NPS; water quality restoration/protection projects funded outside of NPS funds.</p>	<p>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.</p>	<p>Ongoing effort, several additional funding sources are now leveraging the NPS efforts: Healthy Rivers Program; Colorado Water Resources and Power Development Authority; Private; information updated in this Annual Report – 80%.</p>

Tasks	Tactics	Indicators of Success	Outputs	Percent Complete (an approximation)
<p>9 - Implement appropriate strategy regarding stormwater-related projects. <i>(MP Matrices Appendix D Table 4, Task 9)</i></p>	<p>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).</p>	<p><b>Incorporation of a LID/GI strategy as described in the SWQMP.</b></p>	<p>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.</p>	<p><b>Ongoing effort; 2013 Municipal Separate Storm Sewer System Permit Fact Sheet posted on the npscolorado.com website; continued efforts coordinating with Permits Section – Stormwater program – 60%</b></p>
<p>10 - Continued Participation on CDPHE Multi-media Pollutants Task Forces. <i>(MP Matrices Appendix D Table 4, Task 10)</i></p>	<p>Attend Department meetings and participate in discussions regarding development of strategies to address multi-media pollutants.</p>	<p><b>Consistent participation and contribution in the meetings and discussions.</b></p>	<p>Meeting agenda, minutes and reports capturing development of multi-media strategy.</p>	<p><b>Ongoing effort – 100% of what is required and necessary.</b></p>
<p>11 – Meet EPA program reporting. <i>(MP Matrices Appendix D Table 4, Task 11)</i></p>	<p>Develop and update the Annual Report template to reflect updated tasks; write and submit the annual report according to EPA 319 Program Guidelines.</p>	<p><b>Annual Reports submitted to EPA on due date and available electronically on the npscolorado site.</b></p>	<p>Updated Annual Reports reflecting all tasks and information.</p>	<p><b>100% complete.</b></p>

## 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. <i>(MP Matrices Appendix D Table 1, Task 1)</i>	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. Four new watershed plans started and two continue developing. Four watershed plans concluded. (see Summary of Completed Projects table)
2 - Provide technical assistance, education and training at the local level. <i>(MP Matrices Appendix D Table 1, Task 2)</i>	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. <i>(MP Matrices Appendix D Table 1, Task 3)</i>	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**

### **Program Outreach Support**

The objective of this project continues to be to work in partnership with the Nonpoint Source Program to develop project-specific fact sheets, to produce and enhance the statewide newsletter and to expand collaborative efforts between the Colorado Watershed Assembly (CWA), the NPS program and citizen stakeholder groups through improved and focused outreach capabilities. The Assembly provides leadership to grassroots and nonprofit community groups to help them protect, conserve and enhance watersheds. The anticipated outcomes are a network of informed watershed groups, stakeholder involvement in watershed plan development and implementation projects that address water quality impairment.

### **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 per project.

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

About 230 people associated with 120 entities from all parts of Colorado, representing many different interests attended this conference in October 2015. 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 project continues to provide a mechanism for data providers and users, mostly with the NPS program, 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. They can be used by watershed groups or any entity that is collecting water quality data. DSN conducts basin 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**

The Nonpoint Source Community web page has been discontinued and npscolorado.com is now located in the Colorado Department of Public Health and Environment website. The website continues to provide education material, announcements and events information to the nonpoint source community. It also provides programmatic information such as program documents, application, reporting and monitoring forms, sampling and analysis project plan guidance, a measurable results toolkit, etc.

### **Watershed Plans concluded during or before 2015**

Alamosa River Master Plan

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)  
Boulder Creek Watershed Plan  
Cherry Creek (South Platte River Basin)  
Clear Creek (above mouth of canyon) (active implementation project) updated Watershed Plan  
Chatfield Watershed Plan  
Coal Creek (Upper Gunnison River) (active implementation project)  
Dolores River Watershed Plan (below McPhee Reservoir)  
Eagle River  
East Fork of the Dolores River  
Fountain Creek (active implementation project)  
Kerber Creek (active implementation project)  
Lake Fork of Arkansas (active implementation project)  
Lefthand Creek (includes James and Little James Creeks)  
Lower Animas River (active implementation project)  
Lower Arkansas River (update in progress)  
Lower Bear Creek Watershed Planning and Assessment  
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  
North Park Watershed  
Roaring Fork (Upper Colorado)  
San Miguel River (prior to EPA 9 Elements) (active implementation project)  
Slate River Watershed Plan  
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 (active implementation project)  
Upper Pine, Upper San Juan Rivers (prior to EPA 9 Elements)  
Upper Rio Grande to Alamosa County Line  
Upper South Platte River (prior to EPA 9 Elements) (active implementation projects)  
Upper Yampa River (prior to EPA 9 Elements) (update in progress)  
Willow Creek Master Plan (active implementation projects)

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

Evans Gulch  
Fountain Creek  
Middle Colorado River  
St. Vrain Creek  
Upper Cache la Poudre  
Upper Yampa River

## 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>Enhanced GIS cover with Watershed Plans complete – at HUCs 8, 10 and 12. Coordinating priorities with TMDL program and EDU. Developed new priority list for the South Platte/Republican River Basins for 2016 funding announcement. 95%</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>

## PROGRESS AND MILESTONES TO IMPLEMENT WATER QUALITY RESTORATION

Tasks	Tactics	Indicators of Success	Outputs	Percent Complete (an estimation)
<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. 100% of total watershed project funds applied to impaired segments in 9 projects.</p>
<p>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></p>	<p>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.</p>	<p>New strategies identified and implemented resulting in maintenance of water quality or reduced pollutant loadings.</p>	<p>Participation in planning efforts of federal and state agencies (e.g., planning, federal action reviews); leveraging of funding opportunities with other funding sources.</p>	<p>Ongoing effort.</p>
<p>5 - Implement BMPs that restore water quality and aquatic life and habitat. <i>(MP Matrices Appendix D Table 2, Task 5)</i></p>	<p>Proactively fund projects to maintain beneficial uses.</p>	<p>Pollutant load reduction; trends that indicate water quality and aquatic life and habitat improvement.</p>	<p>BMPs implemented correctly and as designed.</p>	<p>Ongoing effort.</p>

### Implementation Activities per Basin

The following describes basin and water quality information per WQCC regulatory basin. Each subsection 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 concerns.

### 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 September 2015

Water Body ID	Waterbody	Parameters/ Uses	Sources/Causes
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

Water Body ID	Waterbody	Parameters/ Uses	Sources/Causes
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

- Snake River and Peru Creek – COUCBL06 ad 07
  - Watershed plan and completed Total Maximum Daily Loads.
  - Significant restoration work is on-going.
  - Address current priorities and timing and capacity issues
- Illinois Gulch – COUCBL12
  - Completed Total Maximum Daily Loads but no watershed plan.
  - Significant assessment/characterization work has been done.
  - Requires a draft watershed plan to identify needs and priorities.
- North Platte – COUCNP07b and 09
  - Recently completed watershed plan.
  - Initial implementation of restoration priorities.
- Tributaries to Colorado River, Roaring Fork to Parachute - COLCLC04a
  - Water quality analysis for pending watershed plan completed. TMDL in preliminary stages.
  - Initial implementation of restoration priorities.

#### Watershed Plans:

Black Gore Creek  
Eagle River  
North Park / North Platte  
Roaring Fork  
Snake River  
Straight Creek  
Upper Yampa

#### Current Implementation Projects:

Pennsylvania Mine

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

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 September 2015

Water Body ID	Waterbody	Parameters/ Uses	Sources/Causes
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	
COSPBO10	Boulder Creek, Coal Creek to St. Vrain Creek	Ammonia	
COSPCP07	North Fork Cache la Poudre River Hall Reservoir to Cache la Poudre River	Sediment	release from Halligan Res
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
COSPCL09a	Fall River	Cu / Aquatic Life	Legacy mining, natural,

Water Body ID	Waterbody	Parameters/ Uses	Sources/Causes
			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
COSPCL13b	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	
COSPSV03	St. Vrain Creek, Hygiene Road to South Platte River	Ammonia	
COSPSV04	Little James Creek	Cd, Fe, Mn, Zn, pH / Aquatic Life	Legacy mining, natural
COSPSV04a	Lefthand Creek above James Creek	Cu, Zn / Aquatic Life	Legacy mining, natural
COSPSV04b	James Creek above Little James Creek	Cu / Aquatic Life	Legacy mining, natural
COSPSV04b	Little James Creek above James Creek	Cd, Cu, Pb, Zn / Aquatic Life	Legacy mining, natural
COSPSV04b	James Creek above Lefthand Creek	Cd, Cu, Pb, Zn / Aquatic Life	Legacy mining, natural
COSPSV04c	Lefthand Creek below James Creek	Cu / Aquatic Life	(Legacy mining, natural
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	Cd, Cu, Mn, 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 during past prioritization efforts. 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

#### Clear Creek Mainstem – COSPCL02a-c

- Recently updated watershed plan and TMDLs from 2008.
- Restoration work is on-going.
- Address continued progress toward attaining water quality standards.

#### South Clear Creek and Leavenworth Creek – COSPCL03a and b

- Recently updated watershed plan and TMDLs from 2008.
- Sub-watershed assessment/characterization of sources completed in 2012.
- Continue early implementation of restoration priorities.

#### Trail Creek – COSPCL09b

- Recently updated watershed plan and TMDLs from 2008.
- Restoration planning and implementation since 2000.
- Address continued progress toward attaining water quality standards in segment as well as Clear Creek mainstem.

#### Left Hand Creek and Little James Creek – COSPSV04a-c

- Older watershed plan and draft TMDLs available.
- Restoration projects and recovery from 2013 flooding is ongoing.
- Address abandoned mine, heavy metals related water quality impairments.

#### Mosquito and South Mosquito Creek – COSPUS02b and c

- May need restoration plan update. Completed TMDLs from 2011.
- Some restoration work recently completed near the London mine.
- Focus on attaining water quality standards in segment 2B.

## Watershed Plans:

Big Thompson River

Big Dry Creek

Boulder Creek

Chatfield

Cherry Creek

Clear Creek

Lefthand Creek (including James and Little James Creeks)

Lower Bear Creek

Lower South Platte

Republican River Basin

St. Vrain Creek

Upper South Platte

### **Current Implementation Projects:**

Clear Creek Tributaries Sediment Controls  
Upper South Platte Nonpoint Source Initiative  
High Park Burn Area Reclamation

### **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 September 2015

Water Body ID	Waterbody	Parameters/ Uses	Sources/Causes
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

<b>Water Body ID</b>	<b>Waterbody</b>	<b>Parameters/ Uses</b>	<b>Sources/Causes</b>
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
COARUA08b	Iowa Gulch	Cd, Pb, Zn	Legacy mining, some minor point source
COARUA10	Lake Creek	Cu / Aquatic Life	Legacy mining, some minor point source
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
CORGAL08	Terrace Reservoir	Cu, Total Rec Fe	Various
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

- Lake Fork of the Arkansas - COARUA05
- Colorado Gulch Wetland and Upland Restoration
  - Included in Lake Fork Watershed Working Group (LFWWG) Watershed Plan, 2011 and in Natural Resource Damage Assessment (NRDA) Restoration Plan, 4/14/10.
  - Total cost estimate of \$600,000. \$300,000 in NRDA settlement funding available.
- Hunt Gulch/Creek
  - Included in LFWWG Watershed Plan (2011).
  - Total cost estimate not available.
- Rock Creek
  - Included in LFWWG Watershed Plan (2011).
  - Total cost estimate not available.

### Rio Grande Basin

- Implementation projects in the Willow Creek Basin (WQCD Segment CORGRG07) for abandoned mine restoration. Included in Willow Creek Reclamation Committee (WCRC) Watershed Plan.

## **Watershed Plans:**

Alamosa River

Better Managing Effluent Return Flows

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

Kerber Creek

Lake Fork of the Arkansas

Lower Arkansas River

Upper Rio Grande to Alamosa County Line

Willow Creek

## **Current Implementation Projects:**

Kerber Creek Restoration - II

Lower Willow Creek Restoration

Sugarloaf Mountain Mine Waste Erosion Mitigation

Waldo Canyon Burn Area Reclamation

## **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 September 2015

Water Body ID	Waterbody	Parameters/ Uses	Sources/Causes
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

<b>Water Body ID</b>	<b>Waterbody</b>	<b>Parameters/ Uses</b>	<b>Sources/Causes</b>
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
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
COGULG09	Fruitgrowers Reservoir	Dissolver Oxygen	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
<b>COGUUG07, 08, 10, 11, 12</b>	<b>Slate River, Oh-Be-Joyful, Redwell, Coal, Elk Creek</b>	<b>Cd, Pb, Mn, Zn</b>	<b>Draft</b>
COGUUG30	Henson Creek	Cd, Zn / Aquatic Life	Legacy mining
COGUUG31	Palmetto Gulch	Cd, Zn / Aquatic Life	Legacy mining
COGUUN02	Uncompahgre River, source to Red Mountain Creek	Cd, Cu, Zn / Aquatic Life	Legacy mining
COGUUN03a	Uncompahgre River Red Mountain Creek to Montrose	Cd, Cu, Total Rec Fe / Aquatic Life	Legacy mining
COGUUN04b	Uncompahgre River, HWY 550 to Delta	Se / Aquatic Life	Agriculture, natural, minor point source

<b>Water Body ID</b>	<b>Waterbody</b>	<b>Parameters/ Uses</b>	<b>Sources/Causes</b>
COGUUN04c	Uncompahgre River, Delta to Colorado River	Se / Aquatic Life	Agriculture, natural, minor point source
COGUUN6a	Red Mountain Creek, source to E. Fork Red Mountain Creek	Zn (sculpin) / Aquatic Life	Legacy mining
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
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

Water Body ID	Waterbody	Parameters/ Uses	Sources/Causes
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. *This list will be updated in preparation for the 2017 Funding Cycle.* 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 list of prioritized restoration projects. The following listed segment is incorporated in the watershed plan but has been deemed a lower priority due to limited restoration potential. 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: completed a restoration project addressing 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 are Watershed Plans for the reach below Montrose to the confluence, and for the reach above Montrose to headwaters; a restoration project will start in 2014.

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

*Upper Lake Fork of the 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 design are complete and construction has started.

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  
Slate River Watershed Plan  
Stollsteimer  
Uncompahgre River  
Upper Pine in Upper San Juan

**Current Implementation Projects:**

Bullion King Mine Waste Remediation  
Coal Creek Restoration  
Upper Uncompahgre Watershed Mine Remediation

**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  
Daisy 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 benthic 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>
<p>1 - Establish monitoring tools to evaluate environmental measures and indicators of success. <i>(MP Matrices Appendix D Table 3, Task 1)</i></p>	<p>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.</p>	<p><b>Field verified BMP placement for the appropriate pollution source; sampling effort identified and implemented; long-term sustainable monitoring strategy.</b></p>	<p>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.</p>	<p><b>Toolbox complete 100%. Finalizing implementation and application of monitoring tools; on-going field ground truthing and evaluation and updating - 80%.</b></p>
<p>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></p>	<p>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.</p>	<p><b>Data are identified and readily available for use; the assessment tool is functional; the NPS program posts electronic analyses at the npscolorado site.</b></p>	<p>A user-friendly Website-based, GIS-based watershed assessment tool that is accessible and open to all users.</p>	<p><b>Contracted with the CSU CLEAN Center to develop a Watershed Restoration Assessment and Planning (WRAP) tool. This tool is open-source internet-based and resides with Colorado State University's (CSU) Environmental Risk Assessment and Management System (eRAMS) platform. It will provide the capacity to extract, organize and analyze water quantity and quality data and information about readily available geospatial characteristics, for varying watershed scales. 45%</b></p>
<p>3 – Update BMPs library and create field BMPs template. <i>(MP Matrices Appendix D Table 3, Task 3)</i></p>	<p>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.</p>	<p><b>Field BMP template is easily available and is used by project sponsors; BMP library is systematically updated.</b></p>	<p>Field BMP template; updated BMP library.</p>	<p><b>Most of the historical BMP information has been streamlined and re-organized in the new website. Still working on updating BMP references. 20%</b></p>

**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>
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; Alamosa River Restoration; Rio Grande Headwaters Restoration Project; Eagle River Restoration Project Phase 2; Kerber Creek Restoration-Phase I; Lower Willow Creek Restoration. Also evaluating Upper Arkansas Basin, several sites within 2 HUC-12 watersheds, for potential Success Story.

**Ongoing Projects:** Kerber Creek Restoration-Phase II, Florida River Aquatic Habitat Improvement; Clear Creek Sediment Basins, Coal Creek Restoration.

## State Agencies and Nonpoint Sources of Pollution

During FFY 2015, 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, two hundred and twenty six (226) 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 2.35 million 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 (nonpoint 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.

### 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:

- 1) Regulation and inspection of agricultural chemical bulk storage and mixing/loading areas;
- 2) Groundwater monitoring; and
- 3) Education and training.

The Groundwater Protection Program accomplished its 24<sup>th</sup> year of groundwater monitoring responsibilities in 2014; a summary of the 2014 results is shown below. More information, including the water quality data collected by the program, can be found at: <https://www.colorado.gov/pacific/agconservation/groundwaterprotection>

Groundwater Monitoring Results for the Agricultural Chemicals and Groundwater Protection Program in 2014:

<b>Network</b>	<b># Wells In Network</b>	<b># Samples Collected</b>	<b>Sampling Period</b>	<b>Lab Analyses Conducted</b>
Weld County MWs	22	63	06/16/2014 - 09/24/2014	CDA (Pesticide & Anion)
Weld County DWs	13	8	08/05/2014 - 08/06/2014	CDA (Pesticide & Anion)*
Weld County IWs	33	16	08/04/2014 - 08/06/2014	CDA (Anion)
Lower South Platte MWs	23	20	08/25/2014 - 09/16/2014	CDA (Pesticide & Anion)
<b>TOTAL</b>	<b>91</b>	<b>107</b>		
<b>MWs</b> stands for monitoring wells; <b>DWs</b> stands for domestic wells; <b>IWs</b> stands for irrigation wells.				
* Only three DWs were analyzed for pesticide compounds at the request of the well owners.				

### **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 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.

## 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 consistency provisions were established by sections 319(b) of the Clean Water Act (CWA). They authorize states to review federal activities for consistency with states nonpoint source management plans. Federal consistency provisions provide a tool to promote communication and cooperation between state and federal agencies to achieve shared water quality goals. In Colorado, Federal agencies manage nearly 35 percent of Colorado's land, located mainly in headwaters. Therefore, consultation with federal agencies for implementation of best management practices to be consistent with the state nonpoint source program is a critical activity in achieving water quality goals in all river basins.

The division periodically conducts federal lands management reviews to determine the following: 1) Is water quality addressed in the management plans? 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 2015 Colorado Federal Consistency Review was conducted on U.S. Forest Service land, where Bruno Gulch Road crosses Geneva Creek, just off of Guanella Pass Road in Grant County, Colorado, approximately 5 miles northwest of the town of Grant, Colorado. This stream crossing is located within the watershed of the North Fork of the South Platte River. The review was held on September 15, 2015.

Joan Carlson, Hydrologist for the U.S. Forest Service, provided the review arrangements and served as host and guide for the reviewing of the implemented best management practices on Bruno Road. In addition to Joan Carlson, six additional U.S. Forest Service personnel were present for the assessment of the implementation project.

### Bruno Gulch Road Site

Guanella Pass Road closely parallels Geneva Creek from Grant, Colorado to just above the Bruno Gulch Road crossing. In the spring/summer of 2015, during high flow conditions, Bruno Gulch Road was washed out by Geneva Creek, leading to a damaged roadway and prohibiting access to the U.S. Forest Service campground farther down Bruno Gulch Road. The length of impacted/remediated roadway is approximately 250 feet, and is dirt-surface the entire length.



Given the high level of recreational use of this campground, as well as the access to this road crossing provides to the Pike National Forest, primarily during hunting season, this road crossing was prioritized for immediate repair and replacing.

#### Federal Consistency Review Findings and Recommendations

The U.S. Forest Service review included two portions: An assessment of the implementation of the project and an assessment of the efficacy of the BMPs installed. Each assessment has standardized forms, based on type (i.e. road stream crossing repair, aquatic habitat restoration, etc.). In addition to the standardized forms to be filled out, each type has specific instructions for filling out the forms, as well as a scoring sheet for post-assessment purposes. All data collected during the assessments are uploaded into a large database for the U.S. Forest Service to analyze.

#### Implementation Assessment:

The implementation assessment is designed to assess the completeness of the implementation project as built, compared to the design in the contract. This process is primarily designed as a final assessment of the contractor's performance, and is generally completed before final invoices are paid. Related to the NPS workgroup, this step is less important than the subsequent one, as the relationship between the NPS workgroup and the grantee is a partnership, and less a contractor-style relationship. In addition, the grantees typically hire subcontractors to complete the work. The actual assessment and assessment documents vary based on the type of implementation project that was conducted.

#### BMP Assessment:

This step is designed to assess the effectiveness of the BMP. It is conducted during a specified timeframe (within 1-2 years, but after a runoff season). This assessment is designed to provide information regarding the long-term effectiveness and survivability of the BMP's implemented. Factors assessed include evidence of runoff, failure, indications of misuse by the public (poor usage of barriers or signage), and other factors designed to assess the effectiveness of the implementation project.

This portion of the assessment was more relevant to the NPS workgroup. While many of the actual assessment portions are not relevant to our work, the standardized review of effectiveness is something that the NPS workgroup should strive to implement. The assessment we conducted on September 15, 2015 was only a trial run, designed to educate the U.S. Forest Service personnel on the standardized methods for conducting the assessments as well as educating the NPS workgroup on U.S. Forest Service methods. It was conducted almost immediately following the implementation of the BMP, so any assessment of sediment runoff was not appropriate at that time.

#### **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, locations that meet 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 Grape Creek / DeWeese Reservoir in the Arkansas River Headwaters (HUC 110200011213). NRCS had some success in signing up farmers/ranchers. NRCS is continuing assistance for the Grape Creek / DeWeese Reservoir watershed. Efforts in the Upper Poudre River and the Fruit Growers Reservoir watersheds have not been successful.

The NPS workgroup is also encouraged through the Clean Water Act Section 319 grant to monitor effectiveness of conservation practices funded by the Natural Resources Conservation Service's (NRCS) National Water Quality Initiative (NWQI). During FY14, the NPS workgroup collaborated with NRCS to develop a monitoring approach for the Grape Creek/DeWeese Reservoir priority watershed. This particular watershed had a number of local farmers and ranchers participating in NWQI projects and implementing agriculture-related best management practices. The NPS workgroup, in partnership with NRCS, EDU and local landowners, collected water quality samples in FY14 and 15.

Report on the Grape Creek NWQI Project:

Through the NWQI, NRCS implemented best management practices in the Grape Creek watershed near Westcliffe, Colorado in 2012, 2014 and 2015. To date, this NWQI project has spent approximately \$1.25 million to implement BMPs on approximately 1,800 acres of agricultural land in the Grape Creek watershed. It is currently unknown whether additional funding for further implementation work in 2016 will be available. The purpose of these BMPs was to reduce nutrient runoff into Grape Creek, which flows into the Arkansas River near Cañon City, Colorado. The MRP continued its monitoring program throughout the 2015 field season, with the purpose of monitoring effectiveness of the Grape Creek NWQI project. This monitoring program will continue through the 2016 field season and perhaps longer, depending upon future NRCS BMP implementation work through the 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 anadromus 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

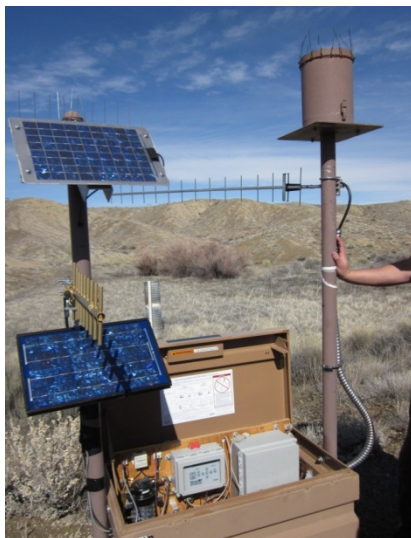
*U.S. Bureau of Land Management (contributed by Ed Rumboldt, Colorado Office)*

### 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>. Please click on <http://co.water.usgs.gov> for USGS publications in the Piceance basin cooperatively funded by BLM. 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 dust 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.

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. Silt fence locations and new weir locations have been selected and archeological clearances obtained with installation expected in October 2013. A publication is due out soon. USGS also implemented dust monitoring.



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

### Ongoing work with 319 grants and watershed groups

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 319 grant. The Slate River is a very dynamic watershed from a geo-morphological perspective. Similar to most Colorado watersheds, it contains headwater areas with lakes and small streams draining cirque basins from previous periods of

glaciations. BLM and partners are assessing the watershed and stabilizing stream banks near the campground, as well as improving roads.

BLM is working with the Lake Fork Gunnison Watershed Group in Lake City, CO on a 319 grant to restore fisheries habitat in Lake Fork and Henson Creek. The objective of stream rehabilitation is to improve fish habitat and increase fish species and diversity, as well as improve recreational opportunities and educating the public.

BLM is also an active participant in an EPA/WQCD 319 grant to develop a watershed plan in North Park near Walden, CO. The plan was completed and BLM and stakeholders are planning implementation actions.

### **Dust Sampling**

BLM Colorado initiated, 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 FY2013, the Grand Junction field office collected surface and groundwater quality data in the study area to maintain continuity with existing data sets and monitor any changes in surface or groundwater quality. The BLM collected monthly precipitation, monthly to semi-monthly stream discharge and field water quality parameters from 7 established surface water sites and 3 establish 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 FY2013.

### **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.

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

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

### ***U.S. Department of Agriculture NRCS: (contributed by Eugene Backhaus, Colorado Office)***

NRCS assists landowners resolve natural resource issues through the application of conservation practices. Typically conservation practices address multiple resource issues with varying rates of effectiveness, thus the necessity for application of multiple practices to fully address the resource concern. Water is a major resource concern NRCS works to address in conservation planning and application, looking at Excess Water, Insufficient Water, and Water Quality Degradation. 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 evaluate the success of nonpoint source projects or even parts of the Colorado Nonpoint Source Program. 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:**

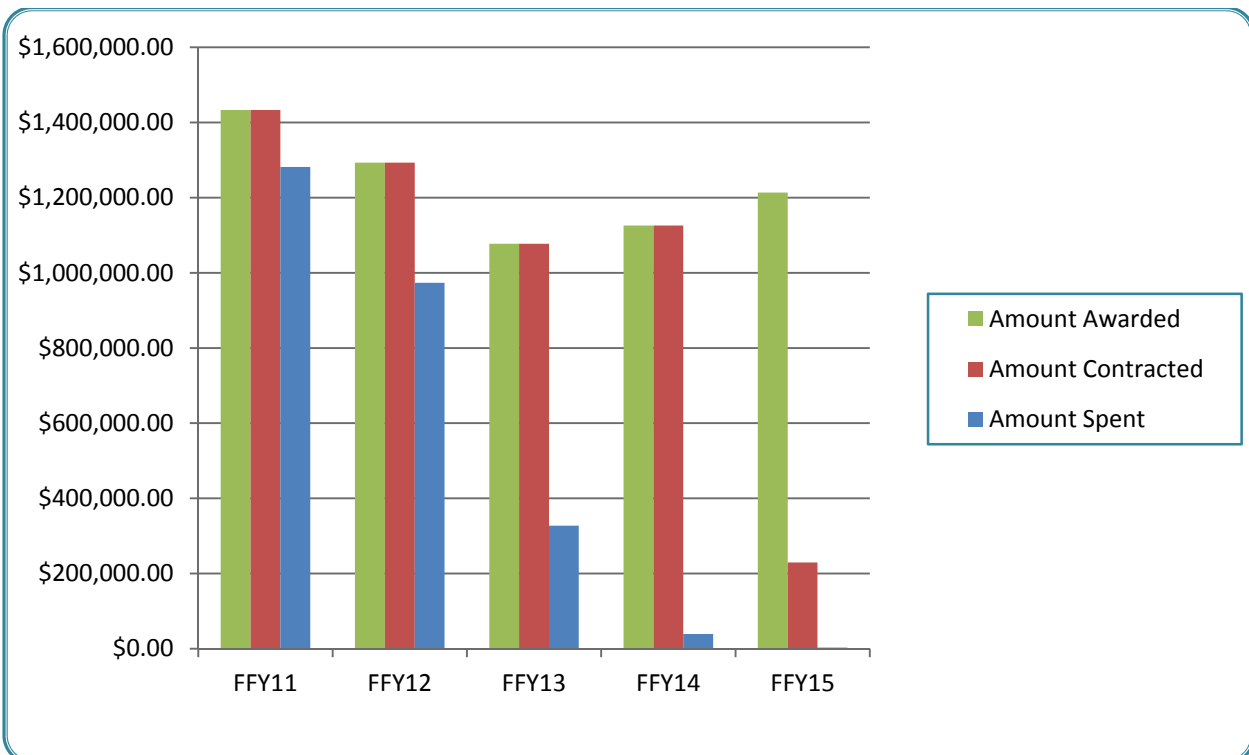
1. Design water quality studies
2. Develop methods for water resources investigations
3. Develop and refine analytical methods and sampling procedures
4. Develop and update water quality models
5. Model hydrologic and water quality responses of flow systems
6. Monitor water quality and changes in water 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 FFY2015, Colorado NPS program received \$1,915,000.00 in federal section 319(h) grant funds under US EPA Grant # C9-99818615 and PPG allocations. The total amount for projects was \$1,213,517.00. 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 2015 funds, Colorado continues to manage four 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 2015						
Federal Grant Year	Total Amount Awarded	Total Amount Contracted	% Contracted	Grant End Date	Total Amount Expended	% Expended
FFY11	\$1,433,118.00	\$1,433,118.00	100%	8/2/2016	\$1,281,658.00	89%
FFY12	\$1,293,117.00	\$1,293,117.00	100%	7/11/2017	\$973,517.00	75%
FFY13	\$1,077,117.00	\$1,077,117.00	100%	7/29/2018	\$327,125.00	30%
FFY14	\$1,125,927.00	\$1,125,927.00	100%	7/29/2019	\$39,247.00	3%
FFY15	\$1,213,517.00	\$229,308.00	19%	7/27/2020	\$3,155.00	0%
<b>Total Current Grant Amount</b>	<b>\$6,142,796.00</b>	<b>\$5,158,587.00</b>	<b>84%</b>		<b>\$2,624,702.00</b>	<b>43%</b>



## Staffing and Support

Funding for staffing and support is administered through the annual Performance Partnership Agreement and Grant. The 2015 staffing and support grant is \$698,483.00, 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.

### **NPS Program Staff**

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